



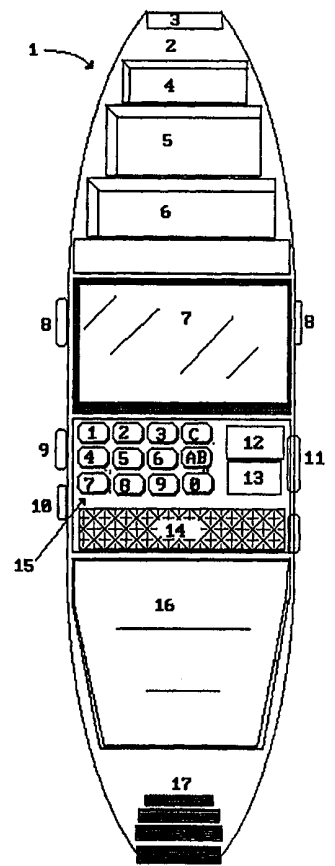
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(54) Title: MODULAR COMMUNICATION DEVICE INTERFACE

(57) Abstract

The present invention relates to communications device and a method of and system for upgrading or expanding the service or functions of the device. Also included within the scope of the invention is a unique arrangement of multiple components around a modular structure allowing maximum flexibility and reliability. One or more electronic components link to at least one Processor housed in the main module or unit which in turn is connected or connectable to communication means for wireless broadcast and reception. Furthermore the unit includes medical applications including sensor and monitoring means to facilitate in recording of medical data of a user. Also the invention provides a structural layout to fit ergonomically around a user's arm or wrist and locking and unlocking means to secure and remove the device from the user's arm or wrist.



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## MODULAR COMMUNICATION DEVICE INTERFACE

### TECHNICAL FIELD

The present invention relates to a communications device in watch like arrangement with ungradable application modules for upgrading electronic components with variable  
5 functions and applications. The communications device is modified to be functionally attached to a limb of a user such as the wrist and arm. It is envisaged that the communications device may comprise a first unit modified to be functionally attached to the limb of a user and a second unit which includes a communications unit. The first unit serves as docking station or cradle for the second unit. Of course the application modules  
10 may be used in both the first and/or the second unit for the upgrading of applications and functions.

15

### BACKGROUND ART

Traditional communication devices such as cellular phones are usually manufactured in a predetermined form and with predetermined functions. The present invention allows the communication device to be manufactured to fit ergonomically around a users arm or wrist  
20 in a watch like arrangement. Furthermore the device may be upgraded with censoring and measuring components for reading medical data of a user. Also features and/or functions of the phone may be altered or upgraded by inserting or removing modular applications or upgrading modules in the communications device.

25

## OBJECTIVES OF THE INVENTION

Accordingly it is an object of the present invention to provide a device for interactive  
5 communication which is worn by a user around an arm or wrist with ungradable  
components to allow upgrading of the device and/or the expansion of its applications to  
medical censoring and monitoring. The ungradable components may also include or  
incorporate added features or functions or upgraded components forming part of the  
communications device. Traditional communications devices although innovatively  
10 designed never allowed it to be worn or by a user or be attached on an arm or wrist.  
Furthermore medical censoring and monitoring devices worn by users to read and record  
certain medical functionalities of a user has always been a tedious and uncomfortable  
experience. Accordingly it is an object of the invention to provide a communication  
device as well as a system for and method of upgrading and reading user medical data and  
15 with which the applicant believes disadvantages of known systems may at least be  
alleviated

20

## DISCLOSURE OF INVENTION

5 According to a first aspect there is included an electrically powered communication device comprising communication means including a primary processor associated with wireless reception and -transmission means of modular configuration; and a secondary processor , matched with the primary processor , adapted to record and to store data in memory associated with the device.

10

According to a second aspect of the invention the communication device may comprise a series of inter-associated, multi-functional modular units.

The modular units may be selected from: medical monitoring units, general monitoring  
15 units , communication units recording units, memory units , externally functional units and power supply units.

According to a third aspect of the invention the communication device may be powered by a selection of : solar power, battery power and mains power.

20

Furthermore the communication device may comprising upgradable memory means and

the upgradable memory units may be housed in retaining means adapted to retain the device to a predetermined object in use.

According to the fourth aspect of the invention the communication device may include  
5 display means adapted to display at least the medical sensed data from an associated sensor.

According to the fifth aspect of the invention the communication device may comprise  
at least two components , the first being adapted to be removably secured to a  
10 predetermined object in use and the second being adapted to house communication means.

The first component may be adapted to serve as a docking station for the second component so that both will be operatively functional.

15 According to a sixth aspect of the invention the communication device application modules may be adapted to function in association with the first and second components to upgrade its operational capabilities.

Of course the primary processor and the secondary processor may be the same processor  
20 .

## BRIEF DESCRIPTION OF DRAWINGS

Preferred embodiments of the invention will now be described by means of non-limiting examples  
5 only, with reference to the accompanying diagrams wherein:

Figure 1 is an example of the invention in watch or wrist accessory format;

Figure 2 more specifically relates to the electronics of the unit or watch;

10

Figure 3 relates to the open and close position of the unit via the flexible/bendable  
links; and

Figure 4 illustrates exemplary embodiment of the working or mechanics of the attach  
15 and- release mechanism

## BEST MODES FOR CARRYING OUT THE INVENTION

Turning to **Figure 1** which is an example of the invention in watch or wrist accessory  
5 format (1) manufactured of flexible/bendable material (2) with a clip (3) for attachment  
of the unit around the arm of a user to the clip housing (17). The Invention includes bays  
or modular unit interfaces (4,5 and 6) for upgrading of the unit's functions or capabilities.  
Furthermore the unit may include display means (7) i.e. a LCD screen. Furthermore the  
unit may include release buttons (8) and volume buttons to either increase or decrease the  
10 communication volume (9 and 10). Also the unit may include communication means (11)  
with other electronic equipment via cable connection or via IR. Also the unit may be  
equipped with standard function or emergency keys (12 and 13) over and above the  
standard keypad (15). The unit may be powered by on or more of the following;  
rechargeable battery (16) and/or via Solar panels (14).

15

The back of the unit (18) may include a speaker (19) and microphone (24) for  
communication as well as medical monitoring modules or units (20, 21 and 23) for  
example for blood-pressure and heartbeat naming but a few. The modules may link or  
interface with the central processor (not shown) housed in the main unit (23).

20



**Figure 2** more specifically relates to the electronics of the unit or watch (25) including communication means with the one or more upgrading bays of units (26), a display device i.e. a LCD unit (27) a keypad (28) and a housing mechanism (29) for a remote communication link (30) including a microphone (31) and the speaker (32). Furthermore

5 the invention may include a wireless communication port of unit i.e. an Infra Red unit (33). The preferred unit may be powered by solar energy (34) and/or via rechargeable battery (no shown) which may be located in the bay (35) with standardized clips (36).

The unit (37) may include electronics for the speaker (38) and the microphone (47) which may be connected to the CPU (42). Also connected to the CPU (42) may be one or more

10 of the following; communication means for the ungradable components (39), output means i.e the display, (40), input means i.e. the keypad (41) and memory means (44). The electronic components may relay communication via the aerial (45) which may form part of the body or strap of the unit. The unit preferably includes electronics to accommodate the solar and/or battery power means (43) and the external communication means (46).

15

**Figure 3** relates to the open (49) and close (50) position of the unit via the flexible/bendable links (49). The main unit with the display (51), keypad (54) and volume control keys (53) may be powered by solar (55) energy and/or via removable/rechargeable

20 battery (56) which may be housed on the strap or side section (57) *or on the cradle unit*

(*not shown*) . Also a speaker (58) and microphone (59) housed or located on the side sections or straps (60) with normal clips (67 and 68). Furthermore the invention includes the upgrading of the unit or the addition of application modules (61 to 64) for purposes such as memory upgrade, and medical sensors (65). The side section is flexible or  
5 bendable (66) to form around a users arm.

**Figure 4** illustrates exemplary embodiment of the working or mechanics (81) of the attach - release mechanism(69) including for example a servo type unit (70) including a motor (71) and a shaft or servo arm (72) which is attached to the movable joint or segment (73)  
10 for manipulating the movement of the units. Alternatively the same may be accomplished by a spring loaded mechanism (74) with a release button or device (75) for releasing a tension unit (76) i.e. a spring. Furthermore a hydraulic unit (77) may be used including a pressurized container or cylinder (78) with a movable shaft 979) that is attached to the segment bendable/flexibly unit. All of the above may applied to the communications  
15 device as a single unit or when the invention comprises a first and second unit serving as cradle/docking device and the communication device (such as a cellular phone) respectively.

## CLAIMS

- 1       An electrically powered communication device comprising communication means  
including a primary processor associated with wireless reception and -transmission  
means of modular configuration; and a secondary processor , matched with the  
5       primary processor , adapted to record and to store data in memory associated with  
the device.
- 2       A communication device as claimed in claim 1 comprising a series of inter-  
associated, multi-functional modular units.
- 10
- 3       A communication device as claimed in claim 1 or 2 including modular units  
selected from: medical monitoring units, general monitoring units , communication  
units recording units, memory units , externally functional units and power supply  
15       units.
- 4       A communication device as claimed in claims 1 to 3 powered by a selection of :  
solar power, battery power and mains power.
- 20

5      A communication device as claimed in claim 4 comprising upgradable memory means.

5   6      A communication device as claimed in claim 5 including upgradable memory units housed in retaining means adapted to retain the device to a predetermined object in use.

10   7      A communication device as claimed in any one of the preceding claims including display means adapted to display at least the medical sensed data from an associated sensor.

15   8      A communication device as claimed in any one of the preceding claims comprising at least two components , the first being adapted to be removably secured to a predetermined object in use and the second being adapted to house communication means.

20   9      A communication device as claimed in claim 8 in which the first component is

adapted to serve as a docking station for the second component so that both will be operatively functional.

- 10 A communication device as claimed in claims 9 and 10 including predetermined  
5 application modules adapted to function in association with the first and second  
components to upgrade its operational capabilities.
- 11 A communication device as claimed in claim 1 wherein the primary processor and  
10 the secondary processor is the same processor.

FIGURE 1

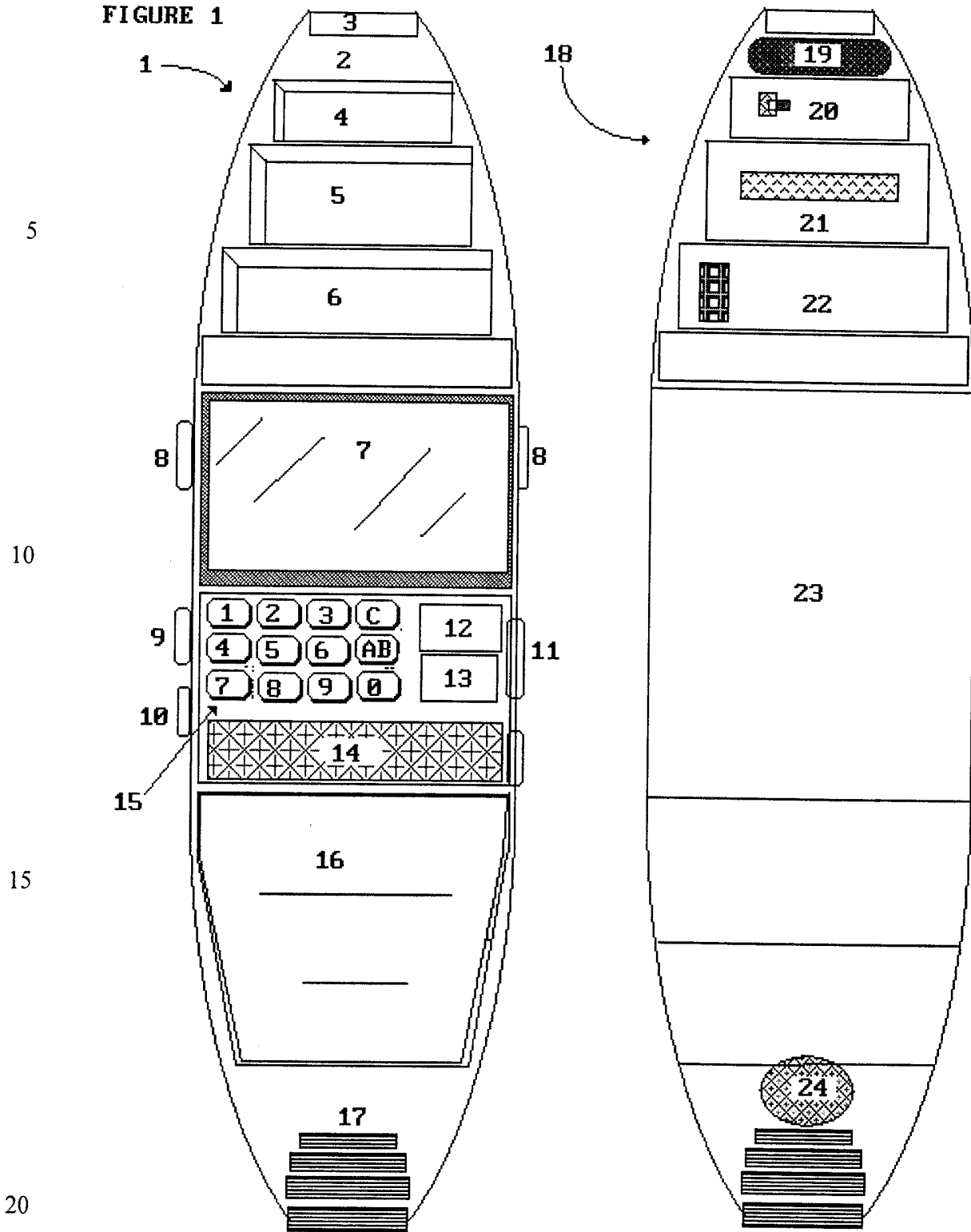
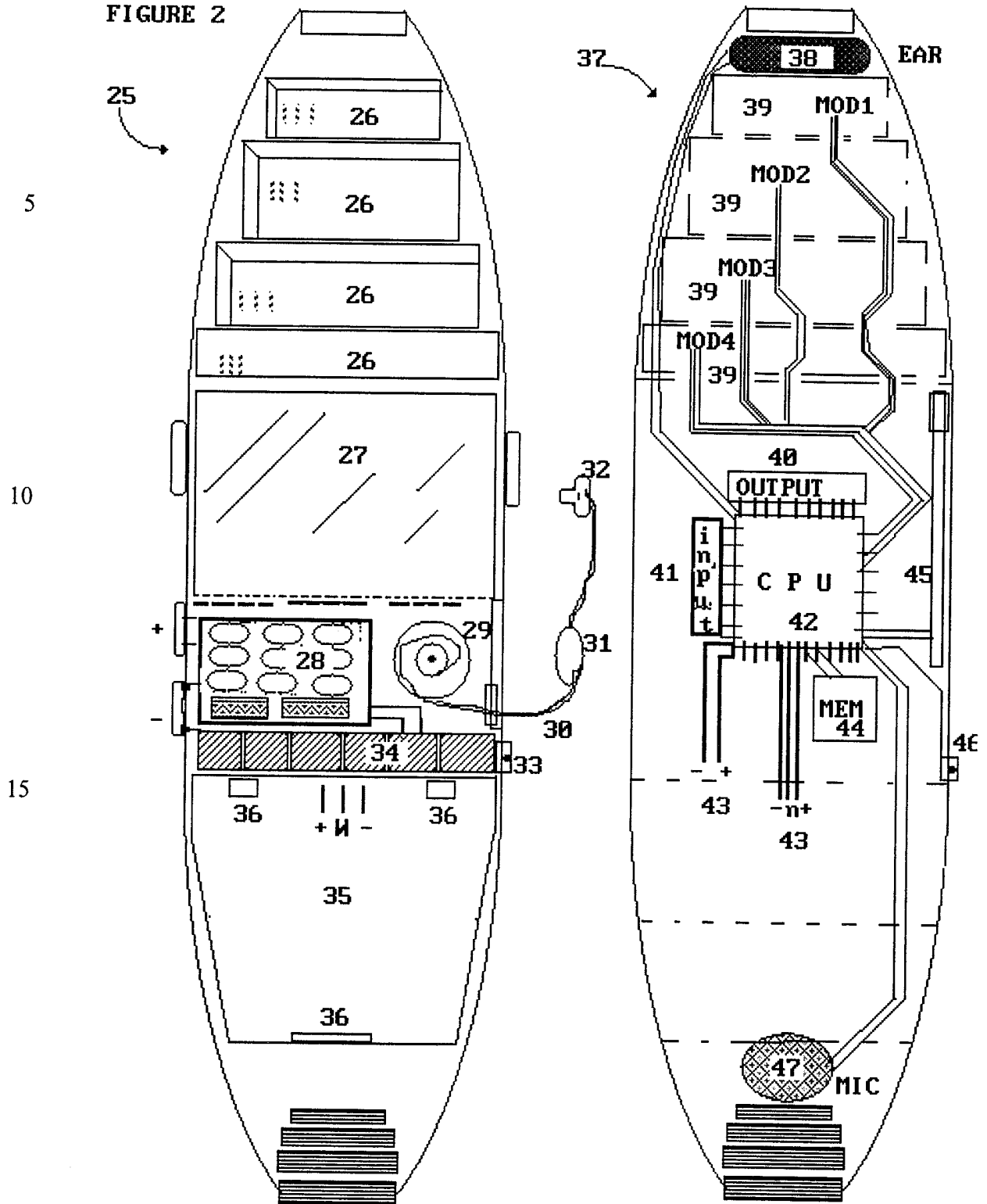
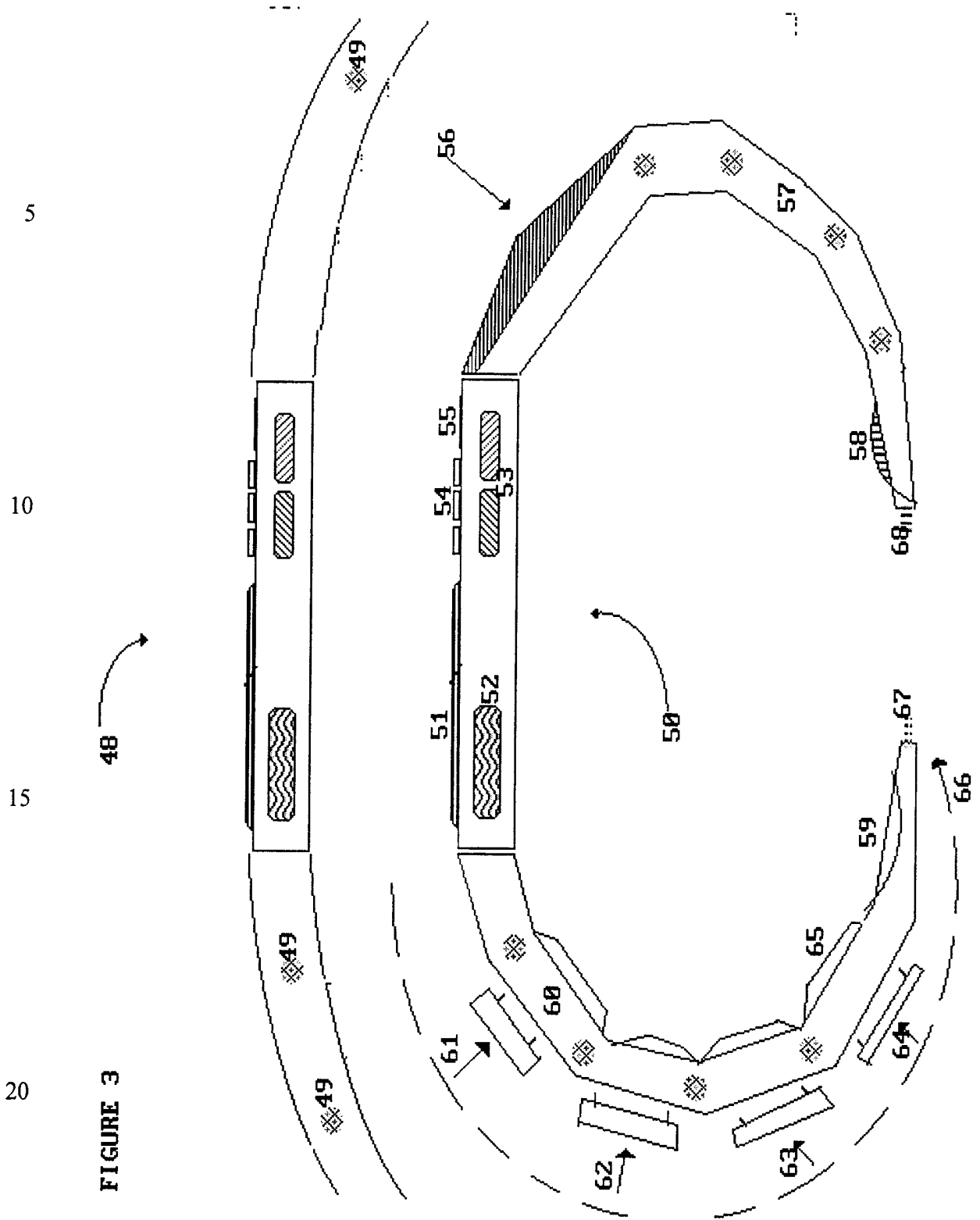


FIGURE 2







81 →

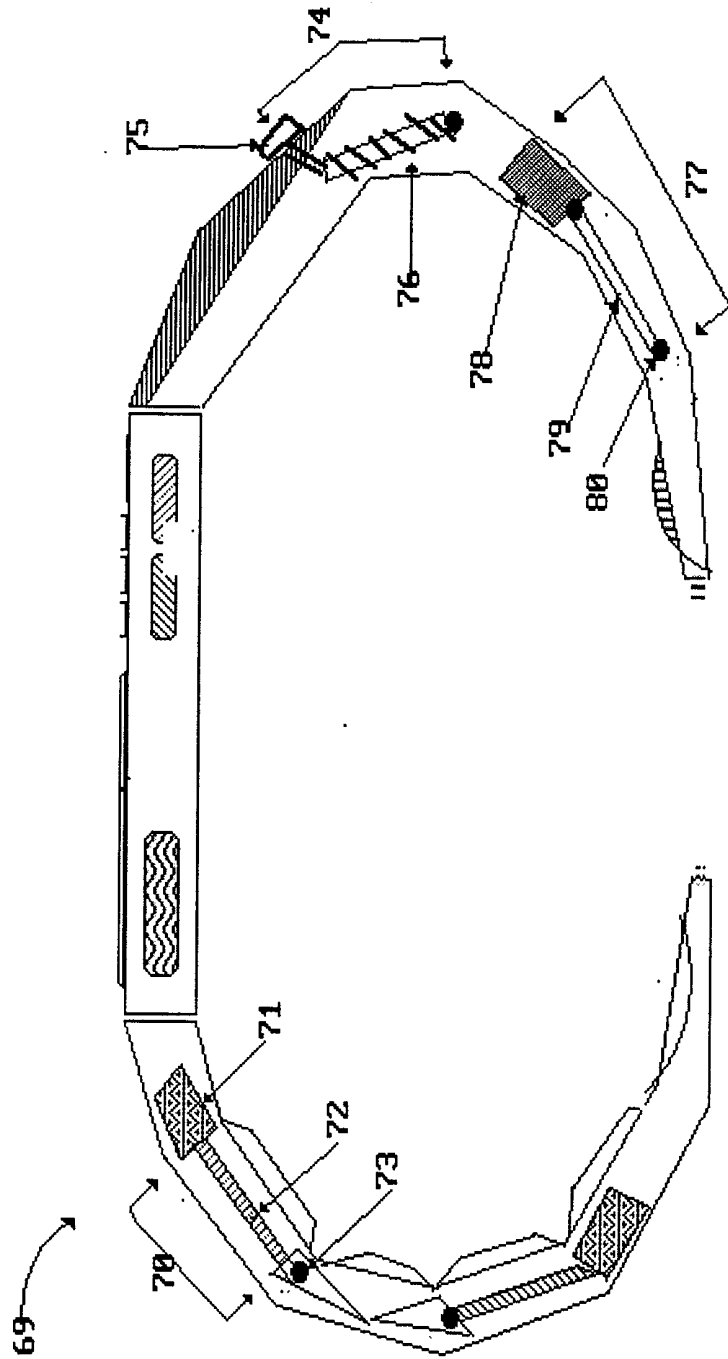


FIGURE 4