

APOGEE 5G GLOBAL
Worldwide Patents and Applications

This list reflects granted and pending patents licensable by Apogee 5G Global, LLC. Patents and applications disclosed to ETSI as potentially essential to 5G technologies are indicated with an asterisk in the "Disclosed to ETSI" column. The "Family" column is provided for convenience only, and patent assets with the same number are considered to be part of the same patent family. Information on this list is based on our records and is reasonably believed to be accurate as of February 2026. This information may change over time, and updated patent lists may be provided from time to time at Apogee 5G Global's discretion.

Family	Disclosed to ETSI	Country	Patent #	Grant Date	Application #	Filing Date*
1		CN	CN104105213B	5/31/2019	CN201410141087.4	4/9/2014
2		CN	CN104703159B	5/10/2019	CN201310671856.7	12/10/2013
3	*	CN	CN104780545B	1/18/2019	CN201410014802.8	1/14/2014
4		CN	CN104936293B	4/26/2019	CN201410103740.8	3/20/2014
4		CN	CN109451590B	10/29/2021	CN201811584119.2	3/20/2014
5	*	CN	CN104955111B	3/22/2019	CN201410126623.3	3/31/2014
6	*	CN	CN105024790B	4/26/2019	CN201410175201.5	4/28/2014
7	*	US	US10602491B2	3/24/2020	15/308,026	4/28/2015
8	*	CN	CN105898870B	7/12/2019	CN201410196185.8	5/10/2014
9		CN	CN105099612B	5/24/2019	CN201410211987.1	5/20/2014
10		CN	CN105323043B	7/12/2019	CN201410235683.9	5/29/2014
11		CN	CN105307276B	8/27/2019	CN201410252594.5	6/8/2014
12		CN	CN105207756B	4/26/2019	CN201410281084.0	6/21/2014
12		CN	CN109818726B	3/26/2021	CN201910041182.X	6/21/2014
13		CN	CN105227272B	8/9/2019	CN201410304565.9	6/28/2014
14	*	CN	CN105282859B	8/20/2019	CN201410345563.4	7/19/2014
14	*	CN	CN110493881B	12/29/2020	CN201910481427.0	7/19/2014
15		CN	CN105306180B	9/6/2019	CN201410362818.8	7/28/2014
15		CN	CN110098909B	6/25/2021	CN201910301861.6	7/28/2014
16		CN	CN105323854B	9/6/2019	CN201410378225.0	8/3/2014
17		CN	CN105376039B	12/18/2018	CN201410415236.1	8/21/2014
17		CN	CN109039571B	12/29/2020	CN201811065300.2	8/21/2014
17		CN	CN108923906B	1/26/2021	CN201811065297.4	8/21/2014
18	*	CN	CN105472702B	3/15/2019	CN201410415572.6	8/21/2014
18	*	CN	CN109831813B	12/29/2020	CN201910125594.1	8/21/2014
19		CN	CN105376188B	8/9/2019	CN201410422599.8	8/26/2014
20		CN	CN105376849B	4/24/2020	CN201410439952.3	9/1/2014
21		CN	CN105472623B	7/9/2019	CN201410459310.X	9/10/2014
21		CN	CN110099385B	3/14/2023	CN201910270987.1	9/10/2014
22		CN	CN105515732B	1/9/2018	CN201410491281.5	9/24/2014
23		CN	CN105530080B	4/17/2018	CN201410522832.X	9/30/2014
24		CN	CN105530075B	5/17/2019	CN201410522932.2	10/4/2014
25		CN	CN105577318B	5/3/2019	CN201410545497.5	10/15/2014
26	*	CN	CN105530647B	9/6/2019	CN201410572505.5	10/23/2014
26	*	CN	CN110049564B	9/27/2022	CN201910239005.2	10/23/2014

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26	*	CN	CN110035439B	2/28/2023	CN201910239013.7	10/23/2014
27	*	CN	CN105636206B	11/19/2019	CN201410587264.1	10/28/2014
27	*	CN	CN110381593B	4/7/2023	CN201910690288.2	10/28/2014
28		CN	CN105636221B	5/31/2019	CN201410616525.8	11/5/2014
28		CN	CN110035551B	5/31/2022	CN201910240809.4	11/5/2014
28		CN	CN110035552B	5/31/2022	CN201910240821.5	11/5/2014
29	*	CN	CN105656607B	6/28/2019	CN201410635223.5	11/12/2014
29	*	CN	CN110072290B	4/7/2023	CN201910295953.8	11/12/2014
30		CN	CN105681006B	8/20/2019	CN201410663131.8	11/19/2014
31		CN	CN105763308B	9/6/2019	CN201410822028.3	12/19/2014
31		CN	CN110191515B	6/17/2022	CN201910420617.1	12/19/2014
32	*	CN	CN105812110B	9/3/2019	CN201510001597.6	1/3/2015
33	*	CN	CN105827377B	9/1/2020	CN201510006201.7	1/7/2015
34	*	CN	CN105827378B	9/13/2019	CN201510012559.0	1/10/2015
35	*	CN	CN105991269B	10/15/2019	CN201510072742.X	2/11/2015
36	*	CN	CN105992361B	12/20/2019	CN201510086652.6	2/23/2015
37	*	CN	CN105992378B	11/29/2019	CN201510090269.8	2/27/2015
38	*	CN	CN106034097B	7/26/2019	CN201510106882.4	3/11/2015
39		CN	CN106034360B	4/10/2020	CN201510117203.3	3/17/2015
40		CN	CN106162851B	7/26/2019	CN201510141963.8	3/27/2015
41		CN	CN106162746B	1/3/2020	CN201510158231.X	4/3/2015
42		CN	CN106160960B	1/14/2020	CN201510179666.2	4/15/2015
43		CN	CN106209329B	5/10/2019	CN201510214584.7	4/29/2015
43		CN	CN109981241B	9/24/2021	CN201910284821.5	4/29/2015
44	*	CN	CN106301718B	6/7/2019	CN201510246238.7	5/14/2015
45	*	CN	CN106301677B	10/1/2019	CN201510299692.9	6/3/2015
46	*	CN	CN106301707B	10/18/2019	CN201510308982.5	6/7/2015
47	*	CN	CN106332294B	4/24/2020	CN201510349356.0	6/21/2015
48	*	CN	CN106301681B	11/12/2019	CN201510371857.9	6/29/2015
49	*	CN	CN106330789B	8/23/2019	CN201510377367.X	7/1/2015
50	*	CN	CN106341209B	9/10/2019	CN201510406480.6	7/12/2015
51		CN	CN106375070B	10/1/2019	CN201510444232.0	7/24/2015
52		CN	CN106550445B	12/20/2019	CN201510600989.4	9/20/2015
53	*	CN	CN106559202B	9/10/2019	CN201510628707.1	9/29/2015
54		CN	CN106561066B	7/5/2019	CN201510642524.5	10/2/2015
55		CN	CN106571900B	9/6/2019	CN201510646573.6	10/8/2015
55		CN	CN110445595B	6/21/2022	CN201910688821.1	10/8/2015
56		CN	CN106603210B	5/31/2019	CN201510679320.9	10/19/2015
57	*	CN	CN106612166B	8/9/2019	CN201510701403.3	10/26/2015
58	*	CN	CN106686617B	6/28/2019	CN201510744678.5	11/5/2015
59	*	CN	CN106712913B	10/1/2019	CN201510777204.0	11/13/2015
60		CN	CN106899395B	6/28/2019	CN201510963011.4	12/19/2015
60		CN	CN110190939B	7/27/2021	CN201910382280.X	12/19/2015
61		CN	CN107155219B	2/18/2020	CN201610125585.9	3/5/2016
62	*	CN	CN107343297B	12/24/2019	CN201610285920.1	5/1/2016

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62	*	CN	CN110932832B	6/21/2022	CN201911149916.2	5/1/2016
63	*	CN	CN107404369B	4/24/2020	CN201610343652.4	5/21/2016
63	*	CN	CN111404656B	3/29/2022	CN202010189585.1	5/21/2016
64		CN	CN107404345B	10/2/2020	CN201610420072.0	6/12/2016
65	*	CN	CN107465496B	11/29/2019	CN201610393139.6	6/6/2016
65	*	CN	CN110636622B	12/27/2022	CN201910929967.0	6/6/2016
65	*	US	US11374710B2	6/28/2022	16/499,831	6/2/2017
65	*	US	US12003448B2	6/4/2024	17/749,169	5/20/2022
66	*	CN	CN107483166B	10/1/2019	CN201610407067.6	6/8/2016
67	*	CN	CN107517098B	10/1/2019	CN201610427411.8	6/16/2016
68	*	CN	CN107529691B	11/6/2020	CN201610454969.5	6/22/2016
68	*	CN	CN111585627B	10/18/2024	CN202010433923.1	6/22/2016
69	*	CN	CN107529147B	3/9/2021	CN201610454997.7	6/22/2016
70	*	CN	CN107547177B	4/24/2020	CN201610488206.2	6/28/2016
70	*	CN	CN111447621B	8/26/2022	CN202010205526.9	6/28/2016
71	*	CN	CN107547118B	7/31/2020	CN201610493535.6	6/29/2016
71	*	CN	CN111769854B	12/13/2024	CN202010440832.0	6/29/2016
72	*	CN	CN107592155B	11/15/2019	CN201610524745.7	7/6/2016
73	*	CN	CN107623539B	5/22/2020	CN201610546216.7	7/12/2016
73	*	CN	CN111490814B	6/25/2021	CN202010258494.9	7/12/2016
74	*	CN	CN107634821B	6/30/2020	CN201610563052.9	7/18/2016
75	*	CN	CN107645777B	5/26/2020	CN201610585129.2	7/22/2016
76	*	CN	CN107659373B	5/26/2020	CN201610585632.8	7/23/2016
77	*	CN	CN107659349B	1/26/2021	CN201610590751.2	7/25/2016
77	*	CN	CN112615658B	6/21/2022	CN202011523327.9	7/25/2016
77	*	US	US11019634B2	5/25/2021	16/255,830	1/24/2019
77	*	US	US11950272B2	4/2/2024	17/235,964	4/21/2021
77	*	CN			CN202011522888.7	7/25/2016
78	*	CN	CN107690160B	1/8/2019	CN201610638012.6	8/5/2016
78	*	CN	CN109194456B	11/6/2020	CN201811150121.9	8/5/2016
78	*	US	US10779302B2	9/15/2020	16/261,583	1/30/2019
78	*	US	US11337232B2	5/17/2022	16/894,909	6/8/2020
78	*	US	US11601956B2	3/7/2023	17/715,969	4/8/2022
78	*	US	US11818704B2	11/14/2023	18/102,719	1/29/2023
79	*	CN	CN107690190B	11/15/2019	CN201610637910.X	8/6/2016
80	*	CN	CN107769825B	4/24/2020	CN201610674943.1	8/16/2016
80	*	CN	CN111294194B	6/21/2022	CN202010136029.8	8/16/2016
81	*	CN	CN107769903B	1/31/2020	CN201610704077.6	8/22/2016
81	*	CN	CN111130743B	5/31/2022	CN201911392050.8	8/22/2016
82	*	CN	CN107786954B	10/2/2020	CN201610718522.4	8/24/2016
83		CN	CN107786314B	5/26/2020	CN201610744473.1	8/27/2016
84	*	CN	CN107786316B	3/15/2019	CN201610754332.8	8/29/2016
84	*	CN	CN109743150B	9/24/2021	CN201910124498.5	8/29/2016
84	*	US	US11265194B2	3/1/2022	16/285,248	2/26/2019
84	*	US	US11616675B2	3/28/2023	17/565,481	12/30/2021

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85		CN	CN107800522B	11/6/2020	CN201610801133.8	9/5/2016
86		CN	CN107801247B	4/7/2020	CN201610808196.6	9/8/2016
87	*	CN	CN107809306B	6/30/2020	CN201610815436.5	9/8/2016
88	*	CN	CN107819714B	4/24/2020	CN201610818051.4	9/12/2016
89	*	CN	CN107846707B	12/8/2020	CN201610828507.5	9/18/2016
90		CN	CN107846726B	8/9/2019	CN201610831274.4	9/19/2016
90		CN	CN110430612B	10/29/2021	CN201910596378.5	9/19/2016
91	*	CN	CN107864479B	2/18/2020	CN201610843441.7	9/22/2016
92	*	CN	CN107872299B	7/31/2020	CN201610849058.2	9/24/2016
92	*	CN	CN111585718B	3/29/2022	CN202010342087.6	9/24/2016
92	*	CN	CN111585717B	7/23/2024	CN202010342085.7	9/24/2016
93	*	CN	CN107872865B	5/17/2019	CN201610848979.7	9/24/2016
93	*	CN	CN109618402B	6/21/2022	CN201910022560.X	9/24/2016
93	*	US	US10833797B2	11/10/2020	16/361,184	3/21/2019
93	*	US	US11570027B2	1/31/2023	17/013,886	9/8/2020
93	*	US	US11924010B2	3/5/2024	18/083,552	12/18/2022
93	*	US			18/426,408	1/30/2024
94		CN	CN107888238B	9/1/2020	CN201610871153.2	9/30/2016
95		CN	CN107896135B	11/6/2020	CN201610877012.1	10/3/2016
96	*	CN	CN107896390B	5/26/2020	CN201610878214.8	10/4/2016
96	*	CN	CN111447685B	4/7/2023	CN202010236844.1	10/4/2016
97		CN	CN107920389B	6/30/2020	CN201610878256.1	10/7/2016
98	*	CN	CN107959646B	11/6/2020	CN201610899612.8	10/15/2016
98	*	CN	CN112073098B	6/21/2022	CN202010922714.3	10/15/2016
98	*	CN	CN112073099B	8/13/2024	CN202010925839.1	10/15/2016
99		CN	CN107959557B	1/3/2020	CN201610899277.1	10/15/2016
100		CN	CN107969034B	2/18/2020	CN201610916731.X	10/20/2016
101		CN	CN107979439B	7/31/2020	CN201610923398.5	10/22/2016
102	*	CN	CN108012274B	10/29/2019	CN201610935861.8	11/1/2016
102	*	US	US11044615B2	6/22/2021	16/393,988	4/25/2019
103	*	CN	CN108064081B	10/2/2020	CN201610976386.9	11/7/2016
104	*	CN	CN108064056B	12/29/2020	CN201610981214.0	11/8/2016
105	*	CN	CN108076478B	10/2/2020	CN201610981235.2	11/8/2016
106		CN	CN108076519B	5/26/2020	CN201611015248.0	11/15/2016
107	*	CN	CN108076520B	2/14/2020	CN201611022276.5	11/16/2016
107	*	CN	CN111182641B	11/25/2022	CN202010024739.1	11/16/2016
107	*	US	US10785785B2	9/22/2020	16/412,391	5/14/2019
107	*	US	US11343834B2	5/24/2022	16/941,558	7/29/2020
108	*	CN	CN108093360B	12/24/2019	CN201611033145.7	11/20/2016
108	*	CN	CN111212378B	3/9/2021	CN201911149918.1	11/20/2016
108	*	US	US10757673B2	8/25/2020	16/416,282	5/20/2019
108	*	US	US11044691B2	6/22/2021	16/907,327	6/22/2020
108	*	US	US11570741B2	1/31/2023	17/319,099	5/13/2021
108	*	US	US12075380B2	8/27/2024	18/082,590	12/16/2022
109	*	CN	CN108111198B	5/22/2020	CN201611049893.4	11/24/2016

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109	*	CN	CN111479328B	4/7/2023	CN202010297785.9	11/24/2016
109	*	CN	CN111479327B	9/13/2024	CN202010297784.4	11/24/2016
109	*	US	US11316563B2	4/26/2022	16/420,189	5/23/2019
109	*	US	US11683075B2	6/20/2023	17/700,507	3/22/2022
109	*	US	US11949469B2	4/2/2024	18/138,080	4/23/2023
110	*	CN	CN108123739B	6/30/2020	CN201611058134.4	11/27/2016
110	*	CN	CN111585625B	10/29/2021	CN202010390366.X	11/27/2016
110	*	CN	CN111585626B	11/15/2024	CN202010390380.X	11/27/2016
111	*	CN	CN108123782B	11/6/2020	CN201611057963.0	11/27/2016
111	*	CN	CN112332965B	3/29/2022	CN202011337422.X	11/27/2016
111	*	DE	EP3547588B1	10/18/2023	17873080.0	10/30/2017
111	*	EP	EP3547588B1	10/18/2023	17873080.0	10/30/2017
111	*	FR	EP3547588B1	10/18/2023	17873080.0	10/30/2017
111	*	GB	EP3547588B1	10/18/2023	17873080.0	10/30/2017
111	*	NL	EP3547588B1	10/18/2023	17873080.0	10/30/2017
111	*	US	US10925020B2	2/16/2021	16/421,488	5/24/2019
111	*	US	US11665037B2	5/30/2023	17/105,636	11/27/2020
111	*	US	US12170588B2	12/17/2024	18/138,117	4/23/2023
111	*	CN			CN202011337430.4	11/27/2016
111	*	EP			23194992.6	10/30/2017
112		CN	CN108123738B	3/26/2021	CN201611058487.4	11/27/2016
113	*	CN	CN108124311B	12/24/2019	CN201611082688.8	11/30/2016
114	*	CN	CN108155925B	11/23/2018	CN201611106305.6	12/5/2016
114	*	CN	CN109150251B	6/30/2020	CN201811065235.3	12/5/2016
114	*	CN	CN109361437B	7/31/2020	CN201811065232.X	12/5/2016
114	*	US	US10743260B2	8/11/2020	16/432,366	6/5/2019
114	*	US	US11463959B2	10/4/2022	16/898,459	6/11/2020
114	*	US	US12052667B2	7/30/2024	17/887,517	8/15/2022
115	*	CN	CN108173798B	7/31/2020	CN201611118338.2	12/7/2016
116	*	CN	CN108390707B	6/30/2020	CN201611123939.2	12/8/2016
117	*	CN	CN108235420B	6/25/2021	CN201611142497.6	12/12/2016
118	*	CN	CN108235442B	12/25/2020	CN201611154719.6	12/14/2016
119	*	CN	CN108206711B	2/1/2019	CN201611174366.6	12/17/2016
119	*	CN	CN109088663B	7/31/2020	CN201811166829.3	12/17/2016
119	*	US	US11019572B2	5/25/2021	16/441,037	6/14/2019
119	*	US	US11330527B2	5/10/2022	16/914,493	6/29/2020
120	*	CN	CN108207029B	5/26/2020	CN201611173196.X	12/18/2016
121		CN	CN108207023B	12/29/2020	CN201611173194.0	12/18/2016
122	*	CN	CN108242944B	12/25/2020	CN201611219760.7	12/26/2016
123	*	CN	CN108259121B	2/1/2019	CN201611235136.6	12/28/2016
123	*	CN	CN109039545B	1/1/2021	CN201811278151.8	12/28/2016
123	*	CN	CN109039546B	12/29/2020	CN201811278154.1	12/28/2016
123	*	DE	60 2017 079 910.6	3/6/2024	22216903.9	8/22/2017
123	*	DE	EP3565125B1	6/7/2023	17888656.0	8/22/2017
123	*	EP	4340230	2/26/2025	24153589.7	8/22/2017

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123	*	EP	EP3565125B1	6/7/2023	17888656.0	8/22/2017
123	*	EP	EP4178116B1	3/6/2024	22216903.9	8/22/2017
123	*	FR	EP4178116B1	3/6/2024	22216903.9	8/22/2017
123	*	FR	EP3565125B1	6/7/2023	17888656.0	8/22/2017
123	*	GB	4340230	2/26/2025	24153589.7	8/22/2017
123	*	GB	EP4178116B1	3/6/2024	22216903.9	8/22/2017
123	*	GB	EP3565125B1	6/7/2023	17888656.0	8/22/2017
123	*	IN	IN501943B	1/22/2024	IN201917025540	8/22/2017
123	*	JP	JP6959621B2	10/12/2021	JP2019-556398	8/22/2017
123	*	JP	JP7357859B2	9/29/2023	JP2021-159041	9/29/2021
123	*	KR	KR102205781B1	1/20/2021	KR1020197022164	8/22/2017
123	*	KR	KR102328864B1	11/18/2021	KR1020217001231	8/22/2017
123	*	NL	EP4178116B1	3/6/2024	22216903.9	8/22/2017
123	*	NL	EP3565125B1	6/7/2023	17888656.0	8/22/2017
123	*	UP	4340230	2/26/2025	24153589.7	8/22/2017
123	*	US	US10931306B2	2/23/2021	16/449,483	6/24/2019
123	*	US	US11245417B2	2/8/2022	17/105,659	11/27/2020
123	*	US	US11575388B2	2/7/2023	17/558,625	12/22/2021
123	*	US	US11750215B2	9/5/2023	18/091,459	12/30/2022
123	*	US	US11990919B2	5/21/2024	18/225,689	7/25/2023
123	*	IN			IN202418003053	1/16/2024
124	*	CN	CN108260195B	6/25/2021	CN201611236636.1	12/28/2016
124	*	CN			CN202110584497.6	12/28/2016
125	*	CN	CN108260209B	8/11/2020	CN201611242569.4	12/28/2016
126	*	CN	CN108271240B	10/29/2019	CN201710046153.3	1/22/2017
127	*	CN	CN108271264B	6/30/2020	CN201710045380.4	1/22/2017
127	*	CN	CN111585628B	11/15/2024	CN202010362292.9	1/22/2017
128	*	CN	CN108289020B	11/6/2020	CN201710045424.3	1/22/2017
129	*	CN	CN108288982B	7/23/2019	CN201710045876.1	1/22/2017
129	*	CN	CN110099435B	1/25/2022	CN201910307791.5	1/22/2017
129	*	US	US10813052B2	10/20/2020	16/507,043	7/10/2019
130		CN	CN108616343B	10/2/2020	CN201710051640.9	1/23/2017
131		CN	CN108401286B	7/31/2020	CN201710330030.2	5/11/2017
131		CN	CN111885695B	4/12/2024	CN202010624756.9	5/11/2017
132		CN	CN109952726B	10/29/2021	CN201780068874.2	2/8/2017
133		CN	CN109952709B	7/21/2023	CN201780069398.6	2/12/2017
133		CN			CN202310809429.4	2/12/2017
134		CN	CN109923925B	3/1/2022	CN201780069399.0	2/19/2017
135		CN	CN109937547B	8/27/2021	CN201780069400.X	2/21/2017
136	*	CN	CN108512637B	12/29/2020	CN201710106169.9	2/27/2017
136	*	CN			CN202011369579.0	2/27/2017
137	*	CN	CN111447664B	11/26/2024	CN202010263704.3	3/3/2017
137	*	CN	CN108401524B	5/26/2020	CN201780003871.0	3/3/2017
137	*	CN	CN111447665B	8/26/2022	CN202010263707.7	3/3/2017
137	*	US	US11979841B1	5/7/2024	17/498,774	10/12/2021

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137	*	US	US11178620B2	11/16/2021	16/546,317	8/21/2019
138	*	CN	CN109952727B	11/23/2021	CN201780069275.2	3/6/2017
138	*	CN	CN113891483B	4/16/2024	CN202111147303.2	3/6/2017
139		CN	CN108574982B	5/28/2021	CN201710130320.2	3/7/2017
140		CN	CN108574550B	12/29/2020	CN201710133191.2	3/8/2017
141	*	CN	CN108574985B	3/26/2021	CN201710141055.8	3/10/2017
142		CN	CN109937586B	8/26/2022	CN201780069294.5	3/10/2017
143	*	CN	CN108633083B	1/26/2021	CN201710161931.3	3/17/2017
143	*	CN	CN112600646B	3/29/2022	CN202011426418.0	3/17/2017
143	*	US	US10966230B2	3/30/2021	16/554,611	8/28/2019
143	*	US	US11363621B2	6/14/2022	17/144,172	1/8/2021
143	*	US	US11785598B2	10/10/2023	17/723,490	4/19/2022
143	*	US	US12101768B2	9/24/2024	18/235,360	8/18/2023
143	*	CN			CN202011426410.4	3/17/2017
144		CN	CN108632997B	3/9/2021	CN201710161933.2	3/17/2017
145	*	CN	CN108702183B	1/25/2022	CN201780006630.1	3/18/2017
145	*	CN	CN114244408B	12/27/2022	CN202111569022.6	3/18/2017
145	*	US	US11025320B2	6/1/2021	16/554,635	8/29/2019
145	*	US	US11418242B2	8/16/2022	17/239,701	4/26/2021
145	*	US	US11695460B2	7/4/2023	17/860,039	7/7/2022
145	*	CN			CN202111542450.X	3/18/2017
145	*	US			18/195,382	5/10/2023
146		CN	CN110268797B	7/29/2022	CN201780083602.X	3/19/2017
146		CN			CN202210729205.8	3/19/2017
147	*	CN	CN108924852B	12/24/2021	CN201710185617.9	3/26/2017
147	*	CN	114125874	3/18/2025	CN202111370167.3	3/26/2017
147	*	CN			CN202111330155.8	3/26/2017
148		CN	CN108632000B	10/2/2020	CN201710185618.3	3/26/2017
149	*	CN	CN110268638B	1/20/2023	CN201780083600.0	3/30/2017
149	*	CN			CN202211657844.4	3/30/2017
149	*	CN			CN202211663745.7	3/30/2017
150		CN	CN110431890B	3/29/2022	CN201780088309.2	4/25/2017
151		CN	CN108809384B	8/11/2020	CN201710286712.8	4/27/2017
152	*	CN	CN108809366B	8/11/2020	CN201710300334.4	4/29/2017
153	*	CN	CN108811021B	11/6/2020	CN201710317303.X	5/4/2017
153	*	CN	CN112218350B	10/28/2022	CN202011115415.5	5/4/2017
153	*	CN			CN202011115413.6	5/4/2017
154	*	CN	CN110463094B	7/8/2022	CN201780088317.7	5/12/2017
154	*	CN	CN115225204B	12/26/2023	CN202210650669.X	5/12/2017
155	*	CN	CN108989002B	7/27/2021	CN201710406977.7	6/2/2017
156	*	CN	CN108989007B	1/26/2021	CN201710417759.3	6/5/2017
157	*	CN	CN109039550B	5/28/2021	CN201710433018.4	6/9/2017
157	*	CN	CN112953689B	3/29/2022	CN202110397727.8	6/9/2017
157	*	CN			CN202110397691.3	6/9/2017
158		CN	CN109039554B	1/26/2021	CN201710433660.2	6/9/2017

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159		CN	CN109039555B	12/29/2020	CN201710435249.9	6/10/2017
160		CN	CN109041226B	9/24/2021	CN201710435451.1	6/11/2017
161		CN	CN109041227B	9/24/2021	CN201710436989.4	6/12/2017
162	*	CN	CN109039557B	12/29/2020	CN201710436988.X	6/12/2017
162	*	CN	CN112491507B	3/29/2022	CN202011318053.X	6/12/2017
162	*	CN			CN202011317744.8	6/12/2017
163	*	CN	CN109152011B	4/7/2023	CN201710456814.X	6/16/2017
163	*	CN			202310135211.5	6/16/2017
163	*	CN			CN202310135238.4	6/16/2017
164		CN	CN109150412B	10/29/2021	CN201710459284.4	6/16/2017
165		CN	CN109121197B	5/28/2021	CN201710489788.0	6/24/2017
166		CN	CN110832920B	8/26/2022	CN201780092118.3	7/5/2017
167	*	CN	CN109217981B	3/5/2021	CN201710547264.2	7/6/2017
167	*	US	US10609682B2	3/31/2020	16/025,704	7/2/2018
167	*	CN			CN202110033107.6	7/6/2017
168	*	CN	CN110771058B	2/3/2023	CN201780092128.7	7/21/2017
168	*	CN			CN202310021406.7	7/21/2017
168	*	CN			CN202310022071.0	7/21/2017
169		CN	CN109302221B	10/2/2020	CN201710612305.1	7/25/2017
170	*	CN	CN109309553B	3/9/2021	CN201710622468.8	7/27/2017
170	*	US	US10568095B2	2/18/2020	16/046,440	7/26/2018
171		CN	CN110832905B	10/29/2021	CN201780092127.2	8/1/2017
171		CN	CN113840343B	5/14/2024	CN202111018219.0	8/1/2017
171		CN			CN202111038249.8	8/1/2017
172		CN	CN109391298B	12/29/2020	CN201710655580.1	8/3/2017
173		CN	CN110771215B	8/26/2022	CN201780092109.4	8/4/2017
174		CN	CN110771227B	8/26/2022	CN201780092117.9	8/4/2017
175	*	CN	CN109644066B	8/27/2021	CN201780002551.3	8/7/2017
175	*	CN	CN113489571B	3/29/2022	CN202110760910.X	8/7/2017
175	*	IN	IN542588B	6/21/2024	IN202017007946	8/7/2017
175	*	US	US11245418B2	2/8/2022	16/780,928	2/4/2020
175	*	US	US11736120B2	8/22/2023	17/558,620	12/22/2021
175	*	US	US12176916B2	12/24/2024	18/217,997	7/3/2023
175	*	CN			CN202110817698.6	8/7/2017
175	*	EP			17920041.5	8/7/2017
176	*	CN	CN109391346B	5/28/2021	CN201710664771.4	8/7/2017
176	*	CN	CN112953697B	3/29/2022	CN202110386745.6	8/7/2017
176	*	CN			CN202110386704.7	8/7/2017
177	*	CN	CN110915145B	4/4/2023	CN201780092996.5	8/9/2017
177	*	US	US11425625B2	8/23/2022	16/784,255	2/7/2020
177	*	US	US11844008B2	12/12/2023	17/860,109	7/8/2022
177	*	CN			CN202310043378.9	8/9/2017
177	*	CN			CN202310201169.2	8/9/2017
177	*	US			18/386,260	11/2/2023
178	*	CN	CN109392115B	12/27/2022	CN201710680083.7	8/10/2017

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178	*	CN			202211396839.2	8/10/2017
178	*	CN			CN202211396844.3	8/10/2017
179		CN	CN110870267B	3/29/2022	CN201780093001.7	8/11/2017
180		CN	CN109413740B	4/7/2023	CN201710710057.4	8/18/2017
181		CN	CN109428699B	3/9/2021	CN201710748267.2	8/28/2017
182	*	CN	CN110945797B	10/29/2021	CN201780093002.1	8/29/2017
182	*	CN	CN113839700B	7/23/2024	CN202111039436.8	8/29/2017
182	*	US	US11224041B2	1/11/2022	16/802,583	2/27/2020
182	*	US	US12047921B2	7/23/2024	17/535,589	11/25/2021
182	*	CN			CN202111072463.5	8/29/2017
182	*	EP			17923680.7	8/29/2017
182	*	IN			202518130906	8/29/2017
182	*	IN			202017010124	8/29/2017
182	*	US	12,526,781	1/13/2026	18/748,124	6/20/2024
182	*	US			19/413,476	12/9/2025
183	*	CN	CN110870235B	5/31/2022	CN201780092992.7	8/31/2017
183	*	US	US11218193B2	1/4/2022	16/802,595	2/27/2020
184		CN	CN109462462B	7/27/2021	CN201710797284.5	9/6/2017
185		CN	CN110999166B	7/1/2022	CN201780093852.1	9/7/2017
186		CN	CN109495205B	5/28/2021	CN201710809346.X	9/10/2017
187		CN	CN109495206B	6/30/2020	CN201710811512.X	9/11/2017
188	*	CN	CN109526031B	8/27/2021	CN201710837033.5	9/17/2017
188	*	CN	CN113596941B	11/12/2024	CN202110818217.3	9/17/2017
188	*	CN			CN202110823891.0	9/17/2017
189		CN	CN109525377B	4/27/2021	CN201710838363.6	9/18/2017
190		CN	CN109586858B	6/25/2021	CN201710895676.5	9/28/2017
191	*	CN	CN109587743B	5/28/2021	CN201710903423.8	9/29/2017
191	*	CN	CN112954803B	5/31/2022	CN202110386721.0	9/29/2017
191	*	CN			CN202110386755.X	9/29/2017
192	*	CN	CN109618408B	7/31/2020	CN201710925951.3	10/5/2017
192	*	CN	CN111885713B	8/26/2022	CN202010650538.2	10/5/2017
192	*	CN	CN111885712B	3/1/2024	CN202010650532.5	10/5/2017
192	*	US			16/152,007	10/4/2018
193		CN	CN109618353B	12/24/2021	CN201710925967.4	10/5/2017
194	*	CN	CN109672463B	11/6/2020	CN201710965731.3	10/17/2017
194	*	US	US11206098B2	12/21/2021	16/162,423	10/17/2018
194	*	CN			CN202011032125.4	10/17/2017
195	*	CN	CN109699074B	11/23/2021	CN201710983734.X	10/20/2017
195	*	US	US10667260B2	5/26/2020	16/164,748	10/18/2018
196	*	CN	CN109699051B	12/27/2022	CN201810775700.6	7/16/2018
196	*	US	US11019616B2	5/25/2021	16/164,763	10/18/2018
196	*	CN			CN202211500269.7	7/16/2018
197		CN	CN109699046B	12/24/2021	CN201710997540.5	10/24/2017
198		CN	CN109714089B	6/30/2020	CN201711008761.1	10/25/2017
199	*	CN	CN111108764B	10/18/2022	CN201780094752.0	10/26/2017

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199	*	CN			CN202211121432.9	10/26/2017
200	*	CN	CN109728877B	7/27/2021	CN201711056091.0	11/1/2017
200	*	US	US10749549B2	8/18/2020	16/172,686	10/26/2018
201	*	CN	CN109756294B	6/25/2021	CN201711061889.4	11/2/2017
201	*	US	US10547330B2	1/28/2020	16/177,753	11/1/2018
202		CN	CN109756988B	3/29/2022	CN201711080855.X	11/6/2017
203	*	CN	CN111133812B	9/27/2022	CN201780094783.6	11/9/2017
203	*	CN	CN115413040B	7/12/2024	CN202210994364.0	11/9/2017
203	*	US	US11659535B2	5/23/2023	17/464,706	9/2/2021
203	*	US	US12058659B2	8/6/2024	18/131,372	4/6/2023
203	*	US	US11140682B2	10/5/2021	16/858,764	4/27/2020
203	*	CN			CN202211039669.2	11/9/2017
204		CN	CN109787667B	6/30/2020	CN201711110224.8	11/12/2017
205	*	CN	CN109787663B	6/30/2020	CN201711112757.X	11/13/2017
205	*	CN	CN111769855B	4/19/2024	CN202010497955.8	11/13/2017
206		CN	CN109787727B	8/27/2021	CN201711112947.1	11/13/2017
207	*	CN	CN111183665B	4/28/2023	CN201780094784.0	11/13/2017
207	*	US	US11411707B2	8/9/2022	16/869,607	5/8/2020
207	*	US	US11664954B2	5/30/2023	17/851,050	6/28/2022
207	*	US	US11979358B2	5/7/2024	18/132,976	4/11/2023
207	*	CN			CN202310326951.7	11/13/2017
207	*	CN			CN202310258070.6	11/13/2017
208	*	CN	CN111108798B	2/3/2023	CN201780094779.X	11/15/2017
208	*	US	US11425738B2	8/23/2022	16/872,397	5/12/2020
208	*	US	US11877305B2	1/16/2024	17/720,328	4/14/2022
208	*	CN			CN202211667020.5	11/15/2017
208	*	CN			CN202211500386.3	11/15/2017
208	*	US			18/531,626	11/15/2017
209	*	CN	CN109842438B	12/27/2022	CN201810004459.7	1/3/2018
209	*	CN	CN111133787B	9/24/2021	CN201780094952.6	11/28/2017
209	*	US	US11206668B2	12/21/2021	16/872,403	5/12/2020
209	*	CN			CN202211500042.2	1/3/2018
210	*	CN	CN111133706B	11/6/2020	CN201780094796.3	11/28/2017
210	*	CN	CN112242886B	3/29/2022	CN202011320117.X	11/28/2017
210	*	IN	IN529032B	3/22/2024	IN202017023612	11/28/2017
210	*	US	US11381440B2	7/5/2022	15/931,620	5/14/2020
210	*	US	US11743088B2	8/29/2023	17/827,827	5/30/2022
210	*	US	US12132594B2	10/29/2024	18/218,605	7/6/2023
210	*	CN			CN202011319300.8	11/28/2017
210	*	EP			17933483.4	11/28/2017
211		CN	CN111108697B	2/3/2023	CN201780094764.3	12/1/2017
211		CN			CN202310021401.4	12/1/2017
212	*	CN	CN111264074B	11/25/2022	CN201780094865.0	12/7/2017
212	*	US	US11424881B2	8/23/2022	16/889,784	6/1/2020
212	*	CN			202211290710.3	12/7/2017

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212	*	CN			CN202211301050.4	12/7/2017
213	*	CN	CN111279779B	7/29/2022	CN201780094878.8	12/8/2017
213	*	US	US11206666B2	12/21/2021	16/885,294	5/28/2020
213	*	CN			CN202210650702.9	12/8/2017
214	*	CN	CN111213323B	3/1/2022	CN201780094915.5	12/8/2017
214	*	CN	CN114390573B	3/5/2024	CN202210008721.1	12/8/2017
214	*	US	US11848894B2	12/19/2023	16/882,786	5/26/2020
214	*	CN			CN202111634859.4	12/8/2017
214	*	US			18/386,263	12/8/2017
215		CN	CN111133824B	12/27/2022	CN201780094867.X	12/12/2017
215		CN			CN202211499947.2	12/12/2017
216	*	CN	CN111133807B	7/1/2022	CN201780094859.5	12/15/2017
216	*	CN	CN114938535B	2/27/2024	CN202210224342.6	12/15/2017
217		CN	CN111108797B	4/18/2023	CN201780094871.6	12/18/2017
217		CN			CN202310060942.8	12/18/2017
217		CN			CN202310059650.2	12/18/2017
218	*	CN	CN111345054B	2/24/2023	CN201780094916.X	12/18/2017
218	*	CN	CN116095703B	7/9/2024	CN202310043382.5	12/18/2017
218	*	US	US11290234B2	3/29/2022	16/894,893	6/8/2020
218	*	US	US11863481B2	1/2/2024	17/673,789	2/17/2022
218	*	CN			CN202310021459.9	12/18/2017
219	*	CN	CN111247864B	9/27/2022	CN201780094913.6	12/22/2017
219	*	US	US11388748B2	7/12/2022	16/897,244	6/9/2020
219	*	US	US11889550B2	1/30/2024	17/827,829	5/30/2022
219	*	CN			CN202210991366.4	12/22/2017
220	*	CN	CN111194575B	4/28/2023	CN201780094900.9	12/26/2017
220	*	DE	3731590	3/19/2025	602017088479.0	12/26/2017
220	*	EP	3731590	3/19/2025	17935527.6	12/26/2017
220	*	FR	3731590	3/19/2025	17935527.6	12/26/2017
220	*	GB	3731590	3/19/2025	17935527.6	12/26/2017
220	*	IN	IN476486B	12/8/2023	IN202017028981	7/8/2020
220	*	NL	3731590	3/19/2025	17935527.6	12/26/2017
220	*	US	US11343813B2	5/24/2022	16/903,389	6/17/2020
220	*	US	US11963193B2	4/16/2024	17/723,477	4/19/2022
220	*	CN			202310327082.X	12/26/2017
220	*	CN			CN202310258110.7	12/26/2017
220	*	EP			25164522.2	12/26/2017
221		CN	CN111108698B	8/27/2021	CN201780094860.8	12/25/2017
221		CN	CN113473491B	9/12/2023	CN202110731705.0	12/25/2017
221		CN			CN202110760397.4	12/25/2017
222		CN	CN111133813B	12/27/2022	CN201780094864.6	12/26/2017
223	*	CN	CN110012542B	9/1/2020	CN201810011633.0	1/5/2018
223	*	CN	CN111970101B	7/5/2022	CN202010771653.5	1/5/2018
223	*	CN	CN111970100B	10/18/2024	CN202010771346.7	1/5/2018
223	*	DE	EP3737182B1	9/13/2023	19736057.1	1/3/2019

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223	*	EP	EP3737182B1	9/13/2023	19736057.1	1/3/2019
223	*	EP	EP4240089C0	9/4/2024	23182983.9	1/3/2019
223	*	FR	EP3737182B1	9/13/2023	19736057.1	1/3/2019
223	*	GB	EP4240089C0	9/4/2024	23182983.9	1/3/2019
223	*	GB	EP3737182B1	9/13/2023	19736057.1	1/3/2019
223	*	IN	IN480438B	12/15/2023	IN202017032468	1/3/2019
223	*	NL	EP3737182B1	9/13/2023	19736057.1	1/3/2019
223	*	UP	4240089	9/4/2024	23182983.9	1/3/2019
223	*	US	US11424882B2	8/23/2022	16/917,929	7/1/2020
224	*	CN	CN111543074B	12/27/2022	CN201880083153.3	1/5/2018
224	*	US	US11375389B2	6/28/2022	16/917,940	7/1/2020
224	*	CN			CN202211471267.X	1/5/2018
225	*	CN	CN110035394B	5/28/2021	CN201810025081.9	1/11/2018
225	*	CN			CN202110409883.1	1/11/2018
226		CN	CN110035499B	7/25/2023	CN201810026114.1	1/11/2018
226		CN			CN202310821624.9	1/11/2018
226		CN			CN202310814479.1	1/11/2018
227	*	CN	CN111512689B	4/4/2023	CN201880083336.5	1/12/2018
227	*	US	US11523286B2	12/6/2022	16/923,125	7/8/2020
227	*	CN			CN202310222207.2	1/12/2018
228	*	CN	CN110049554B	4/18/2023	CN201810039619.1	1/16/2018
228	*	CN			CN202310009050.5	1/16/2018
229	*	CN	CN110049558B	4/18/2023	CN201810045728.4	1/17/2018
229	*	CN			CN202310043386.3	1/17/2018
229	*	CN			CN202310021460.1	1/17/2018
230	*	CN	CN111512690B	2/24/2023	CN201880083622.1	1/24/2018
230	*	US	US11483863B2	10/25/2022	16/932,835	7/20/2020
230	*	CN			CN202310070154.7	1/24/2018
231		CN	CN110072274B	11/23/2021	CN201810064256.7	1/23/2018
232	*	CN	CN110099454B	4/27/2021	CN201810084834.3	1/29/2018
232	*	US	US11418966B2	8/16/2022	16/937,573	7/23/2020
232	*	US	US12052581B2	7/30/2024	17/860,061	7/7/2022
233	*	CN	CN110098892B	9/1/2020	CN201810089649.3	1/30/2018
233	*	CN	CN111970089B	5/14/2024	CN202010838224.5	1/30/2018
233	*	CN	CN111970088B	7/23/2024	CN202010837379.7	1/30/2018
233	*	US	US11375512B2	6/28/2022	16/937,609	7/24/2020
233	*	US	US11711835B2	7/25/2023	17/749,119	5/19/2022
233	*	US	US12089236B2	9/10/2024	18/204,393	6/1/2023
234	*	CN	CN110098902B	12/24/2021	CN201810089817.9	1/30/2018
234	*	CN			CN202111405404.5	1/30/2018
235	*	CN	CN110113817B	6/25/2021	CN201810102569.7	2/1/2018
235	*	CN			CN202110571922.8	2/1/2018
236		CN	CN110120859B	9/24/2021	CN201810113118.3	2/5/2018
237		CN	CN111543014B	9/12/2023	CN201880083631.0	2/5/2018
237		CN			CN202310929669.8	2/5/2018

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238	*	CN	CN110120860B	6/30/2020	CN201810115784.0	2/6/2018
238	*	US	US11595857B2	2/28/2023	16/941,525	7/28/2020
239	*	CN	CN110120830B	11/6/2020	CN201810122089.7	2/7/2018
239	*	CN	CN112073101B	5/28/2024	CN202010960683.0	2/7/2018
240	*	CN	CN110138429B	3/29/2022	CN201810131296.9	2/9/2018
240	*	CN	CN114374419B	7/12/2024	CN202210148695.2	2/9/2018
240	*	CN			CN202210136582.0	2/9/2018
241	*	CN	CN110167186B	6/30/2020	CN201810149428.0	2/13/2018
241	*	CN	CN111586871B	11/25/2022	CN202010423210.7	2/13/2018
241	*	CN	CN111586877B	10/25/2024	CN202010423207.5	2/13/2018
241	*	US	US11219016B2	1/4/2022	16/988,719	8/10/2020
241	*	US	US11523385B2	12/6/2022	17/534,461	11/24/2021
241	*	US	US11696264B2	7/4/2023	17/971,648	10/24/2022
241	*	US	US11963140B2	4/16/2024	18/195,378	5/10/2023
242	*	CN	CN110167166B	12/27/2022	CN201810152323.0	2/14/2018
243	*	CN	CN110213012B	11/23/2021	CN201810166592.2	2/28/2018
243	*	CN	CN113890685B	4/12/2024	CN202111209428.3	2/28/2018
243	*	CN			CN202111276941.4	2/28/2018
244	*	CN	CN110213792B	8/19/2022	CN201810167081.2	2/28/2018
244	*	CN	CN115190650B	7/12/2024	CN202210864411.X	2/28/2018
245	*	CN	CN110248411B	3/26/2021	CN201810186803.9	3/7/2018
245	*	US	US11528704B2	12/13/2022	17/005,338	8/28/2020
246	*	CN	CN110248368B	9/12/2023	CN201810190687.8	3/8/2018
246	*	CN			CN202311058120.2	3/8/2018
247	*	CN	CN110267344B	4/7/2023	CN201810200863.1	3/12/2018
248	*	CN	CN110266450B	10/2/2020	CN201810200864.6	3/12/2018
248	*	CN	CN111769925B	7/5/2022	CN202010446736.7	3/12/2018
248	*	CN	CN111769926B	4/16/2024	CN202010446952.1	3/12/2018
248	*	EP	EP3767862B1	5/22/2024	19766891.6	3/9/2019
248	*	GB	EP3767862B1	5/22/2024	19766891.6	3/9/2019
248	*	IN	IN539851B	5/31/2024	IN202017043367	3/9/2019
248	*	UP	3767862	5/22/2024	19766891.6	3/9/2019
248	*	US	US11438125B2	9/6/2022	17/005,345	8/28/2020
248	*	US	US11743013B2	8/29/2023	17/855,814	7/1/2022
248	*	US	US12120062B2	10/15/2024	18/217,604	7/2/2023
248	*	EP			24168882.9	3/9/2019
249	*	CN	CN110300453B	4/28/2023	CN201810240672.8	3/22/2018
249	*	US	US11374722B2	6/28/2022	17/010,830	9/3/2020
249	*	CN			CN202310258140.8	3/22/2018
250	*	CN	CN110300454B	2/3/2023	CN201810242952.2	3/23/2018
250	*	CN			CN202211663755.0	3/23/2018
251	*	CN	CN110366247B	7/27/2021	CN201810254690.1	3/26/2018
251	*	US	US11088733B2	8/10/2021	17/012,029	9/3/2020
252	*	CN	112073950	3/18/2025	CN202010960621.X	3/26/2018
252	*	CN	CN110366146B	11/6/2020	CN201810254689.9	3/26/2018

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252	*	US	US11405956B2	8/2/2022	17/012,082	9/4/2020
253		CN	CN110324121B	12/24/2021	CN201810267340.9	3/28/2018
254		CN	CN110324905B	4/7/2023	CN201810265620.6	3/28/2018
255		CN	CN110324122B	11/23/2021	CN201810268062.9	3/29/2018
256	*	CN	CN110351732B	6/13/2023	CN201810285136.X	4/2/2018
256	*	US	US11019524B2	5/25/2021	16/372,425	4/2/2019
257		CN	CN110351050B	3/1/2022	CN201810301287.X	4/4/2018
258		CN	CN110350954B	11/6/2020	CN201810302935.3	4/6/2018
259		CN	CN110392439B	12/29/2020	CN201810335553.0	4/16/2018
260	*	CN	CN110391826B	4/27/2021	CN201810358835.2	4/20/2018
260	*	CN	CN112865848B	6/21/2022	CN202110300506.4	4/20/2018
260	*	US	12,506,570	12/23/2025	18/648,387	4/28/2024
260	*	US	US11012203B2	5/18/2021	16/388,886	4/19/2019
260	*	US	US11626945B2	4/11/2023	17/220,935	4/2/2021
260	*	US	US12010047B2	6/11/2024	18/113,054	2/23/2023
260	*	CN			CN202110300507.9	4/20/2018
260	*	US			19/429,659	12/22/2025
261	*	CN	CN110401516B	10/29/2021	CN201810372199.9	4/24/2018
261	*	US	US10965357B2	3/30/2021	16/391,344	4/23/2019
262	*	CN	CN110401980B	12/27/2022	CN201810378997.2	4/25/2018
262	*	US	US11206638B2	12/21/2021	16/392,641	4/24/2019
263	*	CN	CN110418348B	4/24/2020	CN201810390476.9	4/27/2018
263	*	CN	CN111447622B	4/7/2023	CN202010236450.6	4/27/2018
263	*	US	US11425631B2	8/23/2022	16/395,274	4/26/2019
263	*	US	US11902883B2	2/13/2024	17/860,113	7/8/2022
263	*	US			18/395,655	12/25/2023
264		CN	CN112020848B	11/23/2021	CN201880092795.X	5/4/2018
265		CN	CN111972023B	4/12/2024	CN201880090933.0	5/7/2018
265		CN			CN202410238278.6	5/7/2018
265		CN			CN202410271166.0	5/7/2018
266	*	CN	CN110460360B	6/30/2020	CN201810430153.8	5/8/2018
266	*	US	US11336411B2	5/17/2022	17/019,365	9/14/2020
267	*	CN	CN111971937B	12/24/2021	CN201880090936.4	5/9/2018
267	*	US	US11063643B2	7/13/2021	17/022,100	9/16/2020
268	*	CN	CN110474660B	6/30/2020	CN201810435332.0	5/9/2018
268	*	CN	CN111769861B	8/26/2022	CN202010497947.3	5/9/2018
269	*	CN	CN111955037B	8/13/2024	CN201880090940.0	5/15/2018
269	*	US	US11678305B2	6/13/2023	17/029,083	9/23/2020
269	*	US	US11895627B2	2/6/2024	18/102,722	1/29/2023
269	*	CN			CN202311496655.8	5/15/2018
269	*	CN			CN202410977764.X	5/15/2018
270	*	CN	CN110505706B	2/3/2023	CN201810468288.3	5/16/2018
270	*	US	US10904768B2	1/26/2021	16/411,163	5/14/2019
270	*	US	US11696143B2	7/4/2023	17/123,137	12/16/2020
270	*	US	US11979750B2	5/7/2024	18/195,945	5/11/2023

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270	*	CN			202310019934.9	5/16/2018
270	*	CN			CN202310009044.X	5/16/2018
271	*	CN	CN110505699B	4/18/2023	CN201810484951.9	5/20/2018
271	*	CN			CN202310009511.9	5/20/2018
272	*	CN	CN111971992B	6/21/2022	CN201880090944.9	5/23/2018
272	*	US	US11470573B2	10/11/2022	17/019,380	9/14/2020
272	*	US	US11895615B2	2/6/2024	17/897,207	8/28/2022
273	*	CN	CN111972018B	12/27/2022	CN201880090946.8	5/24/2018
273	*	CN			CN202211471278.8	5/24/2018
274	*	CN	CN110535577B	3/29/2022	CN201810512616.5	5/25/2018
274	*	CN	CN114553381B	3/1/2024	CN202210136279.0	5/25/2018
274	*	CN			CN202210117518.8	5/25/2018
275	*	BE	3806559	3/26/2025	18921068.5	5/28/2018
275	*	CH	3806559	3/26/2025	18921068.5	5/28/2018
275	*	CN	CN111512683B	4/28/2023	CN201880083630.6	5/28/2018
275	*	DE	60 2018 080 602.4	3/26/2025	18921068.5	5/28/2018
275	*	EP	3806559	3/26/2025	18921068.5	5/28/2018
275	*	FR	3806559	3/26/2025	18921068.5	5/28/2018
275	*	GB	3806559	3/26/2025	18921068.5	5/28/2018
275	*	IE	3806559	3/26/2025	18921068.5	5/28/2018
275	*	IN	IN490357B	12/29/2023	IN202017054693	5/28/2018
275	*	LU	3806559	3/26/2025	18921068.5	5/28/2018
275	*	NL	3806559	3/26/2025	18921068.5	5/28/2018
275	*	US	US11533139B2	12/20/2022	17/016,401	9/10/2020
275	*	US	US12047307B2	7/23/2024	17/986,916	11/15/2022
275	*	CN			202310355237.0	5/28/2018
275	*	CN			CN202310349754.7	5/28/2018
275	*	EP			25165794.6	5/28/2018
276	*	CN	CN110557782B	3/5/2021	CN201810555670.8	6/1/2018
276	*	US	US11638250B2	4/25/2023	17/017,711	9/11/2020
276	*	US	US12052695B2	7/30/2024	18/122,728	3/17/2023
276	*	CN			CN202110032330.9	6/1/2018
277	*	CN	CN110572236B	12/29/2020	CN201810568614.8	6/5/2018
277	*	US	US11469850B2	10/11/2022	17/033,997	9/28/2020
278	*	CN	CN110582095B	9/27/2022	CN201810578579.8	6/7/2018
279	*	CN	CN110582118B	4/18/2023	CN201810592862.6	6/11/2018
279	*	CN			CN202310019946.1	6/11/2018
279	*	CN			CN202310021458.4	6/11/2018
280	*	CN	CN110582119B	11/25/2022	CN201810593357.3	6/11/2018
280	*	US	US11304231B2	4/12/2022	16/435,564	6/10/2019
280	*	CN			CN202211296898.2	6/11/2018
281	*	CN	CN110620641B	3/29/2022	CN201810636364.7	6/20/2018
281	*	CN			CN202210117540.2	6/20/2018
282	*	CN	CN110636618B	12/27/2022	CN201810657525.0	6/25/2018
282	*	CN			CN202211500260.6	6/25/2018

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283	*	CN	CN110662294B	12/25/2020	CN201810693236.6	6/29/2018
283	*	CN	CN112491453B	6/21/2022	CN202011318223.4	6/29/2018
283	*	US	US11128364B2	9/21/2021	16/835,352	3/31/2020
283	*	CN			CN202011318646.6	6/29/2018
283	*	EP			19825410.4	6/25/2019
284	*	CN	CN110662306B	6/25/2021	CN201810698513.2	6/29/2018
285		CN	CN110677909B	6/13/2023	CN201810711821.4	7/3/2018
285		CN			CN202310573388.3	7/3/2018
286		CN	CN110677928B	5/28/2021	CN201810714250.X	7/3/2018
287	*	CN	CN110690948B	3/29/2022	CN201810728731.6	7/5/2018
287	*	CN	CN114401558B	12/13/2024	CN202210154587.6	7/5/2018
287	*	US	US11212049B2	12/28/2021	16/503,482	7/4/2019
287	*	US	US11581994B2	2/14/2023	17/516,734	11/2/2021
287	*	US	US11924125B2	3/5/2024	18/093,825	1/6/2023
287	*	CN			CN202210136668.3	7/5/2018
288	*	CN	CN110719153B	10/2/2020	CN201810763067.9	7/12/2018
288	*	CN	CN111970096B	3/29/2022	CN202010890322.3	7/12/2018
288	*	CN	CN111970097B	5/14/2024	CN202010890323.8	7/12/2018
288	*	US	US11252722B2	2/15/2022	16/830,294	3/26/2020
288	*	US	US11864168B2	1/2/2024	17/564,252	12/29/2021
288	*	US	US12063636B2	8/13/2024	18/238,538	8/28/2023
289	*	CN	CN110719156B	7/31/2020	CN201810770266.2	7/13/2018
289	*	DE	EP3823200B1	11/29/2023	19833047.4	7/4/2019
289	*	EP	EP3823200B1	11/29/2023	19833047.4	7/4/2019
289	*	FR	EP3823200B1	11/29/2023	19833047.4	7/4/2019
289	*	GB	EP3823200B1	11/29/2023	19833047.4	7/4/2019
289	*	IN	IN552779B	10/21/2024	IN202117004618	7/4/2019
289	*	NL	EP3823200B1	11/29/2023	19833047.4	7/4/2019
289	*	US	US11510180B2	11/22/2022	17/111,520	12/4/2020
289	*	US	US12082161B2	9/3/2024	17/962,502	10/9/2022
289	*	EP			23206571.4	7/4/2019
289	*	IN			IN202418043234	7/4/2019
289	*	US			18/777,559	7/19/2024
290	*	CN	CN110739988B	4/27/2021	CN201810799906.2	7/20/2018
290	*	US	US11064460B2	7/13/2021	16/515,042	7/18/2019
291	*	CN	CN110753398B	3/1/2022	CN201810815340.8	7/24/2018
291	*	US	US11343838B2	5/24/2022	16/831,822	3/27/2020
292	*	CN	CN110769470B	7/31/2020	CN201810825113.3	7/25/2018
292	*	US	US11621816B2	4/4/2023	17/095,755	11/12/2020
292	*	US	US11979352B2	5/7/2024	18/111,907	2/21/2023
292	*	EP			19841459.1	7/15/2019
292	*	IN			IN202117005429	7/15/2019
293	*	CN	CN110769450B	8/26/2022	CN201810836349.7	7/26/2018
294		CN	CN110831136B	11/25/2022	CN201810897017.X	8/8/2018
295	*	CN	CN110839281B	3/29/2022	CN201810926796.1	8/15/2018

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295	*	CN	CN114375056B	7/12/2024	CN202210148715.6	8/15/2018
295	*	CN			CN202210136678.7	8/15/2018
295	*	US			17/155,114	8/1/2019
296	*	BE			19858130.8	8/29/2019
296	*	CH			19858130.8	8/29/2019
296	*	CN	CN110881217B	10/18/2022	CN201811031506.3	9/5/2018
296	*	CN	CN115397027B	7/12/2024	CN202211128643.5	9/5/2018
296	*	DE			19858130.8	8/29/2019
296	*	EP	3849264	9/24/2025	19858130.8	8/29/2019
296	*	ES			19858130.8	8/29/2019
296	*	FI			19858130.8	8/29/2019
296	*	FR			19858130.8	8/29/2019
296	*	GB			19858130.8	8/29/2019
296	*	IE			19858130.8	8/29/2019
296	*	IT			19858130.8	8/29/2019
296	*	NL			19858130.8	8/29/2019
296	*	PL			19858130.8	8/29/2019
296	*	SE			19858130.8	8/29/2019
296	*	US	11,552,729	1/10/2023	17/156,658	1/25/2021
296	*	US	12,126,438	10/22/2024	17/979,776	11/3/2022
296	*	CN			CN202211122108.9	9/5/2018
296	*	EP			25203969.8	8/29/2019
296	*	US			18/889,425	9/19/2024
297	*	CN	CN110944387B	9/12/2023	CN201811104386.5	9/21/2018
297	*	CN			CN202311076045.2	9/21/2018
297	*	CN			CN202311058200.8	9/21/2018
298	*	CN	CN110972324B	9/24/2021	CN201811139214.1	9/28/2018
298	*	US	US10757588B2	8/25/2020	16/583,292	9/26/2019
299	*	CN	CN111049627B	5/31/2022	CN201811188975.6	10/12/2018
299	*	US	US11265897B2	3/1/2022	16/596,783	10/9/2019
300	*	CN	CN111092640B	3/9/2021	CN201811242130.0	10/24/2018
300	*	US	US11064380B2	7/13/2021	16/662,037	10/24/2019
301	*	CN	CN111147203B	8/27/2021	CN201811301289.5	11/2/2018
301	*	US	US12016013B2	6/18/2024	17/241,083	4/27/2021
302	*	CN	CN111148238B	3/17/2023	CN201811303959.7	11/3/2018
302	*	US	US11064478B2	7/13/2021	16/669,542	10/31/2019
303	*	CN	CN111148127B	2/27/2024	CN201811304256.6	11/3/2018
304	*	CN	CN111224698B	3/26/2021	CN201811403954.1	11/23/2018
304	*	US	US11901994B2	2/13/2024	17/324,123	5/19/2021
304	*	US	US12126419B2	10/22/2024	18/396,752	12/27/2023
305	*	CN	CN111224753B	9/9/2022	CN201811408238.2	11/23/2018
305	*	CN	CN115412223B	12/13/2024	CN202210973770.9	11/23/2018
305	*	US	US11671944B2	6/6/2023	17/500,955	10/14/2021
305	*	US	US11902942B2	2/13/2024	18/135,200	4/17/2023
305	*	US	US11184882B2	11/23/2021	16/689,095	11/20/2019

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305	*	CN			CN202210925965.6	11/23/2018
306	*	CN	CN111263447B	9/27/2022	CN201811464456.8	12/3/2018
306	*	US	US11109374B2	8/31/2021	16/699,120	11/29/2019
307		CN	CN111278110B	6/20/2023	CN201811473454.5	12/4/2018
308	*	CN	CN111294972B	12/24/2021	CN201811503830.0	12/10/2018
308	*	CN	CN114143898B	10/22/2024	CN202111373269.0	12/10/2018
308	*	CN			CN202111345082.X	12/10/2018
309		CN	CN111315013B	7/25/2023	CN201811510850.0	12/11/2018
310	*	CN	CN111315028B	8/27/2021	CN201811517622.6	12/12/2018
310	*	US	12,245,058	3/4/2025	17/220,938	4/2/2021
310	*	CN			CN202110761190.9	12/12/2018
311	*	CN	CN111355565B	6/25/2021	CN201811578513.5	12/24/2018
311	*	CN	CN113517969B	8/26/2022	CN202110570767.8	12/24/2018
311	*	US	US11582759B2	2/14/2023	17/016,359	9/9/2020
311	*	CN			CN202110570766.3	12/24/2018
311	*	US			18/083,524	12/18/2022
312	*	CN	CN111372321B	3/29/2022	CN201811599567.X	12/26/2018
312	*	US	US11950289B2	4/2/2024	17/220,941	4/2/2021
313		CN	CN111385905B	12/24/2021	CN201811609208.8	12/27/2018
314	*	CN	CN111385882B	2/3/2023	CN201811622787.X	12/28/2018
314	*	US	US11903003B2	2/13/2024	17/358,008	6/25/2021
315	*	CN	CN111385884B	1/31/2023	CN201811634904.4	12/29/2018
315	*	US	US11146969B2	10/12/2021	16/727,850	12/26/2019
316	*	CN	CN111405503B	4/27/2021	CN201910000607.2	1/2/2019
316	*	CN	CN112866936B	12/24/2021	CN202110081453.1	1/2/2019
316	*	US	US12127168B2	10/22/2024	17/365,980	7/1/2021
316	*	CN			CN202110080875.7	1/2/2019
317		CN	CN111416687B	11/1/2022	CN201910007724.1	1/4/2019
318		CN	CN111431680B	9/27/2022	CN201910022577.5	1/10/2019
319	*	CN	CN111436157B	7/5/2022	CN201910027128.X	1/11/2019
319	*	CN	CN115226242B	12/13/2024	CN202210637033.1	1/11/2019
319	*	US	12,513,750	12/30/2025	17/368,861	12/27/2019
319	*	CN			CN202210628224.1	1/11/2019
319	*	US			19/431,393	12/23/2025
320		CN	CN111436109B	1/31/2023	CN201910035817.5	1/15/2019
321		CN	CN111447680B	10/28/2022	CN201910041183.4	1/16/2019
322	*	CN	CN111464259B	10/29/2021	CN201910047918.4	1/18/2019
323	*	CN	CN111465113B	4/25/2023	CN201910059317.5	1/22/2019
323	*	EP	EP3917261B1	7/10/2024	19911035.4	12/27/2019
323	*	GB	EP3917261B1	7/10/2024	19911035.4	12/27/2019
323	*	UP	EP3917261B1	7/10/2024	19911035.4	12/27/2019
323	*	US	US12171029B2	12/17/2024	17/382,327	7/21/2021
323	*	CN			CN202310363902.0	1/22/2019
323	*	CN			CN202310432868.8	1/22/2019
323	*	EP			24179447.8	12/27/2019

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324	*	CN	CN111490861B	5/24/2022	CN201910076093.9	1/26/2019
324	*	CN	CN114844613B	3/1/2024	CN202210417088.1	1/26/2019
324	*	CN			CN202210403261.2	1/26/2019
325	*	CN	CN111615213B	1/25/2022	CN201910133143.2	2/22/2019
325	*	CN	CN114245476B	11/26/2024	CN202111569008.6	2/22/2019
325	*	CN			CN202111504449.8	2/22/2019
326	*	CN	CN111526473B	3/29/2022	CN201910104226.9	2/1/2019
326	*	US	US11206621B2	12/21/2021	16/777,904	1/31/2020
327		CN	CN111526601B	6/21/2022	CN201910109033.2	2/3/2019
328		CN	CN111556529B	8/22/2023	CN201910109976.5	2/11/2019
328		CN			CN202310929700.8	2/11/2019
329	*	CN	CN111615193B	6/20/2023	CN201910133929.4	2/22/2019
329	*	CN	CN111698065B	8/27/2021	CN201910196646.4	3/15/2019
329	*	US	12,238,705	2/25/2025	17/406,095	8/19/2021
330	*	CN	CN111615145B	4/25/2023	CN201910141796.5	2/26/2019
330	*	US	US11317406B2	4/26/2022	16/801,189	2/26/2020
330	*	US	US11895631B2	2/6/2024	17/695,872	3/16/2022
330	*	CN			CN202310327129.2	2/26/2019
330	*	CN			CN202310349791.8	2/26/2019
330	*	US			18/520,582	2/26/2020
331	*	CN	CN111615194B	3/1/2022	CN201910140360.4	2/26/2019
331	*	US	US11924809B2	3/5/2024	17/412,208	8/25/2021
331	*	CN			CN202210049955.0	2/26/2019
332		CN	CN111642013B	5/2/2023	CN201910157984.7	3/2/2019
333	*	CN	CN111669256B	8/26/2022	CN201910165255.6	3/5/2019
333	*	CN	CN115065454B	5/24/2024	CN202210796211.5	3/5/2019
333	*	CN			CN202210876465.8	3/5/2019
334	*	CN	CN111669823B	11/25/2022	CN201910172564.6	3/7/2019
334	*	US	US12052759B2	7/30/2024	17/467,298	9/6/2021
335	*	CN	CN111669259B	11/23/2021	CN201910174901.5	3/8/2019
335	*	CN	CN113890708B	5/14/2024	CN202111147262.7	3/8/2019
335	*	US	US12114314B2	10/8/2024	17/467,426	9/6/2021
335	*	US			18/822,503	9/3/2024
336	*	CN	CN111698788B	10/29/2021	CN201910193082.9	3/14/2019
336	*	CN	CN113839748B	3/1/2024	CN202111018243.4	3/14/2019
336	*	US	US12120671B2	10/15/2024	17/472,700	9/13/2021
337		CN	CN111726869B	4/7/2023	CN201910222838.8	3/22/2019
337		CN			CN202310226370.6	3/22/2019
338	*	CN	CN111726212B	6/17/2022	CN201910222848.1	3/22/2019
338	*	CN	CN114944902B	2/27/2024	CN202210510698.6	3/22/2019
338	*	CN			CN202210486745.8	3/22/2019
339		CN	CN111741528B	7/25/2023	CN201910227756.2	3/25/2019
340		CN	CN111769922B	8/15/2023	CN201910262392.1	4/2/2019
341		CN	CN111757394B	9/13/2024	CN201910585659.0	7/1/2019
341		CN			CN202311496708.6	7/1/2019

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342	*	CN	CN111770575B	5/26/2023	CN201910261796.9	4/2/2019
342	*	US	US12108443B2	10/1/2024	17/485,540	9/27/2021
342	*	CN			CN202310486788.0	4/2/2019
343	*	CN	111769921	12/24/2021	CN201910261793.5	4/2/2019
343	*	CN	114124336	2/27/2024	CN202111405710.9	4/2/2019
343	*	US	11,743,927	8/29/2023	17/098,329	11/14/2020
343	*	CN			CN202111344891.9	4/2/2019
343	*	US			18/218,112	7/5/2023
344	*	CN	CN111769920B	11/18/2022	CN201910261792.0	4/2/2019
344	*	CN			CN202211293415.3	4/2/2019
345	*	CN	CN111800860B	6/20/2023	CN201910278464.1	4/9/2019
345	*	US	US12177899B2	12/24/2024	17/485,543	9/27/2021
345	*	CN			CN202310573490.3	4/9/2019
346		CN	CN111817829B	8/27/2021	CN201910284811.1	4/10/2019
347	*	CN	CN111865516B	10/29/2021	CN201910338994.0	4/25/2019
347	*	CN	CN113839762B	11/12/2024	CN202111110774.6	4/25/2019
347	*	US	US12015567B2	6/18/2024	17/156,699	1/25/2021
347	*	US			18/641,459	4/22/2024
348	*	CN	CN111867037B	12/24/2021	CN201910345267.7	4/26/2019
348	*	US	US11962453B2	4/16/2024	17/509,092	10/25/2021
348	*	US	12,261,732	3/25/2025	18/604,518	3/14/2024
348	*	CN			CN202111328206.3	4/26/2019
349		CN	CN111901077B	7/29/2022	CN201910366055.7	5/5/2019
350	*	CN	CN111988850B	11/2/2021	CN201910432002.0	5/23/2019
350	*	US	US12120641B2	10/15/2024	17/372,503	7/11/2021
350	*	CN			CN202111179867.4	5/23/2019
351	*	CN	CN112054833B	11/23/2021	CN201910491866.X	6/6/2019
351	*	CN	CN112118585B	11/12/2024	CN201910531097.1	6/19/2019
351	*	US	US12058740B2	8/6/2024	17/536,128	11/29/2021
351	*	CN			CN202111209789.8	6/6/2019
351	*	CN			CN202311802603.9	6/19/2019
351	*	US			18/751,367	6/24/2024
352	*	CN	112105084	3/21/2025	CN201910525161.5	6/18/2019
352	*	US	US11683827B2	6/20/2023	16/896,211	6/9/2020
353	*	CN	CN112333776B	5/31/2022	CN201910657779.7	7/20/2019
353	*	US	11,770,229	9/26/2023	16/924,230	7/9/2020
353	*	US	12,052,196	7/30/2024	18/231,250	8/8/2023
353	*	CN			CN202210448175.3	7/20/2019
353	*	US			18/660,240	5/10/2024
354	*	CN	CN112351493B	7/26/2024	CN201910724481.3	8/7/2019
354	*	US	US12133226B2	10/29/2024	17/588,291	1/30/2022
354	*	CN			CN202410844218.9	8/7/2019
355	*	CN	CN112399578B	12/6/2022	CN201910759144.8	8/16/2019
355	*	US	US12231359B2	2/18/2025	17/669,391	2/11/2022
355	*	CN			CN202211416087.1	8/16/2019

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356	*	CN	CN112398606B	11/8/2022	CN201910749360.4	8/14/2019
356	*	CN	CN115664613B	1/24/2025	CN202211264452.1	8/14/2019
356	*	CN			CN202211257548.5	8/14/2019
357		CN	CN112423389B	7/1/2022	CN201910770610.2	8/20/2019
358	*	CN	CN112436875B	8/5/2022	CN201910788289.0	8/26/2019
358	*	CN	CN115021790B	12/13/2024	CN202210773567.7	8/26/2019
358	*	US	US11510216B2	11/22/2022	16/991,033	8/12/2020
358	*	US	US12082234B2	9/3/2024	17/967,876	10/17/2022
358	*	CN			CN202210789733.2	8/26/2019
359	*	CN	CN112469124B	11/25/2022	CN201910842938.0	9/6/2019
359	*	US	US11452074B2	9/20/2022	17/006,893	8/31/2020
359	*	US	US11751173B2	9/5/2023	17/878,070	8/1/2022
359	*	CN			202211290850.0	9/6/2019
359	*	CN			CN202211301084.3	9/6/2019
360	*	CN	CN112532357B	3/1/2022	CN201910882776.3	9/18/2019
360	*	CN	CN114448577B	3/5/2024	CN202210049591.6	9/18/2019
360	*	US	US11817979B2	11/14/2023	17/691,053	3/9/2022
360	*	US	US12218788B2	2/4/2025	18/241,832	9/1/2023
360	*	CN			CN202210026676.2	9/18/2019
361	*	CN	CN112543463B	7/1/2022	CN201910900382.6	9/23/2019
361	*	CN			CN202210553006.6	9/23/2019
362		CN	CN112636850B	5/26/2023	CN201910950499.5	10/8/2019
363	*	CN	CN112636882B	12/9/2022	CN201910905498.9	9/24/2019
363	*	CN	CN115801211B	12/24/2024	CN202211424021.7	9/24/2019
363	*	US	US11502789B2	11/15/2022	17/011,995	9/3/2020
363	*	US	US11791954B2	10/17/2023	17/955,553	9/29/2022
363	*	US	US12047308B2	7/23/2024	18/242,541	9/6/2023
363	*	CN			CN202211418802.5	9/24/2019
363	*	US			18/733,898	9/3/2020
364	*	CN	CN112584444B	9/24/2021	CN201910921934.1	9/27/2019
364	*	US	12,256,273	3/18/2025	17/700,513	3/22/2022
364	*	CN			CN202110869237.3	9/27/2019
365	*	CN	CN112615698B	7/29/2022	CN201910946653.1	10/6/2019
365	*	CN			CN202210728928.6	10/6/2019
366	*	CN	CN112653540B	12/9/2022	CN201910964588.5	10/11/2019
366	*	CN			CN202211424010.9	10/11/2019
367		CN	CN112688765B	6/21/2022	CN201910989231.2	10/17/2019
368	*	CN	CN112689325B	6/21/2022	CN201910997024.1	10/20/2019
368	*	CN			CN202210328171.1	10/20/2019
369	*	CN	CN112702153B	7/15/2022	CN201911013176.X	10/23/2019
369	*	CN	CN115225240B	10/25/2024	CN202210682759.7	10/23/2019
369	*	CN			CN202210669391.0	10/23/2019
370	*	CN	CN112751656B	9/27/2022	CN201911046508.4	10/30/2019
370	*	CN	CN115412224B	4/12/2024	CN202210992470.5	10/30/2019
370	*	CN			CN202211039648.0	10/30/2019

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371	*	CN	CN112788770B	8/19/2022	CN201911090976.1	11/9/2019
371	*	US	US12224867B2	2/11/2025	17/732,543	4/29/2022
371	*	CN			CN202210768746.1	11/9/2019
372	*	CN	CN112839361B	8/26/2022	CN201911152654.5	11/22/2019
372	*	US			17/748,038	10/30/2020
373	*	CN	CN112822645B	5/24/2022	CN201911159429.4	11/22/2019
373	*	CN	CN114827911B	9/10/2024	CN202210425409.2	11/22/2019
373	*	CN			CN202210429076.0	11/22/2019
374	*	CN	CN112839384B	8/5/2022	CN201911166414.0	11/25/2019
374	*	CN	CN115190637B	12/13/2024	CN202210768729.8	11/25/2019
374	*	US	12,262,385	3/25/2025	17/748,012	5/18/2022
375	*	CN	CN112825497B	7/1/2022	CN201911151113.0	11/21/2019
375	*	CN			CN202210552990.4	11/21/2019
375	*	US			17/740,372	10/29/2020
376		CN	CN112865935B	3/29/2022	CN201911181384.0	11/27/2019
377		CN	CN112910615B	6/21/2022	CN201911135069.4	11/19/2019
378		CN	CN112911697B	5/31/2022	CN201911223263.8	12/3/2019
379		CN	CN112887065B	8/26/2022	CN201911198784.2	11/29/2019
380		CN	CN112996030B	10/28/2022	CN201911216520.5	12/2/2019
381	*	CN	CN112996135B	12/6/2022	CN201911284369.9	12/13/2019
381	*	US	US12225593B2	2/11/2025	17/837,038	6/10/2022
381	*	CN			CN202211416084.8	12/13/2019
382	*	CN	CN112996134B	11/1/2022	CN201911282862.7	12/13/2019
382	*	CN			CN202211140997.1	12/13/2019
382	*	US			17/837,050	11/18/2020
383	*	CN	CN112994857B	8/26/2022	CN201911298573.6	12/17/2019
383	*	CN			CN202210863286.0	12/17/2019
383	*	CN			CN202210790645.4	12/17/2019
384		CN	CN113038585B	1/25/2022	CN201911345495.0	12/24/2019
385	*	CN	CN113038548B	9/9/2022	CN201911356212.2	12/25/2019
385	*	CN			CN202210926882.9	12/25/2019
386	*	CN	CN113056026B	12/9/2022	CN201911365303.2	12/26/2019
386	*	US	US12035378B2	7/9/2024	17/848,366	6/23/2022
386	*	US	12,501,496	12/16/2025	18/603,245	11/19/2020
386	*	CN			CN202211424563.4	12/26/2019
386	*	US			19/385,300	11/11/2025
387	*	CN	CN113055140B	8/2/2022	CN201911378409.6	12/27/2019
387	*	CN	CN115085891B	8/13/2024	CN202210796047.8	12/27/2019
387	*	IN	IN539812B	5/29/2024	IN202217040125	11/19/2020
387	*	CN			CN202210789734.7	12/27/2019
387	*	EP			20907680.1	11/19/2020
387	*	US			17/849,683	11/19/2020
388	*	CN	CN113133124B	11/1/2022	CN201911406219.0	12/31/2019
388	*	CN			CN202211140990.X	12/31/2019
389	*	BE			20829516.2	12/28/2020

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389	*	CH			20829516.2	12/28/2020
389	*	CN	CN113068256B	7/29/2022	CN202010000403.1	1/2/2020
389	*	CN	CN115226222B	11/12/2024	CN202210651027.1	1/2/2020
389	*	CZ			20829516.2	12/28/2020
389	*	DE			20829516.2	12/28/2020
389	*	EP	3925372	12/17/2025	20829516.2	12/28/2020
389	*	ES			20829516.2	12/28/2020
389	*	FR			20829516.2	12/28/2020
389	*	GB			20829516.2	12/28/2020
389	*	IE			20829516.2	12/28/2020
389	*	NO			20829516.2	12/28/2020
389	*	TR			20829516.2	12/28/2020
389	*	US	US12101746B2	9/24/2024	17/185,977	2/26/2021
389	*	EP			25223707.8	12/28/2020
390	*	CN	CN113068257B	11/25/2022	CN202010001128.5	1/2/2020
390	*	IN	IN556724B	12/23/2024	IN202217040373	12/25/2020
390	*	US	US11405153B2	8/2/2022	17/207,772	3/22/2021
390	*	US	US11722272B2	8/8/2023	17/841,643	6/15/2022
390	*	US	US12107780B2	10/1/2024	18/212,144	6/20/2023
390	*	CN			CN202211290856.8	1/2/2020
390	*	CN			CN202211277797.0	1/2/2020
390	*	EP			20829296.1	12/25/2020
391		CN	CN113079580B	11/25/2022	CN202010004808.2	1/3/2020
392	*	CN	CN113162736B	10/18/2022	CN202010012208.0	1/7/2020
392	*	US	US11818059B2	11/14/2023	17/186,012	2/26/2021
392	*	US	12,244,522	3/4/2025	18/368,573	9/15/2023
392	*	CN			202211089002.3	1/7/2020
392	*	CN			CN202211110632.4	1/7/2020
392	*	EP			20829517.0	12/28/2020
392	*	IN			IN202217042364	7/25/2022
393	*	CN	CN113115392B	10/28/2022	CN202010024740.4	1/10/2020
393	*	EP	3928559	9/3/2025	20829518.8	12/29/2020
393	*	GB			20829518.8	12/29/2020
393	*	UP			20829518.8	12/29/2020
393	*	US	US12213010B2	1/28/2025	17/179,407	2/19/2021
393	*	CN			CN202211122107.4	1/10/2020
393	*	EP			25199308.5	12/29/2020
394		CN	CN113114435B	5/31/2022	CN202010028250.1	1/10/2020
395	*	CN	CN113115446B	7/5/2022	CN202010029367.1	1/13/2020
395	*	US	US11856575B2	12/26/2023	17/187,807	2/28/2021
395	*	CN			CN202210553011.7	1/13/2020
395	*	EP			20829519.6	12/30/2020
395	*	US			18/504,166	11/8/2023
396		CN	CN113114437B	3/29/2022	CN202010029366.7	1/13/2020
397		CN	CN113133121B	11/1/2022	CN202010038830.9	1/14/2020

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398	*	CN	CN113194535B	12/27/2022	CN202010037916.X	1/14/2020
398	*	US	US11711837B2	7/25/2023	17/179,417	2/19/2021
398	*	US	US12177874B2	12/24/2024	18/201,201	5/24/2023
398	*	CN			CN202211418727.2	1/14/2020
399	*	CN	CN113132056B	7/1/2022	CN202010048990.1	1/16/2020
399	*	US	US11923984B2	3/5/2024	17/386,551	7/28/2021
399	*	CN			CN202210562524.4	1/16/2020
400		CN	CN113141240B	10/28/2022	CN202010051602.5	1/17/2020
401	*	CN	CN113141666B	10/27/2023	CN202010060757.5	1/19/2020
401	*	US	12,041,668	7/16/2024	17/358,027	6/25/2021
401	*	CN			CN202311126636.6	1/19/2020
401	*	EP			21700103.1	1/11/2021
401	*	US			18/731,372	6/3/2024
402	*	CN	CN113141242B	8/26/2022	CN202010060755.6	1/19/2020
402	*	CN	CN115065451B	11/26/2024	CN202210773555.4	1/19/2020
402	*	US	US11864174B2	1/2/2024	17/361,328	6/29/2021
402	*	US	US12127189B2	10/22/2024	18/510,673	11/16/2023
403	*	CN	CN113141241B	1/25/2022	CN202010059278.1	1/19/2020
403	*	US	US11949511B2	4/2/2024	17/386,564	7/28/2021
403	*	CN			CN202111613558.3	1/19/2020
403	*	US			18/592,490	2/29/2024
404	*	CN	CN113225808B	11/25/2022	CN202010069306.8	1/21/2020
404	*	US	US12170987B2	12/17/2024	17/371,070	7/8/2021
404	*	CN			202211290863.8	1/21/2020
404	*	CN			CN202211277773.5	1/21/2020
404	*	EP			21700144.5	1/18/2021
405		CN	CN113225745B	9/27/2022	CN202010069308.7	1/21/2020
406	*	CN	CN113163357B	7/29/2022	CN202010073188.8	1/22/2020
406	*	US	US11659524B2	5/23/2023	17/145,406	1/11/2021
406	*	US	US12177817B2	12/24/2024	18/132,977	4/11/2023
407	*	CN	CN113206692B	5/31/2022	CN202010085461.9	2/1/2020
407	*	CN	CN113225167B	7/8/2022	CN202010079858.7	2/4/2020
407	*	CN	CN113259066B	7/8/2022	CN202010083163.6	2/8/2020
407	*	CN			CN202210448171.5	2/1/2020
407	*	CN			CN202210644100.2	2/4/2020
407	*	CN			CN202210644695.1	2/8/2020
408	*	CN	CN113207163B	8/5/2022	CN202010077737.9	1/31/2020
408	*	US	11,864,123	1/2/2024	17/361,333	6/29/2021
408	*	CN			CN202210768726.4	1/31/2020
408	*	CN			CN202210684984.4	1/31/2020
408	*	US			18/510,677	11/16/2023
409	*	CN	CN113207172B	5/31/2022	CN202010077729.4	1/31/2020
409	*	US	US12218862B2	2/4/2025	17/876,564	7/29/2022
410	*	CN	CN113206727B	5/31/2022	CN202010077819.3	2/1/2020
410	*	US	US12127203B2	10/22/2024	17/372,512	7/11/2021

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411	*	CN	CN113207173B	11/25/2022	CN202010077818.9	2/1/2020
411	*	US	12,262,417	3/25/2025	17/359,656	6/28/2021
411	*	CN			CN202211257544.7	2/1/2020
411	*	EP			21701621.1	1/28/2021
412		CN	CN113207152B	7/1/2022	CN202010077899.2	2/1/2020
413	*	CN	CN113225814B	11/1/2022	CN202010079865.7	2/4/2020
413	*	US	US12101810B2	9/24/2024	17/377,404	7/16/2021
414	*	CN	CN113225156B	8/26/2022	CN202010081317.8	2/6/2020
414	*	US	US11979897B2	5/7/2024	17/372,532	7/12/2021
415	*	CN	CN113259074B	11/1/2022	CN202010083178.2	2/8/2020
415	*	CN	CN115426095B	11/22/2024	CN202211182441.9	2/8/2020
415	*	CN			CN202211218355.9	2/8/2020
415	*	EP			21750310.1	2/4/2021
415	*	EP			25219468.3	2/4/2021
415	*	IN			202217047879	2/4/2021
415	*	US			17/813,935	2/4/2021
416		CN	CN113258968B	4/7/2023	CN202010088230.3	2/12/2020
417		CN	CN113260055B	11/25/2022	CN202010090320.6	2/13/2020
417		CN	CN113285786B	7/29/2022	CN202010101710.9	2/19/2020
418	*	CN	CN113271185B	10/28/2022	CN202010092986.5	2/14/2020
418	*	CN	CN115603883B	11/26/2024	CN202211188499.4	2/14/2020
418	*	CN			CN202211218361.4	2/14/2020
418	*	EP			21753881.8	2/4/2021
418	*	IN			202217049148	2/4/2021
418	*	US			17/880,609	2/4/2021
419		CN	CN113271673B	6/21/2022	CN202010094088.3	2/15/2020
420		CN	CN113271193B	8/26/2022	CN202010097713.X	2/17/2020
421	*	CN	CN113347575B	1/20/2023	CN202010100354.9	2/18/2020
421	*	US	US12170950B2	12/17/2024	17/740,379	5/10/2022
422		CN	CN113347729B	5/26/2023	CN202010099928.5	2/18/2020
423	*	CN	CN113285784B	8/26/2022	CN202010102364.6	2/19/2020
423	*	CN			CN202210770234.9	2/19/2020
423	*	US			17/880,620	2/4/2021
424		CN	CN113285787B	3/29/2022	CN202010105080.2	2/20/2020
425	*	CN	CN113301643B	3/21/2023	CN202010113618.4	2/24/2020
426	*	CN	CN113382478B	9/9/2022	CN202010114967.8	2/25/2020
426	*	CN	CN115412221B	8/13/2024	CN202210973686.7	2/25/2020
426	*	CN			CN202210926859.X	2/25/2020
426	*	EP			21707882.3	2/24/2021
426	*	IN			IN202217052163	2/24/2021
426	*	US			17/741,494	5/11/2022
427	*	CN	CN113381845B	10/18/2022	CN202010116820.2	2/25/2020
427	*	US	12,426,031	9/23/2025	17/726,550	4/22/2022
427	*	CN			CN202211110915.9	2/25/2020
427	*	US			19/192,264	4/28/2025

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428	*	CN	CN113315609B	7/5/2022	CN202010122593.4	2/27/2020
428	*	CN	115225237	3/18/2025	CN202210649231.X	4/15/2020
428	*	CN	CN113541891B	7/8/2022	CN202010293567.8	4/15/2020
428	*	US	US12170982B2	12/17/2024	17/726,551	4/22/2022
428	*	US			18/934,252	11/1/2024
429	*	CN	CN113347649B	2/28/2023	CN202010136030.0	3/2/2020
429	*	CN			CN202310070179.7	3/2/2020
430	*	CN	CN113347648B	7/8/2022	CN202010135607.6	3/2/2020
430	*	CN	CN115225239B	8/27/2024	CN202210650989.5	3/2/2020
430	*	US	12,238,778	2/25/2025	17/898,495	8/30/2022
431	*	CN	CN113365367B	7/15/2022	CN202010140024.2	3/3/2020
431	*	CN	CN113597017B	2/3/2023	CN202010364741.3	4/30/2020
431	*	US	12,218,756	2/4/2025	17/900,842	8/31/2022
431	*	US	12,267,167	4/1/2025	17/971,653	10/24/2022
431	*	CN			CN202210669383.6	3/3/2020
431	*	CN			202310020595.6	4/30/2020
431	*	CN			CN202310009040.1	4/30/2020
431	*	US			19/096,154	3/31/2025
432		CN	CN113365223B	11/25/2022	CN202010143407.5	3/4/2020
432		CN	CN113411888B	5/31/2022	CN202010186334.8	3/17/2020
433		CN	CN113365348B	5/31/2022	CN202010148592.7	3/5/2020
434	*	CN	CN113364498B	10/28/2022	CN202010152084.6	3/6/2020
434	*	CN	CN113556820B	7/5/2022	CN202010325225.X	4/23/2020
434	*	CN	CN115226239B	4/18/2025	CN202210637036.5	4/23/2020
434	*	CN			CN202211218354.4	3/6/2020
434	*	CN			CN202210628222.2	4/23/2020
434	*	US			17/901,857	9/2/2022
435	*	CN	CN113395764B	9/27/2022	CN202010167010.X	3/11/2020
435	*	CN	CN113541889B	7/8/2022	CN202010289165.0	4/14/2020
435	*	CN			CN202210644677.3	4/14/2020
435	*	US			17/901,878	3/9/2021
436	*	CN	CN113395716B	7/15/2022	CN202010170903.X	3/12/2020
436	*	CN	CN115226175B	6/11/2024	CN202210682762.9	3/12/2020
436	*	CN	CN113453244B	4/25/2023	CN202010223482.2	3/26/2020
436	*	CN			CN202210669375.1	3/12/2020
436	*	CN			CN202310327159.3	3/26/2020
436	*	CN			CN202310349827.2	3/26/2020
436	*	US			17/889,398	3/11/2021
437	*	CN	CN113395767B	7/1/2022	CN202010171424.X	3/12/2020
437	*	CN	CN114944907B	2/27/2024	CN202210562557.9	3/12/2020
437	*	CN	CN114944906B	11/26/2024	CN202210561966.7	3/27/2020
437	*	CN	CN113453351B	7/1/2022	CN202010228744.4	3/27/2020
437	*	CN			CN202210553002.8	3/12/2020
437	*	CN			CN202210553012.1	3/27/2020
437	*	US			17/887,521	8/15/2022

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438	*	CN	CN113395770B	5/31/2022	CN202010176592.8	3/13/2020
438	*	CN	CN113541898B	3/29/2022	CN202010315167.2	4/21/2020
438	*	US			17/903,047	3/9/2021
439		CN	CN113395769B	5/31/2022	CN202010176589.6	3/13/2020
440	*	CN	CN113411887B	6/21/2022	CN202010186314.0	3/17/2020
440	*	CN	CN113453345B	12/6/2022	CN202010222505.8	3/26/2020
440	*	CN			CN202211416083.3	3/26/2020
440	*	US			17/945,117	3/9/2021
441	*	CN	CN113498021B	5/31/2022	CN202010189423.8	3/18/2020
441	*	EP			21772089.5	3/16/2021
441	*	US			17/945,997	9/15/2022
442	*	CN	CN113498075B	5/31/2022	CN202010200555.6	3/20/2020
442	*	CN	CN113453353B	9/27/2022	CN202010228751.4	3/27/2020
442	*	US			17/940,997	3/18/2021
443	*	CN	CN113498173B	6/21/2022	CN202010201008.X	3/20/2020
443	*	CN	CN113573414B	7/25/2023	CN202010351061.8	4/28/2020
443	*	CN	CN113597015B	2/27/2024	CN202010364509.X	4/30/2020
443	*	CN			CN202310816317.1	4/28/2020
443	*	CN			CN202310809614.3	4/28/2020
443	*	US			17/947,193	3/16/2021
444		CN	CN113497686B	3/26/2024	CN202010201009.4	3/20/2020
445	*	CN	CN113498066B	6/17/2022	CN202010204327.6	3/21/2020
445	*	CN	CN113572713B	7/9/2024	CN202010353642.5	4/29/2020
445	*	CN			CN202210487388.7	3/21/2020
445	*	US			17/946,065	3/19/2021
446	*	CN	CN113453349B	6/21/2022	CN202010228295.3	3/27/2020
446	*	CN	CN113498189B	6/21/2022	CN202010270020.6	4/8/2020
446	*	CN	CN113542174B	5/31/2022	CN202010289027.2	4/14/2020
446	*	US			17/949,235	3/26/2021
447	*	CN	CN113453352B	5/31/2022	CN202010228745.9	3/27/2020
448	*	CN	CN113473598B	12/6/2022	CN202010234068.1	3/30/2020
448	*	CN			CN202211416085.2	3/30/2020
449	*	CN	CN113498179B	10/18/2022	CN202010255183.7	4/2/2020
449	*	CN	CN113543231B	9/27/2022	CN202010302776.4	4/17/2020
449	*	CN			202211089207.1	4/2/2020
449	*	US			17/955,545	3/16/2021
450	*	CN	CN113498098B	10/18/2022	CN202010260666.6	4/3/2020
450	*	CN	CN115396943B	11/12/2024	CN202211128579.0	4/3/2020
450	*	CN	CN113556687B	9/27/2022	CN202010325310.6	4/23/2020
450	*	CN			CN202211110901.7	4/3/2020
450	*	EP			21716947.3	4/2/2021
450	*	US			17/950,130	4/2/2021
451		CN	CN113543239B	7/12/2024	CN202010298313.5	4/16/2020
452		CN	CN113543354B	8/26/2022	CN202010289028.7	4/14/2020
453	*	CN	CN113543038B	10/28/2022	CN202010293571.4	4/15/2020

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453	*	CN	CN115396825B	4/23/2024	CN202211128642.0	4/15/2020
453	*	CN			CN202211110618.4	4/15/2020
453	*	EP			21788825.4	4/13/2021
453	*	IN			IN202217064549	4/13/2021
453	*	US			17/963,996	4/13/2021
454	*	CN	CN113543369B	11/1/2022	CN202010298405.3	4/16/2020
454	*	CN			CN202211128551.7	4/16/2020
454	*	CN			CN202211141004.2	4/16/2020
455	*	CN	CN115152170B	11/12/2024	CN202180013228.2	4/15/2021
455	*	CN			CN202311560213.5	4/15/2021
455	*	US			17/962,498	4/15/2021
456		CN	CN113543357B	6/21/2022	CN202010316994.3	4/21/2020
457	*	CN	CN112654061B	12/24/2021	CN202010487649.6	6/2/2020
457	*	CN	CN114071551B	4/19/2024	CN202111410503.2	6/2/2020
457	*	US	US12177919B2	12/24/2024	17/179,389	2/18/2021
457	*	CN			CN202111373266.7	6/2/2020
457	*	EP			20932514.1	9/17/2020
457	*	IN			202217065602	9/17/2020
458		CN	CN113556826B	7/1/2022	CN202010333080.8	4/24/2020
459		CN	CN113573274B	9/10/2024	CN202010347037.7	4/28/2020
460		CN	CN113573249B	6/20/2023	CN202010353472.0	4/29/2020
461		CN	CN113595695B	4/19/2024	CN202010360096.8	4/30/2020
461		CN			CN202410396622.4	4/30/2020
462		CN	CN113597014B	4/16/2024	CN202010362463.8	4/30/2020
463	*	CN	CN113630905B	10/27/2023	CN202010384934.5	5/9/2020
463	*	CN	CN113676942B	9/26/2023	CN202110313749.1	3/24/2021
463	*	CN	CN113747610B	8/23/2024	CN202010466971.0	5/28/2020
463	*	CN			CN202311140221.4	3/24/2021
463	*	CN			CN202311160957.8	5/9/2020
463	*	CN			CN202311140179.6	5/9/2020
463	*	EP			21723095.2	4/30/2021
463	*	US			17/974,498	4/30/2021
464		CN	CN113630892B	4/7/2023	CN202010375122.4	5/7/2020
465		CN	CN113630222B	11/15/2024	CN202010375815.3	5/7/2020
466	*	CN	CN113676989B	2/17/2023	CN202010401057.8	5/13/2020
466	*	CN	CN113709911B	4/12/2024	CN202010428699.7	5/20/2020
466	*	US	12,513,763	12/30/2025	17/974,547	10/27/2022
466	*	US			19/434,638	12/29/2025
466	*	CN			CN202310009321.7	5/13/2020
466	*	CN			CN202410291817.2	5/20/2020
467	*	CN	CN113677032B	5/24/2024	CN202010403296.7	5/13/2020
467	*	CN	CN113825180B	7/26/2024	CN202010571957.7	6/22/2020
467	*	CN			CN202410844249.4	6/22/2020
467	*	EP			21804435.2	4/30/2021
467	*	US			17/985,123	11/10/2022

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468		CN	CN113677033B	4/12/2024	CN202010410680.X	5/15/2020
468		CN			CN202410238279.0	5/15/2020
469	*	CN	CN113692061B	8/23/2024	CN202010422182.7	5/19/2020
469	*	CN	CN113765636B	2/27/2024	CN202010500247.5	6/4/2020
469	*	US			19/398,836	11/24/2025
469	*	US			17/974,552	5/18/2021
470	*	CN	CN113709889B	12/13/2024	CN202010428589.0	5/20/2020
470	*	CN	CN113810318B	4/12/2024	CN202010551430.8	6/17/2020
470	*	CN			CN202311671622.2	5/20/2020
470	*	EP			21809351.6	5/18/2021
470	*	US			17/975,622	10/28/2022
471		CN	CN113746591B	4/12/2024	CN202010458663.3	5/27/2020
472		CN	CN113747587B	11/15/2024	CN202010467685.6	5/28/2020
473	*	CN	CN113766551B	10/22/2024	CN202010489719.1	6/2/2020
473	*	CN	113810994	3/21/2025	CN202010527058.7	6/11/2020
473	*	CN			CN202311500137.9	6/2/2020
473	*	CN			CN202411297750.X	6/2/2020
473	*	US			17/975,629	5/28/2021
474	*	CN	113766531	3/18/2025	CN202010494518.0	6/3/2020
474	*	CN			CN202311726834.6	6/3/2020
475	*	CN	CN113766552B	11/12/2024	CN202010499976.3	6/4/2020
475	*	CN	CN113766553B	10/18/2024	CN202010501259.X	6/4/2020
475	*	CN	CN113810163B	1/24/2025	CN202010532526.X	6/12/2020
475	*	US			17/992,932	6/3/2021
476		CN	CN113765638B	3/26/2024	CN202010505255.9	6/5/2020
477		CN	CN113810999B	11/12/2024	CN202010542623.7	6/15/2020
478	*	CN	CN113824542B	10/28/2022	CN202010564602.5	6/19/2020
478	*	US			17/979,784	6/16/2021
479		CN	CN113824665B	3/26/2024	CN202010565286.3	6/19/2020
479		CN			CN202410188354.7	6/19/2020
480		CN	CN113905450B	1/21/2025	CN202010573694.3	6/22/2020
481		CN	CN113853028B	7/12/2024	CN202010592963.0	6/25/2020
482		CN	CN113939035B	6/14/2024	CN202010602100.7	6/29/2020
483		CN	CN113891485B	1/26/2024	CN202010624768.1	7/2/2020
484	*	CN	113891486	5/14/2024	CN202010625895.3	7/2/2020
484	*	US	11,856,611	12/26/2023	17/364,887	7/1/2021
484	*	CN			CN202311726883.X	7/2/2020
484	*	US			18/505,142	11/9/2023
485	*	CN	CN113904758B	4/19/2024	CN202010639812.6	7/6/2020
485	*	CN	CN113938170B	4/19/2024	CN202010671045.7	7/13/2020
485	*	US	US11962529B2	4/16/2024	17/364,895	7/1/2021
485	*	US			18/600,805	3/11/2024
486		CN	CN113950105B	6/11/2024	CN202010678123.6	7/15/2020
487	*	CN	CN113949483B	4/7/2023	CN202010713767.4	7/22/2020
487	*	CN	CN114095134B	10/18/2024	CN202010763650.7	7/31/2020

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487	*	CN	CN114124319B	6/9/2023	CN202010794873.X	8/10/2020
487	*	CN	CN114095136B	7/25/2023	CN202010854453.6	8/24/2020
487	*	CN			CN202310222309.4	7/22/2020
487	*	CN			CN202310573555.4	8/10/2020
487	*	CN			CN202310814517.3	8/24/2020
487	*	US			18/097,480	6/28/2021
488		CN	CN113965299B	4/12/2024	CN202010695994.9	7/20/2020
488		CN			CN202410271236.2	7/20/2020
489	*	CN	CN113965230B	8/19/2022	CN202010701550.1	7/20/2020
489	*	CN			CN202210778872.5	7/20/2020
489	*	US			18/098,699	6/28/2021
490		CN	CN113972970B	8/16/2024	CN202010715983.2	7/23/2020
491		CN	CN113972972B	10/18/2022	CN202010718134.2	7/23/2020
492		CN	CN113972973B	3/26/2024	CN202010722153.2	7/24/2020
492		CN			CN202410188416.4	7/24/2020
493		CN	CN114006681B	3/1/2024	CN202010727553.2	7/27/2020
493		CN			CN202410087270.4	7/27/2020
494		CN	CN114095132B	4/23/2024	CN202010741938.4	7/29/2020
494		CN			CN202410396665.2	7/29/2020
495		CN	CN114095133B	5/14/2024	CN202010751052.8	7/30/2020
495		CN			CN202410418509.1	7/30/2020
496		CN	CN114095135B	8/13/2024	CN202010766471.9	8/3/2020
496		CN			CN202410977831.8	8/3/2020
497		CN	CN114070362B	4/7/2023	CN202010767931.X	8/3/2020
497		CN			CN202310258196.3	8/3/2020
498		CN	CN114070515B	8/16/2024	CN202010783540.7	8/6/2020
499	*	CN	CN114080064B	1/21/2025	CN202010810406.1	8/13/2020
499	*	CN	CN114079551B	12/24/2024	CN202010826835.8	8/17/2020
499	*	US	US11825542B2	11/21/2023	17/394,361	8/4/2021
499	*	US			18/379,167	10/12/2023
500		CN	CN114079951B	3/1/2024	CN202010854242.2	8/24/2020
501	*	CN	CN114095873B	7/25/2023	CN202010854341.0	8/24/2020
501	*	US	US11950134B2	4/2/2024	17/409,708	8/23/2021
502		CN	CN114124320B	3/1/2024	CN202010862640.9	8/25/2020
503		CN	CN114205836B	4/12/2024	CN202010875895.9	8/27/2020
503		CN			CN202410238280.3	8/27/2020
504	*	CN	CN114126077B	6/14/2024	CN202010875894.4	8/27/2020
504	*	CN	CN114158058B	5/21/2024	CN202010922959.6	9/4/2020
504	*	CN			CN202311769401.9	8/27/2020
504	*	CN			CN202311769696.X	9/4/2020
504	*	CN			CN202410418546.2	9/4/2020
504	*	EP			21758292.3	8/27/2021
504	*	US			18/107,523	2/9/2023
505	*	CN	114125956	3/18/2025	CN202010893983.1	8/31/2020
506	*	CN	CN114158008B	4/18/2025	CN202010922967.0	9/4/2020

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506	*	CN	CN114339881B	7/12/2024	CN202011063813.7	9/30/2020
506	*	CN	CN114449537B	12/24/2024	CN202011190787.4	10/30/2020
506	*	CN			CN202311528376.5	9/4/2020
506	*	US			18/115,005	8/30/2021
506	*	US			18/123,351	3/20/2023
507	*	CN	CN114143801B	3/22/2024	CN202010922973.6	9/4/2020
507	*	US			18/115,000	8/30/2021
508	*	CN	CN114158091B	8/23/2024	CN202010927989.6	9/7/2020
508	*	US	US12225568B2	2/11/2025	17/467,290	9/6/2021
508	*	CN			CN202411035345.0	9/7/2020
509	*	CN	CN116076098B	12/13/2024	CN202180050417.7	9/9/2021
509	*	CN	114268968	3/18/2025	CN202110555395.1	5/21/2021
509	*	CN			CN202411679262.5	9/9/2021
509	*	US			18/115,001	9/9/2021
510		CN	CN114189884B	4/12/2024	CN202010969261.X	9/15/2020
511	*	CN	CN114268971B	8/23/2024	CN202010975488.5	9/16/2020
511	*	US			18/120,436	9/8/2021
512		CN	CN114205060B	11/15/2024	CN202010979262.2	9/17/2020
512		CN			CN202411441623.2	9/17/2020
513		CN	CN114205061B	5/14/2024	CN202010984848.8	9/18/2020
514		CN	CN114205915B	7/26/2024	CN202010987792.1	9/18/2020
515	*	CN	CN114257274B	2/17/2023	CN202010993570.0	9/21/2020
515	*	CN	CN114285533B	8/15/2023	CN202011032439.4	9/27/2020
515	*	CN			CN202310009305.8	9/21/2020
515	*	CN			CN202310929750.6	9/27/2020
515	*	US			18/120,437	3/13/2023
516	*	CN	CN114257346B	4/28/2023	CN202011022298.8	9/25/2020
516	*	CN	CN114285536B	7/16/2024	CN202011103568.8	10/15/2020
516	*	CN			202310355306.8	9/25/2020
516	*	CN			CN202310363923.2	9/25/2020
516	*	CN			CN202311506992.0	10/15/2020
516	*	EP			21871353.5	9/15/2021
516	*	IN			IN202317028861	9/15/2021
516	*	US			18/123,986	9/15/2021
517	*	CN	CN114258073B	9/5/2025	CN202011226969.2	11/6/2020
517	*	CN	CN114389770B	12/13/2024	CN202011115558.6	10/19/2020
517	*	CN			CN202411679292.6	10/19/2020
517	*	EP			21871513.4	9/23/2021
517	*	US			18/122,717	3/17/2023
518		CN	CN114257358B	6/11/2024	CN202011015911.3	9/24/2020
519	*	CN	CN114257276B	10/28/2022	CN202110555976.5	5/21/2021
519	*	CN	CN115664473B	10/18/2024	CN202211218359.7	5/21/2021
519	*	IN	575168	12/3/2025	202317029029	9/23/2021
519	*	CN			CN202211218360.X	5/21/2021
519	*	EP			21871514.2	9/23/2021

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519	*	US			18/123,994	3/21/2023
520	*	CN	CN114257361B	7/25/2023	CN202011022279.5	9/25/2020
520	*	IN	573601	11/11/2025	202317029028	9/23/2021
520	*	CN			202310820087.6	9/25/2020
520	*	CN			CN202310814190.X	9/25/2020
520	*	EP			21871515.9	9/23/2021
520	*	US			18/123,346	9/23/2021
521	*	CN	CN114339614B	7/28/2023	CN202011049552.3	9/29/2020
521	*	US			18/127,015	9/27/2021
522	*	CN	CN114337741B	11/1/2022	CN202110555954.9	5/21/2021
522	*	CN	CN114374497B	4/26/2024	CN202110556007.1	5/21/2021
522	*	US			18/131,884	10/9/2021
523	*	CN	CN114337740B	11/1/2022	CN202011076544.8	10/10/2020
523	*	CN	CN115395992B	2/27/2024	CN202211128560.6	10/10/2020
523	*	CN	CN114499779B	8/16/2024	CN202011144604.5	10/23/2020
523	*	CN			CN202211140995.2	10/10/2020
523	*	US			18/132,412	10/9/2021
524	*	CN	CN114374484B	4/16/2024	CN202011098573.4	10/14/2020
524	*	CN	CN114499791B	10/18/2024	CN202011160699.X	10/27/2020
524	*	CN			CN202311793109.0	10/14/2020
524	*	CN			CN202411297766.0	10/27/2020
524	*	US			18/134,569	10/13/2021
525		CN	CN114374488B	8/16/2024	CN202011103594.0	10/15/2020
526		CN	CN114389773B	3/26/2024	CN202011131013.4	10/21/2020
527	*	CN	CN114389775B	6/11/2024	CN202011137665.9	10/22/2020
527	*	CN	CN114448578B	11/15/2024	CN202011190796.3	10/30/2020
527	*	US			18/136,351	10/13/2021
528	*	CN	CN114430311B	8/27/2024	CN202011179423.6	10/29/2020
528	*	CN			CN202411035372.8	10/29/2020
528	*	US			17/512,680	10/28/2021
529	*	CN	CN114448583B	8/23/2024	CN202011216816.X	11/4/2020
529	*	US	US12052791B2	7/30/2024	17/517,677	11/3/2021
529	*	CN			CN202411035413.3	11/4/2020
530	*	CN	CN114448582B	11/15/2024	CN202011215761.0	11/4/2020
530	*	US	US11792806B2	10/17/2023	17/517,729	11/3/2021
530	*	US	US12047958B2	7/23/2024	18/242,546	9/6/2023
530	*	CN			CN202311512938.7	11/4/2020
531		CN	CN114465698B	11/15/2024	CN202011236547.3	11/9/2020
532		CN	CN114465699B	3/26/2024	CN202011236554.3	11/9/2020
533	*	CN	CN114499794B	11/15/2024	CN202011256557.3	11/11/2020
533	*	US	12,507,255	12/23/2025	18/144,259	11/11/2021
533	*	CN			CN202311757014.3	11/11/2020
533	*	US			19/428,663	12/22/2025
534		CN	CN114499799B	2/27/2024	CN202011269657.X	11/13/2020
535	*	CN	CN114513804B	12/13/2024	CN202011276215.8	11/16/2020

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535	*	CN			CN202311588449.X	11/16/2020
535	*	US			18/197,109	11/11/2021
536	*	CN	CN114513857B	7/12/2024	CN202011276189.9	11/16/2020
536	*	US	12,250,686	3/11/2025	17/525,979	11/15/2021
537		CN	CN114513289B	7/12/2024	CN202011278407.2	11/16/2020
537		CN			CN202311638032.X	11/16/2020
537		CN			CN202410751567.6	11/16/2020
538	*	CN	114531214	3/18/2025	CN202011321196.6	11/23/2020
538	*	CN	CN114553272B	5/26/2023	CN202011433041.1	12/10/2020
538	*	CN	CN116388810B	11/12/2024	CN202310486841.7	12/10/2020
538	*	CN			CN202310486866.7	12/10/2020
538	*	EP			21894057.5	11/22/2021
538	*	US			18/219,096	7/7/2023
538	*	US			18/200,551	11/22/2021
539	*	CN	CN114554613B	7/26/2024	CN202011339085.8	11/25/2020
539	*	US	US11895050B2	2/6/2024	17/525,982	11/15/2021
539	*	CN			CN202410844294.X	11/25/2020
540	*	CN	CN114553377B	10/18/2024	CN202011336017.6	11/25/2020
540	*	CN			CN202311631648.4	11/25/2020
540	*	US			18/201,189	11/24/2021
541		CN	CN114567419B	8/23/2024	CN202011362211.1	11/27/2020
542	*	CN	114599050	3/18/2025	CN202011416753.2	12/7/2020
542	*	CN			CN202311638034.9	12/7/2020
542	*	CN			CN202311671151.5	12/7/2020
542	*	US			18/204,391	12/6/2021
543	*	CN	CN114599113B	7/12/2024	CN202011417501.1	12/7/2020
543	*	US			18/144,176	12/6/2021
544		CN	CN114598431B	3/22/2024	CN202011418369.6	12/7/2020
545	*	CN	CN114598417B	11/12/2024	CN202011417481.8	12/7/2020
545	*	US	US11785618B2	10/10/2023	17/542,510	12/6/2021
545	*	CN			CN202311521874.7	12/7/2020
545	*	US			18/241,903	12/7/2020
546	*	CN	CN114598998B	4/28/2023	CN202011418003.9	12/7/2020
546	*	CN	116405884	8/15/2025	CN202310334889.6	12/7/2020
546	*	CN			CN202310354347.5	12/7/2020
546	*	EP			21902537.6	12/6/2021
546	*	IN			202317045025	12/6/2021
546	*	US			18/206,619	12/6/2021
547		CN	CN114666416B	10/18/2024	CN202011424364.4	12/8/2020
548	*	CN	CN114614954B	9/13/2024	CN202011436485.0	12/11/2020
548	*	CN	CN114640431B	4/12/2024	CN202011481237.8	12/15/2020
548	*	US	US11963191B2	4/16/2024	17/544,945	12/8/2021
548	*	CN			CN202410291863.2	12/15/2020
548	*	CN			CN202311526832.2	12/15/2020
548	*	US			18/604,520	3/14/2024

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549	*	US	12,513,772	12/30/2025	18/207,697	12/8/2021
549	*	US			19/397,540	11/21/2025
549	*	CN			CN202011436602.3	12/10/2020
549	*	CN			CN202311588462.5	1/15/2021
549	*	CN			202110051706.0	1/15/2021
549	*	EP			21902627.5	12/8/2021
550		CN	CN114629608B	10/22/2024	CN202011452844.1	12/11/2020
551	*	CN	CN114629606B	11/12/2024	CN202011442861.7	12/11/2020
551	*	EP	4245002	10/1/2025	21824263.4	12/6/2021
551	*	EP			25205776.5	12/6/2021
551	*	US			18/138,119	12/6/2021
552		CN	CN114640428B	4/12/2024	CN202011475667.9	12/15/2020
552		CN			CN202311810611.8	12/15/2020
553	*	CN	CN114650582B	12/24/2024	CN202011518615.5	12/21/2020
553	*	CN			CN202311671553.5	12/21/2020
553	*	US			17/973,472	12/17/2021
554	*	CN	CN114666019B	9/13/2024	CN202011533111.0	12/22/2020
554	*	CN			CN202411104785.7	12/22/2020
554	*	US			17/548,572	12/12/2021
555	*	CN	CN114666021B	3/22/2024	CN202011538066.8	12/23/2020
555	*	US	US12028758B2	7/2/2024	17/557,062	12/21/2021
555	*	CN			CN202410188439.5	12/23/2020
556	*	CN	114679686	3/18/2025	CN202011547775.2	12/24/2020
556	*	US			17/557,065	12/21/2021
557	*	CN	CN114696973B	4/23/2024	CN202011577729.7	12/28/2020
557	*	US	US12101748B2	9/24/2024	17/563,057	12/28/2021
557	*	CN			CN202311512975.8	12/28/2020
557	*	CN			CN202410396712.3	12/28/2020
557	*	US			18/806,739	8/16/2024
558	*	CN	CN114698053B	7/9/2024	CN202011592580.X	12/29/2020
558	*	US			18/209,498	12/27/2021
559	*	CN	CN114697878B	11/12/2024	CN202011616661.9	12/30/2020
559	*	US	US12132686B2	10/29/2024	17/564,233	12/29/2021
560		CN	CN114696949B	11/12/2024	CN202011618325.8	12/30/2020
561	*	CN	CN114698042B	1/21/2025	CN202011638559.9	12/31/2020
561	*	US	US12120645B2	10/15/2024	17/560,299	12/23/2021
561	*	US			18/823,727	9/4/2024
562		CN	CN114726490B	8/23/2024	CN202110006846.6	1/5/2021
563	*	CN	CN114760017B	3/26/2024	CN202110022944.9	1/8/2021
563	*	CN			CN202410220869.0	1/8/2021
563	*	US			18/218,000	1/7/2022
564	*	US	US12126556B2	10/22/2024	17/571,570	1/10/2022
564	*	CN			CN202311492445.1	1/11/2021
565	*	US	12,250,613	3/11/2025	17/575,657	1/14/2022
565	*	CN			CN202311490797.3	1/15/2021

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566		CN	CN114765746B	1/21/2025	CN202110053798.6	1/15/2021
567		CN	CN114765499B	12/13/2024	CN202110054526.8	1/15/2021
568	*	CN	CN114828035B	6/11/2024	CN202110556017.5	5/21/2021
568	*	CN			CN202311521951.9	5/21/2021
568	*	CN			CN202410584493.1	5/21/2021
568	*	US			18/218,015	1/14/2021
569	*	CN	CN114867126B	7/12/2024	CN202110072084.X	1/20/2021
569	*	CN			CN202410751753.X	1/20/2021
569	*	US			18/218,109	1/20/2022
570	*	CN	CN114826493B	10/22/2024	CN202110108741.1	1/27/2021
570	*	US			17/579,611	1/20/2022
571	*	CN	CN 114828232 B	11/11/2025	202110086846.1	1/22/2021
571	*	US	12,245,060	3/4/2025	17/578,472	1/19/2022
571	*	CN			CN202311799974.6	1/22/2021
572		CN	CN114793151B	5/14/2024	CN202110101290.9	1/26/2021
573	*	US	12,232,211	2/18/2025	17/584,320	1/25/2022
573	*	CN			202110101309.X	1/26/2021
574	*	CN	CN114828268B	7/26/2024	CN202110110390.8	1/27/2021
574	*	US			18/224,071	1/26/2022
575		CN	CN114980368B	7/9/2024	CN202110299931.6	3/22/2021
576		CN	114980367	2/25/2025	CN202110299856.3	3/22/2021
577		CN	CN115021874B	12/17/2024	CN202110233093.2	3/3/2021
578		CN	CN115038191B	12/17/2024	CN202110247647.4	3/6/2021
579	*	CN	CN115052373B	12/24/2024	CN202110253932.7	3/9/2021
579	*	CN			CN202311793168.8	3/9/2021
579	*	US			18/110,902	3/7/2022
580	*	CN	CN115087119B	6/14/2024	CN202110270118.6	3/12/2021
580	*	US			18/242,536	3/7/2022
581	*	CN	CN115085878B	1/21/2025	CN202110268952.1	3/12/2021
581	*	EP			22766357.2	3/10/2022
581	*	US			18/235,354	3/10/2022
582	*	CN	115119337	3/21/2025	CN202110284507.4	3/17/2021
583	*	CN	CN115118400B	7/9/2024	CN202110285044.3	3/17/2021
583	*	US			18/244,303	3/14/2022
584	*	CN	CN115119309B	12/13/2024	CN202110305103.9	3/19/2021
584	*	CN			CN202311543711.9	3/19/2021
584	*	US			17/973,491	3/14/2022
585		CN	CN115119330B	7/12/2024	CN202110299999.4	3/22/2021
586		CN	CN115134051B	4/12/2024	CN202110320533.8	3/25/2021
587	*	CN	CN115134053B	4/26/2024	CN202110333493.0	3/29/2021
587	*	US			18/372,802	3/21/2022
588	*	CN	CN115175371B	7/26/2024	CN202110369480.9	4/6/2021
588	*	CN			CN202110368521.2	4/6/2021
588	*	US			18/235,359	4/6/2022
589		CN	CN115190434B	4/12/2024	CN202110372613.8	4/7/2021

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590		CN	CN115208522B	7/12/2024	CN202110380770.3	4/9/2021
591		CN	CN115208530B	10/22/2024	CN202110394764.3	4/13/2021
592		CN	CN115209355B	3/26/2024	CN202110399376.4	4/14/2021
593		CN	CN115225197B	1/23/2024	CN202110409884.6	4/16/2021
594		CN	CN115225223B	11/15/2024	CN202110422003.4	4/20/2021
595	*	CN	CN115225225B	3/1/2024	CN202110428377.7	4/21/2021
595	*	CN			CN202410087302.0	4/21/2021
595	*	US			18/379,171	4/8/2022
596	*	CN	CN115250166B	8/27/2024	CN202110463933.4	4/26/2021
596	*	US	US12177851B2	12/24/2024	17/705,266	3/25/2022
597		CN	CN115276928B	4/12/2024	CN202110482876.4	4/30/2021
598		CN	CN115278802B	6/14/2024	CN202110486727.5	5/1/2021
599		CN	CN115314170B	3/26/2024	CN202110491458.1	5/6/2021
600	*	CN	CN115333698B	9/13/2024	CN202110511243.1	5/11/2021
600	*	CN			CN202411104771.5	5/11/2021
600	*	EP			22806673.4	5/9/2022
600	*	US			18/110,896	5/9/2022
601	*	CN	CN115348676B	8/13/2024	CN202110517403.3	5/12/2021
601	*	CN			CN202410977884.X	5/12/2021
601	*	CN			CN202410977919.X	5/12/2021
601	*	US			17/741,484	5/11/2022
602		CN	CN115378559B	6/14/2024	CN202110541251.0	5/18/2021
602		CN			CN202410584494.6	5/18/2021
602		US			18/509,334	5/17/2022
603	*	CN	CN115378558B	3/22/2024	CN202110541230.9	5/18/2021
603	*	US	US12101278B2	9/24/2024	17/746,919	5/17/2022
604	*	CN	CN115459888B	9/12/2023	CN202110556436.9	5/21/2021
604	*	CN			CN202311062323.9	5/21/2021
604	*	CN			CN202311083657.4	5/21/2021
604	*	EP			22803938.4	5/17/2022
604	*	US			18/512,070	5/17/2022
605		CN	CN115397035B	12/13/2024	CN202110564187.8	5/24/2021
606	*	CN	CN115396822B	4/12/2024	CN202110564185.9	5/24/2021
606	*	CN			CN202410291980.9	5/24/2021
606	*	CN			CN202410271282.2	5/24/2021
606	*	US			17/735,135	5/3/2022
607		CN	CN115413066B	8/23/2024	CN202110595294.7	5/29/2021
608		CN	CN115459889B	6/11/2024	CN202110634667.7	6/8/2021
609	*	CN	CN115499109B	9/13/2024	CN202110669305.1	6/17/2021
609	*	US	12,506,566	12/23/2025	17/842,747	6/16/2022
609	*	US			19/411,832	12/8/2025
610		CN	CN115499939B	12/24/2024	CN202110675527.4	6/18/2021
610		CN			CN202311597045.7	6/18/2021
610		US			18/537,847	6/6/2022
611	*	CN	CN115580381B	7/9/2024	CN202110684686.0	6/21/2021

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Worldwide Patents and Applications

611	*	US	US12185128B2	12/31/2024	17/842,756	6/16/2022
611	*	CN			CN202410751786.4	6/21/2021
611	*	US			18/942,412	11/9/2024
612		CN	CN115603856B	7/9/2024	CN202110717716.3	6/28/2021
613	*	CN	CN115632749B	4/26/2024	CN202110753938.0	7/4/2021
614		CN	CN115603873B	6/3/2025	CN202110766077.X	7/7/2021
614		CN			202110854168.9	7/28/2021
614		US			18/404,909	7/6/2022
615	*	CN	CN115603857B	4/26/2024	CN202110770777.6	7/8/2021
616		CN	CN115603878B	1/21/2025	CN202110780211.1	7/10/2021
616		US			18/404,912	6/24/2022
617		CN	CN115642989B	12/13/2024	CN202110810123.1	7/18/2021
617		US			18/408,578	7/6/2022
618		CN	CN115884095B	6/11/2024	CN202110901339.9	8/6/2021
619		CN	CN115913480B	8/13/2024	CN202110922866.8	8/12/2021
619		CN			CN202280006930.0	8/5/2022
620	*	CN	CN115913485B	7/23/2024	CN202110987008.1	8/26/2021
620	*	CN			202110959856.1	8/20/2021
620	*	CN			CN202410844330.2	8/26/2021
620	*	US			18/581,399	8/8/2022
621	*	CN	115734253	8/19/2025	CN202110973336.6	8/24/2021
621	*	CN			CN202311677817.8	8/24/2021
621	*	CN			202511075736.X	8/24/2021
621	*	EP			22860359.3	8/18/2022
621	*	US	12,526,716	1/13/2026	18/198,851	8/18/2022
622		CN	CN115883032B	7/9/2024	CN202110994671.4	8/27/2021
622		CN			CN202410751854.7	8/27/2021
622		US			18/586,594	8/18/2022
623	*	CN	CN116017332B	8/23/2024	CN202111236985.4	10/24/2021
623	*	CN			CN202411035577.6	10/24/2021
623	*	CN			202111286519.7	11/2/2021
623	*	CN			202111381418.8	11/21/2021
623	*	US			18/642,860	10/18/2022
624	*	CN	CN116095835B	9/2/2025	CN202111276054.7	10/29/2021
624	*	US			18/644,073	10/18/2022
625		CN	CN116112132B	10/18/2024	CN202111329938.4	11/11/2021
626		CN	CN 116113051 B	7/8/2025	202111318059.1	11/9/2021
626		US			18/648,386	11/8/2022
627	*	CN	CN116193380B	1/21/2025	CN202111412539.4	11/25/2021
627	*	US			17/990,728	11/20/2022
628	*	CN	CN116261221B	8/8/2025	CN202111490609.8	12/8/2021
628	*	CN			CN202311778449.6	12/8/2021
628	*	US			18/736,549	12/5/2022
629		CN	CN116264736B	8/8/2025	CN202111503797.3	12/10/2021
629		US			18/676,511	12/5/2022

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Worldwide Patents and Applications

630	*	CN	CN113489576B	4/28/2023	CN202110463733.9	4/26/2021
630	*	CN			202310362856.2	4/26/2021
630	*	CN			CN202310368939.2	4/26/2021
630	*	US			18/379,671	10/21/2021
631	*	CN	CN117336864B	11/22/2024	CN202210698146.2	6/20/2022
631	*	CN			202411553700.3	6/20/2022
631	*	EP			23826319.8	6/19/2023
631	*	US			18/985,070	6/19/2023
632		CN	CN 118804357 B	10/28/2025	202310393305.2	4/12/2023
632		CN			CN202311554474.6	4/12/2023
632		CN			202511446590.5	4/12/2023
633	*	CN	CN 119232340 B	11/11/2025	202310799934.5	6/30/2023
633	*	CN			202511518566.8	6/30/2023
634		CN			CN202010636090.9	7/3/2020
635		CN			CN202010810407.6	8/13/2020
636		CN			CN202010939309.2	9/9/2020
637	*	CN			CN202011577675.4	12/28/2020
637	*	US			17/557,068	12/21/2021
638	*	CN			202011616640.7	12/30/2020
639	*	CN			CN202110023662.0	1/8/2021
640	*	CN			CN202110233997.5	3/3/2021
640	*	US			18/236,956	3/2/2022
641	*	CN			CN202311554373.9	3/21/2022
641	*	CN			CN202280012045.3	3/21/2022
641	*	US			17/973,504	3/21/2022
642	*	CN			CN202110381076.3	4/9/2021
642	*	US			18/377,799	4/6/2022
643	*	CN			CN202110416810.5	4/19/2021
644	*	CN			202110500364.6	5/8/2021
645	*	CN			202110515236.9	5/12/2021
645	*	US			17/740,368	5/10/2022
646	*	CN			202110631069.4	6/7/2021
647		CN			CN202110703726.1	6/24/2021
648	*	CN			CN202110779267.5	7/9/2021
648	*	US			18/544,472	6/24/2022
649		CN			CN202110766059.1	7/7/2021
650		CN			CN202110803870.2	7/16/2021
651		CN			202110803860.9	7/16/2021
651		CN			202110889885.5	8/4/2021
651		US			18/412,631	7/6/2022
652		CN			202110828885.4	7/22/2021
652		CN			CN202110894919.X	8/5/2021
652		CN			202110894908.1	8/5/2021
652		US			18/418,380	7/21/2022
653	*	CN			202110854261.X	7/28/2021

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Worldwide Patents and Applications

653	*	CN			CN202311568693.X	7/28/2021
653	*	EP			22848386.3	7/21/2022
653	*	US			18/408,581	7/21/2022
654		CN			202110869235.4	7/30/2021
654		US			18/423,305	7/27/2022
655	*	CN			202110869131.3	7/30/2021
655	*	CN			CN202311597119.7	7/30/2021
655	*	US			18/423,307	7/27/2022
656		CN			202110880786.0	8/2/2021
656		US			18/427,776	7/27/2022
657		CN			202110986772.7	8/26/2021
657		CN			202110914571.6	8/10/2021
658		CN			CN202110959420.2	8/20/2021
658		US			18/581,401	8/16/2022
659		CN			202110974324.5	8/24/2021
660		CN			202210140008.2	2/16/2022
661		CN			CN202111009351.5	8/31/2021
662		CN			CN202280006932.X	8/31/2022
663	*	CN			202280007339.7	9/1/2022
663	*	US			18/589,441	9/1/2022
664		CN			CN202280006941.9	9/1/2022
665	*	CN			202210121092.3	2/9/2022
665	*	CN			CN202311677857.2	2/9/2022
665	*	US			18/111,597	9/7/2022
666		CN			CN202280007342.9	9/1/2022
666		US			18/595,460	9/9/2021
667	*	CN			CN202111196969.7	10/14/2021
667	*	CN			CN202311559685.9	10/14/2021
667	*	CN			CN202280035803.3	9/2/2022
667	*	CN			CN202311726960.1	9/2/2022
667	*	EP			22866526.1	9/2/2022
667	*	IN			IN202417028172	9/2/2022
667	*	US			18/597,960	9/2/2022
668		CN			202280006942.3	9/13/2022
669		CN			202111169890.5	10/8/2021
669		US			18/603,249	9/13/2022
670	*	CN			202280007387.6	9/15/2022
670	*	US			18/600,796	9/15/2022
671		CN			CN202280007347.1	9/15/2022
672		CN			202111163360.X	9/30/2021
672		US			18/607,581	9/19/2022
673	*	CN			CN202311496765.4	9/13/2022
673	*	CN			202280007388.0	9/13/2022
673	*	EP			22871842.5	9/13/2022
673	*	US			18/610,278	9/13/2022

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Worldwide Patents and Applications

674	*	CN		CN202280007348.6	9/19/2022
674	*	US		18/614,773	9/19/2022
675	*	CN		202280007389.5	9/23/2022
675	*	US		18/611,746	9/23/2022
676		CN		202111161638.X	9/30/2021
677	*	CN		202111159527.5	9/30/2021
677	*	EP		22874428.0	8/8/2022
677	*	US		18/621,105	8/8/2022
678	*	CN		CN202111173017.3	10/5/2021
678	*	US		18/625,218	9/27/2022
679		CN		CN202111176661.6	10/9/2021
680	*	CN		202111180095.6	10/11/2021
680	*	US		18/111,601	2/20/2023
681	*	CN		CN202111181912.X	10/11/2021
681	*	CN		CN202311689023.3	10/11/2021
681	*	US		18/434,767	9/27/2022
682	*	CN		202111184690.7	10/12/2021
682	*	US		18/633,497	10/11/2022
683		CN		CN202111192527.5	10/13/2021
684	*	CN		CN202111237933.9	10/23/2021
684	*	CN		CN202311559740.4	10/23/2021
684	*	US		18/641,445	10/11/2022
685	*	CN		202111253404.8	10/27/2021
685	*	US		18/111,608	10/26/2022
686	*	CN		202111267571.8	10/29/2021
686	*	US		18/111,611	10/26/2022
687		CN		CN202111312266.6	11/8/2021
688	*	CN		202111318268.6	11/9/2021
689	*	CN		202111324873.4	11/10/2021
689	*	US		17/983,415	11/9/2022
690	*	CN		CN202111332406.6	11/11/2021
690	*	US		18/659,012	11/10/2022
691	*	US		17/984,258	11/10/2022
692		CN		202111337253.4	11/12/2021
693		CN		CN202111383822.9	11/22/2021
693		US		18/659,028	11/8/2022
694		CN		CN202111513873.9	12/13/2021
695	*	CN		202111439648.5	11/30/2021
695	*	CN		202511641731.9	11/30/2021
695	*	US		18/666,840	11/24/2022
696	*	CN		202111450827.9	12/1/2021
696	*	US		17/994,015	11/25/2022
697		CN		202111457560.6	12/2/2021
697		US		18/676,509	11/24/2022
698		CN		CN202111511335.6	12/6/2021

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698		CN		CN202311689062.3	12/6/2021
699	*	CN		CN202311588475.2	12/7/2021
699	*	CN		202111482615.9	12/7/2021
700		CN		CN202111514250.3	12/13/2021
700		CN		CN202311631685.5	12/13/2021
701		CN		CN202111514642.X	12/13/2021
702		CN		CN202111514372.2	12/13/2021
703		CN		CN202111526469.5	12/14/2021
704		CN		202111563606.2	12/20/2021
704		US		18/733,891	12/12/2022
705		CN		CN202111572593.5	12/21/2021
705		CN		CN202311549930.8	12/21/2021
705		US		18/736,461	12/21/2022
706		CN		CN202111590511.X	12/23/2021
707	*	CN		CN202111664036.6	12/31/2021
707	*	CN		CN202311558520.X	12/31/2021
707	*	EP		22914431.6	12/21/2022
707	*	US		18/733,893	12/21/2022
708		CN		CN202111659743.6	12/31/2021
708		US		18/751,375	12/12/2022
709		CN		CN202111665200.5	12/31/2021
710	*	CN		202111661442.7	12/31/2021
710	*	US		18/080,764	12/14/2022
711		CN		202210008633.1	1/6/2022
712	*	CN		CN202210016116.9	1/7/2022
712	*	CN		CN202311638036.8	1/7/2022
712	*	EP		23737016.8	1/4/2023
712	*	US		18/744,734	1/4/2023
713		CN		CN202210079333.2	1/24/2022
714	*	CN		CN202210037858.X	1/13/2022
714	*	CN		CN202311567065.X	1/13/2022
714	*	EP		23739934.0	1/7/2023
714	*	US		18/769,449	1/7/2023
715		CN		CN202210037360.3	1/13/2022
715		US		18/744,731	1/7/2023
716	*	CN		CN202210054782.1	1/18/2022
716	*	US		18/770,683	7/12/2024
717		CN		202210071479.2	1/21/2022
717		CN		202511769279.4	1/21/2022
717		US		18/774,930	1/17/2023
718		CN		CN202210153024.5	2/18/2022
719		CN		202210091812.6	1/26/2022
720		CN		CN202210093506.6	1/26/2022
721	*	CN		202210114350.5	1/30/2022
721	*	US		18/102,776	1/30/2023

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Worldwide Patents and Applications

722		CN			202210115650.5	2/7/2022
722		US			18/793,950	1/28/2023
723		CN			CN202210124782.4	2/10/2022
724		CN			CN202210131753.0	2/14/2022
725	*	CN			CN202210131779.5	2/14/2022
725	*	CN			CN202311638039.1	2/14/2022
725	*	US			18/107,025	2/8/2023
726		CN			CN202210134427.5	2/14/2022
727		CN			202210153310.1	2/18/2022
727		CN			CN202311588495.X	2/18/2022
727		US			18/806,735	2/12/2023
728	*	CN			202210159604.5	2/22/2022
728	*	US			18/808,097	2/12/2023
729	*	CN			CN202210166196.6	2/23/2022
729	*	US			18/107,507	2/9/2023
730		CN			CN202210171831.X	2/24/2022
731	*	CN			CN202210180232.4	2/26/2022
731	*	US			18/107,517	2/9/2023
732		CN			CN202210180223.5	2/26/2022
732		US			18/808,101	2/17/2023
733		CN			CN202210193457.3	3/1/2022
734		CN			CN202210198724.6	3/2/2022
735		US			18/820,221	3/3/2023
736		CN			CN202210221872.5	3/9/2022
736		US			18/822,491	3/3/2023
737		CN			CN202210222053.2	3/9/2022
738	*	CN			CN202210233479.8	3/10/2022
738	*	US			18/117,484	3/6/2023
739	*	CN			202210236510.3	3/11/2022
739	*	CN			CN202311810640.4	3/11/2022
739	*	EP			23765902.4	3/3/2023
739	*	IN			IN202417073674	3/3/2024
739	*	US			18/827,871	3/3/2023
740		CN			CN202210267878.6	3/17/2022
741		CN			CN202311768867.7	3/18/2022
741		CN			CN202210273378.3	3/18/2022
741		US			18/885,571	3/16/2023
742		CN			CN202210276725.8	3/21/2022
742		US			18/827,879	3/16/2023
743		CN			CN202210277124.9	3/21/2022
743		US			18/888,181	3/17/2023
744		CN			CN202210280058.0	3/21/2022
745		CN			CN202210292074.1	3/23/2022
746		CN			CN202210303706.X	3/24/2022
747		CN			CN202210317087.X	3/28/2022

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748		CN		CN202210317117.7	3/28/2022
748		US		18/889,431	3/20/2023
749		CN		CN202210323924.X	3/29/2022
750	*	CN		CN202210333951.5	3/30/2022
750	*	CN		CN202311675533.5	3/30/2022
750	*	EP		23777897.2	3/20/2023
750	*	US		18/896,938	3/20/2023
751		CN		CN202210349939.3	4/2/2022
752	*	CN		CN202210350698.4	4/2/2022
752	*	US		18/129,106	3/31/2023
753		CN		CN202210351270.1	4/2/2022
753		CN		CN202311671420.8	4/2/2022
753		US		18/896,947	4/3/2023
754	*	CN		CN202210352511.4	4/5/2022
754	*	EP		23784235.6	4/3/2023
754	*	IN		IN202417084049	4/3/2023
754	*	US		18/896,965	4/3/2023
755		CN		CN202210423078.9	4/21/2022
755		CN		CN202311631697.8	4/21/2022
755		US		18/898,729	4/3/2023
756		CN		CN202210387329.2	4/13/2022
757		CN		CN202210367599.7	4/8/2022
758		CN		CN202210370463.1	4/9/2022
759	*	CN		CN202210371747.2	4/11/2022
759	*	US		18/132,983	4/11/2023
760	*	CN		CN202210388828.3	4/13/2022
760	*	US		18/132,988	4/11/2023
761		CN		CN202210390652.5	4/14/2022
761		US		18/909,973	4/6/2023
762		CN		CN202210412516.1	4/19/2022
763		CN		CN202210417586.6	4/20/2022
764		CN		CN202210418363.1	4/20/2022
765		CN		CN202210426722.8	4/21/2022
766		CN		CN202210428637.5	4/22/2022
767		CN		CN202210433081.9	4/24/2022
767		CN		CN202311684374.5	4/24/2022
768		CN		CN202210433655.2	4/24/2022
769	*	CN		CN202210441060.1	4/25/2022
769	*	US		18/136,882	4/20/2023
770		CN		CN202210449141.6	4/26/2022
771		CN		CN202210461940.5	4/28/2022
772		CN		CN202210461186.5	4/28/2022
773		CN		CN202210474424.6	4/29/2022
774		CN		CN202210476674.3	4/30/2022
774		US		18/921,037	4/27/2023

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775		CN		CN202210488787.5	5/6/2022
776		CN		CN202210499132.8	5/9/2022
776		CN		CN202311560161.1	5/9/2022
776		US		18/922,451	4/27/2023
777	*	CN		CN202210560312.2	5/23/2022
777	*	CN		CN202311792788.X	5/23/2022
777	*	EP		23802668.6	4/27/2023
777	*	US		18/942,394	4/27/2023
778	*	CN		CN202210517437.7	5/12/2022
778	*	US		18/144,175	5/6/2023
779		CN		CN202210537810.5	5/17/2022
780		CN		CN202210522447.X	5/13/2022
781		CN		CN202210526962.5	5/16/2022
782		CN		CN202210526975.2	5/16/2022
783		CN		CN202210534623.1	5/17/2022
784		CN		CN202210552799.X	5/19/2022
784		US		18/140,622	4/28/2023
785		CN		CN202210555369.3	5/19/2022
786		CN		CN202210560209.8	5/23/2022
787		CN		CN202210562368.1	5/23/2022
787		US		18/198,289	5/17/2023
788		CN		CN202210581905.7	5/25/2022
789	*	CN		CN202210606172.8	5/31/2022
789	*	EP		23811116.5	5/25/2023
789	*	US		18/956,013	5/25/2023
790		CN		CN202210592142.6	5/27/2022
791		CN		CN202210670344.8	6/14/2022
792		CN		CN202210600536.1	5/30/2022
792		CN		CN202311757032.1	5/30/2022
792		US		18/957,907	5/29/2023
793		CN		CN202210649195.7	6/9/2022
794		CN		CN202210608894.7	5/31/2022
794		US		18/959,693	5/29/2023
795		CN		CN202210628489.1	6/6/2022
796		CN		CN202210634247.3	6/6/2022
796		US		18/970,942	6/2/2023
797	*	CN		CN202210637034.6	6/7/2022
797	*	EP		23819017.7	6/2/2023
797	*	IN		202417104406	6/2/2023
797	*	US		18/970,954	6/2/2023
798	*	CN		CN202210639012.3	6/7/2022
798	*	CN		CN202311597195.8	6/7/2022
799		CN		CN202210655527.2	6/10/2022
800	*	CN		CN202210657469.7	6/10/2022
801	*	CN		CN202210658270.6	6/10/2022

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801	*	US		18/207,695	6/9/2023
802		CN		CN202210670352.2	6/14/2022
803		CN		CN202210676250.1	6/15/2022
804	*	CN		CN202210682699.9	6/16/2022
804	*	EP		23823118.7	6/13/2023
804	*	US		18/981,665	6/13/2023
805		CN		CN202210691650.X	6/17/2022
805		CN		CN202311775311.0	6/17/2022
806	*	CN		CN202210696065.9	6/20/2022
806	*	US		18/211,569	6/19/2023
807		CN		CN202210733994.2	6/27/2022
808		CN		CN202210707640.0	6/21/2022
809		CN		CN202210725713.9	6/23/2022
810	*	CN		CN202210804457.2	7/8/2022
810	*	US		18/981,680	6/20/2023
811	*	CN		CN202210733683.6	6/27/2022
811	*	US		18/212,151	6/20/2023
812		CN		CN202210733993.8	6/27/2022
813	*	CN		CN202210758076.5	6/29/2022
813	*	EP		23830115.4	6/25/2023
813	*	US		19/001,594	6/25/2023
814	*	CN		CN202211109374.8	9/13/2022
814	*	US		18/212,189	6/21/2023
815	*	CN		CN202210773269.8	7/1/2022
815	*	EP		23830116.2	6/25/2023
815	*	IN		202517041868	6/25/2023
815	*	US		19/168,167	6/25/2023
816	*	CN		CN202210779249.1	7/1/2022
816	*	EP		23830197.2	6/26/2023
816	*	IN		202517041724	6/26/2023
817	*	CN		CN202210799139.1	7/6/2022
817	*	EP		23834653.0	6/26/2023
817	*	IN		202517042897	6/26/2023
818	*	CN		CN202210802789.7	7/7/2022
818	*	EP		23834831.2	7/4/2023
818	*	IN		202517042733	7/4/2023
818	*	US		19/480,790	7/4/2023
819	*	CN		CN202210804437.5	7/8/2022
819	*	EP		23834832.0	7/4/2023
819	*	IN		202517042895	7/4/2023
819	*	US		19/150,416	7/4/2023
820	*	CN		CN202211109328.8	9/13/2022
820	*	US		18/218,011	7/4/2023
821	*	CN		CN202210805395.7	7/8/2022
821	*	US		18/218,012	7/4/2023

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822		CN			CN202210811093.0	7/11/2022
822		US			18/218,013	7/4/2023
823	*	CN			CN202210817508.5	7/12/2022
823	*	CN			CN202311792859.6	7/12/2022
823	*	EP			23838806.0	7/4/2023
823	*	IN			202517044710	7/4/2023
823	*	US			19/001,602	7/4/2023
824	*	CN			CN202210824602.3	7/13/2022
824	*	EP			23838832.6	7/6/2023
824	*	IN			202517044794	7/6/2023
824	*	US			19/150,423	7/6/2023
825	*	CN			CN202210836389.8	7/15/2022
825	*	EP			23838833.4	7/6/2023
825	*	IN			202517045606	7/6/2023
825	*	US			19/150,443	7/6/2023
826	*	CN			CN202210842110.7	7/18/2022
826	*	US			18/219,095	7/7/2023
827	*	CN			CN202210843532.6	7/18/2022
827	*	EP			23842133.3	7/6/2023
827	*	IN			202517046068	7/6/2023
827	*	US			19/152,706	7/6/2023
828	*	CN			CN202210849407.6	7/19/2022
828	*	EP			23842143.2	7/10/2023
828	*	IN			202517046999	7/10/2023
828	*	US			19/152,480	7/10/2023
829	*	CN			CN202210849339.3	7/19/2022
829	*	US			18/223,039	7/18/2023
830	*	CN			CN202210857518.1	7/20/2022
830	*	CN			CN202311677886.9	7/20/2022
830	*	EP			23842144.0	7/10/2023
830	*	IN			202517045866	7/10/2023
830	*	US			19/008,675	7/10/2023
831		CN			CN202211109369.7	9/13/2022
832	*	CN			CN202210881359.9	7/25/2022
832	*	EP			23845307.0	7/10/2023
832	*	IN			202517050394	7/10/2023
832	*	US			19/035,871	7/10/2023
833	*	CN			CN202210881093.8	7/26/2022
833	*	EP			23845448.2	7/21/2023
833	*	IN			202517049909	7/21/2023
833	*	US			19/167,978	7/21/2023
834	*	CN			CN202210885584.X	7/26/2022
834	*	CN			CN202311552782.5	7/26/2022
834	*	EP			23845449.0	7/21/2023
834	*	IN			202517050463	7/21/2023

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834	*	US		19/008,681	7/21/2023
835		CN		CN202210883604.X	7/26/2022
836	*	CN		CN202210892646.X	7/27/2022
836	*	EP		23845451.6	7/21/2023
836	*	IN		202517049050	7/21/2023
836	*	US		19/480,688	7/21/2023
837		CN		CN202210894250.9	7/27/2022
837		EP		23845551.3	7/25/2023
837		IN		202517050481	7/25/2023
838		CN		CN202210899229.8	7/28/2022
838		EP		23845553.9	7/25/2023
838		IN		202517050913	7/25/2023
839	*	CN		CN202210904060.0	7/29/2022
839	*	CN		CN202311499911.9	7/29/2022
839	*	EP		23845554.7	7/25/2023
839	*	IN		202517054350	7/25/2023
839	*	US		19/039,763	1/28/2025
840	*	CN		CN202210909559.0	7/29/2022
840	*	EP		23845555.4	7/25/2023
840	*	IN		202517051222	7/25/2023
840	*	US		19/473,884	7/25/2023
841	*	CN		CN202210915272.9	8/1/2022
841	*	EP		23849316.7	7/31/2023
841	*	IN		202517049109	7/31/2023
841	*	US		19/159,920	7/31/2023
842		CN		CN202210921080.9	8/2/2022
842		EP		23849318.3	7/31/2023
842		IN		202517042669	7/31/2023
843	*	CN		CN202210921102.1	8/2/2022
843	*	EP		23849320.9	7/31/2023
843	*	IN		202517042781	7/31/2023
843	*	US		19/150,712	7/31/2023
844	*	CN		CN202210926013.6	8/3/2022
844	*	US		18/224,068	7/20/2023
845	*	CN		CN202210931070.3	8/4/2022
845	*	EP		23849399.3	8/1/2023
845	*	IN		202517042742	8/1/2023
845	*	US		19/167,930	8/1/2023
846		CN		CN202210935888.2	8/5/2022
847		CN		CN202210935364.3	8/5/2022
847		US		18/228,686	8/1/2023
848	*	CN		CN202210940839.8	8/7/2022
848	*	EP		23851645.4	8/1/2023
848	*	IN		202517050095	8/1/2023
848	*	US		19/160,218	8/1/2023

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849	*	CN			CN202210940835.X	8/7/2022
849	*	CN			CN202311559932.5	8/7/2022
849	*	EP			23851646.2	8/1/2023
849	*	IN			202517053792	8/1/2023
849	*	US			19/046,542	8/1/2023
850	*	CN			CN202210984926.3	8/17/2022
850	*	EP			23851700.7	8/4/2023
850	*	IN			202517050926	8/4/2023
850	*	US			19/480,691	8/4/2023
851	*	CN			CN202210946354.X	8/8/2022
851	*	EP			23851702.3	8/4/2023
851	*	IN			202517050902	8/4/2023
851	*	US			19/480,692	8/4/2023
852	*	CN			CN202210960483.4	8/11/2022
852	*	US			18/228,690	8/1/2023
853	*	AU			2023321569	8/7/2023
853	*	CN			CN202210971235.X	8/12/2022
853	*	CO			NC2025/0003191	8/7/2023
853	*	EP			23851741.1	8/7/2023
853	*	ID			P00202502390	8/7/2023
853	*	IN			202517034773	8/7/2023
853	*	KR			10-2025-7008222	8/7/2023
853	*	US			19/480,698	8/7/2023
854	*	CN			CN202210986266.2	8/17/2022
854	*	EP			23851742.9	8/7/2023
854	*	IN			202517034920	8/7/2023
855	*	CA			3,271,326	8/12/2023
855	*	CN			CN202210971801.7	8/12/2022
855	*	CO			NC2025/0003187	8/12/2023
855	*	EP			23852021.7	8/12/2023
855	*	ID			P00202502389	8/12/2023
855	*	IN			202517034778	8/12/2023
855	*	US			19/480,788	8/12/2023
856		CN			CN202210970677.2	8/13/2022
856		EP			23854314.4	8/10/2023
856		IN			202517035084	8/10/2023
857	*	CN			CN202210973583.0	8/15/2022
857	*	EP			23854315.1	8/10/2023
857	*	IN			202517040969	8/10/2023
857	*	US			19/480,787	8/10/2023
858	*	CN			CN202210985187.X	8/17/2022
858	*	US			18/233,891	8/15/2023
859	*	CN			CN202210990996.X	8/18/2022
859	*	EP			23854375.5	8/12/2023
859	*	IN			202517042435	8/12/2023

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859	*	US			19/160,343	8/12/2023
860	*	CN			CN202211090621.4	8/19/2022
860	*	EP			23854376.3	8/12/2023
860	*	IN			202517038254	8/12/2023
860	*	US			19/160,373	8/12/2023
861	*	CN			CN202211024817.3	8/25/2022
861	*	EP			23856492.6	8/12/2023
861	*	IN			202517059424	8/12/2023
861	*	US			19/160,227	8/12/2023
862	*	CN			CN202211037935.8	8/27/2022
862	*	EP			23859186.1	8/21/2023
862	*	IN			202517040475	8/21/2023
862	*	US			19/160,230	8/21/2023
863	*	CN			CN202310342620.2	3/31/2023
863	*	CN			CN202311500249.4	3/31/2023
863	*	EP			23859187.9	8/21/2023
863	*	IN			202517042425	8/21/2023
863	*	US			19/160,758	8/21/2023
864	*	CN			CN202211053274.8	8/31/2022
864	*	EP			23859189.5	8/21/2023
864	*	IN			202517041845	8/21/2023
864	*	US			19/160,836	8/21/2023
865	*	CN			CN202211067737.6	9/1/2022
865	*	EP			23859282.8	8/28/2023
865	*	IN			202517041692	8/28/2023
865	*	US			19/108,385	8/28/2023
866		CN			CN202211069430.X	9/2/2022
866		EP			23859283.6	8/28/2023
866		IN			202517041948	8/28/2023
867	*	CN			CN202211069429.7	9/2/2022
867	*	EP			23859284.4	8/28/2023
867	*	IN			202517041264	8/28/2023
867	*	US			19/108,391	8/28/2023
868	*	CN			CN202211074420.5	9/3/2022
868	*	US			18/238,535	8/28/2023
869	*	CN			CN202211080336.4	9/5/2022
869	*	EP			23862253.4	8/31/2023
869	*	IN			202517042370	8/31/2023
869	*	US			19/108,393	8/31/2023
870	*	BR			BR112025004417-6	8/31/2023
870	*	CN			CN202211105175.X	9/9/2022
870	*	EP			23862254.2	8/31/2023
870	*	IN			202517042325	8/31/2023
870	*	US			19/109,965	8/31/2023
871	*	BR			BR112025004421-4	8/31/2023

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871	*	CN			CN202211092758.3	9/8/2022
871	*	EP			23862255.9	8/31/2023
871	*	IN			202517044542	8/31/2023
871	*	US			19/109,975	8/31/2023
872	*	BR			BR112025004425-7	9/4/2023
872	*	CN			CN202211100731.4	9/9/2022
872	*	CN			CN202311689101.X	9/9/2022
872	*	EP			23862318.5	9/4/2023
872	*	IN			202517042428	9/4/2023
872	*	US			19/109,987	9/4/2023
873	*	CN			CN202211103372.8	9/9/2022
873	*	US			18/231,234	8/7/2023
874	*	CN			CN202211103367.7	9/9/2022
874	*	US			18/242,530	9/6/2023
875	*	BR			BR112025004429-0	9/4/2023
875	*	CN			CN202211105174.5	9/9/2022
875	*	EP			23862320.1	9/4/2023
875	*	IN			202517042916	9/4/2023
875	*	US			19/109,991	9/4/2023
876	*	BR			BR112025004819-8	9/11/2023
876	*	CN			CN202211109323.5	9/13/2022
876	*	EP			23864647.5	9/11/2023
876	*	IN			202517041381	9/11/2023
876	*	US			19/111,696	9/11/2023
877	*	BR			BR112025004822-8	9/11/2023
877	*	CN			CN202211111121.4	9/13/2022
877	*	CN			CN202311689142.9	9/13/2022
877	*	EP			23864648.3	9/11/2023
877	*	IN			202517040104	9/11/2023
877	*	US			19/111,700	9/11/2023
878	*	BR			BR112025004967-4	9/11/2023
878	*	CN			CN202211129317.6	9/16/2022
878	*	EP			23864649.1	9/11/2023
878	*	IN			202517040238	9/11/2023
878	*	US			19/112,509	9/11/2023
879	*	BR			BR112025005276-4	9/19/2023
879	*	CN			CN202211137379.1	9/19/2022
879	*	EP			23867516.9	9/19/2023
879	*	IN			202517038075	9/19/2023
879	*	US			19/113,262	9/19/2023
880		CN			CN202211137416.9	9/19/2022
881	*	BR			BR112025005278-0	9/19/2023
881	*	CN			CN202211147703.8	9/19/2022
881	*	EP			23867518.5	9/19/2023
881	*	IN			202517044715	9/19/2023

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881	*	US			19/113,265	9/19/2023
882	*	CN			CN202211138661.1	9/19/2022
882	*	US			18/244,306	9/11/2023
883	*	CN			CN202211159274.6	9/22/2022
883	*	EP			23867534.2	9/20/2023
883	*	IN			202517046987	9/20/2023
883	*	US			19/114,316	9/20/2023
884		CN			CN202211160030.X	9/22/2022
884		US			18/244,309	9/11/2023
885	*	CN			CN202211162180.4	9/23/2022
885	*	EP			23867535.9	9/20/2023
885	*	IN			202517046961	9/20/2023
885	*	US			19/114,322	9/20/2023
886	*	CN			CN202211168768.0	9/24/2022
886	*	EP			23867626.6	9/22/2023
886	*	IN			202517048776	9/22/2023
886	*	US			19/114,734	9/22/2023
887	*	CN			CN202211173549.1	9/26/2022
887	*	EP			23870621.2	9/22/2023
887	*	IN			202517048243	9/22/2023
887	*	US			19/115,694	9/22/2023
888	*	CN			CN202211181510.4	9/27/2022
888	*	EP			23870624.6	9/22/2023
888	*	IN			202517049925	9/22/2023
888	*	US			19/116,281	9/22/2023
889	*	CN			CN202211183111.1	9/27/2022
889	*	EP			23870767.3	9/26/2023
889	*	IN			202517050502	9/26/2023
889	*	US			19/116,290	9/26/2023
890	*	CN			CN202211187664.4	9/28/2022
890	*	US			18/244,312	9/11/2023
891	*	CN			CN202211191293.7	9/28/2022
891	*	EP			23871023.0	9/28/2023
891	*	IN			202517049402	9/28/2023
891	*	US			19/116,887	9/28/2023
892		CN			CN202211217020.5	9/30/2022
893	*	CN			CN202211218296.5	9/30/2022
893	*	EP			23871024.8	9/28/2023
893	*	IN			202517051265	9/28/2023
893	*	US			19/116,917	9/28/2023
894	*	CN			CN202211218370.3	10/5/2022
894	*	US			18/372,813	9/26/2023
895		CN			CN202211233510.4	10/10/2022
896	*	CN			CN202211245837.3	10/12/2022
896	*	EP			23876561.4	9/28/2023

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896	*	IN		202517044952	9/28/2023
896	*	US		19/120,672	9/28/2023
897	*	CN		CN202211252728.4	10/13/2022
897	*	EP		23876634.9	10/9/2023
897	*	IN		202517045840	10/9/2023
897	*	US		19/120,681	10/9/2023
898	*	CN		CN202211260517.5	10/14/2022
898	*	EP		23876636.4	10/9/2023
898	*	IN		202517046454	10/9/2023
898	*	US		19/120,689	10/9/2023
899	*	AU		2023363890	10/15/2023
899	*	BR		BR112025007987-5	10/15/2023
899	*	CN		CN202211286972.2	10/20/2022
899	*	CN		CN202311595310.8	10/20/2022
899	*	EP		23879043.0	10/15/2023
899	*	IN		202517048103	10/15/2023
899	*	US		19/122,662	10/15/2023
899	*	ZA		2025/04292	10/15/2023
900	*	AU		2023363891	10/15/2023
900	*	BR		BR112025007988-3	10/15/2023
900	*	CN		CN202211286930.9	10/20/2022
900	*	CN		CN202311800157.8	10/20/2022
900	*	EP		23879044.8	10/15/2023
900	*	IN		202517048558	10/15/2023
900	*	US		19/122,671	10/15/2023
900	*	ZA		2025/04293	10/15/2023
901		CN		CN202211310116.6	10/25/2022
902	*	CN		CN202211315816.4	10/26/2022
902	*	US		18/379,673	10/13/2023
903	*	CN		CN202211317912.2	10/26/2022
903	*	EP		23881835.5	10/24/2023
903	*	IN		202517050098	10/24/2023
903	*	US		19/124,767	10/24/2023
904	*	CN		CN202211323108.5	10/27/2022
904	*	EP		23881837.1	10/24/2023
904	*	IN		202517050766	10/24/2023
904	*	US		19/124,771	10/24/2023
905	*	CN		CN202211323793.1	10/27/2022
905	*	EP		23881838.9	10/24/2023
905	*	IN		202517050853	10/24/2023
905	*	US		19/124,777	10/24/2023
906	*	CN		CN202211331628.0	10/28/2022
906	*	EP		23881968.4	10/27/2023
906	*	IN		202517050092	10/27/2023
906	*	US		19/124,779	10/27/2023

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907	*	CN			CN202211333654.7	10/28/2022
907	*	EP			23881969.2	10/27/2023
907	*	IN			202517050973	10/27/2023
907	*	US			19/124,783	10/27/2023
908	*	CN			CN202211334064.6	10/28/2022
908	*	EP			23881972.6	10/27/2023
908	*	IN			202517050076	10/27/2023
908	*	US			19/124,787	10/27/2023
909	*	CN			CN202211365569.9	10/31/2022
909	*	EP			23884806.3	10/30/2023
909	*	IN			202517049918	10/30/2023
909	*	US			19/126,043	10/30/2023
910	*	CN			CN202211359899.7	11/2/2022
910	*	EP			23884808.9	10/30/2023
910	*	IN			202517052672	10/30/2023
910	*	US			19/126,902	10/30/2023
911	*	CN			CN202211368270.9	11/3/2022
911	*	US			18/386,258	11/2/2023
912	*	CN			CN202211368268.1	11/3/2022
912	*	US			18/385,916	11/1/2023
913		CN			CN202211374336.5	11/3/2022
913		US			18/386,604	11/3/2023
914	*	BR			BR112025008754-1	10/30/2023
914	*	CN			CN202211371576.X	11/3/2022
914	*	EP			23884811.3	10/30/2023
914	*	IN			202517052709	10/30/2023
914	*	US			19/126,952	10/30/2023
915	*	BR			BR112025008757-6	10/30/2023
915	*	CN			CN202211370744.3	11/3/2022
915	*	EP			23884812.1	10/30/2023
915	*	IN			202517052592	10/30/2023
915	*	US			19/126,957	10/30/2023
916	*	CN			CN202211379368.4	11/4/2022
916	*	EP			23884814.7	10/30/2023
916	*	IN			202517052685	10/30/2023
916	*	US			19/126,959	10/30/2023
917	*	CN			CN202211388144.X	11/8/2022
917	*	EP			23887899.5	11/1/2023
917	*	IN			202517052682	11/1/2023
917	*	US			19/126,965	11/1/2023
918	*	CN			CN202211407914.0	11/10/2022
918	*	EP			23887900.1	11/1/2023
918	*	IN			202517054017	11/1/2023
918	*	US			19/128,126	11/1/2023
919	*	CN			CN202211410626.0	11/11/2022

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919	*	EP		23887901.9	11/1/2023
919	*	IN		202517054111	11/1/2023
919	*	US		19/128,129	11/1/2023
920	*	CN		CN202211415022.5	11/11/2022
920	*	CN		CN202311800217.6	11/11/2022
920	*	EP		23887929.0	11/4/2023
920	*	IN		202517052700	11/4/2023
920	*	US		19/128,131	11/4/2023
921	*	BR		BR112025009391-6	11/4/2023
921	*	CA		3276759	11/4/2023
921	*	CL		202501393	11/4/2023
921	*	CN		CN202211416048.1	11/12/2022
921	*	CN		CN202311748354.X	11/12/2022
921	*	CO		NC2025/0007763	11/4/2023
921	*	EA		202591462	11/4/2023
921	*	EG		EG/P/2025/574	11/4/2023
921	*	EP		23887930.8	11/4/2023
921	*	ID		P00202505265	11/4/2023
921	*	IL		320815	11/4/2023
921	*	IN		202517055509	11/4/2023
921	*	JP		2025-527127	11/4/2023
921	*	KR		10-2025-7018991	11/4/2023
921	*	MX		MX/a/2025/005506	11/4/2023
921	*	MY		PI2025003500	11/4/2023
921	*	PH		1-2025-551400	11/4/2023
921	*	SG		11202503959Y	11/4/2023
921	*	US		19/128,133	11/4/2023
921	*	VN		1-2025-04073	11/4/2023
921	*	ZA		2025/04978	11/4/2023
922		CN		CN202211416047.7	11/12/2022
923	*	CN		CN202211427001.5	11/15/2022
923	*	US		18/508,267	11/14/2023
924		CN		CN202211432685.8	11/16/2022
924		US		18/504,171	11/8/2023
925		CN		CN202211433006.9	11/16/2022
926	*	CN		CN202211447101.4	11/18/2022
926	*	EP		23890644.0	11/4/2023
926	*	IN		202517053063	11/4/2023
926	*	US		19/130,492	11/4/2023
927	*	CN		CN202211453942.6	11/21/2022
927	*	US		18/513,632	11/20/2023
928		CN		CN202211453956.8	11/21/2022
929	*	CN		CN202211467978.X	11/22/2022
929	*	US		18/513,647	11/20/2023
930	*	CN		CN202211475659.3	11/23/2022

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930	*	EP		23893660.3	11/13/2023
930	*	IN		202517055523	11/13/2023
930	*	US		19/132,296	11/13/2023
931		CN		CN202211477116.5	11/23/2022
931		US		18/510,682	11/16/2023
932	*	CN		CN202211534218.6	11/28/2022
932	*	EP		23896498.5	11/13/2023
932	*	IN		202517053107	11/13/2023
932	*	US		19/132,300	11/13/2023
933	*	CN		CN202211499233.1	11/28/2022
933	*	US		18/520,572	11/28/2023
934		CN		CN202211511835.4	11/29/2022
934		US		18/520,576	11/28/2023
935		CN		CN202211521441.7	11/30/2022
936	*	CN		CN202211541098.2	12/2/2022
936	*	US		19/134,967	11/13/2023
937	*	CN		CN202211554223.3	12/6/2022
937	*	US		19/136,632	11/13/2023
938	*	CN		CN202211554259.1	12/6/2022
938	*	EP		23899718.3	11/15/2023
938	*	US		19/136,640	11/15/2023
939		CN		CN202211555370.2	12/6/2022
940	*	AU		2023390409	11/15/2023
940	*	BR		BR112025011658-4	11/15/2023
940	*	CA		3,279,177	11/15/2023
940	*	CN		CN202211568827.3	12/8/2022
940	*	CN		CN202311800274.4	12/8/2022
940	*	CO		NC2025/0009117	11/15/2023
940	*	EP		23899719.1	11/15/2023
940	*	ID		P00202506252	11/15/2023
940	*	IN		202517064689	11/15/2023
940	*	JP		2025-533656	11/15/2023
940	*	KR		10-2025-7022379	11/15/2023
940	*	US		19/137,279	11/15/2023
941	*	CN		CN202211568815.0	12/8/2022
941	*	US		18/531,704	12/7/2023
942		CN		CN202211585716.3	12/9/2022
943		CN		CN202211583629.4	12/10/2022
944	*	AU		2023388214	11/22/2023
944	*	BR		BR112025011777-7	11/22/2023
944	*	CA		3,279,593	11/22/2023
944	*	CN		CN202211586774.8	12/10/2022
944	*	CO		NC2025/0009228	11/22/2023
944	*	EP		23899770.4	11/22/2023
944	*	ID		P00202506334	11/22/2023

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944	*	IN		202517064973	11/22/2023
944	*	JP		2025-533663	11/22/2023
944	*	KR		10-2025-7023127	11/22/2023
944	*	US		19/137,627	11/22/2023
945		CN		CN202211601918.2	12/13/2022
946		CN		CN202211601909.3	12/13/2022
947	*	CN		CN202211664798.0	12/23/2022
947	*	US		19/138,633	11/22/2023
948	*	BR		BR112025012117-0	11/27/2023
948	*	CN		CN202211611704.3	12/14/2022
948	*	EP		23902474.8	11/27/2023
948	*	IN		202517066466	11/27/2023
948	*	US		19/138,636	11/27/2023
949	*	CN		CN202211610469.8	12/14/2022
949	*	EP		23902475.5	11/27/2023
949	*	US		19/138,637	11/27/2023
950		CN		CN202211624453.2	12/16/2022
951		CN		CN202211624427.X	12/16/2022
952		CN		CN202211636074.5	12/20/2022
953	*	CN		CN202211649397.8	12/21/2022
953	*	EP		23905716.9	12/7/2023
953	*	US		19/141,881	12/7/2023
954		CN		CN202211649580.8	12/21/2022
955		CN		CN202211664710.5	12/23/2022
955		US		18/539,305	12/14/2023
956		CN		CN202211664800.4	12/23/2022
957		CN		CN202211664747.8	12/23/2022
958	*	BR		BR 11 2025 012903 1	12/13/2023
958	*	CN		CN202211664836.2	12/23/2022
958	*	CO		NC2025/0009755	12/13/2023
958	*	EP		23905777.1	12/13/2023
958	*	IN		202517070211	12/13/2023
958	*	JP		2025-537109	12/13/2023
958	*	KR		10-2025-7024301	12/13/2023
958	*	US		19/142,583	12/13/2023
959	*	CN		CN202211669158.9	12/23/2022
959	*	EP		23905874.6	12/18/2023
959	*	IN		202517079487	12/18/2023
959	*	US		19/142,588	12/18/2023
960	*	AU		2023419572	12/18/2023
960	*	BR		BR112025013167-2	12/18/2023
960	*	CA		3,281,745	12/18/2023
960	*	CN		CN202211673650.3	12/26/2022
960	*	CN		CN202311748424.1	12/26/2022
960	*	CO		NC2025/0009961	12/18/2023

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960	*	EP		23910227.0	12/18/2023
960	*	IN		202517070635	12/18/2023
960	*	JP		2025-537597	12/18/2023
960	*	KR		10-2025-7023116	12/18/2023
960	*	MX		MX/a/2025/007560	12/18/2023
960	*	SG		11202504919Y	12/18/2023
960	*	US		19/142,865	12/18/2023
960	*	ZA		2025/06310	12/18/2023
961	*	CN		CN202211673621.7	12/26/2022
961	*	US		18/544,469	12/19/2023
962		CN		CN202211692651.2	12/28/2022
963		CN		CN202310041425.6	1/12/2023
964	*	CN		CN202211698127.6	12/28/2022
964	*	EP		23910231.2	12/18/2023
964	*	US		19/142,866	12/18/2023
965		CN		CN202211698513.5	12/28/2022
966	*	CN		CN202310200133.2	1/13/2023
966	*	EP		23910597.6	12/26/2023
966	*	US		19/142,869	12/26/2023
967	*	BR		BR112025013450-7	12/26/2023
967	*	CN		CN202211740564.X	12/31/2022
967	*	CO		NC2025/0010290	12/26/2023
967	*	EP		23910598.4	12/26/2023
967	*	IN		202517072147	12/26/2023
967	*	JP		2025-538257	12/26/2023
967	*	KR		10-2025-7025612	12/26/2023
967	*	US		19/142,871	12/26/2023
968		CN		CN202211737629.5	12/31/2022
969	*	CN		202310003360.6	1/3/2023
969	*	EP		23914549.3	12/26/2023
969	*	US		19/145,496	12/26/2023
970	*	BR		BR 11 2025 013818 9	1/2/2024
970	*	CN		CN202310003358.9	1/3/2023
970	*	CN		CN202311768929.4	1/3/2023
970	*	CO		NC2025/0010403	1/2/2024
970	*	EP		24738431.6	1/2/2024
970	*	IN		202517073454	1/2/2024
970	*	JP		2025-539755	1/2/2024
970	*	KR		10-2025-7025649	1/2/2024
970	*	US		19/145,497	1/2/2024
971		CN		CN202310003321.6	1/3/2023
972		CN		CN202310008106.5	1/4/2023
973	*	BR		BR 11 2025 013820 0	1/2/2024
973	*	CN		CN202310200144.0	1/12/2023
973	*	CN		CN202311597268.3	1/12/2023

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973	*	EP		24738432.4	1/2/2024
973	*	JP		2025-540006	1/2/2024
973	*	KR		10-2025-7025937	1/2/2024
973	*	US		19/145,498	1/2/2024
974		CN		CN202310018260.0	1/6/2023
975	*	BR		BR 11 2025 013825 1	1/2/2024
975	*	CN		CN202310021825.0	1/6/2023
975	*	EP		24738433.2	1/2/2024
975	*	JP		2025-540007	1/2/2024
975	*	KR		10-2025-7025913	1/2/2024
975	*	US		19/145,494	1/2/2024
976	*	CN		CN202310200999.3	1/12/2023
976	*	EP		24741222.4	1/9/2024
976	*	US		19/147,247	1/9/2024
977		CN		CN202310200153.X	1/12/2023
978	*	CN		CN202310201081.0	1/13/2023
979	*	CN		CN202310200324.9	1/16/2023
979	*	EP		24744117.3	1/9/2024
979	*	US		19/147,296	1/9/2024
980	*	CN		CN202310201151.2	1/16/2023
980	*	EP		24744118.1	1/9/2024
980	*	US		19/147,299	1/9/2024
981		CN		CN202310200196.8	1/17/2023
982		CN		CN202310200369.6	1/18/2023
983	*	BR		BR112025014910-5	1/15/2024
983	*	CN		CN202310200207.2	1/18/2023
983	*	EP		24744208.0	1/15/2024
983	*	JP		2025-542057	1/15/2024
983	*	KR		10-2025-7027109	1/15/2024
983	*	US		19/149,386	1/15/2024
984		CN		CN202310201161.6	1/19/2023
985		CN		CN202310200221.2	1/19/2023
986		CN		CN202310201199.3	1/20/2023
987		CN		CN202310200235.4	1/20/2023
988	*	AU		2024209924	1/15/2024
988	*	BR		BR112025014915-6	1/15/2024
988	*	CA			1/15/2024
988	*	CN		CN202310210124.1	3/7/2023
988	*	CN		CN202311748483.9	3/7/2023
988	*	CO		NC2025/0011085	1/15/2024
988	*	EP		24744209.8	1/15/2024
988	*	JP		2025-542058	1/15/2024
988	*	KR		10-2025-7027257	1/15/2024
988	*	US		19/149,390	1/15/2024
989	*	BR		BR112025014918-0	1/15/2024

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989	*	CN			CN202310201206.X	1/20/2023
989	*	CN			CN202310096391.0	2/1/2023
989	*	EP			24744210.6	1/15/2024
989	*	IN			202517089152	1/15/2024
989	*	JP			2025-542059	1/15/2024
989	*	KR			10-2025-7027239	1/15/2024
989	*	US			19/149,394	1/15/2024
990		CN			CN202310079751.6	1/29/2023
991	*	CN			CN202310088367.2	1/29/2023
991	*	EP			24746990.1	1/26/2024
991	*	US			19/151,777	1/26/2024
992		CN			CN202310087538.X	1/30/2023
992		CN			CN202310094033.6	2/3/2023
993	*	CN			CN202310093295.0	1/31/2023
993	*	US			18/423,301	1/26/2024
994		CN			CN202310096633.6	2/1/2023
995	*	CN			CN202310108805.7	2/10/2023
995	*	EP			24749619.3	1/26/2024
995	*	US			19/153,018	1/26/2024
996	*	CN			CN202310088959.4	2/3/2023
996	*	CN			CN202311631703.X	2/3/2023
996	*	US			18/427,785	1/30/2024
997	*	BR			BR112025015722-1	1/31/2024
997	*	CN			CN202310088969.8	2/3/2023
997	*	CO			NC2025/0011427	1/31/2024
997	*	EP			24749706.8	1/31/2024
997	*	ID			P00202508314	1/31/2024
997	*	IN			202517083629	1/31/2024
997	*	JP			2025-545045	1/31/2024
997	*	KR			10-2025-7029402	1/31/2024
997	*	US			19/153,022	1/31/2024
998		CN			CN202310095007.5	2/3/2023
998		CN			CN202310180464.4	2/27/2023
999	*	CN			CN202310094071.1	2/6/2023
999	*	EP			24752763.3	1/31/2024
999	*	US			19/153,713	1/31/2024
1000		CN			CN202310098826.5	2/8/2023
1001	*	AU			2024219297	2/5/2024
1001	*	BR			BR112025015725-6	2/5/2024
1001	*	CA			3,283,143	2/5/2024
1001	*	CN			CN202310197287.0	3/2/2023
1001	*	CN			CN202311671284.2	3/2/2023
1001	*	CO			NC2025/0011948	2/5/2024
1001	*	EP			24752844.1	2/5/2024
1001	*	ID			P00202508466	2/5/2024

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Worldwide Patents and Applications

1001	*	IN		202517085662	2/5/2024
1001	*	JP		2025-545981	2/5/2024
1001	*	KR		10-2025-7029736	2/5/2024
1001	*	US		19/154,108	2/5/2024
1002	*	CN		CN202310108806.1	2/10/2023
1002	*	EP		24752845.8	2/5/2024
1002	*	US		19/154,161	2/5/2024
1003	*	CN		CN202310099684.4	2/10/2023
1003	*	CN		CN202310126171.8	2/16/2023
1003	*	EP		24752846.6	2/5/2024
1003	*	US		19/154,168	2/5/2024
1004	*	CN		CN202310179131.X	2/27/2023
1004	*	US		18/432,088	2/5/2024
1005		CN		CN202310109444.8	2/13/2023
1006	*	CN		CN202310108989.7	2/13/2023
1007	*	BR		BR112025015856-2	2/7/2024
1007	*	CN		CN202310122127.X	2/15/2023
1007	*	CN		CN202311554423.3	2/15/2023
1007	*	EP		24756212.7	2/7/2024
1007	*	IN		202517087590	2/7/2024
1007	*	JP		2025-546871	2/7/2024
1007	*	KR		10-2025-7029932	2/7/2024
1007	*	SG		11202505908Y	2/7/2024
1007	*	US		19/154,465	2/7/2024
1007	*	VN		1-2025-06626	2/7/2024
1008		CN		CN202310126163.3	2/16/2023
1009	*	CN		CN202310134862.2	2/17/2023
1009	*	CN		CN202311678050.0	2/17/2023
1009	*	EP		24756214.3	2/7/2024
1009	*	US		19/154,468	2/7/2024
1010	*	CN		CN202310134808.8	2/17/2023
1010	*	US		18/434,692	2/6/2024
1011	*	CN		CN202310134849.7	2/17/2023
1011	*	CN		CN202311688834.1	2/17/2023
1012		CN		CN202310146682.6	2/21/2023
1013	*	CN		CN202310171726.0	2/27/2023
1014		CN		CN202310177266.2	2/27/2023
1015	*	CN		CN202310181367.7	2/28/2023
1015	*	US		18/585,053	2/23/2024
1016	*	CN		CN202310184126.8	2/28/2023
1016	*	EP		24763057.7	2/23/2024
1016	*	US		19/160,839	2/23/2024
1017		CN		CN202310187441.6	3/1/2023
1018	*	CN		CN202310193761.2	3/1/2023
1018	*	EP		24763058.5	2/23/2024

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Worldwide Patents and Applications

1018	*	US			19/161,157	2/23/2024
1018	*	WO			PCT/CN2024/078266	2/23/2024
1019		CN			CN202310188297.8	3/1/2023
1020		CN			CN202310193882.7	3/2/2023
1021	*	BR			BR112025018439-3	3/3/2024
1021	*	CN			CN202310203533.9	3/3/2023
1021	*	CO			NC2025/0013483	3/3/2024
1021	*	EP			24766383.4	3/3/2024
1021	*	ID			P00202509734	3/3/2024
1021	*	IN			202517095165	3/3/2024
1021	*	JP			2025-551015	3/3/2024
1021	*	KR			10-2025-7032920	3/3/2024
1021	*	US			19/161,141	3/3/2024
1021	*	WO			PCT/CN2024/079772	3/3/2024
1022	*	CN			CN202310210463.X	3/6/2023
1022	*	EP			24766384.2	3/3/2024
1022	*	US			19/162,743	3/3/2024
1023	*	CN			CN202310217699.6	3/7/2023
1023	*	CN			CN202310218649.X	3/8/2023
1023	*	EP			24766460.0	3/6/2024
1023	*	US			19/162,755	3/6/2024
1023	*	WO			PCT/CN2024/080247	3/6/2024
1024		CN			CN202310216391.X	3/7/2023
1025	*	CN			CN202310222829.5	3/8/2023
1025	*	EP			24766385.9	3/3/2024
1025	*	US			19/162,726	3/3/2024
1025	*	WO			PCT/CN2024/079774	3/3/2024
1026	*	BR			BR112025019164-0	3/6/2024
1026	*	CN			CN202310228861.4	3/9/2023
1026	*	CN			CN202311688880.1	3/9/2023
1026	*	CO			NC2025/0013812	3/6/2024
1026	*	EP			24766461.8	3/6/2024
1026	*	ID			P00202509937	3/6/2024
1026	*	IN			202517097425	3/6/2024
1026	*	JP			2025-564391	3/6/2024
1026	*	KR			10-2025-7033728	3/6/2024
1026	*	US			18/939,547	3/6/2024
1027	*	CN			CN202410182128.8	2/18/2024
1027	*	EP			24766462.6	3/6/2024
1027	*	US			19/163,781	3/6/2024
1028		CN			CN202310237636.7	3/13/2023
1029		CN			CN202310244933.4	3/14/2023
1030		CN			CN202310251058.2	3/14/2023
1031		CN			CN202310251111.9	3/14/2023
1032	*	AU			2024236884	3/11/2024

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Worldwide Patents and Applications

1032	*	CA			3,289,200	3/11/2024
1032	*	CN			CN202310252894.2	3/14/2023
1032	*	CN			CN202311639276.X	3/14/2023
1032	*	EP			24769896.2	3/11/2024
1032	*	US			19/165,237	3/11/2024
1033		CN			CN202310252909.5	3/14/2023
1034	*	CN			CN202310251422.5	3/15/2023
1034	*	CN			CN202310277385.5	3/20/2023
1034	*	EP			24769897.0	3/11/2024
1034	*	US			19/164,845	3/11/2024
1035	*	CN			CN202311725499.8	12/14/2023
1036	*	CN			CN202310266975.8	3/16/2023
1036	*	EP			24769950.7	3/13/2024
1036	*	US			19/165,805	3/13/2024
1037		CN			CN202310277370.9	3/20/2023
1038		CN			CN202310274880.0	3/21/2023
1039	*	CN			CN202310274884.9	3/21/2023
1039	*	EP			24773975.8	3/13/2024
1039	*	US			19/164,834	3/13/2024
1040	*	EP			24773976.6	3/13/2024
1041	*	CN			CN202311743736.3	3/22/2023
1041	*	EP			24774162.2	3/20/2024
1041	*	KR			10-2025-7034838	3/20/2024
1042	*	BR			BR112025019498-4	3/20/2024
1042	*	CA			3,289,195	3/20/2024
1042	*	CN			CN202310294332.4	3/22/2023
1042	*	CO			NC2025/0014354	3/20/2024
1042	*	EP			24774165.5	3/20/2024
1042	*	ID			P00202510363	3/20/2024
1042	*	IN			202517101730	3/20/2024
1042	*	JP			2025-555187	3/20/2024
1042	*	KR			10-2025-7034666	3/20/2024
1042	*	US			19/165,829	3/20/2024
1043	*	CN			CN202310294375.2	3/23/2023
1043	*	EP			24774166.3	3/20/2024
1043	*	US			19/166,996	3/20/2024
1043	*	WO			PCT/CN2024/082782	3/20/2024
1044	*	CN			CN202310294348.5	3/22/2023
1045		CN			CN202310324243.X	3/29/2023
1046	*	CN			202310324750.3	3/29/2023
1046	*	EP			24777992.9	3/26/2024
1046	*	US			19/168,259	3/26/2024
1046	*	WO			PCT/CN2024/083724	3/26/2024
1047		CN			CN202310324409.8	3/29/2023
1048	*	BR			BR112025019502-6	3/26/2024

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1048	*	CN			202310323185.9	3/29/2023
1048	*	EP			24777993.7	3/26/2024
1048	*	IN			202517104091	3/26/2024
1048	*	JP			2025-555940	3/26/2024
1048	*	KR			10-2025-7035316	3/26/2024
1048	*	US			19/168,262	3/26/2024
1048	*	WO			PCT/CN2024/083727	3/26/2024
1049		CN			CN202310334102.6	3/30/2023
1050	*	CN			202310334131.2	3/30/2023
1050	*	EP			24777994.5	3/26/2024
1050	*	US			19/168,264	3/26/2024
1050	*	WO			PCT/CN2024/083729	3/26/2024
1051	*	CN			202310344905.X	3/31/2023
1052		CN			CN202310342604.3	3/31/2023
1053		CN			CN202310339863.0	3/31/2023
1054	*	CN			CN202310349701.5	4/1/2023
1054	*	EP			24784158.8	3/28/2024
1054	*	US			19/471,630	3/28/2024
1055		CN			CN202310347926.7	4/3/2023
1056		CN			CN202310347931.8	4/3/2023
1057	*	CN			CN202310355148.6	4/3/2023
1057	*	EP			24784159.6	3/28/2024
1057	*	US			19/472,281	3/28/2024
1058		CN			CN202310354130.4	4/4/2023
1059	*	CN			CN202310354230.7	4/4/2023
1059	*	US			18/624,136	4/2/2024
1060	*	AP			AP/P/2025/016867	4/3/2024
1060	*	AU			2024243815	4/3/2024
1060	*	BR			BR112025021571-0	4/3/2024
1060	*	CA				4/3/2024
1060	*	CN			CN202310354236.4	4/4/2023
1060	*	CN			CN202311645922.3	4/4/2023
1060	*	CO			NC2025/0015315	4/3/2024
1060	*	EA			202592871	4/3/2024
1060	*	EP			24784334.5	4/3/2024
1060	*	ID			P00202511375	4/3/2024
1060	*	IL			323773	4/3/2024
1060	*	IN			202517106806	4/3/2024
1060	*	JP			2025-558549	4/3/2024
1060	*	KR			10-2025-7036828	4/3/2024
1060	*	MX			MX/a/2025/011877	4/3/2024
1060	*	SG			11202507287V	4/3/2024
1060	*	US			19/472,303	4/3/2024
1060	*	VN			1-2025-08394	4/3/2024
1061		CN			CN202310355259.7	4/4/2023

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1062		CN			CN202310364422.6	4/6/2023
1063		CN			CN202310368658.7	4/7/2023
1064	*	CN			CN202310376371.9	4/10/2023
1064	*	EP			24788017.2	4/8/2024
1064	*	US			19/472,319	4/8/2024
1065	*	BR			BR112025022037-3	4/8/2024
1065	*	CN			CN202310387501.9	4/11/2023
1065	*	EP			24788018.0	4/8/2024
1065	*	ID			P00202511882	4/8/2024
1065	*	JP			2025-559699	4/8/2024
1065	*	KR			10-2025-7037530	4/8/2024
1065	*	US			19/474,558	4/8/2024
1066		CN			CN202310388954.3	4/11/2023
1067		CN			CN202310392913.1	4/12/2023
1068	*	CN			CN202310395760.6	4/13/2023
1068	*	US			18/624,142	4/2/2024
1069	*	CN			CN202310409978.2	4/17/2023
1069	*	CN			CN202311605586.X	4/17/2023
1069	*	US			18/636,271	4/16/2024
1070	*	BR			BR112025022038-1	4/12/2024
1070	*	CN			CN202310409735.9	4/17/2023
1070	*	CO			NC2025/0015726	4/12/2024
1070	*	EP			24791930.1	4/12/2024
1070	*	JP			2025-560270	4/12/2024
1070	*	KR			10-2025-7038318	4/12/2024
1070	*	US			19/474,571	4/12/2024
1071		CN			CN202310436526.3	4/21/2023
1072	*	CN			CN202310417924.0	4/18/2023
1072	*	US			18/634,983	4/14/2024
1073	*	BR			BR112025022372-0	4/12/2024
1073	*	CN			CN202310417958.X	4/18/2023
1073	*	CO			NC2025/0015806	4/12/2024
1073	*	EP			24791932.7	4/12/2024
1073	*	ID			P00202512410	4/12/2024
1073	*	IN			202517111534	4/12/2024
1073	*	JP			2025-560271	4/12/2024
1073	*	KR			10-2025-7038464	4/12/2024
1073	*	US			19/476,467	4/12/2024
1074		CN			CN202310424194.7	4/19/2023
1075		CN			CN202310437915.8	4/22/2023
1076	*	CN			CN202310465780.6	4/26/2023
1077		CN			CN202310442696.2	4/23/2023
1078	*	CN			CN202310464938.8	4/26/2023
1078	*	EP			24795919.0	4/17/2024
1078	*	US			19/476,470	4/17/2024

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1079		CN			CN202310443822.6	4/23/2023
1079		EP			24795920.8	4/17/2024
1079		US			19/476,474	4/17/2024
1080		CN			CN202310449886.7	4/24/2023
1080		EP			24795984.4	4/22/2024
1080		US			19/476,478	4/22/2024
1081		CN			CN202310469038.2	4/26/2023
1082		CN			CN202310492974.5	4/28/2023
1083		CN			CN202310491461.2	5/4/2023
1083		WO			PCT/CN2024/089017	4/22/2024
1084	*	AU			2024268482	4/28/2024
1084	*	BR			BR11202502412-0	4/28/2024
1084	*	CA				4/28/2024
1084	*	CN			CN202310500380.4	5/5/2023
1084	*	EP			24802808.6	4/28/2024
1084	*	IN			202517122811	4/28/2024
1084	*	US			19/481,876	4/28/2024
1084	*	WO			PCT/CN2024/090258	4/28/2024
1085		CN			CN202310520130.7	5/9/2023
1085		EP			24802810.2	4/28/2024
1085		US			19/481,877	4/28/2024
1085		WO			PCT/CN2024/090261	4/28/2024
1086		CN			CN202310519865.8	5/9/2023
1087		CN			CN202310518648.7	5/9/2023
1087		WO			PCT/CN2024/090265	4/28/2024
1088	*	CN			CN202310524500.4	5/10/2023
1088	*	WO			PCT/CN2024/091172	5/6/2024
1089	*	CN			CN202310532852.4	5/11/2023
1089	*	WO			PCT/CN2024/091175	5/6/2024
1090		CN			CN202310531524.2	5/11/2023
1090		CN			CN202311734790.1	5/11/2023
1090		EP			24802919.1	5/6/2024
1090		US			19/483,547	5/6/2024
1090		WO			PCT/CN2024/091177	5/6/2024
1091	*	CN			CN202310530935.X	5/11/2023
1091	*	US			18/656,600	5/7/2024
1092	*	CN			CN202310552491.X	5/16/2023
1092	*	US			18/656,605	5/7/2024
1093	*	CN			CN202310541132.4	5/12/2023
1093	*	CN			CN202311748541.8	5/12/2023
1093	*	EP			24806441.2	5/9/2024
1093	*	JP			2025-565923	5/9/2024
1093	*	KR			10-2025-7041189	5/9/2024
1093	*	US			19/483,552	5/9/2024
1093	*	WO			PCT/CN2024/091893	5/9/2024

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1094	*	BR			BR112025024558-9	5/9/2024
1094	*	CN			CN202310541163.X	5/12/2023
1094	*	CN			CN202311734899.5	5/12/2023
1094	*	EP			24806443.8	5/9/2024
1094	*	IN			202517125647	5/9/2024
1094	*	JP			2025-565922	5/9/2024
1094	*	KR			10-2025-7041179	5/9/2024
1094	*	US			19/483,555	5/9/2024
1094	*	WO			PCT/CN2024/091907	5/9/2024
1095		CN			CN202310546042.4	5/15/2023
1096	*	CN			CN202310553221.0	5/16/2023
1096	*	WO			PCT/CN2024/091910	5/9/2024
1097	*	CN			CN202310552167.8	5/16/2023
1097	*	WO			PCT/CN2024/092743	5/12/2024
1098		CN			CN202310559235.3	5/17/2023
1098		WO			PCT/CN2024/092744	5/12/2024
1099		CN			CN202310573010.3	5/19/2023
1099		WO			PCT/CN2024/092745	5/12/2024
1100	*	BR			BR112025024671-2	5/13/2024
1100	*	CN			CN202310572209.4	5/19/2023
1100	*	EP			24810242.8	5/13/2024
1100	*	IN			202517128149	5/13/2024
1100	*	JP			2025-567694	5/13/2024
1100	*	KR			10-2025-7042042	5/13/2024
1100	*	US			19/485,546	5/13/2024
1100	*	WO			PCT/CN2024/092762	5/13/2024
1101	*	CN			CN202310579866.1	5/22/2023
1101	*	US			18/666,832	5/17/2024
1102	*	CN			CN202410180333.0	2/18/2024
1102	*	WO			PCT/CN2024/092771	5/13/2024
1103		CN			CN202310581880.5	5/23/2023
1103		WO			PCT/CN2024/092773	5/13/2024
1104		CN			CN202310581900.9	5/23/2023
1104		WO			PCT/CN2024/093600	5/16/2024
1105	*	CN			CN202310584816.2	5/23/2023
1105	*	EP			24810290.7	5/16/2024
1105	*	US			19/485,551	5/16/2024
1105	*	WO			PCT/CN2024/093601	5/16/2024
1106	*	BR			BR112025024672-0	5/16/2024
1106	*	CN			CN202310595451.3	5/24/2023
1106	*	EP			24810291.5	5/16/2024
1106	*	ID			P00202515276	5/16/2024
1106	*	IN			202517130284	5/16/2024
1106	*	JP			2025-568255	5/16/2024
1106	*	KR			10-2025-7042179	5/16/2024

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1106	*	US			19/485,555	5/16/2024
1106	*	WO			PCT/CN2024/093603	5/16/2024
1107	*	CN			CN202310599417.3	5/25/2023
1107	*	WO			PCT/CN2024/093606	5/16/2024
1108	*	CN			CN202310603726.3	5/26/2023
1108	*	EP			24814200.2	5/17/2024
1108	*	US			19/485,565	5/17/2024
1108	*	WO			PCT/CN2024/093806	5/17/2024
1109	*	CN			CN202310612212.4	5/29/2023
1109	*	WO			PCT/CN2024/093808	5/17/2024
1110		CN			CN202310615174.8	5/29/2023
1110		EP			24814407.3	5/28/2024
1110		US			19/485,578	5/28/2024
1110		WO			PCT/CN2024/095645	5/28/2024
1111		CN			CN202310615925.6	5/29/2023
1111		EP			24814408.1	5/28/2024
1111		US			19/485,592	5/28/2024
1111		WO			PCT/CN2024/095646	5/28/2024
1112	*	CN			CN202310635969.5	5/31/2023
1112	*	WO			PCT/CN2024/095647	5/28/2024
1113		CN			CN202310635980.1	5/31/2023
1113		WO			PCT/CN2024/095914	5/29/2024
1114	*	CN			CN202310639846.9	5/31/2023
1114	*	WO			PCT/CN2024/095915	5/29/2024
1115	*	CN			CN202310675993.1	6/8/2023
1115	*	EP			24814458.6	5/29/2024
1115	*	US			19/487,518	5/29/2024
1115	*	WO			PCT/CN2024/095917	5/29/2024
1116		CN			CN202310651128.3	6/2/2023
1117		CN			CN202310654281.1	6/5/2023
1118	*	CN			CN202310676024.8	6/8/2023
1118	*	US			18/676,522	5/29/2024
1119	*	CN			CN202310694380.2	6/12/2023
1119	*	US			19/487,521	5/29/2024
1119	*	WO			PCT/CN2024/095923	5/29/2024
1120	*	AU			2024304489	6/14/2024
1120	*	BR			BR112025026067-7	6/14/2024
1120	*	CA				6/14/2024
1120	*	CN			CN202310713856.2	6/15/2023
1120	*	IN			202517127032	6/14/2024
1120	*	JP			2025-572601	6/14/2024
1120	*	KR			10-2025-7043750	6/14/2024
1120	*	MY				6/14/2024
1120	*	PH			1-2025-553051	6/14/2024
1120	*	SG			11202508389U	6/14/2024

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1120	*	US			19/487,523	6/14/2024
1120	*	WO			PCT/CN2024/099146	6/14/2024
1121		CN			CN202310715283.7	6/15/2023
1121		US			19/487,796	6/14/2024
1121		WO			PCT/CN2024/099148	6/14/2024
1122	*	BR			BR112025026077-4	6/14/2024
1122	*	CN			CN202310721439.2	6/16/2023
1122	*	US			19/487,803	6/14/2024
1122	*	WO			PCT/CN2024/099149	6/14/2024
1123		CN			CN202310721447.7	6/16/2023
1123		US			18/741,816	6/13/2024
1124	*	CN			CN202310737479.6	6/20/2023
1124	*	US			19/487,927	6/19/2024
1124	*	WO			PCT/CN2024/100031	6/19/2024
1125	*	CN			CN202310747530.1	6/21/2023
1126	*	CN			CN202310752995.6	6/25/2023
1127	*	CN			CN202310754997.9	6/25/2023
1128		CN			CN202310755217.2	6/25/2023
1129		CN			CN202310769723.7	6/27/2023
1129		US			18/751,372	6/24/2024
1130		CN			CN202310768943.8	6/27/2023
1131	*	CN			CN202310768969.2	6/27/2023
1132	*	CN			CN202310769757.6	6/27/2023
1133		CN			CN202310787017.5	6/29/2023
1134	*	BR			BR112025026076-6	6/24/2024
1134	*	CN			CN202310798122.9	6/30/2023
1134	*	IN			202517132589	6/24/2024
1134	*	JP				6/24/2024
1134	*	MX			MX/a/2025/014456	6/24/2024
1134	*	US			19/487,937	6/24/2024
1134	*	WO			PCT/CN2024/100843	6/24/2024
1135		CN			CN202310891484.2	7/19/2023
1136		CN			CN202310833276.7	7/7/2023
1137		CN			CN202310836917.4	7/10/2023
1137		WO			PCT/CN2024/100845	6/24/2024
1138		CN			CN202310911678.4	7/24/2023
1138		WO			PCT/CN2024/102901	7/1/2024
1139	*	CN			CN202310841030.4	7/10/2023
1140		CN			CN202310841476.7	7/10/2023
1140		US			18/766,678	7/9/2024
1141	*	CN			CN202310841535.0	7/10/2023
1141	*	US			18/766,686	7/9/2024
1142		CN			CN202310862096.1	7/13/2023
1142		US			18/766,689	7/9/2024
1143		CN			CN202310862932.6	7/13/2023

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1144	*	CN			CN202310913297.X	7/24/2023
1144	*	WO			PCT/CN2024/102902	7/1/2024
1145	*	CN			CN202310884229.5	7/18/2023
1146		CN			CN202310893445.6	7/19/2023
1146		CN			CN202311747025.3	7/19/2023
1146		WO			PCT/CN2024/102905	7/1/2024
1147		CN			CN202310890993.3	7/19/2023
1148		CN			CN202310905276.3	7/21/2023
1148		US			18/772,283	7/15/2024
1149	*	CN			CN202310905310.7	7/21/2023
1149	*	WO			PCT/CN2024/105640	7/16/2024
1150		CN			CN202310909856.X	7/21/2023
1150		US			18/777,555	7/19/2024
1151	*	BR			BR112025028714-1	7/16/2024
1151	*	CN			CN202311009634.9	8/10/2023
1151	*	WO			PCT/CN2024/105644	7/16/2024
1152		CN			CN202311056937.6	8/21/2023
1152		WO			PCT/CN2024/105646	7/16/2024
1153	*	CN			CN202310927752.1	7/26/2023
1153	*	WO			PCT/CN2024/106329	7/19/2024
1154		CN			CN202311048973.8	8/18/2023
1154		US			18/777,558	7/19/2024
1155		CN			CN202311380409.6	10/23/2023
1155		US			18/783,393	7/24/2024
1156	*	CN			CN202310946453.2	7/28/2023
1156	*	WO			PCT/CN2024/106331	7/19/2024
1157	*	CN			CN202310945384.3	7/28/2023
1157	*	US			18/783,381	7/24/2024
1158	*	CN			CN202311007520.0	8/10/2023
1158	*	WO			PCT/CN2024/106334	7/19/2024
1159	*	CN			CN202310976168.5	8/3/2023
1159	*	WO			PCT/CN2024/108050	7/29/2024
1160		CN			CN202311000621.5	8/9/2023
1160		WO			PCT/CN2024/108052	7/29/2024
1161		CN			CN202311000073.6	8/9/2023
1161		WO			PCT/CN2024/108054	7/29/2024
1162		CN			CN202311007882.X	8/10/2023
1163	*	CN			CN202311015992.0	8/11/2023
1163	*	WO			PCT/CN2024/109677	8/4/2024
1164	*	CN			CN202311015210.3	8/11/2023
1164	*	WO			PCT/CN2024/109678	8/4/2024
1165		CN			CN202311015356.8	8/11/2023
1165		WO			PCT/CN2024/109679	8/4/2024
1166	*	CN			CN202311020476.7	8/14/2023
1166	*	WO			PCT/CN2024/110589	8/8/2024

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1167		CN			CN202311023148.2	8/14/2023
1167		WO			PCT/CN2024/110594	8/8/2024
1168		CN			CN202311043594.X	8/17/2023
1168		WO			PCT/CN2024/110599	8/8/2024
1169		CN			CN202311042603.3	8/17/2023
1170		CN			CN202311048092.6	8/18/2023
1171	*	CN			CN202311048907.0	8/18/2023
1171	*	US			18/806,737	8/16/2024
1172		CN			CN202311071169.1	8/23/2023
1172		WO			PCT/CN2024/111341	8/12/2024
1173		CN			CN202311075819.X	8/24/2023
1173		WO			PCT/CN2024/111342	8/12/2024
1174		CN			CN202311082558.4	8/25/2023
1174		WO			PCT/CN2024/111344	8/12/2024
1175		CN			CN202311084052.7	8/25/2023
1175		WO			PCT/CN2024/113537	8/21/2024
1176	*	CN			CN202311092545.5	8/28/2023
1176	*	WO			PCT/CN2024/113538	8/21/2024
1177	*	CN			CN202311175159.2	9/12/2023
1177	*	WO			PCT/CN2024/113539	8/21/2024
1178		CN			CN202311108594.3	8/30/2023
1178		WO			PCT/CN2024/114672	8/27/2024
1179	*	CN			CN202311108609.6	8/30/2023
1179	*	WO			PCT/CN2024/114673	8/27/2024
1180	*	CN			CN202311111132.7	8/30/2023
1180	*	WO			PCT/CN2024/114677	8/27/2024
1181	*	CN			CN202311125346.X	9/1/2023
1181	*	US			18/815,881	8/27/2024
1182		CN			CN202311153106.0	9/7/2023
1182		US			18/822,494	9/3/2024
1183	*	CN			CN202311160315.8	9/8/2023
1183	*	WO			PCT/CN2024/116999	9/5/2024
1184		CN			CN202311177381.6	9/12/2023
1185	*	CN			CN202311188824.1	9/14/2023
1185	*	WO			PCT/CN2024/117010	9/5/2024
1186		CN			CN202311188845.3	9/14/2023
1186		WO			PCT/CN2024/117011	9/5/2024
1187	*	CN			CN202311196119.6	9/15/2023
1187	*	WO			PCT/CN2024/117969	9/10/2024
1188		CN			CN202311199103.0	9/15/2023
1189		CN			CN202311211867.7	9/19/2023
1190		CN			CN202311213178.X	9/19/2023
1190		WO			PCT/CN2024/117974	9/10/2024
1191	*	CN			CN202311475020.X	11/7/2023
1191	*	WO			PCT/CN2024/117976	9/10/2024

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1192	*	CN			CN202311219703.9	9/20/2023
1192	*	WO			PCT/CN2024/119592	9/19/2024
1193		CN			CN202311238253.8	9/22/2023
1194		CN			CN202311235883.X	9/22/2023
1194		US			18/889,434	9/19/2024
1195		CN			CN202311235653.3	9/22/2023
1195		WO			PCT/CN2024/119595	9/19/2024
1196	*	CN			CN202311475039.4	11/7/2023
1196	*	WO			PCT/CN2024/119598	9/19/2024
1197	*	CN			CN202311244657.8	9/25/2023
1197	*	US			18/894,023	9/24/2024
1198	*	CN			CN202311260218.6	9/26/2023
1198	*	WO			PCT/CN2024/119600	9/19/2024
1199		CN			CN202311264356.1	9/27/2023
1200	*	CN			CN202311272643.7	9/27/2023
1200	*	WO			PCT/CN2024/121300	9/26/2024
1201		CN			CN202311269198.9	9/27/2023
1202		CN			CN202311262821.8	9/27/2023
1203		CN			CN202311262790.6	9/27/2023
1203		WO			PCT/CN2024/121302	9/26/2024
1204		CN			CN202311280665.8	9/28/2023
1205	*	CN			CN202311475915.3	11/7/2023
1205	*	WO			PCT/CN2024/121305	9/26/2024
1206	*	CN			CN202311285826.2	9/28/2023
1206	*	WO			PCT/CN2024/121306	9/26/2024
1207		CN			CN202311315711.3	10/11/2023
1207		WO			PCT/CN2024/124052	10/11/2024
1208	*	CN			CN202311322826.5	10/12/2023
1208	*	WO			PCT/CN2024/124053	10/11/2024
1209		CN			CN202311332014.9	10/15/2023
1210		CN			CN202311342619.6	10/16/2023
1211	*	CN			CN202311346336.9	10/17/2023
1211	*	WO			PCT/CN2024/124054	10/11/2024
1212	*	CN			CN202311347032.4	10/17/2023
1212	*	WO			PCT/CN2024/124914	10/15/2024
1213		CN			CN202311346392.2	10/17/2023
1214		CN			CN202311360909.3	10/19/2023
1214		WO			PCT/CN2024/124916	10/15/2024
1215	*	CN			CN202311360672.9	10/19/2023
1215	*	WO			PCT/CN2024/124918	10/15/2024
1216		CN			CN202311360983.5	10/19/2023
1216		WO			PCT/CN2024/125143	10/16/2024
1217		CN			CN202311363435.8	10/19/2023
1217		WO			PCT/CN2024/125144	10/16/2024
1218		CN			CN202311368720.9	10/20/2023

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1218		WO			PCT/CN2024/125146	10/16/2024
1219	*	CN			CN202311377586.9	10/23/2023
1219	*	WO			PCT/CN2024/126274	10/22/2024
1220		CN			CN202311378006.8	10/23/2023
1221	*	CN			CN202311388135.5	10/24/2023
1221	*	WO			PCT/CN2024/126277	10/22/2024
1222		CN			CN202311396264.9	10/25/2023
1222		WO			PCT/CN2024/126279	10/22/2024
1223	*	CN			CN202311404544.X	10/26/2023
1223	*	WO			PCT/CN2024/126292	10/22/2024
1224	*	CN			CN202311404566.6	10/26/2023
1224	*	WO			PCT/CN2024/126294	10/22/2024
1225	*	CN			CN202311428123.0	10/30/2023
1225	*	WO			PCT/CN2024/127634	10/28/2024
1226	*	CN			CN202311424007.1	10/30/2023
1226	*	WO			PCT/CN2024/127636	10/28/2024
1227	*	CN			CN202311435733.3	10/31/2023
1227	*	WO			PCT/CN2024/127639	10/28/2024
1228		CN			CN202311433480.6	10/31/2023
1228		WO			PCT/CN2024/127640	10/28/2024
1229		CN			CN202311435758.3	10/31/2023
1229		WO			PCT/CN2024/128379	10/30/2024
1230	*	CN			CN202311443604.9	11/1/2023
1230	*	WO			PCT/CN2024/128382	10/30/2024
1231		CN			CN202311443755.4	11/1/2023
1231		US			18/921,035	10/21/2024
1232		CN			CN202311461339.7	11/3/2023
1232		US			18/921,036	10/21/2024
1233	*	CN			CN202311461406.5	11/3/2023
1233	*	WO			PCT/CN2024/128384	10/30/2024
1234	*	CN			CN202311649088.5	12/4/2023
1234	*	WO			PCT/CN2024/129270	11/1/2024
1235	*	CN			CN202311459561.3	11/3/2023
1235	*	WO			PCT/CN2024/129272	11/1/2024
1236	*	CN			CN202311471495.1	11/6/2023
1236	*	WO			PCT/CN2024/129275	11/1/2024
1237		CN			CN202311476554.4	11/7/2023
1237		WO			PCT/CN2024/130064	11/6/2024
1238		CN			CN202311475117.0	11/7/2023
1239		CN			CN202311478270.9	11/7/2023
1239		WO			PCT/CN2024/130067	11/6/2024
1240		CN			CN202311478316.7	11/7/2023
1241		CN			CN202311491150.2	11/9/2023
1242	*	CN			CN202311492777.X	11/9/2023
1242	*	WO			PCT/CN2024/130068	11/6/2024

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1243	*	CN			CN202311507312.7	11/13/2023
1243	*	WO			PCT/CN2024/131225	11/11/2024
1244		CN			CN202311507640.7	11/13/2023
1244		WO			PCT/CN2024/131226	11/11/2024
1245		CN			CN202311533211.7	11/16/2023
1245		WO			PCT/CN2024/131227	11/11/2024
1246		CN			CN202311549431.9	11/20/2023
1246		WO			PCT/CN2024/133158	11/20/2024
1247	*	WO			PCT/CN2024/119004	9/14/2024
1248	*	CN			CN202311587430.3	11/24/2023
1248	*	WO			PCT/CN2024/133821	11/22/2024
1249	*	CN			CN202311587548.6	11/24/2023
1249	*	WO			PCT/CN2024/133823	11/22/2024
1250	*	WO			PCT/CN2024/118404	9/12/2024
1251		WO			PCT/CN2024/118407	9/12/2024
1252	*	CN			CN202311628153.6	11/30/2023
1252	*	WO			PCT/CN2024/133826	11/22/2024
1253		CN			CN202311628966.5	11/30/2023
1253		WO			PCT/CN2024/135122	11/28/2024
1254		CN			CN202311629012.6	11/30/2023
1255		CN			CN202311640415.0	12/1/2023
1255		WO			PCT/CN2024/135131	11/28/2024
1256	*	WO			PCT/CN2024/118408	9/12/2024
1257		CN			CN202311645973.6	12/3/2023
1257		US			18/959,690	11/26/2024
1258		CN			CN202311657274.3	12/5/2023
1259	*	CN			CN202311677818.2	12/7/2023
1259	*	US			18/970,980	12/6/2024
1260		CN			CN202311677822.9	12/7/2023
1261	*	WO			PCT/CN2024/119006	9/14/2024
1262	*	CN			CN202311719987.8	12/13/2023
1262	*	WO			PCT/CN2024/135138	11/28/2024
1263	*	CN			CN202311746953.8	12/18/2023
1263	*	US			18/981,676	12/16/2024
1264	*	CN			CN202311756773.8	12/19/2023
1264	*	WO			PCT/CN2024/139827	12/17/2024
1265	*	CN			CN202410033688.7	1/9/2024
1265	*	WO			PCT/CN2024/139828	12/17/2024
1266	*	CN			CN202311790135.8	12/22/2023
1266	*	WO			PCT/CN2024/139830	12/17/2024
1267	*	CN			CN202311802333.1	12/25/2023
1267	*	WO			PCT/CN2024/139833	12/17/2024
1268	*	CN			CN202311810384.9	12/26/2023
1268	*	WO			PCT/CN2024/139837	12/17/2024
1269		CN			CN202311841984.1	12/28/2023

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Worldwide Patents and Applications

1270		CN			CN202311863397.2	12/29/2023
1271		CN			CN202311869244.9	12/29/2023
1271		WO			PCT/CN2024/139838	12/17/2024
1272		CN			CN202410534728.6	4/29/2024
1273	*	CN			CN202410545919.2	4/30/2024
1273	*	WO			PCT/CN2025/091908	4/29/2025
1274		CN			CN202410545736.0	4/30/2024
1275	*	CN			CN202410545955.9	4/30/2024
1275	*	WO			PCT/CN2025/091909	4/29/2025
1276	*	CN			CN202410565122.9	5/8/2024
1276	*	WO			PCT/CN2025/093275	5/8/2025
1277	*	CN			CN202410566206.4	5/8/2024
1277	*	WO			PCT/CN2025/093276	5/8/2025
1278		CN			CN202410565351.0	5/8/2024
1279	*	CN			CN202410574802.7	5/9/2024
1279	*	WO			PCT/CN2025/093278	5/8/2025
1280		CN			CN202410574836.6	5/9/2024
1280		WO			PCT/CN2025/093281	5/8/2025
1281		CN			CN202410580075.5	5/10/2024
1281		WO			PCT/CN2025/093282	5/8/2025