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

(11) Publication number: **0 427 365 A2**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **90300822.5**

(51) Int. Cl.5: **B65H 35/00**

(22) Date of filing: **26.01.90**

(30) Priority: **08.11.89 US 433502**

(43) Date of publication of application:
15.05.91 Bulletin 91/20

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IT LI LU NL SE

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(54) Storage and dispensing apparatus for plastic bags.

(57) A cylindrical tubular member (16 or 18) is adapted to be positioned in an upright position on the upper surface of a grocery store checkout counter and is adapted to receive a package (P or P′) of wound flexible plastic bags which are joined along transverse severance lines. The tubular member (16 or 18) has an elongate slot (30,31) which includes a dispensing slot portion (32,42) of zigzag configuration and a thread-up slot portion (34,44) which communicates with the upper open end of the tubular member. Thus the free end of the leading bag of a package of bags (P,P′) which is disposed within the tubular member (16 or 18) may be manually threaded along the thread-up slot portion (34,44) and into the dispensing slot portion (32,42), the zigzag configuration of the latter permitting the bags to be serially withdrawn therethrough, while offering resistance thereto so as to facilitate the severance of the withdrawn bag from the immediately following bag along the severance line.

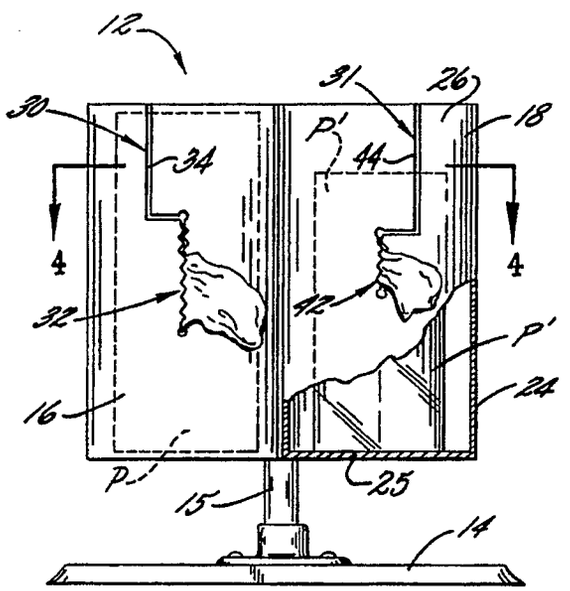

FIG.3.

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STORAGE AND DISPENSING APPARATUS FOR PLASTIC BAGS

The present invention relates to a storage and dispensing apparatus for a cylindrical package of wound flexible plastic bags or the like, which are serially joined to each other along transverse severance lines.

Commonly owned U.S. Patent No. 4,793,539 to Haenni et al discloses a dispensing nozzle for serially dispensing plastic grocery bags or the like from a tubular supply package wherein the supply package is composed of bags which are serially joined along perforated severance lines. The nozzle disclosed in the Haenni et al patent includes a slot of zigzag configuration, together with a thread-up opening disposed along one side of the slot, and the nozzle is disclosed as being mounted in a bore in a grocery store checkout countertop, with the bag supply package being mounted below the countertop. In use, the leading edge of the initial bag on the package is manually threaded through the thread-up opening, and the leading edge is then grasped and moved laterally into the slot. Thereafter, the bags may be individually delivered by pulling the bags upwardly and laterally outwardly, and the zigzag slot exerts sufficient resistance so as to cause a severing of the leading bag from the immediately following bag along the perforated severance line.

Copending and commonly owned U.S. Application Serial No. 07/331,962 discloses an improved dispensing nozzle of the described type, and wherein two circular thread-up openings are disposed at respective opposite ends of a zigzag dispensing slot. Copending and commonly owned U.S. Application Serial No. 07/349,289 discloses a similar bag dispensing apparatus which includes a rigid cylindrical tube having open opposite ends so as to be adapted to receive the rolled bag package coaxially therein, and with the tube having an elongate dispensing slot which extends along a minor portion of the length of the tube. The slot is of zigzag configuration, and its opposite ends are provided with enlarged access openings for permitting the leading bag of the package to be manually grasped to effect thread-up.

It is an object of the present invention to provide an improved bag storage and dispensing apparatus of the described general type, and which may be conveniently used to dispense bags in a grocery store or similar environment, and which is adapted to dispense the bags in opposite directions with equal effectiveness.

It is also an object of the present invention to provide an improved bag storage and dispensing apparatus which has a simplified thread-up capability, and which is adapted to dispense bags of varying size.

These objects are achieved in the present invention by the provision of a bag storage and dispensing apparatus which comprises a generally tubular member including a peripheral side wall having opposite ends, with at least one of the ends being open. An elongate slot extends through the side wall of the tubular member and the slot includes a dispensing slot portion extending along a medial portion of the length of the tubular member and a thread-up slot portion which extends from the dispensing slot portion into communication with the open end of the tubular member. Thus the free end of the leading bag of a package of bags which is disposed within the tubular member may be manually threaded along the thread-up slot portion and into the dispensing slot portion. Also, the dispensing slot portion is of zigzag configuration along its length and is sized and configured for permitting the bags of the package to be serially withdrawn therethrough while resisting free movement of the bags therethrough. This resistance facilitates the severance of the withdrawn bag from the immediately following bag along the perforated severance line, and with the leading portion of the following bag positioned in the dispensing slot portion and ready for removal.

Some examples of apparatus in accordance with the present invention will be described with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a grocery store checkout counter, and which mounts a bag storage and dispensing apparatus in accordance with one embodiment of the present invention;

Figure 2 is a fragmentary perspective view of the apparatus shown in Figure 1, and illustrating the manner in which a bag is withdrawn from one of the tubular members;

Figure 3 is a side elevation view of the apparatus shown in Figure 1;

Figure 4 is a top plan view of the apparatus;

Figure 5 is a sectioned side elevation view of the apparatus and taken substantially along the line 5-5 of Figure 4;

Figures 6 and 7 are fragmentary views of the two tubular members of the apparatus shown in Figure 1, and illustrating the detail of the dispensing slot portion the thread-up slot portion of each member;

Figure 8 is a side elevation view of a second embodiment of a bag storage and dispensing apparatus in accordance with the present invention;

Figure 9 is a sectional side elevation view of the apparatus shown in Figure 8; and

Figure 10 is a fragmentary view illustrating the position of the package when the apparatus is oriented horizontally.

Referring initially to the embodiment shown in Figures 1-7, Figure 1 illustrates a conventional grocery store checkout counter 10 which supports an apparatus 12 which is adapted to selectively dispense plastic bags in accordance with the present invention. As is conventional, the bags may be in the form of T-shirt or handle bags, with the bags being serially joined along transverse perforated severanced lines, and with the bags being supplied in a cylindrical wound package or roll.

The apparatus 12 includes a supporting platform 14 which is adapted to be positioned on the upper surface of a checkout counter 10 or some other horizontal surface. A vertical post 15 is fixed to the platform 14, and a pair of tubular members 16 and 18 are mounted on the post 15 in the manner best seen in Figures 4 and 5. More particularly, a bracket 20 is fixed to the outside of each tubular member, and the bracket is in turn mounted to the post 15 by threaded members 21. As indicated in Figure 5, the post includes several vertically spaced apart openings 22 for the threaded members, so that the elevation of the tubular members with respect to the platform may be adjusted.

Each tubular member 16, 18 comprises a cylindrical, peripheral side wall 24 which defines a longitudinal axis, which is disposed vertically when the supporting member is positioned on a horizontal surface. Each tubular member also includes a bottom wall 25 closing the lower end of the member, and an open upper end 26. The tubular members may be fabricated from any suitable rigid material such as metal or plastic, and they are adapted to coaxially receive wound packages P, P′ of bags of the described type.

An elongate slot 30, 31 extends through the side wall 24 of each tubular member, 16, 18 respectively. As best seen in Figure 6, the slot 30 includes a dispensing slot portion 32 which extends longitudinally along a medial portion of the length of the tubular member 16, and a thread-up slot portion 34 which extends from the upper end of the dispensing slot portion into communication with the open end of the associated tubular member. Thus the free end of the leading bag of a package of bags P disposed within the tubular member 16 may be manually threaded along the thread-up slot portion 34 and into the dispensing slot portion 32. The dispensing slot portion 32 is of zigzag configuration along its length, and is sized and configured for permitting the bags of the package to be serially drawn therethrough, while resisting free movement of the bags therethrough.

The dispensing slot portion 32 of the slot 30 defines opposing spaced apart edges 36, 37 of zigzag or sawtooth like configuration, and such that each edge comprises alternating V-shaped projections and recesses, and with the projections of each side edge being laterally aligned with the recesses of the opposite side edge. Also, dispensing slot portion 32 includes a generally circular opening 38 at each longitudinal end thereof, with each of the openings 38 having a diameter greater than the lateral distance between the recesses on opposite side edges of the associated slot. Further, the thread-up slot portion 34 is of generally L-shaped configuration, and it includes an axial segment 40 which communicates with the open end 26 of the tubular member 16, and a transverse segment 41 which communicates with the upper one of the openings 38. Each of the segments 40, 41 comprises straight side edges which are uniformly spaced from each other, as opposed to the zigzag configuration of the dispensing slot portion.

In use, the free end of the leading bag of a package of bags P may be threaded through the dispensing slot portion 32 by manually sliding the free end along the thread-up slot portion 34 and into the dispensing slot portion 32. The bags may then be serially dispensed, by drawing the leading bag laterally outwardly from the dispensing slot portion, and as the bag moves outwardly, the resistance imparted by the engagement of the projections of the slot portion with the moving bag resists the free movement of the bag. This resistance facilitates the severance of the withdrawn bag from the immediately following bag joined thereto along the severance line. Complete separation does not normally occur until the leading portion of the following bag passes through the dispensing slot portion, and such that the following bag is then in position to be grasped and withdrawn in the same manner. The fact that the transverse segment 41 of the thread-up slot portion extends in a transverse direction, tends to retain the bags within the dispensing slot portion 32 during its withdrawal, thus insuring that the resistance force provided by the projections is applied across the full width of the bags. It will also be apparent that the bags may be withdrawn laterally in either direction from the dispensing slot portion 32 or straight outwardly from the dispensing slot portion, with equally satisfactory results.

As best seen in Figure 7, the slot 31 of the tubular member 18 is of similar configuration, and it includes a dispensing slot portion 42 and a thread-up slot portion 44. The dispensing slot portion 42 is a zigzag configuration and includes opposing, spaced apart side edges 46, 47 composed of V-shaped projections and recesses, and a generally circular opening 48 at each longitudinal end thereof. The thread-up slot portion 44 includes an axial segment 50 and a transverse segment 51 which

communicates with the upper opening 48. However, the dispensing slot portion 42 of the tubular member 18 is longitudinally shorter than the dispensing slot portion 32 of the tubular member 16, and the separation of the edges 46, 47 of the slot portion 42 is somewhat less than the separation of the edges 36, 37 of the slot portion 32. Thus the two tubular members 16, 18 are adapted to accommodate and dispense bags of different width, as indicated by the different lengths of the packages P, P′ as seen in the drawings.

Figures 8 and 9 illustrate an embodiment of the present invention which comprises a single cylindrical tubular member 54 which is adapted to be positioned directly upon the countertop surface, with the axis of the tubular member extending vertically. Alternatively, the tubular member may be disposed in a different orientation, such as horizontally, by means of a suitable supporting means (not shown). In this embodiment, the lower internal periphery of the cylindrical tubular member is internally threaded as indicated at 55, and the transverse bottom wall comprises a disc 56 having external threads which engage the threads 55 of the tubular member. Also, a package supporting post 58 is fixed to the bottom wall 56 and extends coaxially along the interior of the tubular member. Thus the post 58 and the bottom wall 56 may be rotated with respect to the tubular member, so as to adjust the longitudinal position of the bottom wall within the tubular member, and thereby permit the tubular member to be adapted to receive tubular bag packages of varying length, with the packages being coaxially received on the post 58 and longitudinally centered with the dispensing slot portion 60.

The upper end of the post 58 includes an integral enlarged end cap 59. As seen in Figure 10, the end cap 59 acts to engage the end of the package of bags P when the tubular member is oriented horizontally, and so as to prevent the axial separation of the package from the post. The diameter of the end cap 59 is preferably slightly less than the internal diameter of the tubular package so as to permit the package to be slipped onto the post 58, and when the tubular member is turned horizontally as seen in Figure 10, the package drops down so that its end engages the end cap.

In the embodiment of Figures 8 and 9, the dispensing slot portion 60 may be defined as the lower portion of a continuous longitudinal slot and through which the bags are normally dispensed, and the dispensing slot portion 60 is of the same or similar sawtooth like configuration as described above with respect to the embodiment of Figures 1-7. Also, the thread-up slot portion 61 continues in the same longitudinal direction from the dispensing slot portion, and it has spaced apart side edges along its length which are of a sawtooth like configuration which conforms to the configuration of the dispensing slot portion. Thus in effect, a dispensing slot portion 60 and the thread-up slot portion 61 present a continuous slot of zigzag configuration.

The above-described embodiments are intended to be illustrative, not limitative of the scope of the invention, and variations in detail are possible. In particular, whilst the dispensing slot portion should be of generally zig-zag configuration it is not necessary for both opposing edges defining said slot portion to be of sawtooth configuration. It is sufficient that one of said defining edges has alternate projections and recesses, as this can still suffice to frictionally engage the bags as they are withdrawn therethrough.

Claims

1. A storage and dispensing apparatus for a cylindrical package of wound flexible plastic bags or the like which are serially joined to each other along transverse severance lines, said apparatus comprising a generally tubular member (16,18,54) including a peripheral side wall (24) being open so as to permit a cylindrical package (P,P′) of wound flexible plastic bags to be coaxially received in said tubular member, and an elongate slot (30,31) extending through said side wall of said tubular member and including a dispensing slot portion (32,42,60) extending along a medial portion of the length of said tubular member (16,18,54) and a thread-up slot portion (34,44,61) which extends from said dispensing slot portion so as to permit the free end of the leading bag of a package of bags disposed within said tubular member to be manually threaded along said thread-up slot portion and into said dispensing slot portion, said dispensing slot portion (32,42,60) being of zigzag configuration along its length and sized and configured for permitting the bags of said package to be serially withdrawn therethrough while resisting the free movement of the bags therethrough.

2. A storage and dispensing apparatus according to claim 1 wherein the dispensing slot portion (32,42,60) is defined by opposing spaced apart edges (36,37; 46,47) with at least one of these edges comprising alternating V-shaped projections and recesses so as to frictionally engage the withdrawn bags.

3. A storage and dispensing apparatus according to claim 1 wherein the dispensing slot portion (32,42,60) defines opposing spaced apart edges (36,37; 46,47) of sawtooth like configuration, such that each edge comprises alternating V-shaped projections and recesses, with the projections of

each side edge being laterally aligned with the recesses of the opposite side edge.

4. A storage and dispensing apparatus according to any preceding claim wherein the tubular member (16,18,54) is cylindrical and defines a longitudinal axis, and wherein the dispensing slot portion (32,42,60) extends in a direction parallel to said longitudinal axis and into communication with the open end (26) of the tubular member.

5. A storage and dispensing apparatus according to any preceding claim wherein the end of the tubular member (16,18,54) which is opposite the open end (26) is closed by a transverse bottom wall (25,56).

6. A storage and dispensing apparatus according to claim 5 further comprising a package supporting post (58) fixed to the bottom wall (56) and extending coaxially along the interior of the tubular member (54).

7. A storage and dispensing apparatus according to claim 6 wherein the transverse bottom wall (56) is threadedly connected to the tubular member (54) so as to permit the post (58) at the bottom wall (56) to be rotated with respect of the tubular member (54) and so as to adjust the longitudinal position of the bottom wall (56) within the tubular member (54).

8. A storage and dispensing apparatus according to claim 6 or 7 wherein the package supporting post (58) includes an enlarged end cap (59) for assisting in retaining a tubular package (P) which is coaxially mounted upon the post.

9. A storage and dispensing apparatus according to any preceding claim wherein the thread-up slot portion (61) continues in the same longitudinal direction as the dispensing slot portion (60) and has spaced apart side edges along at least a substantial portion of its length which are of a sawtooth like configuration which conforms to the configuration of the dispensing slot portion (60).

10. A storage and dispensing apparatus according to claim 1 or 3 wherein said dispensing slot portion (32, 42) includes a generally circular opening (38,48) at each end thereof, with each of the openings having a diameter greater than the lateral distance between the recesses of the opposing side edges, and with the thread-up slot portion (34,44) communicating with one of the openings (38,48).

11. A storage and dispensing apparatus according to claim 10 wherein the thread-up slot portion (34,44) is of generally L-shaped configuration and includes an axial segment (40,50) which communicates with the open end (26) of the tubular member (16,18) and a transverse segment (41,51) which communicates with said one opening (38,48), and wherein each of the segments comprises straight side edges which are uniformly spaced from each other.

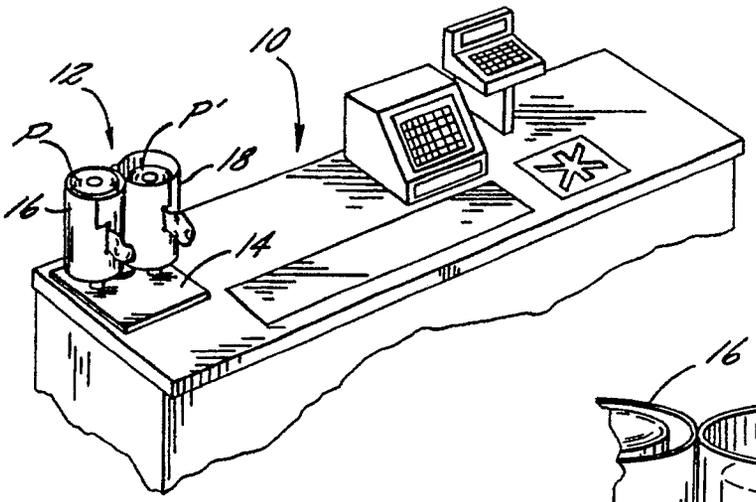

FIG.1.

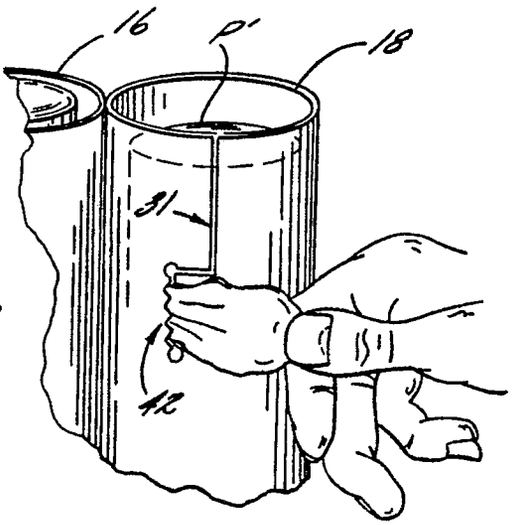

FIG.2.

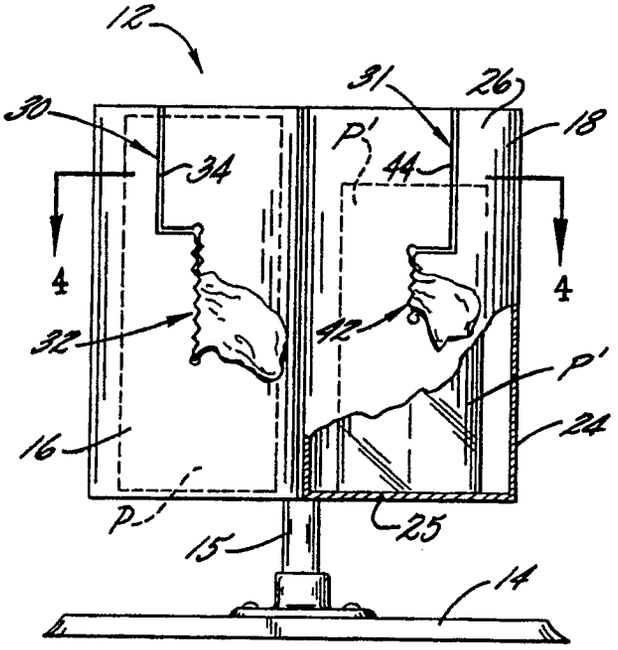

FIG.3.

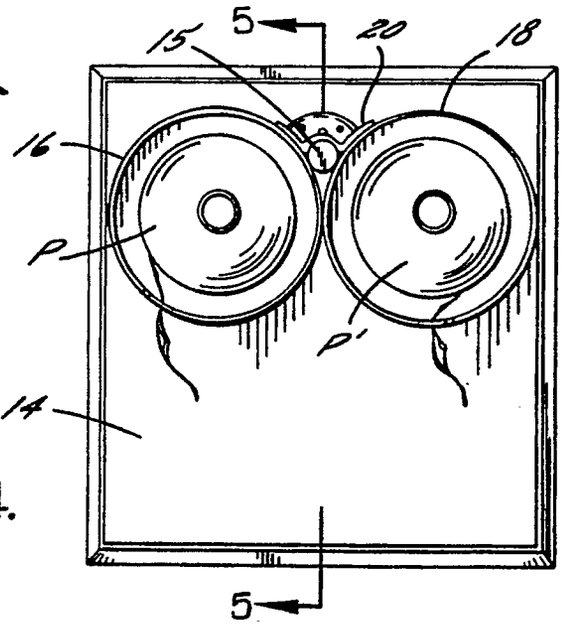

FIG.4.

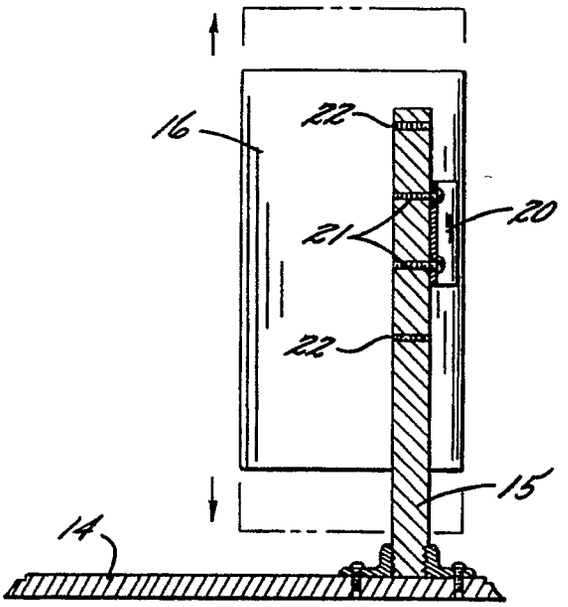

FIG. 5.

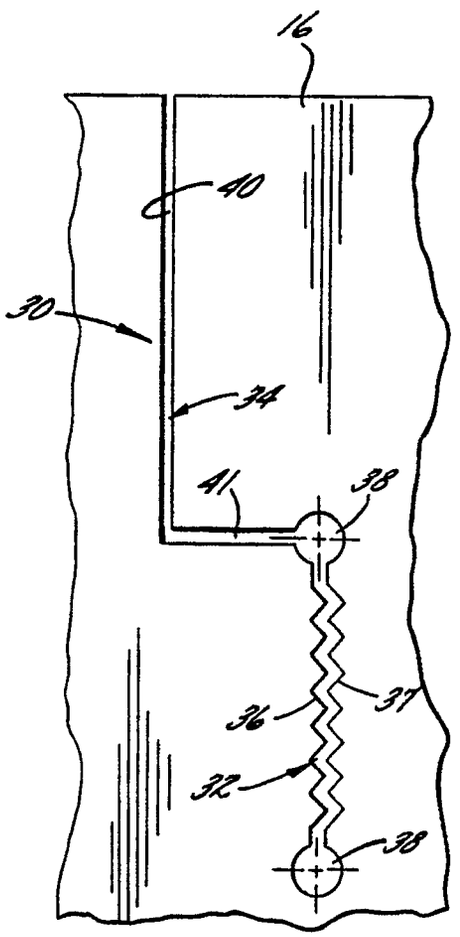

FIG. 6.

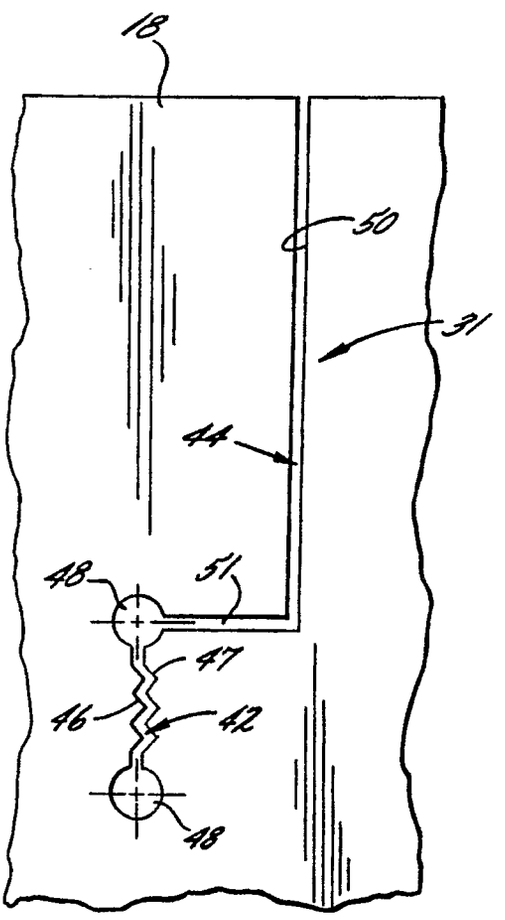

FIG. 7.

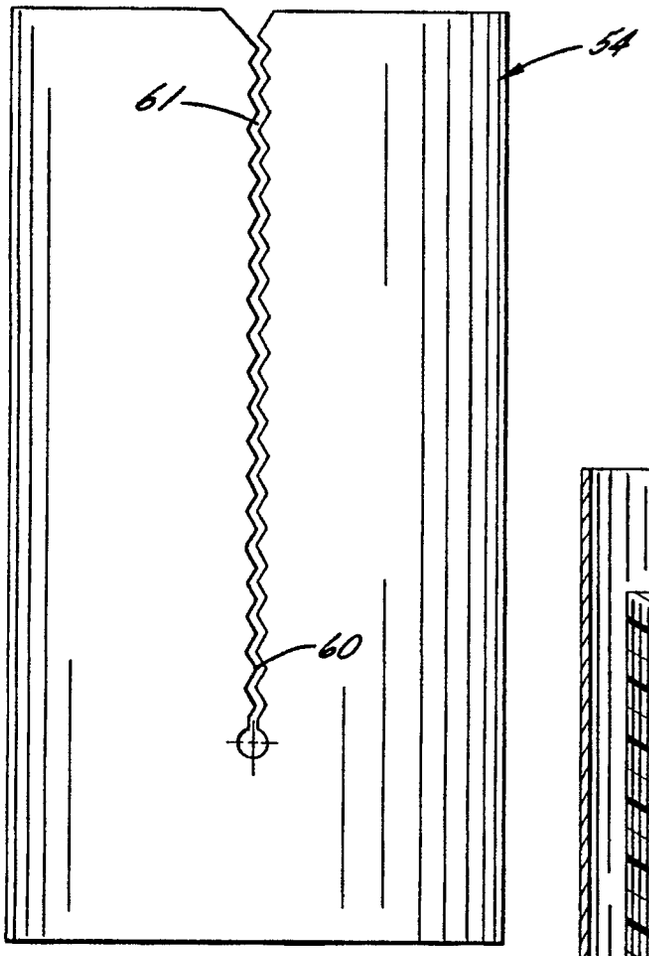

FIG.8.

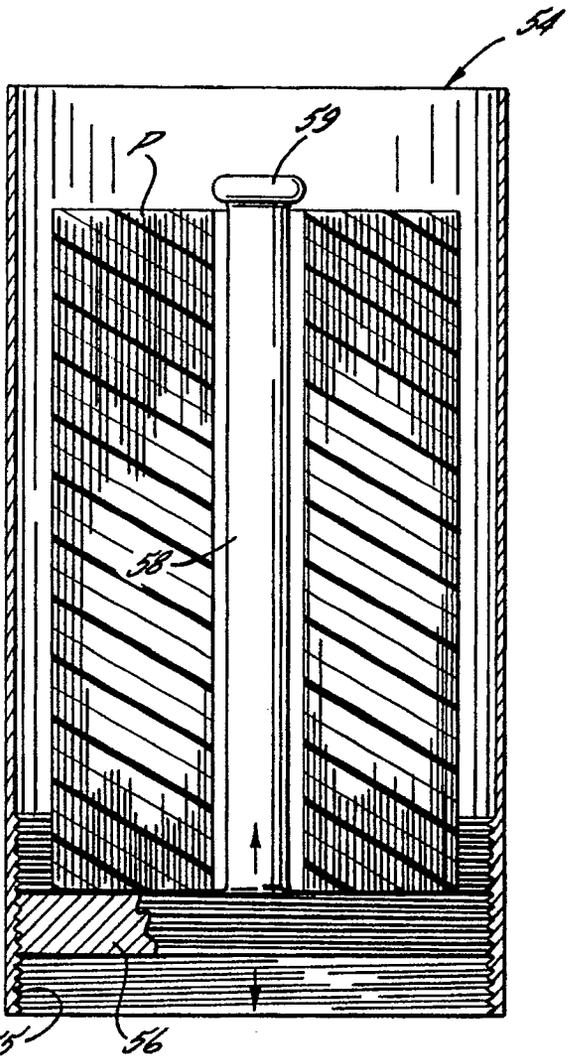

FIG. 9.

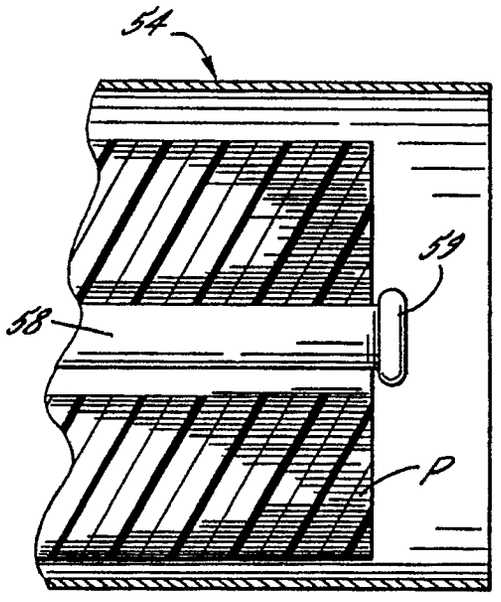

FIG. 10.