Feb. 4, 1947. W. R. KOHL 2,415,139

SEALING AND LOCKING CLOSURE

Filed Jan. 13, 1944

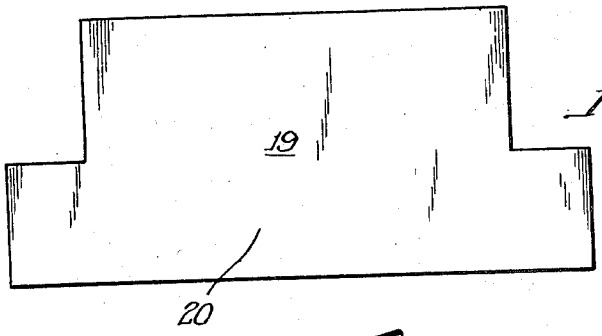


Fig. 1.

Fig. 2.

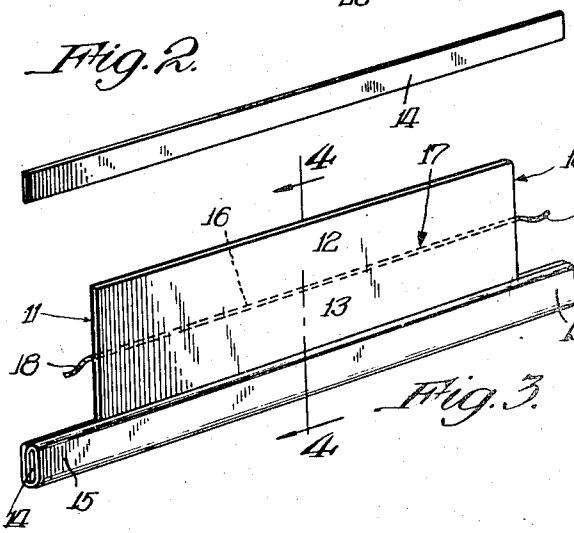


Fig. 3.

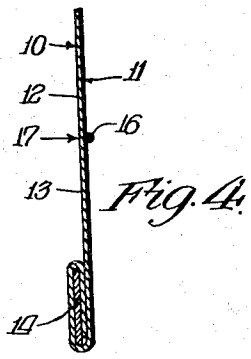


Fig. 4.

Fig. 5.

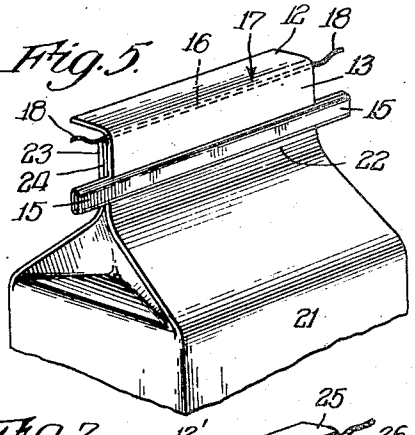


Fig. 6.

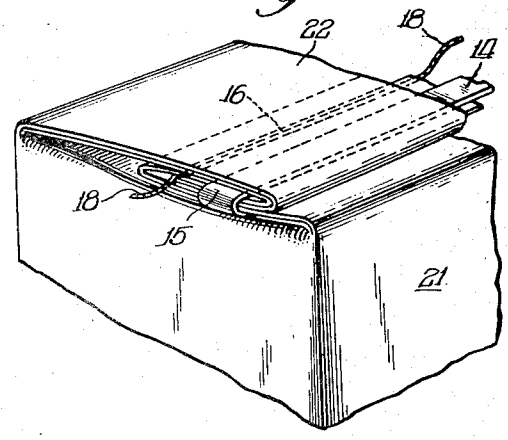
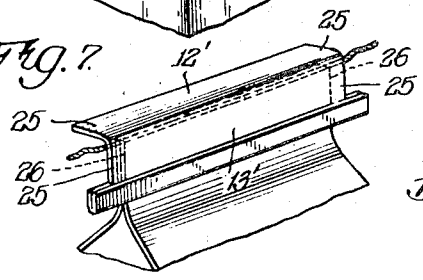


Fig. 7.



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SEALING AND LOCKING CLOSURE

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Application January 13, 1944, Serial No. 518,056

4 Claims. (Cl. 229—62)

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This invention has to do with closures for bags of the type in which coffee and other loose materials are ordinarily packaged in small unit quantities for the retail trade.

The principal purpose of the invention is to provide an improved sealing and locking closure for a bag of the type described.

The new closure is easy to apply to a bag; seals the bag perfectly against tampering as well as contamination right up to the time of sale or use; can be opened up quickly and easily in a very simple manner, and when once opened provides unmistakable evidence of the fact that it has been opened; can be closed and securely locked again as many times as desired, with the tamper-proof seal remaining broken; protects the contents of the bag against the entrance of air and moisture not only when in its initially sealed tamper-proof condition but also later in its relocked condition; facilitates the folding of the mouth of the bag; enables the mouth to be folded down into a substantially flat multi-fold formation which is conducive to the stacking of one bag upon another; gives an attractive and uniformly squared appearance to the top of the bag; and, last but not least, is quite inexpensive to make and apply.

While the foregoing statements are indicative in a general way of the nature of the invention, other objects and advantages will be apparent to those skilled in the art upon a full understanding of the nature of the new closure and the manner in which it is adapted to be applied and used.

A preferred embodiment and one modification of the invention are presented herein by way of exemplification, but it will of course be appreciated that the invention is susceptible of incorporation in other structurally modified forms coming equally within the scope of the appended claims.

In the accompanying drawing:

Fig. 1 is a face view of the blank of paper which enters into the construction of the closure;

Fig. 2 is a perspective view of the tin tie which is connected with the blank;

Fig. 3 is a perspective view of the complete closure before being applied to the collapsed mouth of a bag;

Fig. 4 is a transverse section through the closure, taken on the line 4—4 of Fig. 3;

Fig. 5 is a perspective view which shows the closure in the act of being sealed down over the collapsed mouth of a bag;

Fig. 6 is a perspective view which shows a bag after the mouth of the same has been sealed by the closure and folded down and locked; and

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Fig. 7 is a perspective view which corresponds to Fig. 5 but shows a modification.

The new closure is best shown in Fig. 3 of the drawing. It includes a strip 10 of paper or other suitable material which is provided on one of its faces with a coating 11 of a thermoplastic adhesive. The strip 10 is adapted to be folded longitudinally, with the coating 11 on the inside, to form two integrally connected flaps 12 and 13. A relatively narrow strip 14 of stiff but readily deformable metal is secured to the strip 10 along the longitudinal edge of one of the flaps, with its ends 15 projecting beyond the ends of the flaps. A rip cord 16 of fine cotton string or other suitable material is secured to the coated face of the strip 10 along the intended line of fold 17 between the flaps, with its ends 18 projecting beyond the ends of the flaps.

This simple but surprisingly effective closure can be made very easily by taking paper stock which is coated on one of its faces with a thermoplastic adhesive, cutting the stock into a blank 19 of the shape shown in Fig. 1, wrapping the metal strip 14 in an edge portion 20 of the blank, placing the rip cord 16 against the coated face of the blank where the line of fold 17 is to be, and securing the metal strip and rip cord permanently in place, either by the application of heat and pressure or by any other suitable means.

The closure is adapted to be applied to a bag 21 having a mouth 22 which is collapsible into a substantially straight flat edge of the same length as the flaps 12 and 13. In applying the closure the coated faces of the flaps 12 and 13 are positioned flatly against the opposite sides 23 and 24 of the flattened mouth, with the rip cord 16 lying along the edge of the mouth and with the locking strip 14 spaced substantially from such edge. After the flaps have been placed in this position they are subjected to enough heat and pressure to cause them to adhere permanently at all points to the sides of the mouth, thereby effectively sealing off the edge of the mouth.

The portion of the mouth of the bag which projects beyond the locking strip 14 in sealed engagement with the flaps 12 and 13 can be folded back about the locking strip, using the latter as a straight edge to effect a straight and uniform fold, after which the unfilled upper portion of the bag between such fold and the top of the contents can be folded down in one or

two additional folds, as desired, again using the locking strip as a gauge or guide in producing the desired multi-fold formation. After the upper portion of the bag has been folded down flatly into more or less solid abutment with the squared-off top of the material in the bag, the projecting ends 15 of the locking strip are bent reversely into clamped engagement with the adjacent folds, thereby locking the folded down portions in a squared-off and securely fastened but readily releasable position, as shown in Fig. 6.

In this locked down position the ends 18 of the rip cord 16 also may be tucked into the multi-fold formation, but it is immaterial whether they are or not because the seal is protected by the then overlying layers against being accidentally ruptured through an inadvertent pull on either end of the cord.

In order to open up a bag which has been sealed and locked by means of the improved closure it is merely necessary to straighten out the tucked-in ends 15 of the locking strip, unfold the top of the bag, and pull the rip cord 16 from one end of the edge of the mouth to the other. The location of the rip cord at the edge of the mouth will result in a clean-cut reinforced edge being left, which edge will permit the contents of the bag, even though they be finely pulverant material, to be poured from the bag in a smooth stream. If only part of the contents are to be removed at one time the mouth of the bag can be collapsed again, folded down, and re-secured with the ends 15 of the locking strip. After the seal has once been broken it of course provides unmistakable evidence to that effect, but even with the seal broken the closure can still be used effectively as a locking means for as many times as there is any occasion to re-secure the same.

In applying the closure the two flaps 12 and 13 of the strip 10 can be secured simultaneously to the opposite sides 23 and 24 of the mouth of the bag, as above described, or they can be secured separately, at different times, with one flap being secured to one side of the mouth either before or after the bag has been filled, and with the other flap temporarily left projecting beyond the edge of the mouth, as shown in Fig. 5.

The adhesive used in permanently cementing the flaps 12 and 13 to the sides of the mouth of the bag is preferably a thermoplastic one, as above stated, which cannot be steamed loose and which will adhere so inseparably to the paper or other material forming the bag as to defy being removed by any ordinary means, even from printed and highly glazed surfaces. There are many such adhesives on the market. For those applications where there would be no likelihood or reason for tampering being undertaken, an ordinary adhesive, such as a glue, mucilage, or cement, might of course be substituted.

In the modification shown in Fig. 7, the flaps 12' and 13' are made longer than the collapsed edge of the mouth of the bag, whereby to enable the projecting ends 25 of the flaps to be sealed together beyond the ends 26 of the mouth. By coating both surfaces of the flaps 12' and 13' with the adhesive, the projecting ends 25 of the flaps can be folded back and further sealed against the intermediate portion of either of the flaps.

While the closure which forms the subject matter of the present invention is especially applicable to bags having mouths which are collapsible into flattened edges, the closure can also be employed in connection with other kinds of flexible material containers, such as envelopes, wrappers and sheathings generally in which the structure is such that much the same conditions are present, wherefore the term "bag" as used in the following claims is to be understood as embracing within its meaning other flexible material containers not ordinarily classified in the paper trade as bags.

The new closure is preferably made up as a separate self-contained unit, but it is conceivable that so far as certain of the features of the invention are concerned it might be made up as an integral part of the bag with which associated. For example, the flap 13 may form one of the sides of the bag adjacent the edge of the mouth, in which case such side would be extended to provide a turned-down adhesively coated lip corresponding to the flap 12, with the metal tie attached either directly to one of the sides of the bag at about the location shown in Fig. 5 or to the free edge of the turned-down lip, and with the rip cord, when used, secured to the inside of the lip along the line of fold.

I claim:

1. A combined sealing and locking closure for application to a bag having a mouth which is collapsible into a flattened edge, comprising a sealing strip of flexible sheet material which is coated on one face with a thermoplastic adhesive and is adapted to be folded longitudinally to form two integrally connected flaps for permanently adherent association through said coating with the opposite sides of the mouth of the bag with the line of fold arranged substantially coincident with the edge of the collapsed mouth, a rip cord attached to the adherent face of the sealing strip along the line of fold with at least one of its ends projecting beyond the ends of the flaps, and a locking strip of stiff but deformable material attached to the sealing strip adjacent the edge of one of the flaps in spaced parallel relation to the line of fold with its ends projecting beyond the ends of the flaps.

2. A combined sealing and locking closure for application to a bag having a mouth which is collapsible into a flattened edge, comprising a sealing strip provided with two flaps which are coated with an adhesive and are integrally connected together along a fold line for permanently adherent association with the opposite sides of the mouth of the bag, a rip cord secured to the sealing strip between the flaps along the line of fold with at least one of its ends projecting beyond the ends of the flaps, and a locking strip secured to the sealing strip adjacent the edge of one of the flaps with its ends projecting beyond the ends of the flaps.

3. The combination with a bag having a mouth which is collapsible into a flattened edge and which is foldable into a flattened position against the top of the material packed in the bag, of a sealing and locking closure for the mouth comprising a sealing strip of flexible sheet material which is coated on one face with a thermoplastic adhesive and is foldable longitudinally to form two integrally connected flaps for permanently adherent association through said coating with the opposite sides of the mouth with the line of fold arranged substantially coincident with the edge of the mouth, a rip cord attached to the adherent face of the sealing strip along the line of fold with at least one of its ends projecting beyond the ends of the flaps, and a locking strip of stiff but deformable material attached to the sealing strip adjacent the edge of one of the flaps in spaced parallel relation to the line of fold with

its ends projecting beyond the ends of the flaps, said locking strip being adapted to have its ends bent reversely into clamped engagement with the adjacent portions of the mouth of the bag after such portions have been folded down into a substantially flat position.

4. The combination with a bag having a mouth which is collapsible into a flattened edge, of an adhesively coated flap which extends from one of the sides of the mouth of the bag and is adapted to be folded down against the other side of the mouth into adherent engagement with the same along a line of fold which is substantially coincident with the edge of the mouth, a rip cord which is secured to one of said parts along the edge of the mouth along the line of fold, and a locking strip which is secured to one of said parts in spaced parallel relation to the edge of the mouth.

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