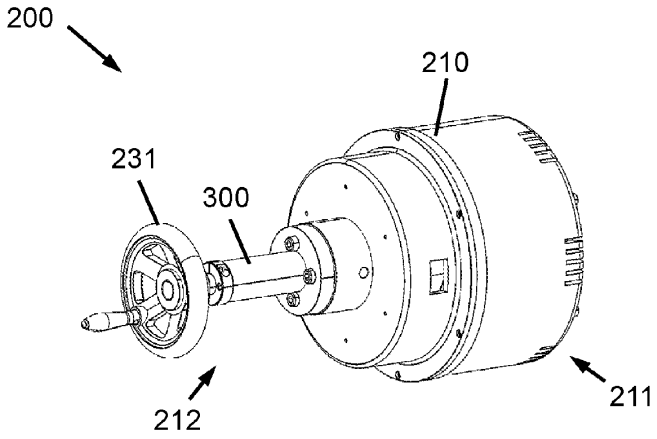


FIG. 1A

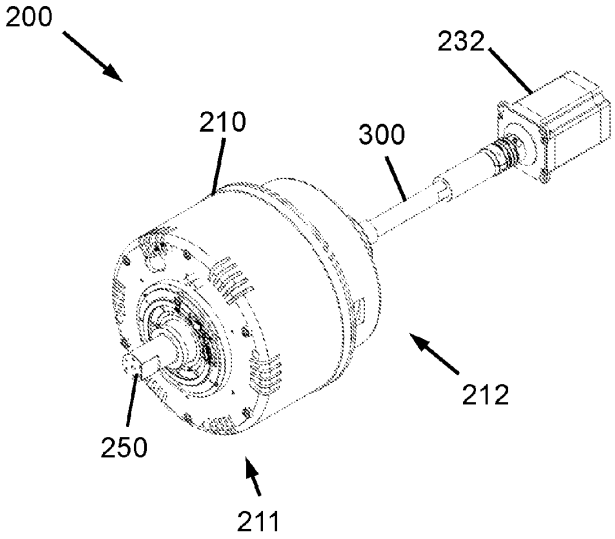


FIG. 1B

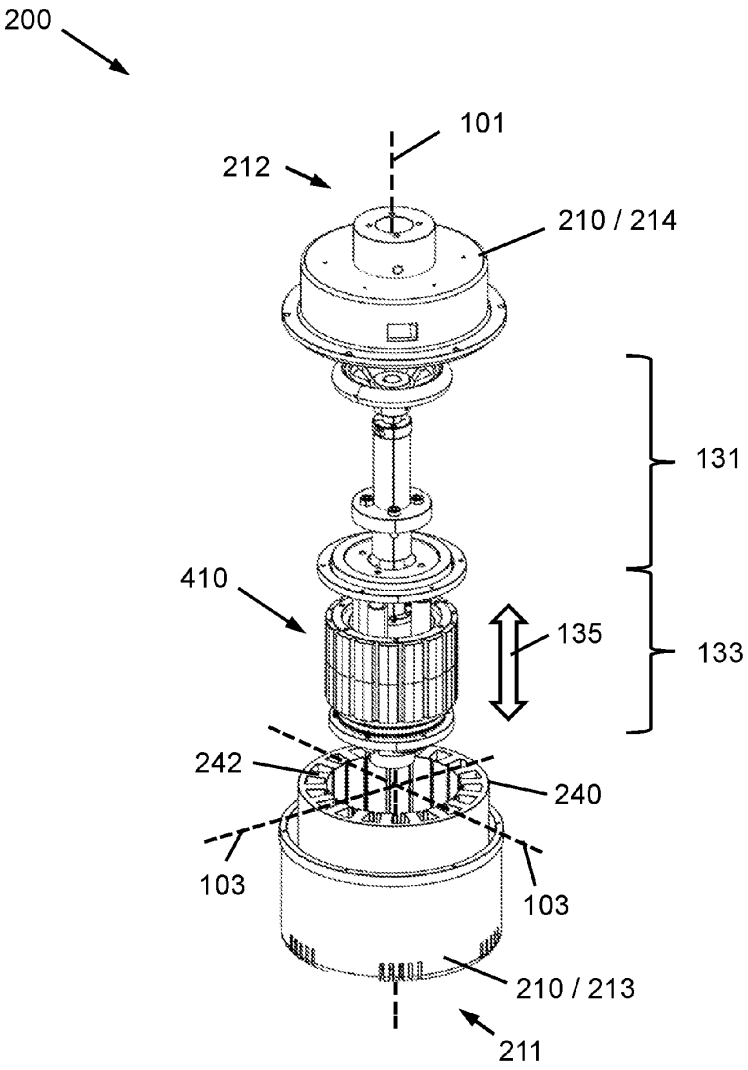


FIG. 2

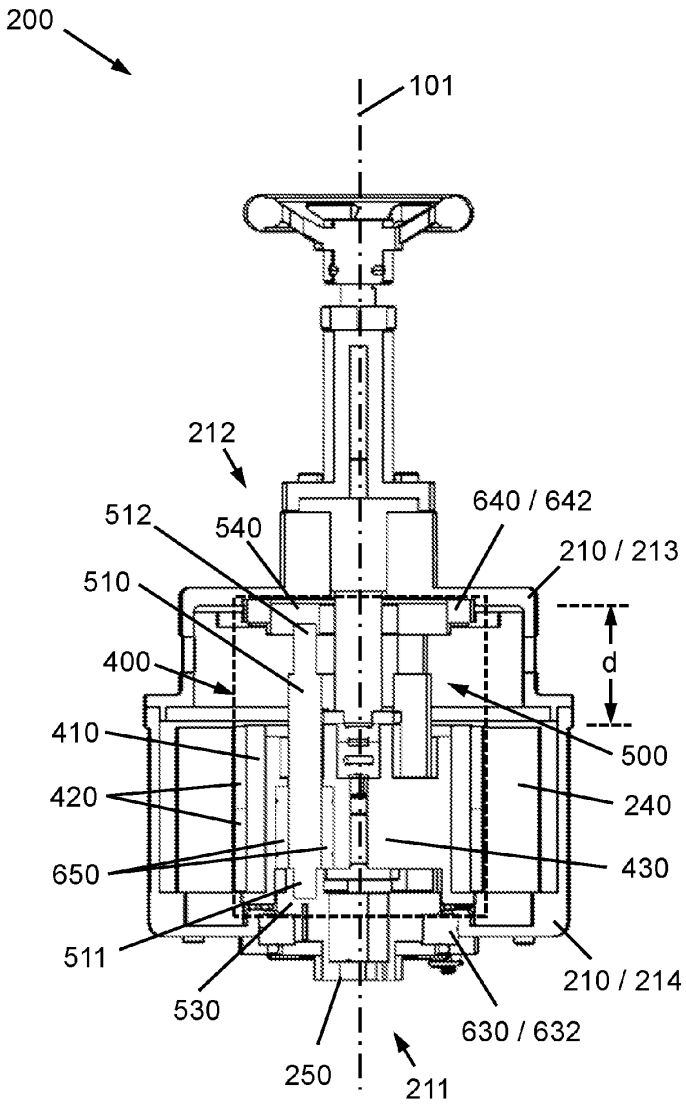

200
101
212
512
540
640 / 642
210 / 213
510
400
d
410
500
420
240
650
430
511
210 / 214
530
630 / 632
250
211

FIG. 3

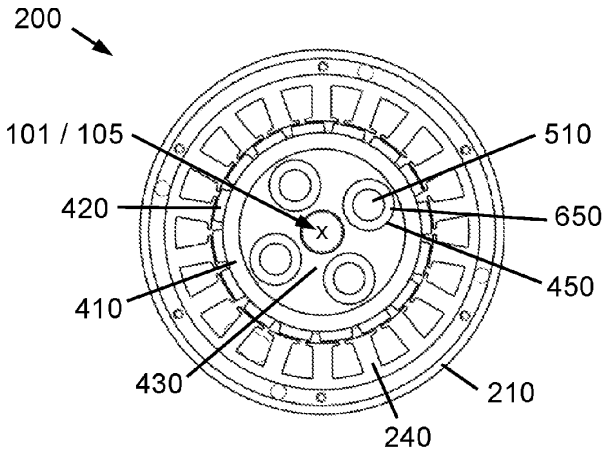

200
101 / 105
510
420
650
X
450
410
430
210
240

FIG. 4

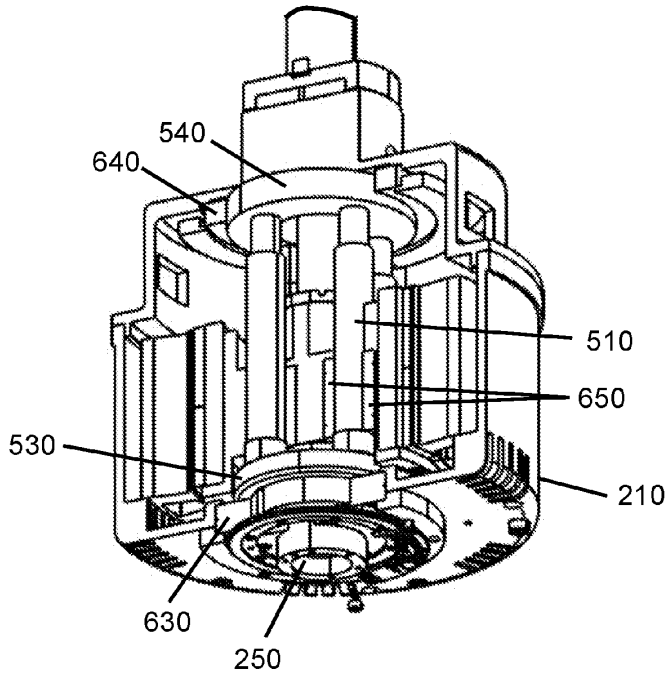

540
640
510
650
530
210
630
250

FIG. 5

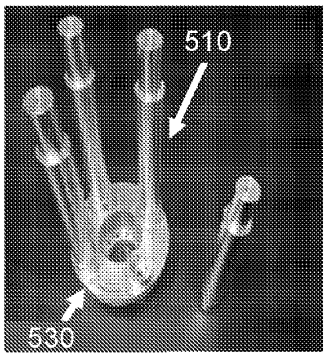


FIG. 6A

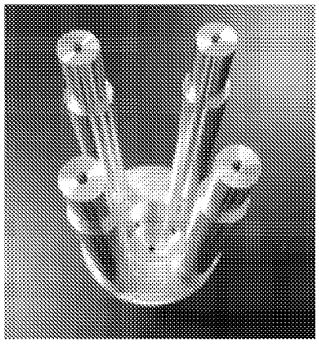


FIG. 6B

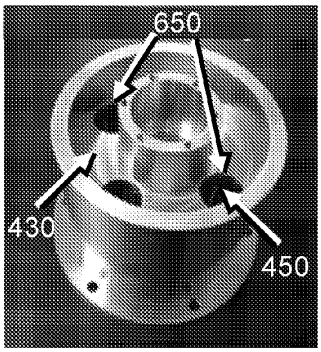


FIG. 6C

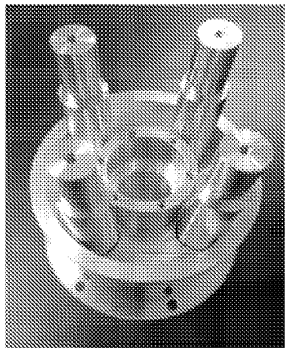


FIG. 6D

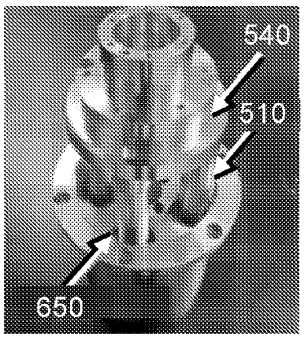


FIG. 6E

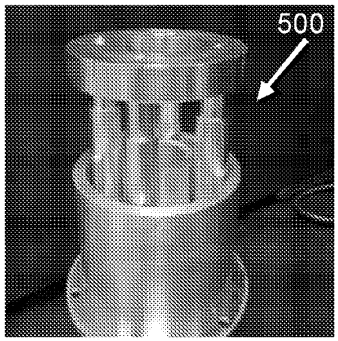


FIG. 6F

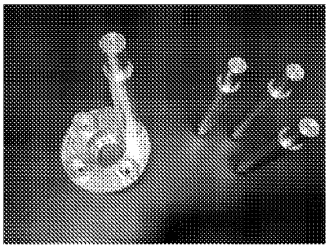


FIG. 7A

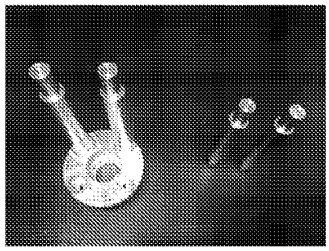


FIG. 7B

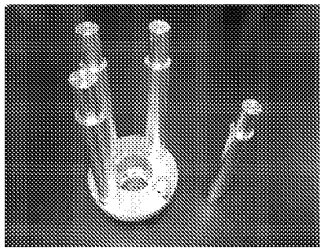


FIG. 7C

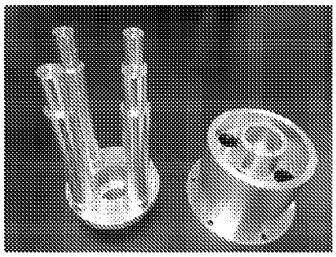


FIG. 7D

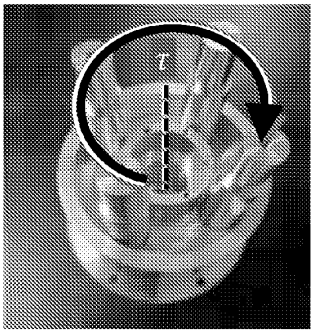


FIG. 8A

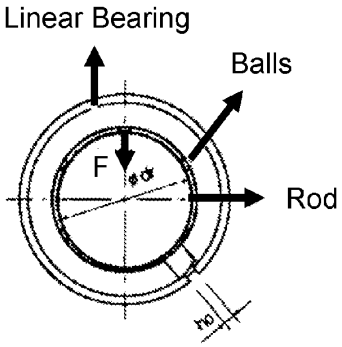


FIG. 8B

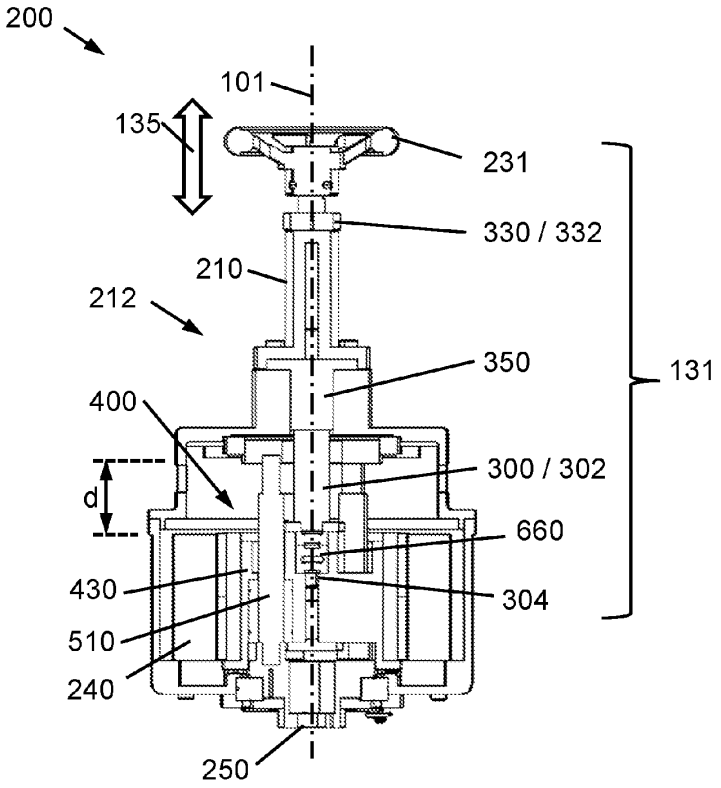


FIG. 9

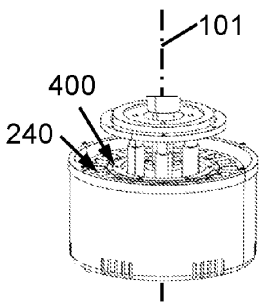


FIG. 10A

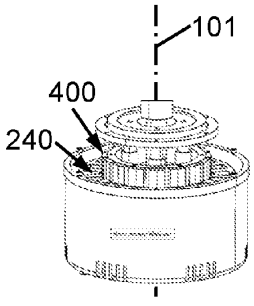


FIG. 10B

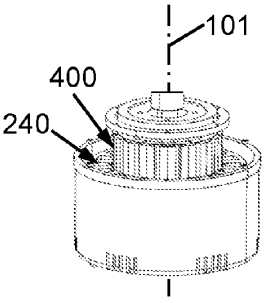


FIG. 10C

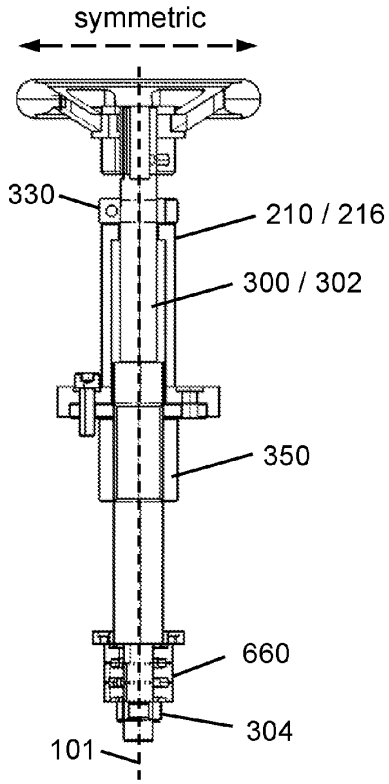


FIG. 11

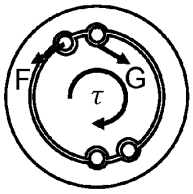


FIG. 12A

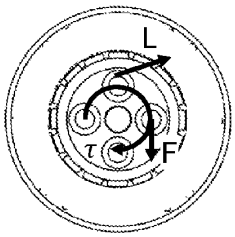


FIG. 12B

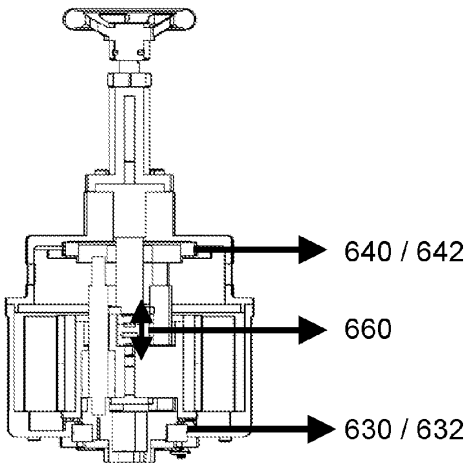


FIG. 13A

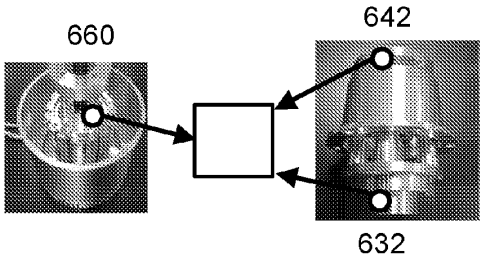


FIG. 13B

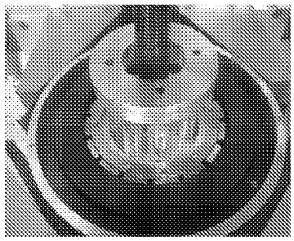


FIG. 14A

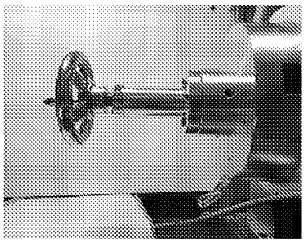


FIG. 14B

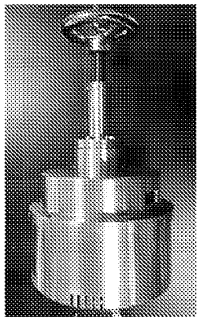


FIG. 14C

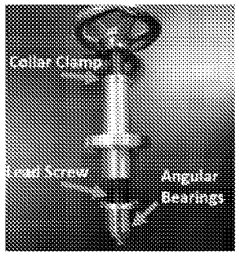


FIG. 14D

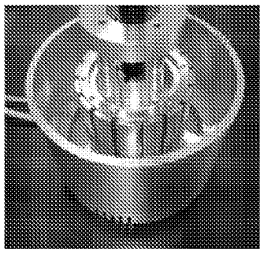


FIG. 14E

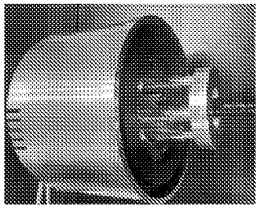


FIG. 14F

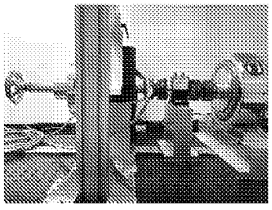


FIG. 14G

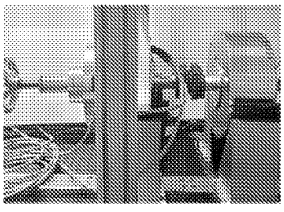


FIG. 14H

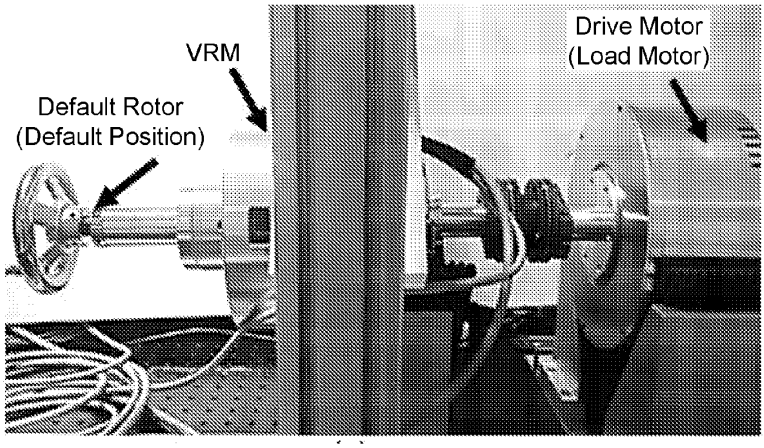


FIG. 15A

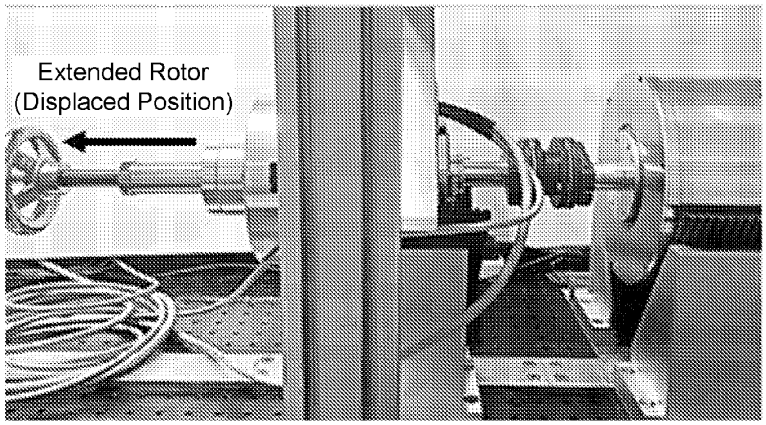


FIG. 15B

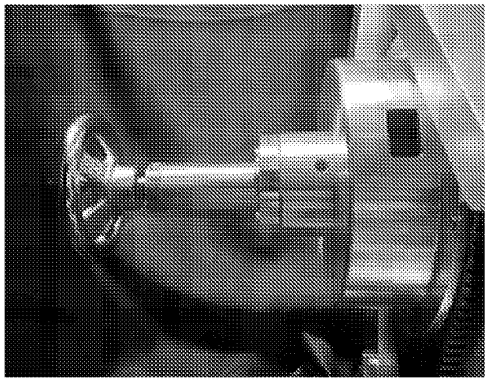


FIG. 16A

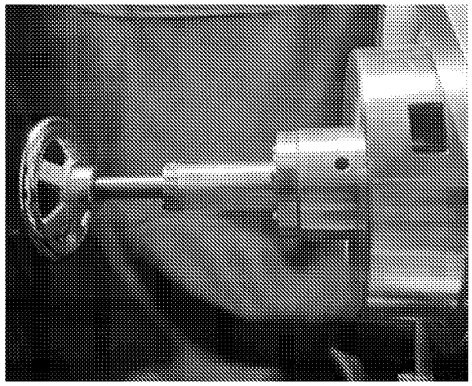


FIG. 16B

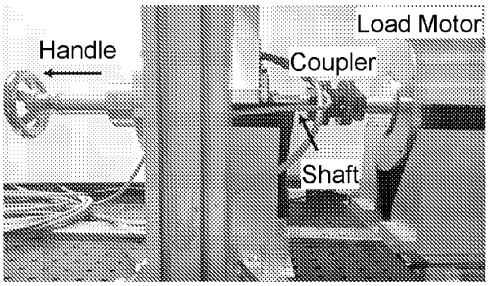


FIG. 17A

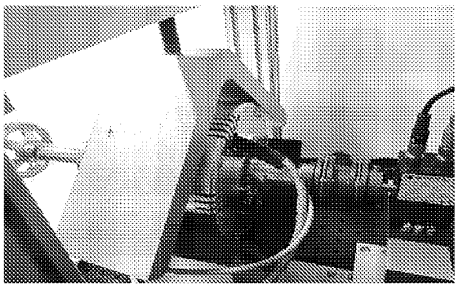


FIG. 17B

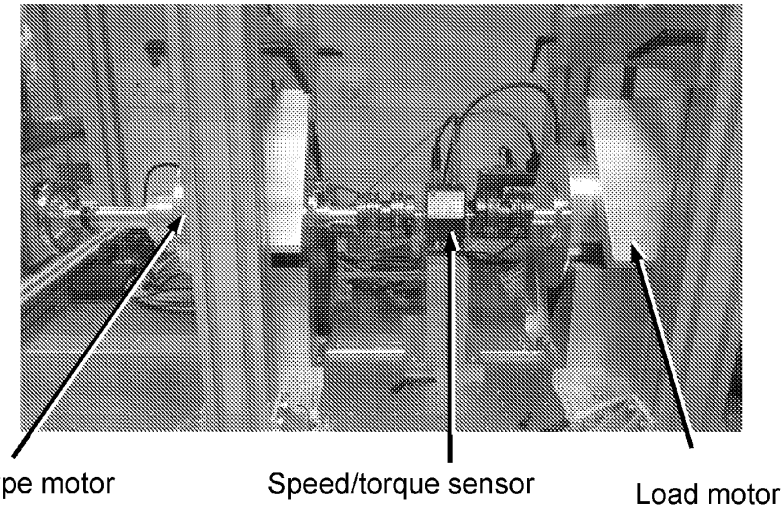


FIG. 18

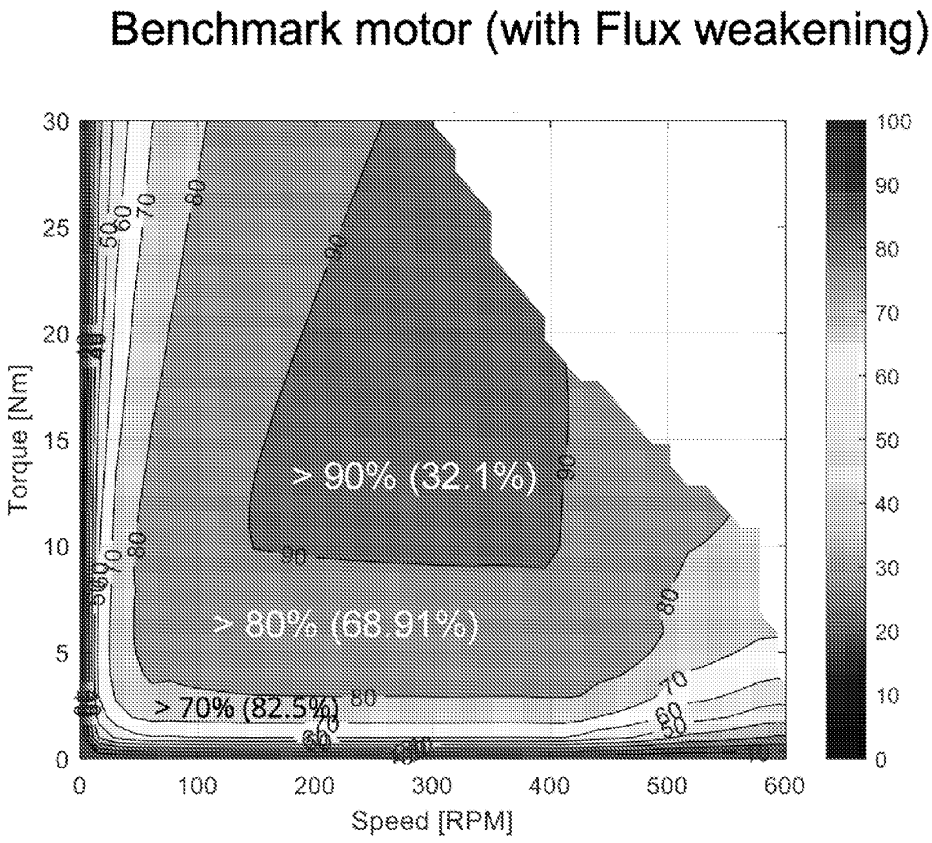

Benchmark motor (with Flux weakening)
Torque [Nm]
Speed [RPM]
> 90% (32.1%)
> 80% (68.91%)
> 70% (82.5%)
0
100
200
300
400
500
600
5
10
15
20
25
30
40
50
60
70
80
90
100

FIG. 19A

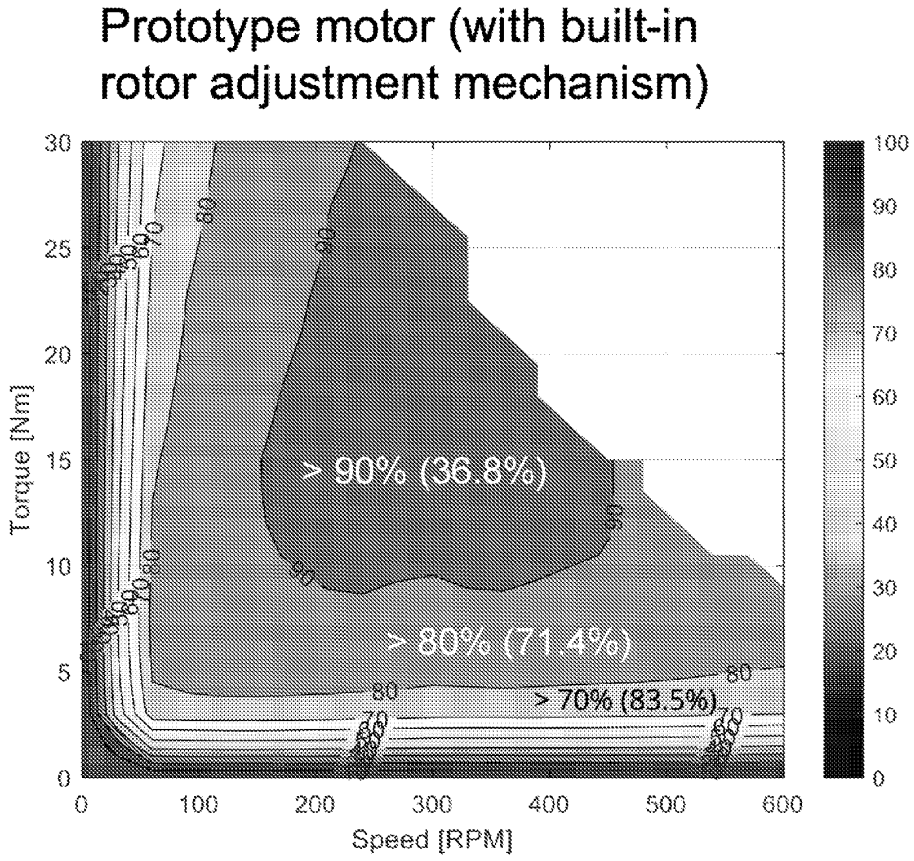

Prototype motor (with built-in rotor adjustment mechanism)
Torque [Nm]
Speed [RPM]
> 90% (36.8%)
> 80% (71.4%)
> 70% (83.5%)
0
5
10
15
20
25
30
0
100
200
300
400
500
600
100
90
80
70
60
50
40
30
20
10
0

FIG. 19B

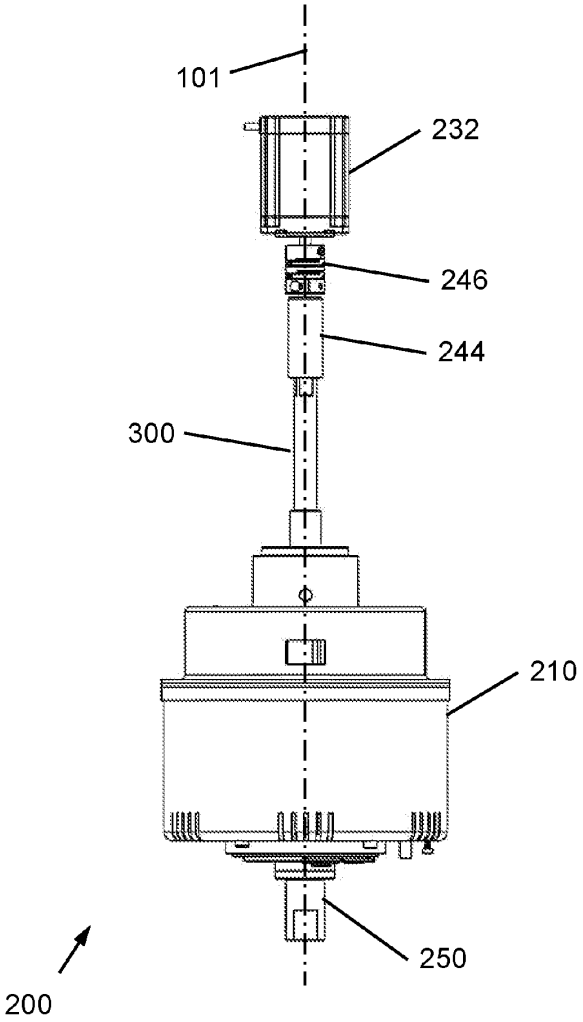


FIG. 20