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(54) Title: ELECTRONIC MAGNIFICATION DEVICE

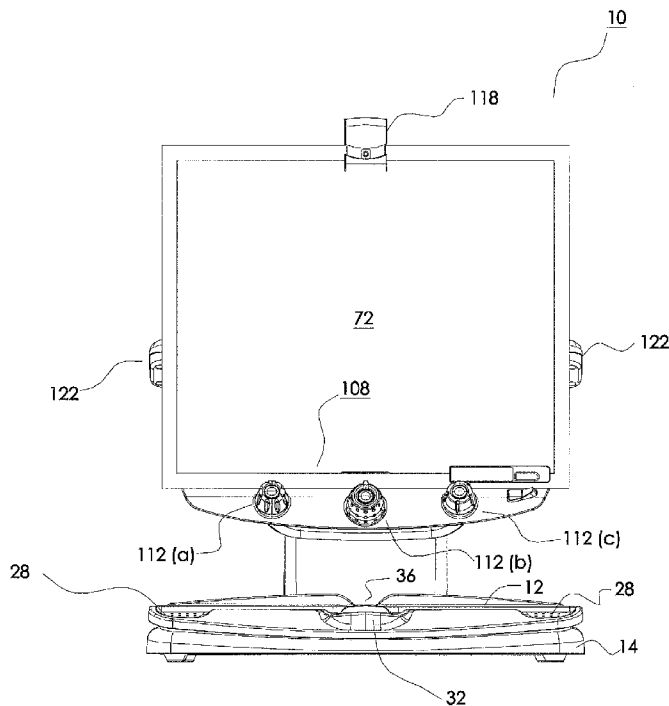


FIG. 1

(57) Abstract: Disclosed is a magnification device for use by blind and/or low vision individuals. The device includes an X-Y table upon which an item to be magnified can be placed. A stationary camera arm and a pivotal monitor arm are oriented over the X-Y table. The monitor arm includes a video monitor pivotally mounted at its distal end. The camera arm also includes two laterally disposed lighting arms. A series of controls are provided along a lower edge of the monitor via a mounting bracket.

WO 2012/048084 A1

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# ELECTRONIC MAGNIFICATION DEVICE

## BACKGROUND OF THE INVENTION

### Related Application Data

[1] This application claims priority to co-pending utility application serial number 12/900,224  
5 filed on October 7, 2010 and entitled "Electronic Magnification Device", which is a continuation in part of  
utility application serial number 11/379,327 filed on April 19, 2006 and entitled "Desktop Electronic  
Magnifier", which claims priority to provisional application serial number 60/766,783, filed on February  
10,2006. The contents of these applications are fully incorporated herein for all purposes.

### Field of the Invention

10 [2] This invention relates to a magnification device. More particularly, the invention relates to  
an adjustable desktop electronic magnifier.

### Description of the Background Art

[3] People with impaired vision have difficulty reading books, perceiving small objects, or  
seeing fine detail. Magnifying glasses have long been used to enable the perception of small details  
15 which may otherwise be below the unaided resolution of an individual. Desktop electronic magnifiers,  
sometimes referred to as closed circuit television devices (cctv), have now largely supplanted magnifying  
glasses. These devices employ a camera having CMOS technology for generating an enlarged or  
magnified image of the object. The user is then able to view an enlarged image of the object as it  
is displayed on a monitor.

20 [4] An example of one such desktop electronic magnifier is disclosed in U.S. Pub. No. U.S.  
2006/0203093 to Trulaske. Trulaske discloses a closed circuit video magnification system, including a  
camera that is mounted over a table by way of an adjustable link. Trulaske also includes a series of  
controls that are integral to the associated monitor.

[5] Currently available desktop electronic magnifiers, such as Trulaske, have a number of  
25 limitations. One limitation is that existing magnifiers do not provide sufficient lighting for cameras having  
larger fields of view. As a result, existing magnifiers must utilize lower resolution cameras. Another

drawback is that with existing magnifiers there is interference between the camera and monitor. This results in movement of the camera, which is problematic as the camera must regain focus and be reset to the selected magnification level. This interrupts viewing and results in periods of blurriness. Still yet another drawback is that existing magnifiers use dedicated monitors, often with integrated and specialized controls. This prevents the magnifier from being used with conventional displays and further makes repair and/or maintenance problematic.

[6] A need therefore exists for an electronic magnifier with improved lighting to accommodate larger fields of view. A need also exists for an electronic magnifier without interference between the monitor and the associated camera. It is an objective of the present electronic magnifier to fulfill these and other needs.

#### SUMMARY OF THE INVENTION

[7] An advantage provided by the magnifier of the present disclosure is the ability to accommodate wider fields of view and higher resolutions via an improved lighting arrangement.

[8] Another advantage is realized by providing light sources that are mounted on a laterally disposed mounting arm.

[9] The disclosed magnifier camera provides yet another advantage by providing two independent mounting arms for the monitor and associated camera.

[10] A further advantage is realized by providing a stationary camera and an adjustable monitor.

[11] Another advantage is achieved by removably securing the monitor via a mounting bracket to thereby permit the monitor to be easily replaced and/or repaired.

[12] Various embodiments of the invention may have none, some, or all of these advantages. Other technical advantages of the present invention will be readily apparent to one skilled in the art.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[13] For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

[14] Fig. 1 is a front elevational view of the magnification device of the present disclosure.

[15] Fig. 2 is a side elevational view of the magnification device of the present disclosure.

[16] Fig. 3 is a top plan view of the magnification device of the present disclosure.

[17] Fig. 4 is a rear elevational view of the magnification device of the present disclosure.

[18] Fig. 5 is a perspective view of the magnification device of the present disclosure.

5 [19] Fig. 6 is a top plan view of the table of the magnification device of the present disclosure.

[20] Fig. 7 is a perspective of the magnification device with the monitor arm pivoted with respect to the camera arm.

[21] Fig. 8 is a perspective of the magnification device with the monitor arm pivoted with respect to the camera arm.

10 [22] Figs. 9a – 9b are cross sectional views of the camera arm utilized in the present disclosure.

[23] Fig. 10 is a detailed view of the controls and self-view camera employed in the present disclosure.

[24] Fig. 11 is a detailed view showing the lighting arrangement of the present disclosure.

15 [25] Fig. 12 is a perspective view of the underside of the camera housing of the present disclosure.

[26] Similar reference characters refer to similar parts throughout the several views of the drawings.

## PARTS LIST

10 Device	42 Camera Arm – Proximal End	74 Monitor Arm	106 Rotatable Bearing
12 X-Y Table	44 Camera Arm – Distal End	76 Monitor Bracket	108 Control Panel
14 Base	46 Camera Arm – Intermediate Extent	78 Monitor Arm – Proximal End	112(a), (b), (c) Controls
16 Forward Edge of Table/Base	48 Camera Arm – Forward Surface	82 Monitor Arm – Distal End	114 Rotatable Outer Knob
18 Rearward Edge of Table/Base	52 Camera Arm – Rearward Surface	84 Monitor Arm – Intermediate Extent	116 Push Button
22 Side Edges of Table/Base	54 Access Opening	86 Hinge Assembly	118 Self View Camera
24 First Channels in Base	56 Channel in Camera Arm	88 Swivel Mount for Monitor	120 Wheels on Control Panel
26 Second Channels in Base	58 Camera Housing	92 Balancing Spring	122 Lighting Arm
28 Grips for X-Y Table	62 Camera Housing – Forward End	94 Proximal End Cap	124 Lights
32 Lock for X-Y Table	64 Camera Housing – Rearward End	96 Distal End Cap	126 SD Card Slot
34 Raised Back Edge of Table	66 Camera Housing- Aperture Opening	98 Mounting Screw for Distal End Cap	
36 Channel in Table	68 Camera	102 Tensioning Screw	
38 Camera Arm	72 Monitor	104 Linkage	

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[27] This disclosure relates to a magnification device for use by blind and/or low vision individuals. The device includes an X-Y table upon which an item to be magnified can be placed. A stationary camera arm and a pivotal monitor arm are oriented over the X-Y table. The monitor arm includes a video monitor pivotally mounted at its distal end. The camera arm also includes a laterally disposed lighting arm. A series of controls are provided along a lower edge of the monitor via a mounting bracket. The various details of the present disclosure, and the manner in which they interrelate, will be described in greater detail hereinafter.

[28] Device 10 includes an X-Y table 12 that is adjustably mounted to an underlying base 14. Both table 12 and base 14 are defined by forward and rearward edges (16 and 18, respectively) and a pair of side edges 22. Rubber or elastic feet may be positioned on the bottom surface of the base to avoid marring the supporting surface. Two pairs of channels are formed with the base. These channels include a first pair of channels 24 which extend between the side edges of base 14 and a second pair of channels 26 that extend between the forward and rearward edges of base 14. X-Y table 12 includes rails that fit into the channels (24 and 26) and thereby permit adjustment in the X and Y orientations.

[29] X-Y table 12 also includes a forward edge with grip areas 28 for permitting the user to manipulate table 12 with respect to base 14. Table 12 also includes a centrally disposed lock 32. Lock 32 has two orientations. In the first orientation, table 12 is fixed with respect to base 14; in the second orientation, the user can move table 12 in the X and Y orientations with respect to base 14.

[30] Table 12 includes a number of features to allow items to be conveniently and safely positioned for viewing. For instance, a raised back edge 34 is included for preventing items from falling off the rearward edge 18 of table 12. A centrally disposed arcuate channel 36 is also included adjacent the back edge 18. Channel 36 is preferably formed as an indentation with the upper surface of table 12. Channel 36 allows cylindrical objects to be conveniently oriented on table 12 for inspection. Channel 36 is ideally suited for the secure placement of prescription pill bottles. This permits the bottles to be secured against rotation and properly oriented to permit magnification of relevant text. Although the depicted channel 36 preferred, other arrangements can likewise be employed. For instance, instead of

an indented channel 36, upstanding ridges can be formed within surface of table 12. These ridges could be positioned at any location upon table 12 and would similarly function to retain cylindrical objects.

[31] The camera arm 38 of device 10 is described next. Arm 38 extends from, and is integral with, the rearward edge 18 of base 14. Camera arm 38 is defined by a proximal end 42, a distal end 44, and an intermediate extent 46 as well as forward and rearward surfaces (48 and 52, respectively). Although arm 38 is disclosed as being arcuate, it can likewise be formed from other shapes and/or configurations. The proximal end 42 extends upwardly from the rearward edge 18 of base 14 and the distal end 44 extends over top of table 12. As noted in the figures, the distal most end curves downward to avoid interfering with the arm that supports the associated monitor. Camera arm 38 further includes an access opening 54 within its intermediate extent 46.

[32] This access opening 54 permits users to access the power outlets, electrical connectors, and computer ports associated with the camera positioned within an associated camera housing. The cabling coupled to the camera and through the access opening 54 can be routed through a channel 56 positioned within the rearward surface 52 of camera arm 42. Cable clips, or other fastening mechanisms, can be positioned within channel 56 to allow a user to appropriately secure the cabling.

[33] The camera housing 58 of the device is next described. The camera housing has a generally rectangular configuration with both forward and rearward ends (62 and 64, respectively). An aperture opening 66 is disposed on a bottom face of the camera housing. This opening is adapted for registration with the lens of a camera via a mirror supported within housing 58. The rearward end 64 of the housing is adapted to be received within access opening 54 of camera arm 38 and further secured by screws or fasteners. When properly oriented, camera housing 58 is secured to the distal end 44 of the camera arm upon its forward surface 48. The aperture opening 66 is also centrally oriented over table 14. This permits the associated camera to view and focus upon objects positioned upon the table. Camera 68 ideally has a resolution and field of view sufficient to view the entire surface of table 12. In the preferred embodiment, the resolution of camera 68 is 768 pixel columns by 494 pixel rows. The resolution, magnification, and position of camera 68 yields a much larger field of view than existing magnifiers. In the illustrated embodiment, the field of view is approximately 9.0 inches wide and 7.0

inches long. This, in turn, dramatically increases the number of objects that can be viewed with the magnifier.

[34] Objects viewed by camera 68 are displayed upon the associated monitor 72. Monitor 72, in turn, is secured to a monitor arm 74 via a monitor bracket 76. Monitor arm 74 includes both a proximal end 78 and distal end 82 and an intermediate extent 84 therebetween. Proximal end 78 of monitor arm 74 is pivotally secured to the intermediate extent 46 of camera arm 38 via hinge assembly 86. Hinge assembly 86 permits camera arm 38 to both pivot and rotate with respect to the underlying camera arm 38. A pin 86(a) can be provided to lock arm against rotation. Hinge assembly 86 is preferably positioned at a location that is above access opening 54. The distal end 44 of camera arm 38 includes a swivel mount 88 to which the monitor bracket 76 is secured. Monitor, 72 in turn, is secured to monitor bracket 76 in a conventional fashion via removable fasteners.

[35] A video cable, which in the preferred embodiment is an HDMI cable, extends from an HDMI output 68(a) on camera 68, through camera housing 58, through the inside of monitor arm 74 and to an input on monitor 72 to thereby provide a video feed from camera 68 to the monitor 72. By routing cables through arm 74, an uncluttered appearance is presented. Although an HDMI cable is preferred, other types of connections can be used, such as S-video cable, component cables, or VGA cables. Camera 68 also includes a USB output 68(b), which can be used to feed live video from camera 68 to a personal computer (PC). This would permit objects on table 12 to be viewed on the PC. Additionally, the PC can include software to replicate the functionality provided by controls 112 and 120. Camera 68 likewise includes a VGA input 68(c). This allows the output from a PC to be viewed on monitor 72 of the magnification device 10.

[36] Additionally, the VGA input 68(c) can be used in conjunction with USB output 68(b) to permit side-by-side viewing of objects. Namely, objects on table 12 would be viewed by camera 68 and displayed on the PC monitor via the USB output 68(c) and cable. Again, the functionality of the control panel 108 could be replicated by software running on the PC. The software could add still yet other functionality to modify the displayed image. Thereafter, this image could be display on monitor 72 by routing a video cable between the PC and the VGA input 68(c). This would permit side by side viewing of

the object via two monitors.

[37] A counter balancing spring 92 is operatively mounted within monitor arm 74 and assists a user in raising or lowering monitor 72 and monitor arm 74. Spring 92 is mounted between proximal and distal end caps (94 and 96, respectively). The distal end cap 96 is threaded about a mounting screw 98. A tensioning screw 102 can be used to rotate mounting screw 98 and, thereby, position the distal end cap 96 to either compress or uncompress balancing screw 92. In this manner, tensioning screw 102 can be used to set the proper spring tension depending upon the size and weight of the attached monitor 72. The proximal end cap 94 is connected to a linkage 104 via a rotatable bearing 106. The opposite end of linkage 104 is pivotally connected to hinge assembly 86. The proximal end 78 of monitor arm 74 is likewise pivotally connected to hinge assembly 86 to thereby create a three bar linkage.

[38] When in the fully lowered position of Figure 9(a), spring 92 is compressed. When in the fully raised position of Figure 9(b), spring 92 is fully extended. Between this two positions, spring 92 is un-tensioned. Thus, the spring force is used to compensate for the weight of monitor 72. Moreover, such movement is achieved without disturbing or otherwise interfering with the position of camera 68.

[39] Monitor bracket 76 includes a control panel 108 along its lower edge. This control panel 108 ideally includes three individual controls 112 on its forward face. Each of these controls 112(a), 112(b), 112(c) comprises a rotatable outer knob 114 and a centrally positioned push button 116. In each instance, the rotatable outer knob 114 is separate from and operates independent of the center push button 116. Accordingly, outer knob 114 does not operate as a push button, and push button 116 does not operate as a rotatable knob. This eliminates, or greatly reduces, the inadvertent operation of the controls.

[40] First control 112(a) may, for instance, include a rotatable outer knob 114(a) that regulates the brightness of monitor 72 and a center push button 116(a) to turn off/on the lighting. Second control 112(b) may including an outer rotatable knob 112(b) for magnification and a center push button 116(b) for freeze frame. Third control 112(c) may include a rotatable outer knob 114(c) for cycling between various color schemes and a push button 116(c) for operating an associated self-view camera 118. As illustrated, self-view camera 118 can be positioned along an upper edge of monitor 72. This

camera 118 allows a user to see close up images of their face, as may be needed for grooming.

[41] In the preferred embodiment, two additional controls 120 are likewise included along the bottom edge of control panel 108 (note Fig. 8). Controls 120 are operatively coupled to control panel 108 and can be removed by replacing panel 108. These controls 120 are wheels that can either be rotated or pushed to achieve two different control functions. One of the controls 120 is ideally suited to operate a highlighting feature. This feature allows one or more individual lines of textual material on the screen to be displayed in a different color ,or shade, from the remaining items on the screen. The remaining control 120 is ideally suited to operate a blinds feature. With this feature, all areas on the screen are blocked or darkened relative to one or more lines of text. Both the highlighting and blinds feature can be operated by rotating and/or pushing controls 120. Other control function can likewise be assigned to controls 120. A memory card slot 126 is also provided along the bottom edge of control panel 108. This slot can be adapted to receive, for example, SD memory cards. Slot 126 permits software updates to be provided to the operating system. It may also permit still images from camera 68 to be downloaded and stored.

[42] Appropriate lighting for the entire surface of table 12 is provided by a laterally extending light bridge, or lighting arm 122. The central part of arm 122 is secured to the intermediate extent 46 of camera arm 38 (note Fig. 2). Arm 122 extends at some distance to either side of camera arm 38. The distal ends of arm 122 include housings for supporting a light source, such as a light emitting diode (LED). Lighting arm 122 is orientated at an angle with respect to table 12 to avoid the reflect light from entering camera 68 and causing wash-out. This insures appropriate lighting for objects placed on table 12 and facilitates a larger field of view of the camera. In the preferred embodiment, the center line of the light emanating from the LED impacts at an angle  $\alpha$  with respect to the surface of table 12 (note Fig. 8). In the preferred embodiment, this angle is approximately 45.5°. Although the lighting can be orientated at other angles, it has been found that this angle provides optimal lighting for the field of view provided by camera 68.

[43] The present disclosure includes that contained in the appended claims, as well as that of the foregoing description. Although this invention has been described in its preferred form with a certain degree of particularity, it is understood that the present disclosure of the preferred form has been made

only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention.

[44] Now that the invention has been described,

WHAT IS CLAIMED IS:

1. A magnification device for use by blind or low vision users, the magnification device comprising in combination:

a base having a forward edge, a rearward edge, and side edges therebetween, the base further including a first pair of channels extending between the side edges and a second pair of channels extending between the forward and rearward edges;

a table having a forward edge, a rearward edge, and side edges, the table mounted to the first and second channels of the base to permit the table to be adjusted in the X and Y orientations, the table further including a centrally disposed arcuate indentation, the indentation permitting cylindrical objects to be placed upon the table;

an arcuate camera arm having a proximal end, a distal end, and forward and rearward surfaces, the proximal end integral with the rearward edge of the base and the distal end extending overtop of the table, a channel for cabling centrally located within the rearward surface of the camera arm, an access opening located intermediate the proximal and distal ends;

a camera housing including a forward end, a rearward end, and a aperture opening, the camera housing mounted to the distal end of the camera arm such that the aperture opening is orientated over the table and the rearward end is in registration with the access opening;

a monitor arm having a proximal end and a distal end and an intermediate extent therebetween, a counter-balancing spring operatively positioned within the monitor arm, the proximal end of the monitor arm being pivotally connected to the intermediate extent of the camera arm, whereby the monitor arm can be pivoted upward and downward relative to the camera arm;

a monitor bracket pivotally connected to the distal end of the monitor arm, the monitor bracket including a control panel along a lower edge, the control panel including a series of controls, with each control having a rotatable knob and a centrally positioned push button, a monitor releasably coupled to the monitor bracket, a self view camera secured to the monitor;

a laterally extending lighting arm, the arm interconnected to an intermediate extent of the camera arm, and including a light source at each end for illuminating objects placed on the table.

2. A magnification device comprising in combination:

a base having a forward edge, a rearward edge, and side edges therebetween;

a table having a forward edge, a rearward edge, and side edges, the table mounted to the base to permit the table to be adjusted in the X and Y orientations;

5 a fixed camera arm having a proximal end, a distal end, and forward and rearward surfaces, the proximal end integral with the rearward edge of the base and the distal end extending overtop of the table;

a camera housing including a forward end, a rearward end, and an aperture opening, the camera housing mounted to the distal end of the camera arm such that the aperture opening is orientated over the table;

10 a monitor arm having a proximal end and a distal end and an intermediate extent therebetween, the proximal end of the monitor arm being pivotally connected to the intermediate extent of the camera arm, whereby the monitor arm can be pivoted upward and downward relative to the camera arm;

a monitor releasably secured to the monitor arm.

15 3. The magnification device as described in claim 2 wherein the table includes a semi-circular indentation for supporting cylindrical objects.

4. The magnification device as described in claim 2 further comprising a laterally extending lighting arm, the arm interconnected to an intermediate extent of the camera arm, the lighting arm including a light source at each end for illuminating objects placed on the table.

20 5. The magnification device as described in claim 2 further comprising a control panel removably mounted to the monitor.

6. The magnification device as described in claim 5 wherein the control panel supports a series of controls, with each control having a rotatable knob and a centrally positioned push button.

7. The magnification device as described in claim 2 wherein a counterbalancing spring is operatively secured within the monitor arm.

25 8. A magnification device comprising in combination:

a table having a forward edge, a rearward edge, and side edges, the table mounted to permit adjustment in the X and Y orientations;

a camera arm interconnected to the table;

a camera interconnected to the camera arm and mounted over top of the table;

a monitor arm connected to the camera arm via a mounting assembly that permits the monitor to pivot and swivel with respect to the camera arm.

5 a monitor releasably secured to the monitor arm.

9. The magnification device as described in claim 8 wherein the table includes a semi-circular indentation for supporting cylindrical objects.

10. The magnification device as described in claim 8 wherein a counterbalancing spring is operatively secured within the monitor arm.

10 11. The magnification device as described in claim 8 further comprising a control panel removably mounted to the monitor.

12. The magnification device as described in claim 11 wherein the control panel supports a series of controls, with each control having a rotatable knob and a centrally positioned push button.

15 13. The magnification device as described in claim 8 further comprising a laterally extending lighting arm, the arm interconnected to an intermediate extent of the camera arm and including oppositely located light sources for illuminating objects placed on the table.

14. The magnification device as described in claim 8 wherein the camera arm is fixed relative to the monitor arm.

20 15. The magnification device as described in claim 8 wherein the monitor is removably secured to the monitor arm via a bracket.

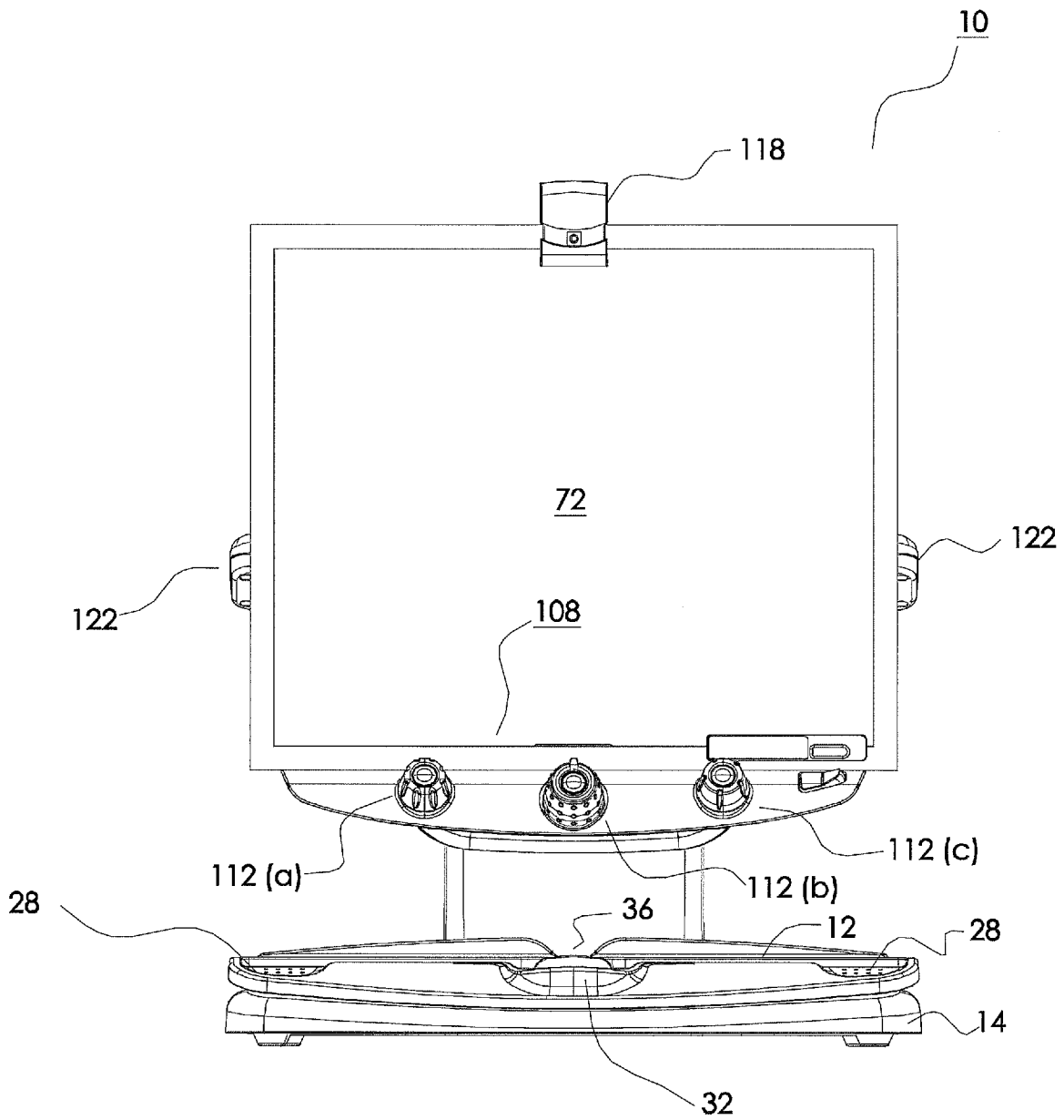


FIG. 1

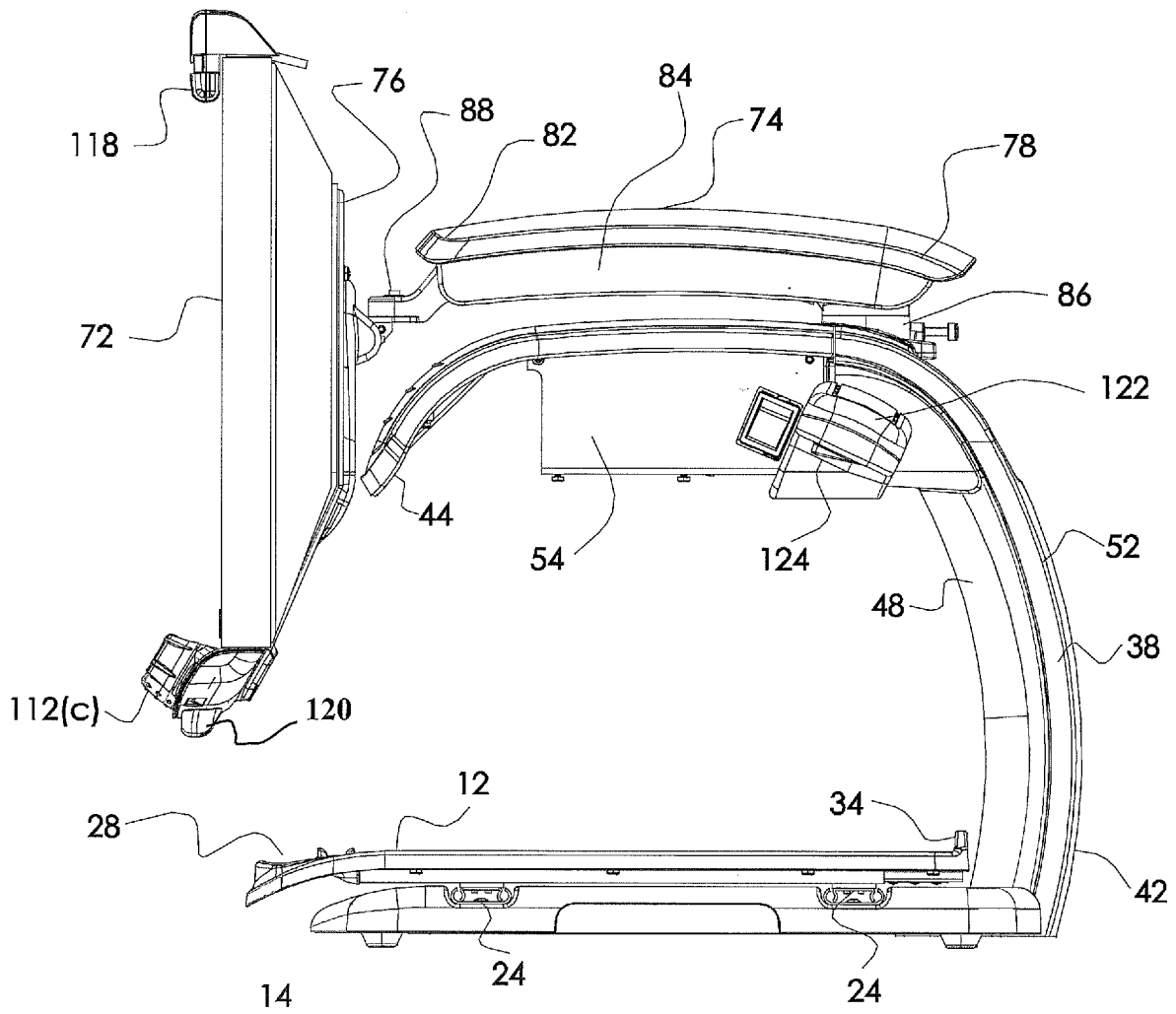


FIG. 2

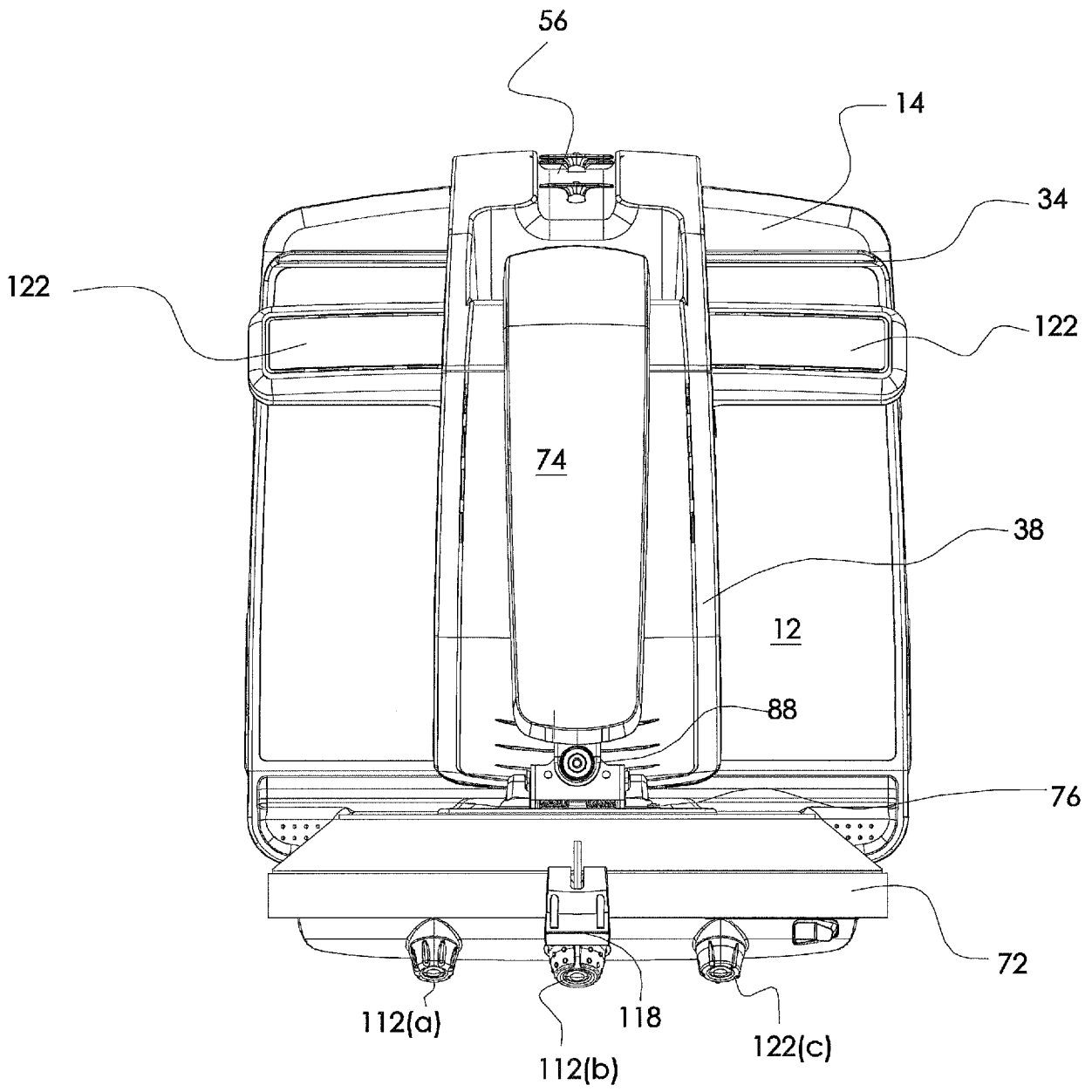


FIG. 3

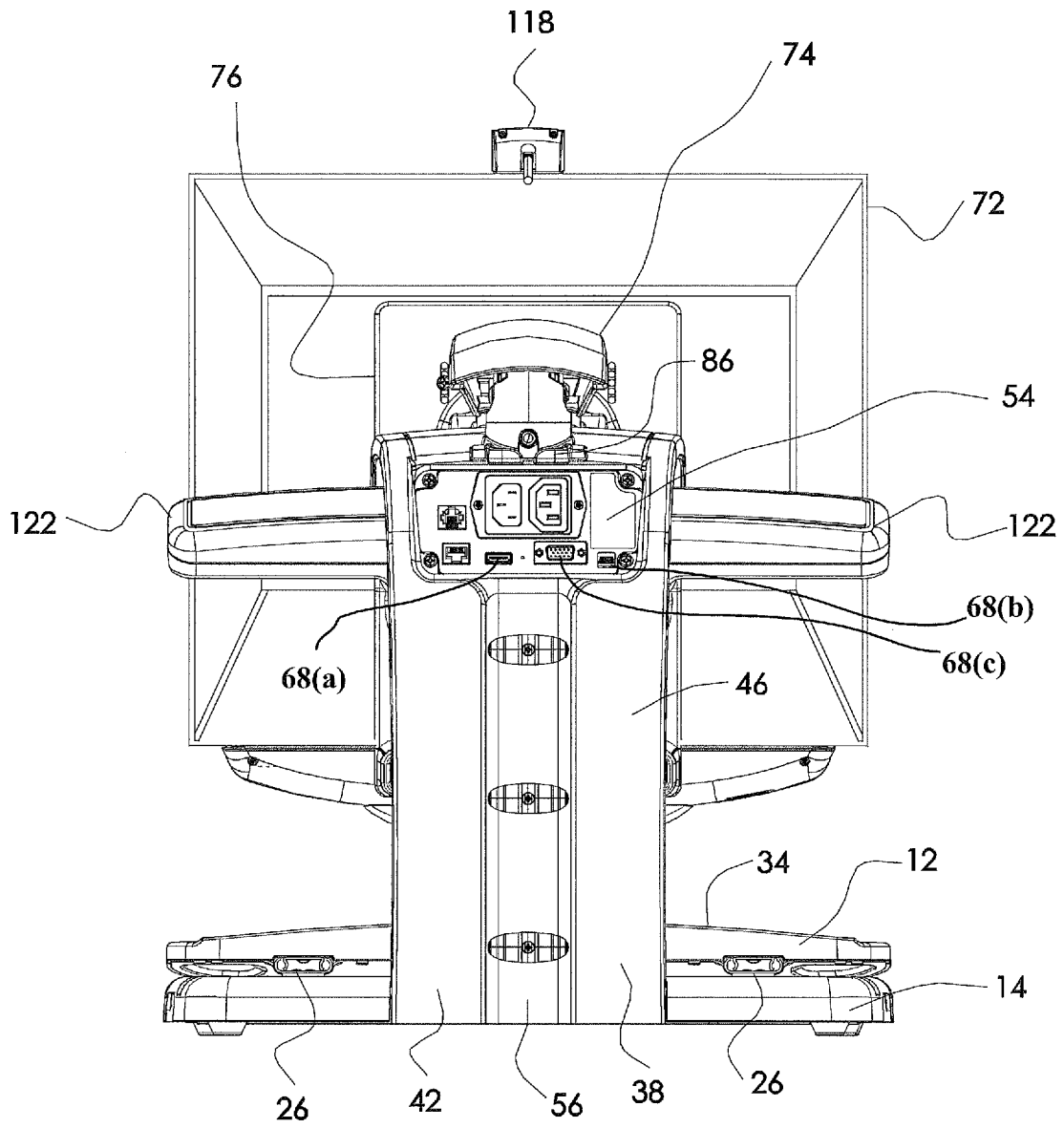


FIG. 4

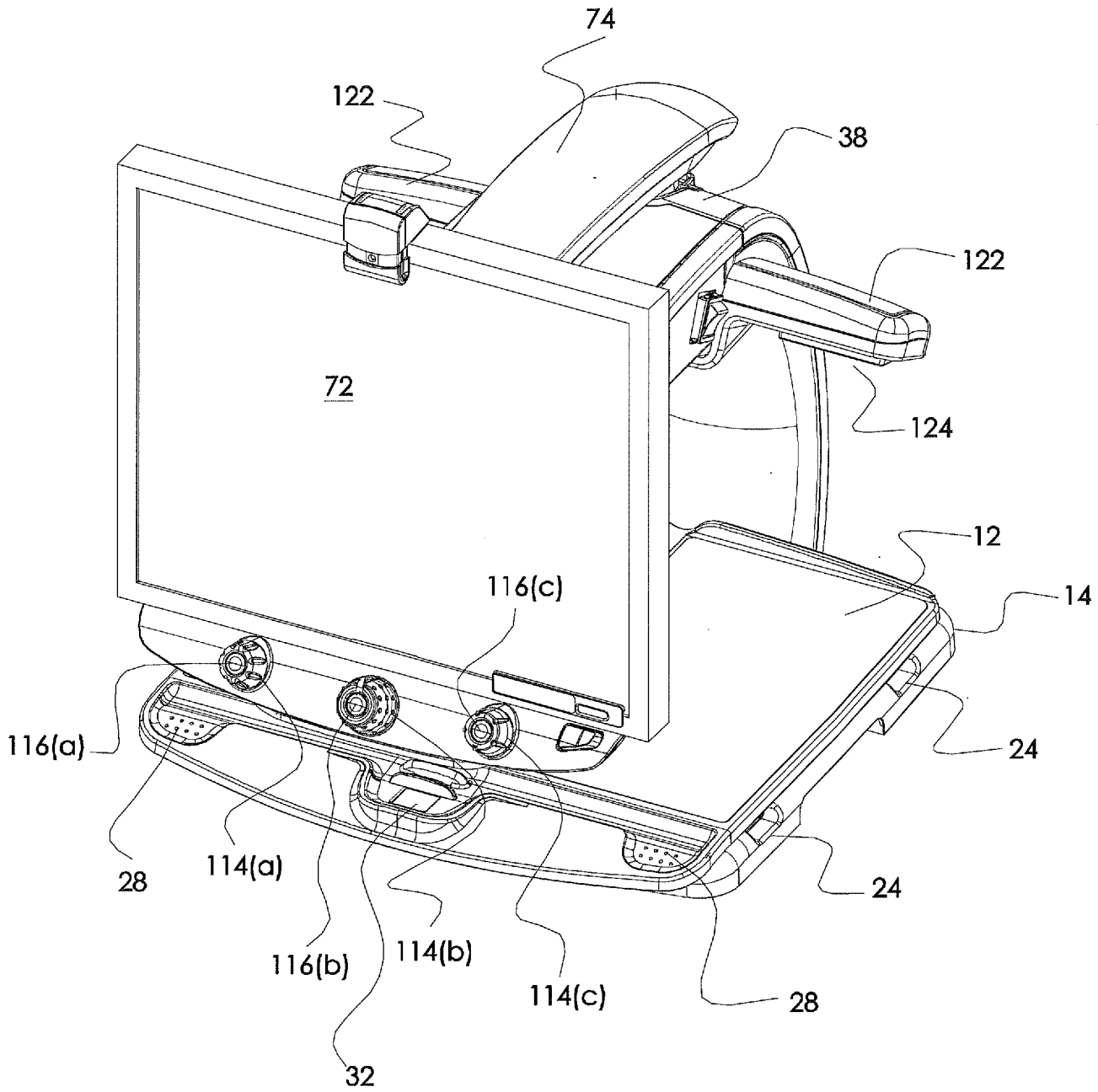


FIG. 5

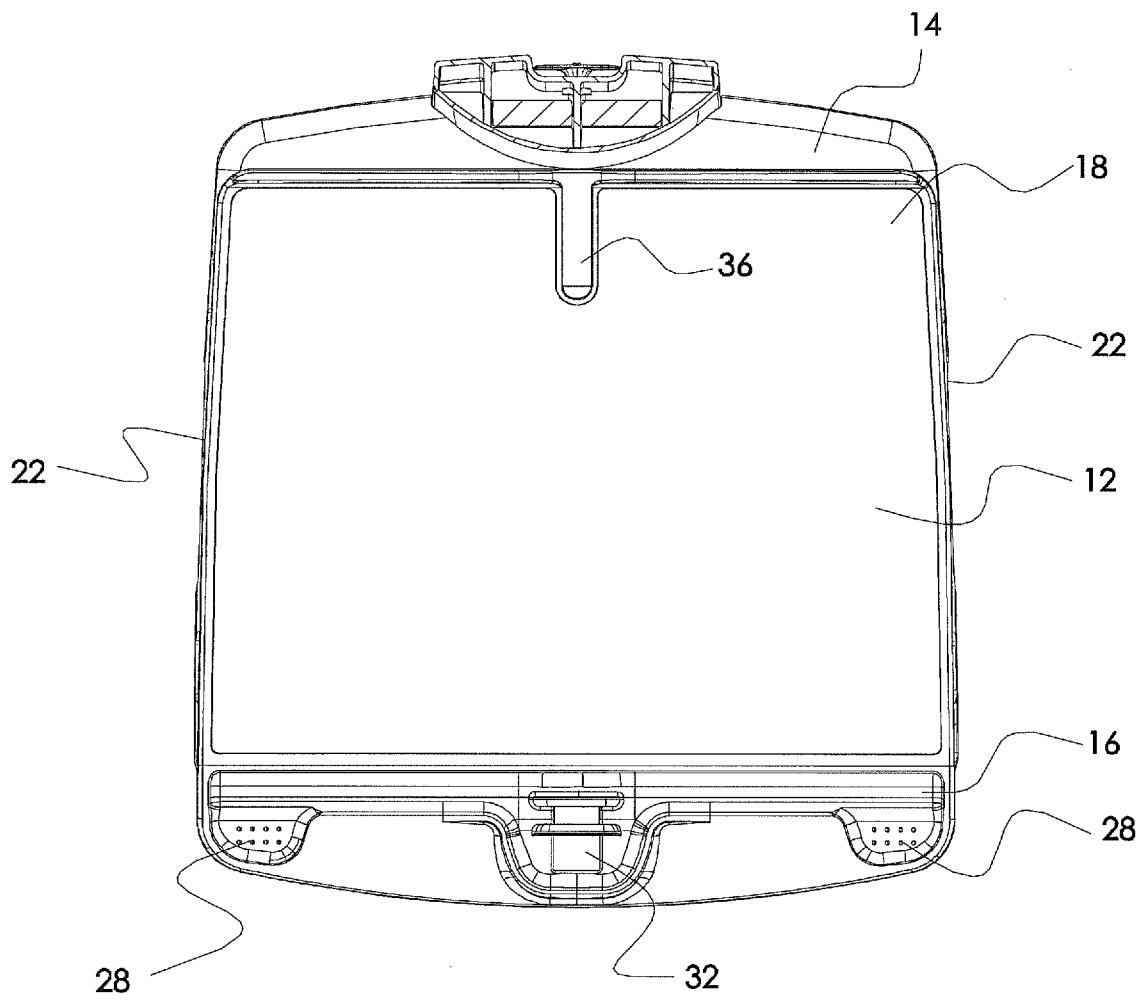


FIG. 6

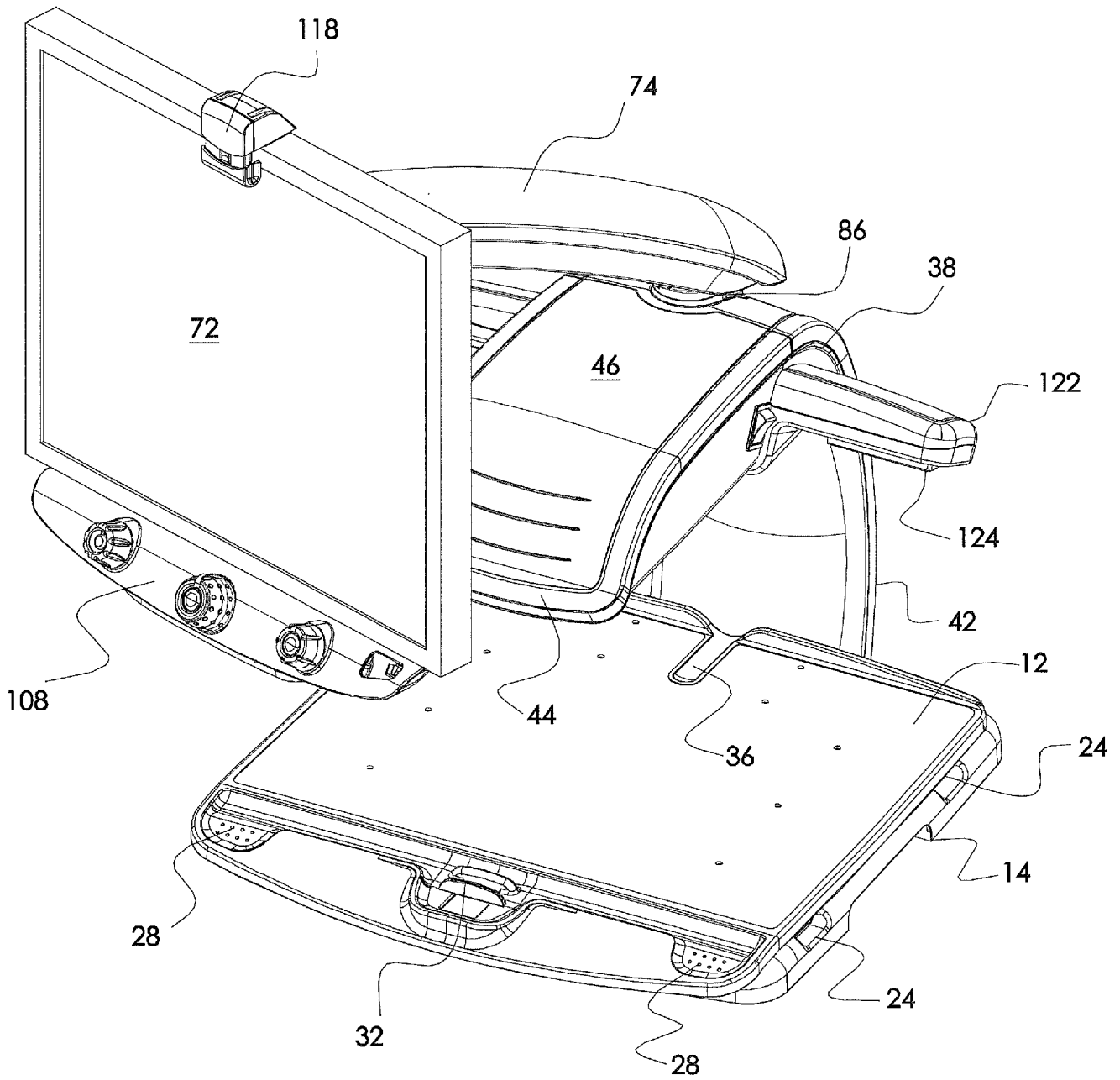


FIG. 7

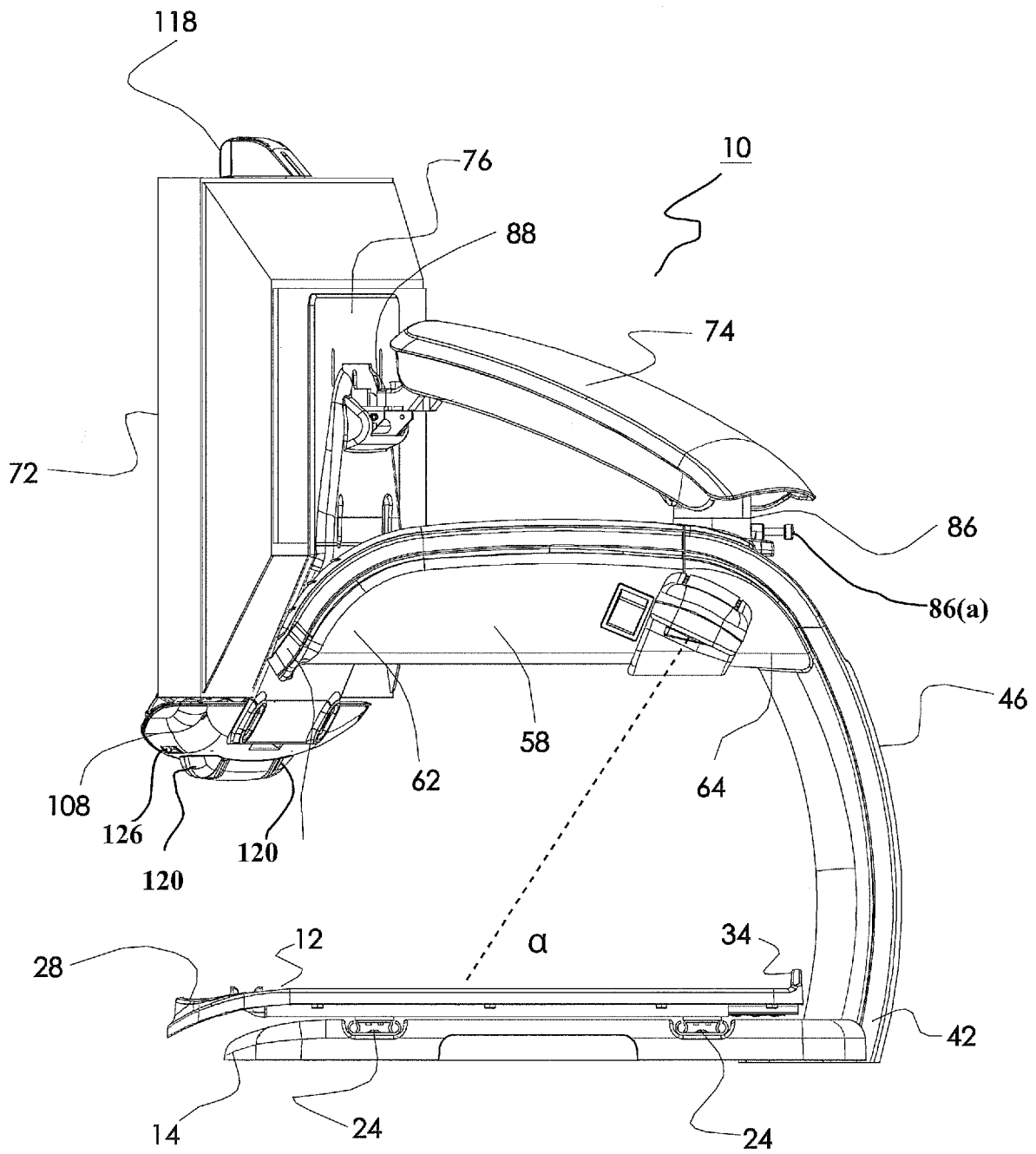


FIG. 8

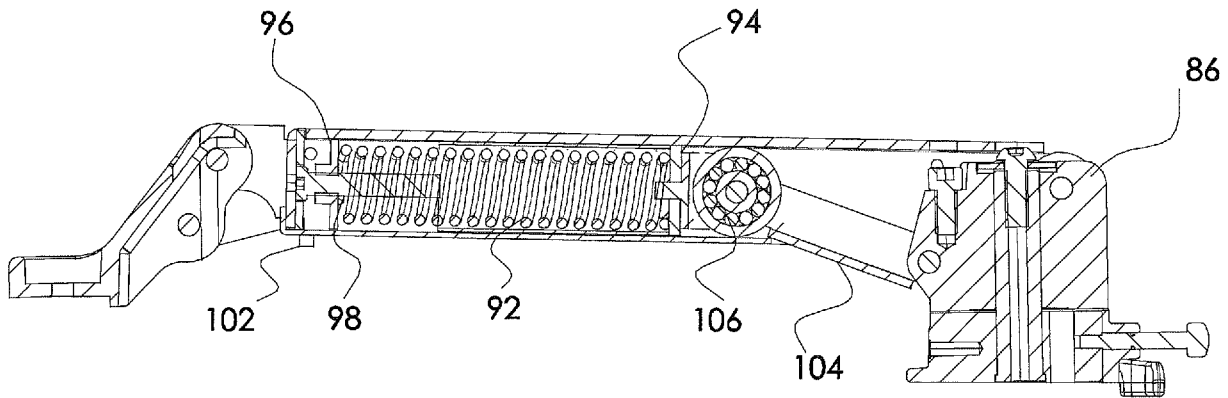


FIG. 9 (A)

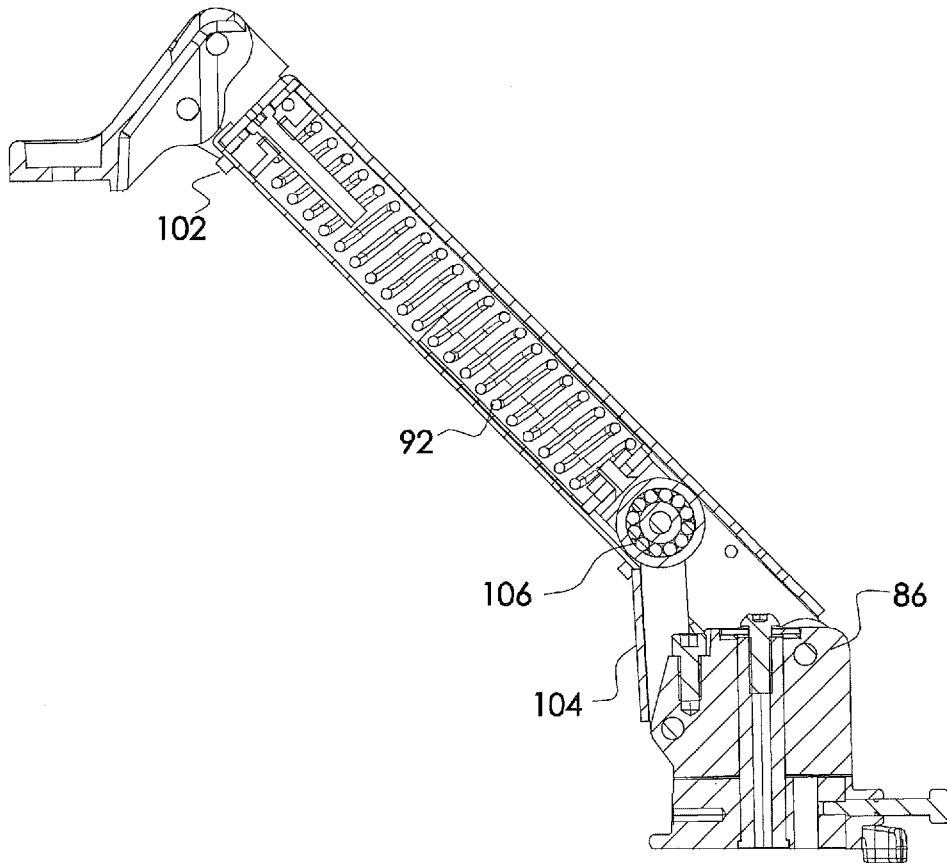


FIG. 9 (B)

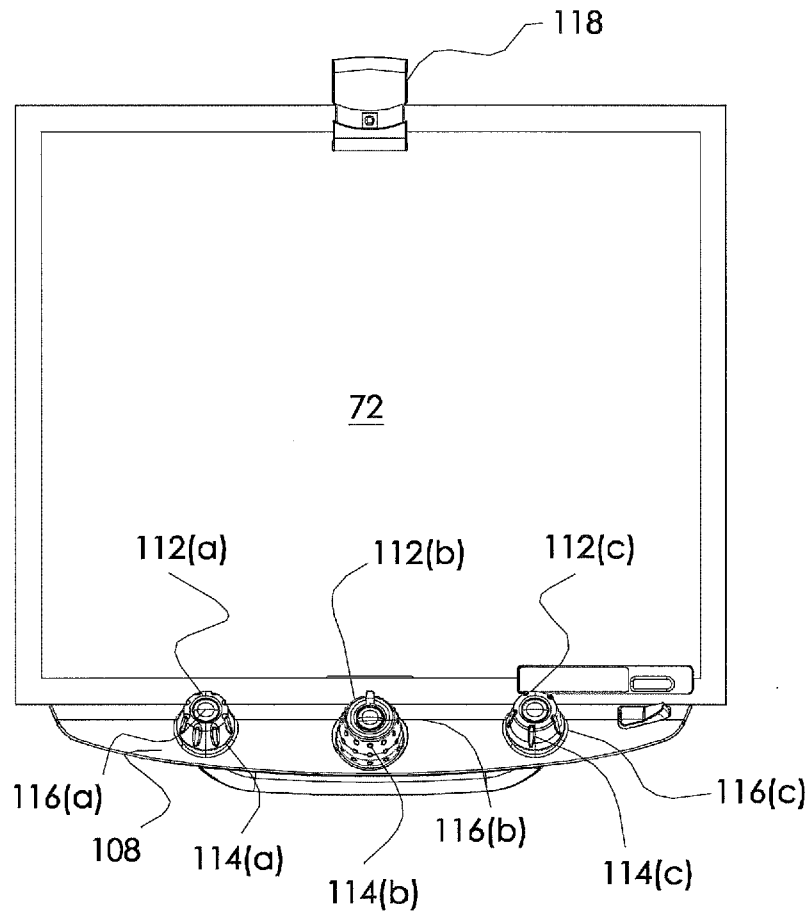


FIG. 10

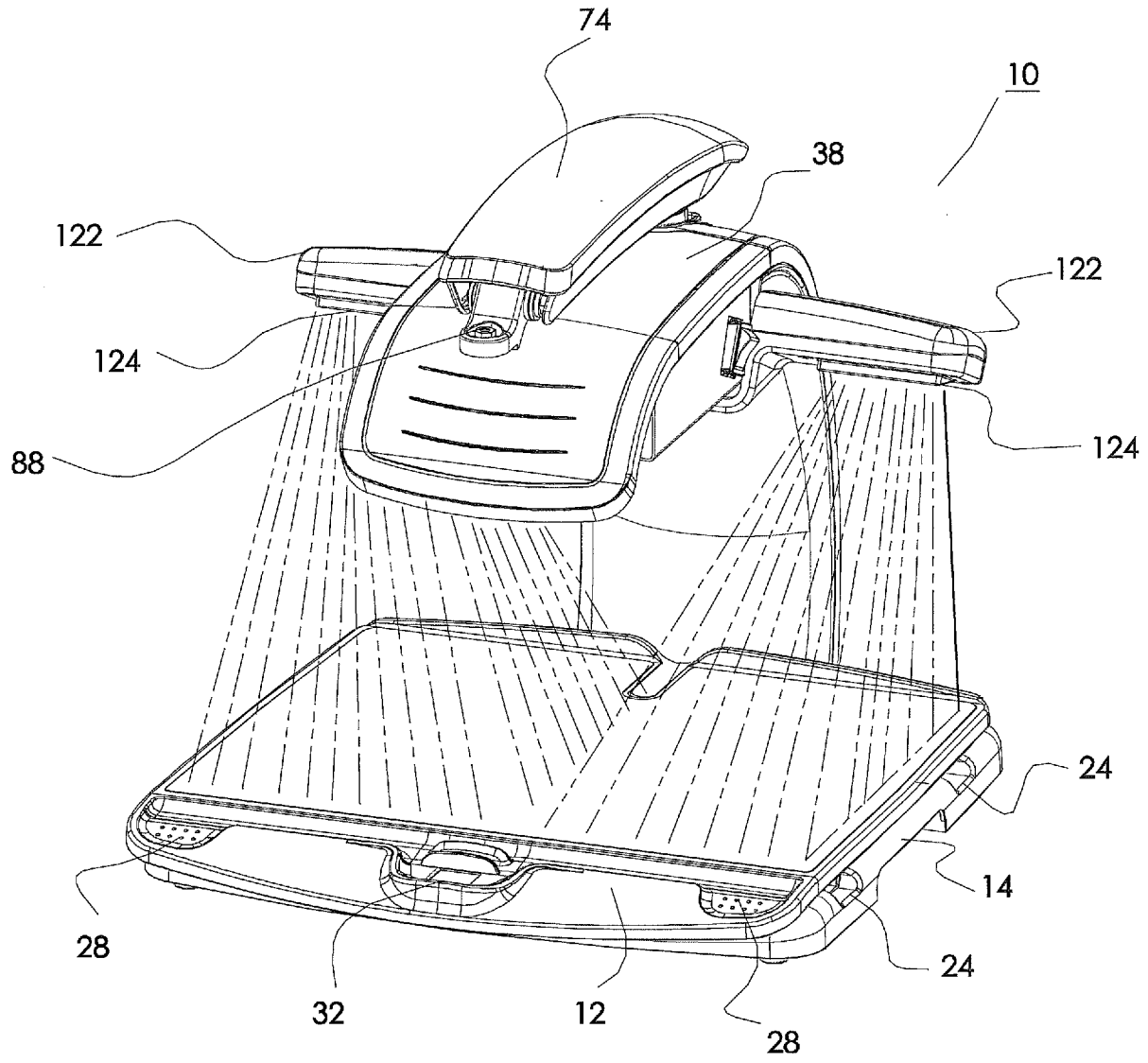


FIG. 11

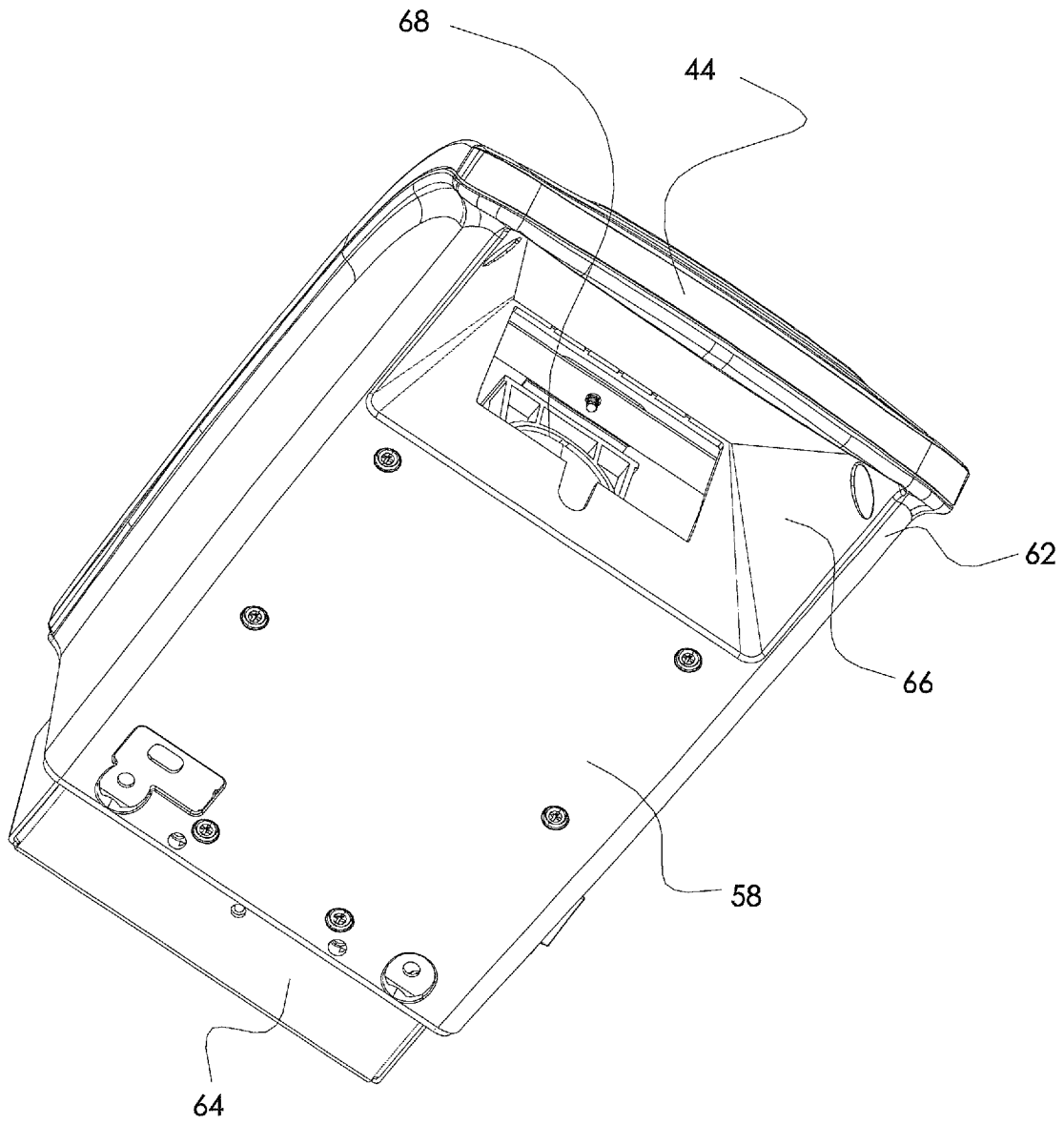


FIG. 12

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US 11/55057

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(8) - G09G 5/00 (2011.01)

USPC - 345/156

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

USPC: 345/156

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST (PGPB, USPT, USOC, EPAB, JPAB); GOOGLE; Google Scholar

Terms: magnification, blind, low, vision, table, axis, monitor, arm, bracket, camera, arcuate, channel, cable, pivot, swivel

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2007/0292026 A1 (Reznik et al.) 20 December 2007 (20.12.2007), entire document, especially; abstract, para [0004], [0016], [0040], [0041], [0043], [0051], [0057], [0060]	1 - 15
Y	US 2005/0201744 A1 (DeSorbo et al.) 15 September 2005 (15.09.2005), entire document, especially; abstract, para [0009], [0011], [0012], [0013], [0054], [0060], [0064], [0083]	1 - 15
A	US 2002/0144422 A1 (Suhara et al.) 10 October 2002 (10.10.2002), entire document	1 - 15

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 16 January 2012 (16.01.2012)	Date of mailing of the international search report <b>23 JAN 2012</b>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young  PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774