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(54) Mould for making prefabricated walls

(57) It comprises a frame defining a cavity adapted to receive concrete mass and reinforced concrete. The frame is formed by a horizontal bottom (1), side walls (2, 3), end walls (4, 5) and means (6) for collapsing said walls (2, 3, 4, 5) relative to said bottom (1) comprising shafts (8) arranged parallel to said walls (2, 3, 4, 5) the ends of which pass through a plate (9) welded to the above mentioned horizontal bottom (1) and a plate (10) welded to the wall (2, 3, 4, 5) of the mould frame. There are provided locking means for locking walls (2, 3, 4, 5) relative to the bottom (1) comprising pins (14) received within holes (11, 13) formed in the plate (9) and in a plate (12) welded to said walls (2, 3, 4, 5), preventing them from being collapsed relative to the mould bottom (1).

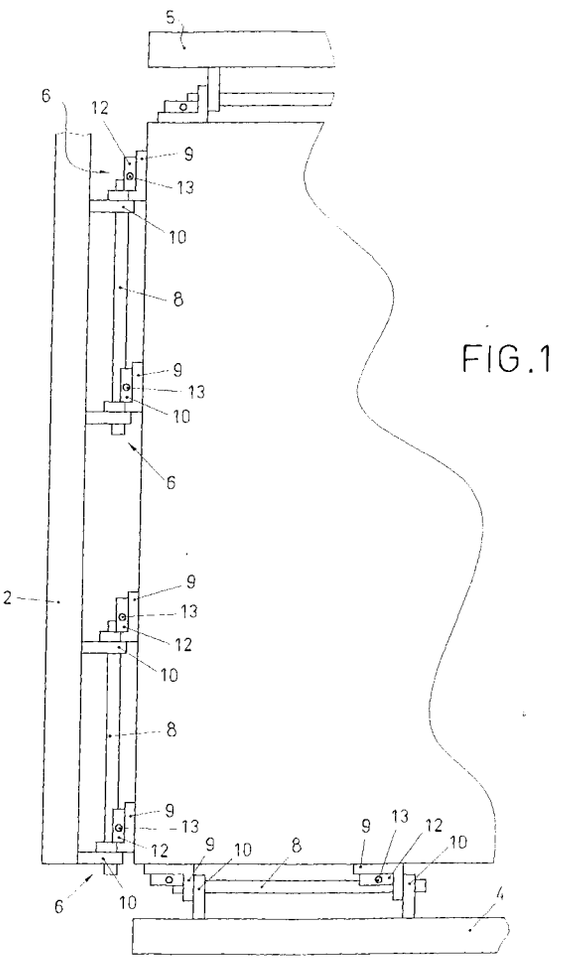

FIG.1

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Description

[0001] The present application for a patent of invention relates, as stated in its title, to a "MOULD FOR MAKING PREFABRICATED WALLS" which novel manufacturing, conformation and design features fulfil the purpose to which it has been specifically conceived, with a maximum safety and effectiveness.

[0002] Construction of walls is usually carried out directly in situ on the building floor or pavement where such walls are to be disposed. Therefore, a frame is provided with the reinforced concrete and the concrete mixture therein.

[0003] From Spanish patent n° 544.038 owned by the same applicant of the present invention there is known a method for making buildings based upon arrangement, on the pavement or on a horizontal surface, of a frame in the interior of which concrete is poured. The cavity defined by the frame is laterally confined by beams that are permanently built into the piece being a part thereof. These beams provide rigidity to said piece during lifting operations towards a vertical position.

[0004] The invention has been developed with the purpose of providing a mould that allows making prefabricated walls without a necessity for building them in situ, with the consequent total costs and time savings. The invention provides further advantages as it will be detailed hereinbelow.

[0005] Basically, the mould for making prefabricated walls of the present invention comprises a frame defining a cavity adapted to receive the concrete mass and the corresponding reinforced concrete.

[0006] The distinctive feature of the above mentioned mould is that said frame is provided with a horizontal flat bottom, end walls, side walls and means for collapsing said end and side walls allowing a quick and effective demoulding of the obtained wall. This simple configuration is effective for making prefabricated walls without the need for them to be built at the building site with the consequent time and cost savings. The horizontal bottom of the mould, which may be made from a metal plate, allows obtaining fully straight walls without the necessity for a subsequent plastering thereof.

[0007] According to a further aspect of the invention, the means for collapsing the mould walls comprise shafts extending parallel thereto. The ends of such shafts extend through a plate welded to said horizontal bottom and a plate welded to each wall of the frame. The shafts of said means for collapsing the mould walls allow the wall to be collapsed, tilting them outwards into a demoulding position and closing them towards the bottom remaining perpendicular thereto in the moulding position.

[0008] The mould that is herein described is also provided with wall locking means for locking the walls relative to the bottom. Said wall locking means comprise pins received within in holes formed in the plate welded to the mould bottom and to a plate welded to the walls thereof, respectively. These pins are intended to prevent the walls from being collapsed relative to the mould bottom.

[0009] The frame may optionally comprise a divider device fitted therein. Said divider device allows forming walls having different size using the same mould. The divider device configuration comprises two parallel bars transversely provided inside the frame. Each of such bars includes perpendicular hollow protrusions inside of which corresponding protrusions are slidingly lodged perpendicular to the other parallel bar. The hollow protrusions have locking means for locking the relative position of both parallel bars.

[0010] On the other hand, the invention also provides the possibility to increase the height of the walls and, therefore the thickness of the obtained wall. In this regard, the side walls and the end walls of the mould of the present invention are properly provided with holes and protrusions for joining the walls above each other.

[0011] Further details and features of the present invention will be apparent from the following description, which refers to the accompanying drawings that schematically represent the preferred details. These details are given by way of example, which refer to a possible case of practical embodiment, but it is not limited to the disclosed details; therefore this description must be considered from an illustrating point of view and without any type of limitations. In the accompanying drawings:

Fig. 1 is a fragmentary plant view of an embodiment of a mould for making prefabricated walls according to the present invention in which the walls thereof are collapsed outwards to allow wall demoulding;
Fig. 2 is a fragmentary plant view of the embodiment of the mould of fig. n° 1, in which the walls thereof are collapsed inwards for the wall moulding;
Fig. 3 is a fragmentary side view of the mould of the invention in the position shown in fig. 1;
Fig. 4 is a fragmentary side view of the mould of the invention in the position shown in fig. 2;
Fig. 5 is a fragmentary plant view of the embodiment of a divider device fitted in the mould of the above figures;
Fig. 6 is sectional fragmentary front view of the divider device of the fig. 5 taken along the plane A-A' in fig. 5; and
Fig. 7 is an elevational view of the mould of the invention in which the side walls are shown in various collapsing positions.

[0012] A detailed list of the various parts cited in the present patent application is given below:

(1) horizontal flat bottom of the frame;
(1a) support legs of the bottom;
(2, 3) side walls;
(4, 5) end walls;
(6) means for collapsing the walls;

(7) obtained wall;
(7a, 7b) walls of different sizes;
(8) wall collapsing shafts;
(9) plate welded to the horizontal bottom;
(10, 12) plate welded to the wall of the mould;
(11) through hole of the plate welded to the horizontal bottom;
(13) through hole of the plate (12);
(13a) locking pins;
(14) divider device;
(15, 16) divider device parallel bars;
(17, 18) extension of the divider device parallel bars;
(19, 20) hollow protrusions of bar (15);
(21, 22) protrusions of bar (16);
(23, 24) pins;
(25, 26) screws;
(27, 28) perpendicular extensions of the divider device parallel bars; and
(29) cylindrical hole of the mould walls for joining further walls above each other.

[0013] There is now described an embodiment of a mould for making prefabricated walls comprising a metal frame defining a cavity adapted to receive the concrete mass and the corresponding reinforced concrete.

[0014] The metal frame is provided with a horizontal plane bottom (1) including support legs (1a), two end walls (2, 3), two side walls (4, 5) and means (6) for collapsing said end walls (2, 3) and lateral walls (4, 5) to allow demoulding of the obtained wall (7).

[0015] The means (6) for collapsing the walls comprise a number of shafts (8) extending parallel to the walls (2, 3, 4, 5) of the mould. The ends of each shaft (8) pass through a plate (9) welded to the above mentioned horizontal bottom (1) and a plate (10) welded to the wall (2, 3, 4, 5) of the mould frame. The shafts (8) allow the walls (2, 3, 4, 5) to be collapsed outwards into the demoulding position (see fig. 1) and closing them towards the bottom (1), being arranged perpendicular thereto in the moulding position shown in fig. 2 of the drawings enclosed in the present specification.

[0016] The plates (9) are provided with a through hole (11). The walls (2, 3, 4, 5) include a plate (12) also provided with a through hole (13) that, in the moulding position (see figs. 2 and 3), it is aligned with the through hole (11) of the plates (9), as it can be seen in fig. n° 3. These elements form the locking means of the walls (2, 3, 4, 5) relative to the bottom (1), which further comprise pins (13a) housed into the above disclosed holes (11, 13) intended to prevent the walls (2, 3, 4, 5) from being collapsed relative to said bottom (1).

[0017] In figs. 5 and 6, an embodiment of a divider device (14) is shown which is fitted inside the mould. Said divider device allows forming of walls (7a, 7b) having different size with the same mould.

[0018] The divider device (14) is composed of two parallel bars (15, 16) transversely provided inside the frame. The bars (15, 16) extend in walls (17, 18) the height of which is substantially similar to that of the walls (2, 3, 4, 5) of the mould, that is to say, similar to the thickness of the wall (7a, 7b) that is to be obtained.

[0019] The bar (15) includes two hollow holes (19, 20) extending perpendicular to said bar (15) as shown in fig. 5. Said hollow holes (19, 20) are intended to slidingly house corresponding perpendicular protrusions (21, 22) in the bar (16). The protrusions (19, 20, 21, 22) guide the relative position of the bars (15, 16) and locking means for ensuring such position are provided consisting of pins (23, 24) transversely housed therein precluding relative movement and consequently maintaining clearance between bars (15, 16).

[0020] Said bars (15, 16) are attached to the side walls (2, 3) of the mould by means of screws (25, 26) which are screw threaded into perpendicular extensions (27, 28) thereof.

[0021] To increase the overall height of the walls (2, 3, 4, 5) with the purpose of increasing the thickness of the obtained wall (7) cylindrical holes (29) formed in the walls (2, 3, 4, 5) are provided, said holes (29) being intended to house complementary protrusions from an upper wall (not shown) thus allowing joining of said walls above them.

[0022] Once having been sufficiently described what the present patent application consists in accordance to the enclosed drawings, it is understood that any detail modification can be introduced as appropriate, provided that variations may alter the essence of the invention as summarised in the appended claims.

Claims

1. "MOULD FOR MAKING PREFABRICATED WALLS" comprising a frame defining a cavity adapted to receive concrete mass and corresponding reinforced concrete, **characterized in that** said frame is formed by a horizontal bottom (1), side walls (2, 3), end walls (4, 5) and means (6) for collapsing said walls (2, 3, 4, 5) relative to this bottom (1).

2. "MOULD FOR MAKING PREFABRICATED WALLS" according to claim 1, **characterized in that** said means (6) for collapsing said walls (2, 3, 4, 5) comprise shafts (8) arranged parallel to said walls (2, 3, 4, 5) the ends of which pass through a plate (9) welded to the above mentioned horizontal bottom (1) and a plate (10) welded to the wall (2, 3, 4, 5) of the mould frame.

3. "MOULD FOR MAKING PREFABRICATED WALLS MOULD" as claimed in any preceding claim, **characterized in that** it further comprises locking means for locking walls (2, 3, 4, 5) relative to the bottom (1) comprising pins (14) received within holes (11, 13) formed respectively in the plate (9)

and in a plate (12) welded to said walls (2, 3, 4, 5), preventing them from being collapsed relative to the mould bottom (1).

4. "MOULD FOR MAKING PREFABRICATED WALLS" according to claim 1, **characterized in that** the frame comprises a divider device (14) fitted therein which is intended to form walls (7a, 7b) having different size with the same mould.

5. "MOULD FOR MAKING PREFABRICATED WALLS" according to claim 4, **characterized in that** said divider device (14) comprises two parallel bars (15, 16) transversely provided inside the frame, one of said bars (15) being provided with perpendicular hollow protrusions (19, 20) intended to slidingly house perpendicular protrusions (21, 22) of the other parallel bar (16), said hollow protrusions (19, 20) being provided with locking means (23, 24) of the relative position of both parallel bars (15, 16).

6. "MOULD FOR MAKING PREFABRICATED WALLS" according to claim 1, **characterized in that** said side and end walls (2, 3, 4, 5) are provided with holes (29) and protrusions intended for coupling further walls above each other with the purpose of increasing the overall height of the wall and the thickness of the obtained wall.

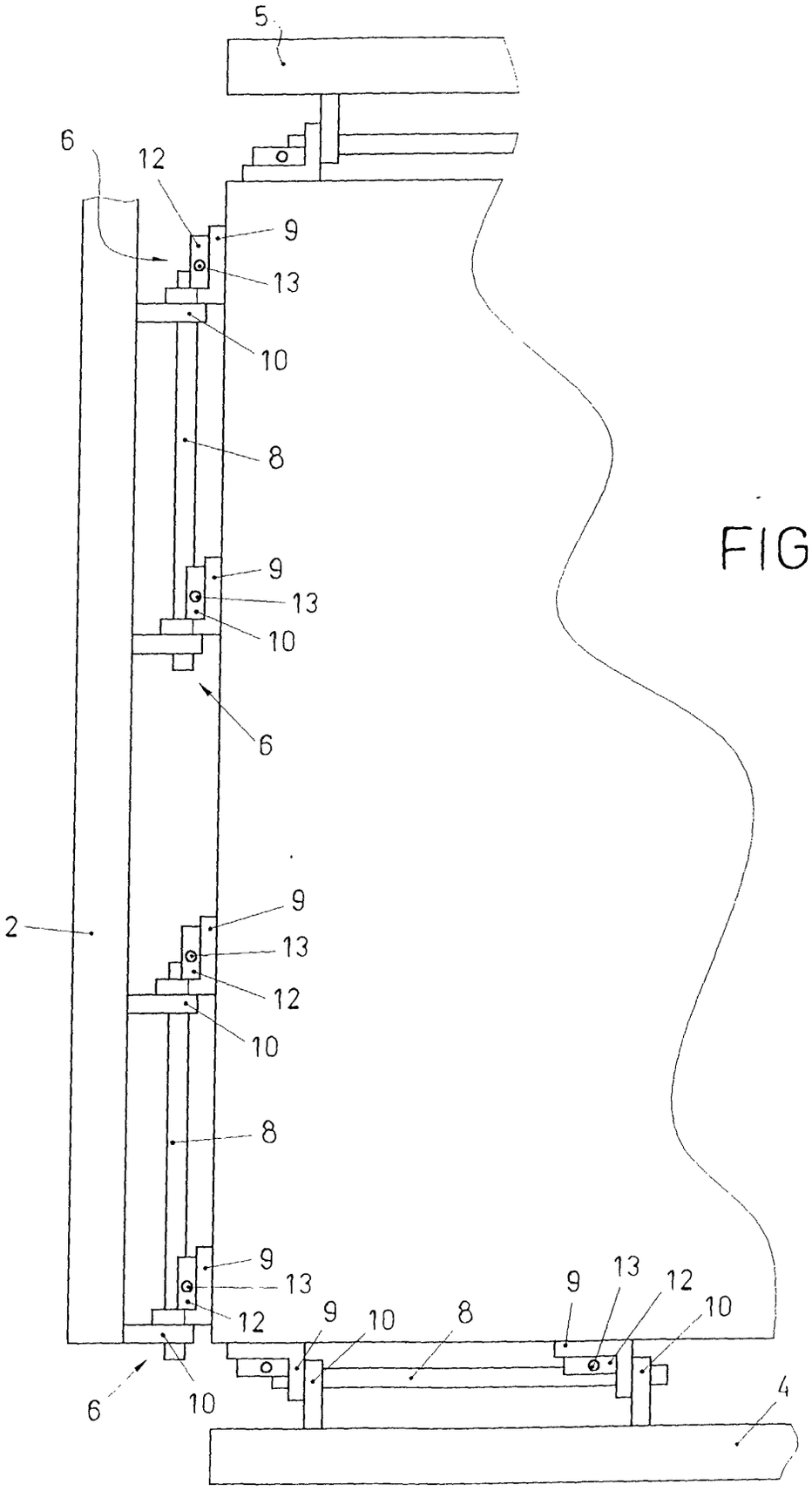

FIG.1

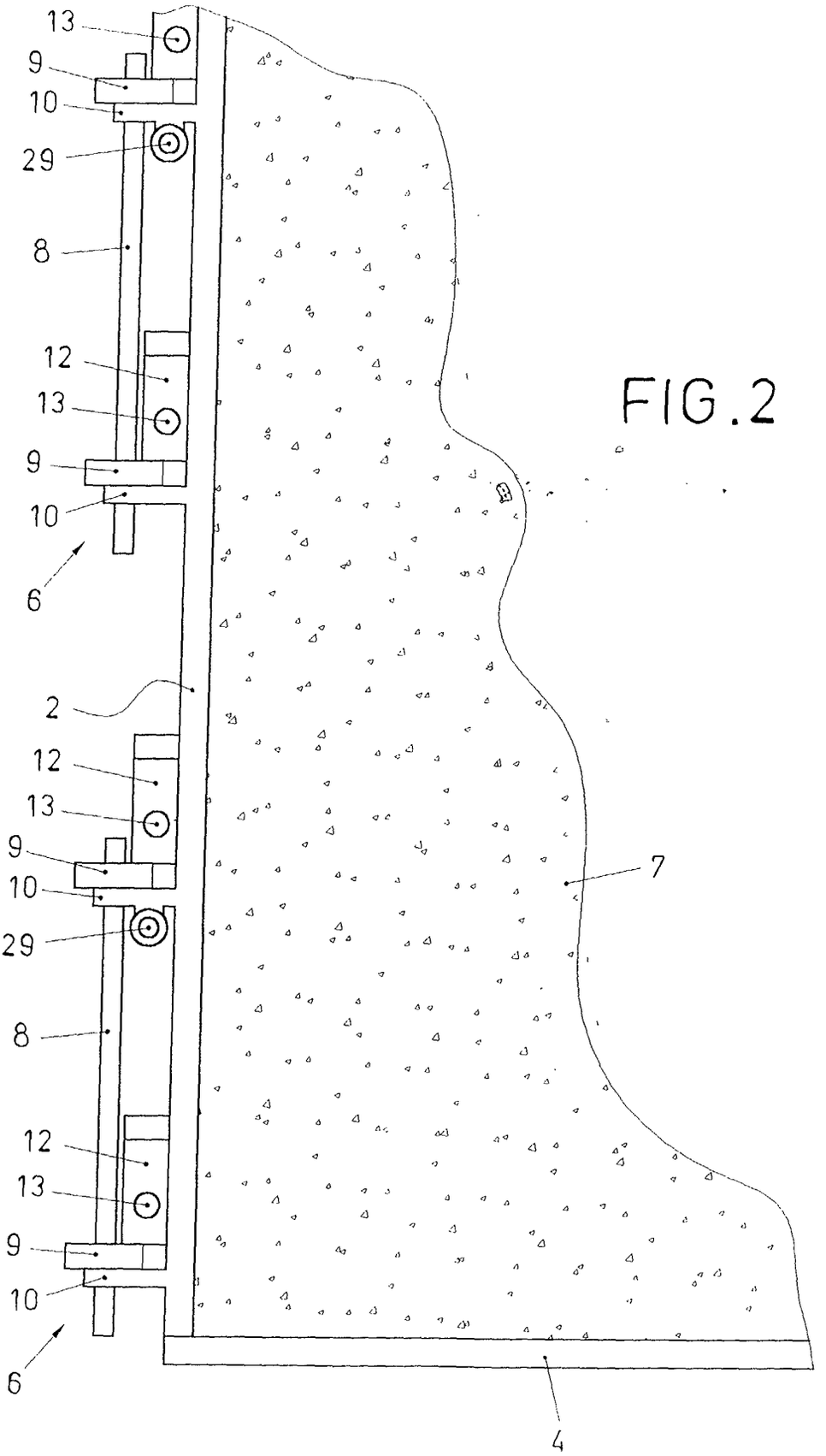

FIG.2

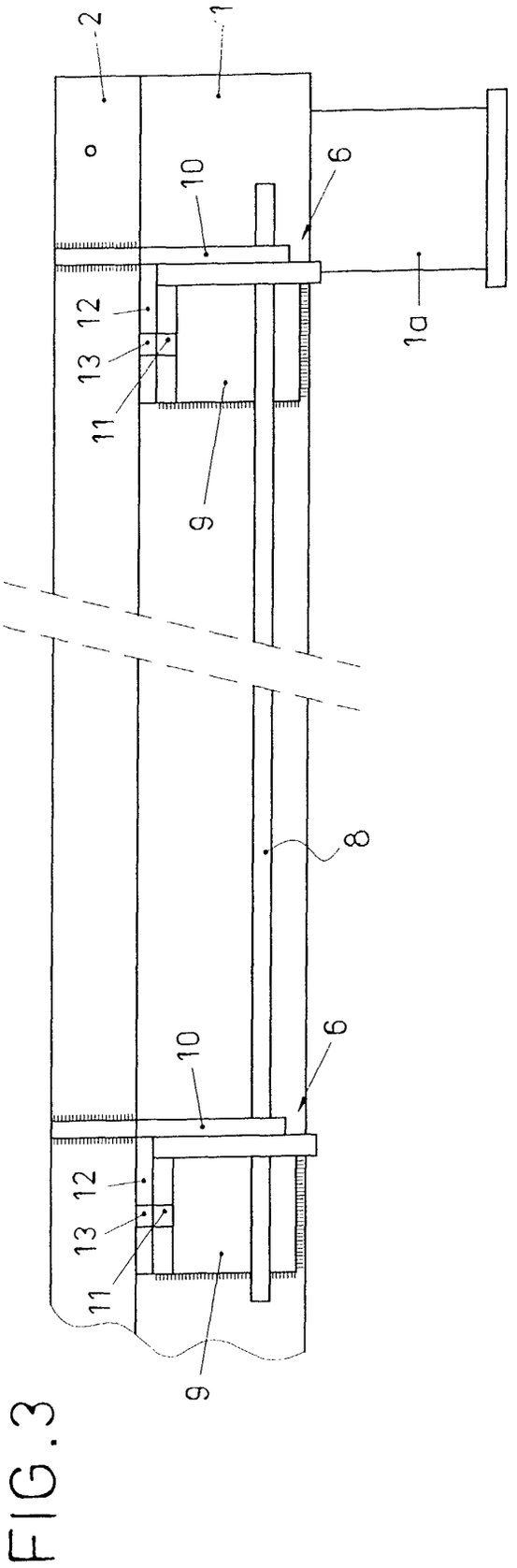
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FIG.3

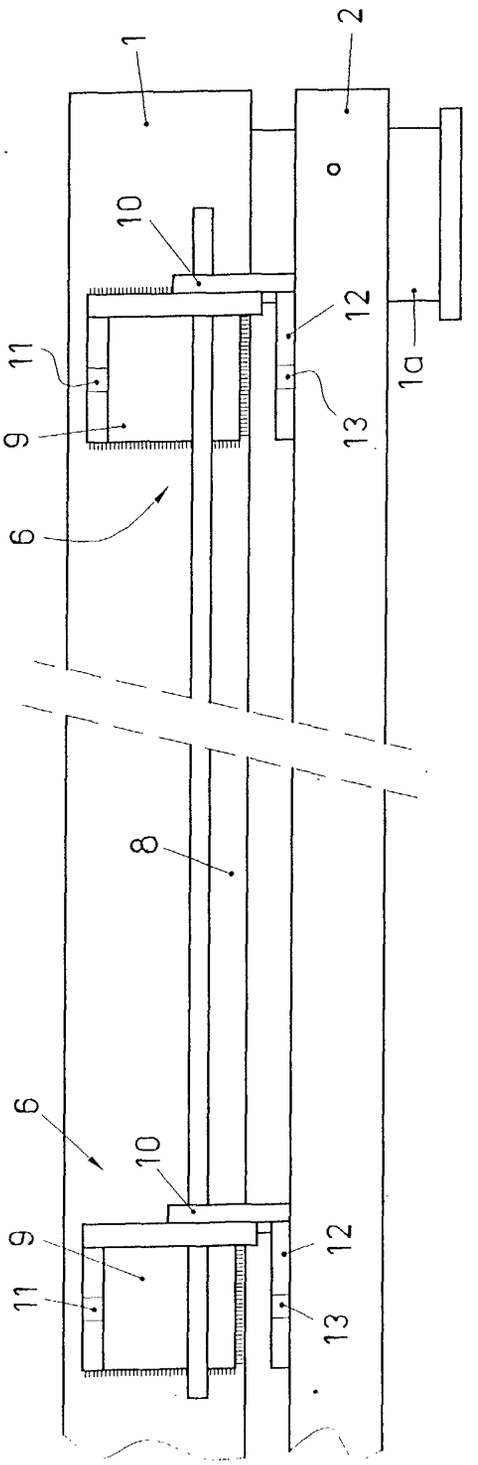
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FIG.4

FIG.5

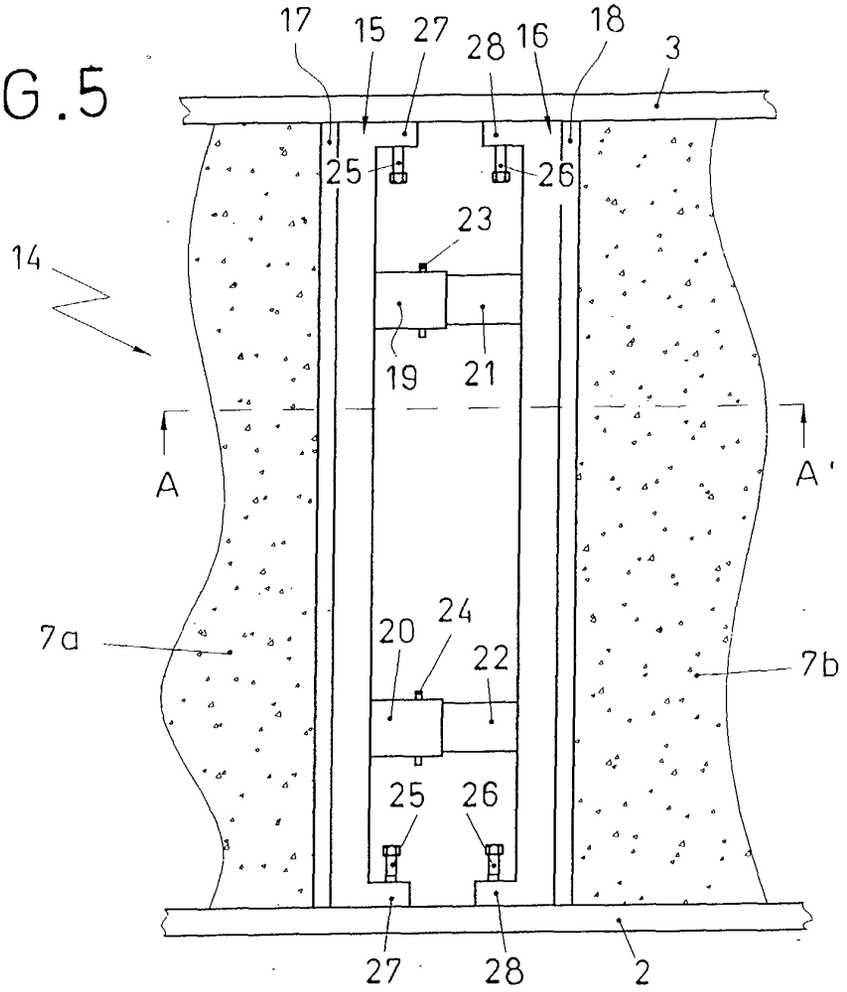

FIG.6

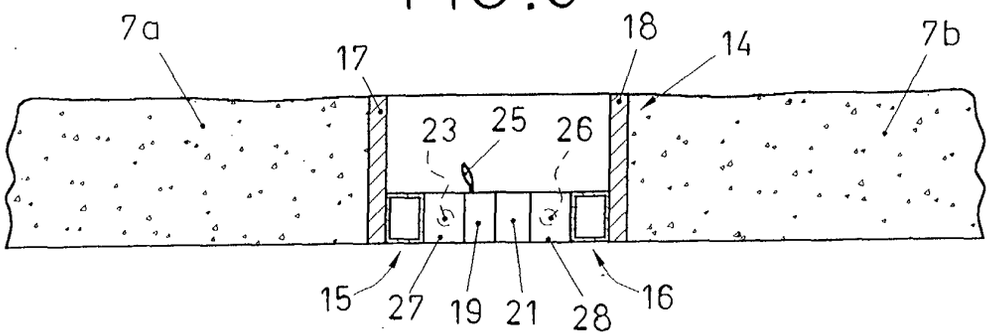

FIG.7