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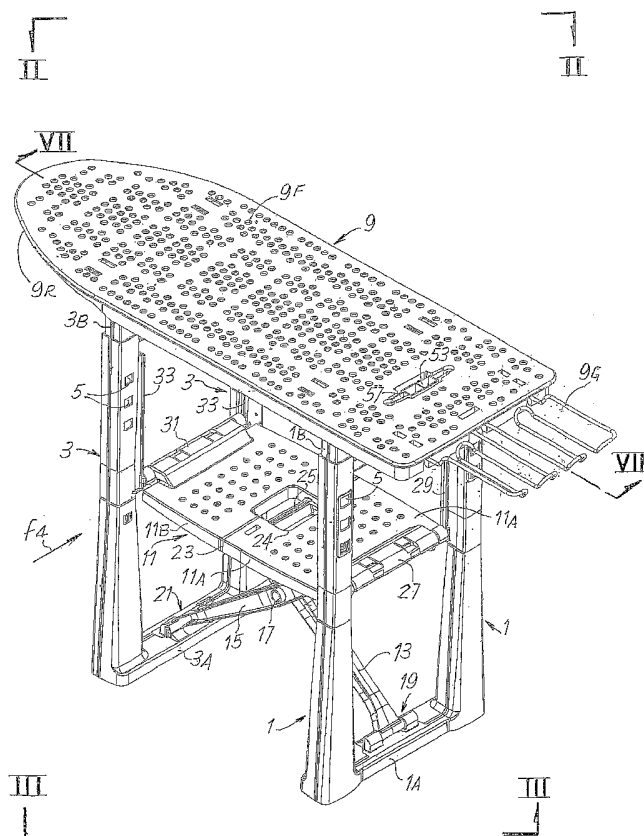
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(54) Title: AN IRONING BOARD FOR DOMESTIC USES, WITH COMPONENTS MAD OF SYNTHETIC RESIN



(57) Abstract: Two pairs of U-shaped uprights (1, 1B, 3, 3B) are connected by a intermediate shelf (11) made of two parts (11A, 11B), which are articulate centrally (in 23) in a position corresponding to a manoeuvring grip (25) on each of which can slide along guides (29; 33) formed by the uprights (1, 3); two further arms (13, 15) are articulated with respect to one another to form an X (in 17) and are articulated to the uprights (1, 3); the working surface (9) is constrained with the possibility of sliding as far as the end of a pair of uprights (3, 3B); the entire assembly can be folded away with minimum encumbrance.

AN IRONING BOARD FOR DOMESTIC USES, WITH COMPONENTS MADE
OF SYNTHETIC RESIN

DESCRIPTION

5 The invention relates to an ironing board for household uses, designed to assume a configuration of use and a configuration of minimum encumbrance with very simple manoeuvres, and the entire assembly being produced at a low cost.

These and other objects and advantages will emerge clearly from the ensuing text.

10 The ironing board according to the invention is substantially constituted by components made of moulded synthetic resin and comprises:

- two pairs of uprights, each having a U-shaped development with a base connection;

- an intermediate shelf in two parts, which is articulated centrally in a position corresponding to a manoeuvring grip and each of which is further articulated to runners for sliding along guides that develop in the upper area of said uprights;

- underneath said intermediate shelf two arms articulated with respect to one another centrally to form an X and at the ends to said base connections of the uprights as well as to said sliding runners; and

- a board, i.e., a working surface, articulated at the ends of one of the two pairs of uprights and designed to rest and to engage at the ends of the other of said pairs of uprights, said board being designed to be sent down against the uprights when said uprights are brought up to one another in a closed configuration.

Closing is performed simply by lifting said manoeuvring grip with folding and raising of said two parts of the intermediate shelf and by closing of the two arms set to form an X.

30 Other features are defined by the claims annexed to the present description.

The invention will be better understood from the ensuing description and the attached plate of drawings, which illustrates a practical non-limiting exemplification of the invention and in which:

Figure 1 shows an overall perspective view of the ironing board in a

configuration of use;

Figures 2 and 3 show a top view taken along the line II-II, and a view from beneath taken along the line III-III, with parts removed;

Figures 4, 5 and 6 are, respectively, a side view according to the arrow f4 of Figure 1 and the two views taken along the lines V-V and VI-VI of Figure 4;

Figures 7, 7A, 7B are, respectively, a cross-sectional view taken along the line VII-VII of Figure 1 and enlarged details thereof, indicated by the arrows F_A and F_B;

Figure 8 shows an enlarged cross-sectional view taken along the line VIII-VIII of Figure 7A;

Figure 9 shows an enlarged cross-sectional view taken along the line IX-IX of Figure 7A;

Figure 10 shows a cross-sectional view taken along the line X-X of Figure 8;

Figure 11 shows a cross-sectional view divided into two parts taken along the line XI-XI of Figure 8;

Figures 12 and 13 are, respectively, a front view taken along the line XII-XII of Figure 13 and a side view taken along the line XIII-XIII of Figure 12, of the ironing board in a folded configuration for storing away;

Figure 14 shows two enlarged portions of the cross section taken along the line XIV-XIV of Figure 12; and

Figure 15 shows an enlarged local cross-sectional view taken along the line XV-XV of Figure 11.

According to what is illustrated in the annexed plate of drawings, the reference number 1 designates two uprights that constitute a pair connected by a base cross member 1A. The reference number 3 designates two further uprights of a further pair that is connected by a bottom base cross member 3A equivalent to the base cross member 1A. Consequently, the central support of the ironing board is constituted by the four uprights 1, 1, 3, 3. These uprights are completed at the top by slidable parts, designated, respectively, by 1B and 3B, connected by cross members 1C and 3C, whereby it is possible to adjust the total height of the uprights, and hence the height to which the working surface can be adjusted. Provided for adjustment on each of the uprights 1 and 3 is a series of slits 5, whilst the telescopic internal parts 1B and 3B,

respectively, have a projection 7 (see in particular Figure 10), which projects to engage in one of the slits 5 and can be pushed elastically inwards to be released from one of the slits 5 to be engaged and re-expanded by snap-action in another of the slits 5 so as to adjust the total height of the uprights constituted by the parts 1, 1B and 3, 3B. In particular, the projections 7 can be made with a lead-in in the top part and a square tooth in the bottom part so that lifting of one part 1B or 3B can be carried out automatically whilst lowering can be obtained just by pressing the projections 7 from outside to release them from the slits 5 – in which they are engaged by resting on the bottom edge – to reduce the total height of the uprights constituted by the components 1, 1B and 3, 3B. The manoeuvres for adjusting the height of the uprights can be subsequently performed for the uprights 1, 1B and for the uprights 3, 3B using both hands to press on the projections 7. With these adjustments it is possible to modify the total height that can be reached by the working surface 9 supported by said uprights 1, 1B, 3, 3B.

The two assemblies 1, 1A and 3, 3A are constrained to one another via an intermediate shelf 11 and via a pair of arms 13 and 15 articulated centrally with respect to one another in 17 and further articulated in 19 to the base cross member 1A and in 21 to the base cross member 3A, respectively. The intermediate shelf 11 is constituted by two parts 11A, 11B, which are articulated centrally with respect to one another in 23 in a position corresponding to a manoeuvring grip 25, which extends through a slit 24. The part 11A of the intermediate shelf 11 is further articulated to a runner 27, which can slide along longitudinal guides 29 formed on the uprights 1, whilst the part 11B is further articulated to a runner 31, which can slide along longitudinal guides 33 formed on the uprights 3, in a way similar to the guides 29 of the uprights 1. The two arms 13 and 15 – which are articulated at the bottom in 19 and 21 to the base cross members 1A and 3A – are articulated at the top, respectively, in 39 to the runner 31 and in 37 to the runner 27.

The two telescopic top parts 1B of the uprights 1 are connected to one another at the top by a cross member 1C whilst the telescopic parts 3B of the uprights 3 are connected at the top by a cross member 3C. The uprights 1 can be connected at the top by a cross member 1E and, in a position corresponding to the uprights 3, can be connected at the top by a cross member 3E.

The cross member 3C has (see, in particular, Figures 7, 11, 15) two appendages set at a distance apart from one another, which constitute a projecting transverse double articulation 41. The two parts of this double articulation 41 can slide within longitudinal guides defined by two longitudinal cavities 9R formed under the working surface 9 and by an applied element 42, which at the ends has two expansions 42A designed to slot by snap-action into seats 9T formed under the working surface 9. In this way, the guides 43 are formed for sliding of the transverse articulations 41, which thus can enable sliding and angular inclination of the assembly 3, 3C constituting one of the two pairs of uprights 1 and 3, underneath the working surface and along the guides 43. In practice, the articulations 41 enable a rotation of the working surface 9 between a horizontal configuration and a vertical configuration, and also enable sliding of the working surface 9 when this is brought into the vertical configuration so as to obtain a reduction of the vertical overall dimensions of the assembly when it is folded for storing away with minimum encumbrance.

The telescopic parts 1B of the uprights 1 have, in a position corresponding to their cross member 1E, projections 45 tapered upwards, which are designed to be received in corresponding seats 47 formed at the bottom by the working surface 9. In this way, the centred resting of the working surface on the uprights 1, 1B is stabilized in the configuration of use of the working surface 9.

Provided in the central area of the cross member 1C that connects the two parts 1B of the uprights 1 is a recess 1F, which enables the formation of a projecting tooth 49, as is visible, in particular, in Figures 7 and 14, 14A, 14B. Accordingly, formed underneath the working surface 9 is an elastic tooth 51, which, by co-operating with the tooth 49, enables engagement of the working surface on the snap-action uprights 1, 1B when the working surface is rested on said uprights and in particular on the cross member 1E of the telescopic parts 1B of the uprights 1. Advantageously, this tooth 51 is made by moulding together with the working surface 9. The tooth 51 is in fact formed in a position corresponding to a slit 55, in which a core 53 extends, which forms the tooth 51. This core 53 is connected to the ends of the slit 55 with appendages 57, which enable a limited elastic torsion of the core 53 about the axis defined by said appendages 57, in such a way as to enable elastic engagement of the tooth 51

with the tooth 49. The core 53 has a manoeuvring appendage 61, which enables the user to rotate the core 53 limitedly in the direction indicated by the arrow f61 in order to enable release of the tooth 51 from the tooth 49 and hence enable detachment of the working surface 9 from the structure of the cross member 1E and hence from the parts 1B of the uprights 1.

The working surface 9 has a plurality of holes 9F, which enable the possibility of transpiration when the working surface is used for ironing with overlaying of a relatively soft and permeable coating. The working surface 9 at one end has a tapering 9R, which is typical of the working surfaces of ironing boards, whilst at the opposite end said working surface is provided with a metal grill 9G. The grill 9G can be made by means of drawn metal rod, which is engaged in appropriate projections underlying the top surface of the working surface. This grill 9G enables resting of the iron, which, when it is hot cannot rest on the structure made of thermoplastic synthetic resin with which the majority of the components of the ironing board according to the invention are made.

The assembly in the configuration of use (Figures 1 to 8) is strengthened by the presence of the arms 13, 15 articulated to form an X, which are expanded to maintain the connecting cross members 1A and 3A of the uprights 1 and 3 at a distance. The intermediate shelf 11 is kept in the lowest position allowed by the guides 29, 33 with the two parts 11A and 11B coplanar with respect to one another. In the working position, the articulations 41 are displaced in the direction indicated by the arrow f41 from the area of the slit 55 and of the core 53 and hence at a distance from the uprights 1, whereas the working surface, as a result of the engagement between the projections 45 and the seats 47, remains engaged to the cross member 1E of the parts 1B of the uprights 1 and withheld in this position by the engagement created between the teeth 51 and 49 that have snapped together by sliding of the respective inclined surfaces with the operation of resting the working surface on the cross member 1E of the uprights 1. The assembly thus remains stable for use.

When the user wishes to modify the assembly in the working configuration of Figure 1 in order to bring it into the configuration of minimum encumbrance for storing away as illustrated, in particular, in Figures 14 and 14A, it is sufficient to act in the direction indicated by the arrow f61 on the

appendage 61 of the core 53 in order to displace the tooth 51 elastically and release it from the tooth 49 so that the working surface 9 is freed from the engagement that was previously performed between 49 and 51 and can be raised by rotation about the articulations 41. The intermediate shelf 11 can be modified from the coplanar configuration of its parts 11A, 11B acting on the grip formed by the two cross-members 25 accessible from the slit 24 in order to raise said grip in the direction indicated by the arrow f25. In this way, the two parts 11A and 11B are inclined with respect to one another until they are made to mate together in the configuration of Figures 14 and 14A, and by raising simultaneously the two parts 11A and 11B along the guides 29 and 33 the mutual inclination between the two arms 13 and 15 about the articulation 17 is brought about until these two arms are set alongside one another in the configuration shown in Figures 14. The working surface 9 can be made to slide with the articulations 41 along the guides 43 formed underneath the working surface 9 until these articulations 41 are brought up close to the core 53. The working surface 9, raised by the cross member 1E and brought into a vertical configuration, can be brought with its own tapered end 9R approximately up against the resting base cross member 3A in the conditions of the working surface in a vertical position set alongside the uprights 3. In practice, the working surface 9 comes to lie alongside the ensemble of the two uprights 1 and 3 which are set side by side and between which the arms 13 and 15, as well as the two parts 11A and 11B of the intermediate shelf 11, come to be set. In this way, a configuration of relatively small thickness is achieved, which enables storing away of the ironing board in a minimum space in the upright position which practically does not exceed the longitudinal dimension of the working surface 9 with its grill 9G.

By reversing the order of the operations starting from the stored-away configuration illustrated in Figures 14, it is possible to return to the working configuration, by sliding the articulations 41 along the guides 43 in order to move the uprights 1 away from the uprights 3 and to bring the two parts 11A, 11 flat, and by resting the plane 9 on the cross member 1E until the tooth 51 snaps into engagement underneath the tooth 49.

From what is described and illustrated above, it is clear that the ironing board is formed by mouldable components made of thermoplastic synthetic

resin, which can be assembled in a simple way using elastic snap-action connections. It should be noted that also the articulations are all made with partially cylindrical seats (just over 180°) in order to enable penetration of the articulation pins, which, where necessary, are also made with a partially cylindrical development. Assembly of the ironing board, which can be carried out very fast in the factory or even in sales points, and the overall dimensions of the assembly are very limited (see Figures 13 and 14, etc.) for packaging and transportation, and for storing away in the home, where the modifications of configuration for use and storage are extremely simple and fast.

It is understood that the plate of drawings just shows one exemplification provided only by way of practical embodiment of the invention, it being possible for the invention to vary in its embodiments and arrangements, without thereby departing from the scope of the idea underlying the invention itself. The possible presence of reference numbers in the annexed claims has the purpose of facilitating reading thereof with reference to the description and to the plate of drawings and in no way limits the sphere of protection represented by the claims.

CLAIMS

1. An ironing board for domestic uses, characterized in that it is constituted by components made of moulded synthetic resin and in that it comprises: two pairs of uprights (1, 1B, 3, 3B), each having a U-shaped development with base connections (1A, 3A); an intermediate shelf (11) made
5 of two parts (11A, 11B), which are articulated centrally (in 23) in a position corresponding to a manoeuvring grip (25) and each of which is further articulated to runners (27, 31) for sliding along guides (29, 33), which develop in the upper area of said uprights (1 and 3); underneath said intermediate shelf
10 (11) two arms (13, 15) articulated with respect to one another centrally to form an X (in 17) and at the ends (in 19, 21) to said base connections (1A, 3A) of the uprights (1, 3) and to said sliding runners (27, 31); and a board, i.e., a working surface (9), which is slidably constrained with articulation (41) up to the end of one pair of uprights (3, 3B, 3C) and is designed to rest and to engage with the
15 end of the other pair of uprights (1, 1B, 1C) or, alternatively, to be sent down against the uprights (3, 1) when said uprights are brought up against to one another in a closed configuration; closing being carried out by lifting said manoeuvring grip (25), with folding and lifting of said two parts (11A, 11B) of said intermediate shelf (11) and with closing of the two arms (13, 15) that form
20 an X.

2. The ironing board according to Claim 1, characterized in that said working surface (9) is slidably articulated (in 41) along guides (43), formed, at the bottom, by said working surface with shapings and with applied elements (42), in order to enable lowering of the working surface (9) in its vertical, closed,
25 configuration.

3. The ironing board according to Claim 1 or 2, characterized in that said working surface (9) is provided with a snap-action hooking member (53, 51) designed to engage to a tooth (49) present at the end of the pair of uprights (3) on which said working surface is to rest in a horizontal configuration of use; said snap-action hooking member (53, 51) being manoeuvrable by hand with a
30 manoeuvring appendage (61) for release from beneath of said working surface.

4. The ironing board according to Claim 3, characterized in that said snap-action hooking member (51, 53) is obtained by moulding together with the working surface (9), it developing through a slit (55) of the working surface with

shaped appendages (57) to enable a sufficient elastic torsion to obtain snap-action engagement and release.

5 5. The ironing board according to at least one of the preceding claims, characterized in that the working surface (9) has a plurality of distributed holes (9F), for purposes of transpiration and lightening.

6. The ironing board according to at least one of the preceding claims, characterized in that each of the uprights develops in two telescopic parts (1, 1B; 3, 3B), which can be blocked in various positions for height adjustment of the working surface.

10 7. The ironing board according to Claim 6, characterized in that each of the uprights has, at one end, a plurality of slits (5) and, at the other, a projection (7), which is designed to elastically project and exert contrast in one or the other of said slits; the two projections (7) of each pair of uprights (1, 1B; 3, 3B) being manoeuvrable simultaneously with both hands, for adjustment to
15 the desired level.

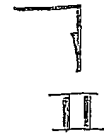
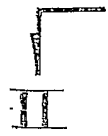
8. The ironing board according to at least one of the preceding claims, characterized in that associated to the working surface (9) is a projecting metal grill (9G) for constituting a rest for the iron.

20 9. The ironing board according to at least one of the preceding claims, characterized in that articulations between various components are obtained with pins and with open housings shaped for receiving the respective pins laterally by snap action.

25 10. The ironing board according to Claim 1, characterized in that said manoeuvring grip is formed by two cross members (25) set alongside one another in the articulated coupling between the two parts (11A, 11B) of the intermediate shelf (10), the cross members extending through a slit (24).

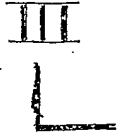
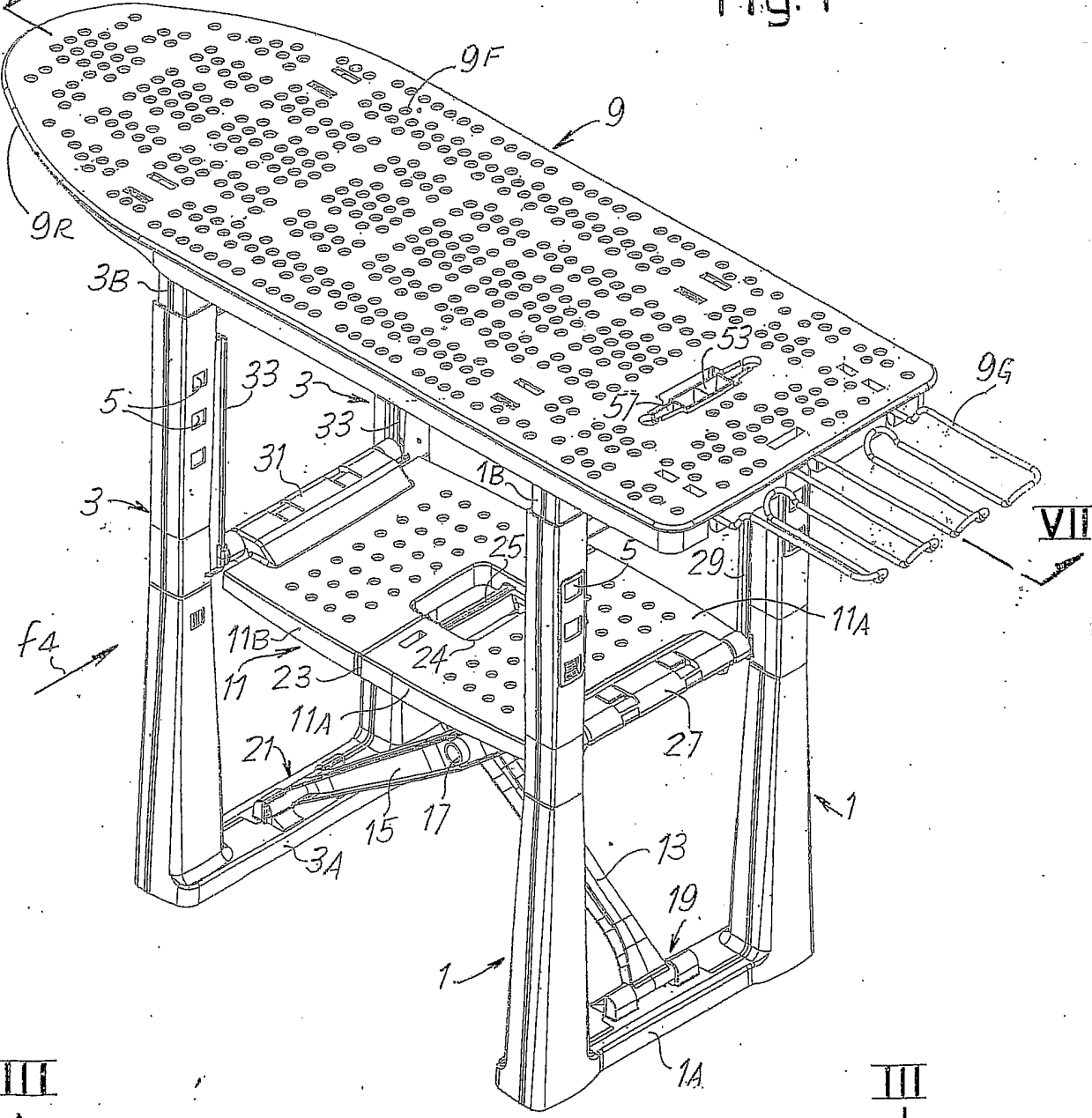
11. An ironing board for domestic uses, with components made of synthetic resin; the foregoing as described above and represented by way of example in the annexed plate of drawings.

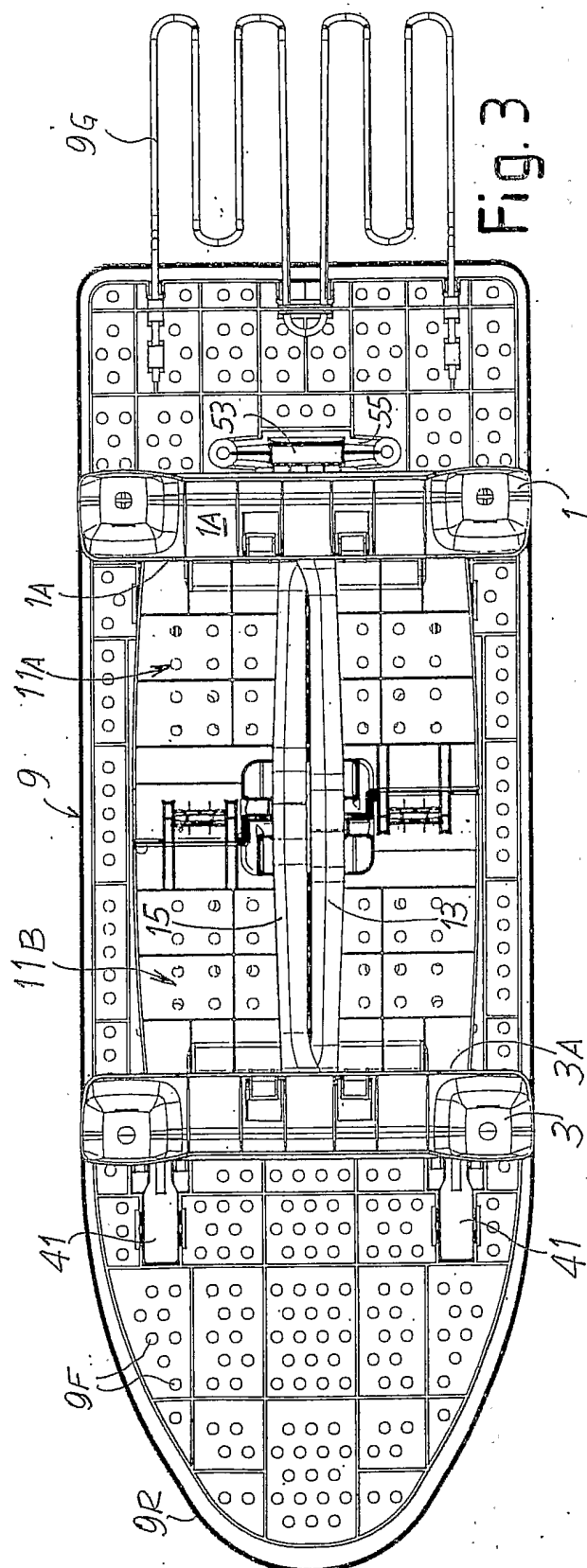
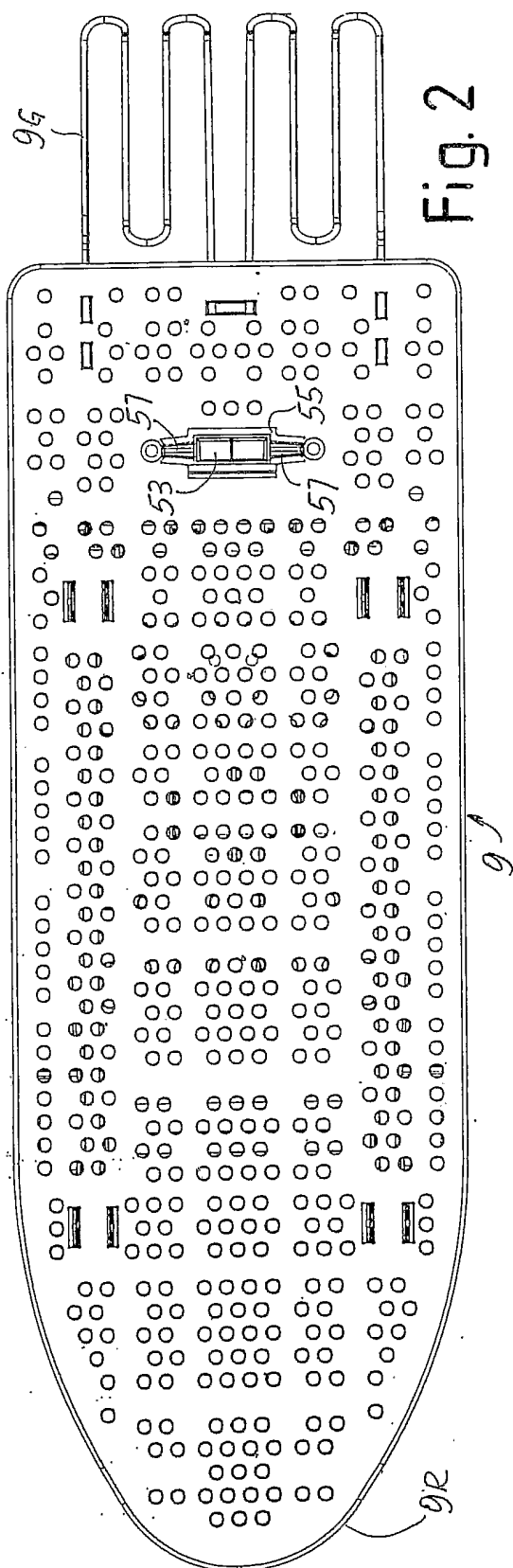
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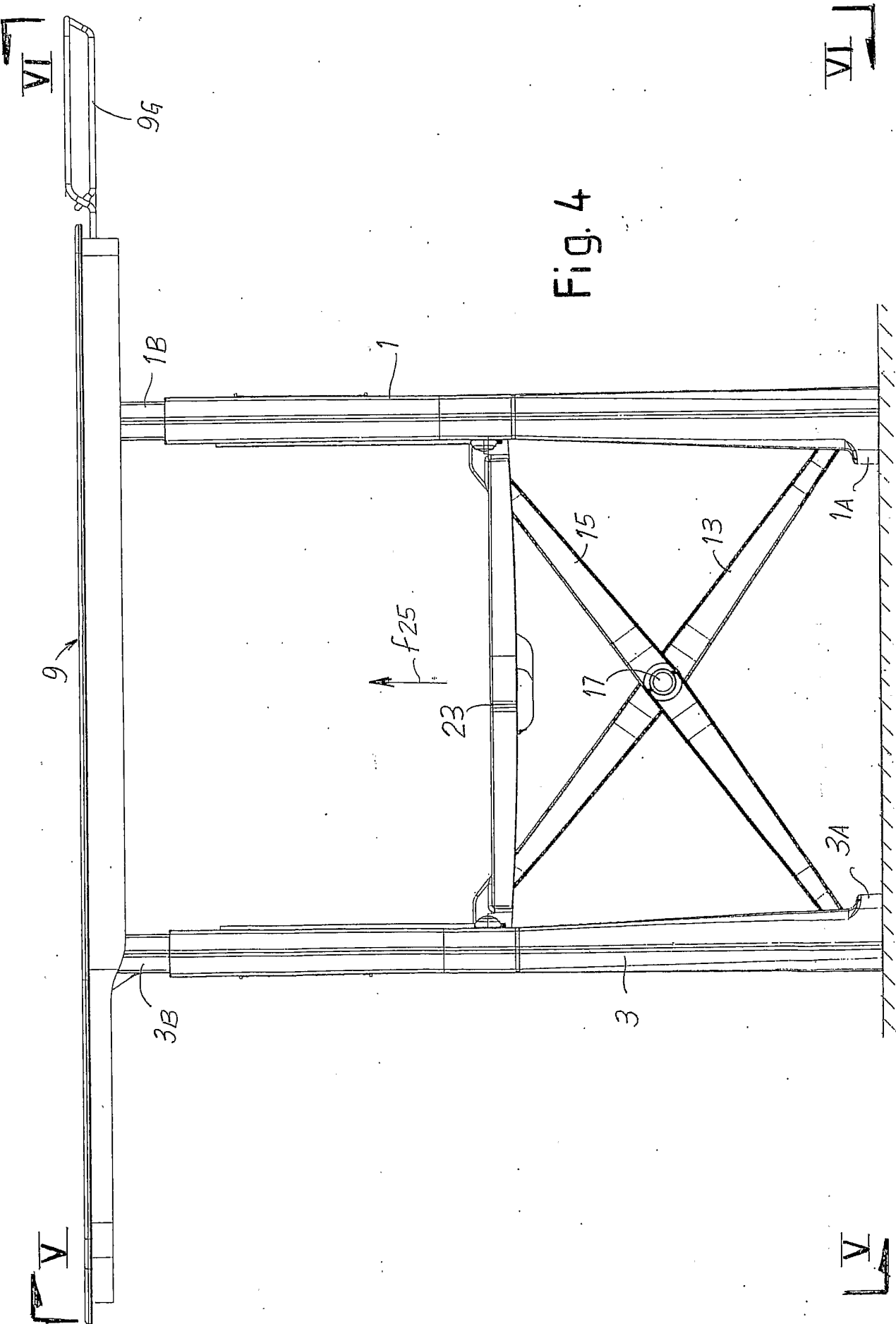
VII

Fig. 1





3/14



4/14

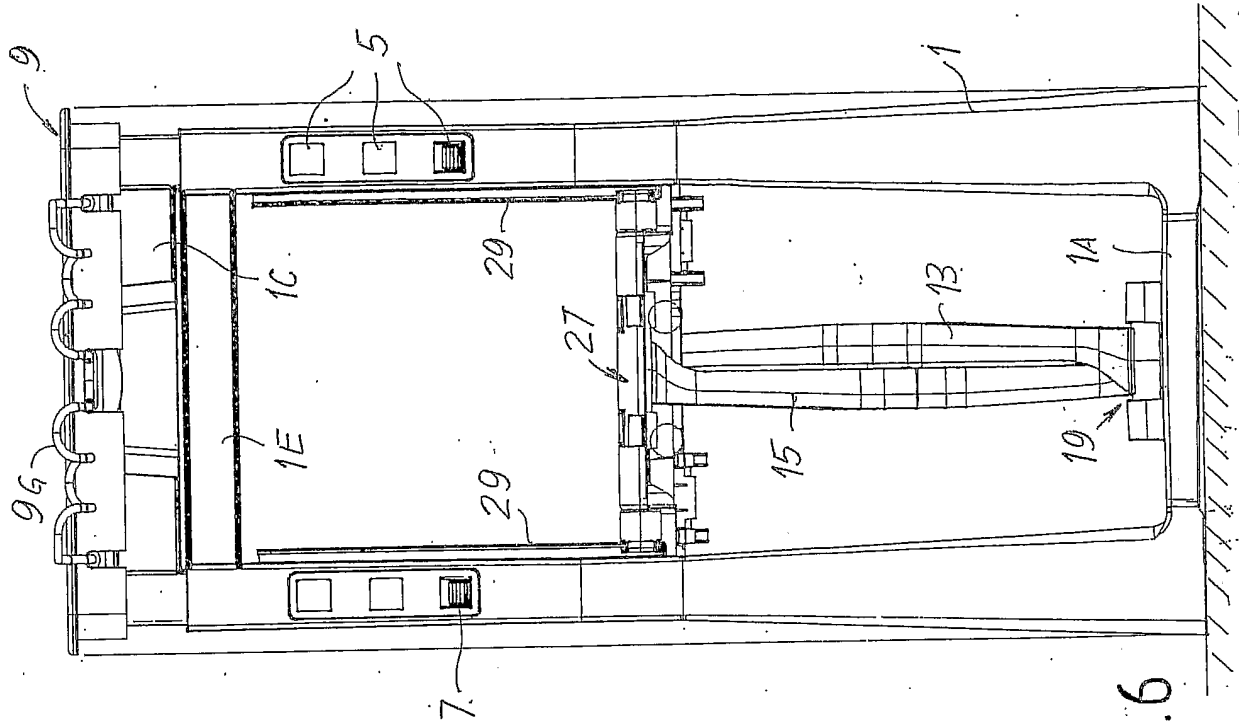


Fig. 6

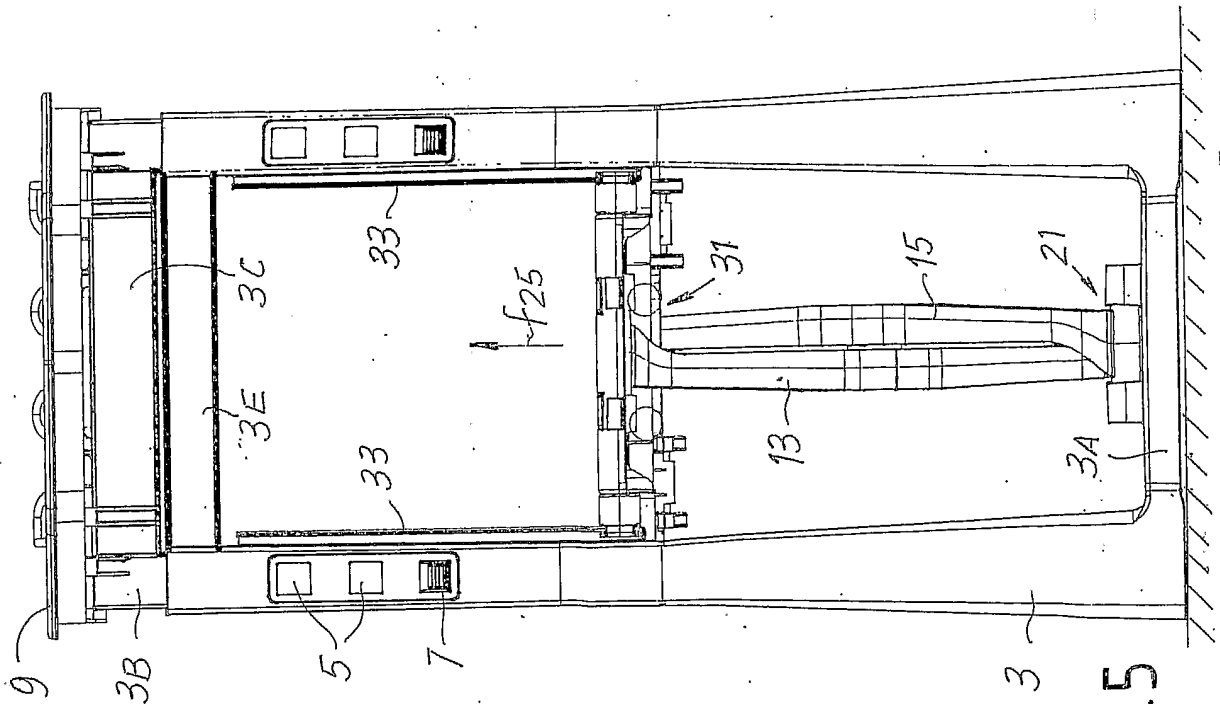
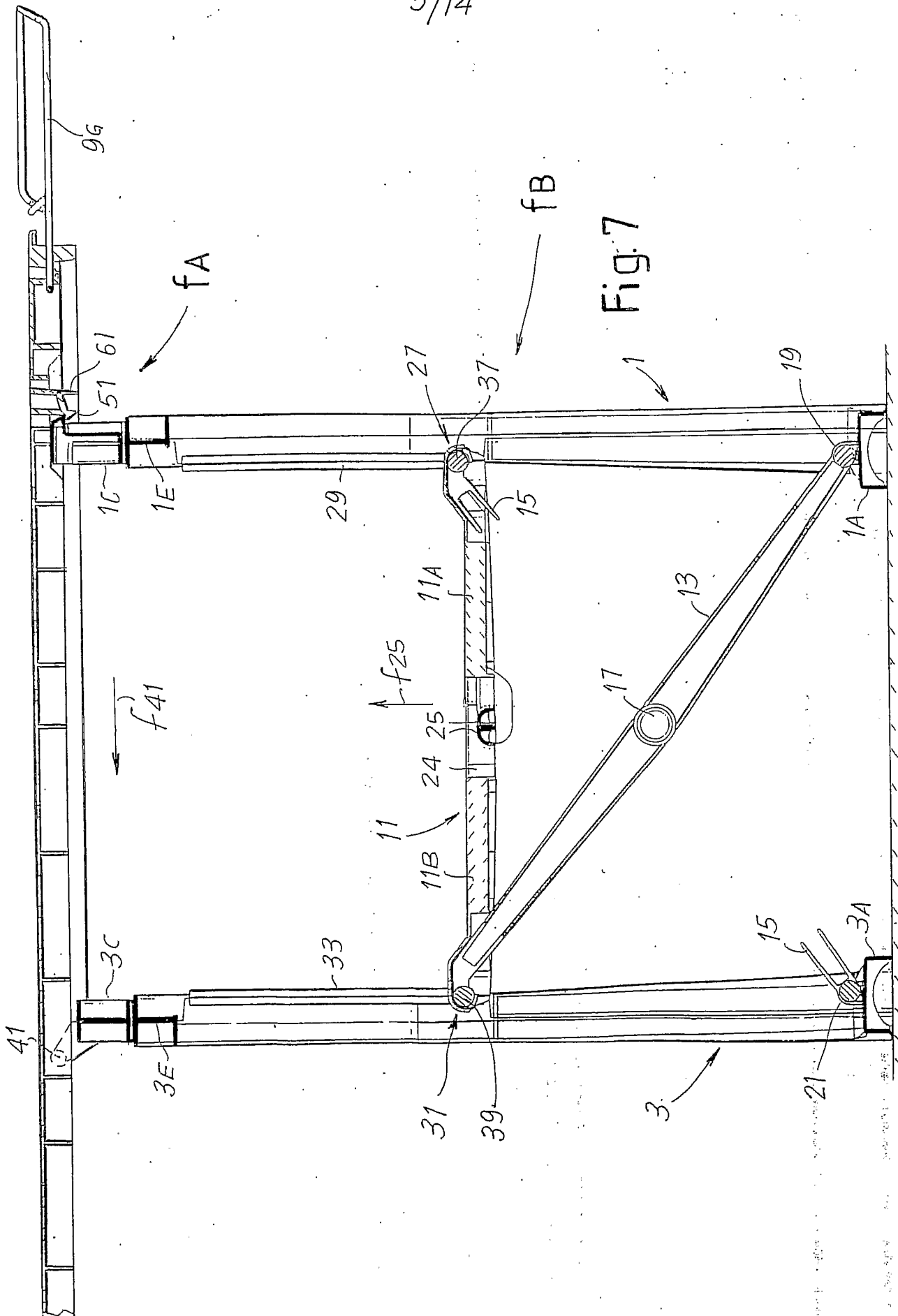
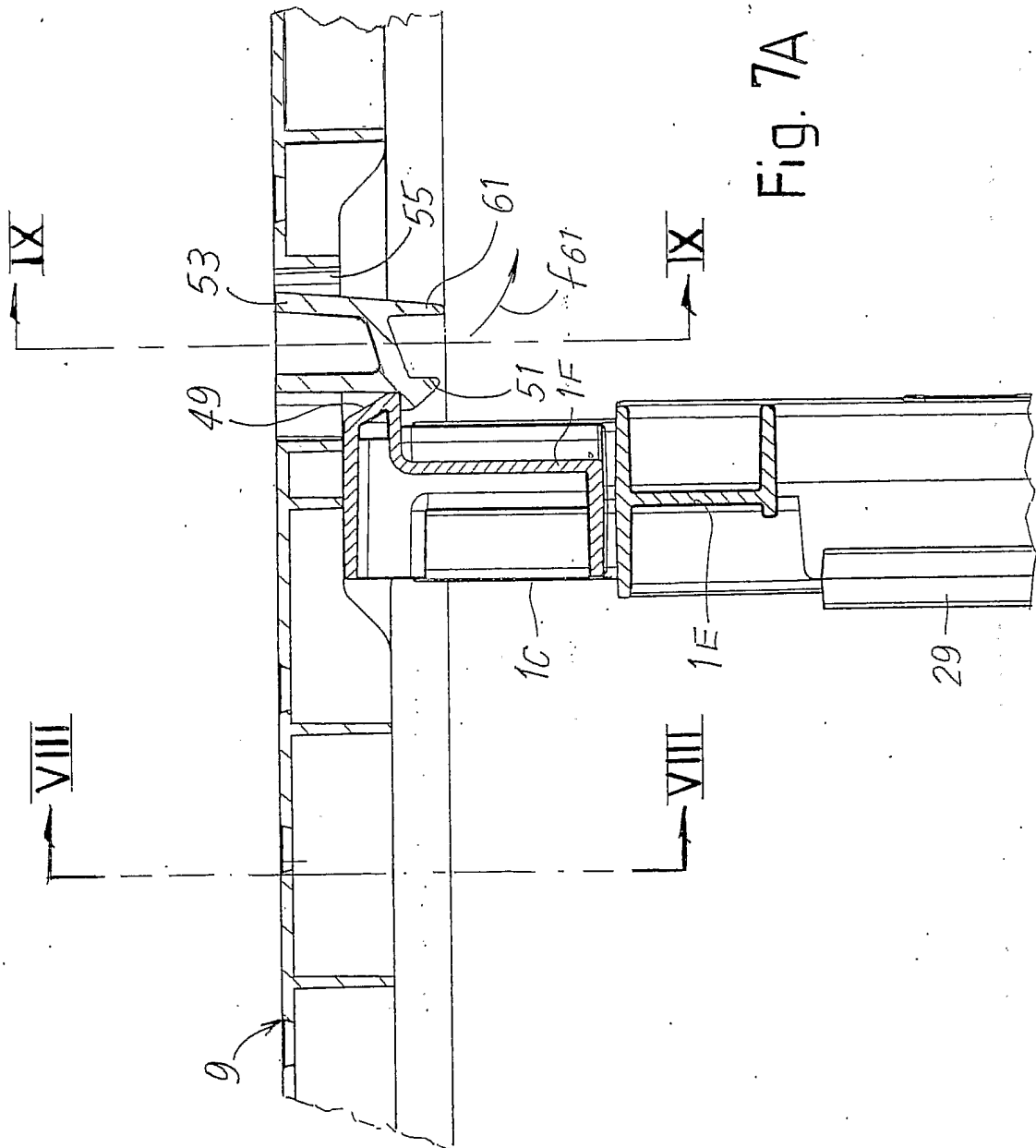


Fig. 5

5/14



6/14



7/14

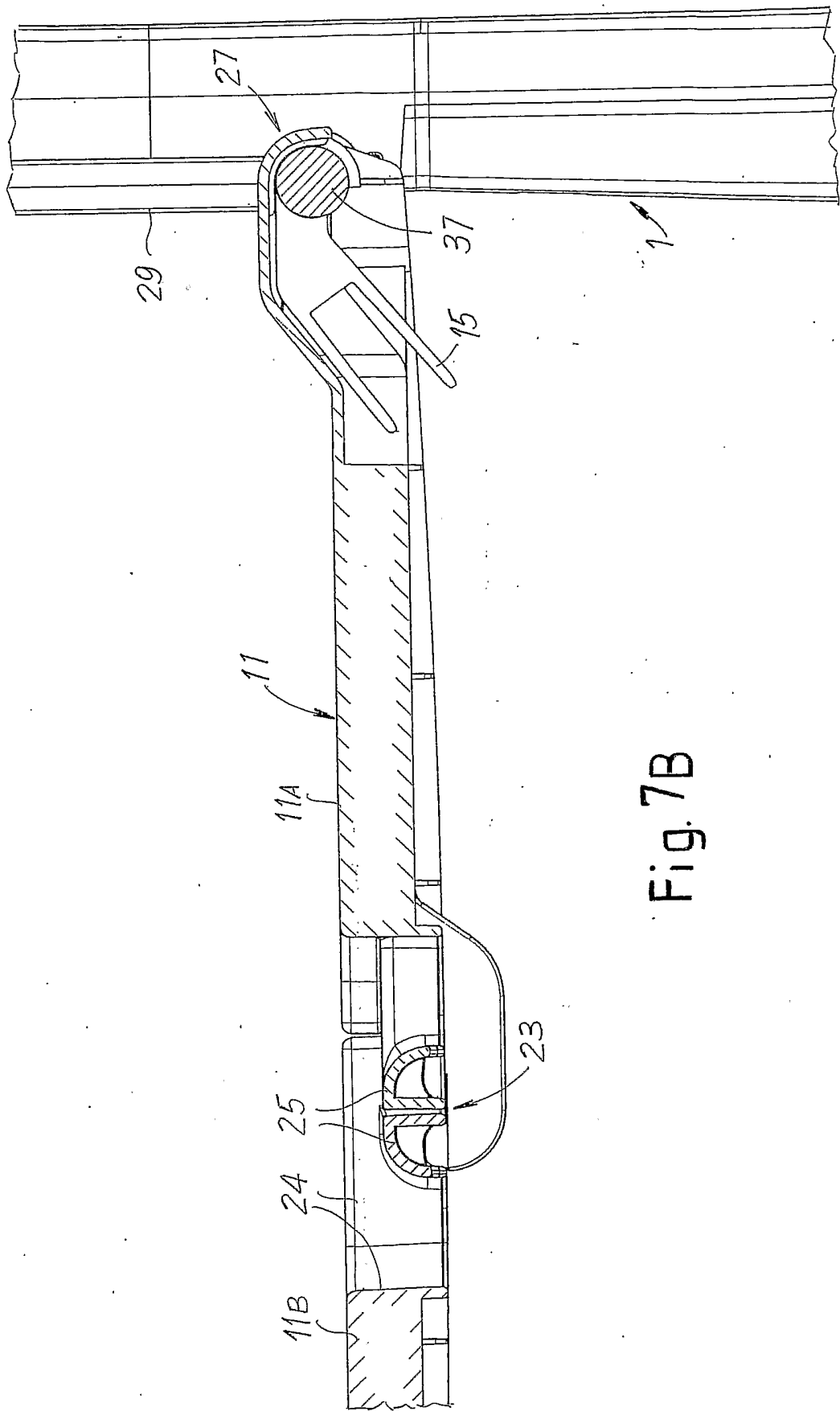


Fig. 7B

8/14

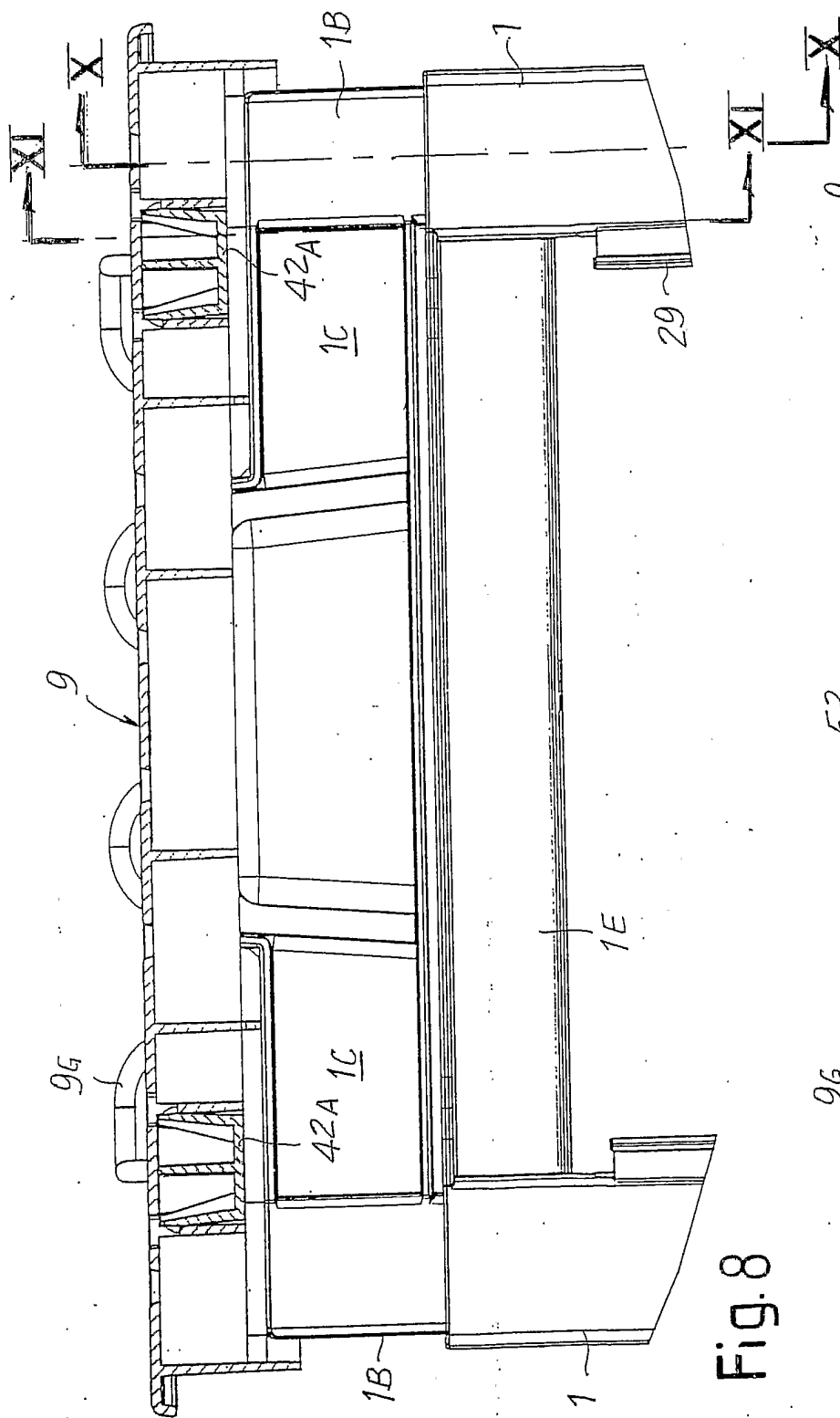


Fig. 8

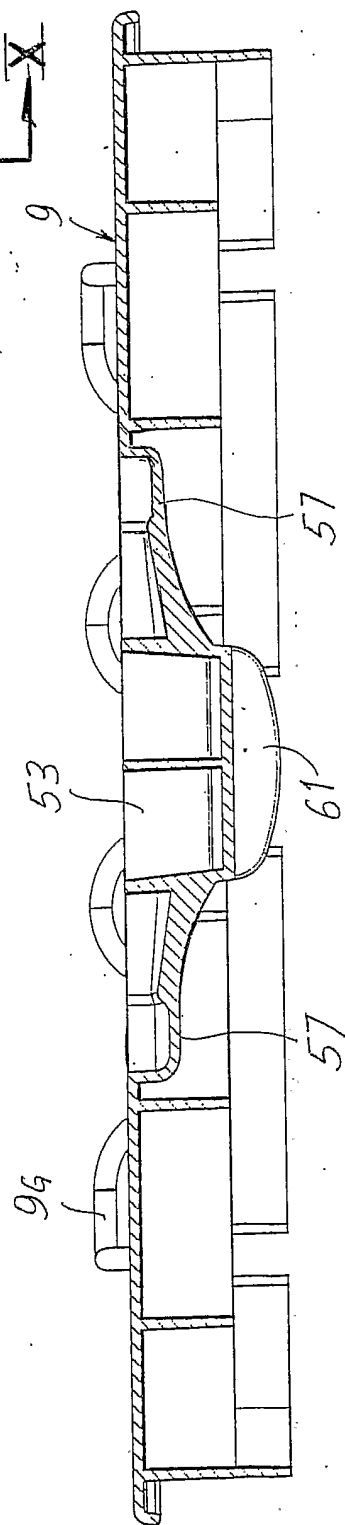


Fig. 9

9/14

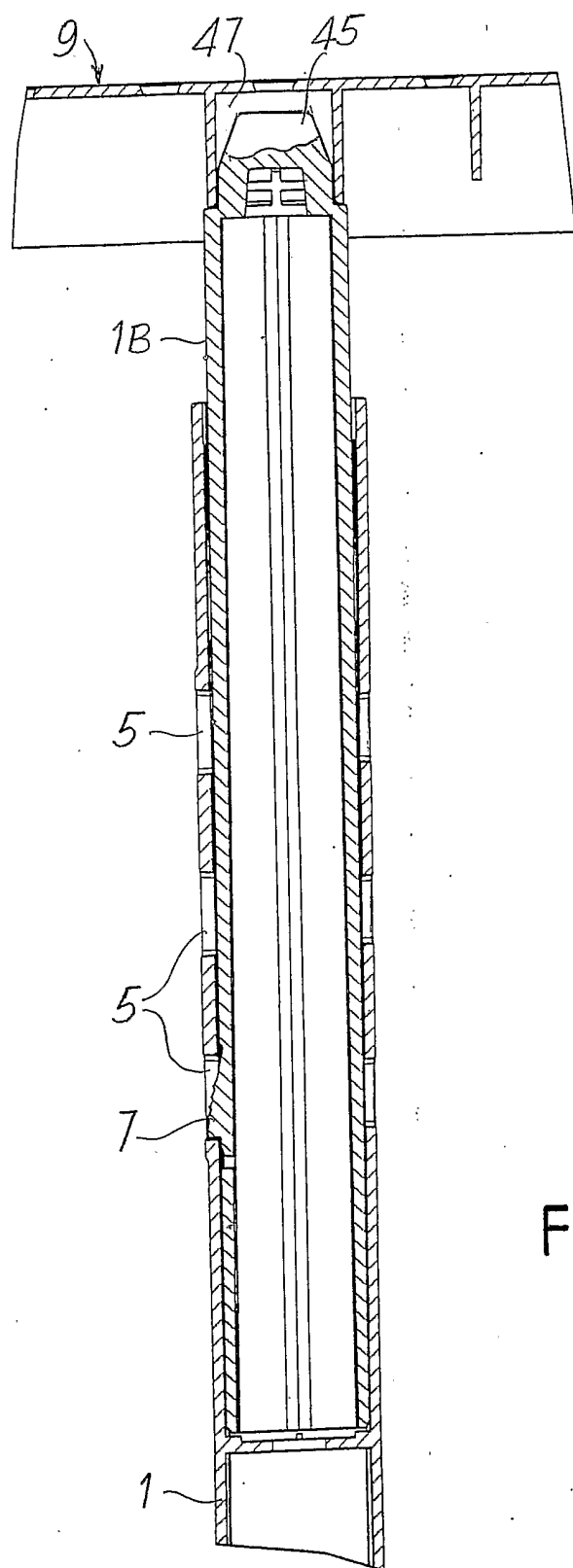
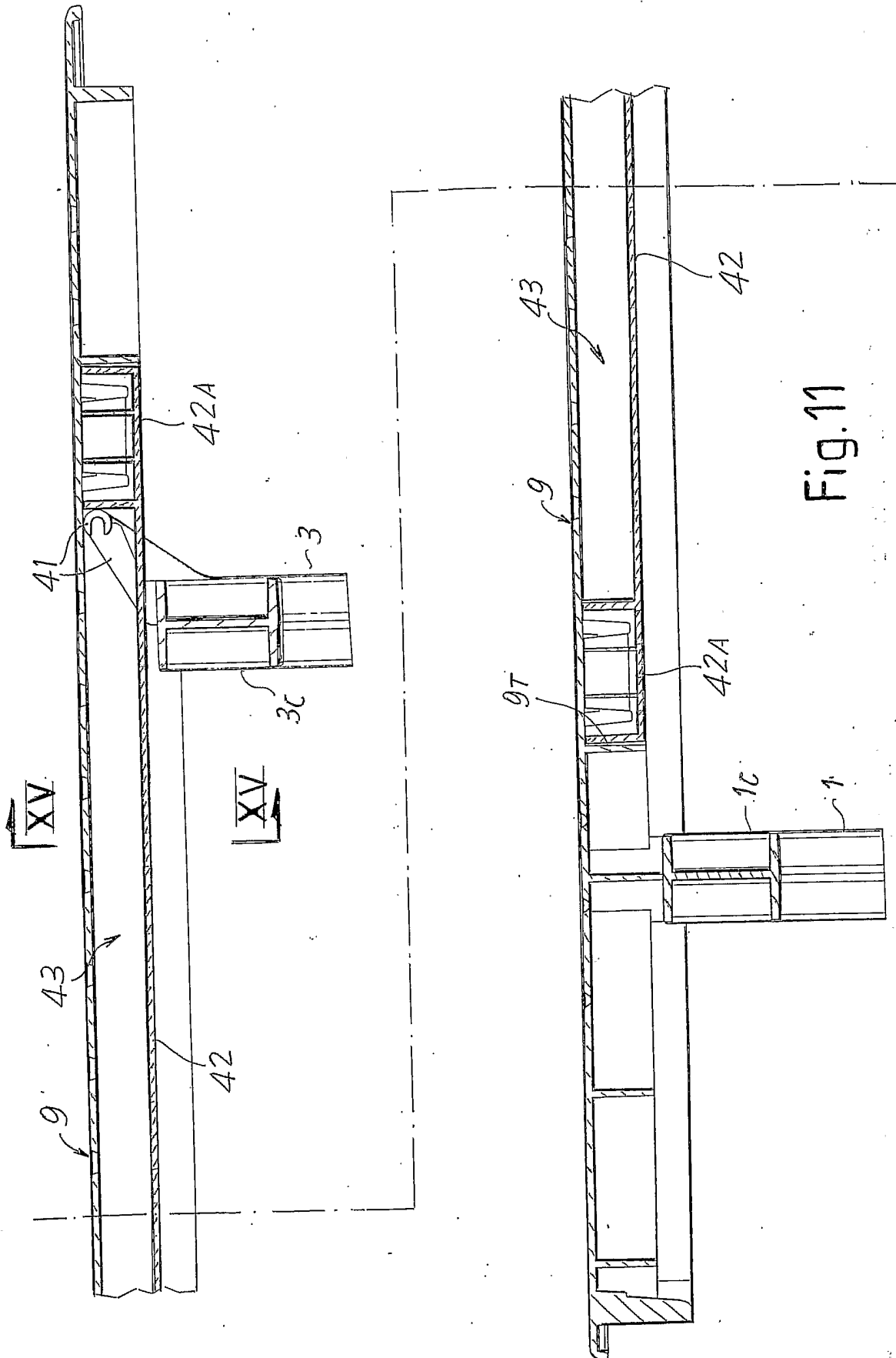


Fig. 10

10/14



11/14

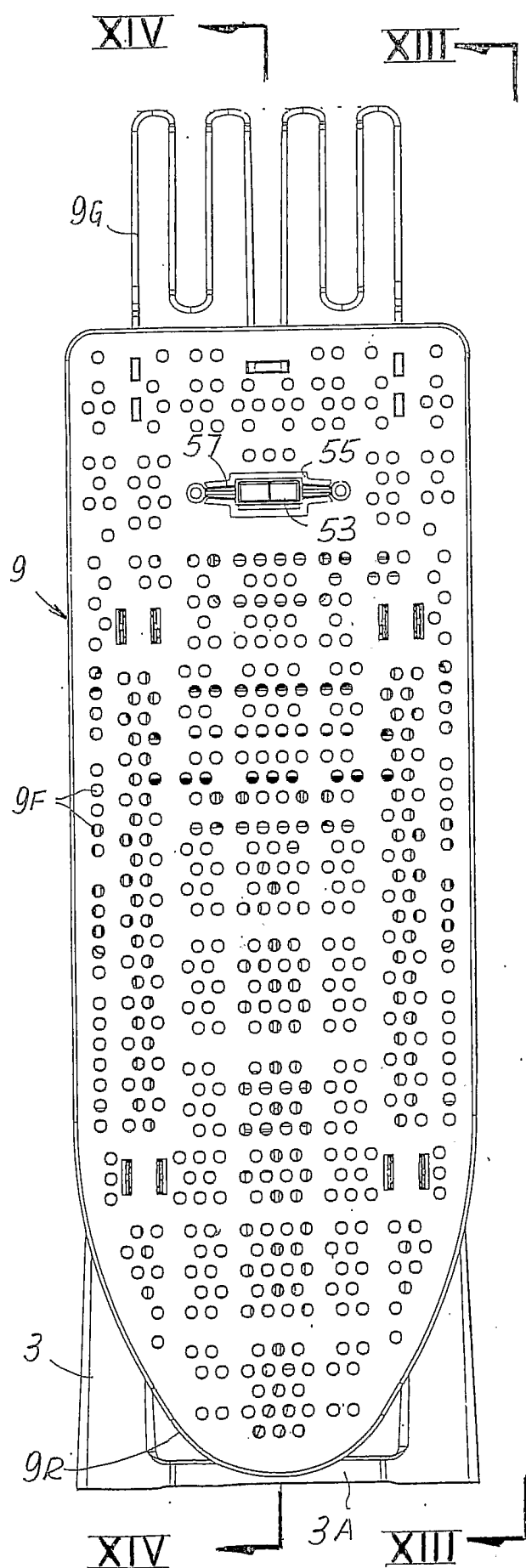


Fig.12

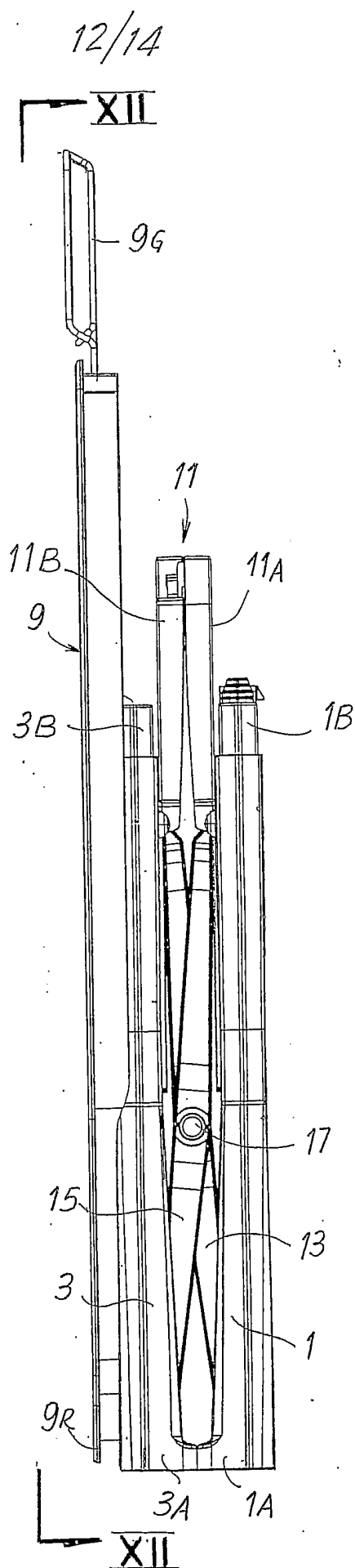
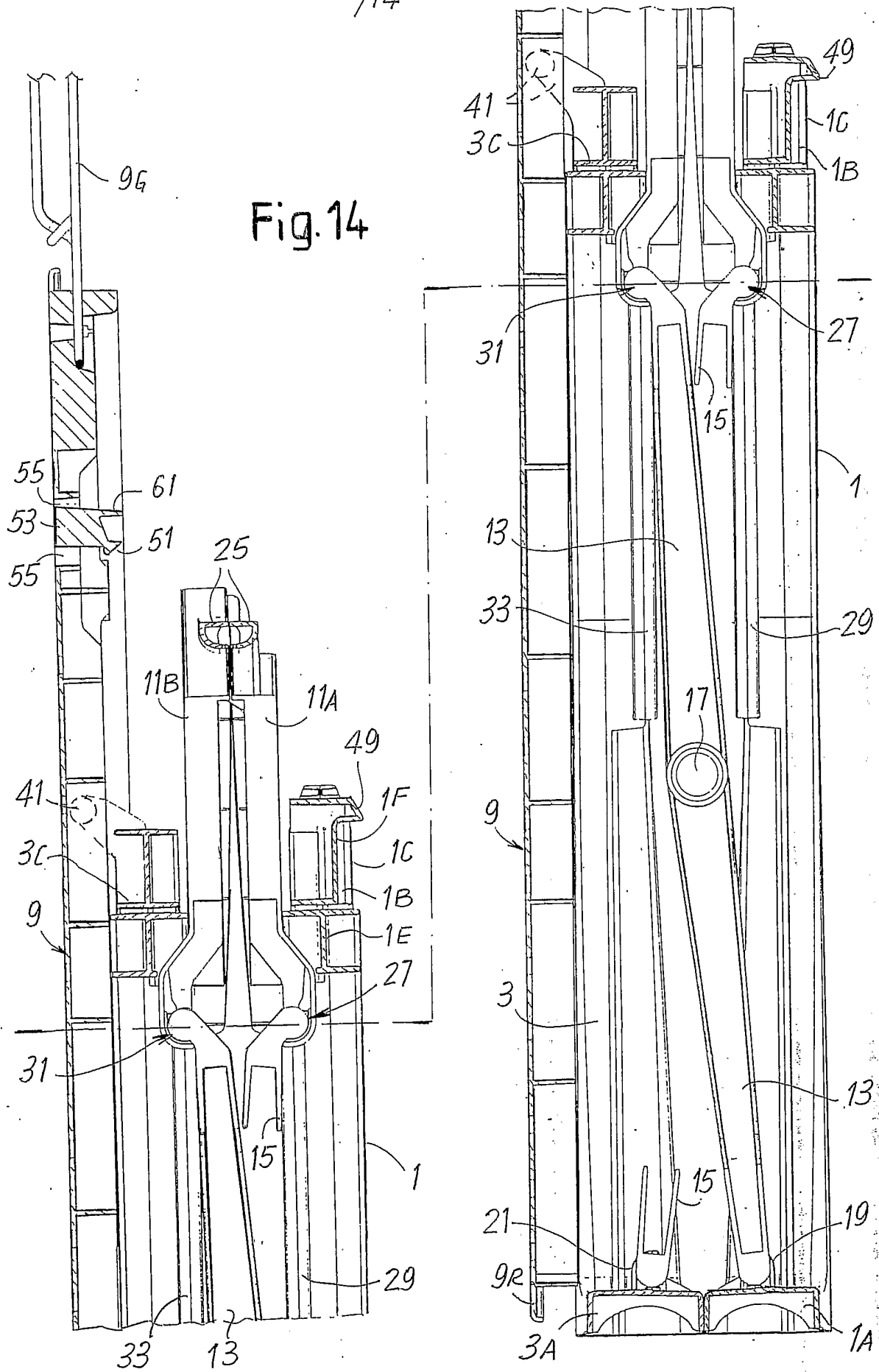


Fig.13

13/14

Fig.14



14/14

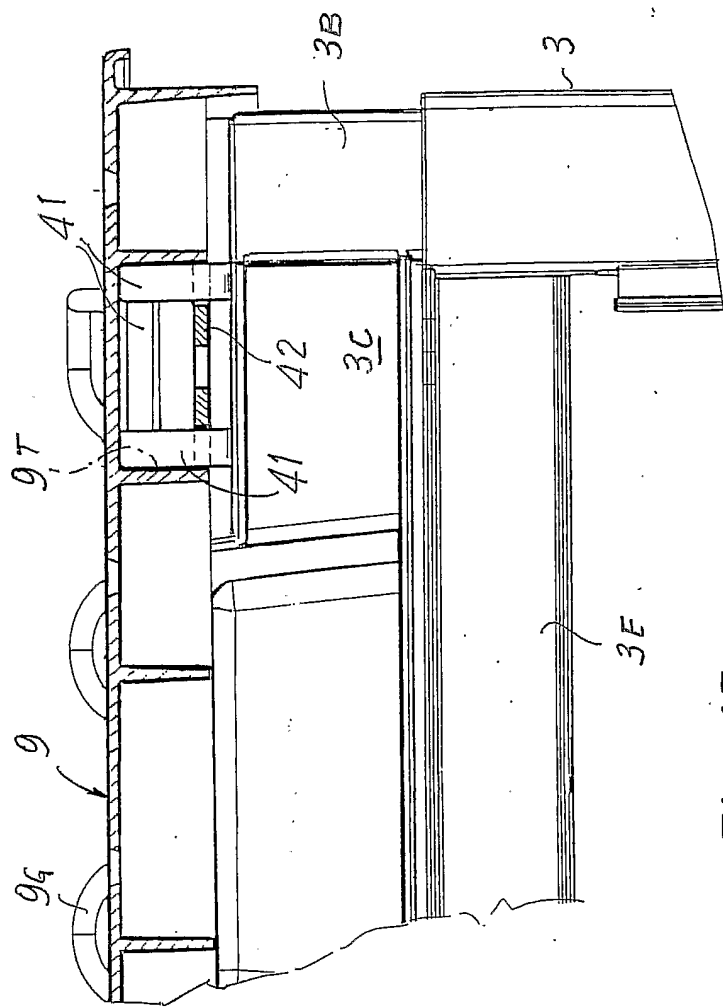


Fig. 15

INTERNATIONAL SEARCH REPORT

International application No

PCT/IT2006/000034

A. CLASSIFICATION OF SUBJECT MATTER
D06F81/02 D06F81/04

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)
D06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 572 811 A (LEHRMAN ET AL) 12 November 1996 (1996-11-12) the whole document	1-11
A	FR 2 475 590 A (INDUMAPLAS DI VIERO PRIMO) 14 August 1981 (1981-08-14) the whole document	1-11
A	EP 0 708 194 A (SOCIETE LIBELLULE SA) 24 April 1996 (1996-04-24) the whole document	1-11
A	EP 1 033 431 A (HEYLIGEN, MICHEL) 6 September 2000 (2000-09-06) the whole document	1-11

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Information on patent family members

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Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 5572811	A	12-11-1996	CA	2166747 A1		07-07-1996
FR 2475590	A	14-08-1981	DE	8103618 U1		30-07-1981
			ES	256135 Y		01-04-1982
			GR	73833 A1		04-05-1984
EP 0708194	A	24-04-1996	FR	2725736 A1		19-04-1996
EP 1033431	A	06-09-2000	FR	2790375 A1		08-09-2000