(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 850 578 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
01.07.1998 Bulletin 1998/27

(51) Int. Cl.[6]: **A47B 1/00**, A47B 1/10

(21) Application number: **96830669.6**

(22) Date of filing: **31.12.1996**

(84) Designated Contracting States:
BE CH DE ES FR LI

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(54) Add-on extenable device designed to extend one side of a pre-existing table surface

(57) The device comprises a terminal panel (1) and intermediate panels (1A) to be inserted between the said terminal panel and one side of the table, the terminal panel being fitted with at least one leg (3) via which it rests on the floor. The device also comprises a frame (5) that slides horizontally with respect to the said panel (1) by means of slide guides (9) operating between the frame (5) and the said terminal panel and oriented in a direction orthogonal to the said side. Means (5C, 11, 13) are provided for fastening the device to the table at the time of use.

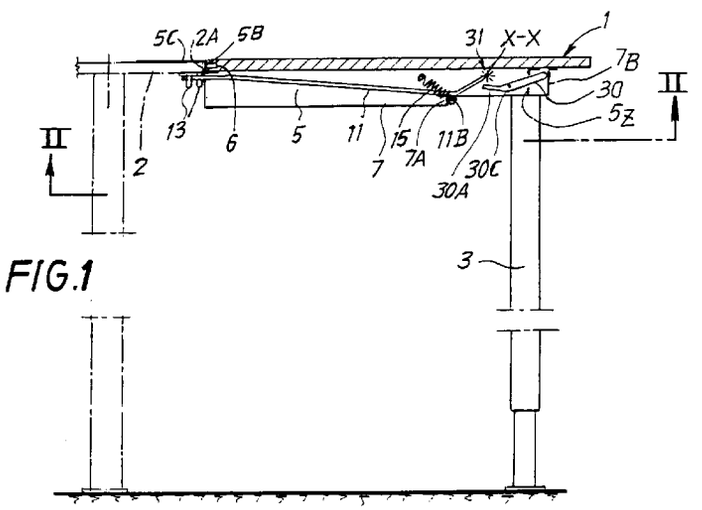

FIG.1

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Description

Add-on devices are known for extending a table surface on one of its sides. These devices usually offer the possibility of extending the table to a fixed length and take up at least as much space in the direction of extension as the extension is long, which makes them cumbersome to put away and of limited use; what is more, these devices are built into the table, which needs to be designed to accommodate the extension.

With the aim of overcoming these limitations, the subject of the present innovation is an add-on extendable device designed to extend one side of any pre-existing table surface. The said device comprises a terminal panel and intermediate panels to be inserted between the said terminal panel and the said side of the table. The terminal panel is fitted with at least one leg, or better still two legs, via which it rests on the floor, and comprises a frame that slides horizontally with respect to the said panel by means of slide guides oriented in a direction for the most part orthogonal to the said side; the said frame is fitted with a flat support piece and with means for fixing it to the table at the time of use, all that is then required being for retention pegs, or other equivalent projections, to be attached to the underside of the said table.

The said guides can comprise at least two parallel spaced-apart tracks, the top of the tracks being level with the top of the said frame. Each track carries a sliding carriage, with optional intermediate rolling parts. The said tracks and the said carriages are fixed to the frame and to walls integral with the terminal panel respectively, or vice versa, so as to enable the terminal panel to slide horizontally a desired distance away from the said frame and from the table side to which it is fixed. It is thus possible to insert one or more intermediate panels, supported on the said guides, between the table surface and the said terminal panel, in order to form a continuous extension of the table surface.

The said guides can be of the multiple type and can comprise a first track fixed to the terminal panel and a carriage fixed to the frame; inserted between the said first track and last carriage are a number of intermediate elements that engage slidably together and each serve as, on one side, a carriage for the adjacent track and, on the other side, a track for the adjacent carriage, the said elements - the first track and the last carriage - being approximately of the same length and being designed to slide along each other in the direction of extension of the device. In this way, the terminal panel is pulled away from the table by a distance which is a multiple of the length of the said tracks. The elements forming the said guides can be shorter than or the same length as the side of the terminal panel that is parallel to their direction of sliding so that, in the most compact configuration, they are contained within the surface area of the terminal panel.

The said means for fixing the device to the table at the time of use can comprise at least a first flat connecting piece which rests on the surface of the table, a second movable connecting piece that fastens with an elastic snap-action in order to immobilize the device in the horizontal plane and at least one projection, attached to the underside of the table surface, which can engage with the said second connecting piece in order to fasten the table and the said frame together in the horizontal plane.

On the whole, the said first connecting piece extends along the entire length of the coupling side of the frame and has a flat part which rests on the top of the table so as to protrude as little as possible above the latter.

The said second movable connecting piece can be made from a rod-like metal element that has been shaped into a "C" by means of two 90° bends of small radius and is hinged to the frame at the ends of the "C", about an axis parallel to the said side of the table. In order to attach the device, the movable connecting piece can be engaged against the inside of the said bends which fit around and come into contact with two pegs or two pairs of pegs fixed to the underside of the table, so that the frame can be fastened to the table in the horizontal plane. Once the device has been attached, one or more return springs hold the said movable connecting piece in position, hooked over the said pegs.

The pegs in each pair of pegs are preferably aligned in an inclined direction, for example at an angle of 45°, with respect to the said side of the table, with the pegs furthest away from the axis of the table that is parallel to the direction of extension being closest to the said side of the table. During attachment of the device, this arrangement facilitates correct transverse positioning of the device with respect to the table, by inserting the movable connecting piece between the said outer pegs, followed by the device being fully pushed up against the side of the table and the movable connecting piece being hooked around the innermost pegs.

In order to fasten the device to the table so that there is limited play, the said pairs of pegs must be attached at a precise distance from each other, according to the dimensions of the said second connecting piece. In order to facilitate their attachment a connecting piece can be provided which has the said two pairs of pegs already fixed at the desired distance, this connecting piece then being screwed to the underside of the table.

Means can be provided to immobilize the terminal panel on to the frame so as to make it easier to handle the device when it is not yet attached to the table; the said means comprise a projection on a wall fixed to the underside of the terminal panel, with a hooking member secured to the said second connecting piece which, under the action of the said return springs, bears against the said projection.

In order to prevent the device from becoming

detached from the table accidentally when it is extended by means of intermediate panels, a pawl can be provided which, in this extended configuration, automatically engages with a tooth on a ratchet which is secured to the said second connecting piece, coaxially with the axis of articulation of the latter. In this way, the connecting piece cannot be lowered, and it is this lowering action that would make such accidental detachment possible.

Moreover, the said support leg or legs can be of adjustable length so as to adapt the device to any pre-existing table.

A better understanding of the innovation may be had on reading the description and viewing the attached drawing which shows a practical non-limiting embodiment of the said innovation. In the drawing:

Fig. 1 shows a side view of the device attached to one side of a table sectioned on a vertical plane, the table being only sketched in;
Fig. 2 shows a view of the device from below, on the plane II-II of Fig. 1;
Fig. 3 shows a partial enlarged view of the device sectioned on the plane III-III of Fig. 2; and
Fig. 4 shows a plan view of the device in two different use configurations;
Fig. 5 shows a partial enlarged side view of the device sectioned on V-V of Fig. 4;
Fig. 6 shows a partial enlarged view of a detail from Fig. 1; and
Figs 7 and 8 show perspective views from below of particular arrangements for attaching the device to the table.

The device comprises a rectangular terminal panel 1 (Figs 1 and 2) fitted with two legs 3 of adjustable length which can be connected to and removed from the panel. The panel 1 is provided in order to form a minimum extension to a table 2 on one of the latter's sides 2A.

The device also comprises a rectangular frame 5 made of sheet metal which has a side 5A that extends upwards in the form of a vertical edge 5B, the said edge being approximately as high as the panel 1 is thick and continuing to form a horizontal strip 5C of sheet metal made integrally with the said frame by means of a 90° bend so that it can rest on the surface of the table 2.

The first elements 9A of two multiple slide guides 9 are fixed by means of right-angled brackets 7 (Fig. 3) to the underside of the terminal panel 1, close to each of two opposite sides of the panel, the said guides being oriented orthogonally to the side 2A of the table with their last element 9D fixed to the frame 5. The elements of the said multiple guides comprise adjacent tracks 9A, 9B, 9C, 9D and associated carriages 9E, 9F, 9G, 9H coupled to them via intermediate balls so that they can slide freely in the direction of extension of the device, the carriage of one track being fixed to the adjacent track. The said tracks and carriages are slightly shorter than the sides of the panel 1 parallel to them and allow the panel 1 to slide in this direction with respect to the frame 5.

The device also comprises a connecting piece 11 made from a metal rod bent into a "C" shape, the connecting piece being hinged at the ends of the "C" to the frame 5, about an axis of rotation X-X parallel to the side 2A. This connecting piece has two 90° bends 11A, each of which is designed to engage around and press against two pegs 13 fixed by means of a plate 13A to the underside of the table surface so that, when the strip 5C of the frame 5 is resting on the table 2 and the edge 5B of the frame 5 is pressed against the edge of the table along the side 2A, the said connecting piece 11 can engage with the said two pairs of pegs 13, thereby fixing the frame 5 to the side 2A of the table in the horizontal plane.

The pegs 13 of each pair of pegs are aligned in a direction inclined at 45° with respect to the axis of the table, with the pegs furthest away from the axis of the table that is parallel to the direction of extension being closest to the side 2A of the table. This arrangement means that, when attaching the device to the table, when it is partly pushed up against the table, the correct transverse position of the device may be easily located by inserting the connecting piece 11 horizontally between the two outer pegs. Once the end of the connecting piece 11 has been lowered so that it passes over the innermost pegs 13, to which pegs it remains hooked under the action of springs 15, it is then possible to push the extension panel completely up against the table.

The legs 3 will have been connected to the panel 1 beforehand and their length will have been adjusted so that the said panel is level with the surface of the table 2 when the legs rest on the floor.

In place of the said plates 13, plates 113A (Fig. 7) can be provided which are slid into two guides 113B previously fixed to the underside of the surface of the table 2, the plates 113A being fitted with end-of-travel stops 113C which abut against the said guides 113B, thereby preventing detachment of the device from the table. In this way, when the extension device is not in use, the plates 113A with the pegs 13 can be slid out so as to avoid having unnecessary projections underneath the table surface.

In an alternative embodiment shown in Fig. 4, in place of the said plates 13A there is a single plate 213A bearing two pairs of pegs 13 which is screwed to the underside of the table 2. When attaching the pegs 13 to the table 2, this therefore saves having to find the precise distance between the said pairs of pegs which would result in the connecting piece 11 being correctly coupled to the said pegs 13 without any play.

In another embodiment, in order to facilitate attachment of the pegs to the underside of the table and so as to enable them to be removed when the device is not in

use, a connecting piece 313A (Fig. 8) is provided which is made from a "C"-shaped extruded product, into the ends of which the plates 113A are slid. The correct distance between the plates 113A is in this case guaranteed by the fact that the said "C"-shaped drawn product forming the connecting piece has been cut to the appropriate length to match the corresponding dimension of the connecting piece 11.

The movable connecting piece 11 is held in its position of engagement by means of traction springs 15, the said springs being hooked respectively on to a lug on the frame 5 and on to a rod-like crosspiece 11B welded to the two sides of the connecting piece 11. The said crosspiece extends at its ends to form handles, via which it is possible to disengage the connecting piece 11 from the pegs 13 when it is desired to remove the extension device from the table, by lowering the said connecting piece 11 against the action of the spring 15. On at least one side 7 integral with the terminal panel 1 there is a projection 7A against which the crosspiece 11B abuts when the panel 1 is pushed against the edge 5B and the connecting piece 11 is released under the action of the spring 15, so as to prevent the device being extended inadvertently whilst it is being handled in order to put it away.

Once the frame 5 has been fixed to the side 2A of the table, the device enables the table to be extended at will into various configurations, from a first configuration of minimum extension with only the terminal panel 1 pushed up against the table 2, which configuration is indicated by solid lines in Fig. 4, to a configuration of maximum extension, in which the said multiple guides 9 have been extended to their maximum length and in which one or more intermediate panels 1A have been inserted and are supported on the said guides 9 so as to form a continuous surface between the table 2 and the terminal panel 1. These intermediate panels 1A can be similar in size to the terminal panel 1 so that when the device described is put away, with the intermediate panels superposed on the terminal panel, its surface area is for the most part contained within the space occupied by the terminal panel alone.

So as to give the intermediate panels greater stability, the said vertical edge 5B of the frame 5 has two or more pins 6 which have a horizontal axis and are designed to penetrate into corresponding holes formed in the thickness of one side of each panel. The side of the intermediate panel opposite that containing the holes in turn has another two or more similar pins 6 that connect up with another intermediate panel 1A or with the terminal panel 1, if adjacent to the said side.

In order to avoid the risk of inadvertently lowering the connecting piece 11 when the device is being used with intermediate extension panels, a lever 30 (Fig. 6) can be provided which has a first arm 30A, the end of which is fitted with a stop tooth 30B. The lever also has a second arm 30D and is hinged to the frame 5 at an intermediate point between the said arms. The centre of gravity of the lever is such that, under its own weight, it tends to bring the tooth 30B against a notch on a ratchet 31 secured to the connecting piece 11 coaxially with the the axis X-X, so as to prevent the connecting piece from being lowered. The lever 30 can be actuated manually in order to disengage it from the ratchet 31 and so as to detach the device from the table, or it can be actuated automatically in the same way by a bracket 7B fixed to the underside of the terminal panel 1, with the automatic actuating action being carried out when the said panel 1 is pushed up against the edge 5B of the frame 5 in the configuration of minimum extension of the table 2.

It should be understood that the drawing shows only one embodiment of the innovation, given solely as a practical example thereof, it being possible for the forms and arrangements of the innovation to vary without thereby departing from the scope of the underlying concept of the said model. Any reference numerals in the appended claims have the purpose of facilitating the reading of the claims with reference to the description and the drawing and do not limit the scope of protection represented by the claims.

Claims

1. Add-on extendable device designed to extend one side (2A) of the surface of a non-extendable table (2), comprising a terminal panel (1) and intermediate panels (1A) to be inserted between the said terminal panel and the said side of the table, the terminal panel being fitted with at least one leg (3) via which it rests on the floor, characterized in that it comprises a frame (5) that slides horizontally with respect to the said panel (1) by means of slide guides (9) oriented in a direction substantially orthogonal to the said side, the said frame (5) being fitted with means (5C, 11, 13) for supporting it on the table at the time of use and for fastening it elastically to the underside.

2. Device according to Claim 1, characterized in that the said guides (9) comprise at least two parallel spaced-apart tracks (9A), the top of which is level with the top of the said frame (5), each track carrying a slidable carriage (9E), with optional intermediate rolling parts, and in that the said tracks and the said carriages are fixed to the frame (5) and to the panel (1) respectively, or vice versa, so as to enable the terminal panel (1) to slide horizontally a desired distance away from the said frame (5) and from the table side (2A) to which it is fixed so as to be able to insert, supported on the said guides (9), one or more intermediate panels (1A) in order to form a continuous extension of the table surface.

3. Device according to Claim 2, characterized in that the said guides (9) are multiple guides and comprise a number of adjacent elements, the intermedi-

ate elements of which serve as a track and a carriage respectively for the adjacent elements, the first element (9A) being fixed to the terminal panel (1) and the last element (9H) being fixed to the frame (5) so as to be able to obtain an extension which is a multiple of the length of the said tracks.

4. Device according to Claim 3, characterized in that the said tracks (9A, 9B, 9C, 9D) and the said carriages (9E, 9F, 9G, 9H) are shorter than or the same length as the side of the terminal panel that is parallel to their direction of sliding so that, in the most compact configuration, the said multiple guides 9 are contained within the surface area of the terminal panel (1).

5. Device according to any one of the preceding claims, characterized in that the said means for fixing the device to the table at the time of use comprise at least a first flat connecting piece (5C) which rests on the surface of the table (2), a second connecting piece (11) that fastens with a snap-action in order to immobilize the device in the horizontal plane and at least one projection (13), permanently attached to the underside of the table surface, which can engage elastically with the said second connecting piece (11) in order to fasten the table and the said frame (5) together in the horizontal plane.

6. Device according to Claim 5, characterized in that the said first connecting piece (5C) has a thin flat part which rests on the top of the table, so as to protrude as little as possible above the latter, and in that the said second connecting piece (11) is made from a rod-like element shaped into a "C" by means of two 90° bends (11A) of small radius, the said second connecting piece (11) being hinged to the frame (5) at the ends of the "C", about an axis (X-X) parallel to the said side of the table (2A) and being capable of engagement by means of a snap-action against the inside of the said bends (11A) which fit around and press against at least two pegs or two pairs of pegs (13) fixed to the underside of the table so as to form projections designed to fasten the frame (5) to the table in the horizontal plane.

7. Device according to Claim 5 or 6, characterized in that the said second connecting piece (11) is held in engagement with the said at least one projection (13) by return spring means (15) so that the said connecting piece can be easily disengaged manually in order to detach the device from the table.

8. Device according to any one of the preceding claims, characterized in that the said at least one support leg (3) is of adjustable length and is removable.

9. Device according to any one of the preceding claims, characterized in that the said pegs (13) are fixed to plates (113A) which are slid into guides (113B; 313A) fixed to the underside of the surface of the table (2), stops (113C) being provided on the said plates to abut against the said guides (113B) in order to prevent detachment of the device from the table.

10. Device according to any one of the preceding claims, characterized in that the said two pairs of pegs (13) are fixed to a single connecting piece (213A) which is screwed to the underside of the surface of the table (2).

11. Device according to any one of the preceding claims, characterized in that it comprises a lever (30) for immobilizing the said second connecting piece (11), the lever having a first arm (30A) fitted with a stop tooth (30B) that engages with a ratchet (31) which is coaxial with the axis (X-X) of rotation of the said second connecting piece (11), and a second arm (30D), the said lever being hinged such that, under its own weight, it engages with a tooth on the said ratchet (31) so as to prevent the second connecting piece (11) from being lowered and, consequently, the device from being accidentally disengaged from the table, a bracket (33) which is secured to the terminal panel (1) coming into contact with the end of the said second arm (30D) in order to pull the tooth (30B) away from the ratchet (31) and free the connecting piece (11) when the terminal panel is in a configuration of minimum extension of the device.

12. Device according to any one of the preceding claims, characterized in that the pegs (13) of each said pair of pegs are aligned in an inclined direction, for example at 45°, with respect to the said side (2A), with the pegs furthest away from the axis of the table that is parallel to the direction of extension being closest to the side (2A) of the table.

13. Add-on extendable device designed to extend one side of a table surface; the device being as described above and as illustrated by way of example in the appended drawing.

FIG. 2

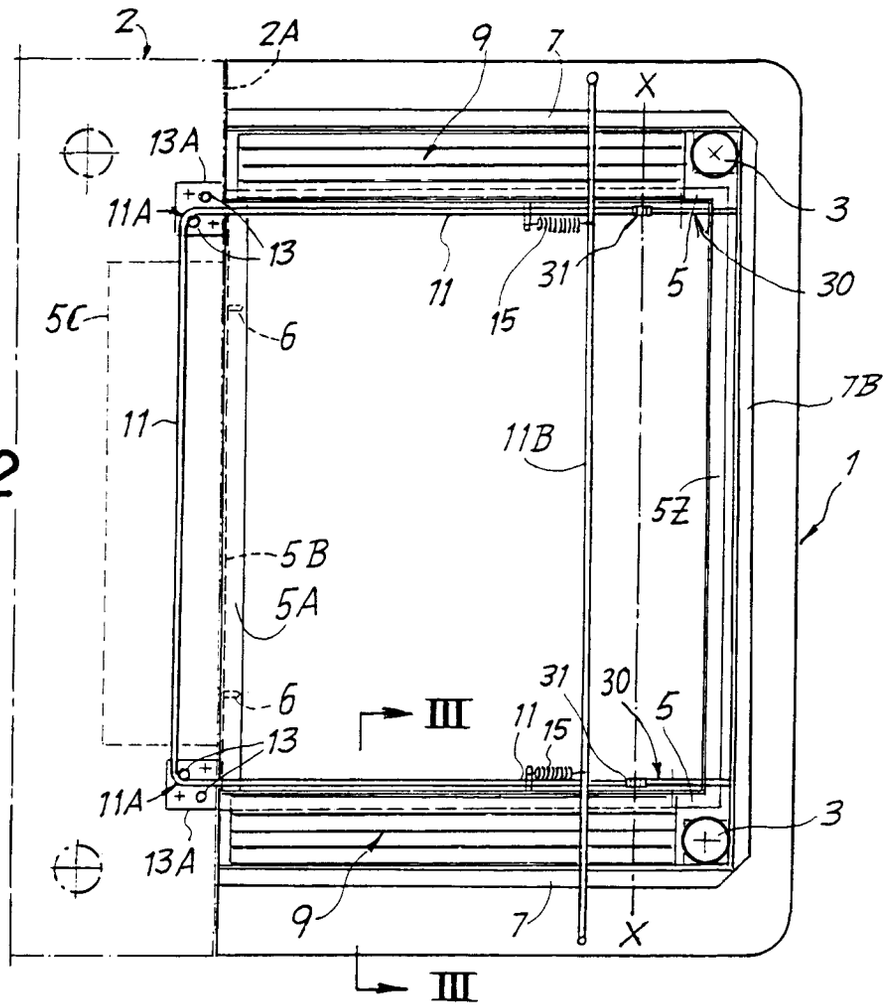


FIG. 1

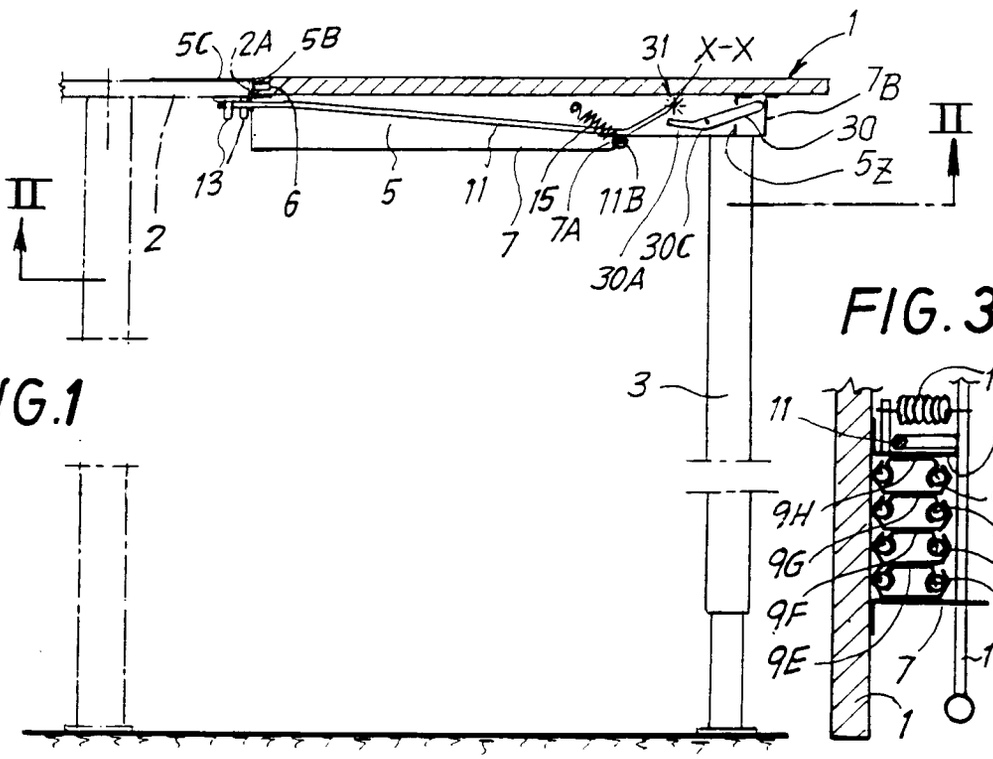
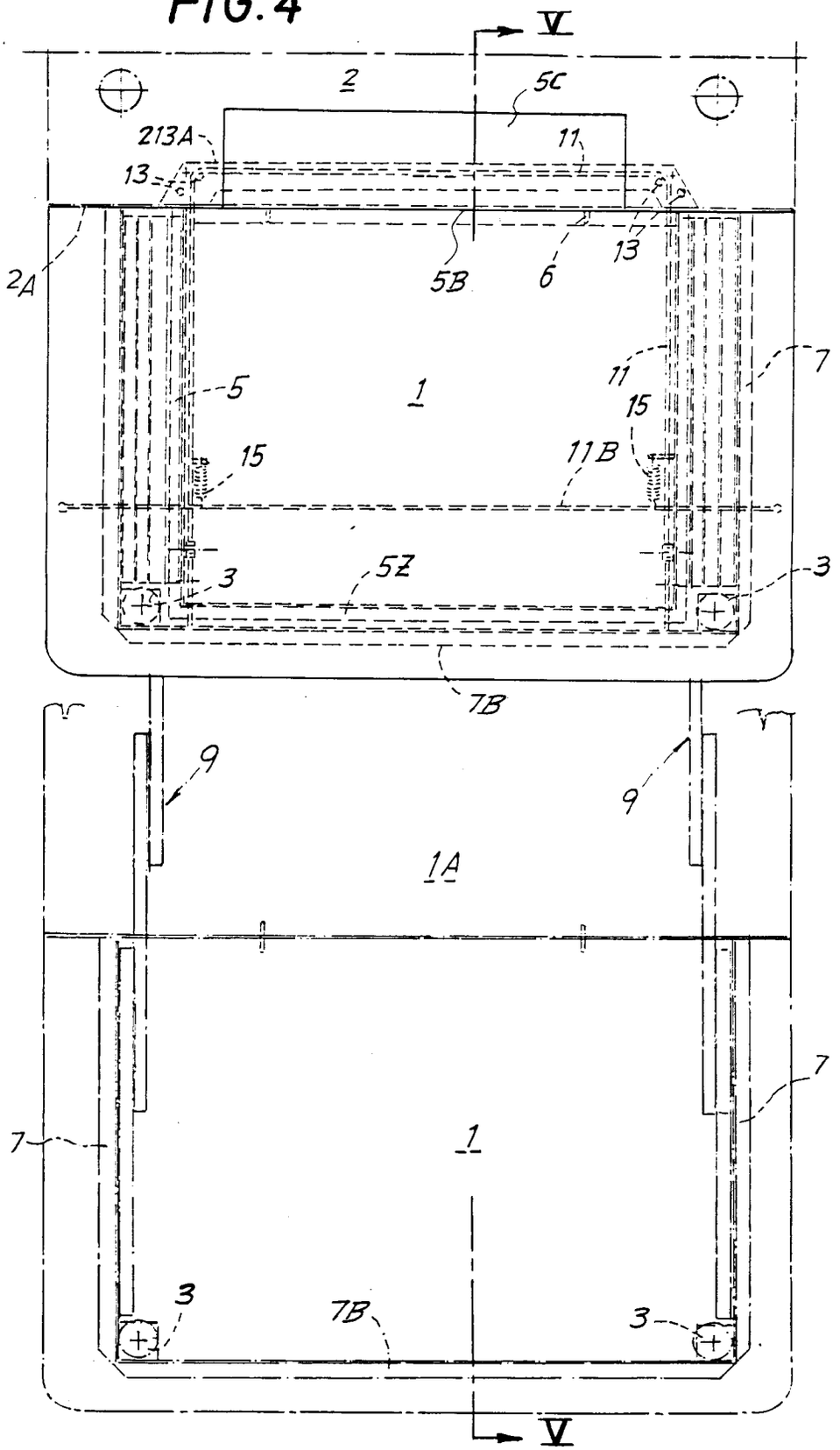


FIG. 3

FIG. 4


V
2
5C
213A
11
13
2A
5B
6
13
5
1
11
7
15
15
11B
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7B
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9
1A
7
7
1
3
7B
3
V

FIG. 5

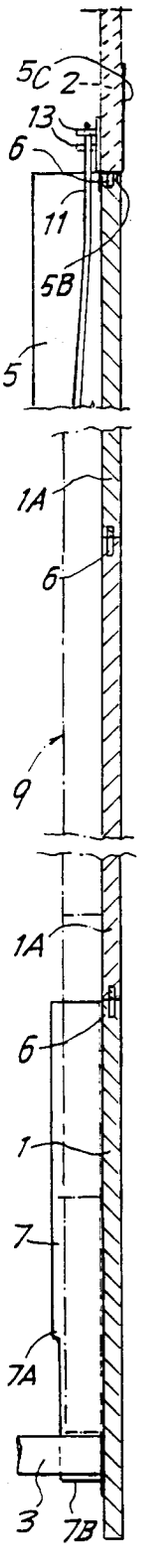
5C
2
13
6
11
5B
5
1A
6
9
1A
6
1
7
7A
3
7B

FIG. 6

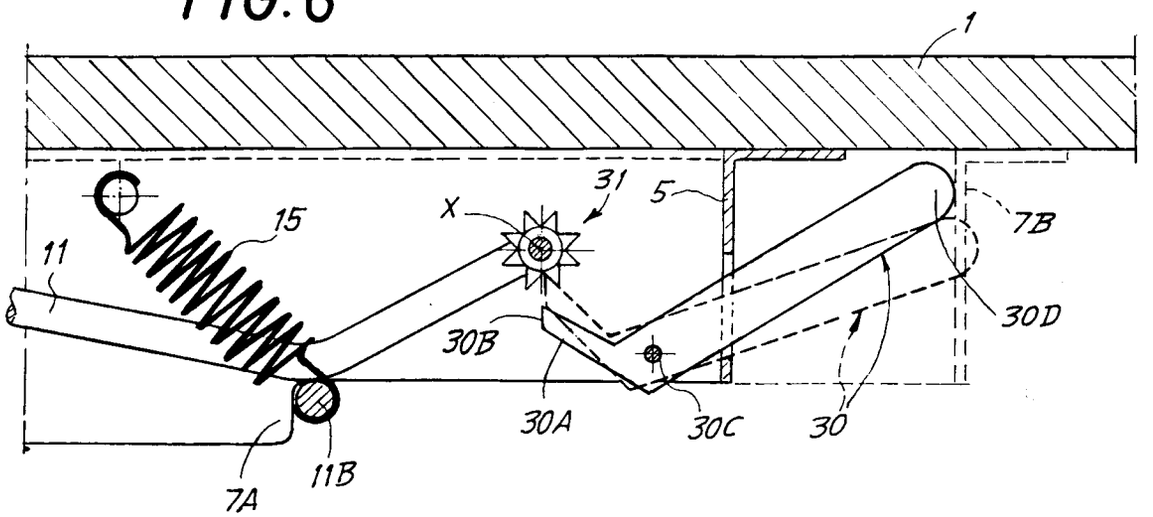

FIG. 7

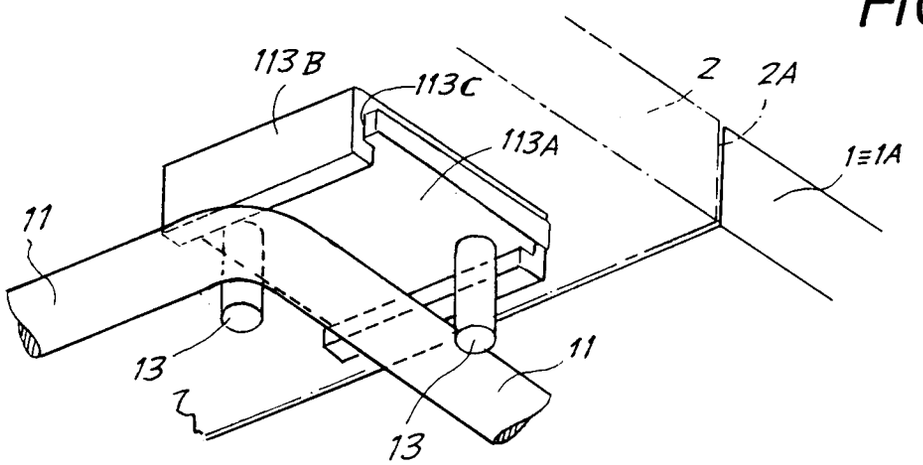

FIG. 8