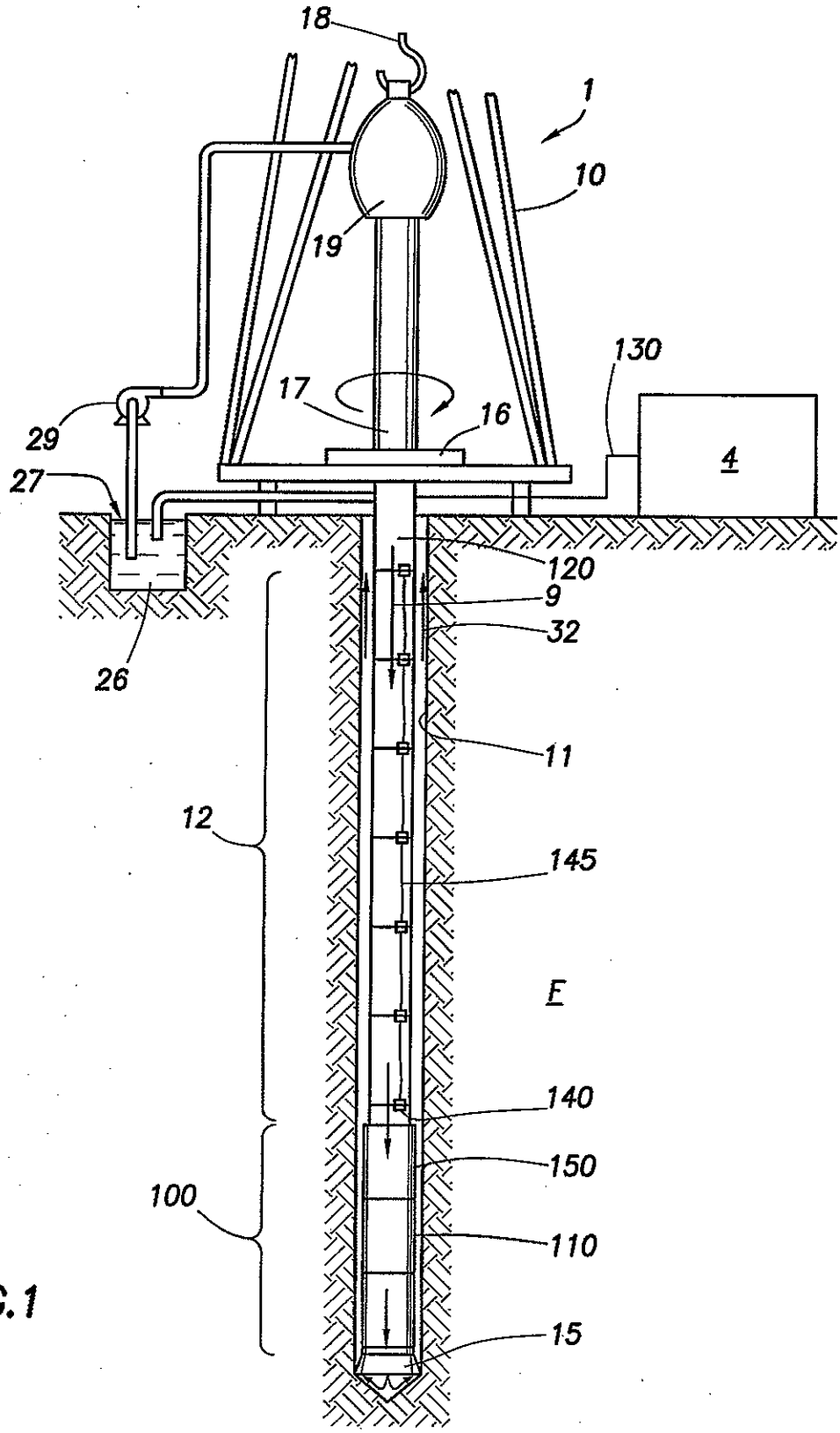


FIG. 1

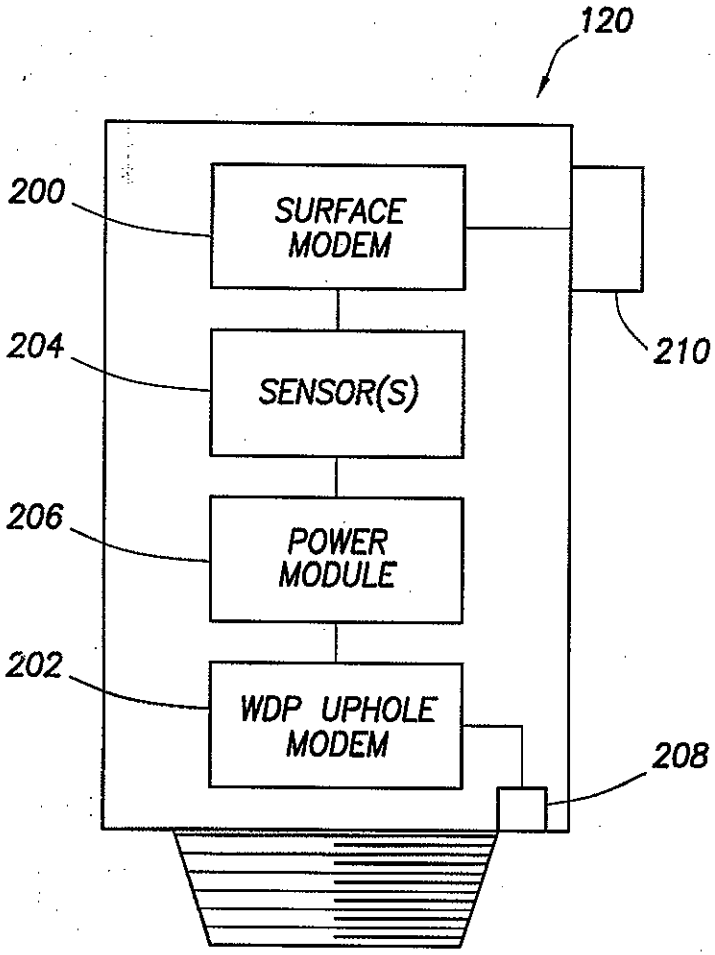

120
200
SURFACE MODEM
204
SENSOR(S)
206
POWER MODULE
202
WDP UPHOLE MODEM
210
208

FIG.2A

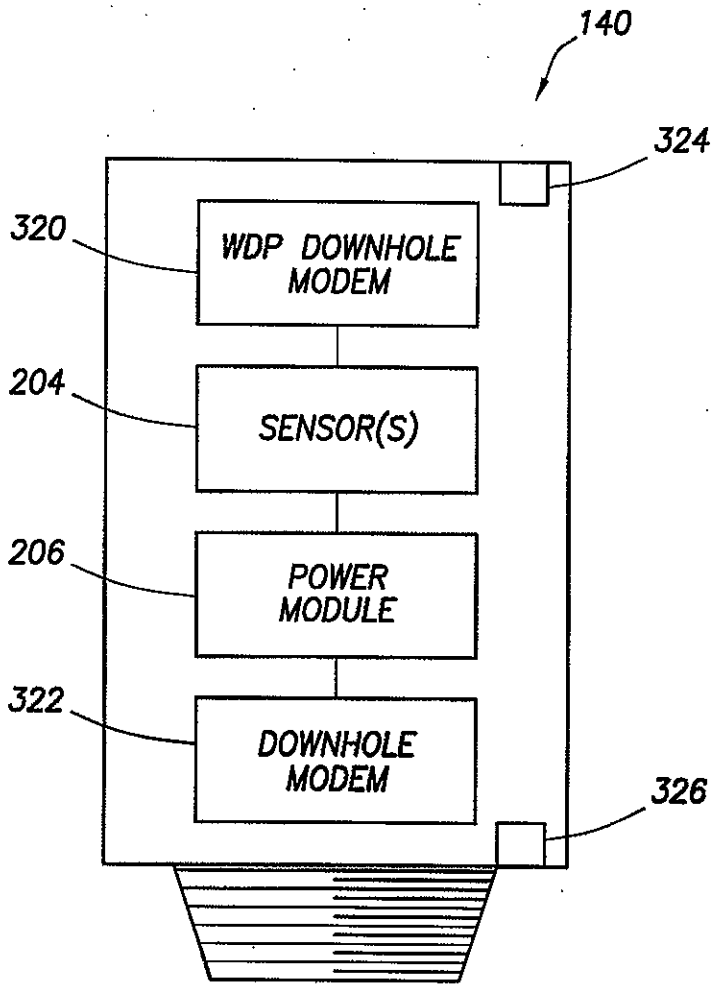

140
324
320
WDP DOWNHOLE MODEM
204
SENSOR(S)
206
POWER MODULE
322
DOWNHOLE MODEM
326

FIG.2B

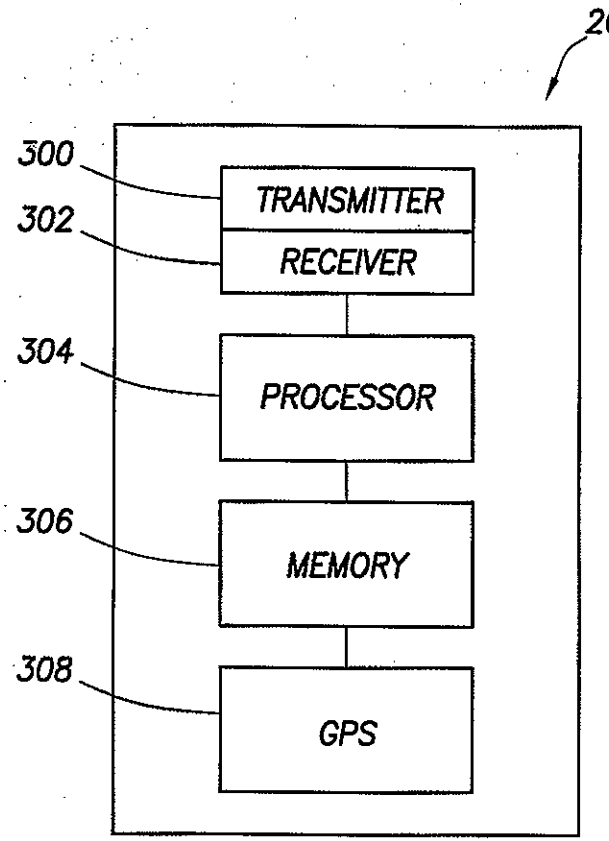


FIG.3

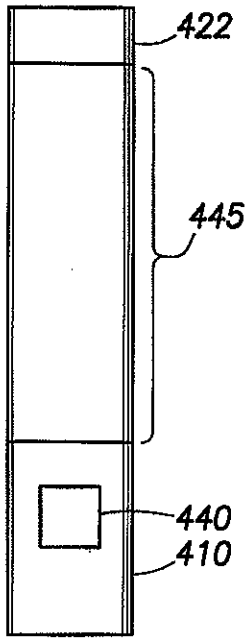


FIG.4A

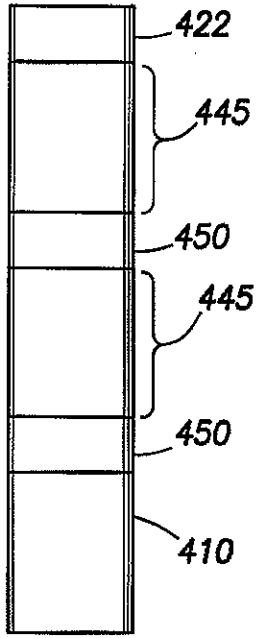


FIG.4B

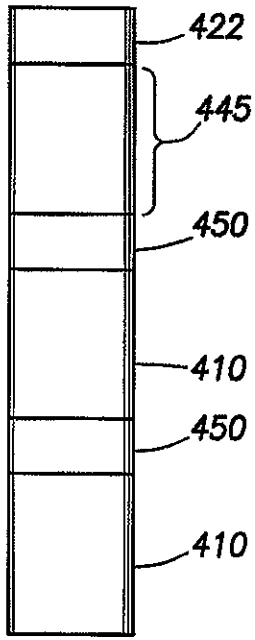


FIG.4C

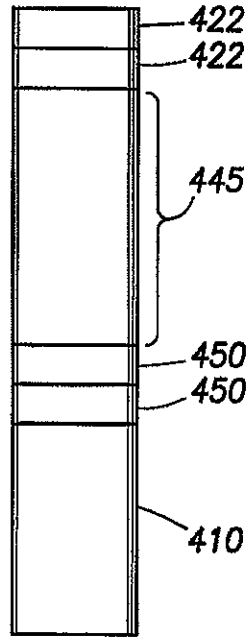


FIG.4D

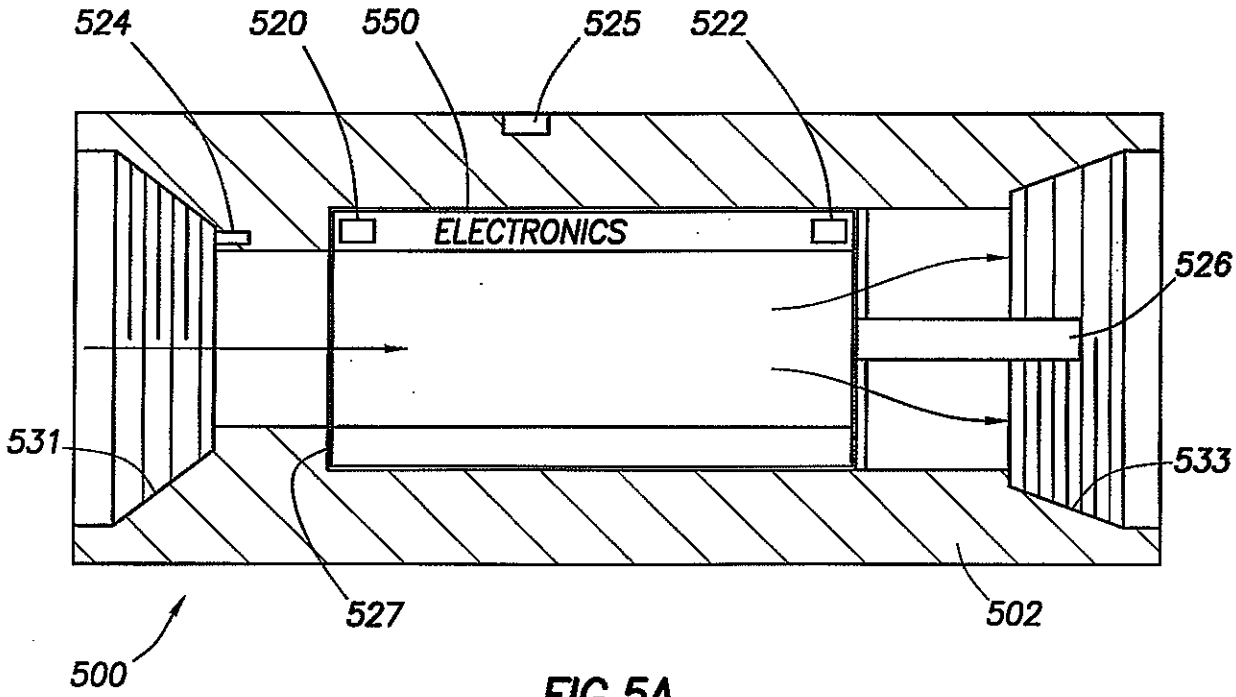

524
520
550
525
522
ELECTRONICS
526
531
533
527
502
500

FIG.5A

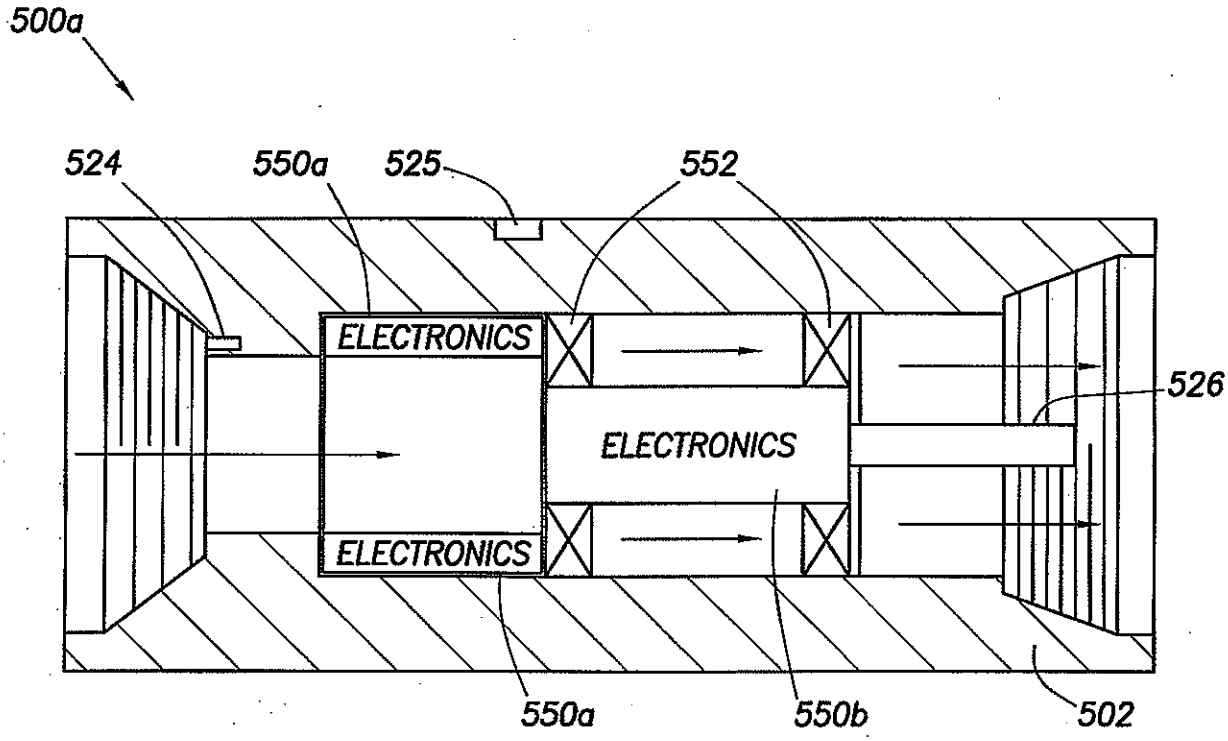

500a
524
550a
525
552
ELECTRONICS
ELECTRONICS
ELECTRONICS
526
550a
550b
502

FIG.5B

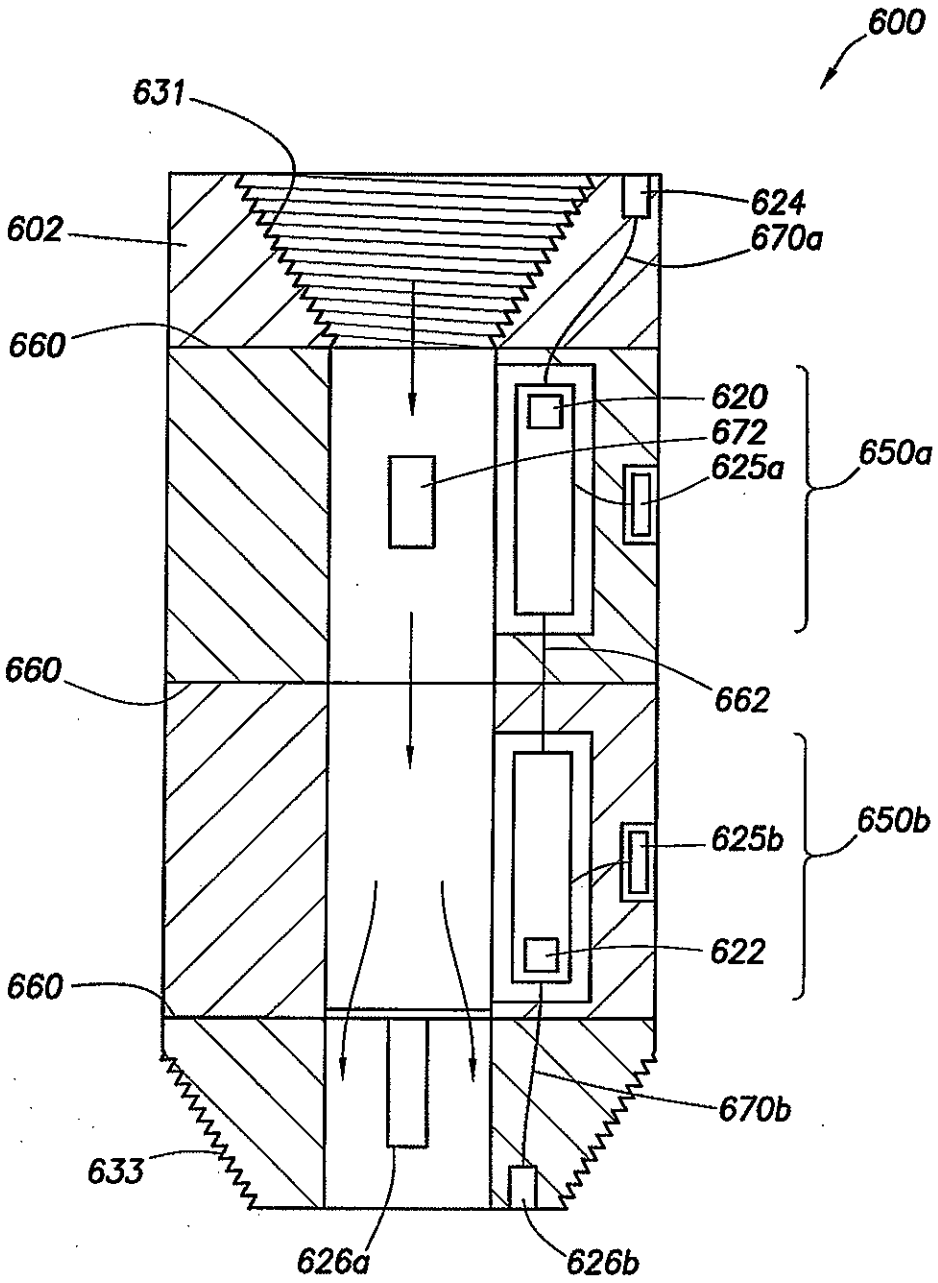

600
631
602
624
670a
660
620
672
625a
650a
660
662
625b
650b
622
660
670b
633
626a
626b

FIG.6A

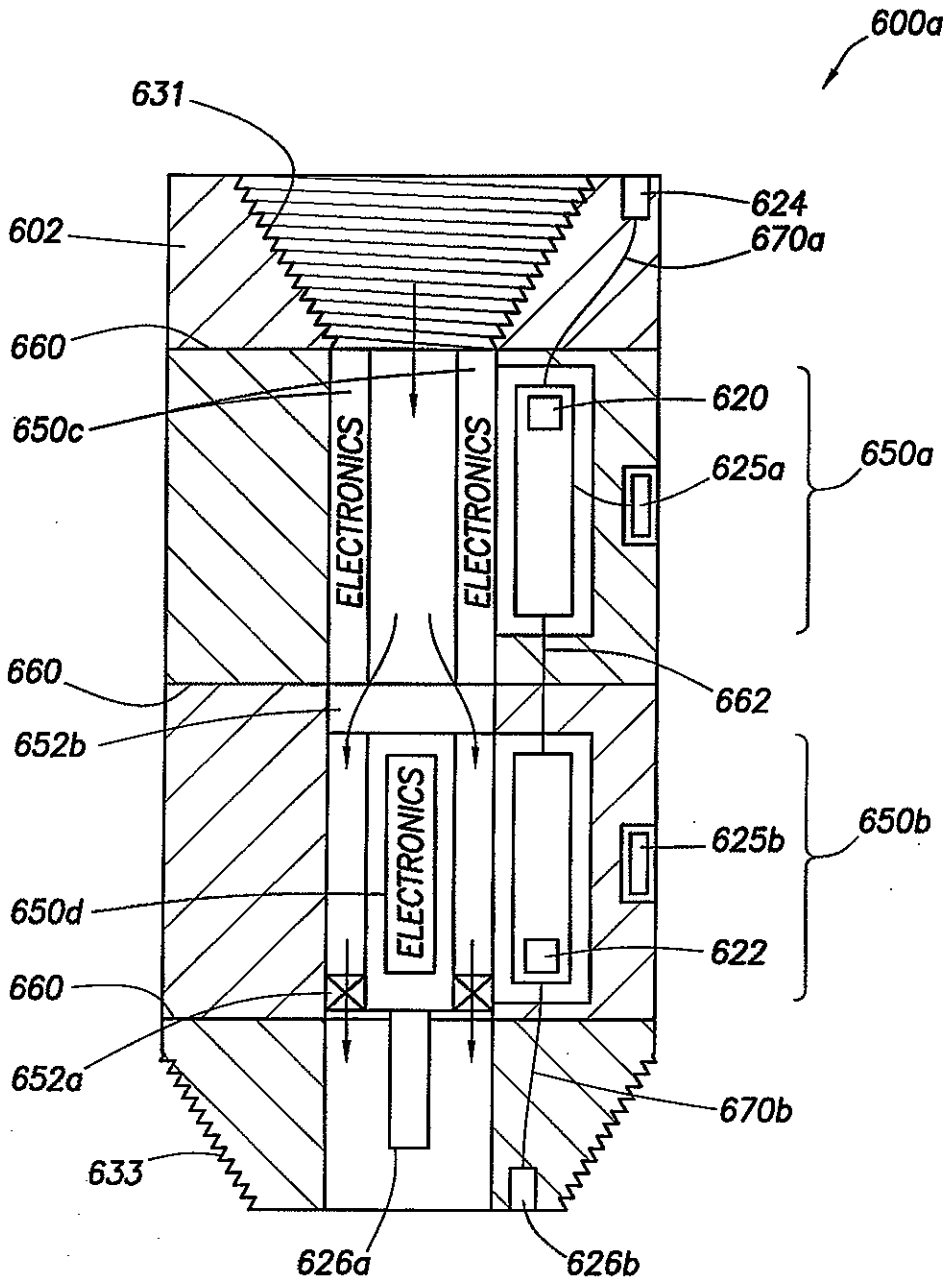

600a
631
602
624
670a
660
650c
620
650a
625a
ELECTRONICS
ELECTRONICS
660
662
652b
650b
625b
650d
ELECTRONICS
622
660
652a
670b
633
626a
626b

FIG.6B

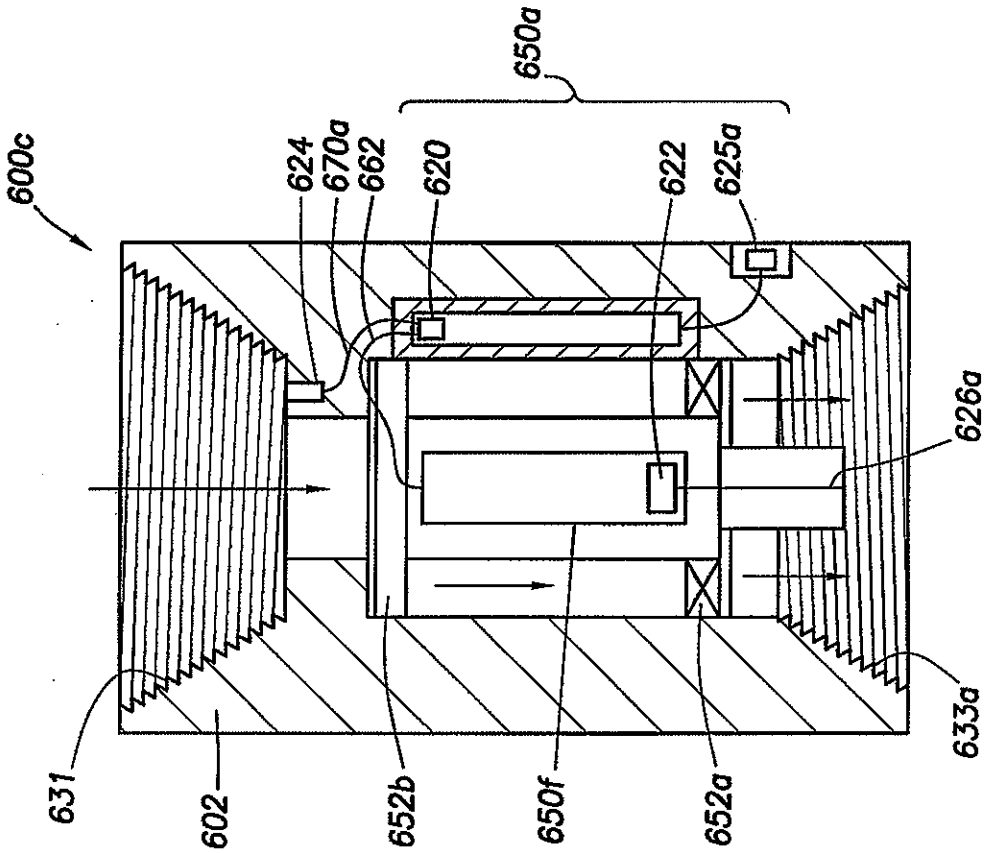

600c
650a
624
670a
662
620
622
625a
626a
631
602
652b
650f
652a
633a

FIG.6D

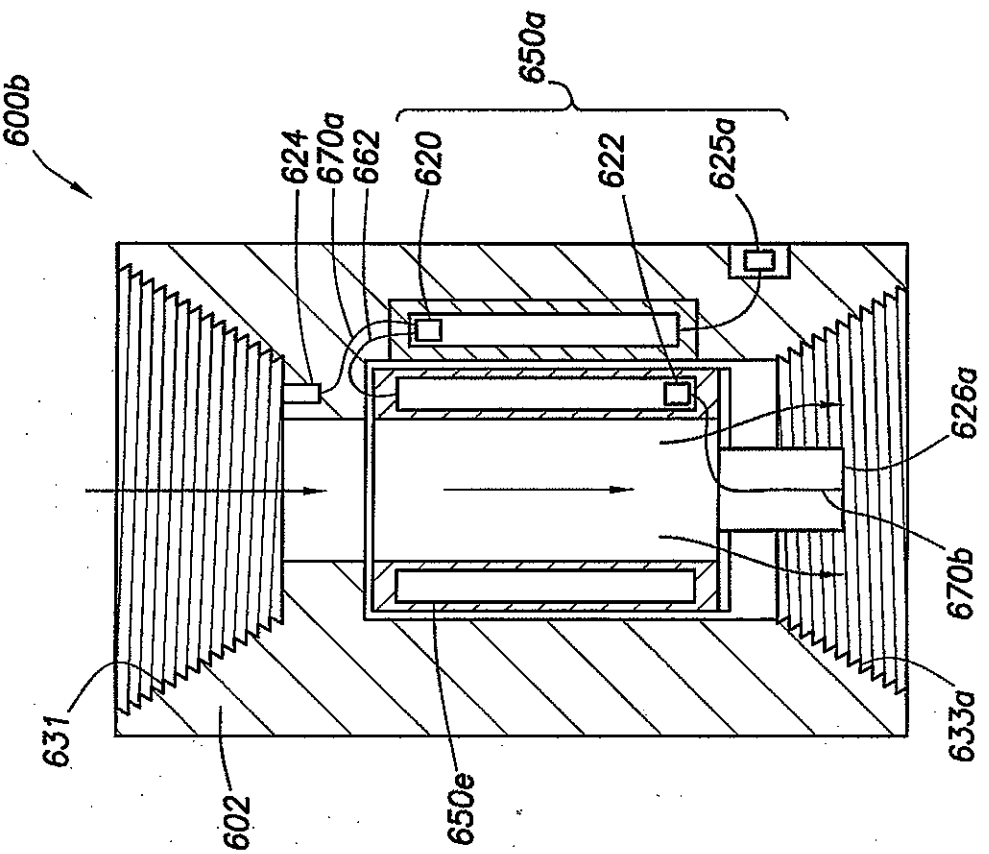

600b
650a
624
670a
662
620
622
625a
626a
670b
631
602
650e
633a

FIG.6C

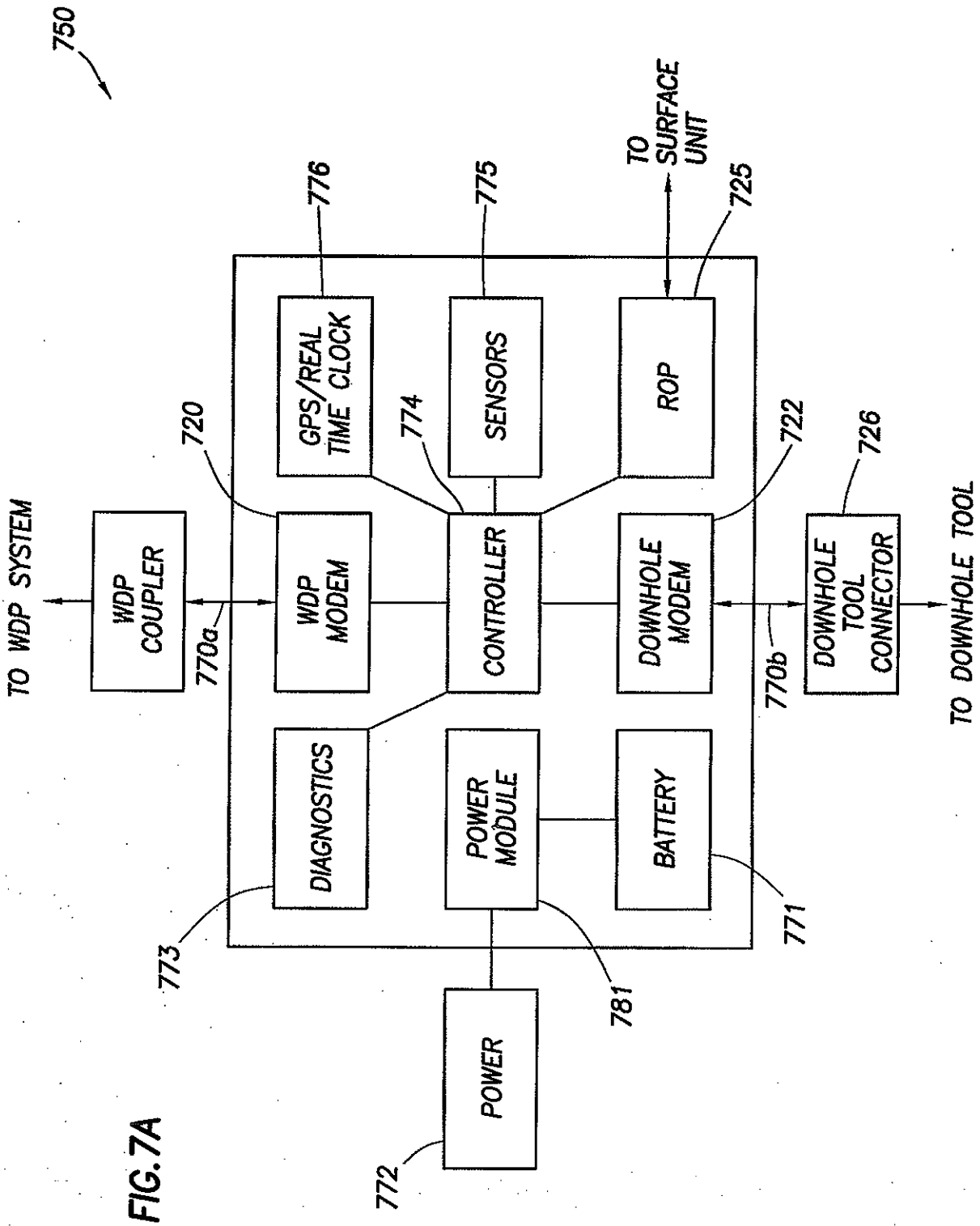

750
TO SURFACE UNIT
776
775
725
GPS/REAL TIME CLOCK
SENSORS
ROP
720
774
722
726
TO WDP SYSTEM
WDP COUPLER
WDP MODEM
CONTROLLER
DOWNHOLE MODEM
DOWNHOLE TOOL CONNECTOR
TO DOWNHOLE TOOL
770a
770b
DIAGNOSTICS
POWER MODULE
BATTERY
773
781
771
POWER
772

FIG. 7A

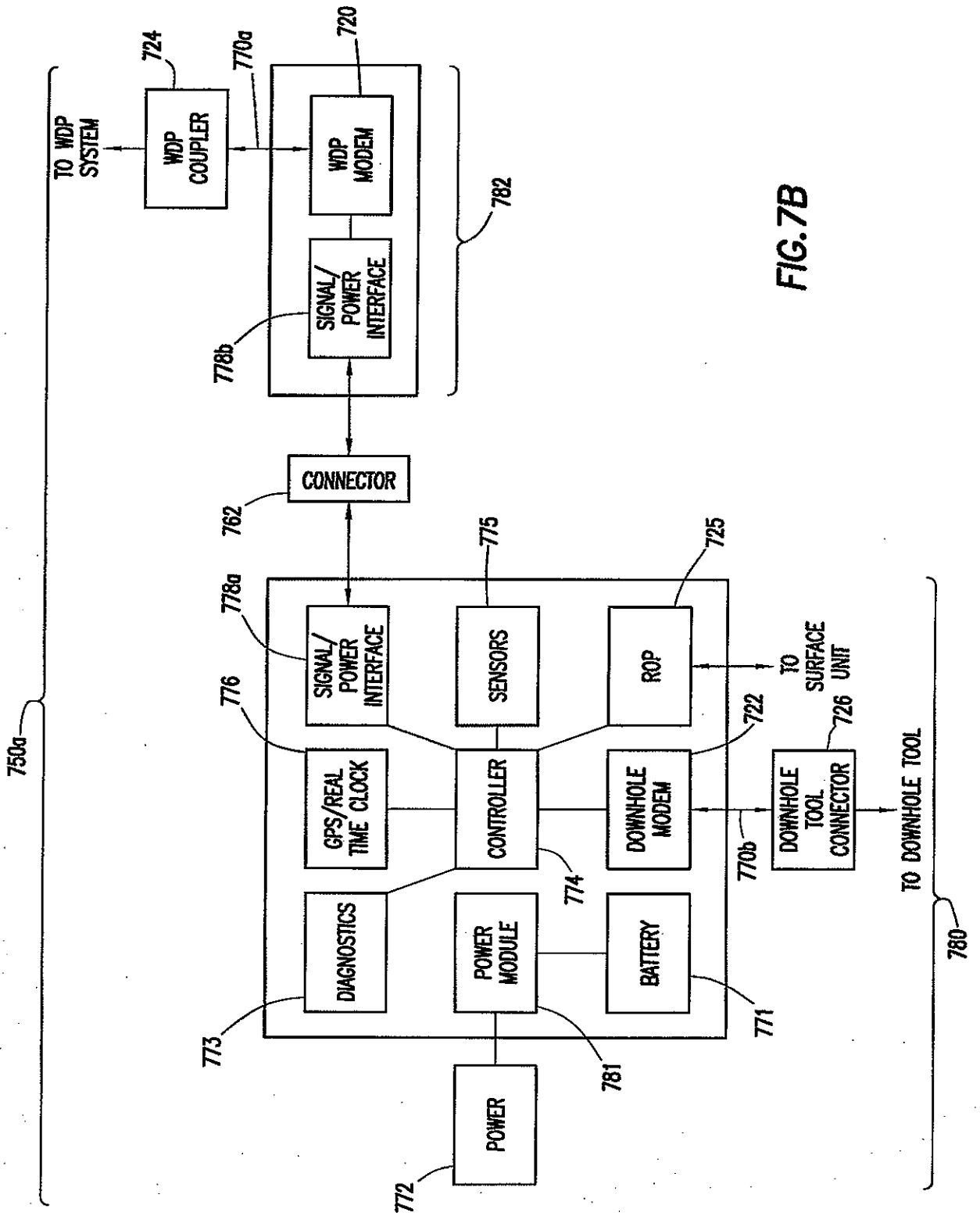

TO WDP SYSTEM
WDP COUPLER
WDP MODEM
SIGNAL/ POWER INTERFACE
CONNECTOR
SIGNAL/ POWER INTERFACE
SENSORS
ROP
GPS/REAL TIME CLOCK
CONTROLLER
DOWNHOLE MODEM
DOWNHOLE TOOL CONNECTOR
DIAGNOSTICS
POWER MODULE
BATTERY
POWER
TO SURFACE UNIT
TO DOWNHOLE TOOL
724
770a
720
782
778b
762
778a
775
725
776
722
726
770b
774
773
781
771
772
750a
780

FIG.7B

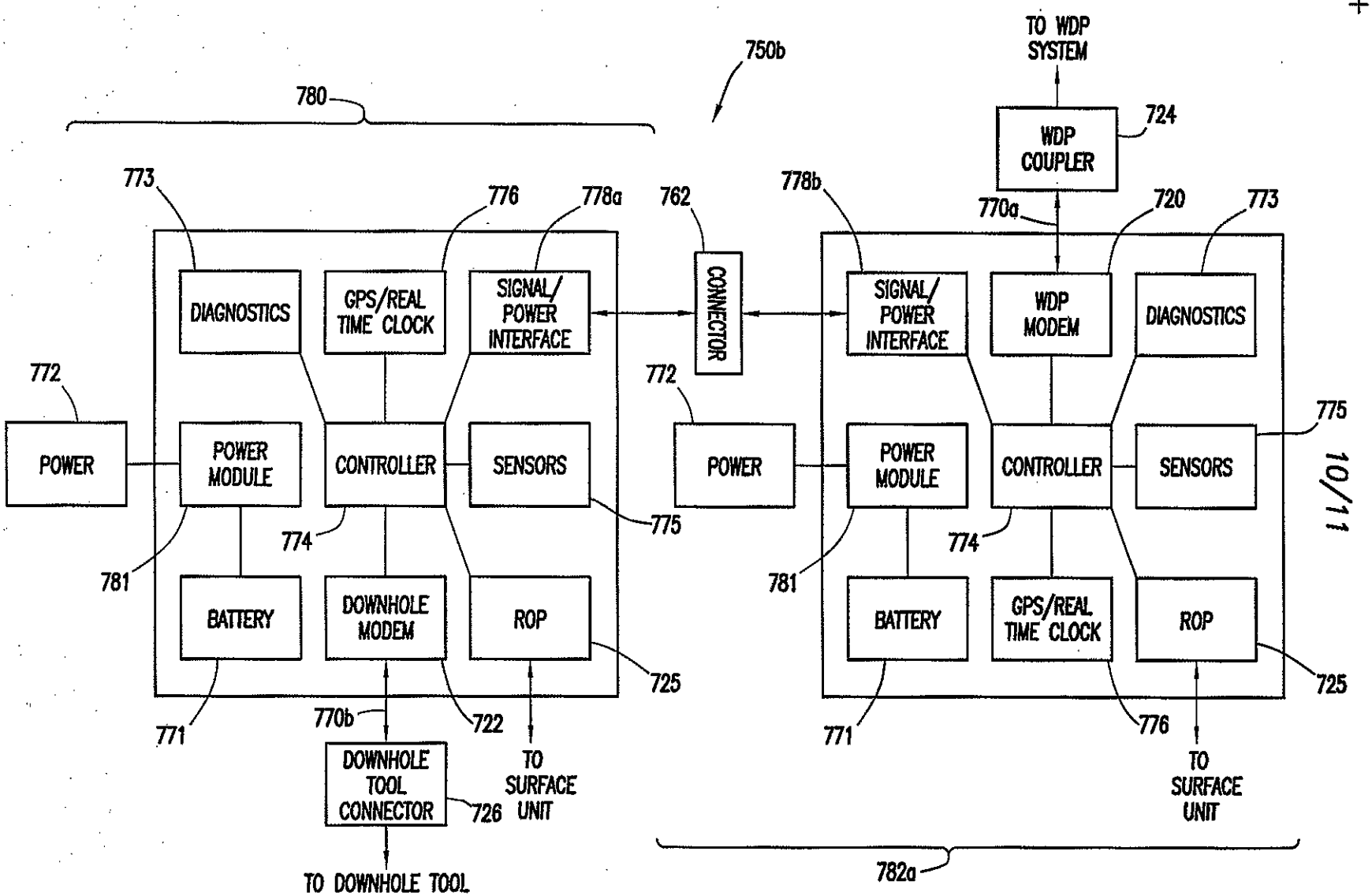

750b
780
773
776
778a
762
778b
TO WDP SYSTEM
724
WDP COUPLER
770a
720
773
DIAGNOSTICS
GPS/REAL TIME CLOCK
SIGNAL/ POWER INTERFACE
CONNECTOR
SIGNAL/ POWER INTERFACE
WDP MODEM
DIAGNOSTICS
772
772
POWER
POWER MODULE
CONTROLLER
SENSORS
POWER
POWER MODULE
CONTROLLER
SENSORS
775
774
775
774
781
781
BATTERY
DOWNHOLE MODEM
ROP
BATTERY
GPS/REAL TIME CLOCK
ROP
725
725
771
770b
722
771
776
DOWNHOLE TOOL CONNECTOR
726
TO SURFACE UNIT
TO SURFACE UNIT
TO DOWNHOLE TOOL
782a

FIG. 7C

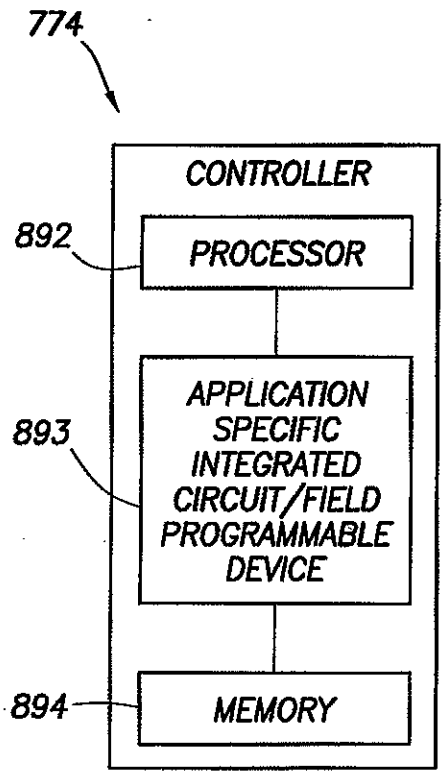

774
CONTROLLER
892
PROCESSOR
893
APPLICATION SPECIFIC INTEGRATED CIRCUIT/FIELD PROGRAMMABLE DEVICE
894
MEMORY

FIG.8

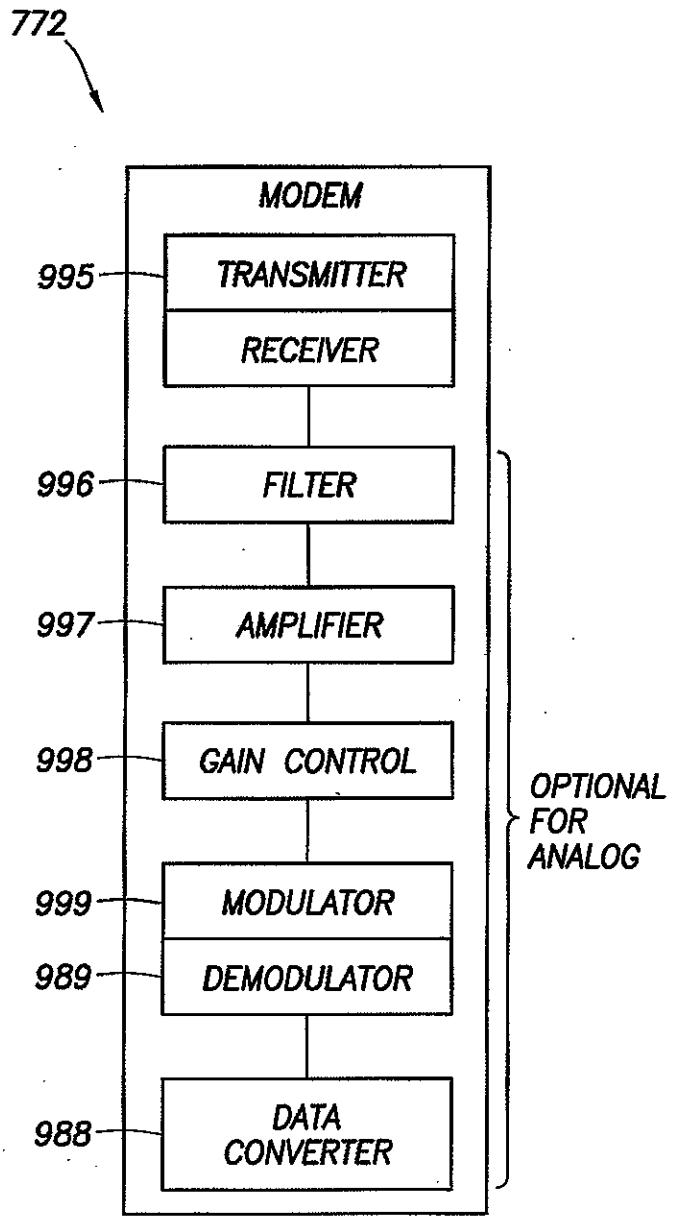

772
MODEM
995
TRANSMITTER
RECEIVER
996
FILTER
997
AMPLIFIER
998
GAIN CONTROL
999
MODULATOR
989
DEMODULATOR
988
DATA CONVERTER
OPTIONAL FOR ANALOG

FIG.9