Sept. 24, 1963 R. K. STONE 3,104,798

BAG CLOSURE

Filed Nov. 6, 1961

FIG. 1

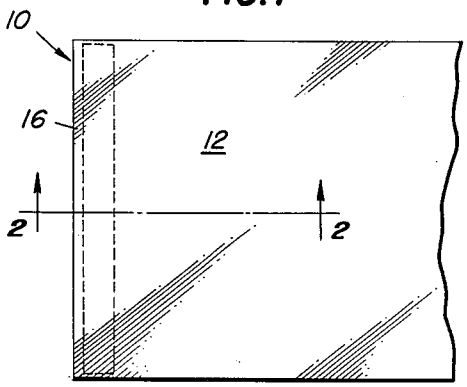


FIG. 2

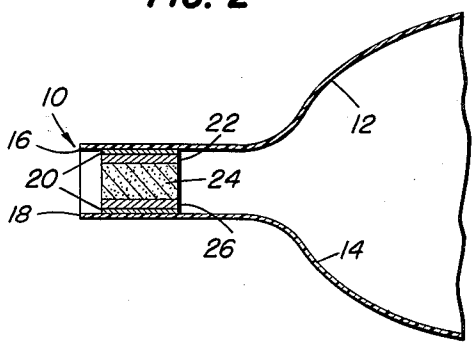


FIG. 3

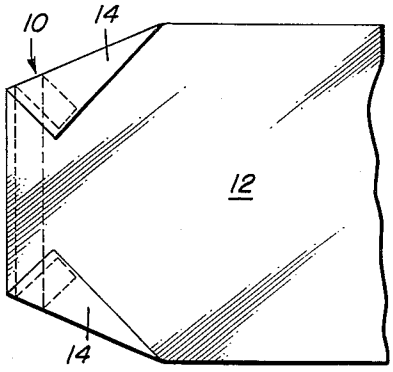


FIG. 4

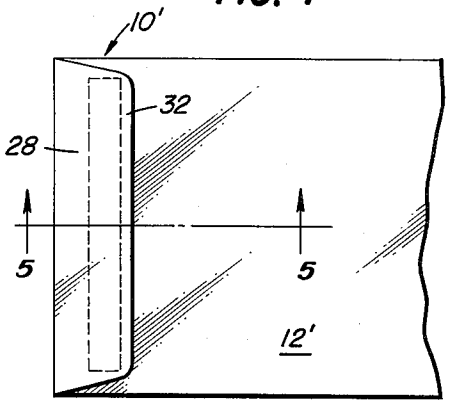


FIG. 5

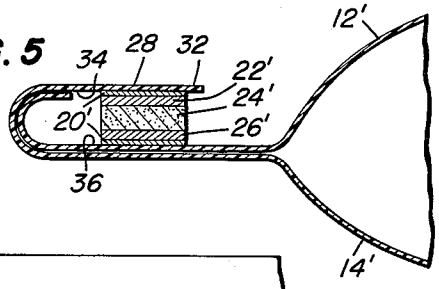
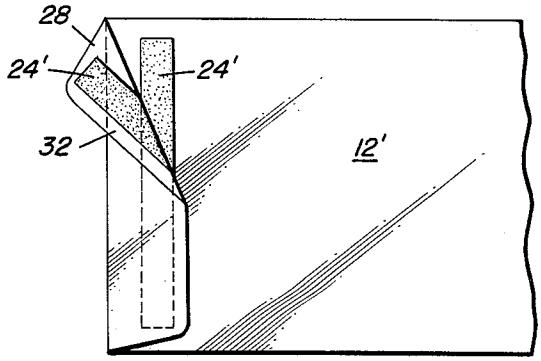


FIG. 6



INVENTOR.
RALPH K. STONE
BY John D. Stevens
His AGENT

United States Patent Office 3,104,798
Patented Sept. 24, 1963

3,104,798

BAG CLOSURE

Ralph K. Stone, Longmeadow, Mass., assignor to United States Envelope Company, Springfield, Mass., a corporation of Maine

Filed Nov. 6, 1961, Ser. No. 150,295
3 Claims. (Cl. 229—62)

This invention relates generally to flexible wall bags of the type used for packaging relatively small quantities of goods or materials—particularly edibles or perishable material. More specifically, this invention relates to bags made of paper, glassine, cellophane, polyethylene, or similar material, having means for simple and positive reclosure after it has once been opened.

The present invention provides a bag which, when filled, is adapted to be permanently closed at one end, and is provided with a closure at the other end having means for easily opening the bag along a predetermined rupture line, and in addition, means for easily reclosing the bag along its original closure.

This invention also provides a bag of simple and inexpensive construction. The construction of the bag and its closure is sufficient to prevent leakage of its contents and circulation of air.

The present invention has particular application in the packaging of relatively small quantities of materials such as macaroni, coffee, cereal, etc. Quite frequently, such materials are packaged in quantities which do not suit the individual needs of a particular consumer, and the consumer may desire to use only a portion of the bag's contents. In such situations, it is desirable to be able to reclose the bag to prevent leaking of the contents and air circulation in the bag.

According to this invention, a closure is provided at the end of a bag by spreading and flattening the walls of the bag so that the bag's walls in the area of the desired closure are in substantially parallel planes. The walls are then connected in the area of the desired closure by adhesively interposing a laminated strip, a layer of which is an easily rupturable material such as blotter paper or the like, for easily separating the walls at the closure, and a layer of non-resilient, bendable, shape holding material such as metal foil, for easily reclosing the bag.

After the bag has once been opened by pulling the bag walls apart at the closure, thereby splitting the layer of easily rupturable material, the bag can easily be reclosed by returning the closure to its original position and folding over the ends of the closure. The layer of metal foil, which is preferably of a material such as aluminum, lead, or copper now retains the bag tightly in a closed position.

The present invention is most unique in the simplicity of construction of the reclosable bag, and the cooperation of the tight, but easy opening feature with the easy closing feature. Without the provision of means for opening the bag along a predetermined line without tearing, ripping, mutilation, etc. in the area of the closure, the provision for easy closing would be of little value for the contemplated uses. It is desirable for the bag to have means for tight closure both before and after the first opening. A tight reclosure of the bag is only made possible by the provision for neat opening.

It is well realized that bendable metal closures, per se, for certain types of bags and containers are not new, but it is believed that bags adaptable for edibles and perishable materials have not heretofore been provided with such a simple and substantially air-tight closure which adequately protects the contents both before and after the original opening.

In the drawings:

FIGURE 1 is a partial plan view of a tubular bag having a "fishtail" type seam at the end thereof embodying the present invention.

FIGURE 2 is an enlarged sectional view taken along line 2—2 of FIGURE 1.

FIGURE 3 is a partial plan view of the form of bag shown in FIGURES 1 and 2 showing the bag in a reclosed position.

FIGURE 4 is a partial plan view of a bag having another form of closure at the end thereof embodying the present invention.

FIGURE 5 is an enlarged sectional view taken along line 5—5 of FIGURE 4.

FIGURE 6 is a partial plan view of the bag shown in FIGURES 4 and 5 partially opened.

Referring to FIGURES 1 and 2, **10** denotes generally the closure at the end of a bag. Closure **10** is generally known as a "fishtail" type end closure. The bag is of the flexible wall, tubular type. The walls **12** and **14** are of substantially the same longitudinal extent. At the end of the container, or slightly spaced therefrom, closure **10** is placed connecting the flattened adjacent bag walls **12** and **14**. Closure **10** is conveniently spaced a slight distance from the ends of the walls **12** and **14**, allowing the extremities **16** and **18** of the walls **12** and **14** respectively, to be free to provide lips for separating the walls at this closure.

At closure **10**, a laminated strip is placed between and adhesively connected to the inside surfaces of the walls **12** and **14**. The laminated strip is joined to the bag walls **12** and **14** by a suitable adhesive indicated at **20**. The strip of laminated material comprises a strip of metallic foil **22** laminated to a strip of relatively easily rupturable material **24**. The strip of easily rupturable material **24** may be a loose fibrous material such as blotter paper. It is necessary that this strip of loose, fibrous material be more easily rupturable than any other component of the closure so that when the container walls **12** and **14** are separated, the closure will split through the layer of loose fibered material **24**. It may sometimes be desirable to face the layer of loose fibrous material with a layer of paper **26** of ordinary texture or low adhesive absorptivity to avoid undue absorption of glue in the loose fibrous material. However, this is not a necessary part of the invention.

It is usually desirable that the laminated strip extend for the full length of the closure. However, this may not always be necessary in this "fishtail" closure. It is possible for the strip to be contained entirely within a portion of the closure, and the remaining portion of the closure may be then joined in any known manner.

The bag is opened by simply pulling the bag walls **12** and **14** apart, splitting the strip of easily rupturable material **24**. FIGURE 3 illustrates the container shown in FIGURES 1 and 2 after it has been reclosed. To reclose, the bag walls **12** and **14** are simply flattened along closure **10** and the corners of the closure are bent and doubled back over the intermediate portions thereof. The closure is now held in a closed position by the shape-holding ability of the metallic foil layer **22** of the closure strip. It can now readily be seen that the reclosing feature of this invention would not be practical without a provision for opening the seam by separating the walls of the bag neatly and without mutilation.

Another embodiment of the invention is shown in FIGURES 4, 5, and 6. In this form of the invention, one of the bag walls is provided with a flap extension to be folded over the opposite wall portion of the container wall. The laminated strip is now placed between the folded flap and the adjacent bag wall.

More specifically, as best shown in FIGURES 4 and 5, wall **14'** is provided with a flap **28** which extends beyond the extremity of wall **12'**. To provide a substantially air tight closure, the closure fold is made at a position to include the extreme portion of wall **12'**. The closure is spaced slightly from the extremity of flap **28** to provide a lip for separating the walls of the bag.

In this embodiment of the invention, the laminated strip at closure **10'** connects the wall **12'** and the flap **28**. The laminated strip is adhesively connected between these walls by adhesive layers **20'**. The strip comprises a layer of metal foil **22'** laminated to the strip of fibrous material **24'**. The strip of fibrous material **24'** may be backed with a paper strip **26'** or ordinary texture to prevent undue absorption of the glue.

FIGURE 6 illustrates the seam partially opened. This illustrates how the closure is neatly opened without tearing or ripping of the bag wall material, by the splitting of the strip of loose fibrous material **24'**. Part of the interposed closure strip is retained on the flap portion **28** and part is retained on the bag wall **12'**.

Opening and reclosure of the bag illustrated in FIGURES 4, 5, and 6 is accomplished basically in the same manner as for the "fishtail" closure illustrated in FIGURES 1, 2, and 3. Lip **32** of flap **28** may be lifted away from wall **12'**, splitting the strip of easily rupturable material **24'**. For reclosing, the end of the bag is simply flattened and flap **28** brought back to its original position. The corners of the closure are next folded over in the same manner as before, and the closure is held in a closed position by the shape holding ability of the metallic foil layer **22'** of the laminated strip.

It should be understood that the other end of the bag may be permanently closed by any known means. Normally, such bags will be filled from the end opposite the closure forming this invention, thus enabling this closure to be made at the time the bag is manufactured.

I claim:

1. In a bag having flexible walls flattened at one end thereof and a mouth closure at said flattened end defined by the overlaying portions of the walls, the improvement which comprises a single strip of laminated material adhesively interposed between and connecting said overlaying wall portions along substantially the entire width of the bag at said closure by a substantially air tight closure, said strip of laminated material having

(*a*) a layer of easily rupturable material,

(*b*) a layer of bendable, metal foil,

(*c*) whereby said bag may be opened by separating the bag's walls at said closure, thereby splitting said layer of easily rupturable material, and reclosed along its original closure by flattening the bag's walls to their original position and bending over the ends of said closure.

2. In a bag having substantially flattened and coextensive flexible walls at one end thereof, and a mouth closure at said end defined by overlaying portions of the walls, the improvement which comprises a single strip of laminated material adhesively interposed between and connecting said overlaying wall portions along substantially the entire width of the bag at said closure by a substantially air tight closure, said strip of laminated material having

(*a*) a layer of easily rupturable material,

(*b*) a layer of bendable, metal foil,

(*c*) whereby said bag may be opened by separating the bag's walls at said closure, thereby splitting said layer of easily rupturable material, and reclosed along its original closure by flattening the bag's walls to their original position and bending over the ends of said closure.

3. In a bag having flexible walls flattened at one end thereof, one of said walls being of greater extent than the other and folded over at the edge of said other wall to form a closing flap, the improvement which comprises a single strip of laminated material adhesively interposed between and connecting said overlaying wall portions along substantially the entire width of the bag at said closure by a substantially air tight closure, said strip of laminated material having

(*a*) a layer of easily rupturable material,

(*b*) a layer of bendable, metal foil,

(*c*) whereby said bag may be opened by separating the bag's walls at said closure, thereby splitting said layer of easily rupturable material, and reclosed along its original closure by flattening the bag's walls to their original position and bending over the ends of said closure.

References Cited in the file of this patent

UNITED STATES PATENTS

218,650	Weaver	Aug. 19, 1879
3,001,689	Burton	Sept. 26, 1961

FOREIGN PATENTS

205,189	Switzerland	Aug. 16, 1939