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(54) IMPROVEMENTS IN OR RELATING TO DISTRIBUTORY FOR PAPER SHEETS

(71) We, BURGO SCOTT S.p.A., a Joint Stock Company organised under the laws of Italy, of Corso Unione Sovietica, 121-Torino-Italy, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a distributor for paper sheets such as napkins and the like.

Previously proposed distributors for paper napkins generally comprise a support tray on which a pile or stack of paper napkins may rest. The support tray is contained in an outer casing of various shapes comprising an opening or mouth for extracting the napkins. The tray is generally biased by a cylindrical spring or other equivalent means arranged between the inner base of the casing and the tray, to urge the paper napkins in the distributor towards the extraction mouth.

These distributors suffer from a number of disadvantages, such as their reduced capacity dictated by the need of keeping their size small. To exert its thrust action on the tray, a resilient element arranged between the tray and a base must generally have, when completely loaded, substantially the same size, as the elongation stroke it can perform. Thus, approximately half the size of the casing cannot be used for containing napkins, and consequently the capacity of the known distributors in terms of the number of napkins is very limited.

Another disadvantage is that the elastic thrust exerted on the napkin disposed adjacent to the mouth is usually a function of the number of napkins contained in the distributor. This means that the thrust exerted on the napkins is not constant. Inevitably, conditions occur in which the thrust is excessive and conditions in which the thrust is insufficient.

Furthermore, often two or more napkins at the time may be accidentally extracted from the distributor, which results in undesirable waste.

According to the invention there is provided a distributor for paper sheets, such as napkins and the like, comprising a vertically

extending casing closed at the top by a lid formed with an elongate through opening, a vertically mobile tray arranged in the casing to support a plurality of sheets disposed in a stack, resilient means supported on the lower face of the tray to control vertical movements of the tray, and means at the upper end of the casing for removably retaining said plurality of sheets.

A preferred embodiment of a distributor for paper napkins is described in the following detailed description with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a napkin distributor having brackets for hooking to a wall;

Figure 2 shows an inner frame of the distributor with a base resting on a support surface;

Figure 3 is a longitudinal cross-sectional view of the distributor;

Figure 4 is a plan view of the distributor, the lid being removed;

Figure 5 shows a detail with parts cut-away to illustrate how the outer casing is coupled to the lid;

Figure 6 is a cross-sectional view of the coupling between the outer cover and the frame; and

Figure 7 is a perspective view of a vertically movable tray.

With reference to the above described figures, the distributor for distributing paper napkins and the like comprises a vertical casing having an inner frame, generally indicated by 1, a substantially square base 2, and the four L-bars or uprights 3 which vertically extend from the corners of the base 2 and are joined together at the top by a framework 4. The casing also has two C-shaped covers 5 designed to be mounted on opposite sides of the frame 1. As is better shown in Fig. 6, the covers 5 comprise at their ends bent-over portions connected by means of through bolts to flanges 6 formed on the base 2 and on the framework 4. Two strips 8 of optically transparent material are inserted between the longitudinal vertical edges of the two covers to enable checking

of the height of the stack of napkins inside the casing.

The casing is closed at the top by a lid 9 held in position by a pair of snap hooks 10 (Fig. 5) arranged at the top of the strips 8 and secured to the framework 4. The lid 9 is formed with an elongate opening or mouth 11 having one edge 11a shaped as a portion of a circumference, and the other opposite edge in the form of a lip 11b which extends towards the inside of the casing and is shaped, for example, as an intersection of a cylindrical element inclined with respect to the plane containing the lid 9.

The above described casing may be hung to a wall, and to this end a lower bracket 12 and upper bracket 13 (diagrammatically shown in Figure 1) are provided. The casing may rest on a circular base 14 which, to facilitate transport, preferably comprises a pair of semicircular members designed to be assembled together to form the base 14.

A vertically movable tray 20 is arranged inside the frame 1, and thus inside the casing, and is urged upwardly by a resilient means generally indicated by 30, the means 30 being attached to the lower face of the tray 20.

More precisely, the resilient means 30 comprises a spiral spring 31 having its inner end secured to a pin 32 depending from the lower face of the tray 20. The outer end of the spiral spring 31 is fixed to the wall of a cylindrical housing 33 mounted for rotation on the pin 32. Four pulleys 34 are mounted rigid with the cylindrical housing 33 and coaxial with the pin 32. Each pulley 34 retains one end of a respective cord 35 which passes through a slot 36 formed in a respective tab 37 downwardly bent from the tray 20, the other end of each rope being fixed in a notch 38 formed in the upper end of each upright 3. In this way the tray 20 is suspended and controlled by the cords 35.

Upon rotation of the pulleys 34, the tray 20 is thus displaced owing to the resilient action exerted by the spiral spring 31 on the cords 35.

The pulleys 34 have a race width substantially equal to the diameter of the cords 35, so that as each cord winds on or unwinds from its respective pulley 34, the winding diameter of each pulley varies accordingly and consequently also varies the force thrusting the tray 20 upwards, thereby maintaining the force exerted by the tray 20 on the napkin disposed close to the mouth 11 approximately constant, irrespective of the number of napkins loaded on the tray. To this end, when the tray 20 is in its lowest position, it supports the weight of the entire stack of napkins and in these conditions the cords 35 are almost completely unwound from the pulleys 34. As some napkins are removed and consequently the weight of the napkins

on the tray 20 is reduced, the cords are increasingly wound on the pulley 34 and, as the winding diameter also increases, the reduction in weight of the stack of napkins on the tray 20 becomes compensated.

A raising projection 21 disposed approximately vertically beneath the mouth 11 is provided on the upper face of the tray 20, the purpose of said projection 21 being to facilitate extraction from the casing of the uppermost or top napkin in the stack of napkins loaded in the distributor.

Means are provided at the top of the frame for retaining the plurality or stack of napkins, said means comprising a bar 40 with its two ends held by two angle uprights 3, the bar 40 extending substantially parallel to, and spaced from, the mouth 11.

To make it easier to extract the napkins from the casing, the napkins indicated by the reference numeral 50 are firstly folded over into an elongate form and then folded again along the folding line 51 (Fig. 3) at a distance from the centre of the elongate napkin so as to delimit a short portion 52 and a long portion 53. Napkins folded in this manner are loaded in the casing so that the short portion 52 is arranged on top and its free end lies underneath the mouth 11, the fold 51 of each napkin being disposed substantially close and parallel to the bar 40.

Mushroom-shaped pegs 22 laterally projecting from the tray 20 are arranged on opposite sides of the tray 20 to prevent direct contact between the tray and the uprights should the tray 20 swing, since such contact could cause undesired and possibly detrimental friction, as both these items are of metal.

The operation and use of the distributor are as follows. When no napkins are loaded on the tray 20, the latter is in its upper position in which the cords 35 are completely wound on the pulleys 34 and the spiral spring 31 is unloaded. To fill the distributor with napkins, the lid 9 is removed and a stack of napkins is inserted, while pushing downwards so as to cause the tray 20 to lower. At the same time, the cords 35 are unwound from the pulleys 34 to load the spiral spring 31. Once the loading operation is terminated, the lid 9 is put back in position and the distributor is ready for use.

A napkin is extracted by gripping the portion 52 of the upper napkin at the mouth 11, and pulling it out of the mouth, during which time the napkin unwinds itself until the fold 51 moves beyond the bar 40 at which point the napkin is free for easy extraction. It is important to note that during the extraction of a napkin, practically no or very little friction is exerted on the underlying napkin, thereby preventing extraction of more than one napkin at a time.

As the napkins are extracted from the dis-

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tributor, the tray 20 is gradually and automatically lifted by the combined action of the spring 31 and the cords 35. For the previously stated reasons, the force exerted on the top napkin is practically constant and independent of the number of napkins loaded in the distributor.

The strips 8 of transparent material enable to check the quantity of napkins present in the distributor. Owing to the use of resilient means comprising a spiral spring for moving the tray 20, the distributor described herein can have considerably reduced outer dimensions, and also the thrust on the napkins remains approximately constant, this being very important as an excessive or an insufficient thrust are generally responsible for undesired extraction of more than one napkin at a time.

It will be noted that the above described paper napkin distributor is extremely versatile, and has a very large capacity of the order of 900 to 1000 napkins, thereby being quite suitable for the requirements of a canteen, bar or small community.

Moreover, such a paper napkin distributor may be fixed to a wall or rest on a support surface. Its inner space can be used almost entirely for containing paper napkins. This makes it possible to reduce the outer dimensions compared with previously proposed distributors and to considerably increase, at the same time, the number of napkins which may be housed in it.

Approximately constant thrust is applied to the napkins in the distributor independently of the number of napkins loaded in it. Finally, the above described distributor for paper napkins is very simple to load and reliable in operation.

WHAT WE CLAIM IS:—

1. A distributor for paper sheets, such as napkins and the like, comprising a vertically extending casing closed at the top by a lid formed with an elongate through opening, a vertically mobile tray arranged in the casing to support a plurality of sheets disposed in a stack, resilient means supported on the lower face of the tray to control vertical movements of the tray, and means at the upper end of the casing for removably retaining said plurality of sheets.

2. A distributor as claimed in claim 1, wherein said casing comprises an internal frame comprising a base, four angle uprights each arranged at a respective corner of the base and all held together by a framework, and a pair of C-shaped opposite cover ele-

ments, inspection means being provided between the cover elements for viewing from outside the amount of sheets loaded inside the casing.

3. A distributor as claimed in claim 2, wherein said inspection means comprises at least one strip of optically transparent material held in position between and along facing edges of said cover elements.

4. A distributor as claimed in any preceding claim, wherein said resilient means comprises a spiral spring the inner end of which is secured to a pin vertically depending from said tray, the outer end of the spiral spring being fixed in a cylindrical casing mounted for rotation on the pin, four pulleys being provided rigid with the cylindrical casing and coaxial with the pin for winding and unwinding a respective cord, each cord having one end secured to its respective pulley, passing through slots formed in tabs projecting downwards from the tray and having its other end fixed to a point in the upper part of the frame.

5. A distributor as claimed in claim 4, wherein each pulley has a race with a width substantially equal to the diameter of its respective cord.

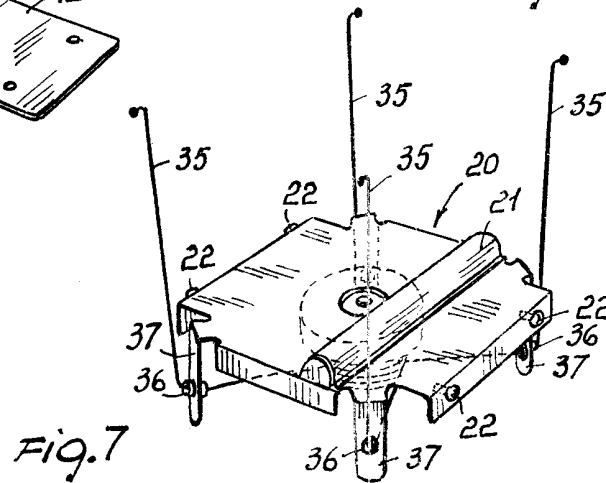
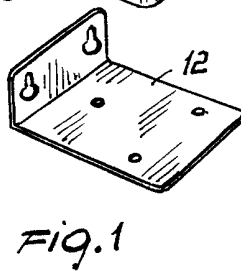
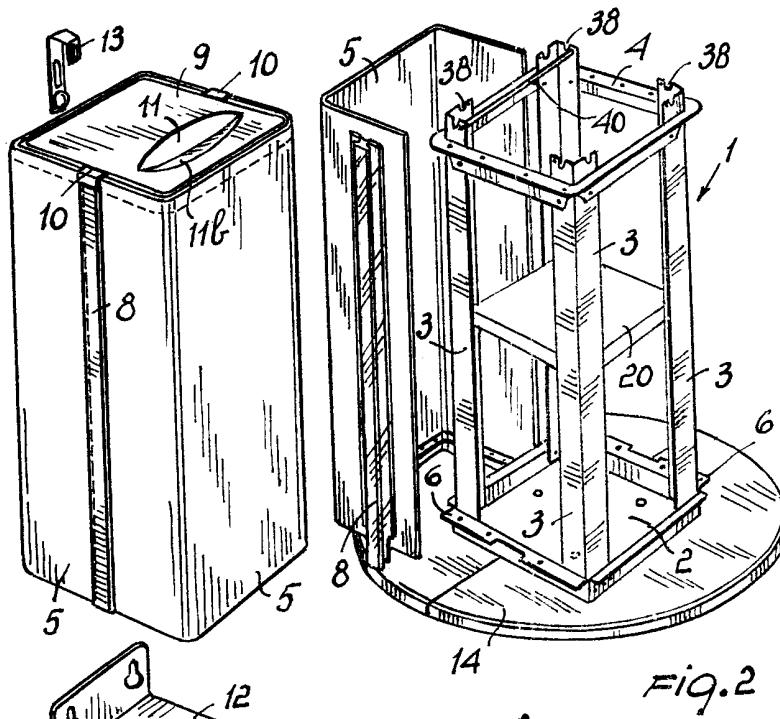
6. A distributor as claimed in any preceding claim, wherein said tray comprises on its upper face a raising projection disposed underneath the said elongate opening and extending substantially parallel to it.

7. A distributor as claimed in any preceding claim, wherein said means for removably retaining said plurality of sheets comprises a bar fixed at its ends to the upper ends of two of said angle uprights, the bar extending substantially parallel to said elongate opening.

8. A distributor as claimed in any preceding claim, wherein each of said sheets has a fold delimiting a short portion and a long portion in the sheet, each sheet being disposed in the distributor with its short portion on top so that with its free end it is located substantially beneath the elongate opening, said fold being disposed close to the bar.

9. A distributor for paper sheets such as napkins and the like substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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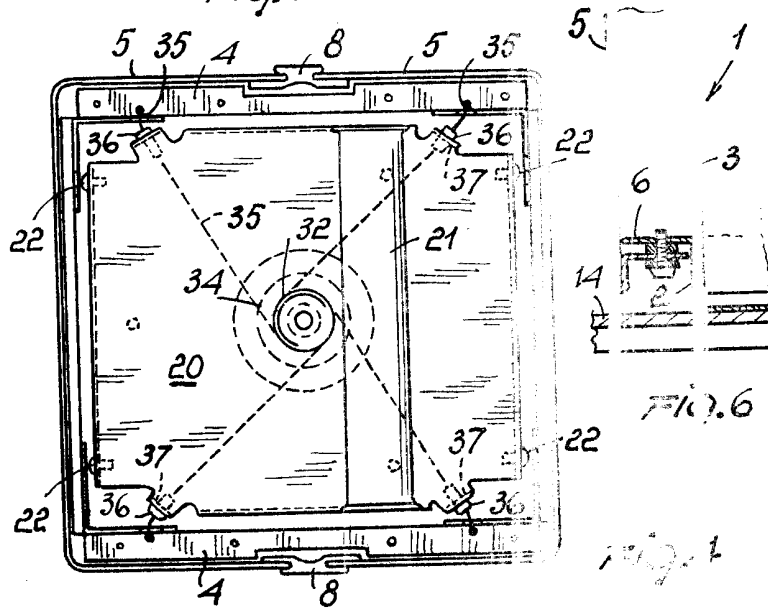
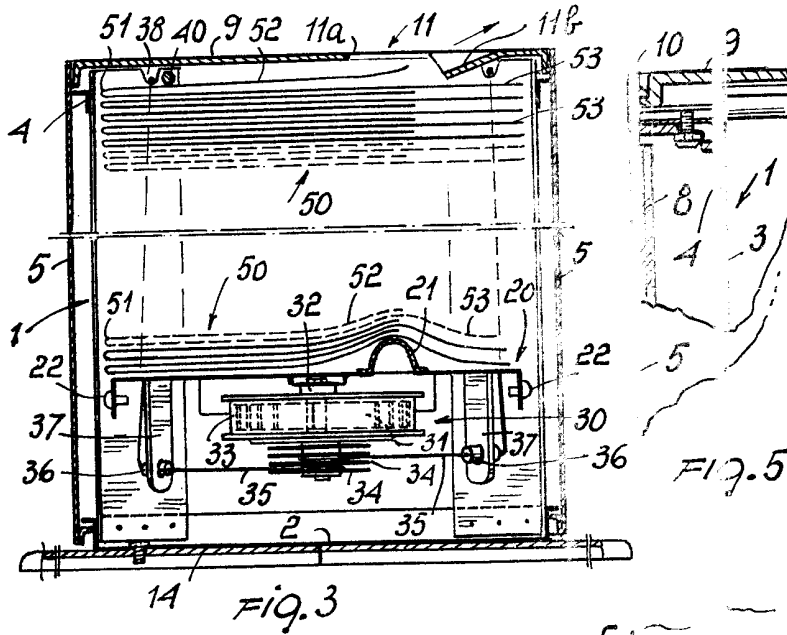


Fig. 6