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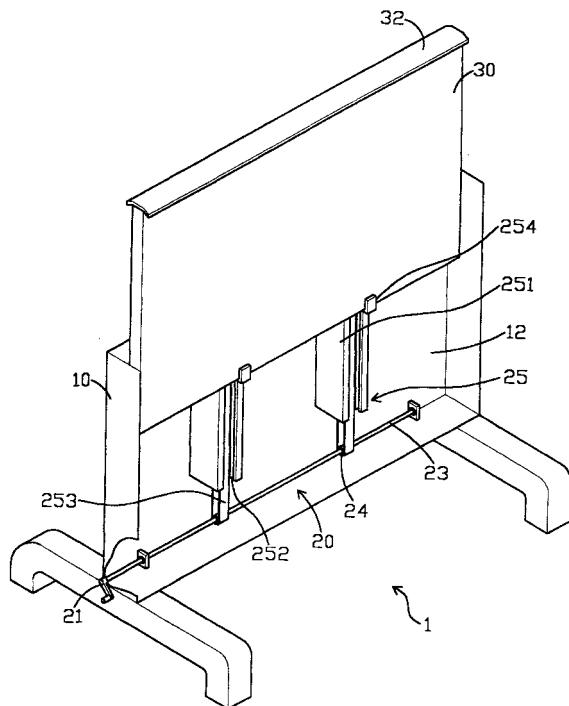
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(54) Height-adjustable screen

(57) An elevated screen is provided as a pure screen or to associate with a worktable. The elevated screen comprises a screen base, an elevating device, and a spacing board. The screen base has an inner space to receive the elevating device. The elevating device has a controller disposed at the outer surface of screen base so as to be operated by a user. The spacing

board at the lower end thereof connects with the elevating device such that the elevating device can carry the spacing board to move upward or downward. In addition, the spacing board at the upper end thereof has an upper cover and the inner space of the screen base has various shapes to accommodate with the spacing board, which can be formed with different configurations.



Description**BACKGROUND OF THE INVENTION**

1. Field of The Invention:

[0001] The present invention relates to an elevated screen, and particularly to an elevated screen with flexibility for being capable for being utilized widely and offering an available open space.

2. Description of Related Art:

[0002] Presently, a lot of office buildings are located at the downtown area or any business busy area in a city and it causes the costly rent of an office in these office buildings. In order to utilize a limited space of an office sufficiently and keep the personal privacy without being interfered, the interior spacing design is not possible to be apart from the structure of screen. The way of partition for a screen can be designed differently based on the purpose of use thereof. For instance, the partition can be made for providing a personal working space without any interference or a protective obstacle of team discussion. Alternatively, the screen can be performed as spacing for a large conference or an examination room. Usually, the screen can be classified into two categories based on the way of spacing and one of the two categories is the full height of screen and the other category is the half height of screen. The full height of screen provides a partition erecting upward to the ceiling from the floor. Because the full height of screen is unable for the screen to offer opening and mobility, the full height of screen has been declining due to the mode of job being changed. Instead, the half height of screen emphasize an open space is getting popular.

[0003] The half height of screen focuses on no obstacle of visual sense and one type thereof is set up on the floor to be associated with several worktables such that an office can be partitioned into several semi-opened space parts. However, this type of screen is sophisticate to be set up and less flexible in changeability. Another type of half height of screen is mounted on a worktable directly and offers more flexibility while in use. But, the worktable type of screen provides a unique height merely so that it is not satisfactory for the user once the adjustable height is needed.

SUMMARY OF THE INVENTION

[0004] An object of the present invention is to provide an elevated screen, which is possible to offer high mobility and great humanization for the adjustable height thereof with excellent flexibility while in use.

[0005] In order to achieve the preceding object, the present invention comprises a screen base with an inner space, an elevated device being received in the inner space with a controller thereof at the outer surface on

the screen base, and a spacing board with a lower end thereof connecting with the elevated device.

BRIEF DESCRIPTION OF THE DRAWINGS

5 **[0006]** The present invention can be more fully understood with regard to the object, the art, the features, and the effectiveness thereof by referring to the following description of preferred embodiments and accompanying drawing, in which:

Fig. 1 is a perspective view of an elevated screen in accordance with the present invention;

15 Fig. 2 is a side view of the elevated screen shown in Fig. 1;

20 Fig. 3 is a perspective view illustrating the elevated screen being operated to move upward by an elevating device thereof;

25 Fig. 4 is a perspective view illustrating a structure of elevating device in the elevated screen in accordance with the present invention;

30 Fig. 5 is a perspective view illustrating the elevated screen being in a state of a spacing board thereof without being raised.

35 **[0007]** Fig. 6 is a perspective view of a controller used in the elevated screen of present invention in another embodiment thereof;

[0008] Fig. 7 is a perspective view of the elevated screen in a further embodiment thereof;

40 **[0009]** Fig. 8 is a perspective view of the elevated screen in a further embodiment thereof; and

[0010] Fig. 9 is a perspective view of the elevated screen in a further embodiment thereof.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0011] The present invention resides in that an elevated device provided in a screen to be operated for adjusting the screen as desired while it is necessary.

45 **[0012]** Referring to Figs. 1 and 2, the elevated screen 1 of present invention comprises a screen base 10, an elevating device 20 and a spacing board 30.

50 **[0013]** Wherein, an inner space 12 is provided in the screen base 10 for receiving the elevating device 20. Referring to Figs. 3 and 4, the elevated device 20 has a controller, which is a manual crank rod 21 normally, disposed at the outer surface of screen base 10. The spacing board 30 at the lower end thereof connects with the elevating device 20 so as to be moved upward and downward by the elevating device. Besides, the spacing board 30 at the top end thereof is formed as an upper cover 32 to conceal the clearance resulting from the in-

ner space 12 as shown in Fig. 5 such that an outer surface with good looking appearance can be obtained. Meanwhile, the spacing board 30 at both lateral sides thereof is attached a brush strip 72 respectively to enhance the effect of hiding from view and to obstruct the noise entering the screen. In addition, the size and the configuration of the inner space 12 are variable for being able to accommodate with the spacing board 30 providing a specific size and configuration.

[0014] Referring to Figs. 3 and 4 again, the elevating device 20 has an upper transverse rod 22 and a lower transverse rod 23 being fixedly attached to a lateral wall of inner space 12. At least a rotating shaft 24 is fixedly attached to the upper and the lower transverse rod 22, 23 respectively and oppositely. The lower transverse rod 23 at an end thereof joins a manual crank handle 21 such that the lower transverse rod 23 can rotate in accordance with the manual crank handle 21 being turned. Besides, at least a slide assembly 25 is vertically arranged between the upper and the lower transverse rods 22, 23 and it is preferably that two parallel slide assemblies 25, 25 are mounted as shown in Figs. 3 and 4. Each slide assembly 25 comprises two flat plates 251 paralleling disposed near a lateral wall of inner space 12, a guide groove 252 being formed at the opposite inner sides of these two flat plates 251 respectively, and a transmission belt 253 extending vertically through a space confined by these two flat plates 251 and enclosing a respective rotating shaft 24 on the upper and the lower transverse rods 22, 23. In addition, a movable bearer piece 254 is inserted into the guide grooves 252 and fixedly attached to the transmission belt 253 so as to be moved upward and downward. When the crank handle 21 is turned manually to rotate the lower transverse rod 23, the transmission belt 253 is actuated to rotate the upper transverse rod 22 via the rotating shafts 24 such that the bearer 254 can move upward and downward freely with the spacer board 30 supported by the bearer 254. In this way, it is possible for the present invention to perform the effect of elevating screen.

[0015] The controller of elevating device 20 can be arranged to provide an electric motor 26 instead of the crank handle in addition to the preceding structure. As shown in Fig. 6, the electric motor 26 connects with the lower transverse rod 23 such that the slide assembly 25 can be driven by the lower transverse rod 23 to perform a relative movement. A start switch 261 for the electric motor 26 is disposed at a proper place on the outer surface of scene base 10 so as to be operated handily by an operator.

[0016] In addition, the upper cover 32 can be replaced by a wide upper article stand so as to increase a room for placing articles. Furthermore, two protect rubber plates (not shown) can be arranged at the opening of inner space 12 of base 10 to prevent the inner space 12 from being accumulated by the foreign dirt entering from the clearance between the base 10 and the inner space 12 so as to influence the movement of spacing board 30.

[0017] Except the preceding embodiment with regard to the screen base, a worktable can be acted as a base for the elevated screen of present invention and it can be provided with a variety of structures depending on

5 different types of worktables. Figs. 7, 8, and 9 illustrate three embodiments related to the worktable respectively. Referring to Fig. 7, the screen base 10 of elevated screen 1 is a worktable and the inner space with spacing board 30 has a shape of "I". Referring to Fig. 8, the inner 10 space 12 with spacer board 30 on the worktable type of screen base 10 is a shape of "T". Referring to Fig. 9, the inner 15 space 12 with spacer board 30 on the worktable type of screen base 10 is a shape of "H". Hence, it can be understood from the preceding embodiments that different structures for elevated screen of present invention can match with different effects accordingly.

[0018] Moreover, in order to obtain a connection in series for multiple elevated screens, at least a joining fastener 70 as shown in Fig. 1 can be mounted at both lateral 20 sides of base 10 such that a plurality of bases 10 can be associated with one another to divide an office or a family house into multiple working spaces. The joining fastener 70 can be a fit of male projection and female recess, a fit of wedge and groove, a tenon connection, 25 or threaded fastener.

[0019] In addition, the spacer board 30 can be a drawing board such as a white board, a panel of display, or a luminescent screen. Alternatively, the spacing board 30 can be a material board associated with a panel of 30 display or with a luminescent screen such that characters and images can be appeared on the panel or the screen can provide illumination effectively.

[0020] In practice, the present invention offers a screen device of high mobility with an effect of humanization such that it is possible for a user to adjust the screen properly to a desired height easily so as to reach much better flexibility.

[0021] Also, the worktable type of elevated screen provides a multi-functional table, which is possible to be 40 moved and disposed as desired based on different needs such as personal offices, private conferences, project researches, or partitions of examination room, to enhance the flexibility of space utilization. In this way, an office can keep the open space thereof without the 45 traditional partitions.

[0022] Besides, the present invention can be widely utilized as a general commercial counter such as that in a bank or a dressing table such as that in a beauty parlor and the elevated partition board or mirror can promote 50 the communication between peoples.

[0023] Furthermore, the spacing board used in the present invention can be a panel of display or a luminescent screen, or can be associated with a flat display such as a liquid crystal display or a plasma display to 55 appear characters or images at any time. In this way, it is not necessary to stick a slip of note, calendar, or announcement on a screen inconveniently as the prior art does. In addition, the display can appear various pic-

tures or photographs of scenes or animals according to different environmental needs to make the entire space beautiful or elegant. Moreover, the electronic reference or official document can be transmitted to and appear on the screen based on the need of work to promote the work efficiency.

[0024] While the invention has been described with reference to a preferred embodiments thereof, it is to be understood that modifications or variations may be easily made without departing from the spirit of this invention, which is defined by the appended claims.

[0025] While only one embodiment of the present invention has been shown and described, it will be understood that various modifications and changes could be made thereunto without departing from the spirit and scope of the invention disclosed.

Claims

1. An elevated screen, comprising
 - a screen base with an outer surface, providing an inner space;
 - an elevating device with a controller, being mounted in the inner space, the controller being disposed at the outer surface of said screen; and
 - a spacing board with a lower end, the lower end thereof connecting with the elevated device in the inner space thereof.
2. The elevated screen as defined in claim 1, wherein the inner space in said screen base is accommodated with said spacing board providing a shape of "I", "T", or "H".
3. The elevated screen as defined in claim 1, wherein said screen base is a worktable.
4. The elevated screen as defined in claim 1, wherein the inner space has openings with two dirt rubber sheets.
5. The elevated screen as defined in claim 1, wherein the controller of said elevated screen is selected from a crank handle operated manually or an electric motor.
6. The elevated screen as defined in claim 1, wherein the spacing board at a top thereof constitutes an upper cover.
7. The elevated screen as defined in claim 1, wherein the elevated device further comprises:

an upper transverse rod, being fixedly attached to a lateral wall of the inner space at an upper portion thereof, providing at least an upper rotating shaft;

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a lower transverse rod, being fixedly attached to the lateral wall at a lower portion thereof corresponding to the upper transverse rod, providing at least a lower rotating shaft opposite to the upper rotating shaft; at least a slide assembly, said slide assembly further comprising:

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two parallel flat plates, being disposed in the inner space near said lateral wall, each of said two parallel flat plates at an inner side thereof having a guide groove corresponding to each other; a transmission belt, enclosing the upper rotating shaft and the lower rotating shaft, and passing through a space confined by said two flat plates; and a movable bearer piece with two opposite edges, being fixedly attached to the transmission belt, the opposite edges thereof being inserted in said guide groove on the respective flat plate, and supporting the lower end of said spacing board; whereby, as soon as the controller is turned, the lower transverse rods is turned synchronously with the upper transverse rod rotating relatively by way of the action of said two rotating shafts such that the bearer piece moves along the guide grooves to carry the spacing board.

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8. The elevated screen as defined in claim 1, wherein the spacing board is a panel on a display or a luminescent screen, or a plate associated with the panel or the luminescent screen.

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9. The elevated screen as defined in claim 1, wherein the spacing board at both lateral sides thereof provides a brush strip respectively.

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10. The elevated screen as defined in claim 1, wherein the screen base at both lateral sides thereof provides at least a joining fastener respectively so as to be joined another identical screen base at each of said both lateral sides.

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11. The elevated screen as defined in claim 6, wherein the upper cover can be replaced by a wide upper article stand.

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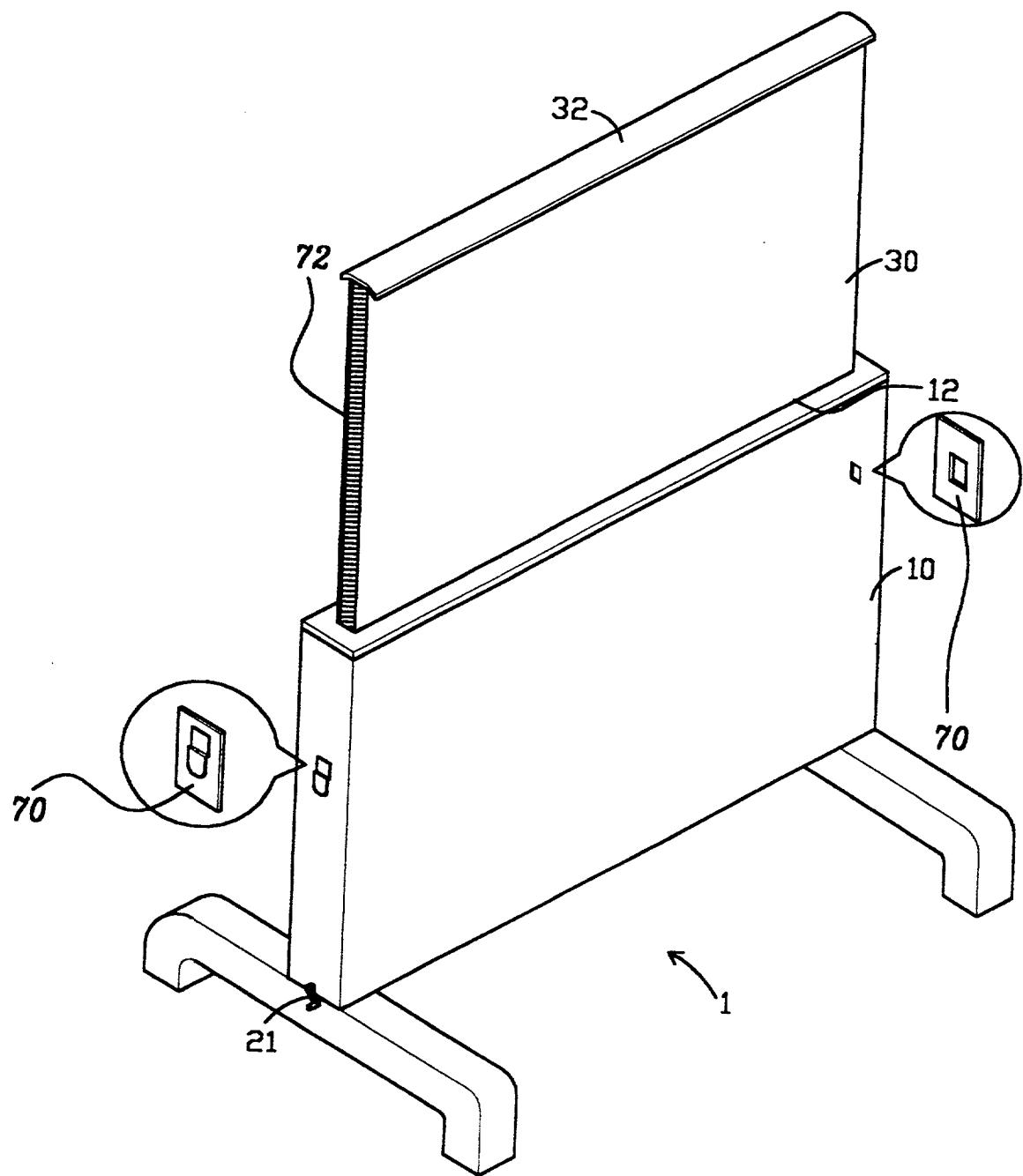


FIG. 1

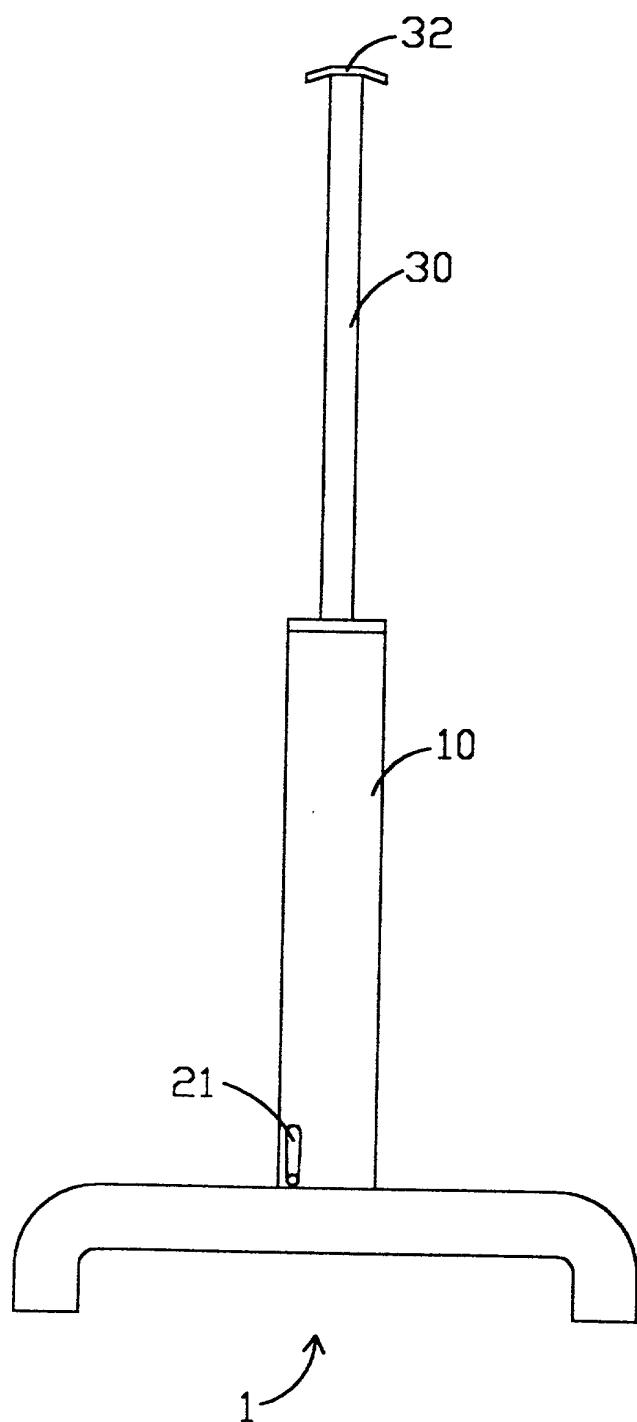


FIG. 2

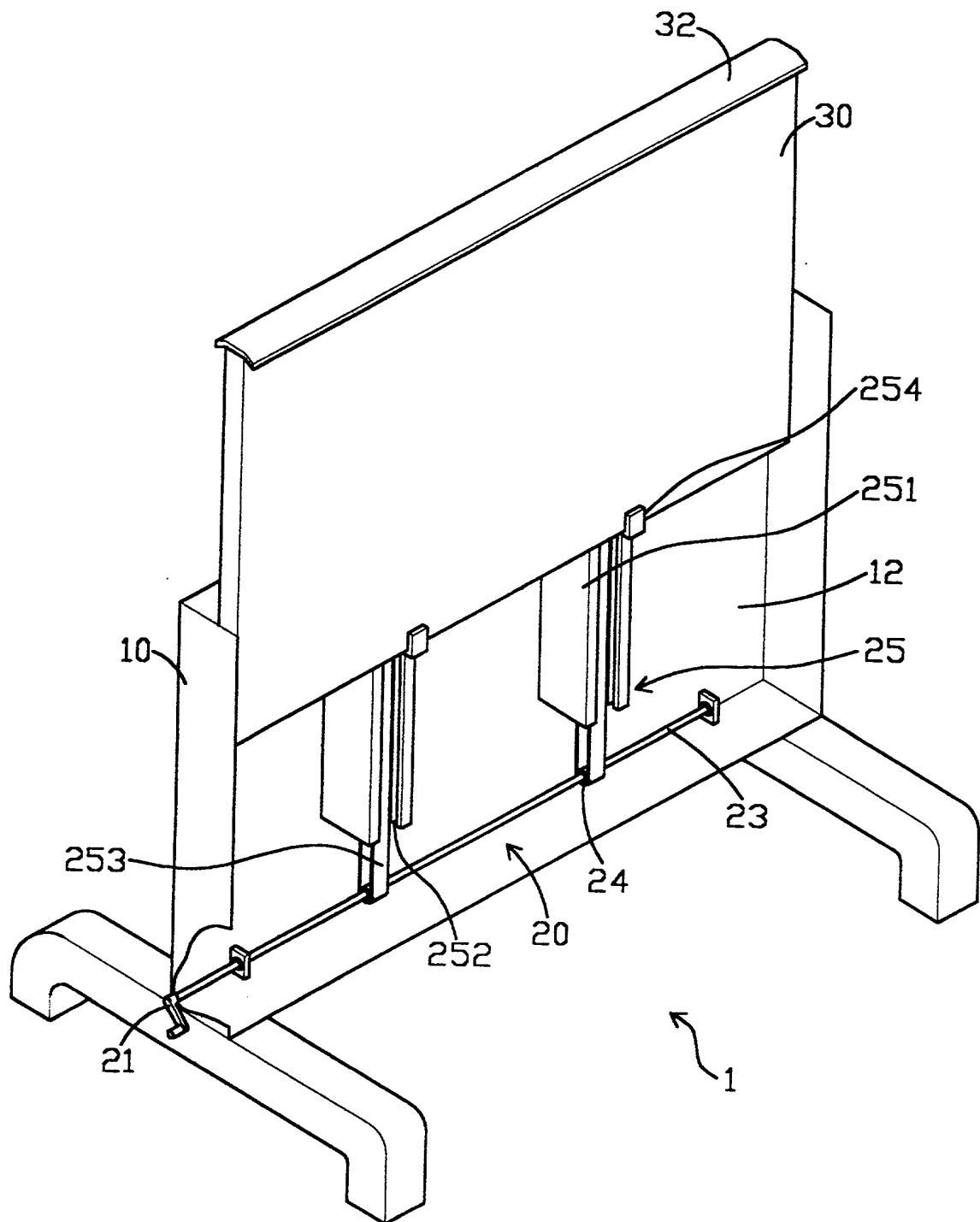
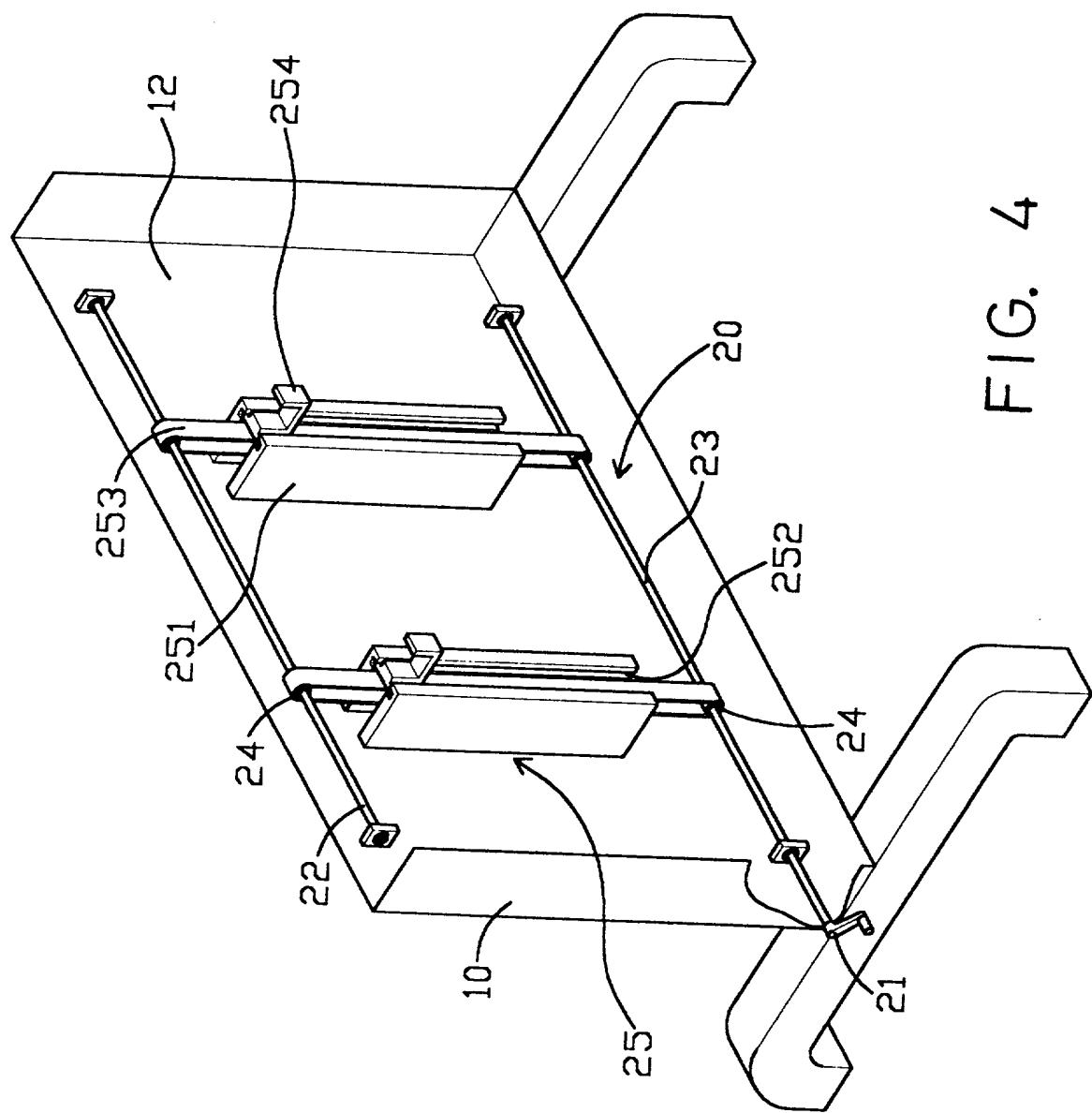


FIG. 3



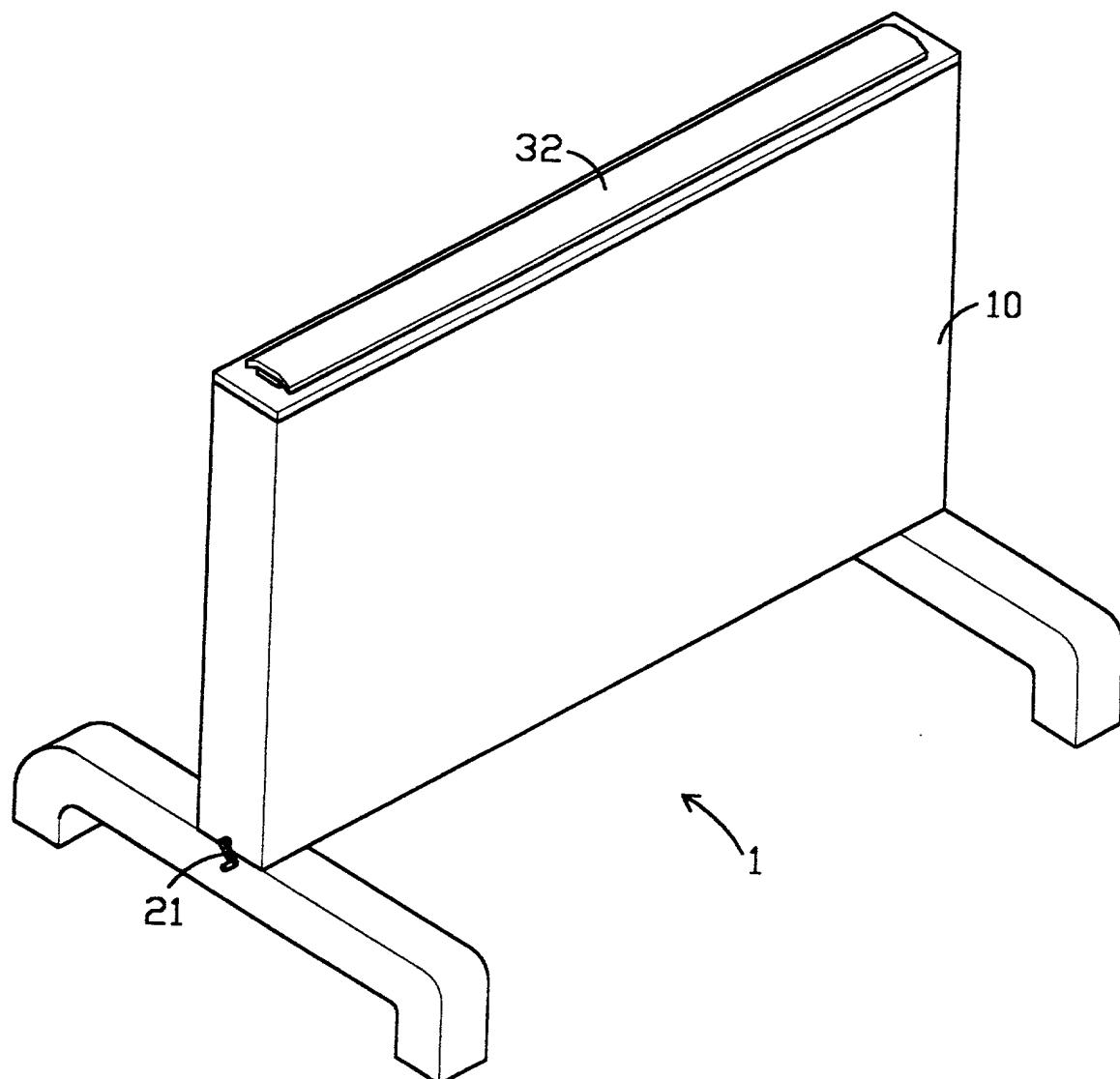


FIG. 5

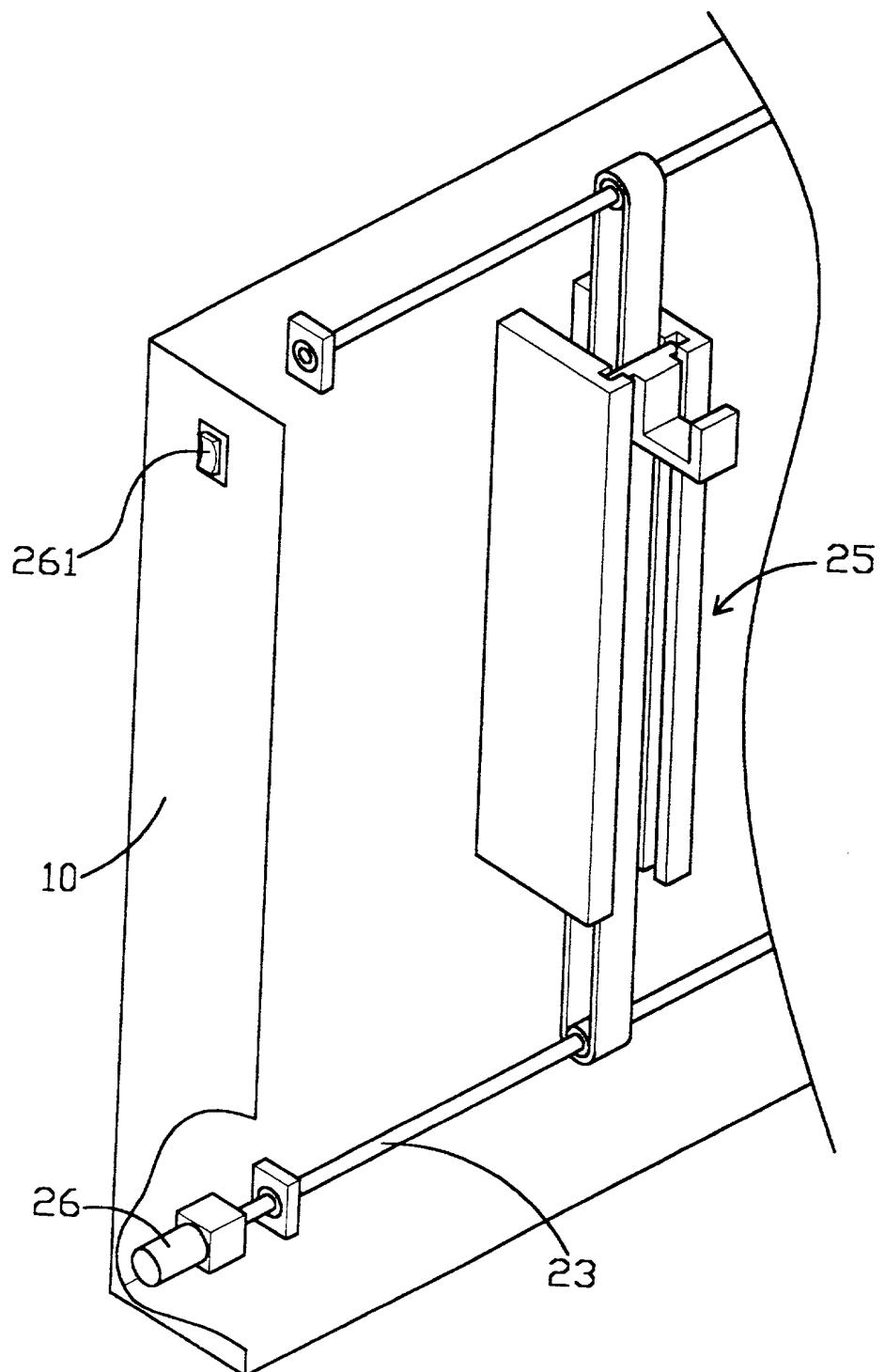


FIG. 6

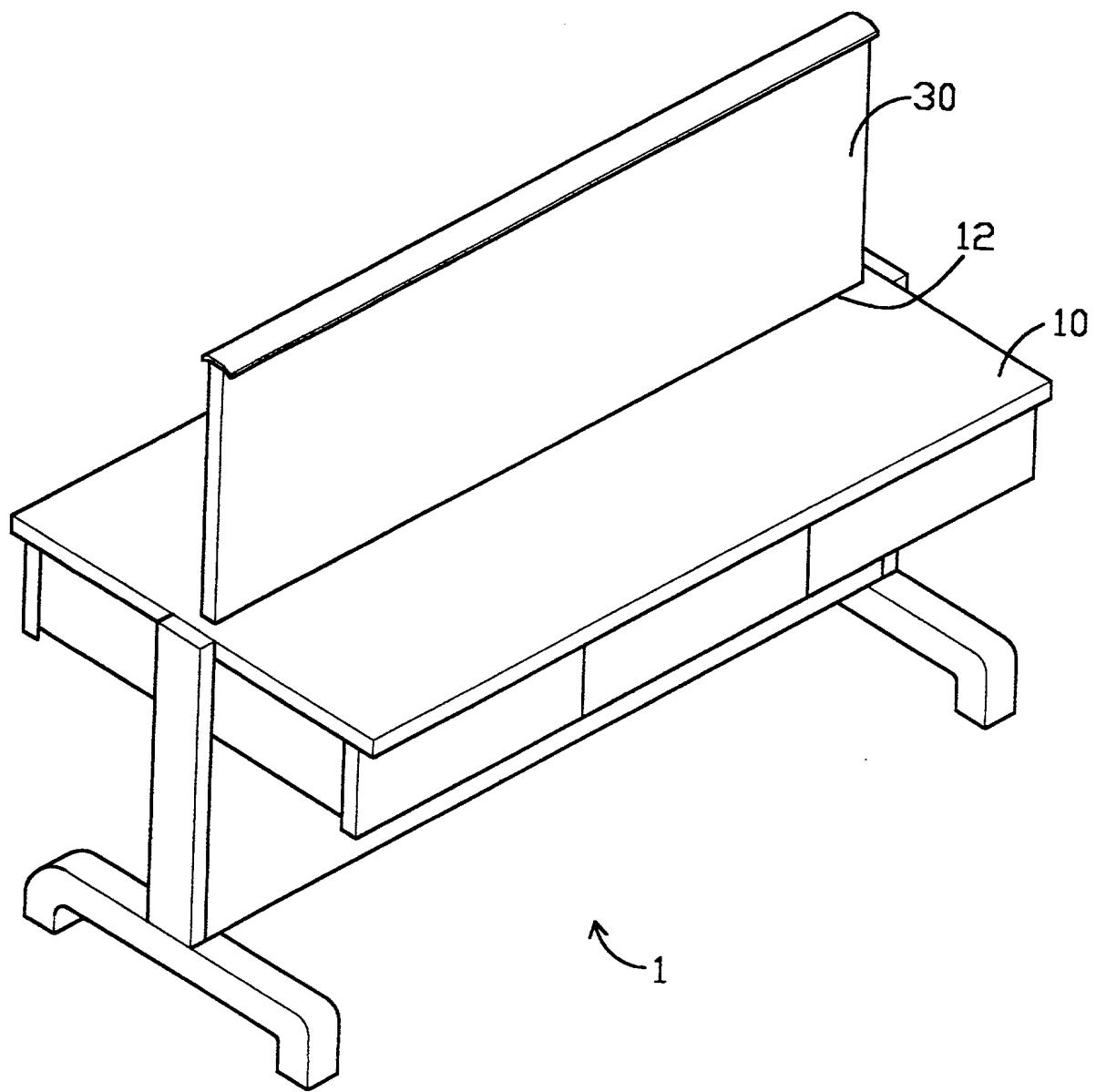


FIG. 7

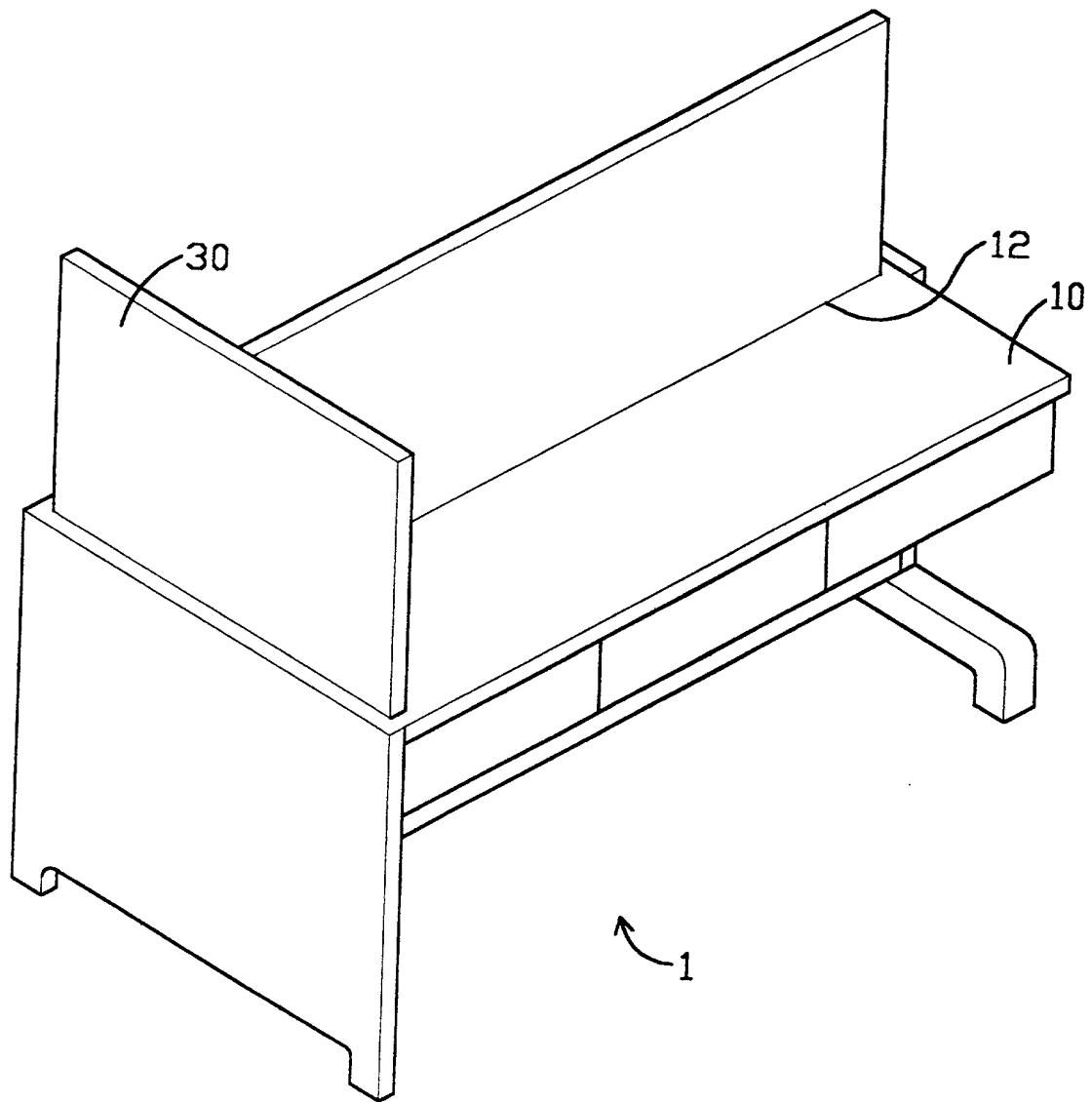


FIG. 8

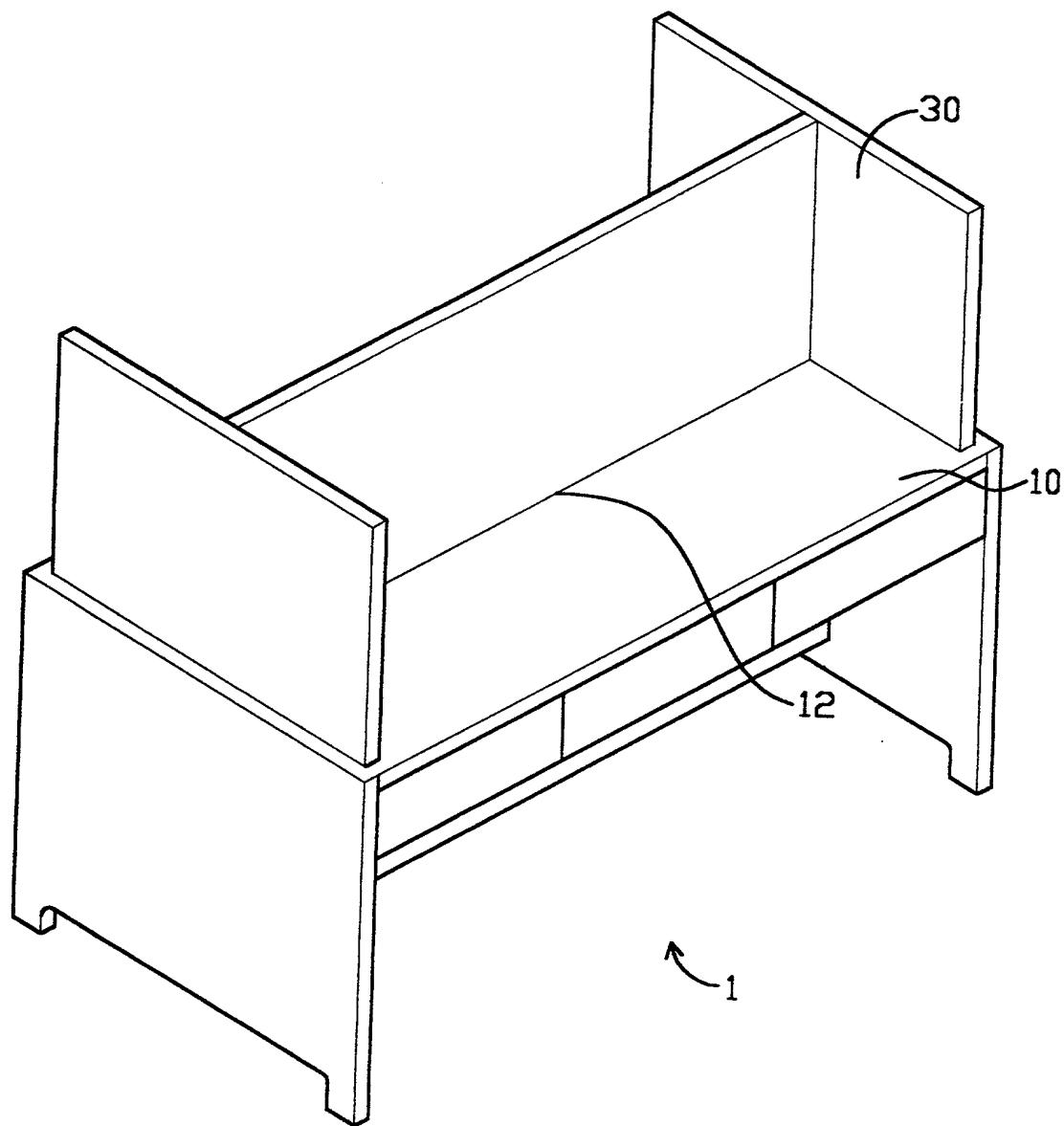


FIG. 9



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EUROPEAN SEARCH REPORT

Application Number
EP 01 10 8551

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US 4 870 908 A (WOLTERS RICHARD H ET AL) 3 October 1989 (1989-10-03) * column 3, line 11 – line 37 * * column 4, line 14 – column 5, line 12 * * column 7, line 26 – line 35 * * column 9, line 15 – line 33; figures 1-3 *	1-3,5,10	E04B2/74
X	DE 975 565 C (HERZOG) 18 January 1962 (1962-01-18) * page 2, line 109 – page 3, line 8; figure 1 *	1,2	
A	DE 39 31 220 A (MOSE WILFRIED ;PLANISSIMO FORM UND DETAIL DES (DE); WERBEGRUPPE NY) 28 March 1991 (1991-03-28) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E04B
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search		Examiner
THE HAGUE	11 September 2001		Fordham, A
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EP 01 10 8551

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11-09-2001

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 4870908	A	03-10-1989	NONE			
DE 975565	C		NONE			
DE 3931220	A	28-03-1991	DE	3931220 A1		28-03-1991

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