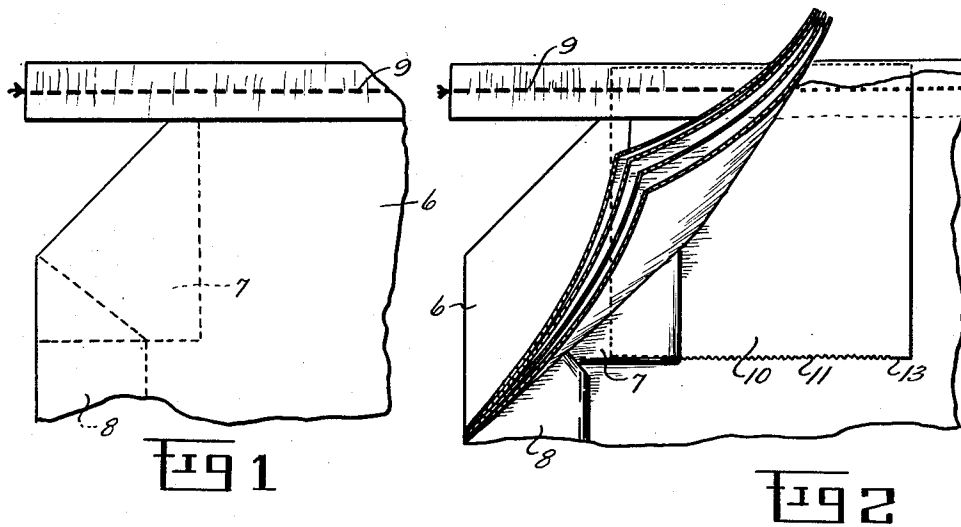
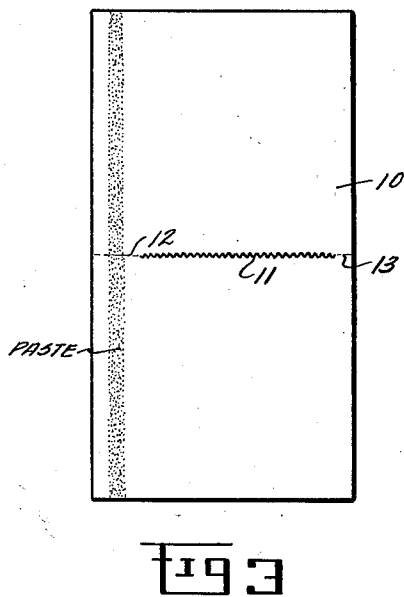
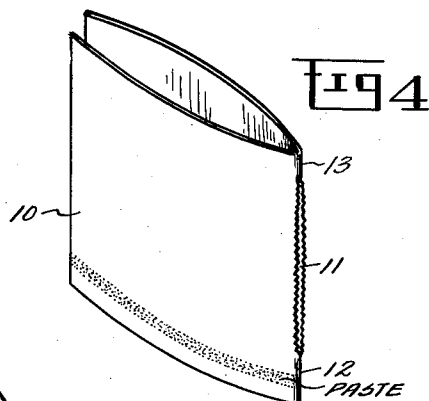
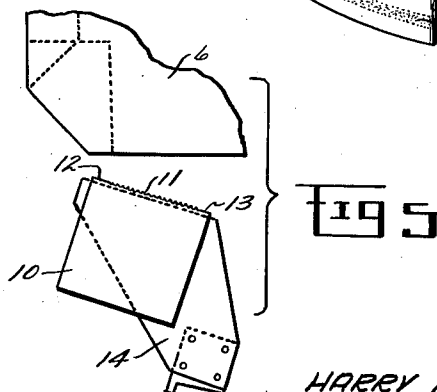


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H. PETERS ET AL
SLEEVE FOR BAG VALVES

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INVENTORS
HARRY PETERS
CLYDE D. PIERSON
BY

Curran & Reed
ATTORNEY

UNITED STATES PATENT OFFICE

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SLEEVE FOR BAG VALVES

Harry Peters and Clyde D. Pierson, Middletown,
Ohio, assignors to The Raymond Bag Company,
Middletown, Ohio, a corporation of Ohio

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This invention relates to a sleeve for a bag valve, and more particularly to a sleeve adapted to be inserted in a preformed valve by a mechanical inserter, such as that shown in Patent 2,442,431 granted to us on June 1, 1948.

As is well known it is common practice to provide bags or sacks for certain purposes with valves, which are usually formed by folding a corner of the bag at one end thereof inwardly between the side walls of the bag. Such bags are usually formed of heavy paper or like material and often comprise a plurality of plies or bag walls. After the corner has been folded in the end of the bag is closed by sewing the ends of the side walls one to the other. The line of stitching extends through the outer edges of the folded valve so as to close the same except for a filling opening adapted to receive the filling spout of a bag filling machine. When the bag has been filled the material within the bag crushes the inner end of the valve against the end of the bag and thus closes the filling opening. For many purposes such a valve is satisfactory but due to the stiffness of the material from which the valve is formed the inner portion of the valve does not contact the end of the bag with sufficient completeness and firmness to prevent the sifting of very fine material through the valve, which, of course, is objectionable. Consequently, it is customary to provide the valve of a bag adapted to receive such fine materials with a sleeve of soft material which extends inwardly beyond the end of the valve and due to its softness can be very completely crushed into contact with the end of the bag and thus completely seal the filling opening. Such a sleeve may take various forms but usually it comprises a sheet of paper, or other suitable sleeve forming material, the end portions of which are folded one on the other and after one end of the folded sleeve has been inserted in the valve the edge portions of the sleeve are sewed into the closing seam of the valve so that the folded sleeve becomes tubular in form. However, it is important that the sleeve be slit along the fold line so as to disconnect the lower portions of the sleeve one from the other and permit them to fold tightly one against the other and against the end of the bag. For this purpose a sleeve of this type is usually slit along the fold line from a point adjacent the inner end of the valve through the inner end of the sleeve. When the sleeve is to be inserted by hand the slitting thereof is not objectionable but a sleeve which

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is slit in this manner cannot be mechanically inserted by a mechanism similar to that shown in the above mentioned patent, because the inserting element would have contact with only a narrow portion of the section of material adjacent one end thereof and as a result the sleeve could not be engaged and supported by the inserting element in the manner necessary for the proper folding and inserting thereof.

The main object of the present invention is to provide a slit sleeve of such a character that it can be firmly engaged by and supported on the inserting element during the folding and inserting operations, and that the inner portions of the sleeve be separated at the fold line after the sleeve has been inserted.

A further object of the invention is to provide such a sleeve which can be produced and inserted at a cost much lower than the cost of other slit sleeves, and which will have all the advantages of such other sleeves.

Other objects of the invention may appear as the sleeve is described in detail.

In the accompanying drawings Fig. 1 is a side elevation of the valve corner of a bag; Fig. 2 is a similar view with a portion of one side wall of the bag bent outwardly to show the valve and the sleeve; Fig. 3 is a plan view of the outer side of a sleeve embodying the invention; Fig. 4 is a perspective view of the sleeve in a partially folded position; and Fig. 5 is a schematic view showing an inserting element moving the sleeve toward the valve of the bag.

In these drawings we have illustrated one embodiment of the invention and have shown the preferred form of sleeve, but it is to be understood that the sleeve may take various forms without departing from the spirit of the invention.

In Figures 1 and 2 of the drawings there is shown the valve corner of a multi-wall sewed bag 6 of the gusset type and in Figure 2 one side wall of the bag is bent outwardly to show the valve 7 which extends inwardly beyond the gusset 8. A sleeve 10 is inserted in the valve and projects inwardly a substantial distance beyond the inner end of the valve and the upper edge of the side members of the sleeve are caught in the seam 9 which connects the upper ends of the bag walls.

In the form here shown the sleeve comprises a rectangular section of sleeve forming material, 10, which is of a length substantially greater than its width and the end portions of which are adapted to be folded one on the other on a fold

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line spaced substantially equal distances from the ends of the section of material. The section of material has therein a slit 11 along said fold line and the ends of this slit are spaced relatively short distances from the respective lateral edges of the section of material, which edges extend transversely to the slit. At that lateral edge of the section of material which constitutes the end of the inserted sleeve which is to be secured to the valve, that is, the outer end, the end of the slit is spaced from said edge of the section of material a distance sufficient to enable a line of paste to extend across the material between the end of the slit and the edge of the section, as shown at 12, for attaching the sleeve to the valve. The other end of the slit is spaced from the other lateral edge of the section, which constitutes the inner end of the inserted sleeve, a distance such that only a very narrow portion of the material lies between the end of the slit and the edge of the section of material, as shown at 13, and this narrow portion of the material is easily broken after the sleeve has been inserted. Often the insertion of the filling spout in the valve will break this narrow portion of the sleeve material and thus disconnect the two sides of the sleeve at the inner corner thereof. If this portion of the sleeve is not broken by the filling spout the action of the material in the filled bag thereon will break the same, so as to permit the inner ends of the sleeve to move with relation one to the other.

The sleeve may be formed in any suitable manner. Preferably it is formed by the mechanism shown in the above mentioned patent, but not here shown, in which a web of material is drawn from a roll, a line of paste is applied to that side of the web which is outermost in the folded sleeve and adjacent that edge of the material which, in the folded sleeve, is to be attached to the valve. The moving web is slit at predetermined intervals transversely to its length by suitable cutters and successive sleeve sections are severed from the web. Each sleeve section is engaged along the line of the slit by a blade-like inserting element, such as that shown at 14 in Fig. 5, which moves the severed section through the space between two fixed members to fold the two ends thereof about the edge of the inserting element, which then carries the web into the valve. Due to the fact that the slit terminates in spaced relation to the lateral edges of the section, the section is provided with continuous lateral edge portions which the inserting element engages and which properly position the section on the inserting element and enable the same to be supported thereon during the folding and inserting operation. If the slit extended entirely through either lateral edge of the section, the section could not be properly supported on the blade because of its very narrow contact with the blade at

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the other end of the slit. Thus the construction of this sleeve enables the sleeves to be mechanically inserted in the valves accurately and in rapid succession.

While we have shown and described one embodiment of our invention we wish it to be understood that we do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

Having now fully described our invention what we claim as new and desire to secure by Letters Patent is:

1. In a bag having a part folded inwardly to form a valve, a sleeve for said valve comprising a section of sleeve forming material folded upon itself and supported in said valve with the fold line thereof adjacent to and substantially parallel with the fold line of said valve, and with the major portion thereof extending inwardly beyond said valve, said sleeve having a slit adjacent to and extending lengthwise of said fold line from the inner end of said valve to a point adjacent to and narrowly spaced from the inner end of said sleeve to provide a weak connection between the inner edge portions of said sleeve which is easily broken to release said end portions of said sleeve for relative movement.

2. In a bag having a part folded inwardly to form a valve, a sleeve for said valve comprising a substantially rectangular section of sleeve forming material having therein a transverse slit spaced substantially equal distances from two parallel edges of said section, said section of material being folded upon itself substantially on the line of said slit, one end portion of said folded section being supported in and adhered to the inner end portion of said valve and the other end portion thereof extending inwardly beyond said valve, the ends of said slit being spaced relatively short distances from the respective ends of said folded section of material, and the material between the inner end of said folded section and the adjacent end of said slit being of such narrow width that the connection between the inner end portions of said section of material is easily broken after said section has been inserted in and adhered to said valve.

HARRY PETERS.
CLYDE D. PIERSON.

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