

L. J. Owen.
Ward, Cory & Neal
Attorneys.

Dec. 23, 1952

T. S. SKILLMAN ET AL
DISPENSER FOR NESTED BAGS

2,622,953

Filed Sept. 20, 1949

4 Sheets-Sheet 2

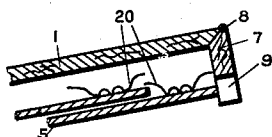


FIG. 3A

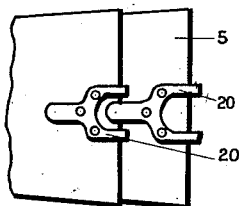


FIG. 3B

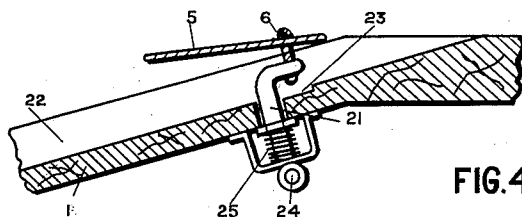


FIG. 4

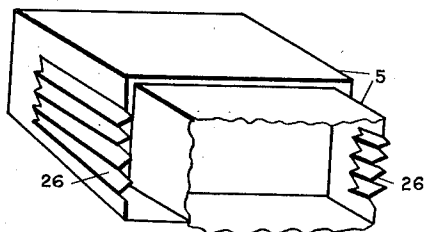


FIG. 5

Inventors:
T.S. Skillman,
R.H. McGibbon,
L.J. Owen.
By *Ward, Aubrey & Ward*
Attorneys.

Dec. 23, 1952

T. S. SKILLMAN ET AL
DISPENSER FOR NESTED BAGS

2,622,953

Filed Sept. 20, 1949

4 Sheets-Sheet 3

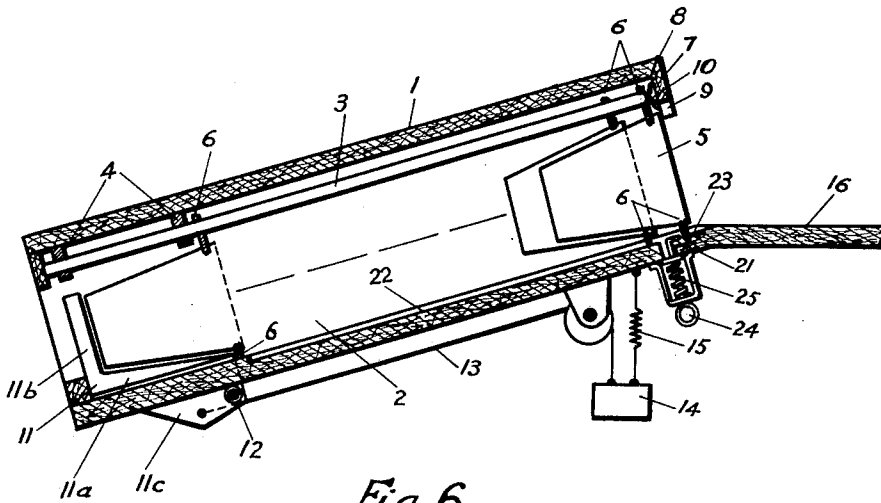


Fig. 6

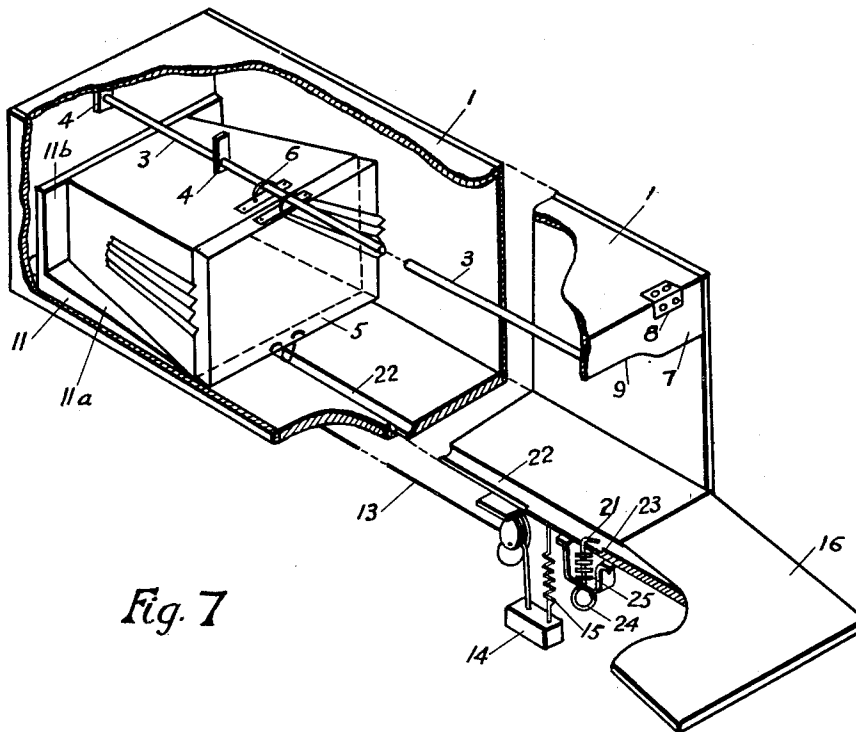


Fig. 7

Inventors:
T.S. Skillman,
R.H. Mc Gibbon,
L.J. Owen.
By *W. and Crosby & Neal*
Attorneys

UNITED STATES PATENT OFFICE

2,622,953

DISPENSER FOR NESTED BAGS

Thomas S. Skillman, Mosman, near Sydney, New South Wales, and Lloyd J. Owen, Epping, near Sydney, New South Wales, Australia, and Reginald H. McGibbon, London, England, assignors to Communication Engineering Pty. Limited, Cammeray, New South Wales, Australia, a corporation of the Australian Capital Territory

Application September 20, 1949, Serial No. 116,764
In Australia August 16, 1948

7 Claims. (Cl. 312—43)

1

This invention relates to packing systems and more particularly to bag dispensing devices.

In large stores and particularly with article dispensing systems the rate at which articles are delivered to the sales counter for packaging is often so great as to create a bottleneck in this department. In such cases the limiting factor on the speed of the dispensing system is the rate at which the articles are packed.

The object of the invention is to reduce the time occupied in the packaging of articles and to provide convenient means of dispensing bags for carrying these articles.

According to one feature of the invention the bag dispensing device comprises a receptacle adapted to hold a plurality of bags nested into each other so that the foremost bag is in its fully opened condition to receive articles. The bags are carried by suitable means, so that they can slide to the mouth of the receptacle where they are stopped until removed from the receptacle one by one.

It is another feature of the invention to provide a feed bar in the receptacle and to equip each bag with a cord handle forming a loop through which the feed bar extends. The free end of the feed bar is normally covered by a flap at the mouth of the receptacle, which can be raised to reload the receptacle with bags.

According to a further feature of the invention a spring is attached to this flap and rests against the feed bar to prevent the cord loop of the foremost bag from sliding off the feed bar until forced to do so at the removal of a bag.

To facilitate the nesting of the bags and their separation for dispensing, the bags have a tapered shape widening at the mouth and are provided with special cord loops or lugs which act as guides or stop members while the bags are removed from the device.

In another form one side of the tapered bags is fluted and when said bags are nested together they are so arranged that the fluting appears on a different side of each successive bag.

These and further features and forms of the invention will be more clearly understood from the following description in connection with the drawings in which:

Fig. 1 shows a bag dispensing device in accordance with the invention.

2

Figs. 2A and 2B show an arrangement for the carrying cord in each bag.

Figs. 3A and 3B depict a modified form of the invention using a bag with attached lugs.

Fig. 4 represents a catch device for engaging the foremost bag in the dispensing device.

Fig. 5 shows the order in which the bags are nested when one of their sides is fluted.

Fig. 6 shows the features of Figs. 4 and 5 in combination with the device of Fig. 1.

Fig. 7 is a perspective view of the arrangement illustrated in Fig. 6.

Fig. 8 is a perspective view of a nest of bags according to Figs. 3A and 3B.

Figs. 9A and 9B show alternative arrangements for loading the device.

Referring to Fig. 1, a tunnel shaped receptacle 1 forms a recess 2 which is accessible at one end. At the upper portion of the tunnel is provided a feed bar 3 supported at one end by two brackets 4, while the other end remains unsupported and extends towards the open mouth of the tunnel. A nest of bags 5 of paper or like fabric is suspended from this bar 3 by the carrying cords 6 in such a way that each bag in the device may slide freely to the mouth of the tunnel when required. The bags 5 are of a tapered structure to facilitate nesting and possess a special arrangement of carrying handle which is described in detail in connection with Figs. 2A and 2B. The bags themselves may be formed by folding and sticking flaps of the tapered sides over onto the two ends. The bag is then placed on a form and the bottom folded and stuck. The carrying handles may then be inserted.

The tunnel 2 is partly closed by a flap 7 which acts as a stop for the foremost bag and has to be raised on its hinge 8 to gain access to the feed bar 3, such as would be required for the loading operation. A cutout 9, shorter than the width of the bag, is made in the flap 7, to facilitate the removal of the foremost bag. A spring 10 is attached to the inside of flap 7 and normally makes contact with the end of the bar 3.

A carriage 11 formed by a platform 11a and a stop member 11b is permitted free movement to the full extent of the tunnel. A rib 11c fixed to the platform 11a and protruding through a slot in the lower part of the tunnel guides the carriage 11 along the tunnel by means of rollers

3

12. The carriage is attached by lead 13 to a weight 14, under the influence of which the carriage tends to move towards the tunnel mouth. A spring 15 attached to one side of the weight 14, is shown in the figure, and embodies one of many modified forms that this section of the dispensing device may take. In the form shown the spring 15 functions to compensate for the reduction in weight on the carriage 11 as bags are removed from the device. Another form dispenses with the spring and provides a further pulley to which the weight is connected. With this arrangement the weight required to furnish the same result will be double that previously described, but an advantage obtained is that the weight moves only half the distance as in the previous case. In another modification the weight is replaced by a spring compressed between the carriage on the bottom of the tunnel.

The dispensing device is positioned to provide convenient access from a platform or counter 16 upon which the articles for dispensing are delivered. These articles may be quickly gathered into the foremost bag in the device by a scooping action. When all the necessary articles are so gathered the bag is quickly removed from the device by inserting a hand through the cut-out 9, grasping the carrying cord appearing inside the mouth of the bag and pulling the bag and contents outwards which will then force the cord loop past the retaining spring 10 and thereby completely free the bag. Simultaneously with the removal of this bag the carriage 11, under the influence of the weight 14, advances the nest of bags a corresponding amount, thus ensuring that each bag in turn takes up a position at the mouth of the tunnel to await dispensing.

To reload the device the flap 7 is raised and the nest of bags positioned on the carriage 11 which will now be at the mouth of the tunnel. The loops provided by the carrying cords of the bags are all placed over the feed bar 3 and the complete nest of bags injected to the tunnel against the force of the weight 14. The flap 7 is lowered and fastened, if preferred, so that the spring 10 is forced against the end of the bar 3. In this position it serves as a retainer to prevent any cord loop from sliding off the end of the feed bar until forcibly freed when being dispensed.

In one modification loading is facilitated by permitting the feed bar 3 to be pulled out to a position ahead of the flap 7 so that the arranging of the cord loops is exposed to full view. This arrangement is illustrated in Fig. 9A, where the feed bar 3 is shown being drawn forward into the loading position where the cord loops of the new bags can easily be slipped over it. When returned to the normal position the feed bar 3 is held by the two brackets 4. In another form a separate tubular bar is provided which fits neatly over the feed bar 3 and may be removed from the device. During loading it is inserted through all the cord loops remote from the device and as the nest of bags is injected into the tunnel this tubular bar slides into position over the feed bar 3. This arrangement is illustrated in Fig. 9B, a tubular bar being shown in the process of being slid into position over the feed bar 3 fixed in brackets 4. When the nested bags (not shown) are in position the tubular bar 3 is withdrawn, the bags being manually held back during this operation. Other modifications are possible and fall within the scope of this invention.

In Figs. 2A and 2B, 5 is part of a paper fabric bag to be used with the device shown in Fig. 1.

4

The carrying cord 6 is arranged in such a way as to provide a loop on the outside of the bag to facilitate dispensing from the device. A reinforced strip 17, e. g. stout cardboard, is attached to the mouth of the bag and slotted in the vicinity of the cord loop. The ends of the cord are knotted at points 18 and are prevented from breaking through the side of the bag by the reinforced strip 17. The cord loop engages with the feed bar 3 as shown in Fig. 1, but upon removal of the bag from the dispensing device, the cord may easily be pulled through to the inside of the bag thus breaking the paper fabric 19 and providing a carrying loop for the bag.

Figs. 3A and 3B show one modification of the invention wherein storage and release of the bags is effected by Y-shaped lugs 20 attached to the outside of the mouth of each bag. In this form the feed bar 3 and spring 10 shown in Fig. 1 are dispensed with. The bags are provided with carrying cords which may be contained within the mouth of the bag and perform no other function than to support the weight of the bag and its contents. Alternatively the lower carrying cords may be arranged in the manner shown in Figs. 2A and 2B, for a purpose to be described later in connection with Figs. 4, 6 and 7. A nest of bags with Y-shaped lugs 20 and lower carrying cords arranged as in Figs. 2A and 2B is shown in Fig. 8. These bags are kept open by their construction of comparatively stiff paper, their nested relationship, and by the fact that they support each other with the rear legs of the Y-shaped lugs.

To release the foremost bag from a device containing bags of this type the action of the operator is to grasp the carrying cords and pull the bag forward. The lugs are manufactured of cardboard or such material so that when force is exerted the lug will give way and allow the bag to come out freely.

In one form of the invention the dispensing device includes a special catch which engages the lower carrying loop of the foremost bag and though being permitted free movement forward, the bag is thereby prevented from sliding inwards such as could be caused under the impetus of received articles. A catch device of this type is shown in Fig. 4. This catch 21 is located just inside the mouth of the tunnel and within a groove 22 which is provided for the full length of the tunnel along which the lower loops of the bags travel. For instances where this catch is retracted provision is made of a recess 23 into which the catch fits, thus completely clearing the groove of any obstruction.

When loading the dispensing device, the catch 21 must be retracted so as not to impede the passage of the nest of bags and for this purpose the other end of the catch is provided with a ring 24 upon which pressure is exerted against the spring 25. During the period of loading it will become desirable to lock this catch down which may be facilitated by any known means such as a locking pin.

Alternatively, for the loading operation, the catch 21 may be operated in conjunction with the flap 7 of Fig. 1 as it is necessary that both these units be operated during this process.

Figs. 6 and 7 each show the catch 21 and groove 22 in combination with the device of Fig. 1. In this arrangement the pulley for lead 13 is set back from the mouth of the tunnel to allow room for the catch 21, and the slot for rib 11c is correspondingly shortened. The carriage 11, however,

5

will still be drawn forward far enough to allow access to the last bag of a nest and to enable reloading to be easily effected. In Fig. 7 parts of the top, near side and bottom of the tunnel shaped receptacle I have been cut away to facilitate the illustration of the relevant features.

In another form of the invention each of the bags 5 is provided with one fluted side, as shown by 26 in Figs. 5, 7 and 8, and the bags are arranged in an order similar to that shown in this drawing, so that the fluting appears on opposite sides of successive bags. The purpose of the fluting is to prevent the formation of a vacuum between the first and second bags as the foremost bag is removed from the device, which could possibly lead to a number of bags being dispensed at the one time. Similar results may be achieved by providing the bags with perforated bottoms or, alternatively, passing a stream of air over the top of the bags at the moment that one is being dispensed. In Fig. 5 the outermost portion of the inside bag has been broken away.

Further modifications are possible within the scope of the invention and it is to be understood that although the dispensing device described herein is particularly suitable for use with article dispensing systems it should not be confined to this application alone, as many uses will become immediately apparent to anyone skilled in the art.

We claim:

1. A bag dispensing device for dispensing in succession a plurality of bags nested into each other so that the foremost bag is in its fully opened condition for receiving collected articles, said bags being provided with cords forming loops at the outsides thereof, comprising: a platform disposed in a substantially horizontal plane and adapted to hold collected articles; a tunnel shaped receptacle adjacent to said platform, the lower side of said receptacle sloping down from said platform; a carriage slidably mounted in said receptacle and consisting of a further platform adapted to carry a plurality of bags nested into each other, a stop member fixed to said last mentioned platform and adapted to form a rest for said bags, and a rib fixed to said last mentioned platform and protruding through a guiding slot in said receptacle; a weight and a lead connected thereto and to said rib to move said carriage in said receptacle; stopping means at the mouth of said receptacle adapted to arrest the foremost bag moved against said stopping means by said carriage to stop further movement of said carriage; and a retractable hook-shaped member fitted into a recess in said receptacle and adapted to engage the cord loop provided at the corresponding side of said foremost bag when said bag moves backwards under the weight of articles packed therein.

2. A bag dispensing device for dispensing in succession a plurality of bags nested into each other so that the foremost bag is in its fully opened condition for receiving collected articles, said bags being provided with cords forming loops at the outsides thereof, comprising: a platform disposed in a substantially horizontal plane and adapted to hold collected articles; a tunnel shaped receptacle adjacent to said platform, the lower side of said receptacle sloping down from said platform; a carriage slidably mounted in said receptacle and adapted to carry said bags; means to move said carriage in said receptacle towards said platform; a feed bar in said receptacle fixed along one side of said receptacle and

6

adapted to pass through all cord loops at one side of said nested bags; and a flap movably hinged at the mouth of said receptacle and partly covering said mouth, said flap carrying a spring resting against the adjacent end of said feed bar to prevent the cord loop of the foremost bag from sliding over said end of said feed bar.

3. A bag dispensing device as claimed in claim 2 in which a retractable hook-shaped member is fitted into a recess in said receptacle at the side opposite said feed bar and adapted to engage a cord loop provided at the corresponding side of said foremost bag when said bag moves backwards under the weight of articles packed therein.

4. A bag dispensing device for dispensing in succession a plurality of bags nested into each other so that the foremost bag is in its fully opened condition for receiving collected articles, said bags being provided with cords forming loops at the outsides thereof, comprising: a platform disposed in a substantially horizontal plane and adapted to hold collected articles; a tunnel shaped receptacle adjacent to said platform, the lower side of said receptacle sloping down from said platform; a carriage slidably mounted in said receptacle and consisting of a further platform adapted to carry a plurality of bags nested into each other, a stop member fixed to said last mentioned platform and adapted to form a rest for said bags, and a rib fixed to said last mentioned platform and protruding through a slot in said receptacle, said rib carrying rollers guiding said carriage on the slotted side of said receptacle; a weight and a lead connected thereto and to said rib to move said carriage in said receptacle; a feed bar in said receptacle fixed along one side of said receptacle and adapted to pass through all cord loops at one side of said nested bags; and a flap movably hinged at the mouth of said receptacle and partly covering said mouth, said flap carrying a spring resting against the adjacent end of said feed bar to prevent the cord loop of the foremost bag from sliding over said end of said feed bar.

5. A bag dispensing device as claimed in claim 4 in which a retractable hook-shaped member is fitted into a recess in said receptacle at the side opposite said feed bar and adapted to engage a cord loop provided at the corresponding side of said foremost bag when said bag moves backwards under the weight of articles packed therein.

6. A bag dispensing device for dispensing in succession a plurality of bags nested into each other so that the foremost bag is in its fully opened condition for receiving collected articles, each of said bags being provided with a lug near its mouth and with carrying cords accessible from its mouth, the lower of said carrying cords forming a loop beneath said bag, comprising: a platform disposed in a substantially horizontal plane and adapted to hold collected articles; a tunnel shaped receptacle adjacent to said platform, the lower side of said receptacle sloping down from said platform; a carriage slidably mounted in said receptacle; means to move said carriage towards the mouth of said receptacle; stopping means at the mouth of said receptacle adapted to engage the lugs of the foremost of said nest of bags and stop further movement of said carriage; and a retractable hook-shaped member fitted into a recess in said lower side of said receptacle and adapted to engage the cord loop formed by the lower carrying cord

7

of said foremost bag when said bag moves backwards under the weight of articles packed therein.

7. A bag dispensing device for dispensing in succession a plurality of bags nested into each other so that the foremost bag is in its fully opened condition for receiving collected articles, each of said bags being provided with a lug near its mouth and with carrying cords accessible from its mouth, the lower of said carrying cords forming a loop beneath said bag, comprising: a platform disposed in a substantially horizontal plane and adapted to hold collected articles; a tunnel shaped receptacle adjacent to said platform, the lower side of said receptacle sloping down from said platform; a carriage slidably mounted in said receptacle and consisting of a further platform adapted to carry a plurality of bags nested into each other, a stop member fixed to said last mentioned platform and adapted to form a rest for said bags, and a rib fixed to said last mentioned platform and protruding through a slot in said receptacle, said rib carrying rollers guiding said carriage on the slotted side of said receptacle; a weight and a lead connected thereto and to said rib to move said carriage in said

8

receptacle; stopping means at the mouth of said receptacle adapted to engage the lug of the foremost of said nest of bags and stop further movement of said carriage; and a retractable hook-shaped member fitted into a recess in said lower side of said receptacle and adapted to engage the cord loop formed by the lower carrying cord of said foremost bag when said bag moves backwards under the weight of articles packed therein.

THOMAS S. SKILLMAN.
LLOYD J. OWEN.
REGINALD H. MCGIBBON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
987,634	Lovatt	Mar. 21, 1911
1,372,607	Davis	Mar. 22, 1921
1,917,480	Widing	July 11, 1933
2,261,880	Hope	Nov. 4, 1941
2,493,976	Klemm et al.	Jan. 10, 1950