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(54) **Improvements in and relating to a dispenser for a roll of web material.**

(57) A dispenser for a roll of web material (26) includes a housing (2), a base 12 to support the roll (26), and a tubular member (16) extending down from the base and closed at its outer end by a plate (18) having an aperture (20) therein, the aperture including a "slot" terminating at the apex (24) of the aperture.

To allow a length of web material to be removed from the roll without injury to the user's hand and without wastage of web material, the aperture (20) is so configured that pulling the free end of the web material with a component of force in a horizontal direction causes the web material to be guided into the "slot" in which the web material wedges and is held, whereupon further application of force in the same direction causes the web material to tear at or below the slot.

EP 0 061 248 A2

This invention relates to a dispenser for a roll of web material, such as a roll of paper towelling, of the kind in which the web material is removed from the centre of the roll.

Known dispensers of this kind comprise for example a horizontal support for the roll of paper towelling, the support having a central opening through which a free end of the paper may pass. Below this support is arranged a tear-off device comprising vertically disposed teeth against which the paper is pulled to tear off the required length.

These dispensers suffer from the disadvantages that the exposed sharp teeth may injure the user's hand, and, in many instances, more paper is torn off than is required, due to the difficulty in finding the correct angle and amount of force needed to tear the paper and not merely to pull a further length out of the dispenser. This results in considerable wastage of paper towelling.

A dispenser for a roll of web material in accordance with the invention comprises support means for supporting the roll in a substantially upright position; and an apertured member, which may comprise said support means or which may be spaced vertically below the roll

when the latter is in its supported position; the aperture being so configured that pulling a free end of the web material from the centre of the supported roll down through the aperture, and then pulling the free end with a component of force in a horizontal direction causes the web material to be guided into a tapered slot formed at the periphery of the aperture in which the web material wedges and is held, whereupon further application of force in the same direction causes the web material to tear at or below the slot.

In one embodiment only one slot is provided, the slot tapering when the dispenser is mounted in a predetermined alignment, on an upright wall or pole, in a direction substantially normal to the upright wall or pole. This is so that when a user of the dispenser pulls a free end of the web material in a general direction away from the wall or pole, with a component of force in a horizontal direction, the web material extending through the aperture is guided into the slot.

Alternatively the aperture may have at least three slots, extending in an arc of about 180°. Each slot may be joined to an adjacent slot by a straight or an inwardly curving portion of the periphery of the aperture. With this alternative embodiment the user of

the dispenser may pull the free end of web material in a greater range of directions away from the wall or pole with the web material still being guided into one of the slots.

If the dispenser is designed to be mounted on a pole so that material may be dispensed all round the pole, the aperture may be star shaped, the star having at least three points, each of which comprises a tapered slot, and each of which is joined to an adjacent point by an inwardly curving portion of the periphery of the aperture. The user of the dispenser may then pull the free end of web material in any direction, as long as there is a component of force in a horizontal direction to cause the web material to be guided into one of the slots.

In order to keep the roll clean and dry, a housing open at one end may be provided, the open end resting on the support means. The housing may be pivoted to the support means to permit movement between an open or roll replacement position in which it lies beneath the support and a dispensing or closed position in which it is swung up over a roll positioned on the support.

The apertured member which is normally a plate, is perferably spaced vertically below the support means, which may comprise one or more substantially horizontal

surfaces and/or vertical, spaced ribs.

The dispenser is specially useful for dispensing predetermined lengths of paper towelling or the like from a roll of paper towelling having transverse rows of perforations spaced at equal distances along its length. The paper towelling will tear at the line of perforations below the slot in which it is wedged and held, and thus a predetermined fixed length of paper towelling may be dispensed. Also it is easy for a user to wedge the towelling web in a slot than to tear it against teeth.

The invention will now be further described by way of examples with reference to the accompanying drawings, in which:

Figure 1 is a side view of one embodiment of a dispenser in a closed position in accordance with the invention,

Figure 2 is an underneath view of the dispenser of Figure 1,

Figure 3 is a cross-section of the dispenser of Figure 1 taken along the line III-III of Figure 2,

Figure 4 is a cross-section of the locking means for the dispenser of Figure 1, shown in the locked

position,

Figure 5 is a plan view of the locking means of Figure 4 partly broken away, and in the open or unlocked position,

Figure 6 is a perspective view of another embodiment in an open position in accordance with the invention,

Figure 7 is an underneath plan view of the dispenser of Figure 6,

Figure 8 is a side elevation/cross-section of another embodiment of dispenser in accordance with the invention, and

Figure 9 is an underneath plan view of the dispenser of Figure 8.

Referring to Figures 1 to 3 of the drawings, the dispenser comprises a housing 2 including a front portion 3 pivotally mounted about an axis 4 to a back plate 6 through an intermediate portion 8 positioned between the pivotable front portion 3 and plate 6. The portion 8 includes a support plate 10.

The plate 10 has a horizontal base 12 having a central opening 14. A tubular member 16 extends down from the edge of the central opening 14 and its outer end is closed by a plate 18 having a triangularly shaped

aperature 20 with two inwardly tapering sides 22 (see Figure 2) forming a "slot" terminating at an apex 24. A roll 26 (shown dotted in Figure 1) of a web of paper towelling is placed inside the housing 2 and supported on the base 12, and a free end of the web is fed through the central opening 14 and aperture 20. To remove a length of towelling from the roll the free end is pulled by a user from beneath the tubular member 16. When he has a desired length he pulls the web partially horizontally in a direction away from the back plate 6 which is secured to a support. This causes the web to be guided along the inwardly tapering sides 22 towards the apex 24 so that the web is wedged and hence held in the slot. Further pulling of the web causes the material to tear at or below the "slot". If the web is formed with a series of perforations extending across the material at intervals then the web will tear across one of these set of perforations. The wedging effect prevents unnecessary material being pulled from the roll and thus eliminates waste.

As the dispenser is mounted on a wall or like vertical surface or upright pole by means of the back plate 6, the sides 22 of the aperture 20 are shown as tapering inwardly as they extend away from the back plate

6.

A part of the back portion of the member 16 is removed to allow access to opening 14 so that a user of the dispenser may pass their hand through the opening 28 and aperture 20,and grab the free end of web material extending through the central opening 14 but which may not extend through the aperture 20.

A plate 30 resting in the central opening 14 of the base 12 provides extra support for the roll 26. The insert plate 30 has an opening 32 through which web material is dispensed.

The front portion 3 of the housing 2 is shown closed in Figures 1 and 2, but it may be swung down about the axis 4 away from the back plate into an open position in which a spent roll 26 can be removed and a new roll inserted.

To prevent unauthorised access to the roll 26, a lock 34 (see Figures 3, 4 and 5) is provided to lock together the front portion 3 and intermediate portion 8 of the housing 2.

The lock 34 comprises a lock bar 35 and a lock cam 36 both located within a housing 37 moulded to or forming part of the intermediate portion 8.

The lock bar 35 comprises a cam support portion 38 and a latch hook 39, the cam support 38 being substantially hollow so that the cam 36 can be housed therewithin. The base 40 of the cam support portion 38 defines a slot 41 along which the lock cam 36 can traverse.

To operate the lock (from the open position shown in Figure 5), and thus lock the housing 2 of the dispenser in its closed position, an appropriately shaped key is placed within the positionally off-centre shaft 42 of the lock cam 36, and on turning of the key in the direction of the arrow A (see Figure 5) the lock cam 36 is caused to rotate within the cam support member 38 and the shaft 42 to traverse along the slot 41. The result is that the cam causes the cam support member 38 to move the lock bar 35 in the direction of arrows B. The hook 39 then co-operates with a lug 43 attached to the front portion 3 of the housing 2. To open the housing 2, the key is positioned within the shaft 42 and simply turned in the opposite sense of the direction of arrow A, resulting in the hook 39 being withdrawn from the lug 43.

The lock 34 may comprise two or more lock bars 35 each lock bar 35 being connected by bars 44 so

that only one key is needed to operate all the bars 35.

Referring to Figures 6 and 7 of the drawings a housing 50 is pivotally mounted along an axis 51 on a support bracket 52 having a central aperature 53 formed in the base 55 thereof. Four parallel vertical ribs 54 extend up from the base 55 of the bracket 52, which together with a ledge 56, serve as support means. The aperture 53 has three slots 57 tapering towards their end face, each slot being joined to an adjacent slot by an inwardly curving portion 58 or a straight portion 59 of the periphery of the aperture 53. The whole assembly is mounted on a wall or like vertical surface by the back plate 60 of the support bracket 52.

In operation, the housing 50 is swung about the axis 51 into its open position (as shown in Figure 6). A roll of perforated web material (shown by dashed lines in Figure 6), such as a roll of paper towelling is placed on the support bracket 52, resting on the vertical ribs 54 and the ledge 56. The housing 50 is open at one face 62 to allow a free end of the paper towelling to be pulled from the centre of the roll down through the aperture 53. The housing 50 must now be swung about the axis 51 in the direction of the arrow X shown in Figure 6 so as to cover

the roll; the open face 62 allows the housing 50 to ride freely over the roll. To remove a length of paper towelling the free end is pulled out to a distance a little greater than the spacing between the lines of perforation on the paper towelling (conveniently 35-40 cm). Subsequently pulling the free end at an angle to the vertical causes the paper towelling to be guided by an inwardly curving portion 58 of the periphery of the aperture so as to wedge and thus be held in a slot 57 of the aperture 53, so that the length of paper towelling may be torn off along a line of perforations below the slot 57. The wedging of the paper towelling in the slot 57 prevents any more than is required being pulled from the roll, thus eliminating undue wastage.

Referring to Figures 8 and 9 of the drawings a cylindrical housing 63 is mounted on a horizontal support disc 64 having a central opening 65 formed therein. Four vertical ribs 66 extend below the disc 64, and carry an apertured plate 67. The plate 67 has a star shaped aperture 68 which is disposed vertically below the opening 65. The star shaped aperture 68 has four points 69, each of which is joined to an adjacent point by an inwardly curving portion 70 of the periphery of the aperture 68.

The whole assembly is mounted on a wall or like vertical surface by bracket 71.

In operation, a roll of perforated web material, such as a roll of paper towelling is placed inside the housing 63, resting on the disc 64. A free end of the paper towelling is pulled from the centre of the roll down through the opening 65 and the aperture 68. To remove a length of paper towelling the free end is pulled out to a distance a little greater than the spacing between the lines of perforation on the paper towelling (conveniently 35-40 cm). Subsequently pulling the free end at an angle to the vertical causes the paper towelling to be guided by an inwardly curving portion 70 of the periphery of the aperture so as to wedge and thus be held in a point 69 of the star shaped aperture 68, so that the length of paper towelling may be torn off along a line of perforations below the point 69. The wedging of the paper towelling in the point 69 prevents any more than is required being pulled from the roll, thus eliminating undue wastage.

In the embodiment of Figures 6 and 7, additional support to the roll may be provided by means of a disc, on which the roll may stand, having a central opening through which the web material may be pulled. This disc

may be packed with the roll, or may be left permanently inside the dispenser, bridging the vertical ribs 54 and the ledge 56.

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CLAIMS:

1. A dispenser for a roll of web material (26) comprising support means for supporting the roll in a substantially upright position, an apertured member (18, 55 or 64) which may comprise said support means or which may be spaced vertically below the roll when the latter is in its supported position, characterized in that the aperture (20, 53, 68) is so configured that pulling a free end of web material from the centre of the supported roll (26) down through the aperture (20, 53, 68), and then pulling the free end with a component of force in a horizontal direction causes the web material to be guided into a slot in which the web material wedges and is held, whereupon further application of force in the same direction causes the web material to tear at or below the slot.

2. A dispenser as claimed in Claim 1 wherein the aperture (53, 68) includes a plurality of slots, the aperture being so configured that pulling the free end of web material with a component of force in a horizontal direction causes the web material to be guided into one of said plurality of slots.

3. A dispenser as claimed in Claim 1 wherein the aperture (20) is substantially triangular and itself forms a tapered slot.

4. A dispenser as claimed in any of the preceding claims in which the, or each, slot is tapered to assist wedging of the material therein.

5. A dispenser as claimed in any of the preceding claims including a housing (2) for the roll, the housing being supported by and pivoted to the support means for pivotal movement between a closed and an open position.

6. A dispenser as claimed in any of the preceding claims including a support insert (30) positioned on said support means for providing extra support to the roll of web material (26).

7. A dispenser as claimed in Claim 4 wherein the housing includes locking means (34) for securing the housing in the closed position.

8. A dispenser as claimed in any one of the preceding claims wherein the apertured member (18) is spaced vertically below the roll, and the space between the apertured member and roll is at least partly open (20, 28) to access to the free end of web material.

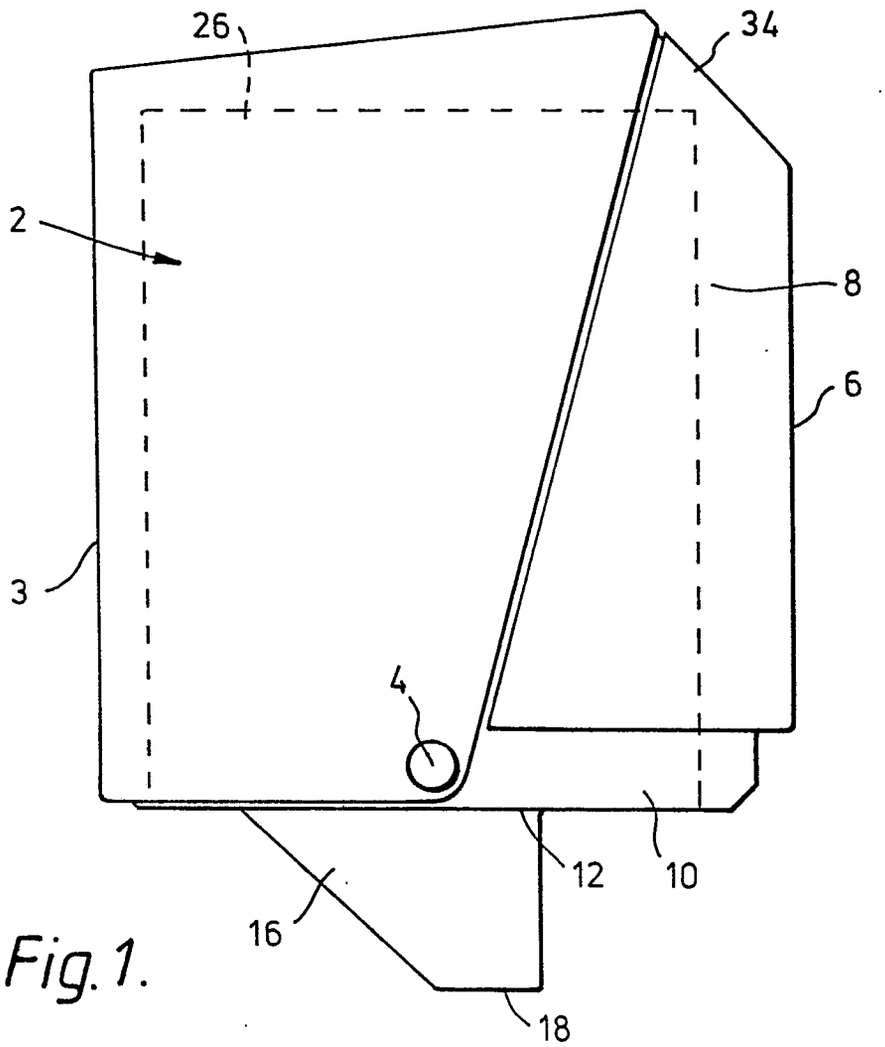
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Fig. 1.

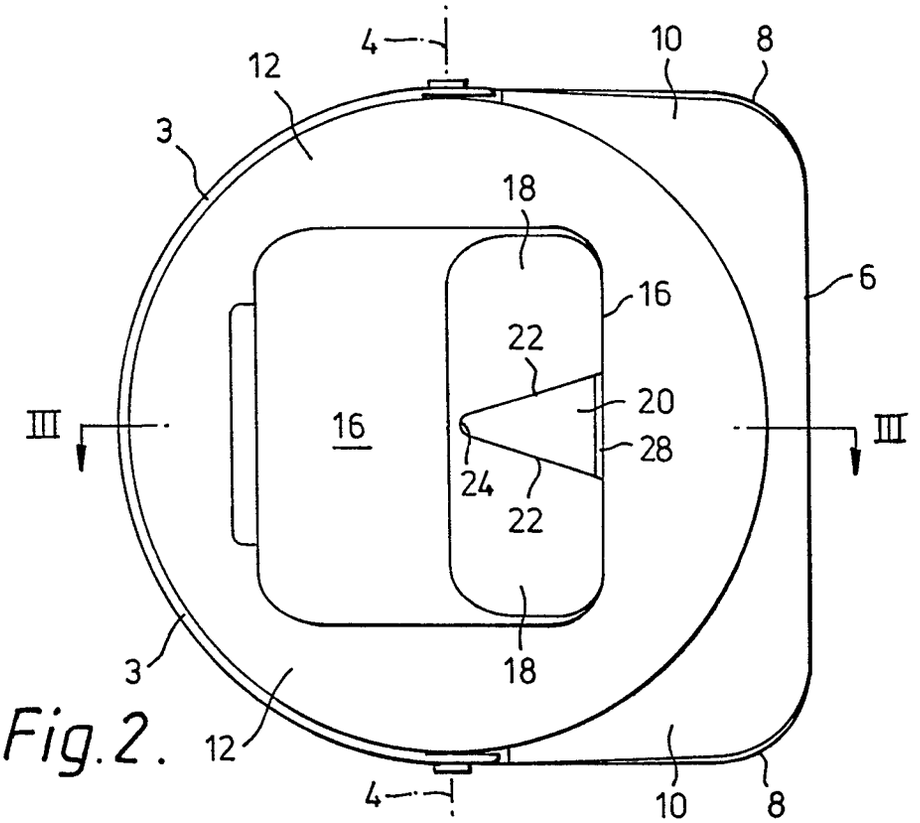
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Fig. 2.

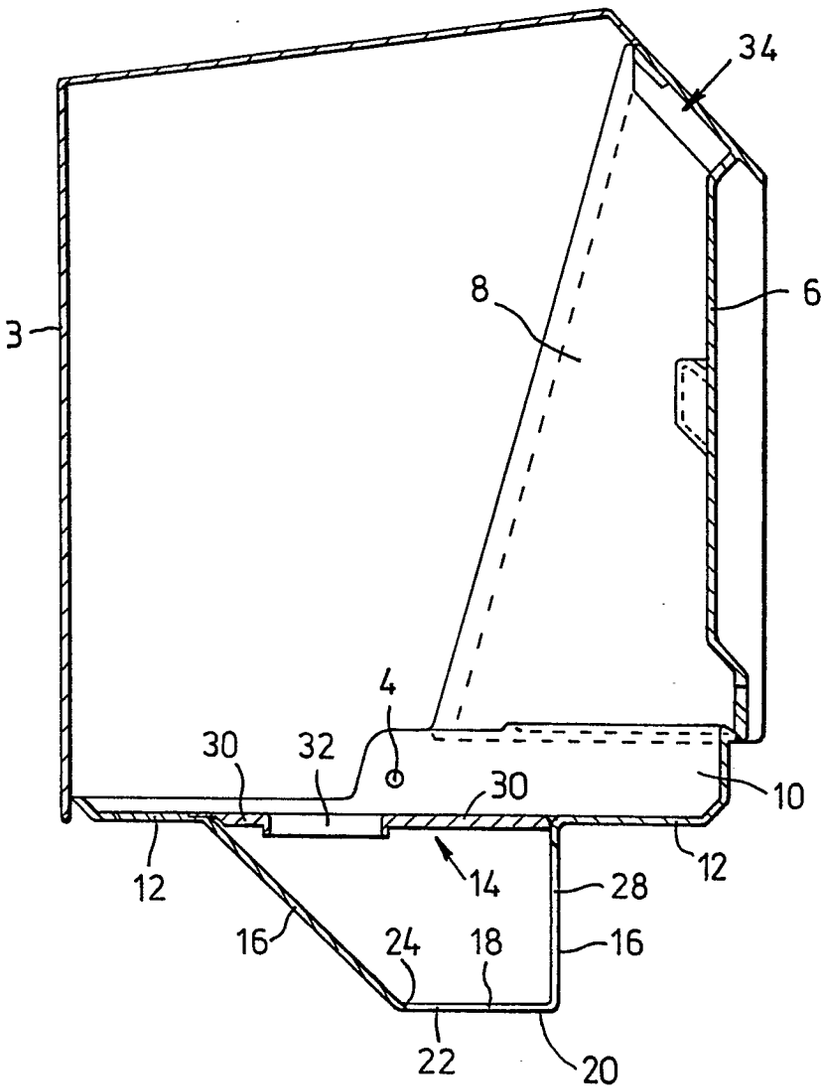

Fig. 3.

Fig. 4.

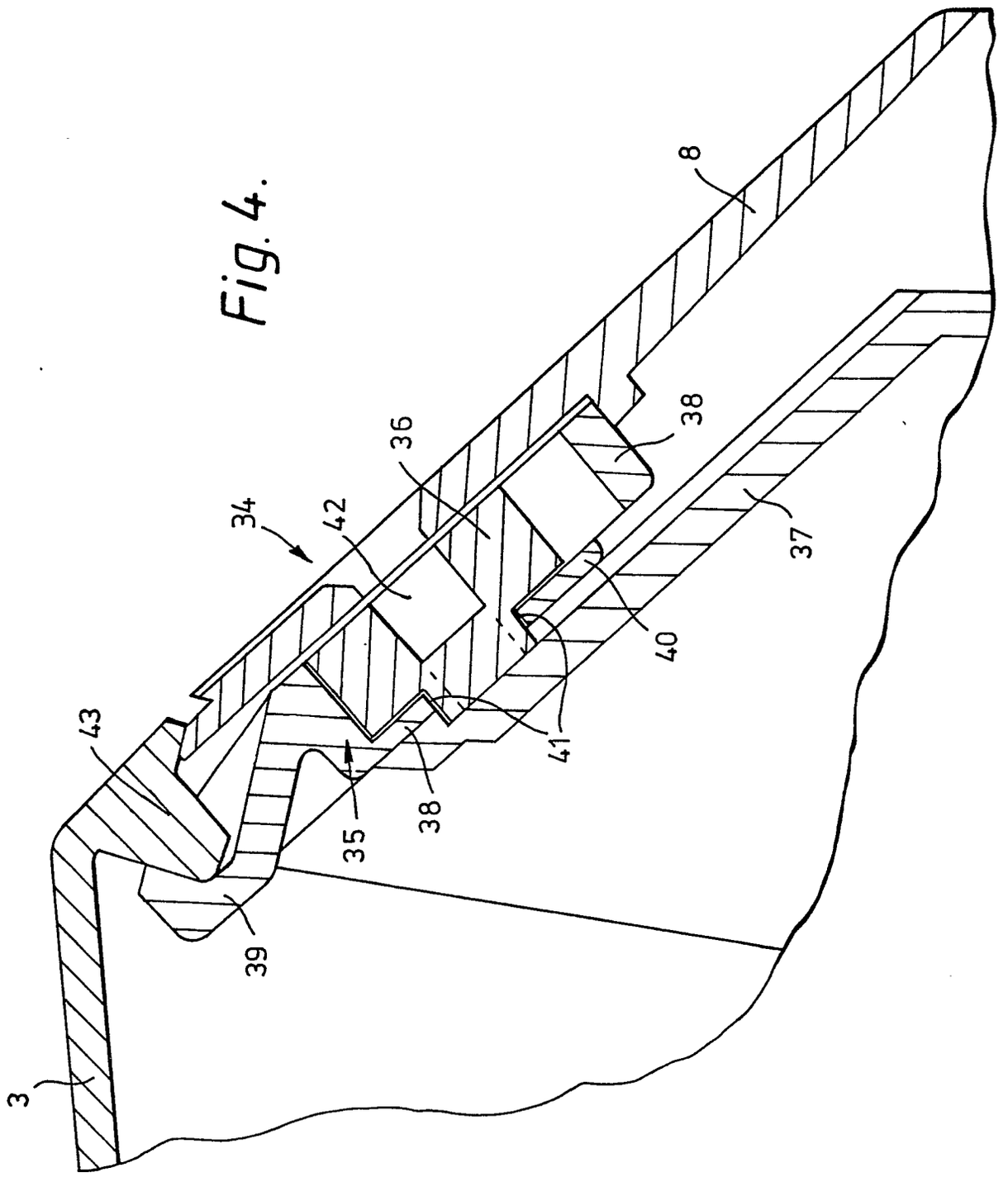

Fig. 5.

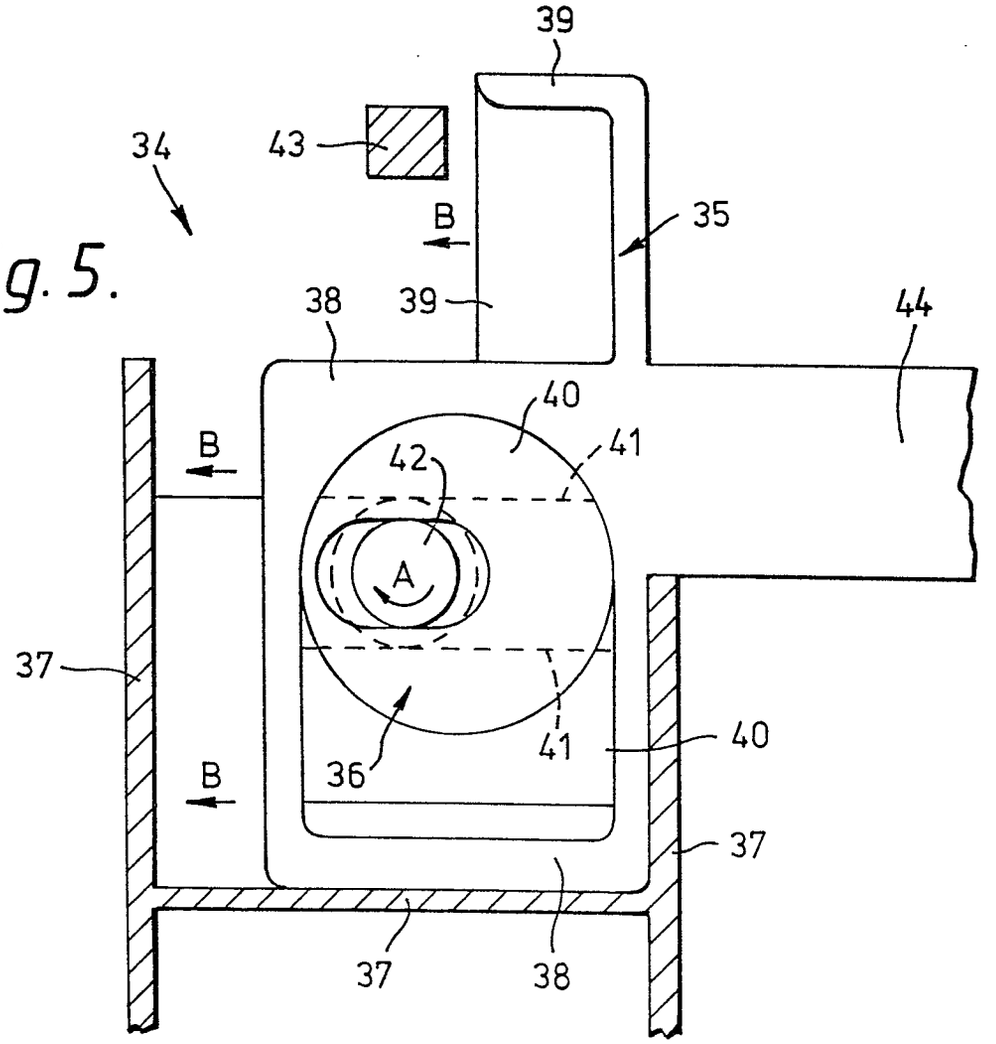
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Fig. 7.

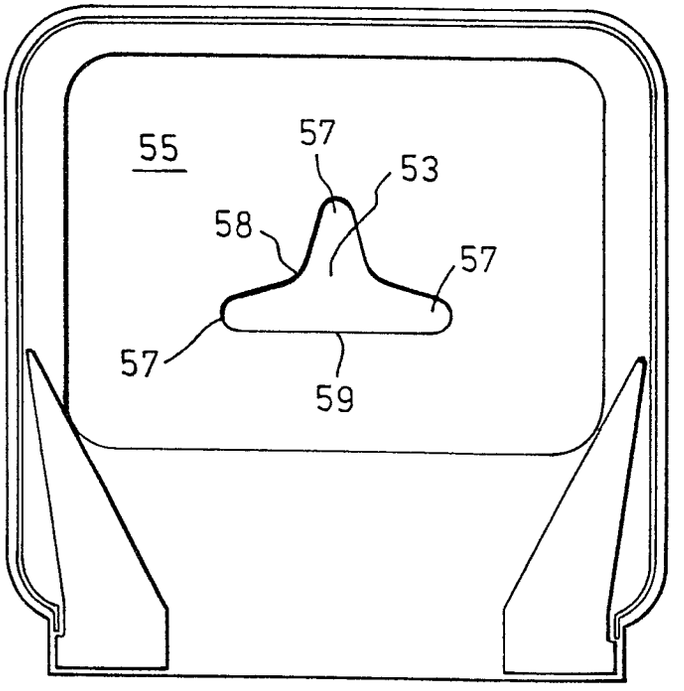
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Fig. 6.

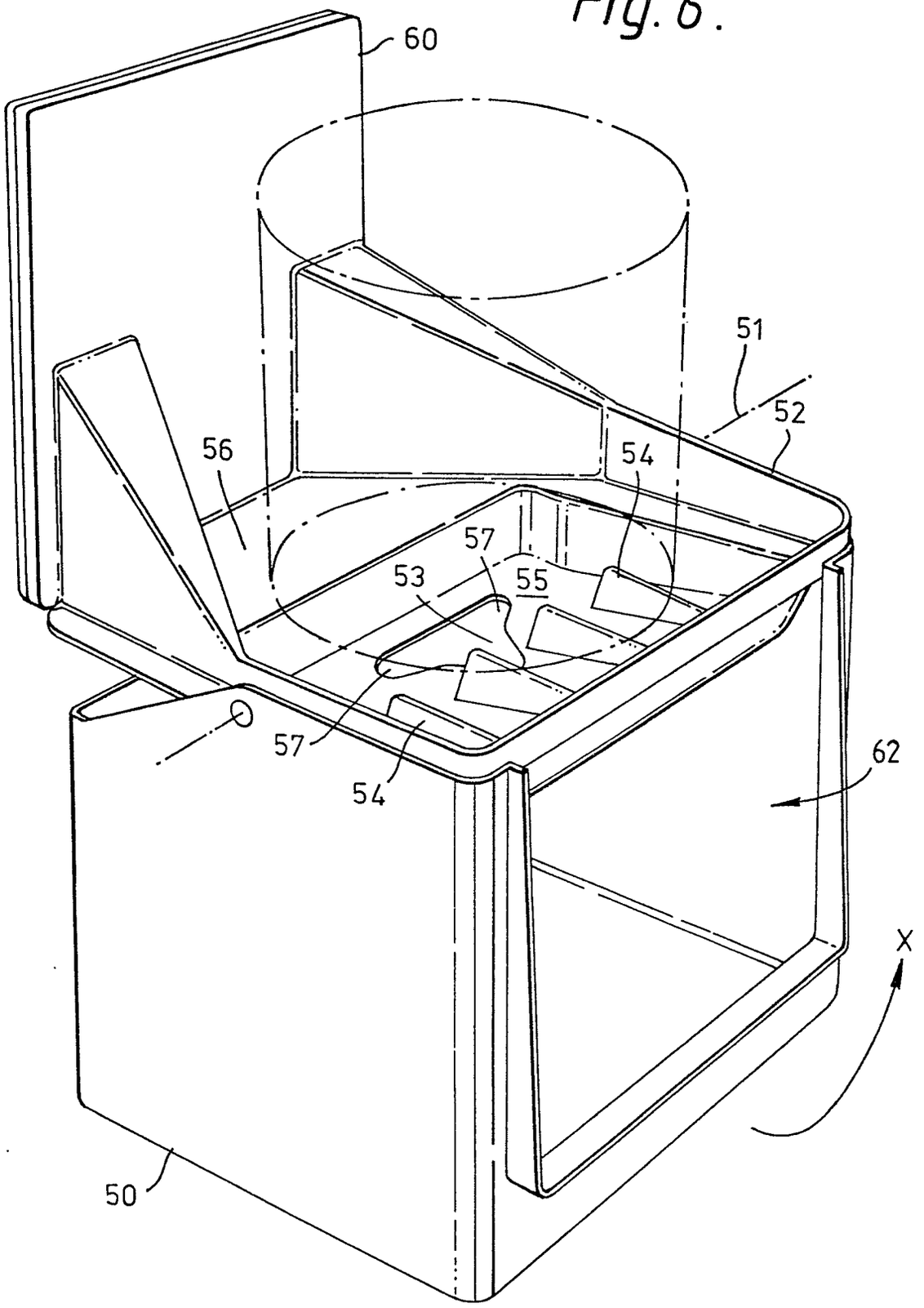

Fig.8.

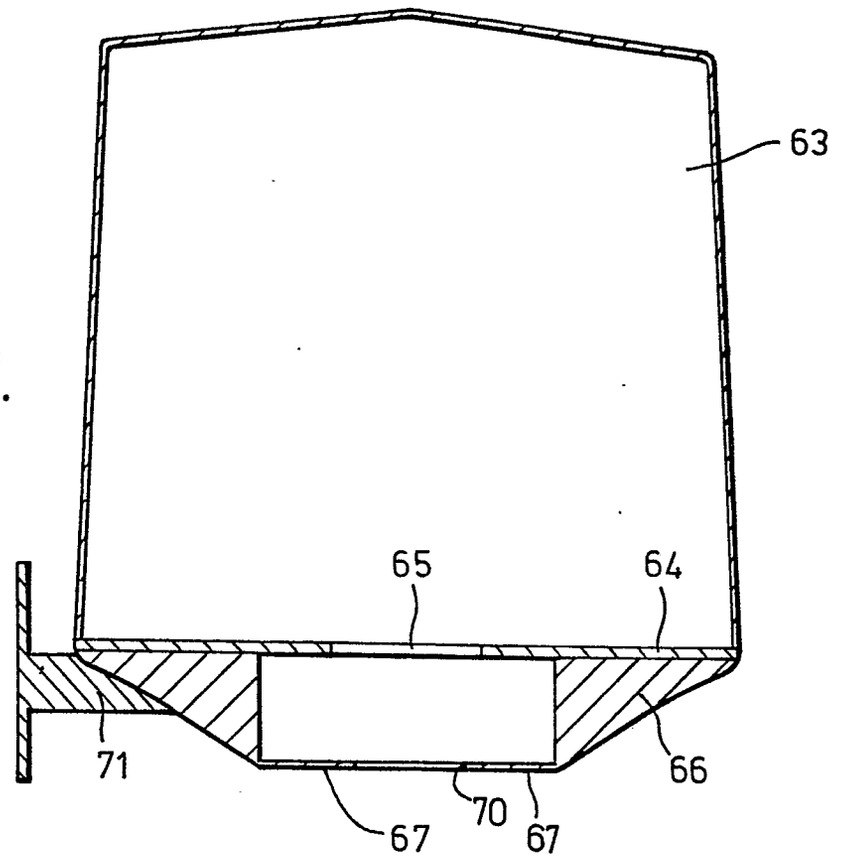

Fig.9.