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(54) **ULTRASONIC DIAGNOSIS SYSTEM AND ULTRASONIC DIAGNOSIS APPARATUS DOCKING CART**

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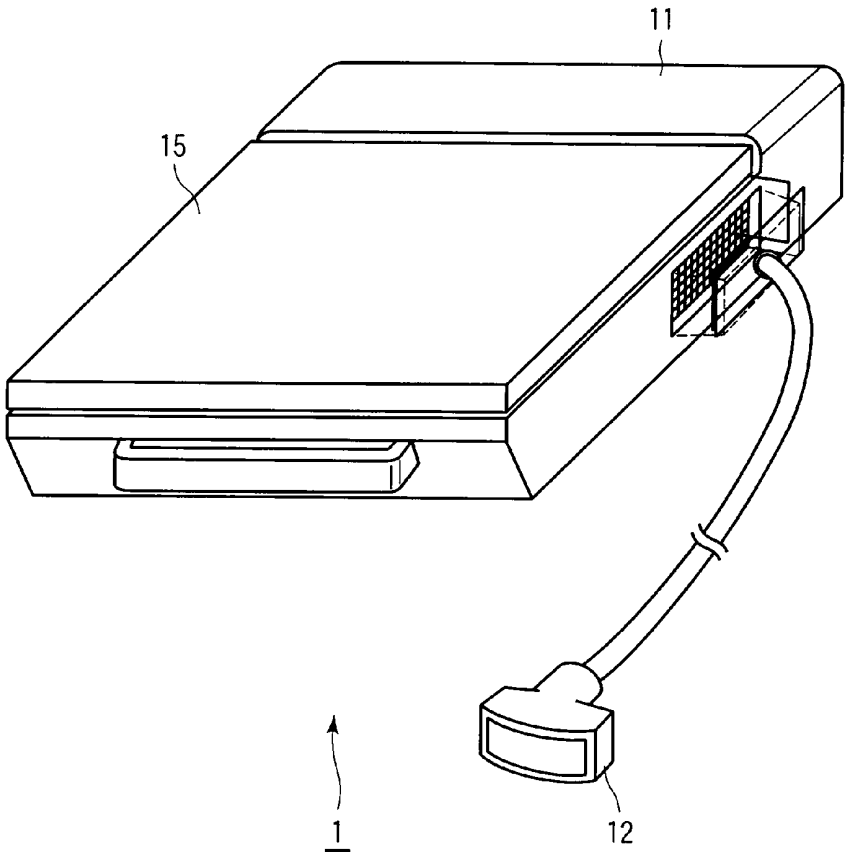
(57) **ABSTRACT**

After an ultrasonic diagnosis apparatus is temporally placed on the receptacle of a docking cart to relieve a weight load, the portable ultrasonic diagnosis apparatus is placed at a predetermined position by sliding the apparatus while guiding it along the shapes of the edges of the receptacle. After the portable ultrasonic diagnosis apparatus is slid on the receptacle and rear foot portions come into contact with the stoppers of the receptacle, the front side of the portable ultrasonic diagnosis apparatus is placed on the receptacle. With this operation, front foot portions are fitted in fitting portions, and the portable ultrasonic diagnosis apparatus is placed at an accurate position on the receptacle. In addition, when an operator places the portable ultrasonic diagnosis apparatus on the receptacle or lifts the portable ultrasonic diagnosis apparatus from the receptacle, the fingers which grasp the apparatus are placed in the recessed portions of the receptacle.



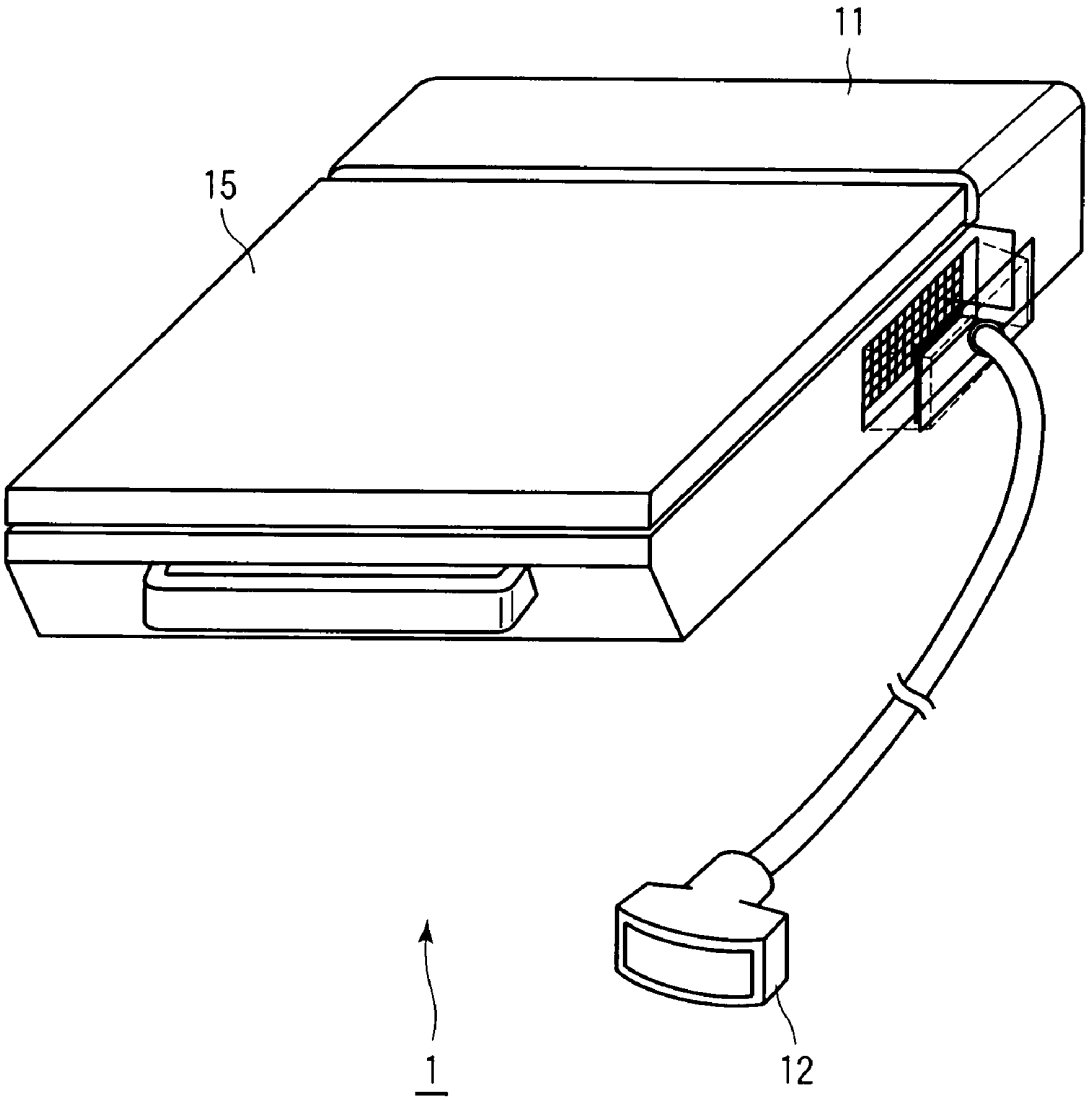


FIG. 1

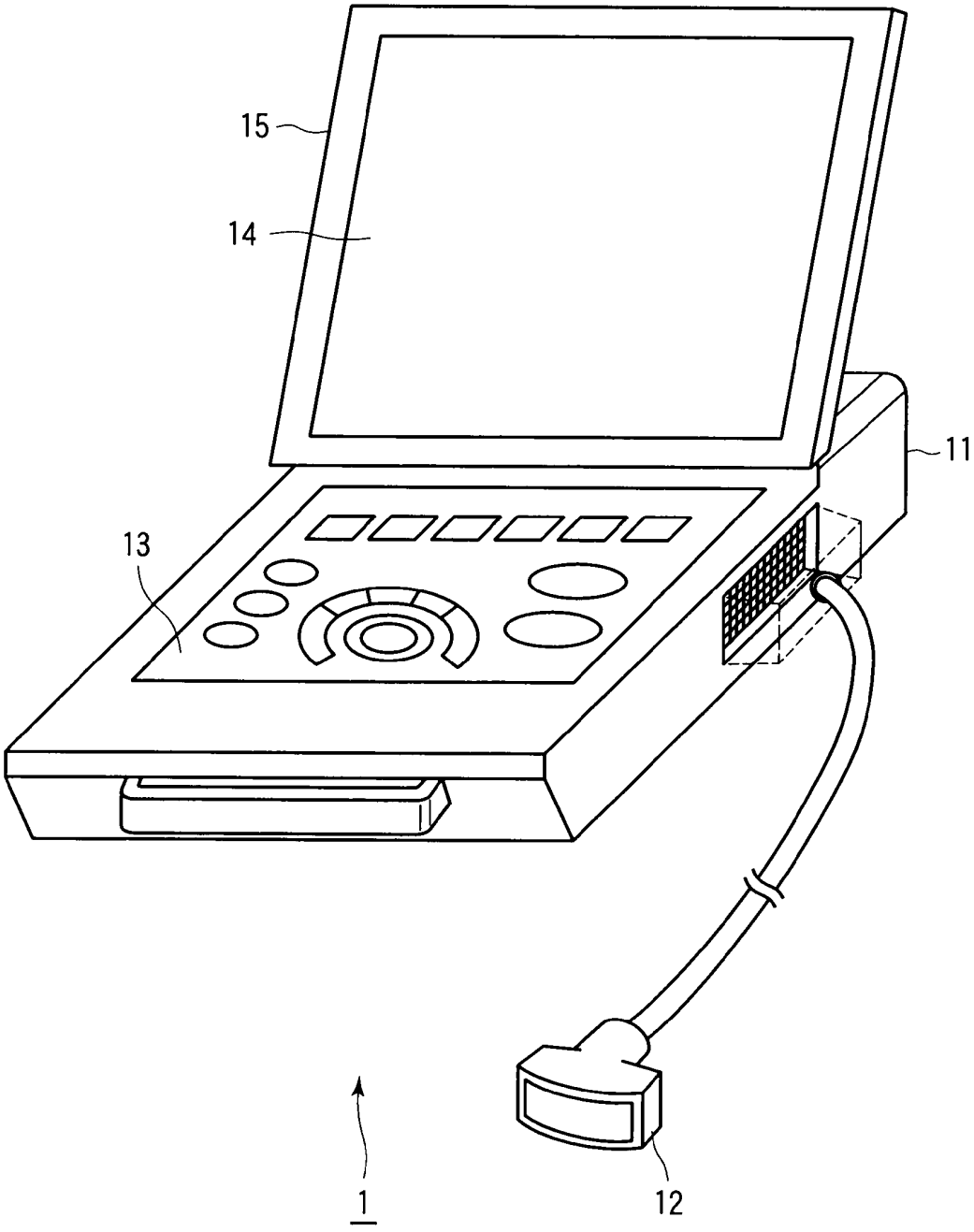


FIG. 2

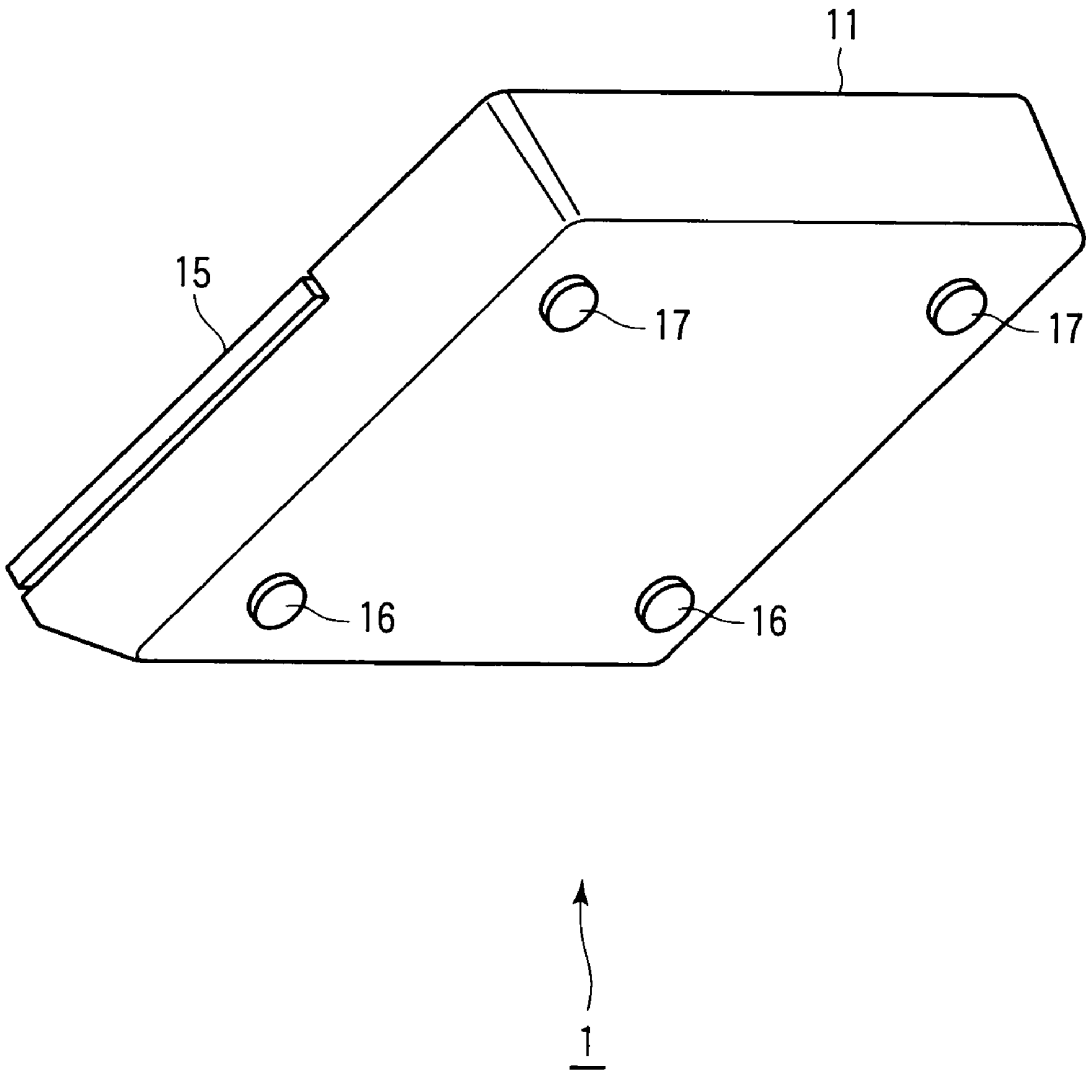


FIG. 3

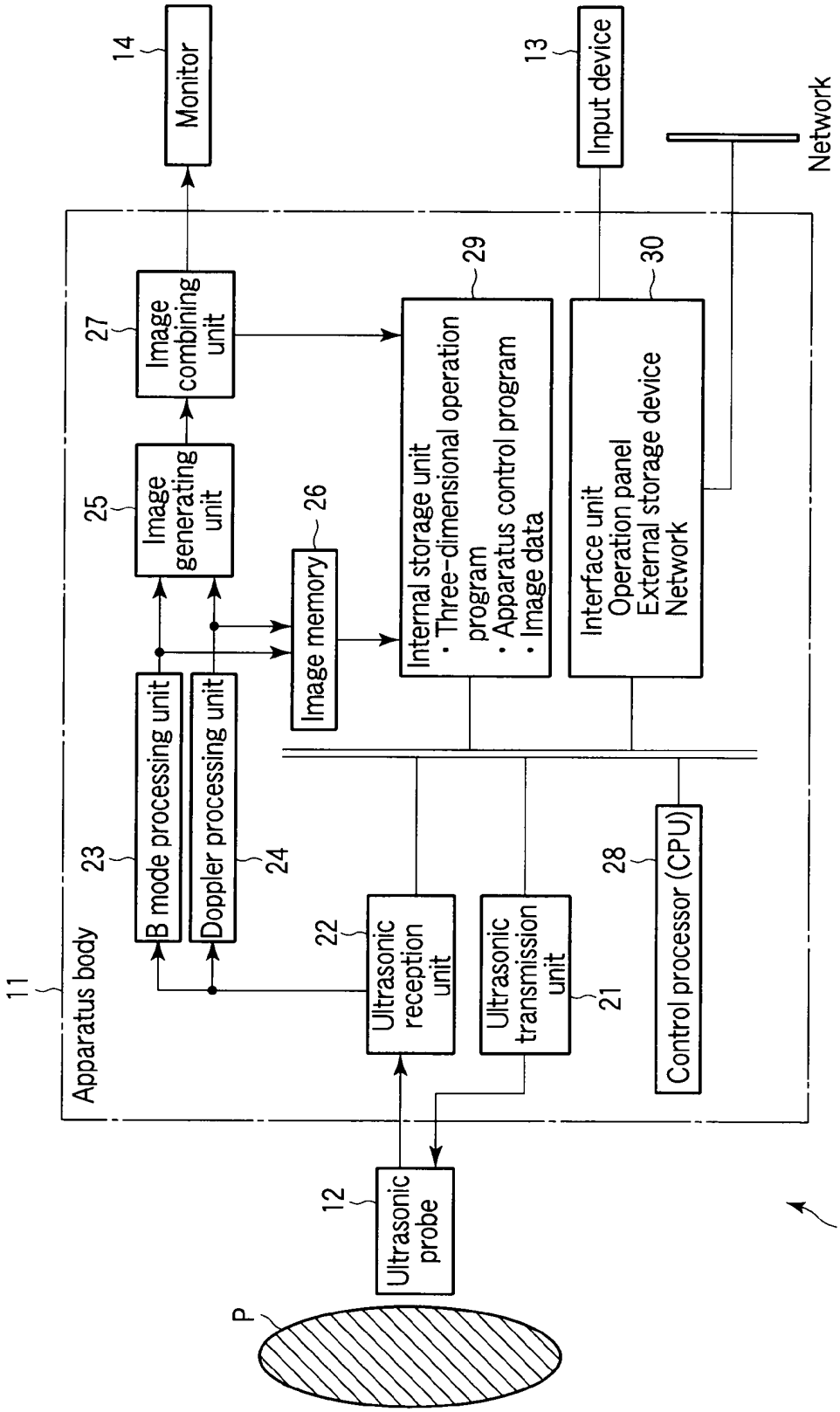

14
Monitor
13
Input device
Network
27
Image combining unit
29
Internal storage unit
· Three-dimensional operation program
· Apparatus control program
· Image data
30
Interface unit
Operation panel
External storage device
Network
25
Image generating unit
26
Image memory
11
Apparatus body
23
B mode processing unit
24
Doppler processing unit
22
Ultrasonic reception unit
21
Ultrasonic transmission unit
28
Control processor (CPU)
12
Ultrasonic probe
P
1

FIG. 4

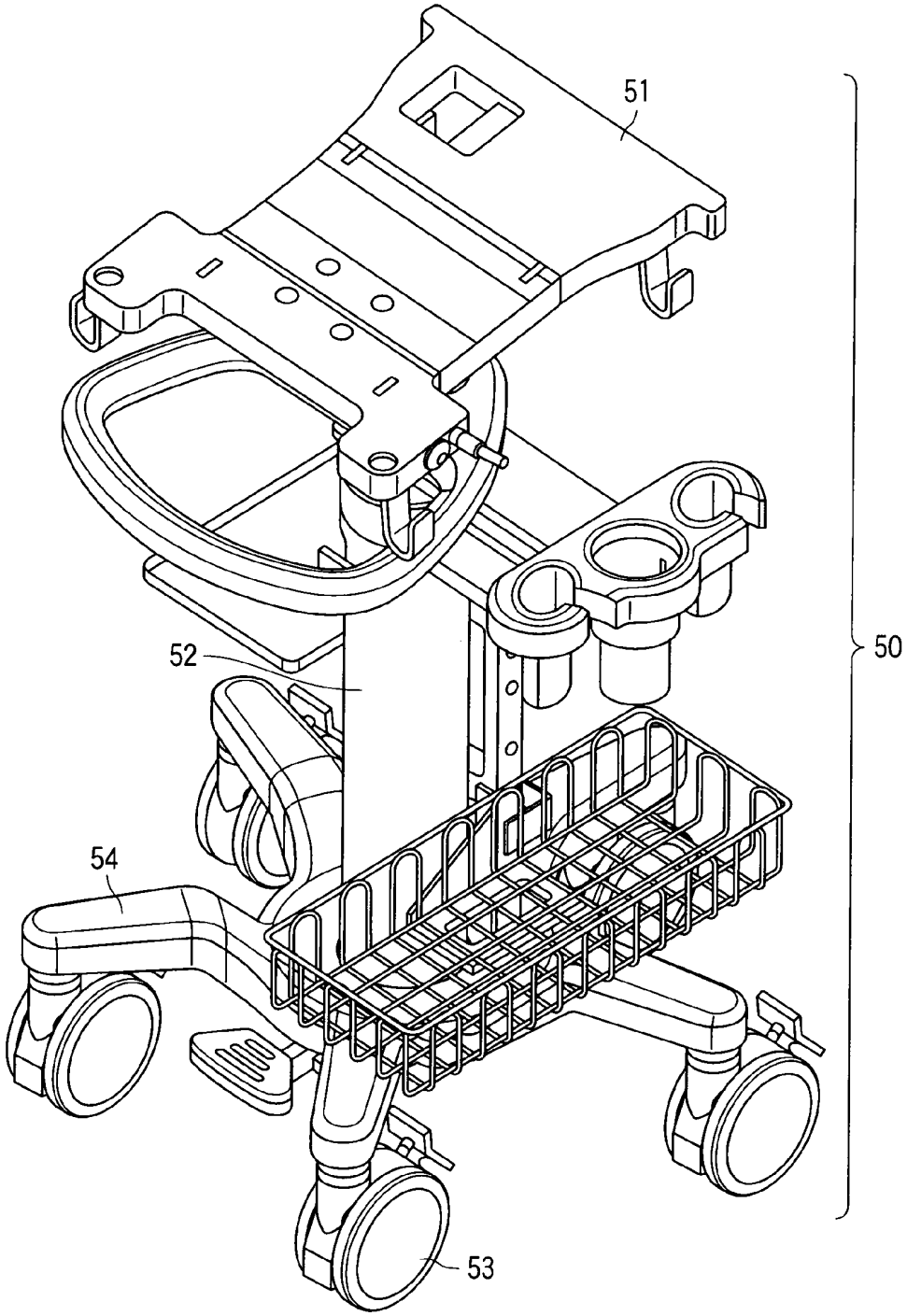


FIG. 5

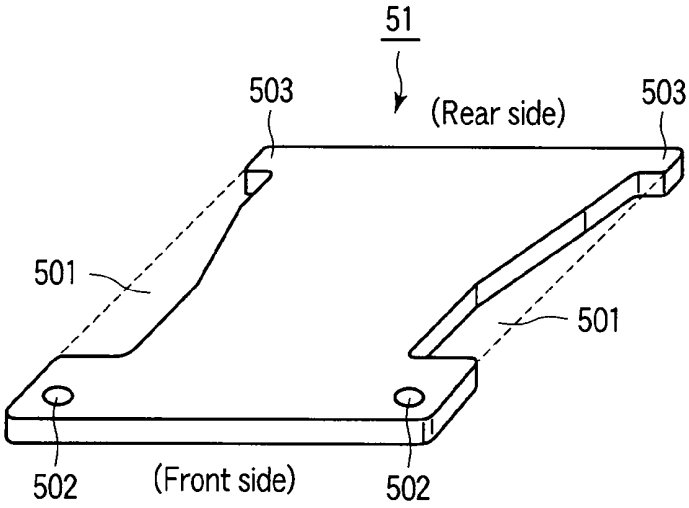

51
503
(Rear side)
503
501
501
502
(Front side)
502

FIG. 6

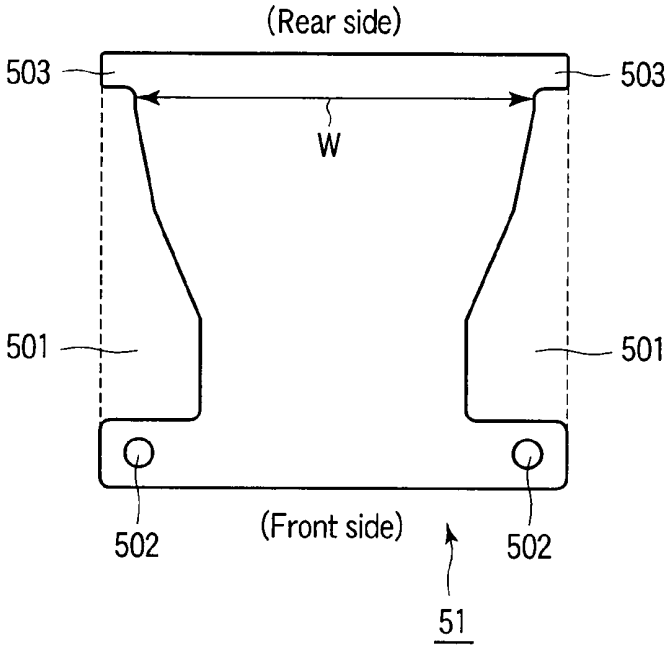

(Rear side)
503
503
W
501
501
502
(Front side)
502
51

FIG. 7

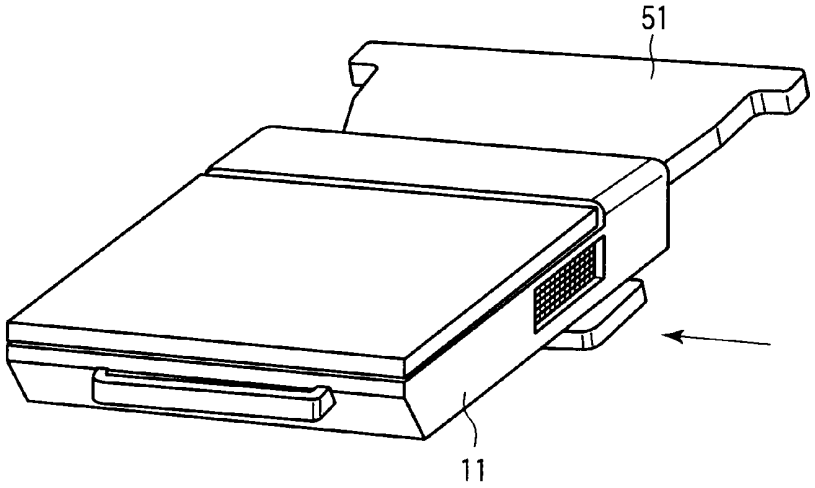


FIG. 8

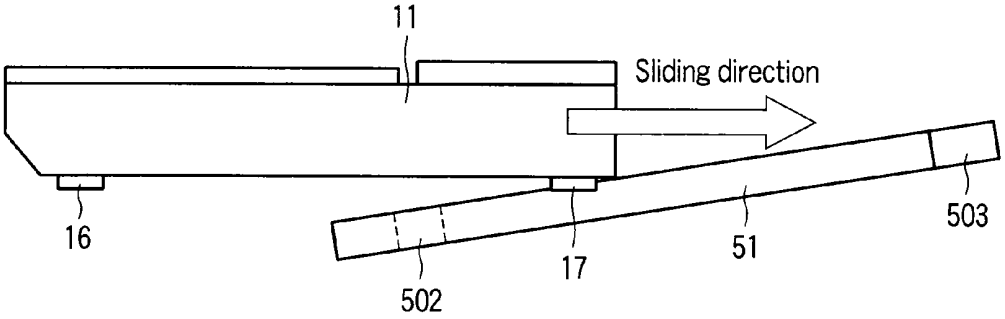


FIG. 9

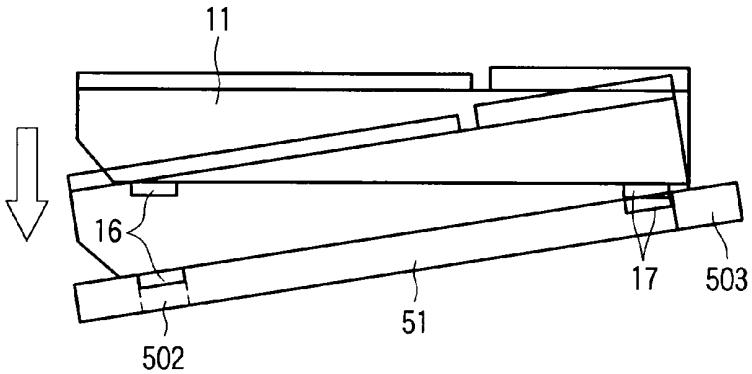


FIG. 10

ULTRASONIC DIAGNOSIS SYSTEM AND ULTRASONIC DIAGNOSIS APPARATUS DOCKING CART

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is based upon and claims the benefit of priority from prior Japanese Patent Application No. 2008-226180, filed Sep. 3, 2008, the entire contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a docking cart for a portable ultrasonic diagnosis apparatus and an ultrasonic diagnosis system including the ultrasonic diagnosis apparatus docking cart and the portable ultrasonic diagnosis apparatus.

[0004] 2. Description of the Related Art

[0005] In ultrasonic diagnosis, the pulsation of the heart or the movement of a fetus can be displayed in real time by the simple operation of bringing an ultrasonic probe into contact with the surface of the body. In addition, this technique is highly safe, and hence allows repetitive examination. Furthermore, this system is smaller in size than other diagnosis apparatuses such as X-ray, CT, and MRI apparatuses, and ultrasonic diagnosis is free from the influence of radiation exposure unlike diagnosis using X-rays. This technique can therefore be said to be a simple diagnosis technique which facilitates examination to be performed by moving the apparatus to the bed side. Ultrasonic diagnosis apparatuses used in this ultrasonic diagnosis vary in type depending on the functions which they have. Some compact apparatuses which have already been developed are small enough to be carried with one hand, and can be used in obstetric treatment, treatment at home, and the like.

[0006] Recently, as a system which allows both use at the bed side and portable use, an ultrasonic diagnosis system which connects, for example, a portable compact (portable) ultrasonic diagnosis apparatus to a docking cart such as a dedicated cart or expansion unit has been developed.

[0007] The conventional ultrasonic diagnosis system has the following problems. That is, recently, portable ultrasonic diagnosis apparatuses have a tendency to increase in weight. This is because it is required to mount a large-size LCD, enhance functions, and improve image quality even at the expense of some increases in apparatus size and weight. Increasing the weight will place a heavy burden on the operator when attaching and detaching the ultrasonic diagnosis apparatus on or from the docking cart. This problem becomes more noticeable, in particular, when a powerless person performs this attaching/detaching operation. In addition, depending on the appearance designs of an ultrasonic diagnosis apparatus and docking cart, the receptacle of the docking cart may become smaller than the apparatus. In such a case, a place where the ultrasonic diagnosis apparatus should be mounted becomes a blind spot. This can lead to an injury such as being caught between the apparatus and the receptacle.

BRIEF SUMMARY OF THE INVENTION

[0008] The present invention has been made in consideration of the above situation, and has as its object to provide an ultrasonic diagnosis system and ultrasonic diagnosis apparatus docking cart which allow even a powerless person to mount an ultrasonic diagnosis apparatus on the receptacle of the docking cart safely, reliably, and quickly regardless of the appearance designs.

[0009] In order to achieve the above object, the present invention is configured as follows.

[0010] According to an aspect of the present invention, there is provided that an ultrasonic diagnosis system comprising an ultrasonic diagnosis apparatus which acquires ultrasonic image data and a docking cart including a receptacle for installation of the ultrasonic diagnosis apparatus, the receptacle comprising a guide unit to guide the ultrasonic diagnosis apparatus to a predetermined position on the receptacle, and a fitting unit which is fitted on at least part of the ultrasonic diagnosis apparatus guided to the predetermined position by the guide unit to fix the ultrasonic diagnosis apparatus on the receptacle.

[0011] According to another aspect of the present invention, there is provided that the system according to claim **1**, wherein the receptacle is formed in such a manner that the front side of the docking cart becomes lower in level than the rear side of the docking cart.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0012] FIG. **1** is a perspective view of a portable ultrasonic diagnosis apparatus **1**;

[0013] FIG. **2** is a perspective view of the portable ultrasonic diagnosis apparatus **1**;

[0014] FIG. **3** is a perspective view of the portable ultrasonic diagnosis apparatus **1** viewed from the bottom surface side (i.e., the side which is installed on a docking cart);

[0015] FIG. **4** is a block diagram showing the arrangement of the portable ultrasonic diagnosis apparatus **1**;

[0016] FIG. **5** is a perspective view of a docking cart **50** for the portable ultrasonic diagnosis apparatus **1**;

[0017] FIG. **6** is a perspective view of a receptacle **51** of the docking cart **50**;

[0018] FIG. **7** is a plan view of the receptacle **51**;

[0019] FIG. **8** is a perspective view for explaining a technique of mounting (installing) the portable ultrasonic diagnosis apparatus **1** on the docking cart **50**;

[0020] FIG. **9** is a view for explaining the technique of mounting (installing) the portable ultrasonic diagnosis apparatus **1** on the docking cart **50**; and

[0021] FIG. **10** is a view for explaining the technique of mounting (installing) the portable ultrasonic diagnosis apparatus **1** on the docking cart **50**.

DETAILED DESCRIPTION OF THE INVENTION

[0022] An embodiment of the present invention will be described below with reference to the views of the accompanying drawing. Note that the same reference numerals denote constituent elements having almost the same functions and arrangements, and a repetitive description will be made only when required.

[0023] An ultrasonic diagnosis system according to this embodiment includes a portable ultrasonic diagnosis apparatus and a docking cart for the portable ultrasonic diagnosis apparatus.

[0024] FIGS. **1** and **2** are perspective views of a portable ultrasonic diagnosis apparatus **1**. As shown in FIGS. **1** and **2**,

the portable ultrasonic diagnosis apparatus **1** has, for example, an appearance like a notebook computer or tablet computer, and includes an apparatus body **11**, a detachable ultrasonic probe **12**, and an openable cover portion **15**. Changing the state of the cover portion **15** from the closed state in FIG. **1** to the open state in FIG. **2** can make a monitor **14** and an input device **13** ready for use.

[0025] FIG. **3** is a perspective view of the portable ultrasonic diagnosis apparatus **1** viewed from the bottom surface side (i.e., the side which is installed on the docking cart). As shown in FIG. **3**, the bottom surface of the portable ultrasonic diagnosis apparatus **1** is provided with front foot portions **16** and rear foot portions **17**.

[0026] FIG. **4** is a block diagram showing the arrangement of the portable ultrasonic diagnosis apparatus **1**. As shown in FIG. **4**, the portable ultrasonic diagnosis apparatus **1** includes the ultrasonic probe **12**, the input device **13**, the monitor **14**, an ultrasonic transmission unit **21**, an ultrasonic reception unit **22**, a B mode processing unit **23**, a Doppler processing unit **24**, an image generating unit **25**, an image memory **26**, an image combining unit **27**, a control processor (CPU) **28**, an internal storage unit **29**, and an interface unit **30**.

[0027] The ultrasonic probe **12** includes a plurality of piezoelectric transducers which generate ultrasonic waves based on driving signals from the ultrasonic transmission unit **21** and convert reflected waves from an object into electrical signals, a matching layer provided for the piezoelectric transducers, and a backing member which prevents ultrasonic waves from propagating backward from the piezoelectric transducers.

[0028] The input device **13** has various types of switches, buttons, a trackball, a mouse, a keyboard, and the like which are used to input, to the apparatus body **11**, various types of instructions and conditions, an instruction to set a region of interest (ROI), various types of image quality condition setting instructions, and the like from an operator.

[0029] The monitor **14** displays morphological information (B mode images) in the living body, blood flow information (an average velocity image, variance image, power image, and the like), and their combinations as images based on video signals from the image combining unit **27**.

[0030] The ultrasonic transmission unit **21** includes a trigger generating circuit, delay circuit, and pulser circuit (none are shown). The pulser circuit repeatedly generates rate pulses for the formation of transmission ultrasonic waves at a predetermined rate frequency fr Hz (period: 1/fr sec). The delay circuit gives each rate pulse the delay time required to focus an ultrasonic wave into a beam for each channel and determine a transmission directivity. The trigger generating circuit applies a driving pulse to the probe **12** at the timing based on this rate pulse.

[0031] The ultrasonic reception unit **22** includes an amplifier circuit, A/D converter, and adder (none are shown). The amplifier circuit amplifies echo signals received via the ultrasonic probe **12** on a channel basis. The A/D converter gives each amplified echo signal the delay time required to determine a reception directivity. The adder then performs addition processing.

[0032] The B mode processing unit **23** receives the echo signal from the ultrasonic transmission unit **21**, and performs logarithmic amplification, envelope detection processing, and the like, thereby generating data whose signal strength is represented by a brightness level.

[0033] The Doppler processing unit **24** frequency-analyzes velocity information from the echo signal received from the transmission unit **21** to extract a blood flow, tissue, and contrast medium echo component by the Doppler effect, and obtains blood flow information such as an average velocity, variance, and power at multiple points.

[0034] The image generating unit **25** generates an ultrasonic diagnosis image as a display image by converting the scanning line signal string for ultrasonic scanning into a scanning line signal string in a general video format typified by a TV format.

[0035] The image combining unit **27** combines the image received from the image generating unit **25** with character information of various types of parameters, scale marks, and the like, and outputs the resultant signal as a video signal to the monitor **14**.

[0036] The control processor **28** has a function as an information processing apparatus (computer) and controls the operation of the main body of the portable ultrasonic diagnosis apparatus.

[0037] The internal storage unit **29** stores a data group including control programs for executing a predetermined scan sequence, image generation, and display processing, diagnosis information (a patient ID, findings by a doctor, and the like), a diagnosis protocol, and transmission/reception conditions.

[0038] The interface unit **30** is an interface for the input device **13**, a network, and a new external storage device (not shown). The interface unit **30** can transfer data such as ultrasonic images, analysis results, and the like obtained by this apparatus to another apparatus via a network.

[0039] FIG. **5** is a perspective view of a docking cart **50** for the portable ultrasonic diagnosis apparatus **1**. As shown in FIG. **5**, the docking cart **50** includes a receptacle **51** for installing the portable ultrasonic diagnosis apparatus **1**, a column **52** which has an adjusting mechanism for adjusting the level and angle of the receptacle **51** and supports the receptacle **51**, wheels **53** to allow the portable ultrasonic diagnosis system to move, and leg portions **54** which are provided with the wheels **53** and support the column **52**. Note that when the portable ultrasonic diagnosis apparatus **1** is to be installed or used, the angle of the receptacle **51** is adjusted to make the front side of the portable ultrasonic diagnosis apparatus **1** installed on the receptacle **51** become lower in level than the rear side so as to facilitate the use of the input device **13** and the like.

[0040] FIG. **6** is a perspective view of the receptacle **51** of the docking cart **50**. FIG. **7** is a plan view of the receptacle **51**. As shown in FIGS. **6** and **7**, the receptacle **51** has a shape obtained by providing recessed portions **501** for a rectangular plate (the rectangular portion indicated by the dotted lines in FIGS. **6** and **7**) corresponding to the size of the bottom surface of the portable ultrasonic diagnosis apparatus **1**. Each recessed portion **501** is shaped such that its width increases from the front side of the receptacle **51** to near the middle and gradually decreases toward the rear side. When viewed from the operator side (front side), therefore, the receptacle **51** is constricted from the front side to near the middle and gradually increases in width toward the rear side. In addition, the recessed portions **501** are formed such that a receptacle width W at the rear end positions of the recessed portions **501** becomes equal to the distance between the rear foot portions **17** of the portable ultrasonic diagnosis apparatus **1**. The recessed portions **501** are formed to guide the portable ultra-

sonic diagnosis apparatus **1** to a predetermined position along the shapes of the edges of the receptacle **51** which extend along the sliding direction when the portable ultrasonic diagnosis apparatus **1** is installed on the receptacle **51** while being slid on it.

[0041] The receptacle **51** also has fitting portions **502** and stoppers **503**. When the portable ultrasonic diagnosis apparatus **1** is to be installed, the fitting portions **502** are fitted on the front foot portions **16** to fix the portable ultrasonic diagnosis apparatus **1** on the receptacle **51**. The stoppers **503** are formed at the rear end positions of the recessed portions **501**. When, therefore, the portable ultrasonic diagnosis apparatus **1** is to be installed on the receptacle **51** while being slid on it, the rear foot portions **17** come into contact with the stoppers **503** to stop the sliding movement of the portable ultrasonic diagnosis apparatus **1**. As a consequence, the portable ultrasonic diagnosis apparatus **1** is placed at a predetermined position.

(Installation/Removal of Portable Ultrasonic Diagnosis Apparatus)

[0042] The installation of the portable ultrasonic diagnosis apparatus **1** on the docking cart **50** and the removal of the portable ultrasonic diagnosis apparatus **1** from the docking cart **50** in this ultrasonic diagnosis system will be described next.

[0043] FIGS. **8**, **9**, and **10** are views for explaining a technique of installing (mounting) the portable ultrasonic diagnosis apparatus **1** on the docking cart **50**. Note that FIGS. **9** and **10** show the portable ultrasonic diagnosis apparatus **1** and the docking cart, shown in FIG. **8**, when viewed from the direction indicated by the arrow. As shown in FIG. **8**, part of the portable ultrasonic diagnosis apparatus **1** is placed on the receptacle **51** of the docking cart **50**. At this time, one of the front foot portions **16** is placed in one of the recessed portions **501**, and the other of the front foot portions **16** is placed in the other of the recessed portions **501** such that the left and right front foot portions **16** are placed across the constricted portion of the receptacle **51**.

[0044] Note that when the portable ultrasonic diagnosis apparatus **1** is installed on the receptacle **51** such that the left and right front foot portions **16** are placed across the constricted portion of the receptacle **51** in this manner, grasping the two ends of the portable ultrasonic diagnosis apparatus **1** will place the hands or fingers of the person who installs the apparatus at regions between portions of the recessed portions **501** which are located on the front side of the receptacle **51** and portions near the middle (i.e., the widest regions of the recessed portions **501**). This can therefore prevent the hands or fingers of the person from being caught between the portable ultrasonic diagnosis apparatus **1** and the receptacle **51** when installing the apparatus **1** on the docking cart **50**.

[0045] As shown in FIG. **9**, then, the operator slides the portable ultrasonic diagnosis apparatus **1** in the sliding direction (from the front side (operator side) of the docking cart **50** to the rear side) while keeping part of the portable ultrasonic diagnosis apparatus **1** in contact with the receptacle **51**. With this operation, as shown in FIG. **10**, the rear foot portions **17** of the portable ultrasonic diagnosis apparatus **1** move while being guided along the shapes of the edges of the receptacle **51** which extend along the sliding direction. After the rear foot portions **17** of the portable ultrasonic diagnosis apparatus **1** come into contact with the stoppers **503** of the receptacle **51**, the front side of the portable ultrasonic diagnosis apparatus **1** is lowered on the receptacle **51**. The front foot portions **16** are then fitted in the fitting portions **502**. As a consequence, the portable ultrasonic diagnosis apparatus **1** is placed at an accurate position on the receptacle **51**.

[0046] The operator can remove the portable ultrasonic diagnosis apparatus **1** from the docking cart **50** by grasping the two ends of the portable ultrasonic diagnosis apparatus **1** and pulling it toward him/her while lifting it (i.e., by performing reverse operation to that for installation). At this time, placing the fingers of which grasp the portable ultrasonic diagnosis apparatus **1** in the recessed portions **501** can prevent the fingers of the person who installs from being caught between the receptacle **51** and the portable ultrasonic diagnosis apparatus **1**.

(Effects)

[0047] According to the above arrangement, the following effects can be obtained.

[0048] According to this ultrasonic diagnosis system, after the ultrasonic diagnosis apparatus is temporally placed on the receptacle of the docking cart to relieve the weight load, the portable ultrasonic diagnosis apparatus is placed at a predetermined position by sliding the apparatus while guiding it along the shapes of the edges of the receptacle **51** which extend alone the sliding direction. After the portable ultrasonic diagnosis apparatus is slid on the receptacle and the rear foot portions come into contact with the stoppers, the front side of the portable ultrasonic diagnosis apparatus is placed on the receptacle. With this operation, the front foot portions are fitted in the fitting portions, and the portable ultrasonic diagnosis apparatus is placed at an accurate position on the receptacle. It is, therefore, possible for an operator to minimize the time taken to grasp the portable ultrasonic diagnosis apparatus by himself/herself. It is also possible to place the portable ultrasonic diagnosis apparatus at an accurate position on the receptacle with simple operation. In addition, when the operator places the portable ultrasonic diagnosis apparatus on the receptacle or lifts the portable ultrasonic diagnosis apparatus from the receptacle, the hands or fingers which grasp the portable ultrasonic diagnosis apparatus are placed in the recessed portions of the receptacle. This can prevent the fingers of the person who installs from being caught between the receptacle and the portable ultrasonic diagnosis apparatus. This makes it possible to implement an ultrasonic diagnosis system and ultrasonic diagnosis apparatus docking cart which allow even a powerless person to install an ultrasonic diagnosis apparatus on the receptacle of the docking cart safely, reliably, and quickly regardless of the appearance designs.

[0049] Note that the present invention is not limited to the above embodiment, and constituent elements can be variously modified and embodied at the execution stage within the spirit and scope of the invention.

[0050] Various inventions can be formed by proper combinations of a plurality of constituent elements disclosed in the above embodiments. For example, several constituent elements may be omitted from all the constituent elements in each embodiment. In addition, constituent elements of the different embodiments may be combined as needed.

[0051] As has been described above, the present invention can implement an ultrasonic diagnosis system and the like which allow even a powerless person to install an ultrasonic diagnosis apparatus on the receptacle of a docking cart safely, reliably, and quickly regardless of the appearance designs.

What is claimed is:

1. An ultrasonic diagnosis system comprising an ultrasonic diagnosis apparatus which acquires ultrasonic image data and a docking cart including a receptacle for installation of the ultrasonic diagnosis apparatus,

the receptacle comprising

a guide unit to guide the ultrasonic diagnosis apparatus to a predetermined position on the receptacle, and

a fitting unit which is fitted on at least part of the ultrasonic diagnosis apparatus guided to the predetermined position by the guide unit to fix the ultrasonic diagnosis apparatus on the receptacle.

2. The system according to claim **1**, wherein the guide unit is formed along a direction in which the ultrasonic diagnosis apparatus at least partly mounted on the receptacle is slid and moved when the ultrasonic diagnosis apparatus is slid and moved on the receptacle, and guides the ultrasonic diagnosis apparatus to the predetermined position on the receptacle while being in contact with at least part of the ultrasonic diagnosis apparatus.

3. The system according to claim **1**, wherein the receptacle further includes a recessed portion to prevent a hand of a person who grasps and installs the ultrasonic diagnosis apparatus from coming into contact with the receptacle when at least part of the ultrasonic diagnosis apparatus is installed on the receptacle.

4. The system according to claim **2**, wherein the receptacle further includes a recessed portion to prevent a hand of a person who grasps and installs the ultrasonic diagnosis apparatus from coming into contact with the receptacle when at least part of the ultrasonic diagnosis apparatus is installed on the receptacle.

5. The system according to claim **1**, wherein the receptacle is formed in such a manner that the front side of the docking cart becomes lower in level than the rear side of the docking cart.

6. The system according to claim **1**, wherein a width of the guide unit increases from the front side of the docking cart to the rear side of the docking cart.

7. The system according to claim **1**, wherein the width of the guide unit is narrower than a distance of foot portions of the ultrasonic diagnostic apparatus in horizontal direction.

8. The system according to claim **1**, wherein the receptacle further includes a stopper which stops the ultrasonic diagnosis apparatus which is slid and moved on the receptacle.

9. The system according to claim **1**, wherein the fitting unit is fitted on a foot portion of the ultrasonic diagnostic apparatus.

10. An ultrasonic diagnosis apparatus docking cart comprising:

a receptacle to install an ultrasonic diagnosis apparatus which acquires ultrasonic image data;

a guide unit to guide the ultrasonic diagnosis apparatus to a predetermined position on the receptacle; and

a fitting unit which is fitted on at least part of the ultrasonic diagnosis apparatus guided to the predetermined position by the guide unit to fix the ultrasonic diagnosis apparatus on the receptacle.

11. The docking cart according to claim **10**, wherein the guide unit is formed along a direction in which the ultrasonic diagnosis apparatus at least partly mounted on the receptacle is slid and moved when the ultrasonic diagnosis apparatus is slid and moved on the receptacle, and guides the ultrasonic diagnosis apparatus to the predetermined position on the receptacle while being in contact with at least part of the ultrasonic diagnosis apparatus.

12. The docking cart according to claim **10**, wherein the receptacle further includes a recessed portion to prevent a hand of a person who grasps and installs the ultrasonic diagnosis apparatus from coming into contact with the receptacle when at least part of the ultrasonic diagnosis apparatus is installed on the receptacle.

13. The docking cart according to claim **11**, wherein the receptacle further includes a recessed portion to prevent a hand of a person who grasps and installs the ultrasonic diagnosis apparatus from coming into contact with the receptacle when at least part of the ultrasonic diagnosis apparatus is installed on the receptacle.

14. The docking cart according to claim **10**, wherein the receptacle is formed in such a manner that the front side of the docking cart becomes lower in level than the rear side of the docking cart.

15. The docking cart according to claim **10**, wherein a width of the guide unit increases from the front side of the docking cart to the rear side of the docking cart.

16. The docking cart according to claim **10**, wherein the width of the guide unit is narrower than a distance of foot portions of the ultrasonic diagnostic apparatus in horizontal direction.

17. The docking cart according to claim **10**, wherein the receptacle further includes a stopper which stops the ultrasonic diagnosis apparatus which is slid and moved on the receptacle.

18. The docking cart according to claim **10**, wherein the fitting unit is fitted on a foot portion of the ultrasonic diagnostic apparatus.

* * * * *

专利名称(译)	超声诊断系统和超声诊断仪对接车		
公开(公告)号	US20100056913A1	公开(公告)日	2010-03-04
申请号	US12/552626	申请日	2009-09-02
[标]申请(专利权)人(译)	HIRAKUI KATSUYA 小野寺HIDEO OKUMURA隆敏 中田和仁 HONGOU博信 SHIBANUMA HIROYUKI 椎名TAKAYUKI		
申请(专利权)人(译)	HIRAKUI KATSUYA 小野寺HIDEO OKUMURA隆敏 中田和仁 HONGOU博信 SHIBANUMA HIROYUKI 椎名TAKAYUKI		
当前申请(专利权)人(译)	东芝医疗系统公司		
[标]发明人	HIRAKUI KATSUYA ONODERA HIDEO OKUMURA TAKATOSHI NAKATA KAZUHITO HONGOU HIRONOBU SHIBANUMA HIROYUKI SHIINA TAKAYUKI		
发明人	HIRAKUI, KATSUYA ONODERA, HIDEO OKUMURA, TAKATOSHI NAKATA, KAZUHITO HONGOU, HIRONOBU SHIBANUMA, HIROYUKI SHIINA, TAKAYUKI		
IPC分类号	A61B8/00 A47B81/00 A61B19/02		
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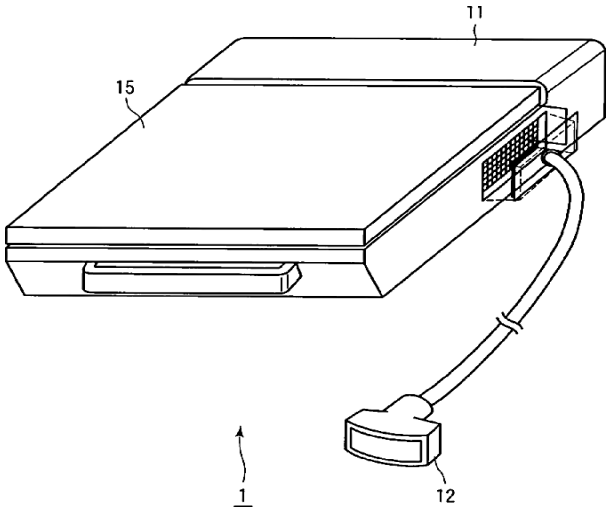
摘要(译)

在超声诊断设备暂时放置在对接车的插座上以减轻重量负荷之后，通过滑动设备同时沿着容器边缘的形状引导便携式超声诊断设备，将便携式超声诊断设备放置在预定位置。在便携式超声诊断设备在插座上滑动并且后脚部分与插座的止动件接触之后，便携式超声诊断设备的前侧放置在插座上。通过该操作，前脚部分装配在配合部分中，并且便携式超声诊断设备被放置在插座上的准确位置。另外，当操作者将便携式超声诊断设备放置在插座上或将便携式超声诊断设备从插座上抬起时，抓住设备的手指被放置在插座的凹陷部分中。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