



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
04.07.2012 Bulletin 2012/27

(51) Int Cl.:
A47F 3/00 (2006.01)

(21) Application number: **10425400.8**

(22) Date of filing: **30.12.2010**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(72) Inventor: **Bacchetti, Aldo**
32100 Belluno (IT)

(74) Representative: **Carangelo, Pierluigi et al**
Jacobacci & Partners S.p.A.
Via Berchet, 9
35131 Padova (IT)

(71) Applicant: **Epta S.p.A.**
20138 Milano (IT)

(54) **Refridgerated horizontal display cabinet for assisted service commutable for self-service**

(57) The invention relates to a refrigerated horizontal display cabinet for assisted service commutable for self-service, comprising: a tank 2 which defines a compartment 3 for the display of goods, provided with a parapet 4 on an assistance side 2a; a screen wall 10, associated to the tank on the customer side 2b to prevent access to the compartment 3 from the customer side;

- a supporting frame 31,35 which connects the wall 10 to the tank 2. The cabinet is characterised in that the wall 10 is divided into a lower portion 11 and an upper portion 12 and by the fact that the upper portion (12) is connected to the supporting frame (31,35) so that it can be moved between an assisted service configuration to a self service configuration.

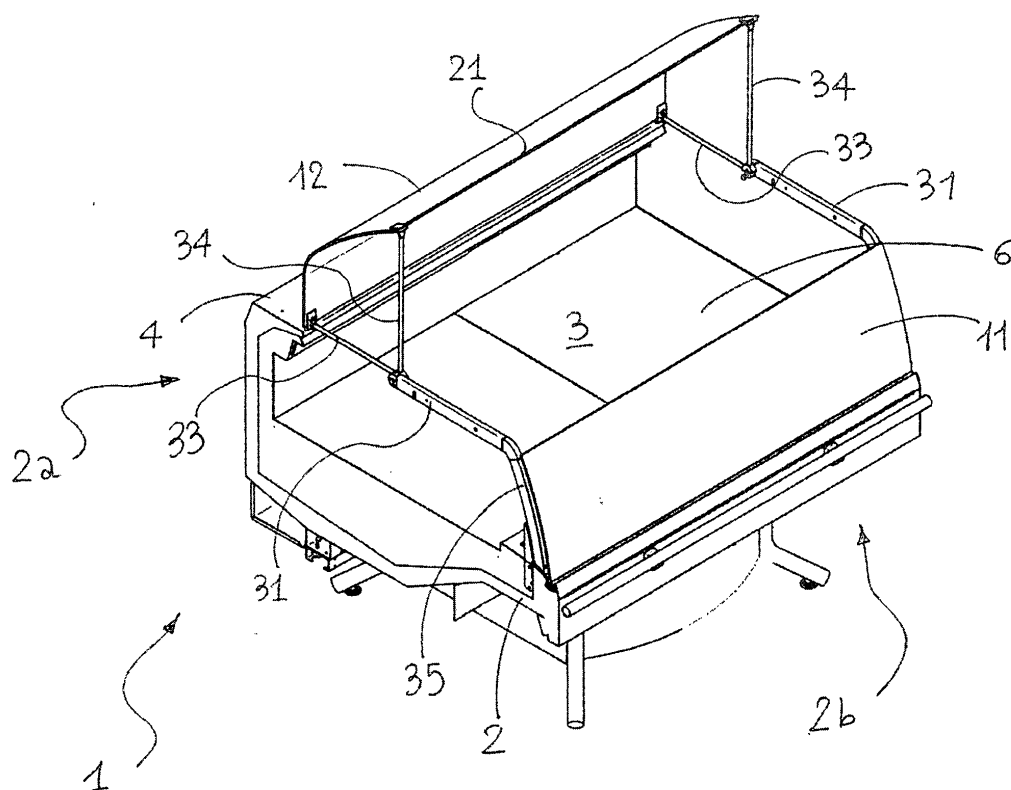


Fig. 3

Description

Field of application

[0001] The present invention relates to a refrigerated horizontal display cabinet for assisted service commutable for self-service.

[0002] The refrigerated display cabinet according to the invention may be used in particular in shopping centres or supermarkets with a high influx of customers, and to such purpose provided with both assisted service and self-service areas.

State of the art

[0003] In general, a horizontal refrigerated display cabinet for assisted service comprises a tank in which a compartment is made for the display of the goods on sale. On a first side of the cabinet (hereafter assistance side) a sales assistant may act to access the goods and serve the customers; on this side the cabinet is equipped with a parapet normally provided on the top with a support surface. On a second side of the cabinet (hereafter customer side), opposite the assistance side, the cabinet is provided with screen wall, mechanically associated to the tank by means of a supporting frame and made at least partially in transparent material to make the goods display compartment visible. Such screen wall extends in height in relation to the tank to prevent access to the display compartment from the customer side, thereby satisfying hygiene requisites.

[0004] A refrigerated display cabinet for self-service differs from a cabinet for assisted service substantially solely in that the screen wall is much lower to enable the customer to access the goods displayed on sale more easily. Such wall essentially has the function of containing the goods displayed and facilitating the recirculation of cold air inside the display cabinet.

[0005] Operatively, a self service type cabinet is very useful in crowded situations, when there are many customers to be served. The operator can in fact limit him/herself to replacing the goods sold, letting the customers serve themselves. An assisted service type cabinet is however preferable in situations with a lower turnover of customers, in that it allows more personalised, attentive sales service.

[0006] A sales area therefore needs both self service cabinets (useful at crowded times), and assisted service cabinets to offer a higher quality service.

[0007] During less crowded moments the self service cabinets are generally sufficient, whereas at crowded times the self service cabinets may not be sufficient to prevent sales from slowing down and the assisted service cabinets present are little used.

[0008] In general therefore the needs exists to adapt the characteristics of the sales area to the contingent crowd situations.

Presentation of the invention

[0009] Consequently, the aim of the present invention is to eliminate the drawbacks of the prior art mentioned above, by making available a refrigerated horizontal display cabinet for assisted service which is easily and immediately reversibly commutable for self-service.

[0010] A further purpose of the present invention is to make available a refrigerated horizontal display cabinet for assisted service commutable for self-service, which is safe and mechanically reliable.

[0011] A further purpose of the present invention is to make available a refrigerated horizontal display cabinet for assisted service commutable for self-service, which ensures safe, easy access by the customers to the goods display area during self-service use.

[0012] A further purpose of the present invention is to make available a refrigerated horizontal display cabinet for assisted service commutable for self-service, which is easy and economical to produce.

Brief description of the drawings

[0013] The technical characteristics of the invention, according to the aforementioned aims, are clear to see from the contents of the claims below and the advantages of the same will be more clearly evident from the detailed description which follows, made with reference to the appended drawings showing one or more embodiments, by way of a non-limiting example, wherein:

[0014] - Figures 1 and 2 show two perspective views from the assistance side of a refrigerated horizontal display cabinet according to a first embodiment of the invention, respectively in an assisted service configuration and in a self service configuration;

[0015] - Figure 3 shows the cabinet illustrated in Figure 2 from the customer side;

[0016] - Figures 4 and 5 show two lateral views in elevation of the cabinet illustrated respectively in Figures 1 and 2;

[0017] - Figures 6 and 7 show two perspective views from the assistance side of a refrigerated horizontal display cabinet according to a second embodiment of the invention, respectively in an assisted service configuration and in a self service configuration;;

[0018] - Figure 8 shows the cabinet illustrated in Figure 7 from the customer side;

[0019] - Figure 9 shows the cabinet illustrated in Figures 6 and 7 in an intermediate configuration, utilisable for self service;

[0020] - Figures 10, 11 and 12 show three lateral views in elevation of the cabinet illustrated respectively in Figures 6, 9 and 7;

[0021] - Figures 13 and 14 show two perspective views from the customer side of a refrigerated horizontal display cabinet according to a third embodiment of the invention, respectively in an assisted service configuration and in a self service configuration;

[0022] - Figures 15 and 16 show two lateral views in elevation of the cabinet illustrated respectively in Figures 13 and 14;

[0023] - Figure 17 shows a perspective view from the assistance side of a refrigerated horizontal display cabinet according to a fourth embodiment of the invention in an assisted service configuration;

[0024] - Figure 18 shows an enlarged detail of the cabinet illustrated in Figure 17 and included in the circle marked XVIII, relative to a mobile guiding element of the upper portion of a screen wall in relation to a supporting frame;

[0025] - Figure 19 shows a perspective view from the assistance side of the cabinet shown in Figure 17, commuted to an intermediate configuration between the assisted service configuration and the self service configuration;

[0026] - Figure 20 shows an enlarged detail of the cabinet illustrated in Figure 19 and included in the oval marked XX, relative to the connection of the upper portion of the screen wall to a supporting frame;

[0027] - Figure 21 shows an enlarged detail of a detail in Figure 20 included in the circle marked XXI, relative to a mobile guiding element of the upper portion of a screen wall in relation to a supporting frame;

[0028] - Figure 22 shows a perspective view from the customer side of the cabinet illustrated in Figure 17 commuted to a self service configuration;

[0029] - Figures 23, 24 and 25 show three lateral views in elevation of the cabinet illustrated respectively in Figures 17, 19 and 22.

Detailed description

[0030] With reference to the appended drawings reference numeral 1 globally denotes a refrigerated horizontal display cabinet for assisted service commutable for self service according to the invention.

[0031] Here and forthwith in the description and the claims, reference will be made to the refrigerated cabinet 1 in conditions of use. Any references to a lower or upper position, or to a horizontal or vertical direction should therefore be understood in this sense.

[0032] According to a general embodiment, the refrigerated display cabinet 1 comprises a tank 2 which defines a compartment 3 for the display of goods on sale and is provided with a parapet 4 at an assistance side 2a.

[0033] In particular, the tank 2 is of the insulated type and may be raised from the ground by support devices 100, which may be of any type and may comprise for example, support legs or, alternatively, a box-like structure.

[0034] The display cabinet 1 comprises a screen wall 10, associated to the tank 2 at a customer side 2b, opposite the assistance side 2a, and made at least partially in transparent material to make the goods display compartment 3 visible.

[0035] Such screen wall 10 extends in height in relation

to the tank 2 to prevent access to the display compartment 3 from the customer side 2b.

[0036] The screen wall 10 may be made entirely in glass or other transparent material, or comprise portions in opaque or semi-opaque materials, for example metal.

[0037] The display cabinet 1 further comprises a supporting frame 31, 35 which is mechanically associated to the tank 2 and connects the screen wall 10 to the tank.

[0038] According to a first aspect of the invention, the screen wall 10 is divided into a lower portion 11 and an upper portion 12.

[0039] In particular, the screen wall 10 extends in height from a lower level L1, corresponding substantially to the bottom of the display compartment 3, to an upper level L2. In particular, the lower portion 11 extends from a lower level L1 up to a predefined intermediate level L3 and the upper portion 12 extends from the intermediate level L3 to the upper level L2.

[0040] The intermediate level L3 may be substantially at the same height as the top of the parapet 4.

[0041] According to another aspect of the invention, said upper portion 12 is connected to the supporting frame 31, 35 so that it can be moved between an assisted service configuration, wherein the upper portion 12 is close to the lower portion 11 so as to prevent access to the compartment 3 from the customer side 2b, (as illustrated for example in Figures 1, 6, 13 and 17), and a self service configuration, wherein the upper portion 12 is moved away from the lower portion 11 and is close to the parapet 4 so as to allow access to the display compartment 3 from the customer side 2b (as illustrated for example in Figures 3, 8, 9, 14 and 22).

[0042] Advantageously, the two lower 11 and upper 12 portions of the screen wall 10 may be of any shape enabling a substantially continuous barrier to be created in the assisted service configuration. The two portions 11, 12 may both be flat or composed of flat portions (as shown for example in Figures 6 or 17), or alternatively one or both portions may be curved (as shown for example in Figures 1 and 2).

[0043] The upper portion may be made in a single piece (as shown in Figures 1 and 2) or be made in two or more pieces firmly associated to each other (as shown for example in Figures 6 and 13).

[0044] Preferably, the two portions 11, 12 are shaped so that in the assisted service configuration they join to form a continuous surface (even though a perfectly shaped joint is not required), at least in the area where they come together.

[0045] Advantageously, alignment devices 60 of the two portions 11 and 12 may be provided, able to connect the two portions in a guided and reversible manner.

[0046] The upper portion 12 has a flat part 20 at the top, which acts as a shelf when the upper portion 12 is in the assisted service configuration. Such shelf 20 may be used as a counter top for the goods served to the customers.

[0047] Advantageously, such shelf 20 is an integral

part of the upper portion 12 and therefore follows the said upper portion 12 in its movement between said two configurations. This way, in the move to the self service configuration the shelf 20 is removed and no longer finds itself positioned near the front area of the display compartment 3 on the customer side 2b, where it could be an obstacle if it were not removed together with the entire upper portion 12 of the screen wall 10.

[0048] In particular, as illustrated for example in Figures 2, 3, 7, 8 and 22, in the self service configuration the upper portion 12 may abut against the parapet 4 of the tank 2, assuming a mechanically more stable position. In particular, the upper portion may abut with its shelf 20.

[0049] As illustrated further on, in the self service configuration, the upper portion 12 may advantageously function as a screen element for the flow of refrigerated cold air A which if not recirculated in the cabinet would flow towards the assistance side 2a of the tank 2.

[0050] Advantageously, the upper portion 12 is movable between said two configurations using any type of movement or combination of movements.

[0051] According to a first preferred embodiment of the invention, illustrated in Figures 1 to 5, the upper portion 12 may be moved between said two configurations by means of a rotation, preferably around a direction Y substantially parallel to the assistance side 2a and the customer side 2b of the tank 2.

[0052] Advantageously, as provided for in a second embodiment of the invention (illustrated in Figures 6 to 12) in the rotation away from the lower portion 11, the upper portion 12 may assume two or more different angular positions corresponding to a self service configuration. This solution may be used advantageously in the case in which the upper portion 12 has at least one flat portion which in said distancing movement finds itself positioned horizontally and may thus act as a shelf (as illustrated for example in Figures 9 and 11).

[0053] According to a third preferred embodiment of the invention, illustrated in Figures 13 to 16, the upper portion 12 is movable between said two configurations with a translation, preferably along a direction X transversal to the assistance side 2a and to the customer side 2b of the tank 2.

[0054] According to a fourth preferred embodiment of the invention, illustrated in Figures 17 to 25, the upper portion 12 may be moved between said two configurations with a roto-translation, preferably along said direction X transversal to the assistance side 2a and to the customer side 2b and around said direction Y substantially parallel to such two sides 2a, 2b of the tank 2.

[0055] Preferably, the supporting frame 31, 35 which connects the screen wall 10 to the tank 2 and to which the upper portion 12 is connected to move between the two operating configurations, is made so as not to occupy or obstruct the display compartment 3 or the space above the display compartment 3 on the customer side, so as not to obstruct or limit access to said compartment by

the customers once the upper portion 12 of the screen wall 10 has been moved.

[0056] Preferably, the supporting frame comprises only one or more supporting elements 31, 35 positioned transversally to the assistance side 2a and to the customer side 2b of the tank 2. In other words, the supporting frame preferably does not have longitudinally positioned elements (i.e. parallel to the customer side).

[0057] In particular, as may be seen in the appended drawings, the supporting frame comprises only one or more supporting elements 31, 35 positioned at the longitudinal ends of the screen wall 10. In this case, the screen wall is understood to be a single screen unit. Above certain lengths of the display cabinet, the screen wall is divided into longitudinal sections, corresponding to modular units. Supporting elements 31, 35 may be inserted between one modular unit and the next.

[0058] In conjunction with or separately from the description of the above paragraph, the supporting frame 31, 35 does not substantially exceed in height the lower portion 11 of the screen wall 10.

[0059] The expression "does not substantially exceed in height" is taken to mean that the supporting frame may be the same height as the lower portion 11, including however cases in which the supporting frame may even be slightly higher than the lower portion, as illustrated for example in Figures 5, 12, 16 or 25, for example for construction requirements imposed for example by the need for greater stability of the upper portion 12.

[0060] According to the embodiments illustrated in the appended drawings, the supporting frame comprises at least one supporting arm 31 which extends over the display compartment 3. The upper portion 12 is mechanically connected to the arm 31 to be moved between said two configurations.

[0061] Preferably, the supporting arm 31 is positioned below the upper portion 12 of the screen wall 10, and in particular is positioned substantially at the intermediate level L3 mentioned previously.

[0062] Preferably, the upper portion 12 is associated to the arm 31 by means of one or more connecting rods 33, 34, which may be connected to each other to form a rigid structure. Thanks to the connecting rods 33, 34 the upper portion 12 may be kept distant from the supporting arm 31, which may thus be positioned in such a position such as not to obstruct the goods display compartment 3.

[0063] In particular, as shown in the appended drawings, the upper portion 12 is associated to the arm by two pairs of rods 33, 34 positioned at the two longitudinal ends. In particular, a first rod 33 is connected at one end to the arm 31 and at the other end to the top of the upper portion 12 (for example to the shelf 20), while the other rod 34 is connected at one end to the arm 31 and at the other end to the rim 21 joining the upper portion 12 to the lower portion 11. In particular, the two rods 33, 34 of each pair are attached to the arm substantially in the same point, for example thus defining the point of rotation, translation or roto translation in relation to the arm 31.

Advantageously, the rods 33, 34 are positioned in such a way that in the self service configuration at least one rod 33 is positioned horizontally, so as to be able to support an additional mobile shelf (not shown in the appended drawings) in cooperation with its twin rod positioned at the longitudinal extremity opposite the upper portion 12 of the screen wall 10.

[0064] Advantageously, the supporting frame comprises at least one post 35 which is attached to the tank 2 at the customer side 2b and supports the lower portion 11 of the screen wall 10. In particular, the post 35 is able to support the supporting arm 31. In this case, each arm 31 has a post 35.

[0065] Advantageously, the post 35 has a slim shape and extends mainly in height, close to and rearwards of the lower portion 11, as shown in the appended drawings.

[0066] Preferably, as shown in the appended drawings, the supporting frame comprises two supporting arms 31, parallel to each other and positioned at opposite longitudinal ends of the single screen wall unit. In particular, considering the construction requirements mentioned above, the two arms 31 are substantially at the same height as the upper portion 11 of the screen wall 10.

[0067] According to the first preferred embodiment of the invention (Figures 1 to 5) mentioned above, and the second embodiment (Figures 6 to 12), the upper portion 12 is pivoted in rotation to the arm 31. Preferably, the arm 31 is positioned so as to overhang the display compartment 3.

[0068] In particular, the arm 31 extends so as to overhang from the customer side 2b. To such purpose, the supporting frame comprises a post 35 for each single supporting arm 31, rigidly attached to the tank 2 on the customer side 2b. Alternatively, the arm 31 may extend from the service side 2a and be rigidly attached for example to the parapet 4.

[0069] According to a further alternative, the arm may extend from one side to the other of the cabinet in a transversal direction so as to be mechanically supported at both ends.

[0070] According to the third preferred embodiment of the invention mentioned above, illustrated in Figures 13 to 16, the upper portion 12 is connected in a sliding manner to the arm 31 which acts as a guide for said translation. In this case the arm 31 extends preferably from one side to the other of the tank 2. This configuration is preferable in that it guarantees greater stability and makes it possible to bring the upper portion close to or in contact with the parapet and thereby distance it from the customer side 2b as much as possible.

[0071] According to a fourth preferred embodiment of the invention, illustrated in Figures 17 to 25, the upper portion 12 is guided in a sliding manner along the arm 31 by a mobile guiding element 32. The upper portion 12 is rotationally connected to such mobile guiding element 32 so as to be able to rotate around the transversal direction Y already mentioned.

[0072] More in detail, as illustrated in particular in Fig-

ures 18, 20 and 21, the mobile guiding element 32 may be constituted of a pin inserted in a sliding manner in a groove 36 made along the arm 31. A cam 37, to which one or more connecting rods 33, 34 are rigidly attached at the ends opposite the upper portion 12, is inserted on the pin 32 so as to rotate. The cam 37 has at least one radial notch 38 suitable to engage with a stop pin 39 (associated to the arm 31) to block the cam in a predefined angular position (preferably corresponding to the rotation position of the upper portion 12 around the direction Y before the translation).

[0073] The horizontal display cabinet 1 is of the refrigerated type. The refrigeration circuit (not shown in the appended drawings) can be entirely incorporated inside the cabinet 1, or be structured with at least some parts remote.

[0074] According to a particularly preferred embodiment, the tank 2 is provided with an intermediate bottom 6 which divides the compartment 3 for displaying the goods from a lower technical compartment 5, inside which at least one fan and at least one evaporator are placed to generate a flow of cold air A in the goods display compartment 3. The flow of cold air A enters the display compartment 3 through a first aperture 51 made near the top of the parapet 4 and returns to the technical compartment 5 through a second aperture 52 made near the customer side 2b. Operatively, the lower portion 11 of the screen wall 10 conveys towards the second aperture 52 at least part of the flow of cold air A which has crossed the display cabinet 3.

[0075] Advantageously, the upper portion 12, when in the self service configuration, in particular when resting on the parapet 4, protects the flow of cold air coming out of the first aperture 51 and directed towards the goods display compartment 3 from external perturbations. This contributes positively to the energy performance of the refrigerated cabinet.

[0076] The invention makes it possible to achieve numerous advantages, in part already described.

[0077] The refrigerated display cabinet according to the invention can be commuted easily, immediately and safely from an assisted service configuration to a self service configuration and vice versa. The display cabinet 1 according to the invention therefore makes it possible to create sales areas which can be adapted extremely rapidly to conditions of crowding, without requiring the assembly or dismantling of parts.

[0078] Thanks to the particular conformation of the supporting frame and the connection means of the upper portion to it, the refrigerated horizontal display cabinet 1 is commutable between the two configurations in a mechanically safe and reliable manner.

[0079] The conformation of the supporting frame and the means of connection to the upper portion ensure easy, safe access to the goods display area from the customer side in the self service configuration. In fact, on the customer side, the display compartment is entirely free for the longitudinal extension of the screen wall.

[0080] The refrigerated display cabinet 1 according to the invention is also easy and economical to produce, given that it does not require any special construction expedients nor the use of special materials.

[0081] The invention thus conceived thereby achieves the objectives set out.

[0082] Obviously, in its practical embodiment it may assume forms and configurations different from that described above while remaining within the sphere of protection of the present invention.

[0083] Moreover, all the parts may be replaced by technically equivalent parts and the dimensions, forms and materials used may be varied as needed.

Claims

1. Refrigerated horizontal display cabinet for assisted service commutable for self-service, comprising:

- a tank (2) which defines a compartment (3) for displaying goods on sale and is provided with a parapet (4) at an assistance side (2a);
- a screen wall (10), associated to the tank (2) at a customer side (2b), opposite the assistance side (2a), and made at least partially in transparent material to make the compartment (3) visible, said wall (10) extending in height in relation to the tank (2) to prevent access to the display compartment (3) from the customer side (2b); and
- a supporting frame (31, 35) which is mechanically associated to the tank (2) and which connects the screen wall (10) to the tank, **characterised by** the fact that the screen wall (10) is divided into a lower portion (11) and an upper portion (12) and by the fact that the upper portion (12) is connected to the supporting frame (31,35) so that it can be moved between an assisted service configuration, wherein the upper portion (12) is adjacent to the lower portion (11) so as to prevent access to the compartment (3) from the customer side (2b), and a self service configuration, wherein the upper portion (12) is moved away from the lower portion (11) and is close to the parapet (4) so as to allow access to the display compartment (3) from the customer side (2b).

2. Refrigerated display cabinet according to claim 1, wherein the upper portion (12) is movable between said two configurations with a translation, preferably along a direction (X) transversal to the assistance side (2a) and to the customer side (2b) of the tank (2).
3. Refrigerated display cabinet according to claim 1, wherein the upper portion (12) is movable between said two configurations with a rotation, preferably

around a direction (Y) substantially parallel to the assistance side (2a) and the customer side (2b) of the tank (2).

4. Refrigerated display cabinet according to claim 1, wherein the upper portion (12) is movable between said two configurations with a roto-translation, preferably along a direction (X) transversal to the assistance side (2a) and to the customer side (2b) of the tank (2) and around a direction (Y) substantially parallel to such two sides (2a, 2b) of the tank (2).
5. Refrigerated display cabinet according to one or more of the previous claims, wherein the supporting frame comprises only one or more supporting elements (31,35) positioned transversally to the assistance side (2a) and to the customer side (2b) of the tank (2).
6. Refrigerated display cabinet according to one or more of the previous claims, wherein the supporting frame (31,35) does not substantially exceed in height the lower portion (11) of the screen wall (10).
7. Refrigerated display cabinet according to one or more of the previous claims, wherein the supporting frame comprises only one or more supporting elements (31, 35) positioned at the longitudinal ends of the screen wall(10).
8. Refrigerated display cabinet according to one or more of the previous claims, wherein said supporting frame comprises at least one supporting arm (31) which extends over the display compartment (3), said upper portion (12) being mechanically connected to said arm (31) to be moved between said two configurations.
9. Refrigerated display cabinet according to claims 2 and 8, wherein the upper portion (12) is connected in a sliding manner to the arm (31), which acts as a guide for said translation, said arm (31) extending preferably from one side to the other of the tank (2) and vice versa.
10. Refrigerated display cabinet according to claims 3 and 8, wherein the upper portion (12) is pivoted in rotation to said arm (31), said arm (31) being preferably positioned so as to overhang the display compartment (3).
11. Refrigerated display cabinet according to claims 4 and 8, wherein the upper portion (12) is guided in a sliding manner along said arm (31) by a mobile guiding element (32), said upper portion (12) being rotationally connected to said mobile guiding element (32).

12. Refrigerated display cabinet according to one or more of the previous claims, wherein said screen wall (10) extends in height from a lower level (L1), corresponding substantially to the bottom of said display compartment (3), up to an upper level (L2), the lower portion (11) extending from the lower level (L1) up to a predefined intermediate level (L3) and said upper portion (12) extending from the intermediate level (L3) up to a higher level (L2). 5 10
13. Refrigerated display cabinet according to claim 12, wherein said intermediate level (L3) is substantially at the same height as the top of the parapet (4).
14. Refrigerated display cabinet according to one or more of the claims from 8 to 13, wherein said at least one supporting arm (31) is distanced height wise from the top of the upper portion (12) of the screen wall (10), said at least one supporting arm (31) being preferably positioned substantially at said intermediate level (L3). 15 20
15. Refrigerated display cabinet according to one or more of the claims from 8 to 14, wherein said upper portion (12) is associated to said arm (31) by means of one or more connecting rods (33,34). 25
16. Refrigerated display cabinet according to one or more of the claims from 8 to 15, wherein said supporting frame comprises at least one post (35) which is attached to said tank (2) at the customer side (2b) and supports the lower portion (11) of the screen wall (10), said supporting arm (31) being supported by said post (35). 30 35
17. Refrigerated display cabinet according to one or more of the previous claims, wherein the upper portion (12) is provided at the top with a shelf (20), said shelf (20) following the upper portion (12) in its movement between said two configurations. 40
18. Refrigerated display cabinet according to claim 3 or 4 and claim 17, wherein in said self service configuration said upper portion (12) is rested on said parapet (4) at the shelf part (20). 45
19. Refrigerated display cabinet according to one or more of the previous claims, wherein the tank (2) is provided with an intermediate bottom (6) which divides the compartment (3) for displaying the goods from a lower technical compartment (5), inside which at least one fan and at least one evaporator are placed to generate a flow of cold air (A) in the goods display compartment (3), the flow of cold air (A) entering the display compartment (3) through a first aperture (51) made near the top of the parapet (4) and returning to the technical compartment (5) through a second aperture (52) made near the customer side (2b), the lower portion (11) of the screen wall (10) conveying towards the second aperture (52) at least part of the flow of cold air (A) which has crossed the display cabinet (3). 50 55

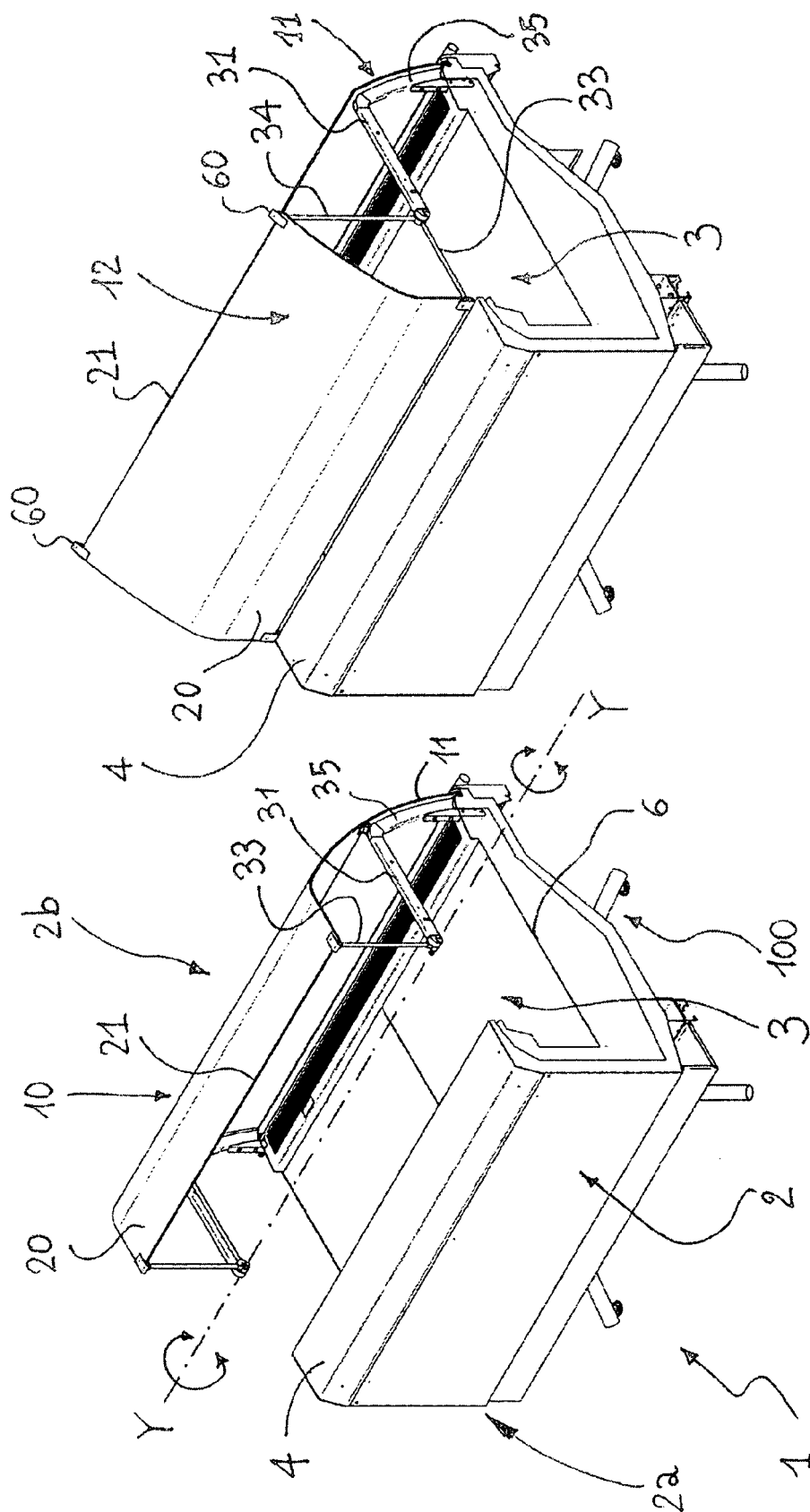


Fig. 2

Fig. 1

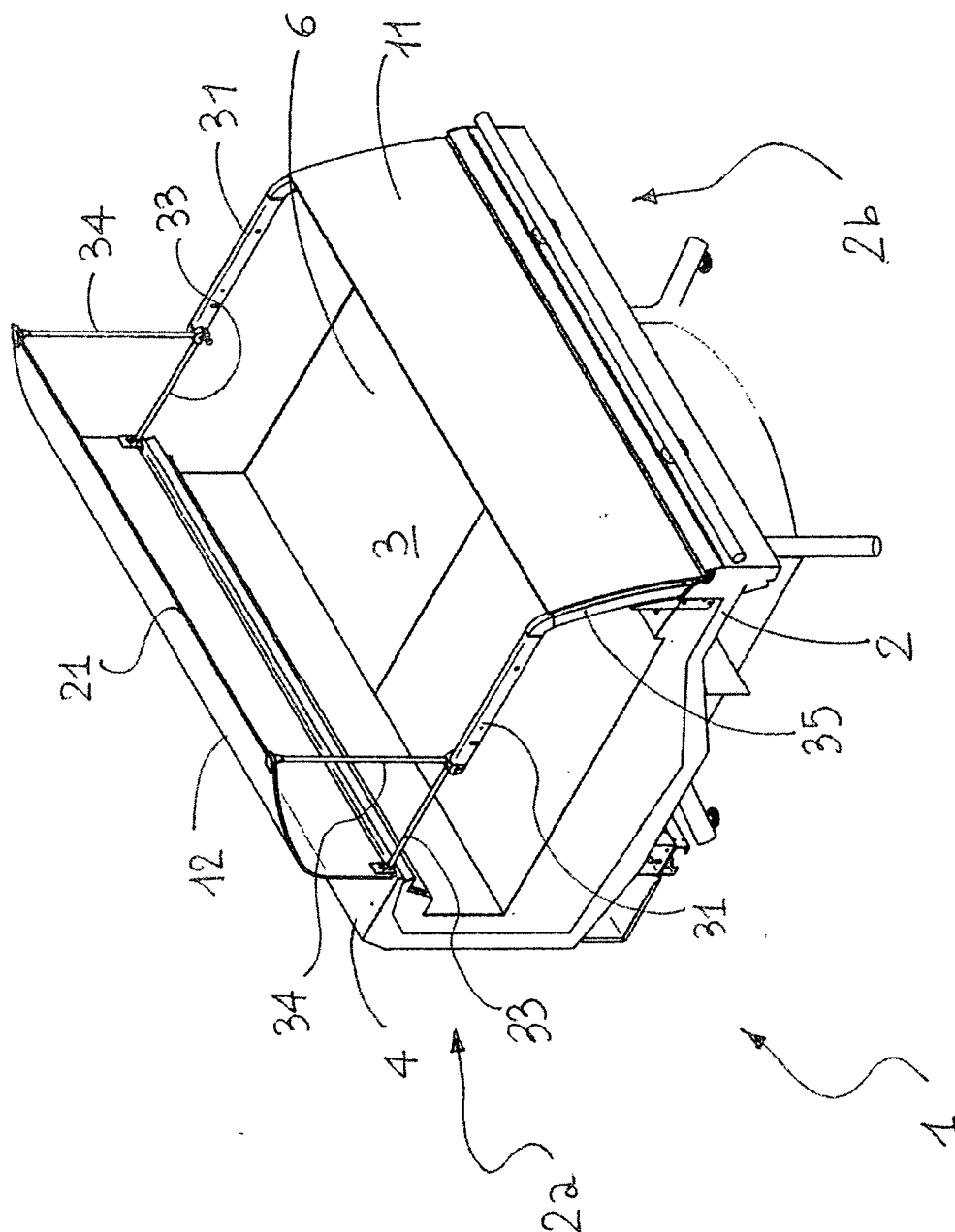


Fig. 3

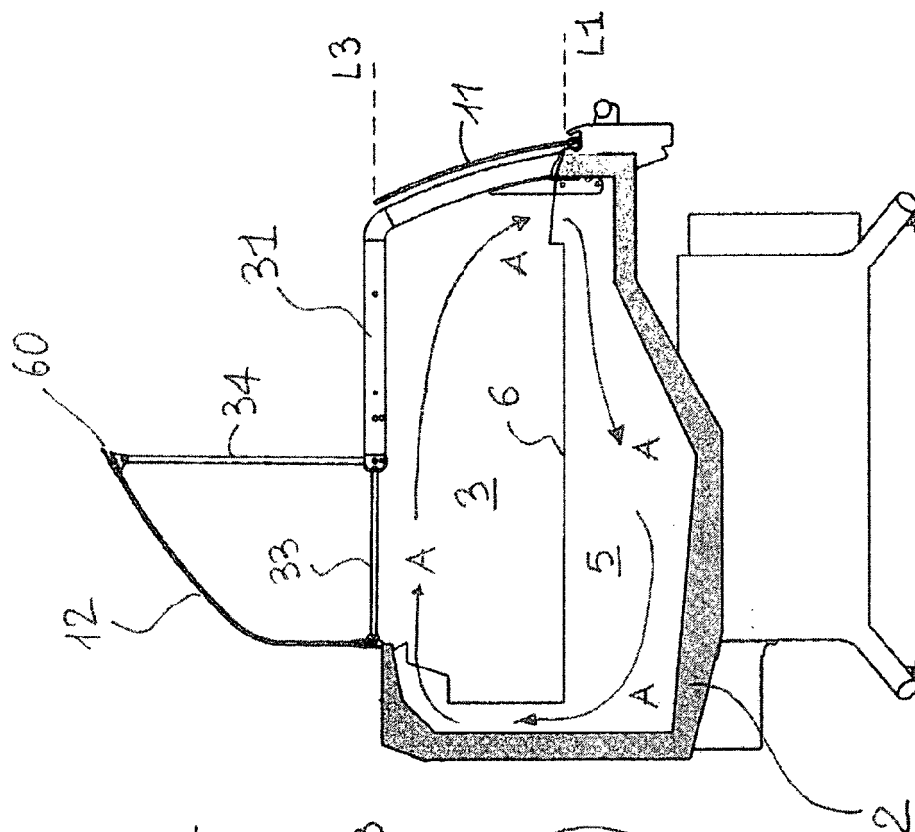


Fig. 5

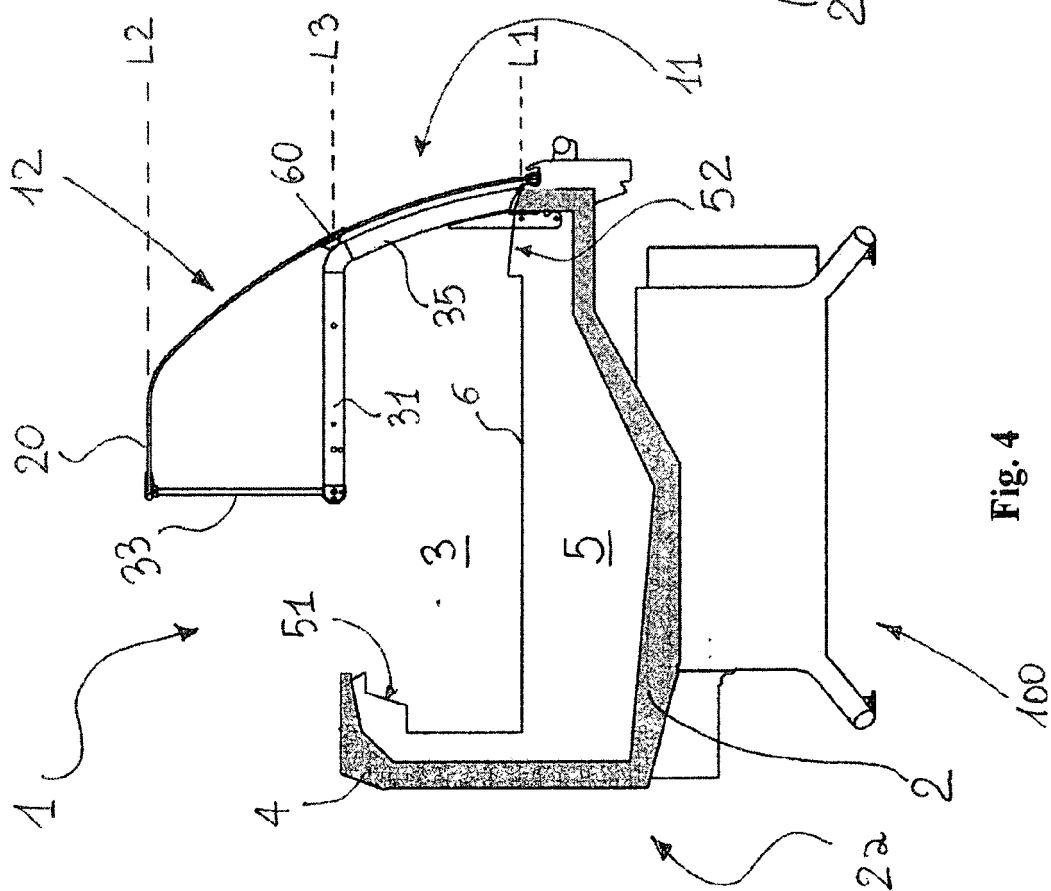


Fig. 4

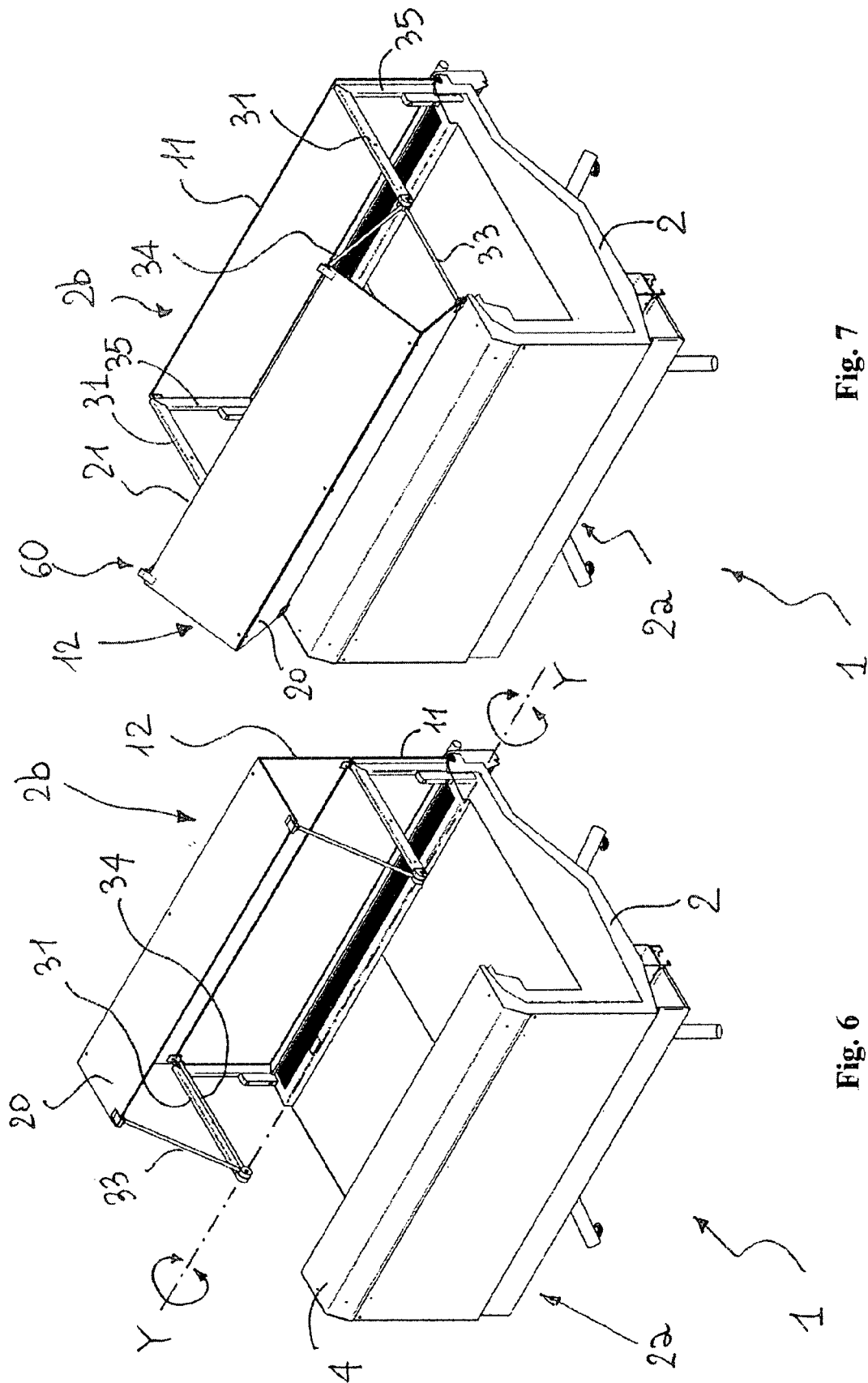


Fig. 7

Fig. 6

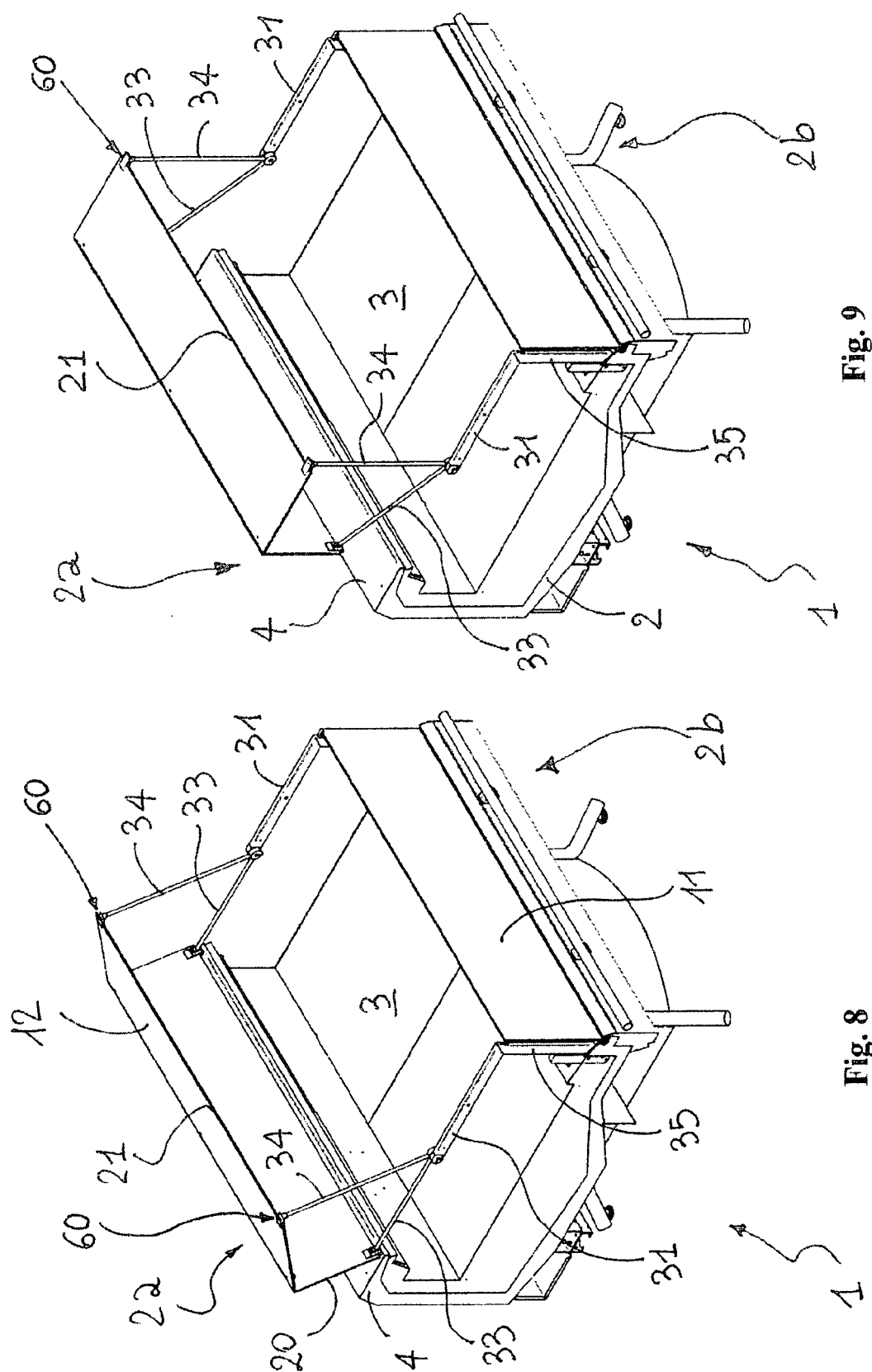


Fig. 6

8
b6
b7C

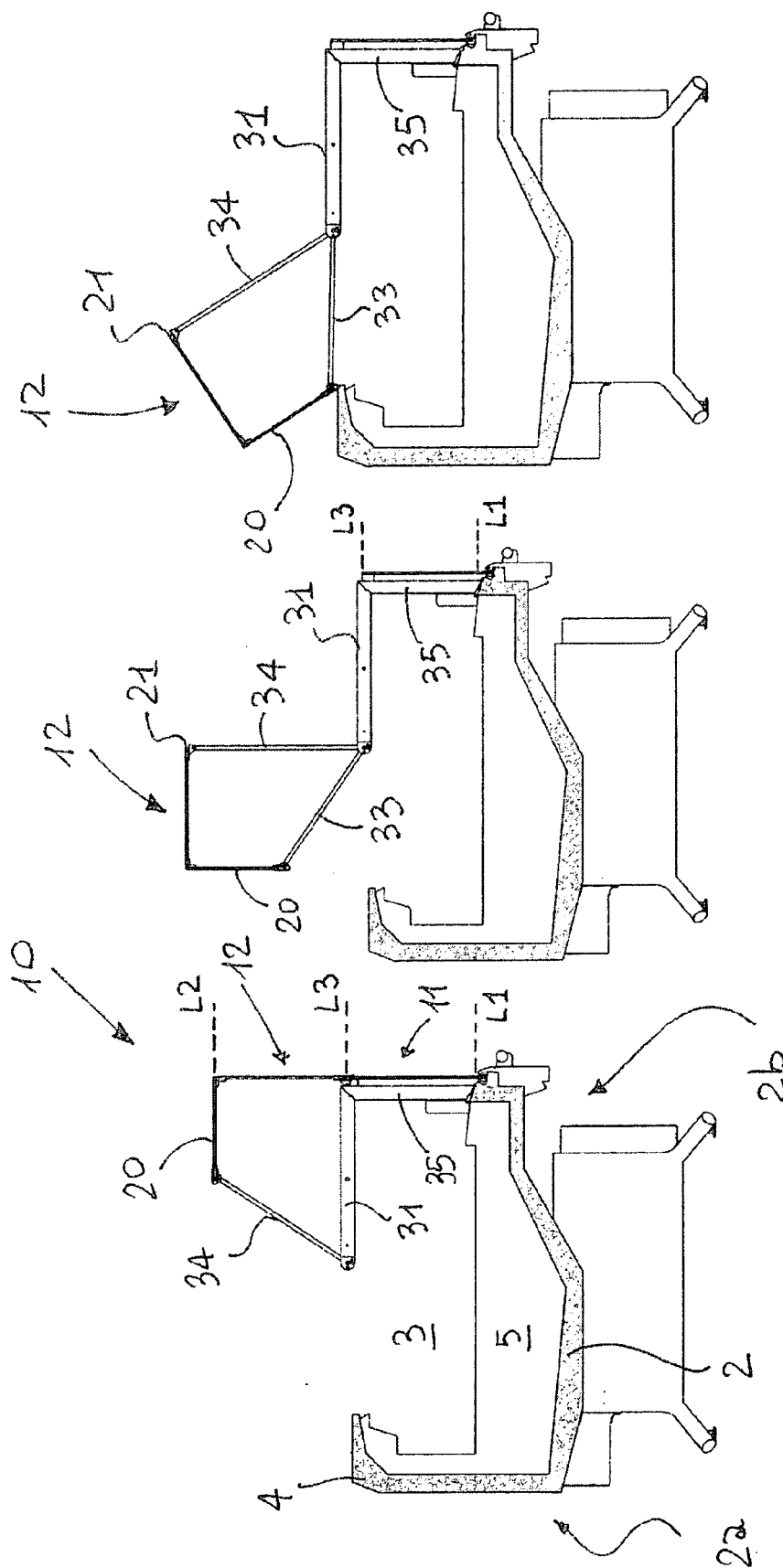


Fig. 12

Fig. 11

Fig. 10

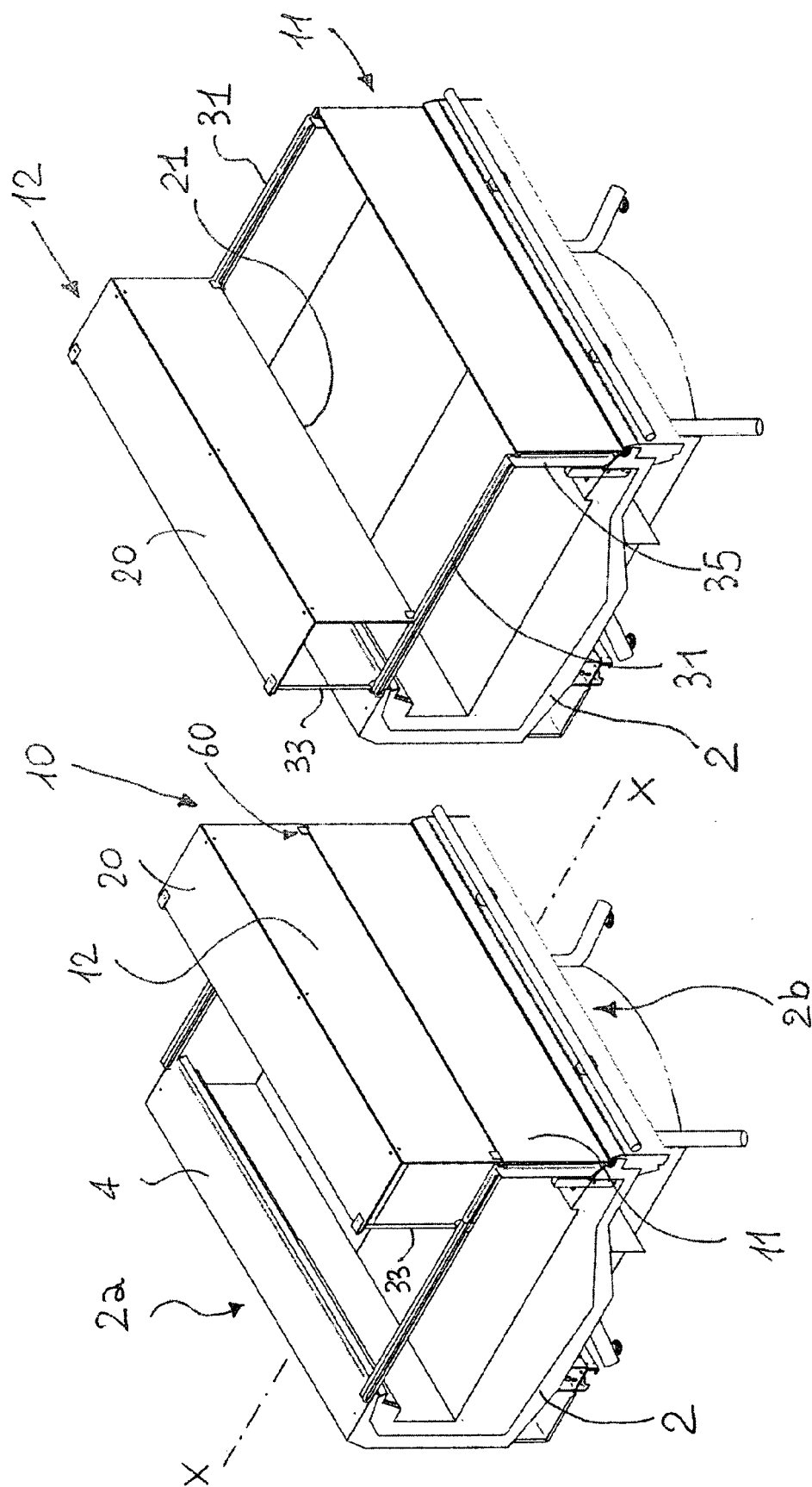


Fig. 14

Fig. 13

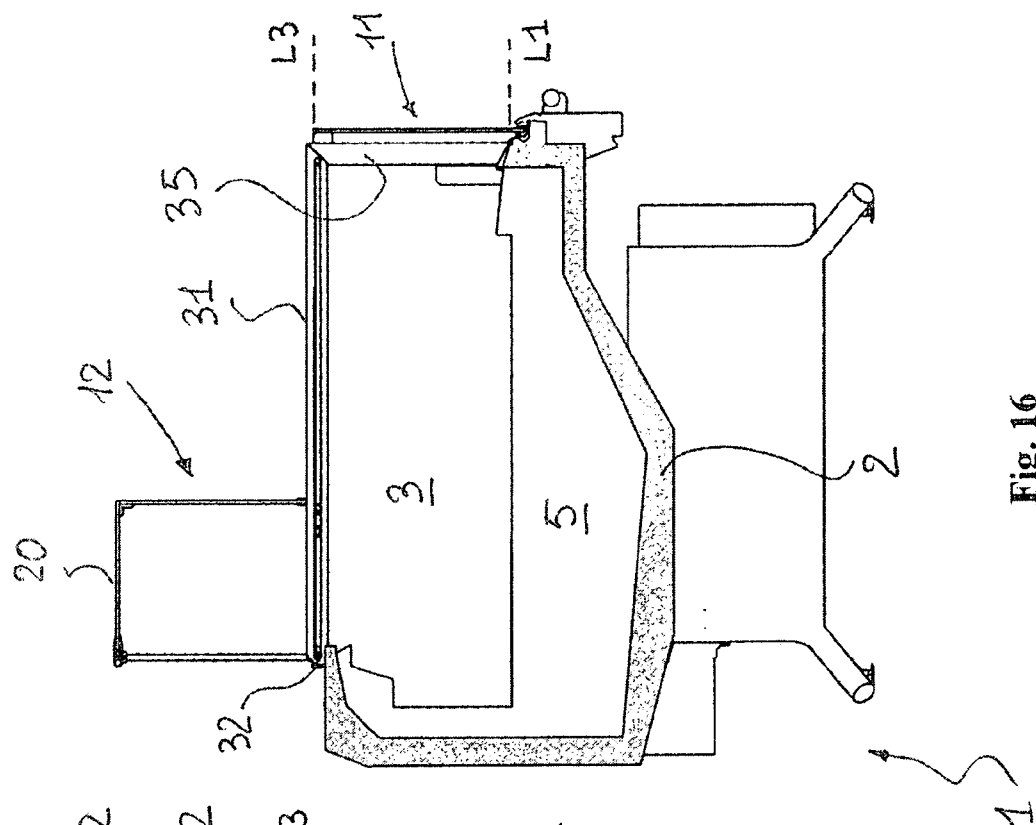


Fig. 15

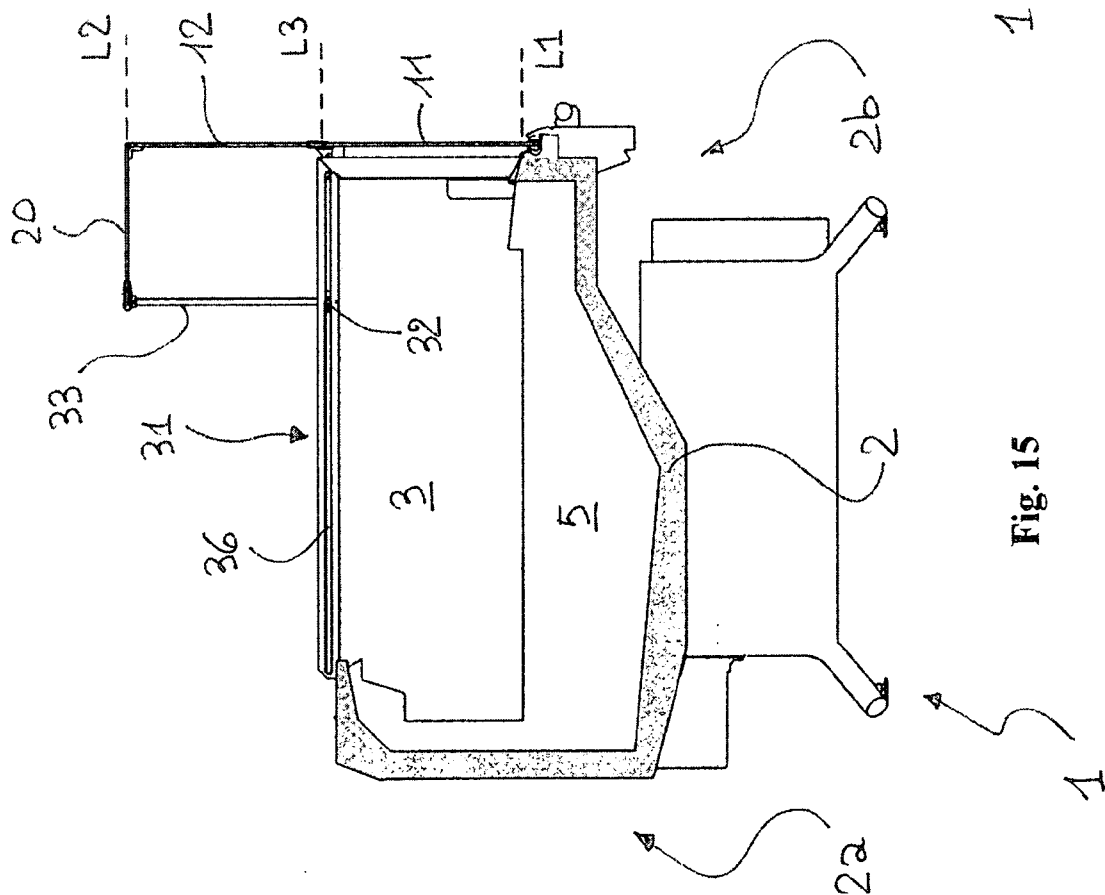


Fig. 16

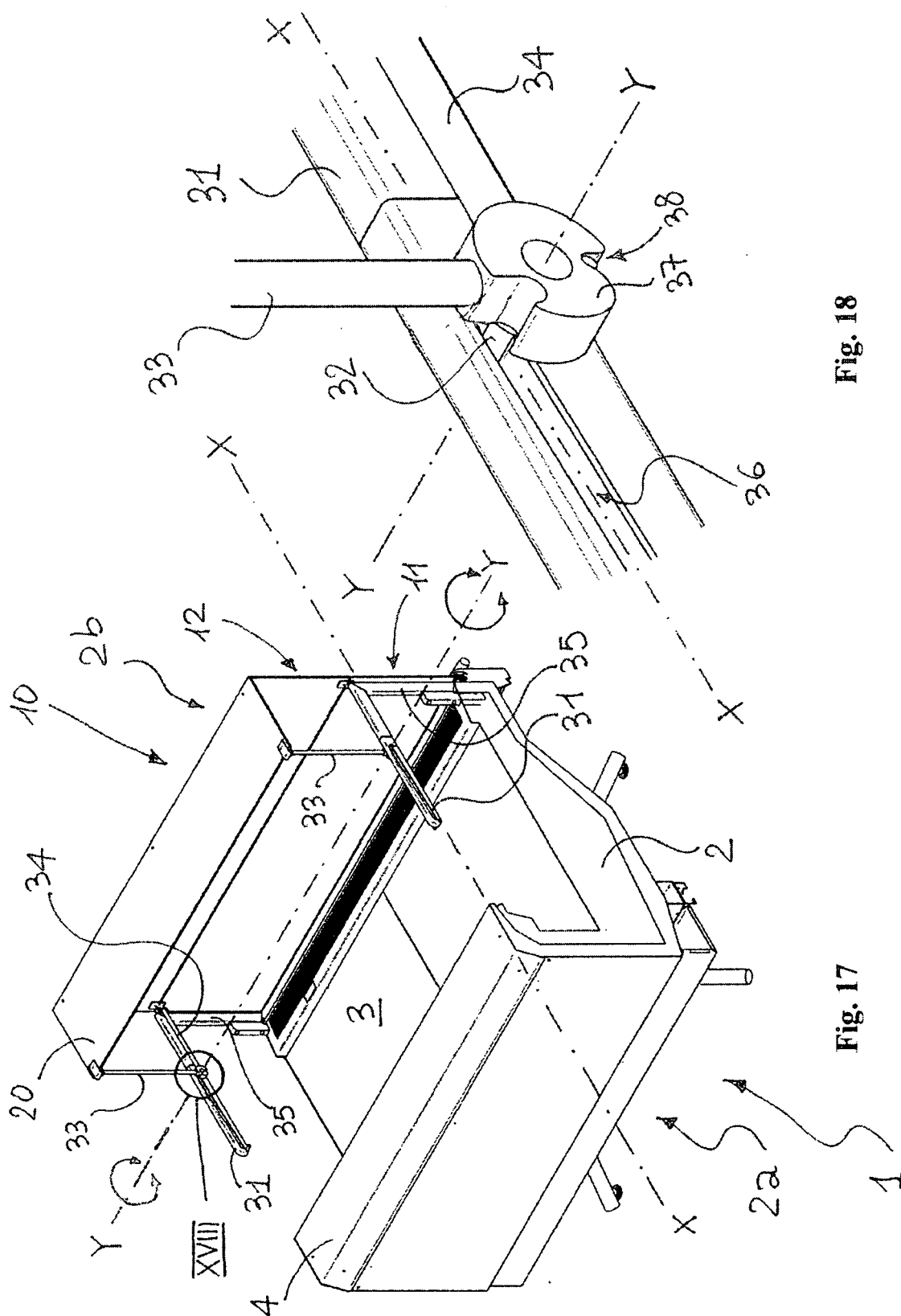
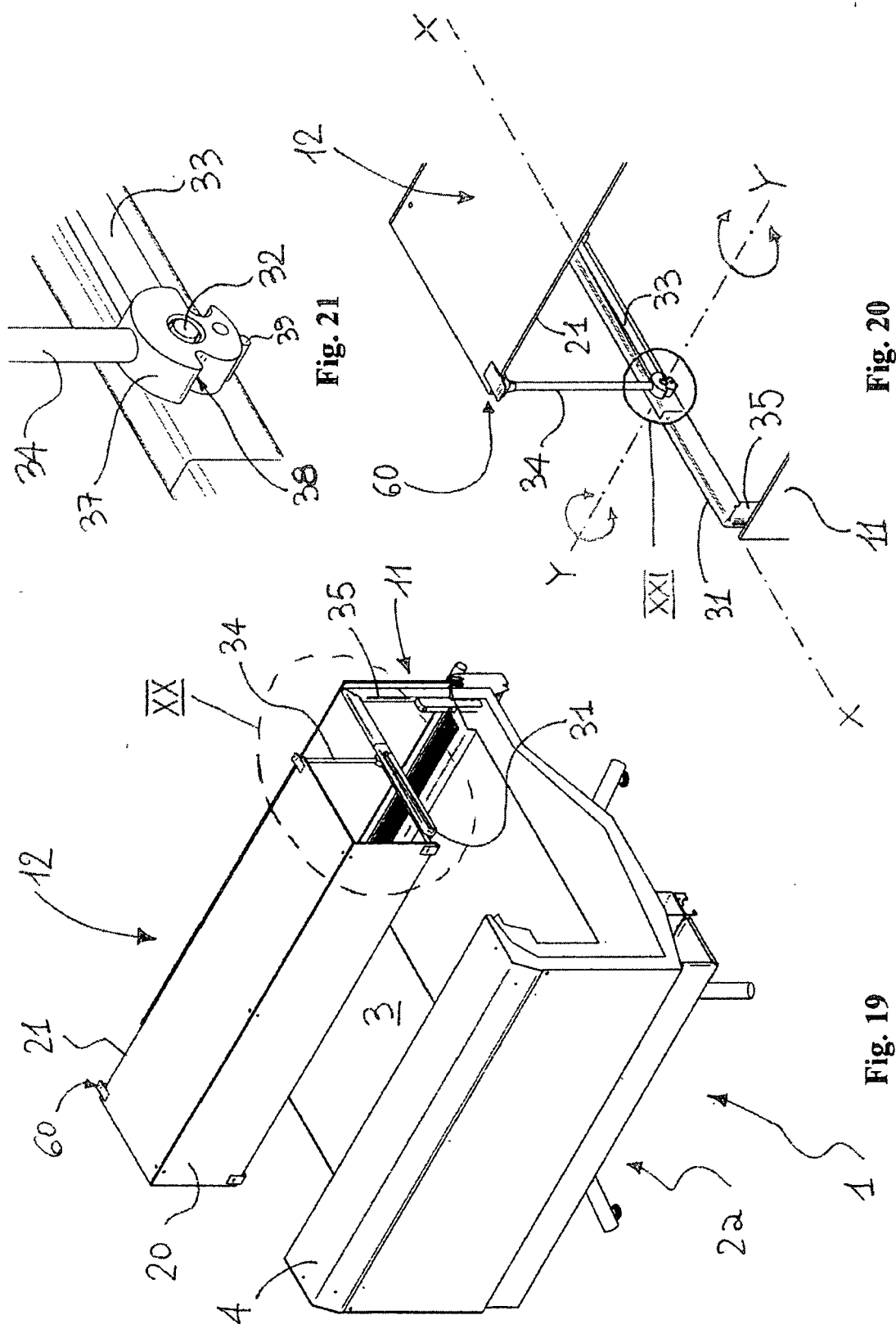


Fig. 18

Fig. 17



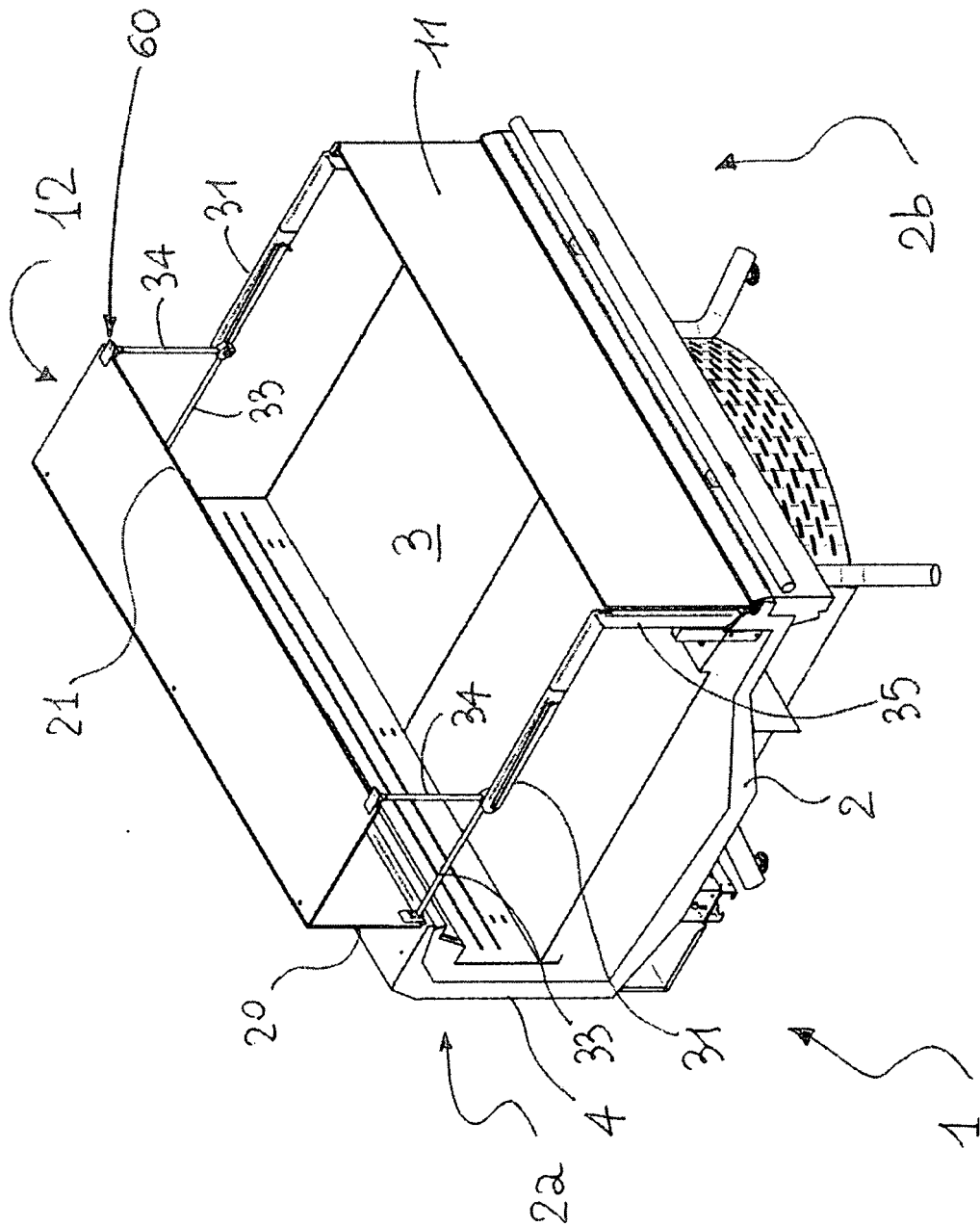


Fig. 22

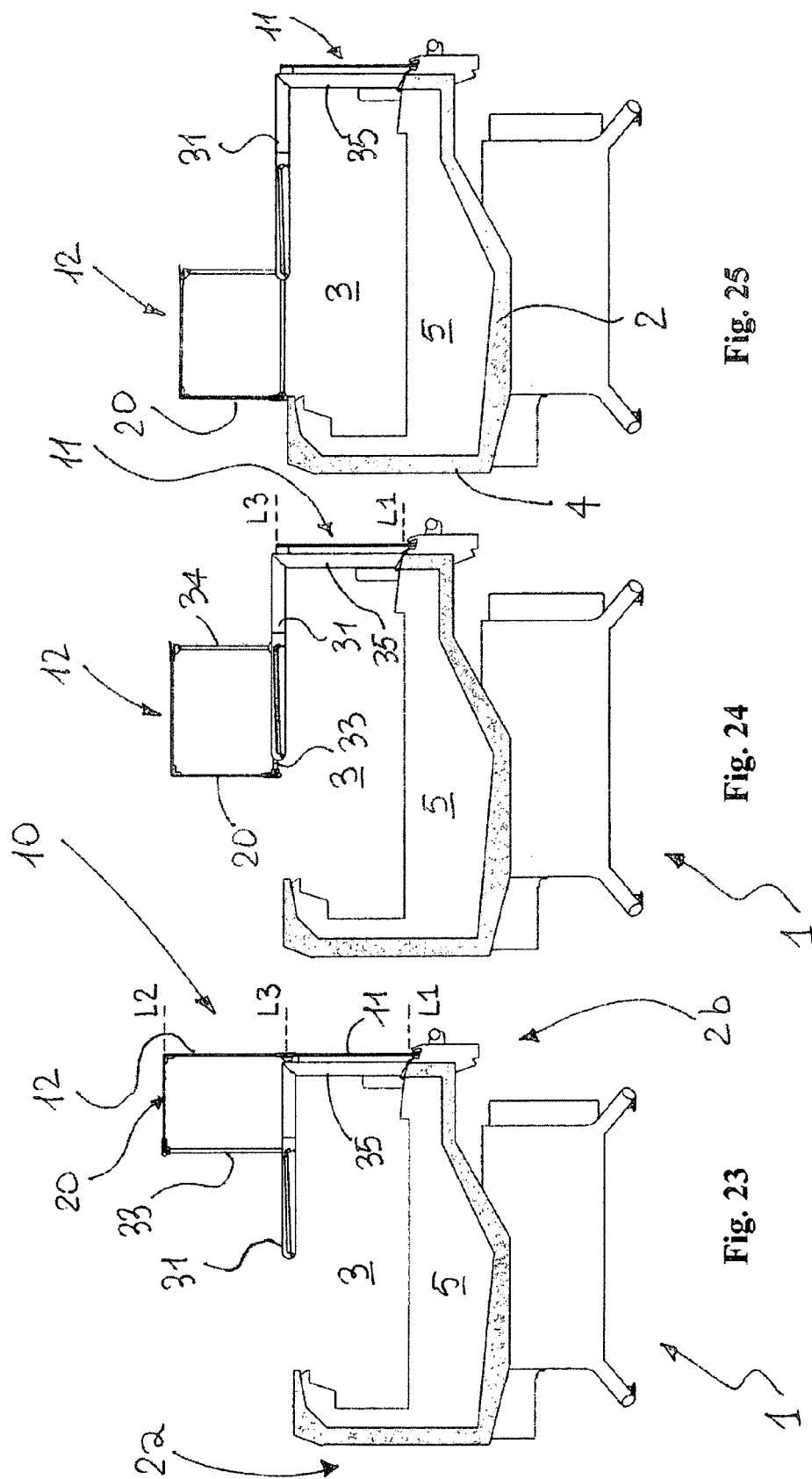


Fig. 25

Fig. 24

Fig. 23



EUROPEAN SEARCH REPORT

Application Number
EP 10 42 5400

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 41 10 942 A1 (NORPE OY, PORVOO [FI]) 24 October 1991 (1991-10-24)	1-5, 7-15,17, 19	INV. A47F3/00
Y	* the whole document *	6,18	
X	EP 0 659 371 A1 (ELECTROLUX BEDRIJFSKOELING B V [NL]) 28 June 1995 (1995-06-28)	1,3,5,7, 8,10,12, 13,15, 17,19	
	* the whole document *		
X	DE 18 77 819 U (GRAEBNER & KRETZSCHMAR FABRIK [DE]) 14 August 1963 (1963-08-14) * figure 5 *	1,4, 7-13,16	
Y	NL 6 502 319 A (ABRAHAM MATTHEUS) 25 August 1966 (1966-08-25)	6,18	
A	* figures *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 30 June 2011	Examiner Alff, Robert
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

1
EPO FORM 1503 03.82 (P04C01)



EUROPEAN SEARCH REPORT

Application Number
EP 10 42 5400

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 41 10 942 A1 (NORPE OY, PORVOO [FI]) 24 October 1991 (1991-10-24)	1-5, 7-15,17, 19	INV. A47F3/00
Y	* the whole document *	6,18	
X	EP 0 659 371 A1 (ELECTROLUX BEDRIJFSKOELING B V [NL]) 28 June 1995 (1995-06-28)	1,3,5,7, 8,10,12, 13,15, 17,19	
X	DE 18 77 819 U (GRAEBNER & KRETZSCHMAR FABRIK [DE]) 14 August 1963 (1963-08-14) * figure 5 *	1,4, 7-13,16	
Y	NL 6 502 319 A (ABRAHAM MATTHEUS) 25 August 1966 (1966-08-25)	6,18	
A	* figures *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 30 June 2011	Examiner Alff, Robert
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

1
EPO FORM 1503 03.92 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 42 5400

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-06-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 4110942	A1	24-10-1991	FI 911238 A 07-10-1991
			GB 2245155 A 02-01-1992
			SE 503572 C2 08-07-1996
			SE 9100957 A 07-10-1991
EP 0659371	A1	28-06-1995	NL 9302220 A 17-07-1995
DE 1877819	U	14-08-1963	NONE
NL 6502319	A	25-08-1966	NONE