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

(11) Publication number: **0 173 543**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **85305938.4**

(22) Date of filing: **21.08.85**

(51) Int. Cl.⁴: **F 24 C 15/08**

(30) Priority: **24.08.84 GB 8421487**

(43) Date of publication of application: **05.03.86**
Bulletin 86/10

(84) Designated Contracting States: **DE FR IT**

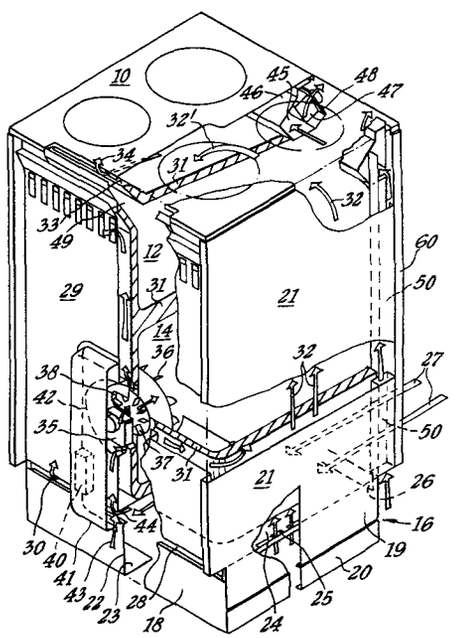
(71) Applicant: **BELLING & COMPANY LIMITED, Bridge Works Southbury Road, Enfield Middlesex (GB)**

(72) Inventor: **Hay, Geoffrey Thomas, 182 Churchgate Road Cheshunt, Hertfordshire EN8 9EL (GB)**

(74) Representative: **Cole, Paul Gilbert et al, Hughes Clark Byrne & Parker 63 Lincoln's Inn Fields P.O. Box 22, London WC2A 3JU (GB)**

(54) Cooker having an oven mounting arrangement.

(57) A cooker has dished structures (12, 14) defining upper and lower oven chambers mounted to a front frame (60) formed with apertures conforming to the mouths of said oven chambers (12, 14). Interfitting flanges (71, 72) on said dished structure and said aperture define a tortuous space in which is retained a gasket that seals between the dished structure of oven (12 or 14) and the frame (60). Side pieces or brackets (61) projecting from opposed sides of the dished structure clip to straps (63) bolted to the frame (60) to hold the dished structure (12, 14) in position against the gasket. The arrangement enables insulation around the the ovens (12, 14) to be retained behind the straps (63) to provide a space for convective air circulation (32) up the sides of the cooker, cooling side walls (21).



EP 0 173 543 A2

0173543

TITLE MODIFIED
see front page

IMPROVEMENTS IN OR RELATING TO COOKERS

This invention relates to a cooker having an improved oven mounting arrangement, and more particularly, though not exclusively, to a floor standing cooker having such an arrangement.

It is an object of the invention to provide an improved method of mounting an oven chamber to the casing of a cooker using a minimum of components.

Broadly stated the invention provides a cooker comprising a dished structure defining an oven chamber mounted to a frame formed with an aperture conforming to the mouth of the oven chamber, flanges of said dished structure and said aperture interfitting and defining a preferably tortuous space in which a gasket is retained that seals between the dished structure and the frame, side pieces or brackets projecting from opposed sides of the dished structure fastening to straps attached to the frame to hold the dished structure in position against the gasket.

The above arrangement is particularly suited for a cooker in which first and second oven chambers are held one above the other against respective apertures of the

front frame, which is otherwise closed. Preferably the gasket is retained between transverse and forward facing flanges of said dished structure, so that all the surfaces presented to the gasket are bluff and the gasket is not damaged by over-tightening of the straps. Preferably the gasket is formed with a formation that fits onto a flange of the dished structure or the frame so that it can be held in position during assembly of the dished structure to the frame, and with an outwardly projecting tongue that seals against an inner face of an oven door pivoted to the frame. The gasket that is preferably fitted provides a thermal barrier insulating the frame from oven heat and is conveniently of silicone rubber.

Advantageously side pieces or brackets are fastened to the back of the dished structure and are clipped to the straps which are threadedly fastened at their forward ends to the frame. Thermal insulation for the or each oven chamber is wrapped therearound before the side pieces or brackets are clipped to the straps so that the thermal insulation for the or each chamber can be retained between the dished structure and the respective straps. Preferably the straps extend behind the side pieces or brackets to support a back panel of the cooker. Side panels may be mounted between the frame and the back panel at a clearance from the straps so that air spaces are maintained between the thermal insulation and the side panels. An oven space may be defined between the frame and the back panel and between a hob located at the top of the frame and a floor panel located at the bottom of the frame. The side panels may extend under the floor to define portions of a plinth by which the cooker stands on the floor of a room. The control panel may be supported in a compartment under the hob along the top edge of the frame and vertical conduits on the inner faces of the side panels may lead cooking air to that compartment.

The invention further comprises a method of fixing an oven chamber to a cooker which comprises:

providing a dished structure defining the oven chamber having side pieces or brackets projecting from opposed sides thereof;

wrapping the dished structure with thermal insulation;

fastening straps to the side pieces or brackets outside the insulation;

offering a mouth of the oven chamber to an aperture conforming to said mouth defined in a frame of said cooker so that interfitting flanges of said dished structure and said aperture define a tortuous space that traps and retains a gasket fitted to one of the interfitting flanges; and attaching the straps to the frame to hold the dished structure in position against the gasket, so that the gasket seals between the dished structure and the frame.

An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:-

Figure 1 is a rear perspective view of a cooker according to the invention shown with portions of the casing cut away and partly in section;

Figure 2 is a rear perspective view of the cooker during assembly according to a first embodiment of the invention; and

Figure 3 is a fragmentary section of the mouth region of an oven, portions of the frame and an oven door according to a second embodiment of the invention.

In Figure 1, a floor standing cooker that is of width and breadth 500 mm and of overall height 850 mm or 900 mm comprises a casing in which are fitted a hob unit 10, an upper grill oven 12 of smaller size and a lower fan oven 14 of larger size.

Figure 2 shows the way in which the ovens 12 and 14 are mounted to a front frame structure 60 that also pivotally carries front doors for the ovens. The frame structure 60 is stepped inwards to define a recessed

surface 71 to which the fronts of dished structures defining the ovens (12, 14) are mounted. The surface 71 is formed with upper and lower apertures dimensioned to correspond to the mouths of the upper and lower ovens 12, 14, each aperture being bounded by an inturned flange 72. The mouth of each oven 12, 14 is formed with an out-turned flange 73 that is stepped at 74 to interfit with the flange 72 of the frame. Between the two flanges 72, 73, there is defined a labyrinthine space into which a gasket of silicone rubber can be fitted. The gasket provides a thermal barrier between the oven 12 or 14 and the frame structure 60 which is therefore not directly exposed to oven heat. The rear ends of the oven chambers are provided with welded-on brackets 61 provided with projecting tags 62 that clip into slots formed in a pair of metal straps 63 of shallow channel section. The fronts of the straps 63 are bolted or screwed to the frame 60 to hold the respective oven 12, 14 in place. It will be noted that the straps 63 occur in pairs to either side of each oven 12, 14 and transmit a tension load from the rear of the oven 12, 14 to te front frame 60. The straps 63 extend behind the brackets 61 and are folded over at their ends 64 for attachment of a back panel 29. Referring now to Figure 1, an oven sub-assembly is completed by attachment of a floor panel 24 between the back panel 29 and the front frame 60.

The oven sub-assembly is quick and easy to assemble and assembly may be carried out with the front frame 60 facing downwardly and with the ovens 12, 14 lowered onto it. Thermal insulation 31 is wrapped around each oven structure 12, 14 after which the oven structures are offered up to the respective apertures in the front frame 60 with the gasket prefitted to one or the other of flanges 72, 73. The straps 63 are clipped onto the brackets 61 and the ends of the straps 63 are screwed or bolted to the frame 60. The floor panel 24 is screwed to the frame 60 and the back panel 29 is screwed to the

rearward projections 64 of the straps 63 and to the floor panel 24. Thereafter a wall 46 is fitted above the front edge of the frame 60 to define a chamber 45 that houses controls 47 on a control panel 48. A hob 10 is fitted over the top of the cooker between the wall 46 and the rear edge of the panel 29 to provide a substantially continuous top surface to the cooker, and it will be noted that an oven space is defined between the hob 10 and the floor plate 24. The hob 10 is preferably a sealed hob either of the glass-ceramic type or with sealed individual electric hotplates. But it could also employ open radiant rings with a spill tray formed with ventilation slots to allow convective air through the cooker to cool the plates.

Side walls 21 fit between the frame 60 and the rear wall 29, clear of the straps 63, so as to leave free space at the sides of the cooker for passage of rising convective air 32 admitted through apertures 25 in the plate 24. It will be noted that the convective air 32' towards the top of the oven space flows over the top surface of the oven 12 and exits through a vent 33 through the rear of the hob 10 as indicated by arrow 34. The side walls 21 carry chimneys 50 at their forward edges by which cooling air from outside the cooker is led from the sides into the control chamber 45, the cooling air being discharged between the control panel 48 and the wall 46 as indicated by an arrow. The walls 21 continue beneath the floor panel 24 to define lateral portions of a plinth structure 16 that may be downwardly extended by removable plinth side panels 20. Dual height front and rear plinth panels 18, 19 are fixed between the lower side walls and the plinth panels 20 (if present) and are formed with limbs of dissimilar length, either of which is attachable in vertical position depending on whether or not plinth panels 20 are present. The plinth structure 16 thereby enables the cooker to stand on the floor at an overall height of either 850 mm or 900 mm, depending upon whether

the side panels 20 are present or are removed. Between the front of the plinth 16 and the floor 24, there is defined a front slot 26 into which cool convective air 27 is admitted from outside the cooker, and a similar slot 28 between the rear plinth panel 18 and the rear panel 29 passes convective air 30 from the plinth 16 into a space between the set-forward panel 29 and a wall against which the cooker is placed.

An alternative flange arrangement is shown in Figure 3 in which the frame 60 has a forwardly facing flange 80 that locates in a channel portion 81 of a silicone rubber gasket 82. By this means the gasket 82 may be fitted in position before the mouth of the oven 14 is offered to it. The oven 14 has at its mouth a reverse fold defining a nose 83 terminating in an inturned flange 84. The nose 83 and flange 84 interfit with flange 80 and define with the front panel 60 and flange 80 a tortuous space in which an L-shaped portion 85 of the gasket becomes trapped. A tongue 86 projects forwardly from the gasket 82 to make a face seal with an oven door 87 pivoted to the frame 60. The L-shaped portion 85 of the gasket 82 is in compression between bluff surfaces which are not prone to cut it if over-tightened. The close confinement of the gasket 82 minimises heat distortion and in particular sagging of the tongue 86 resulting from use of the grill or grill-oven.

The arrangement illustrated has the advantages that:

(a) the cooker has an easily assembled but rigid frame structure;

(b) the insulation 31 is held in place behind the straps 63 which assist in maintaining the free space for air circulation; and

(c) the straps 63 can be used to anchor door mechanisms and in particular springs for a bottom-hinged door to the top oven 12.

It will be observed that the cooker presents to the user a hob 10, a control panel 48 along the underside of the hob 10 and a grill-oven 12 below the control panel 48

and a fan oven 14, 35, 36 below the grill oven. A simplified cooker structure could be provided by fitting a single combined grill and fan oven below the control panel 48 with a storage drawer below it.

CLAIMS:

1. A cooker comprising a dished structure (14) defining an oven chamber mounted to a frame (60) formed with an aperture conforming to the mouth of the oven chamber with flanges (72, 73) of said dished structure and said aperture interfitting, side pieces or brackets (61) projecting from opposed sides of the dished structure fastening to straps (63) attached to the frame (60) to hold the dished structure (14) in position against the gasket (82).

2. The cooker of Claim 1, wherein dished structures (12, 14) defining first and second oven chambers are held one above the other against respective apertures of the frame (60).

3. The cooker of Claim 1 or 2, wherein a gasket (82) that seals between the dished structure (4) and the frame (60) is retained in a tortuous space defined between transverse and forward facing flanges (83, 84) of said dished structure (14), the gasket is formed with a formation (81) by which it may be prefitted to one of the interfitting flanges (80) and with an outwardly projecting tongue (86) that seals against an inner face of an oven door (87) pivoted to the frame (60), the gasket (82) being of silicone rubber.

4. The cooker of any preceding claim, wherein the side pieces or brackets (61) are fastened to the back of the dished structure (14), the side pieces or brackets (61) and the straps (63) clip together, the straps (63) are threadedly fastened to the frame (60) and thermal insulation (31) for the or each oven chamber (12, 14) is retained between the dished structure (12,14) and the respective straps (63).

5. The cooker of any preceding claim, wherein the straps (63) extend (64) behind the side pieces or brackets (61) to support a back panel (29) of said cooker, and side panels (21) are mounted between the frame (60) and the back panel (29) at a clearance from the straps (63)

whereby air spaces are maintained between the thermal insulation (31) and the side panels (21).

6. The cooker of Claim 5, wherein an oven space is defined between the frame (60) and back panel (29), a hob (10) is located between the top of the frame (60) and back panel (29) and a floor panel (24) is located between the bottom of the frame (60) and back panel (29), the side panels (21) extending under the floor panel (24) to define portions of a plinth (16) by which the cooker stands on a floor.

7. The cooker of Claim 6, wherein a control panel (48) is supported in a compartment (45) under the hob (10) along the top edge of the frame (60) and vertical conduits (50) on the inner faces of the side panels (21) lead cooling air to the compartment (45).

8. A method of fixing an oven chamber to a cooker which comprises:

providing a dished structure (14) defining the oven chamber having side pieces or brackets (61) projecting from opposed sides thereof;

wrapping the dished structure (14) with thermal insulation (31);

fastening straps (63) to the side pieces or brackets (61) outside the insulation (31);

offering a mouth of the oven chamber (14) to an aperture conforming to said mouth defined in a frame (60) of said cooker so that interfitting flanges (72, 73) of said dished structure and said aperture define a tortuous space that traps and retains a gasket (82) prefitted to one of said interfitting flanges (80); and

attaching the straps (63) to the frame (60) to hold the dished structure (14) in position against the gasket (82), so that the gasket (82) seals between the dished structure (14) and the frame (60).

9. A method according to Claim 8, wherein dished structures (12, 14) defining upper and lower ovens are attached to the frame (60) and further comprising the step

of attaching a back panel (29) to rearward extensions (64) of the straps (63).

10. A method according to Claim 9, further comprising the steps of fitting a control panel chamber (46) along the top of the frame (60), fitting a floor panel (24) between the frame (60) and the back panel (29) and fitting side panels (21) between the frame (60) and the back panel (29).

Fig. 1.

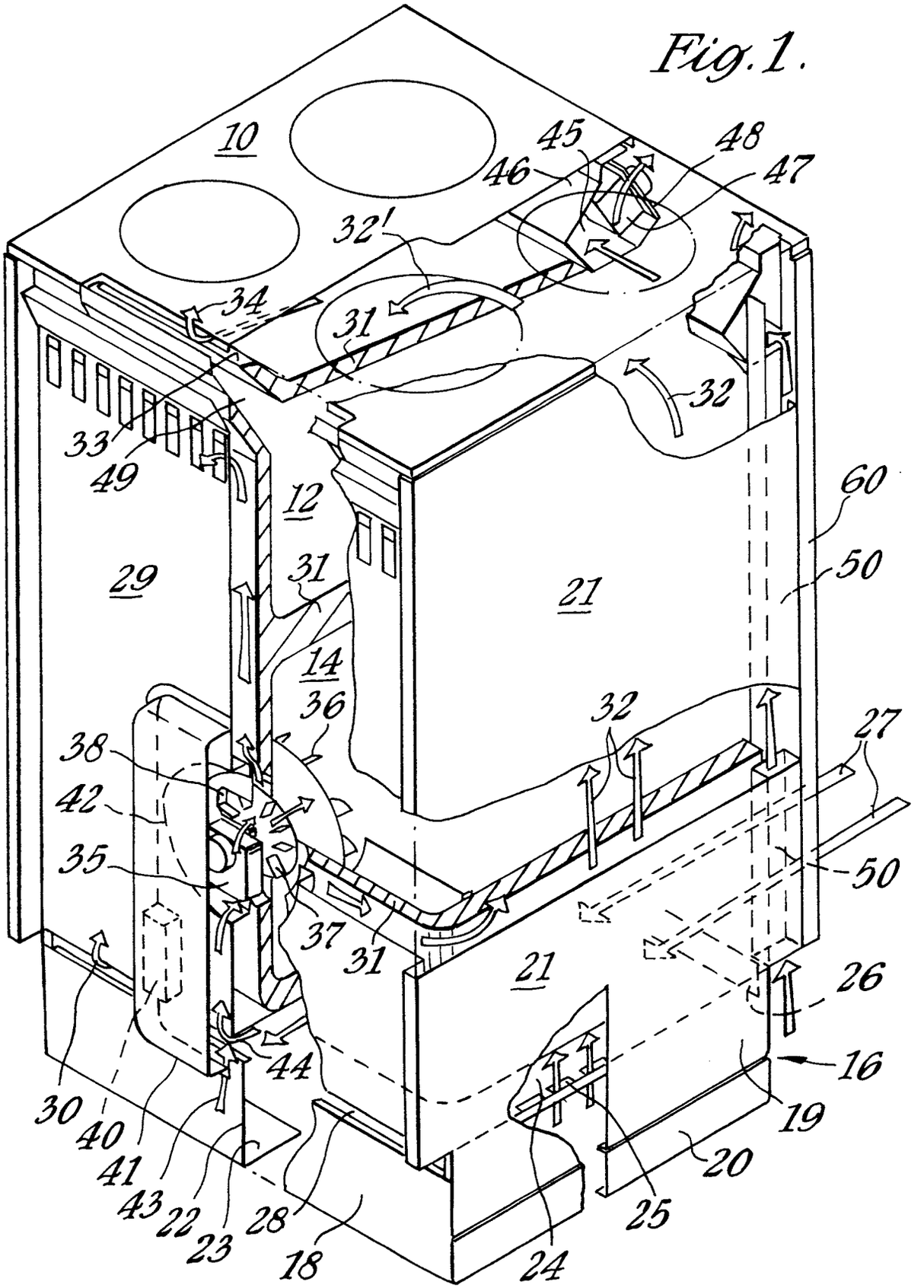
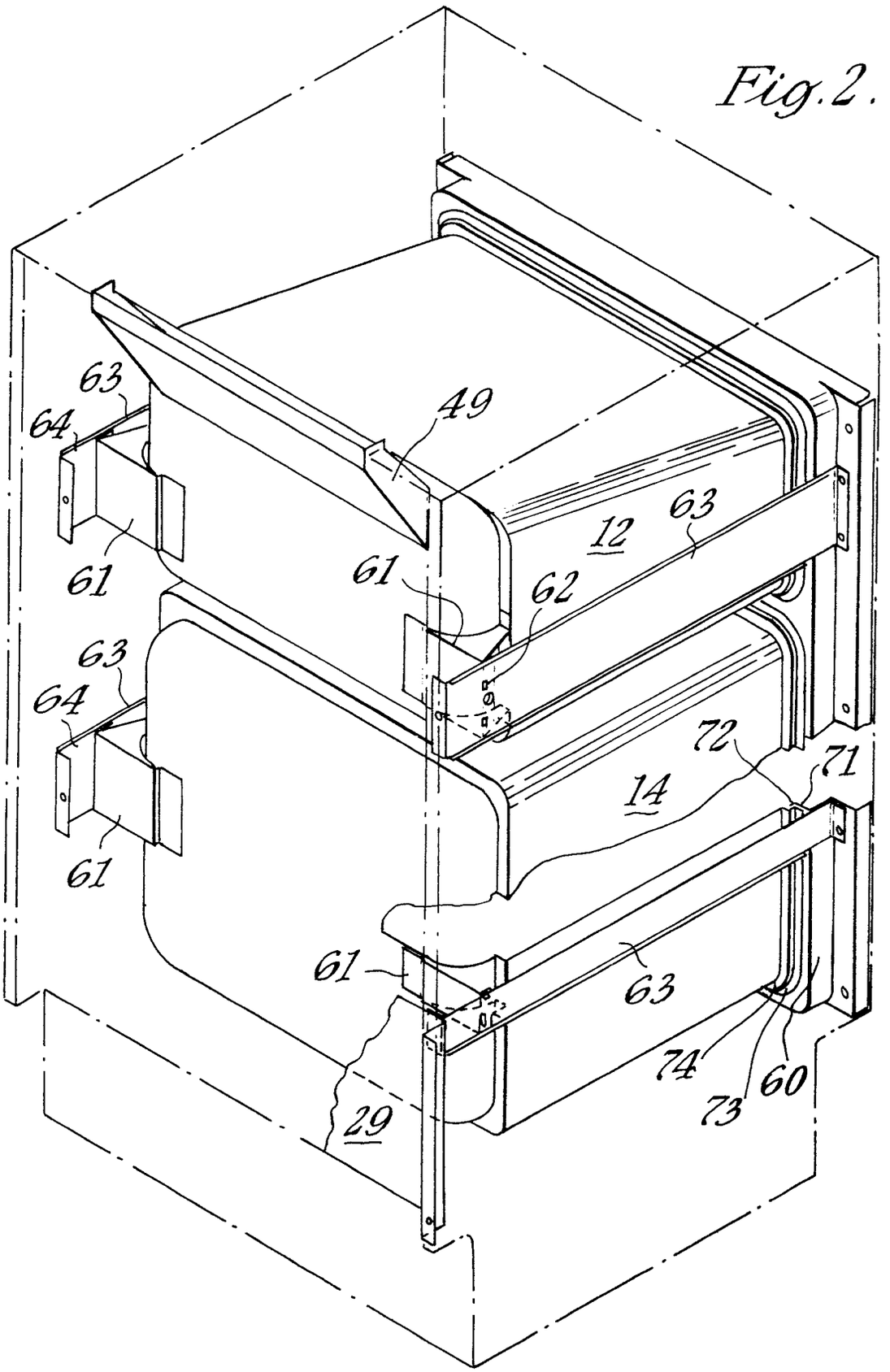

10
45
48
46
47
32'
34
31
32
33
49
12
60
29
31
21
50
14
36
32
27
38
42
35
37
31
21
50
26
16
44
30
40
41
43
22
23
28
18
24
25
20
19

Fig. 2.



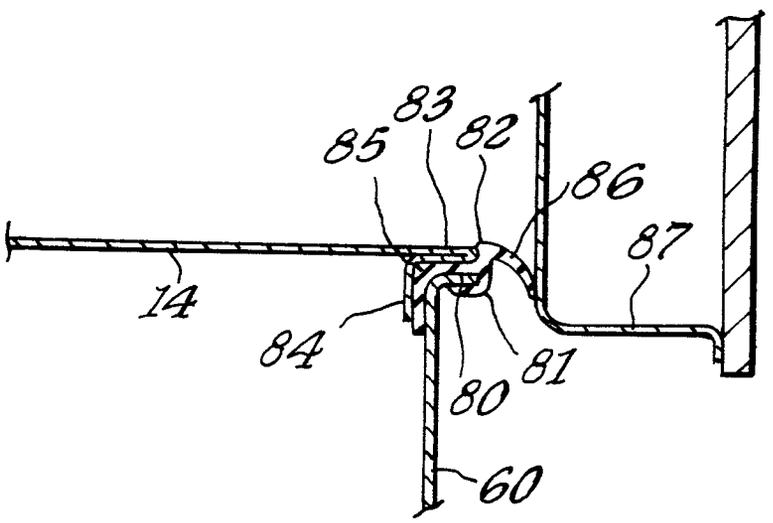


Fig. 3.