FIG. 1A

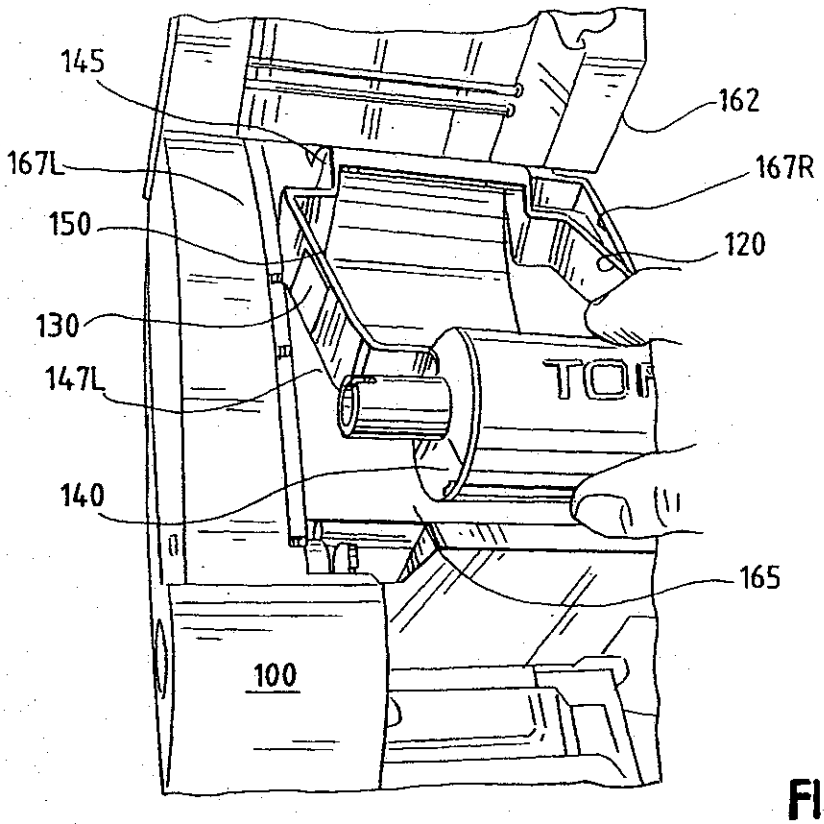

145
162
167L
167R
150
120
130
TOP
147L
140
165
100

FIG. 1B

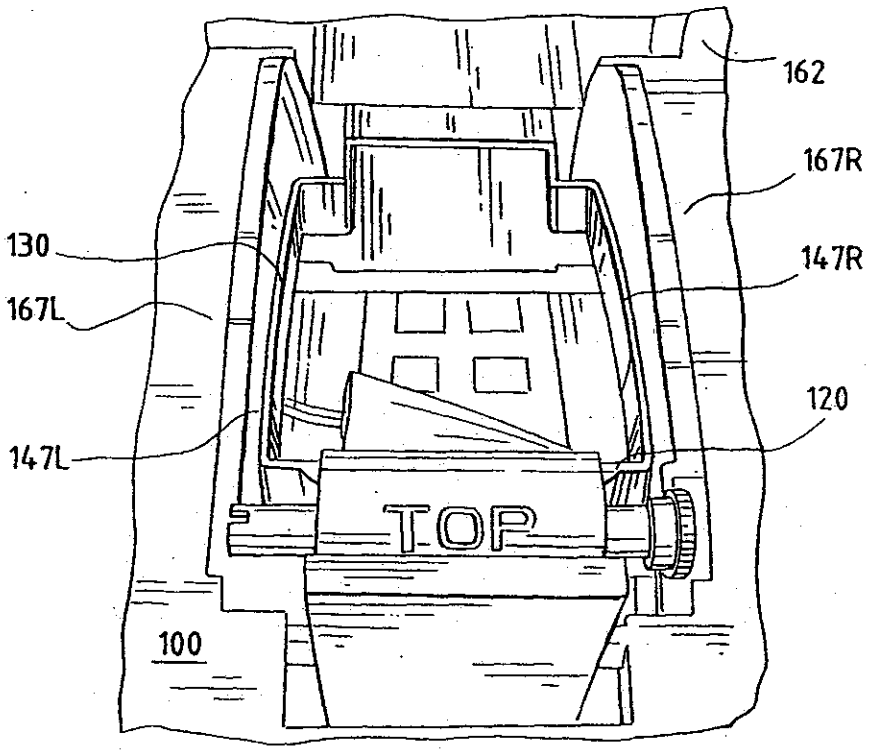

162
167R
130
147R
167L
120
147L
TOP
100

FIG. 2A

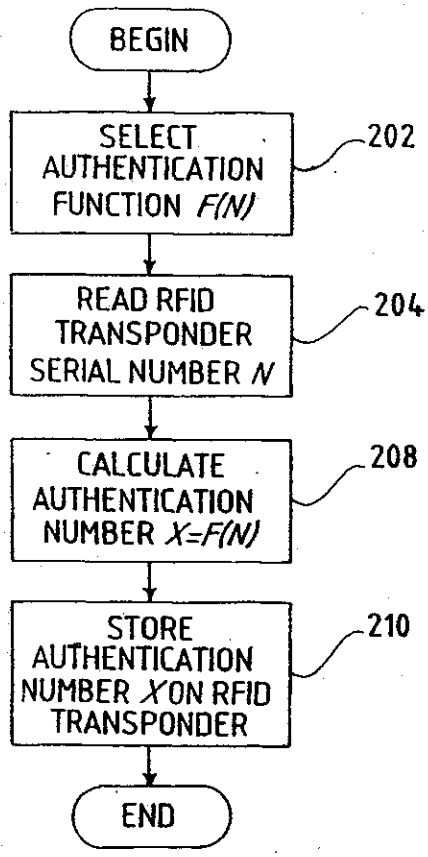
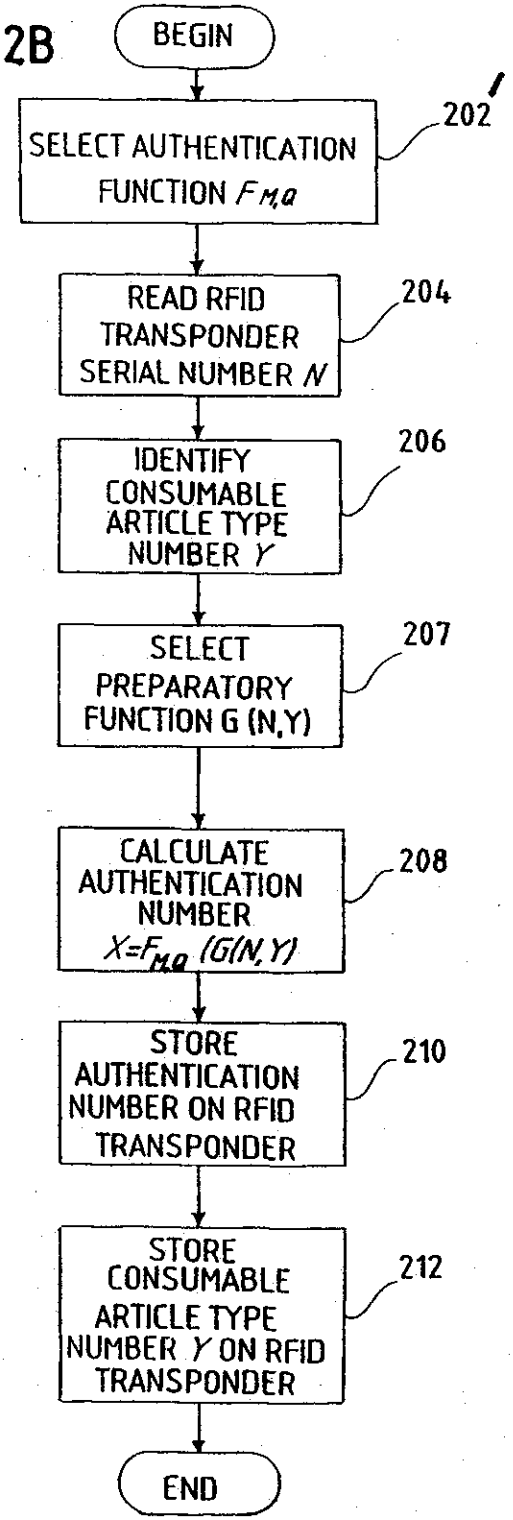

BEGIN
SELECT AUTHENTICATION FUNCTION F(N)
202
READ RFID TRANSPONDER SERIAL NUMBER N
204
CALCULATE AUTHENTICATION NUMBER X=F(N)
208
STORE AUTHENTICATION NUMBER X ON RFID TRANSPONDER
210
END

FIG. 2B


BEGIN
SELECT AUTHENTICATION FUNCTION $F_{M,a}$
202'
READ RFID TRANSPONDER SERIAL NUMBER N
204
IDENTIFY CONSUMABLE ARTICLE TYPE NUMBER Y
206
SELECT PREPARATORY FUNCTION G (N,Y)
207
CALCULATE AUTHENTICATION NUMBER $X=F_{M,a}(G(N,Y))$
208
STORE AUTHENTICATION NUMBER ON RFID TRANSPONDER
210
STORE CONSUMABLE ARTICLE TYPE NUMBER Y ON RFID TRANSPONDER
212
END

WO 03/019459 PCT/US02/26617

FIG. 3A

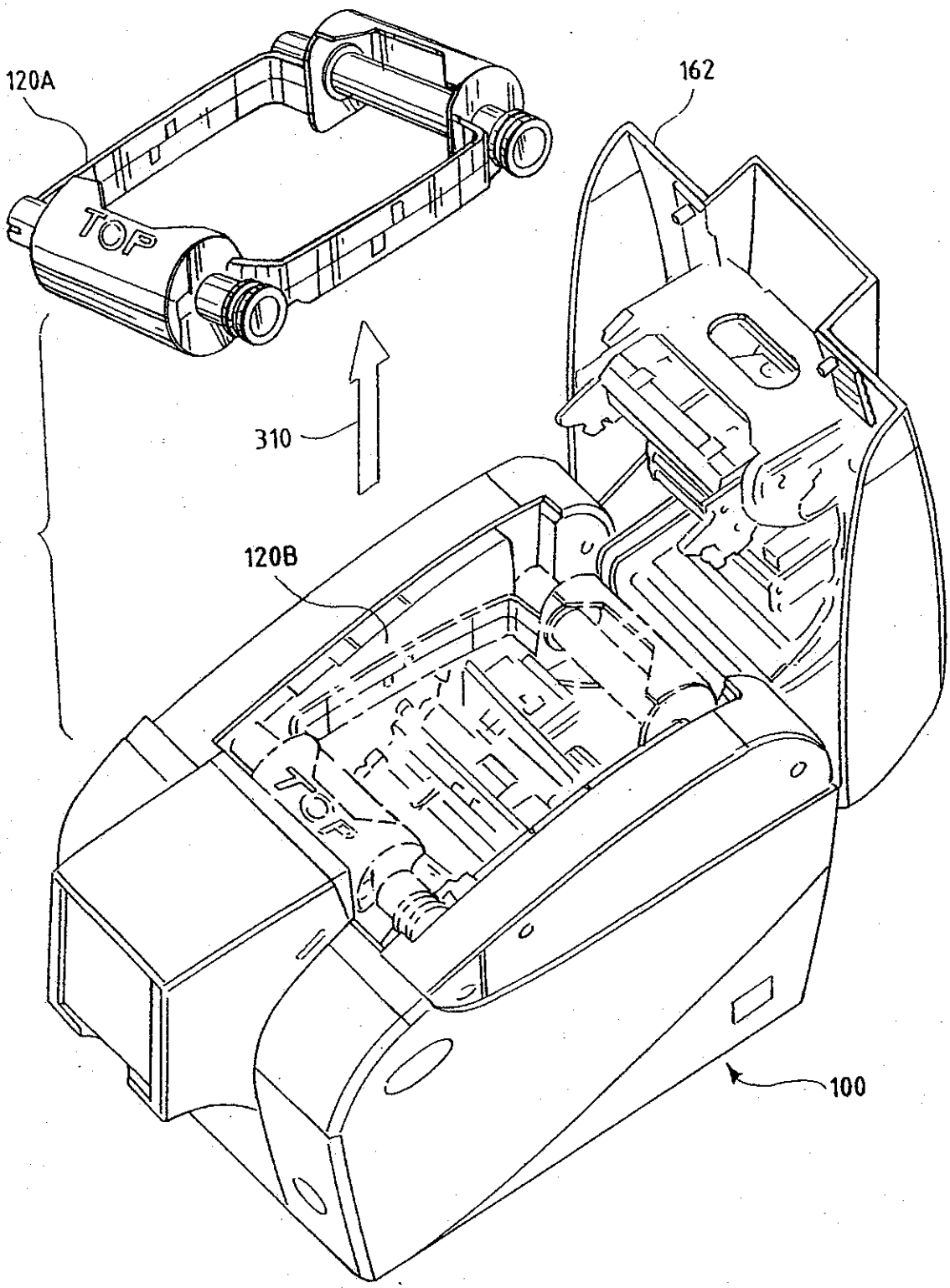


FIG. 3B

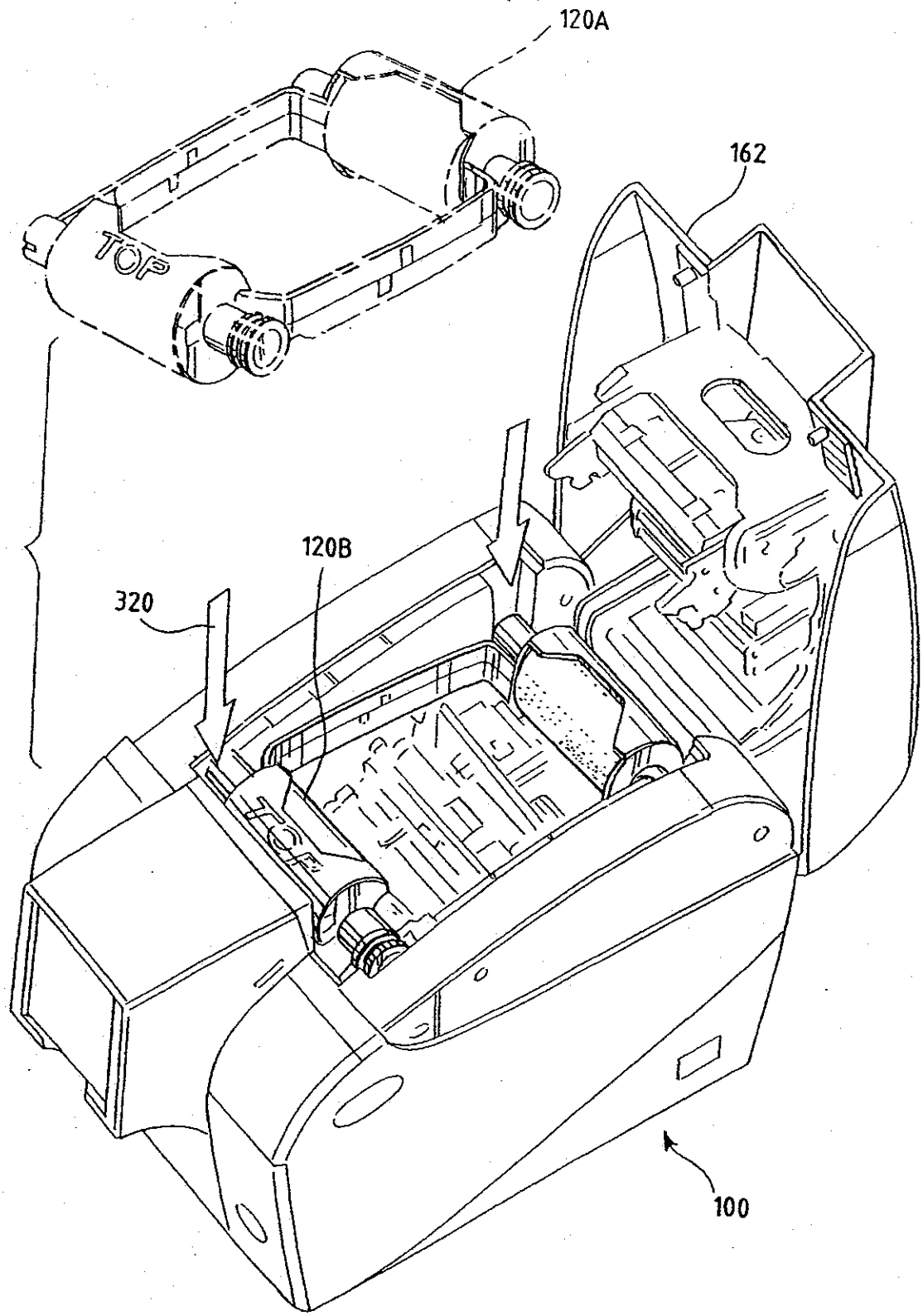


FIG. 4

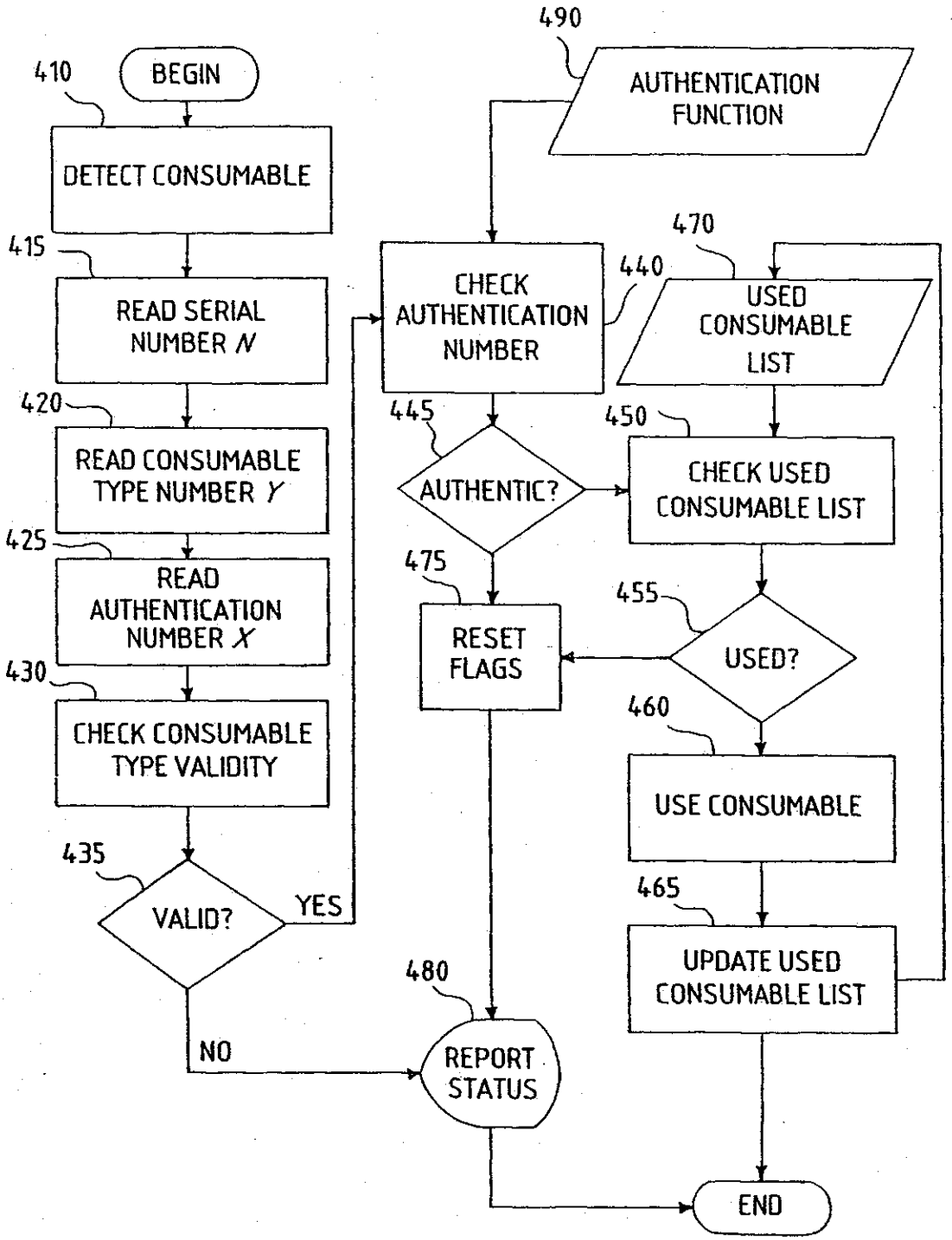

490
AUTHENTICATION FUNCTION
410
BEGIN
DETECT CONSUMABLE
415
READ SERIAL NUMBER N
420
READ CONSUMABLE TYPE NUMBER Y
425
READ AUTHENTICATION NUMBER X
430
CHECK CONSUMABLE TYPE VALIDITY
435
VALID?
YES
NO
CHECK AUTHENTICATION NUMBER
440
470
USED CONSUMABLE LIST
445
AUTHENTIC?
450
CHECK USED CONSUMABLE LIST
475
RESET FLAGS
455
USED?
460
USE CONSUMABLE
465
UPDATE USED CONSUMABLE LIST
480
REPORT STATUS
END

FIG. 5

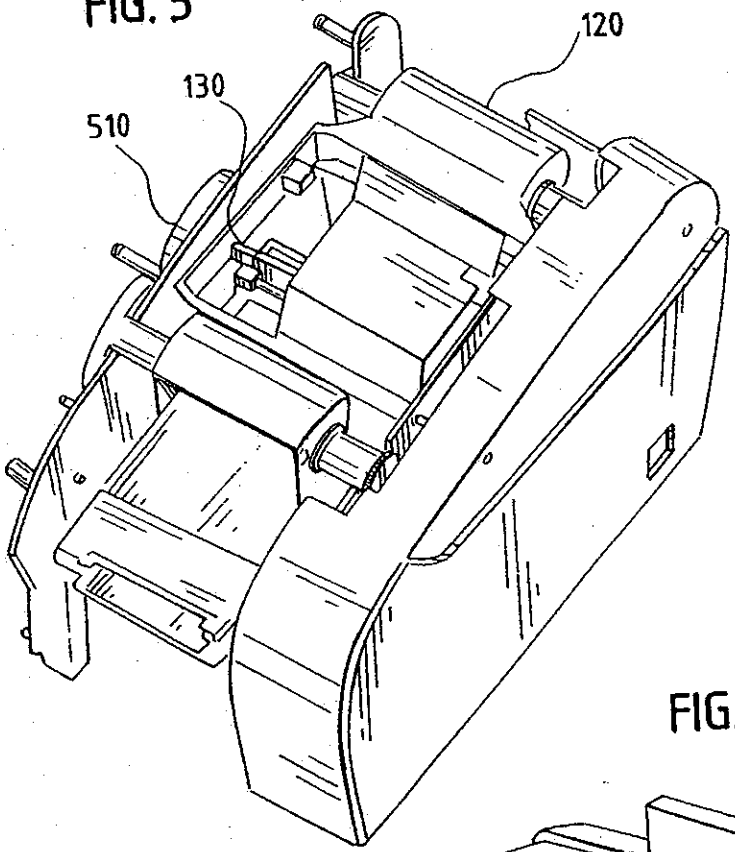


FIG. 6

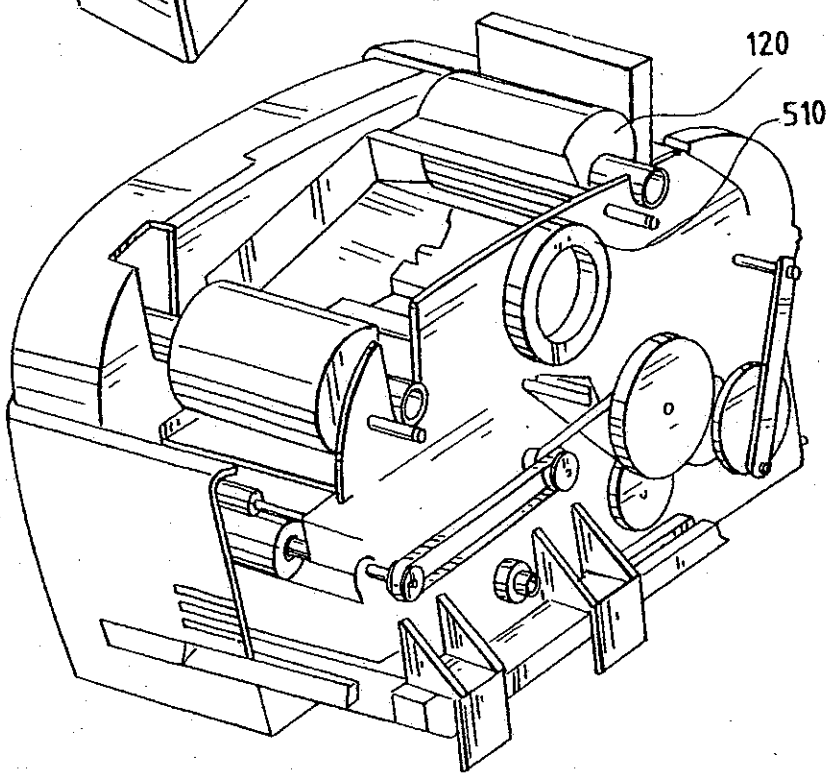


FIG. 7A

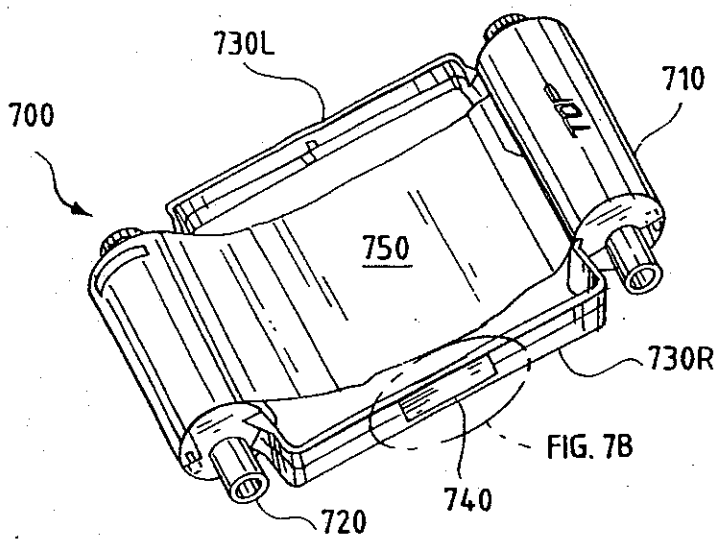


FIG. 7B

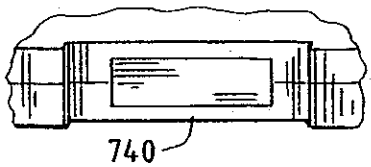


FIG. 7C

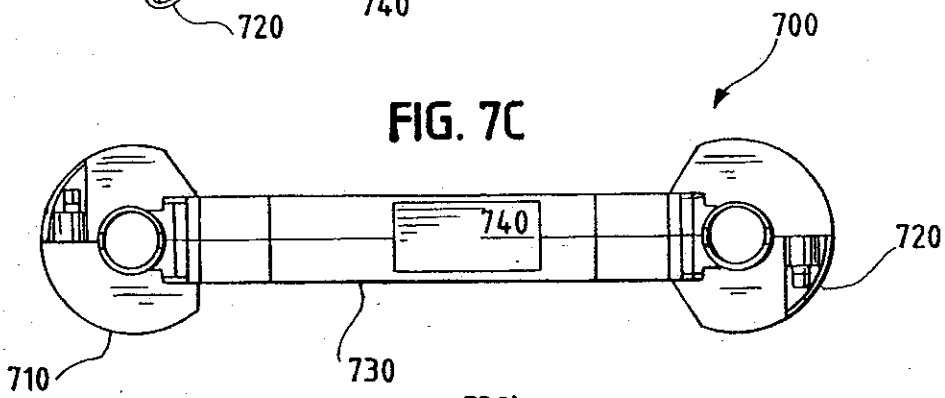


FIG. 7D

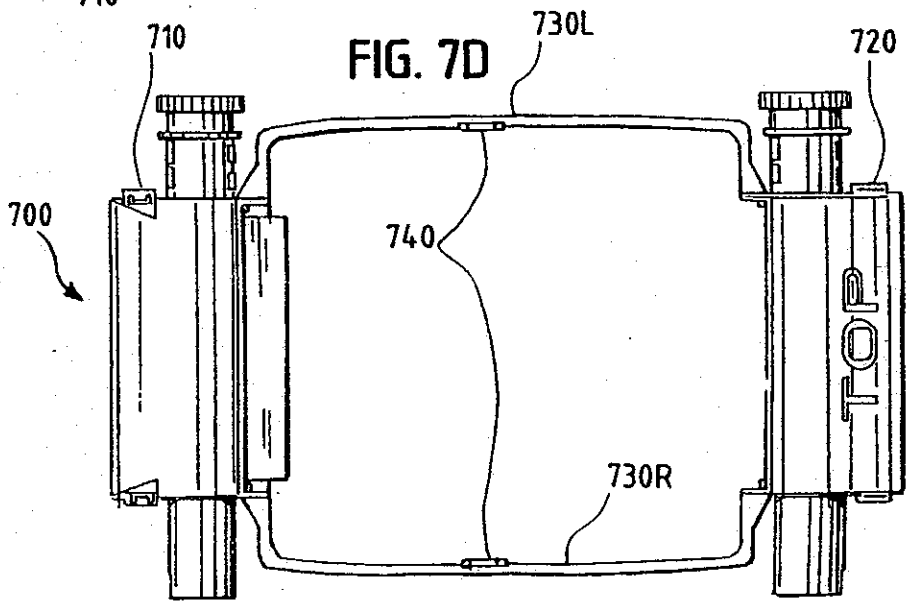


FIG. 8

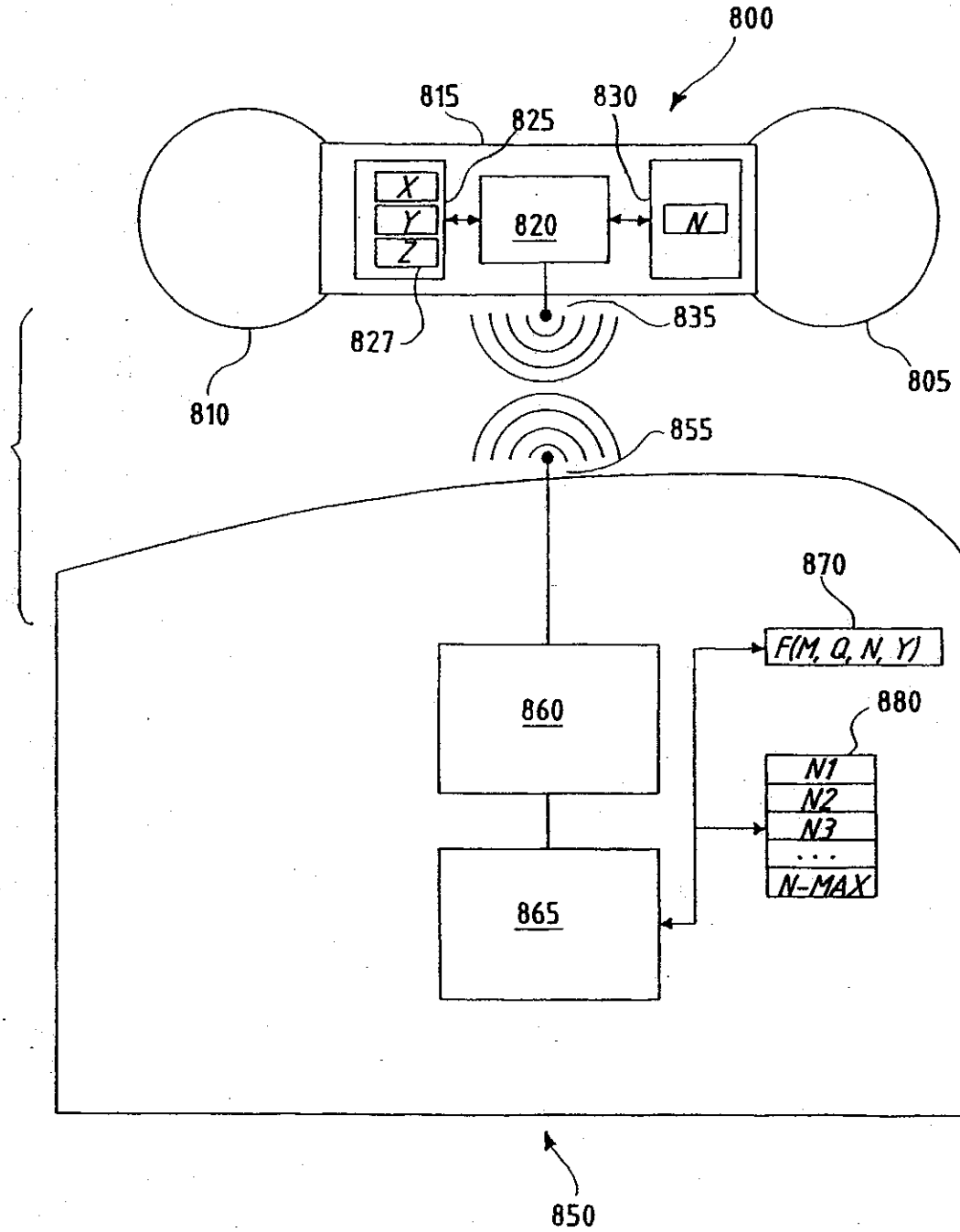

800
815
825
830
X
Y
Z
820
N
827
835
805
810
855
870
F(M, Q, N, Y)
860
880
N1
N2
N3
N-MAX
865
850

FIG. 9

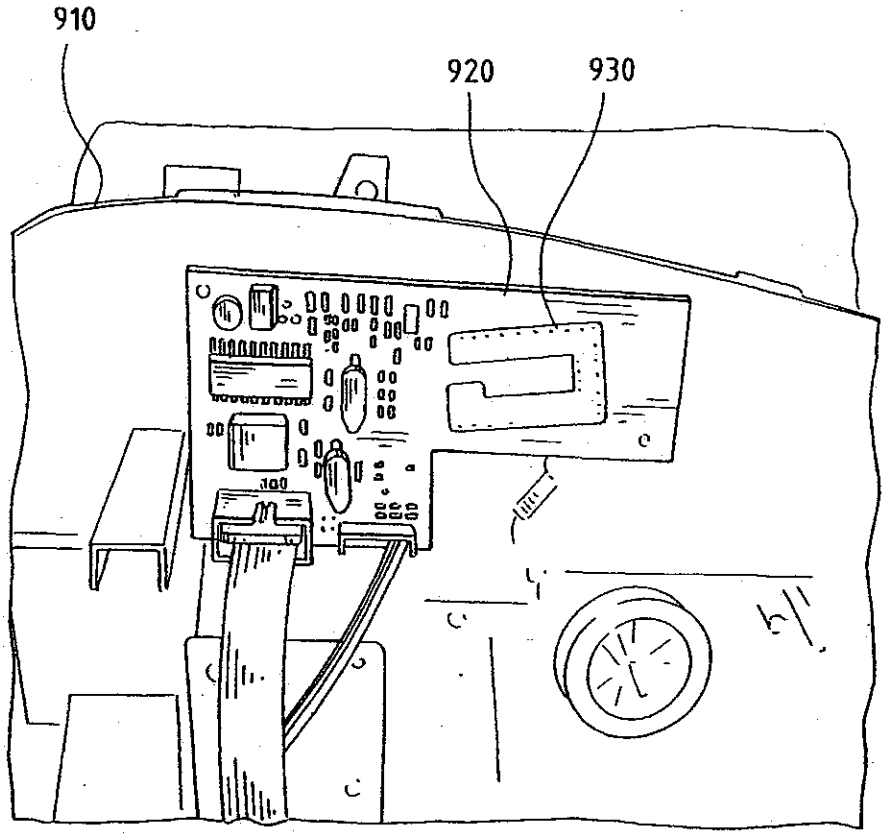


FIG. 10A

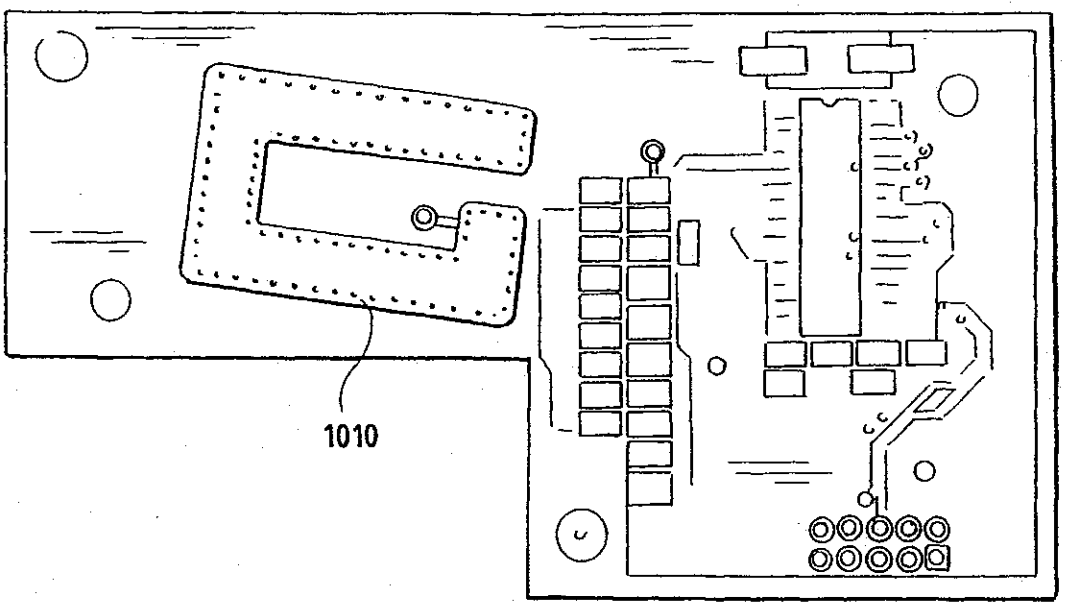


FIG. 10B

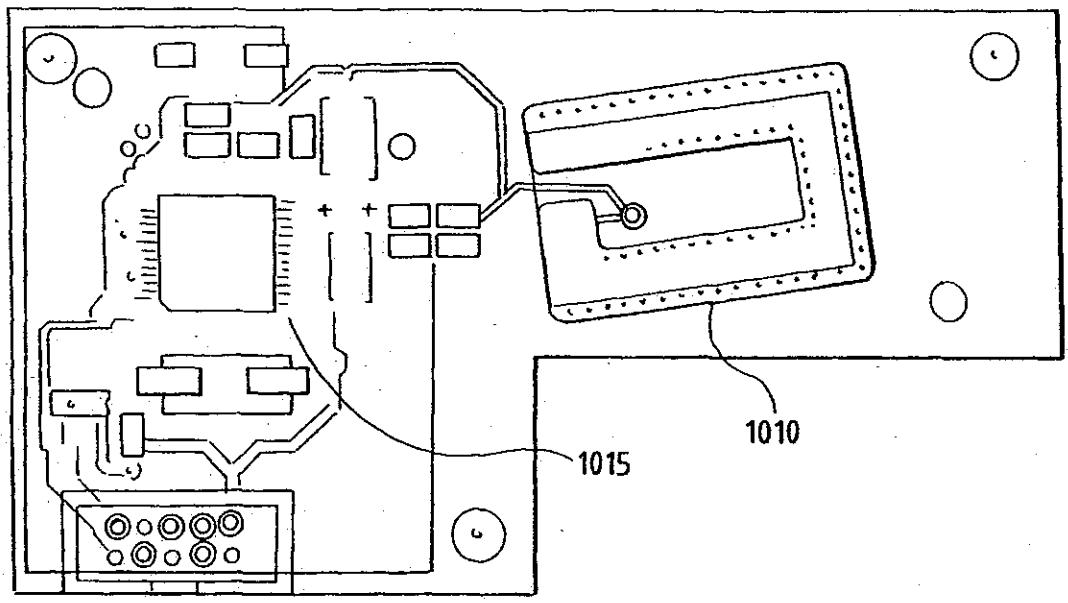


FIG. 11

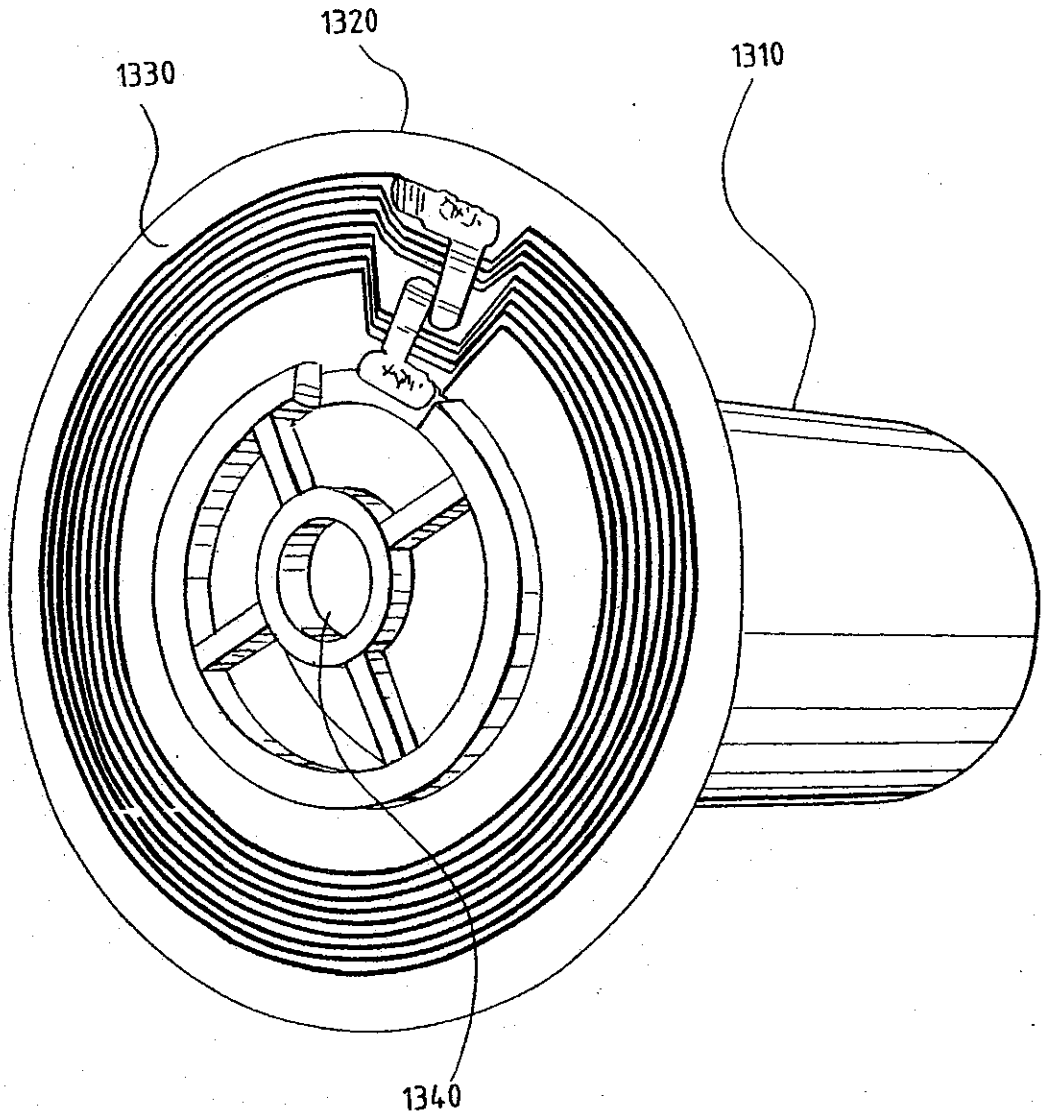


FIG. 12A

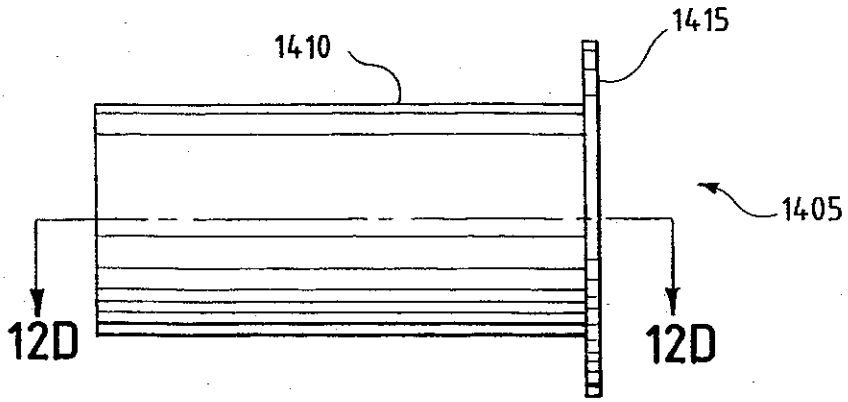


FIG. 12B

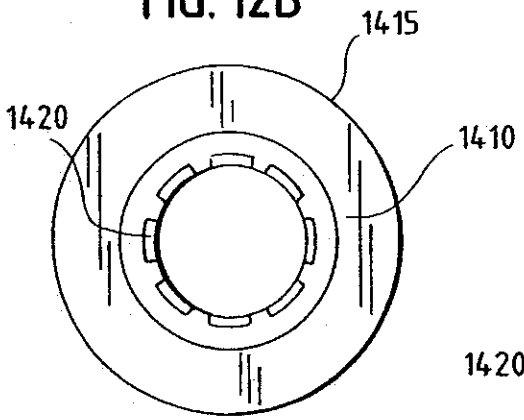


FIG. 12C

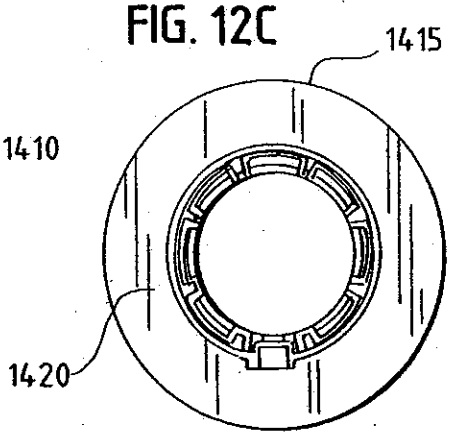


FIG. 12D

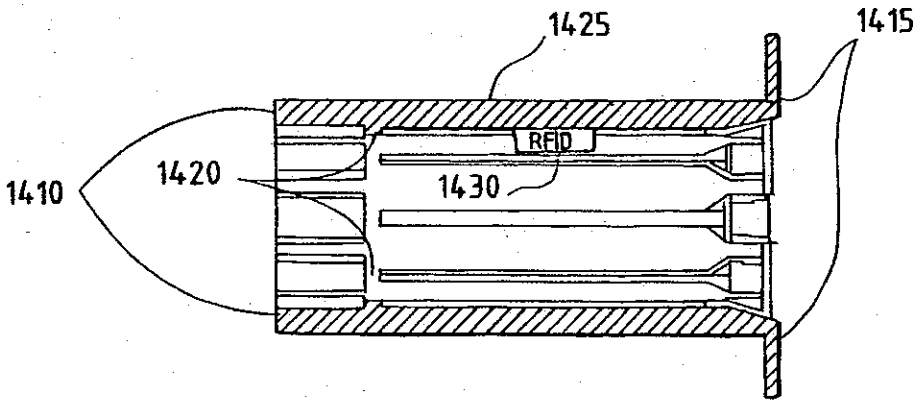
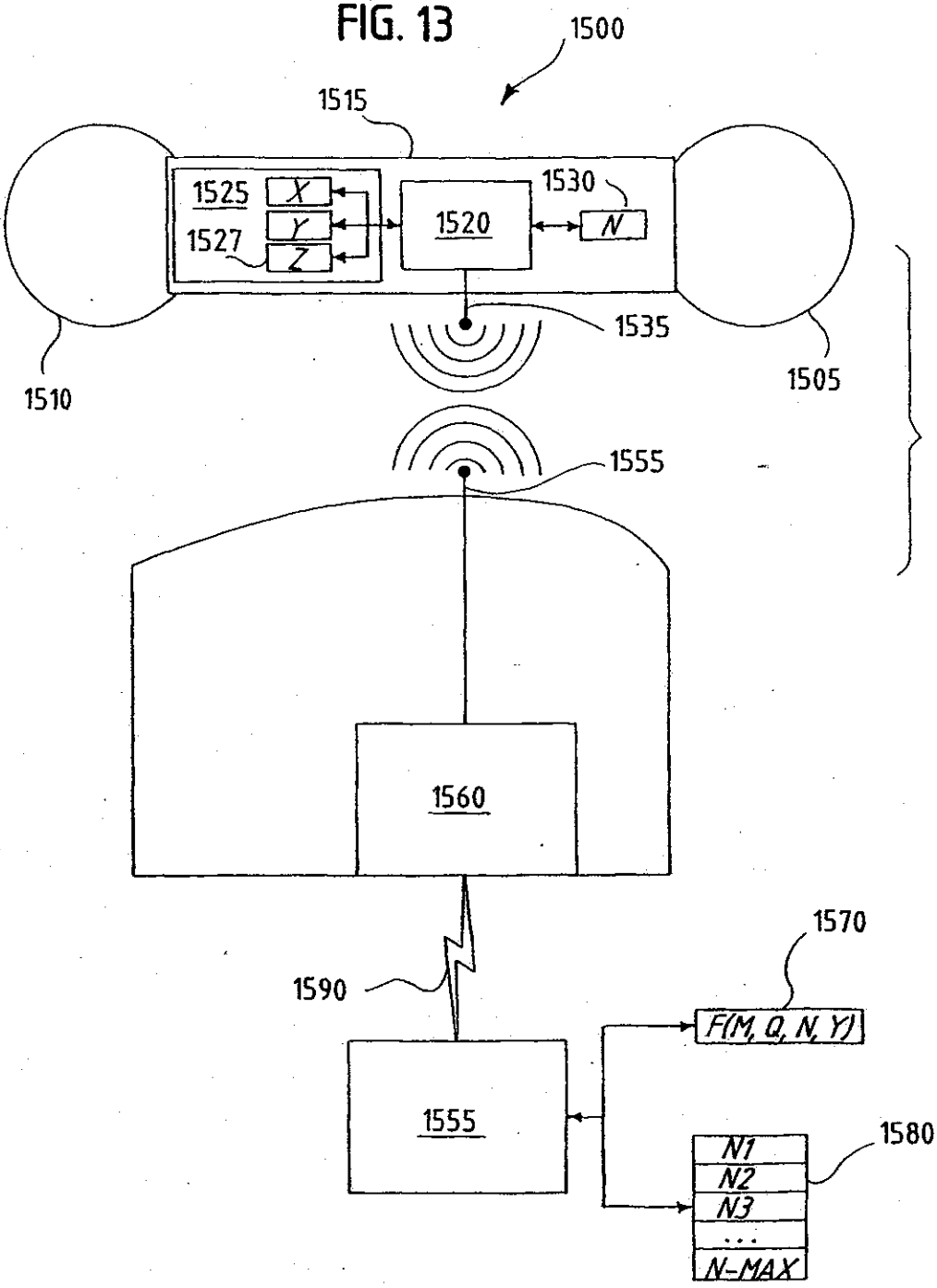


FIG. 13


1500
1515
1525
X
Y
Z
1527
1520
1530
N
1535
1510
1505
1555
1560
1570
1590
F(M, Q, N, Y)
1555
1580
N1
N2
N3
...
N-MAX