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3,249,288

RESEALABLE CONTAINER

Filed Aug. 24, 1964

2 Sheets-Sheet 1

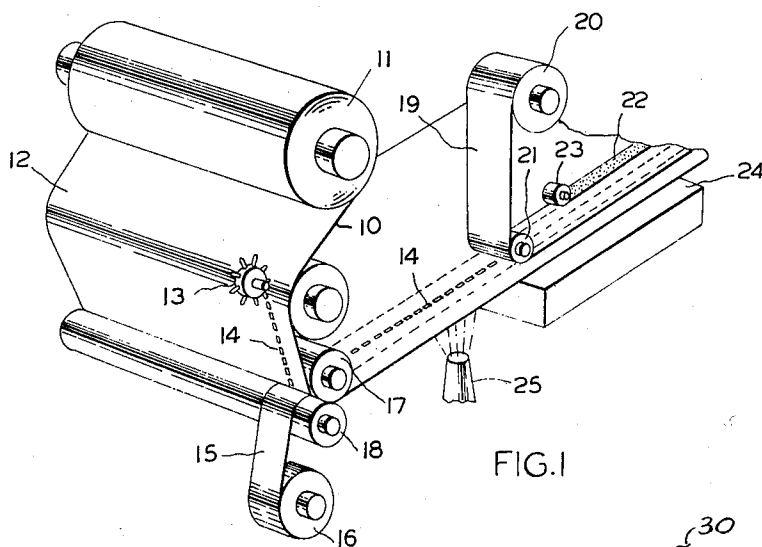


FIG. 1

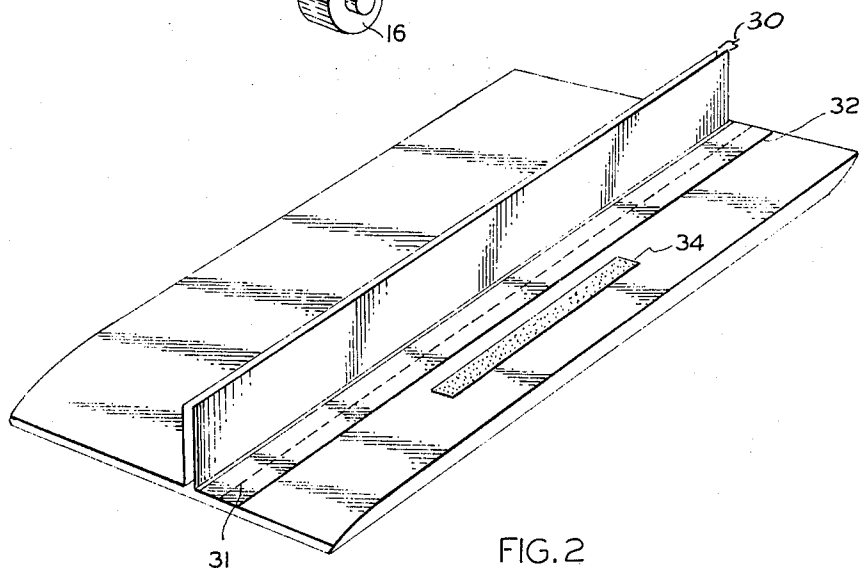


FIG. 2

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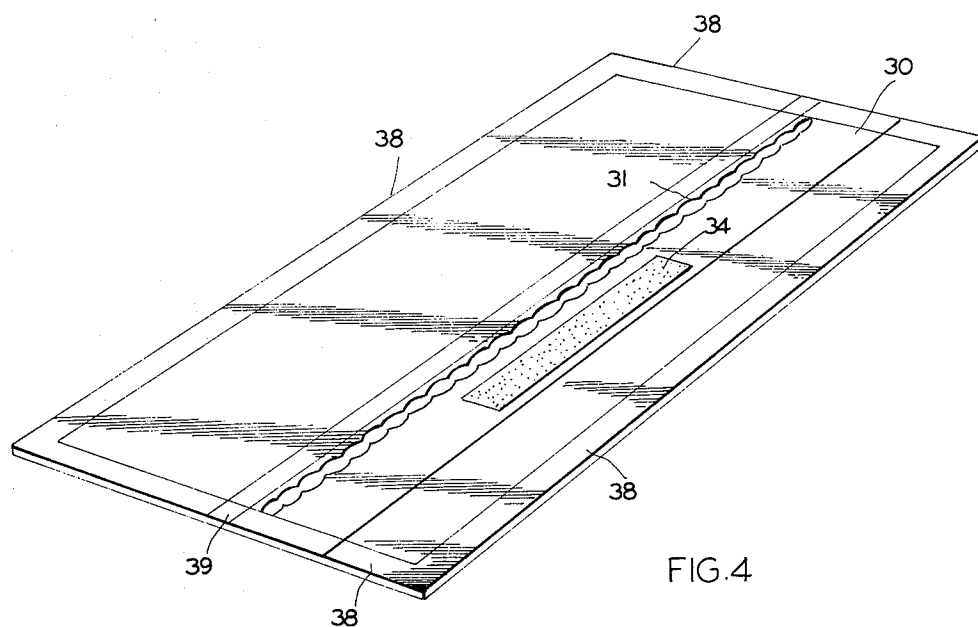
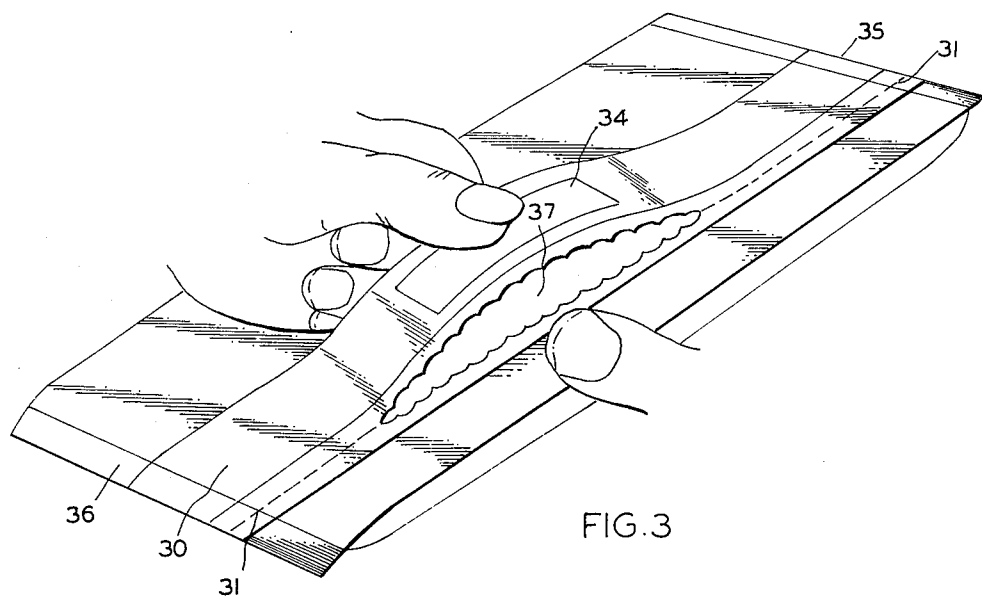
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RESEALABLE CONTAINER

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8 Claims. (Cl. 229—66)

This invention relates to a flexible container and more particularly to a flexible container including an easy opening device and a resealing device.

Flexible containers, such as are employed in the packaging of meat, dairy products, and similar foods, are generally produced from a web containing at least one heat sealable, thermoplastic resin surface. The plys of the container, generally of rectangular shape, are heat sealed at two or more edges of the container and may contain gussets for easier accommodation of the product to be packaged. These containers may be provided with an opening means such as a tear string. In many instances when certain types of gases are used as a flush to assure content protection even in completely sealed packages or where vacuums are drawn the tear string has proved to be impractical to use as an opening device because of a wicking action (through the string) which allowed loss of gases and/or vacuum causing shortened shelf life and in instances complete spoilage of contents. Therefore such containers are generally opened by the use of a foreign implement such as a knife or scissors. Frequently the opening of the container is done in such a manner as to make further use of the container impractical. In many instances the contents of the container are only partially used and it is desirable, therefore, to provide opening means which do not impair the further use of the container, and, in addition, to provide a means for resealing the package to protect the contents from the atmosphere which may cause the contents to lose flavor or even spoil.

It is therefore the object of the present invention to provide a container which seals, hermetically, the contents. It is another object to provide a hermetically sealed container containing an easy opening device that is considered to be a direct part of the web of material requiring no foreign implements for opening. It is still another object of the present invention to provide an easy opening device for a pouch or bag type container which can be used to reseal the container for further storage of the contents. Other objects will become apparent hereinafter.

The objects of the present invention are accomplished by a generally flat container in which at least one side comprises a flexible web in which at least the inner surface of said side comprises a heat sealable thermoplastic resin, a perforated tear line in said web extending to different edges of the container formed by said web in a manner capable of forming an opening for the removal of the container contents, said perforated tear line being sealed off a heat sealable thermoplastic resin tape, a flap capable of being folded down over and covering said perforated tear line, said flap being folded onto the container and sealed to the edges of said web, said container assemblage containing an adhesive area capable of sealing said flap to said web when folded over said perforated tear line and a cover means removably applied to said adhesive area.

Reference is now made to the drawings for a more detailed description of the invention in which:

FIGURE 1 is a schematic illustration of the manner in which the easy opening and resealing device of the present invention may be incorporated into a container production line;

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FIGURE 2 is a perspective-like view of a container embodying the principles of the invention;

FIGURE 3 is a perspective-like view of a container embodying the principles of the invention being opened; and

FIGURE 4 is a perspective-like view of a modified container embodying the principles of the invention on opening and resealing.

Referring now to FIGURE 1, a web 10 from roll stock 11 having a heat sealable thermoplastic resin surface 12 is contacted with perforating wheel 13 which causes a perforated tear line 14 to be formed in the web 10. The nature of the perforation introduced is not critical and may be in any shape, i.e., a continuous row of round holes, square holes, slits, and/or cuts punched at varying intervals and scoring; the function of such perforation being, of course, to assist in the tearing of the web in the line of the perforation. The web is then contacted with a heat sealable tape 15 from spool 16 in a manner such that it covers the perforated tear line 14. The width of the tape is not critical but should be sufficiently wide enough to seal off the perforations. Heated rollers 17 and 18 seal the tape to the heat sealable surface of the web thereby sealing off the perforation. Although it is not essential, the heat sealable tape is preferably sealed to the heat sealable surface of the web. Where the web consists of a thermoplastic resin, the tape can be readily sealed to either surface.

The seal is permitted to cool as the web continues in the machine direction. A blower 25 may be employed to direct a continuous flow of cool air on the sealed perforations. Instead of air cooling, water cooling may be employed to reduce cooling periods.

The flap may be formed in various ways. Thus the web containing the sealed perforations may be directly used in a filling station, the flap being formed by bringing the two web edges together around the contents and heat sealing the web edges together as illustrated in FIGURE 2. The flap can be then folded over in either direction, i.e., over the sealed perforations or folded back on to the container parallel with said perforations. The flap when folded back may be held secure by the end seals which complete the sealed container. The double coated sensitive tape with its protective covering can then be affixed on either the flap or adjacent to and parallel with the sealed perforations.

Another method of forming the flap comprises contacting the cooled web in FIGURE 1 with another wider tape 19 supplied from spool 20. This flap tape is preferably made from a heat sealable thermoplastic resin although any tape containing at least one heat sealable surface may be employed. The tape should be wide enough, on sealing of a strip of the tape to the web, to cover the perforated tear line and extend a small distance beyond the tear line. The tape is positioned by roll 21 to fit over the sealed perforated tear line 14. If desired, the roll 21 may be heated to preheat the tape 19. A narrow strip 22 of the tape, which is positioned on the web with a heat sealable surface contacting the web, is then sealed to the web by heated roll 23 to form the flap for the container. Platform 24 provides the necessary backing plate to allow sufficient pressure to be applied by rolls 21 and 23 to accomplish the correct positioning and sealing. The seal is parallel to, but set off from, the perforation. This method can be used when the container is fabricated from one or two separate webs of material. The pressure-sensitive, double coated tape with protective covering can be applied as previously mentioned.

The web is then cut or folded and heat sealed to form the container illustrated in FIGURES 2 to 4. Other means of applying the perforations and sealing the perforations will be apparent to those skilled in the art.

FIGURE 2 shows an open container with the unsealed flap 30, obtained by folding of the web, in the upright position parallel to but set off from the sealed perforated tear line 31, extending the width of the container, wherein the perforations have been sealed off by the tape 32. The surface of the container adjacent to the seal has been provided with an adhesive area or pressure sensitive tape 34 capable of contacting flap 30, when such is folded over the sealed perforated tear line 31. The adhesive area may extend the entire length of the area covered by the flap 30 or just part thereof as illustrated. It is further possible to provide several smaller adhesive areas instead of one continuous one.

FIGURE 3 shows substantially the container of FIGURE 2, which has now been heat sealed, being opened. The flap 30 has been folded back onto the container and the two sides and the flap have been sealed together to form fin-type seals 35 and 36. Adhesive area 34 has been applied to the flap 30, rather than to the container as illustrated in FIGURE 2, and covered with a removable strip of tape. The user of the container has torn part of the perforated, sealed tear line 31 by lifting up on the flap and pressing down on the container area opposite to that being lifted and has formed opening 37. Instead of having the flap folded back onto the container as illustrated in FIGURE 3 it will be apparent that the same result is obtained when the flap is folded over the perforations as illustrated in FIGURE 4 and then sealed at the edges.

In FIGURE 4, a modified container, in which all four edges have a fin-type heat seal 38 is shown after opening and resealing. Flap 30 has been loosened from the edges, folded over the opened perforated tear line 31, and sealed to the container by means of adhesive strip 34. Heat seal 39 results from the application of the flap to the web as illustrated in FIGURE 1.

The web employed in the manufacture of the containers having the easy opening and resealing device hereinabove described can be formed of one or more polymeric substance such as a polyolefin and particularly polyethylene or polypropylene, a polyvinyl halide, a polyvinylidene halide and copolymers and interpolymers thereof, or may be formed by coating a substrate such as a cellophane, paper, foil, or polyester web with one of the aforesaid polymeric materials on one or both of the surfaces of such webs. The heat sealable thermoplastic tape employed to seal off the perforated tear line is generally thinner than the thermoplastic web material or the coated web material.

Preferred materials employed in the construction of the described containers are polyolefin webs and polyolefin coated transparent webs on such materials as cellophane, saran, and polyester; of the polyolefins, polyethylene is preferred.

Although the present invention is described in terms of heat sealing, since such is preferably used, the various components of the container may also be sealed by the use of an appropriate adhesive. The adhesive material used to seal the flap to the container is of the type which retains its adhesive powers even after exposure to the atmosphere, and which will stick to another surface merely by the application of pressure. The container has been described in terms of side walls containing two flexible webs. Again it is possible to vary this construction without affecting the use and advantages of the easy opening and resealing device of the present invention. Thus one of the container sides may be a semi-rigid or rigid sheet made of the same or a different material than the flexible covering web containing the easy opening and re-

sealing device of the present invention. Other combinations and container constructions in which the present invention can be employed will be apparent to those skilled in the art.

It is to be understood that the foregoing description of the invention is not intended to limit the scope thereof except as defined in the appended claims.

I claim:

1. A container having at least one side made of a flexible web in which at least the inner surface of said side comprises a heat sealable thermoplastic resin, a perforated tear line in said web extending to different edges of the container formed by said web in a manner capable of forming an opening for the removal of the container contents, said perforated tear line being sealed off by a heat sealable thermoplastic resin tape, a flap capable of being folded down over and covering said perforated tear line, said flap being folded onto the container, and sealed to the edges of said web, said container assemblage containing an adhesive area capable of sealing said flap to said web when folded over said perforated tear line and a cover means removably applied to said adhesive area.

2. The container of claim 1 wherein said heat sealable thermoplastic resin tape is sealed to the surface of the web containing the thermoplastic resin.

3. The container of claim 1 wherein the container comprises two superimposed flexible sheets having at least the inner surface of said sheets comprising a heat sealable thermoplastic resin.

4. The container of claim 1 wherein the flap is sealed to the outer surface of the web in a line parallel to the perforated tear line.

5. The container of claim 3 wherein the sheets comprise a heat sealable thermoplastic resin.

6. A generally flat, rectangular container formed from two superimposed flexible sheets wherein each sheet contains at least one heat sealable thermoplastic resin surface, said resin surfaces forming the inner wall of said container, said container having at least two opposing fin-type edge seals, a perforated tear line in one of said sheets extending to opposite fin-type edge seals, said perforated tear line being sealed off by a thermoplastic resin tape along its entire length, said sheet further containing a flap extending across said sheet between said fin-type edge seals in a line parallel to said perforated tear line, said flap having a width sufficient to cover said perforated tear line and being folded onto the container and sealed to said fin-type edge seals, said container assemblage containing an adhesive area capable of sealing said flap to said container when folded over the said perforated tear line and a cover means removably applied to said adhesive area.

7. The container of claim 6 wherein the said thermoplastic resin tape is sealed to the inner wall of said container.

8. The container of claim 7 wherein the sheets comprise a heat sealable thermoplastic resin.

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