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W. V. OWENS
MULTIPLY PAPER BAGS

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2 Sheets-Sheet 1

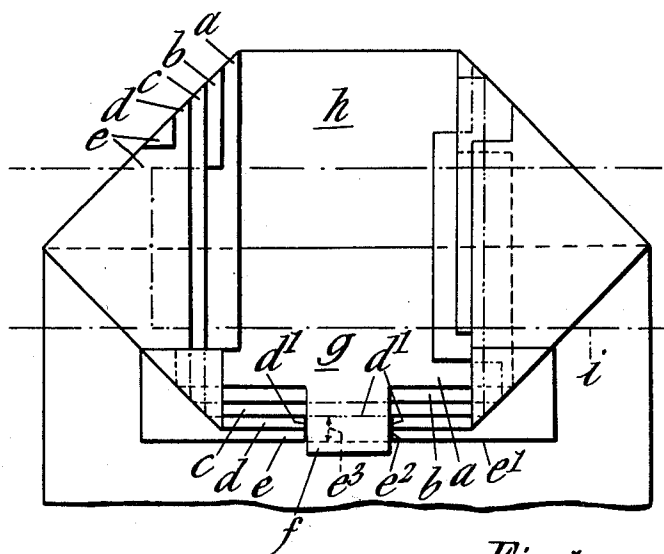


Fig. 1.

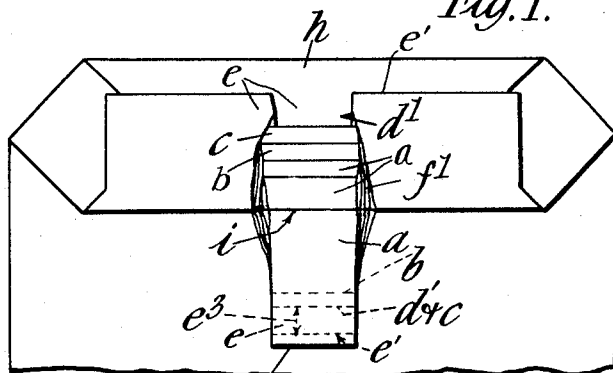


Fig. 2.

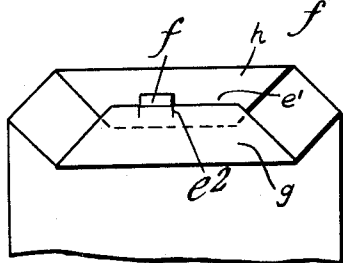
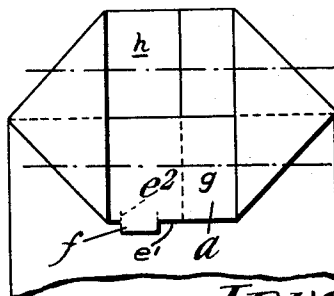


Fig. 3.

Fig. 4.



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MULTIPLY PAPER BAGS

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4 Claims. (Cl. 229—66)

This invention relates to multiply valve or open mouth paper bags of the type having blockbottom or like end folded closures.

It is customary to open bags of the above type containing cement or lime for example, by rupturing the paper by the stroke of a spade or other tool and is, generally speaking, satisfactory for this class of contents which may be released over a broad area or into a wide opening and where some spillage or waste may be permissible. When, however, the contents is of a character which requires more or less careful discharge and is such as should not be spilled, there is difficulty in satisfactorily opening the bags as they are tough and difficult to tear neatly, and usually a knife or tool has to be used with some care to make an appropriate incision for a pouring orifice.

The present invention is particularly applicable to bags intended to contain foodstuffs, such as flour and the like meals, fertilisers or chemicals which may be in powder, granular or pellet form, and the invention has for its object the provision of means in a bag of the character indicated whereby an opening of appropriate predetermined size may be quickly made in a bag without the aid of a tool, through which the contents can be emptied or dispensed.

The invention consists in a bag of the type indicated having a tab on an inner ply and projecting free beyond the outer ply of a closed blockbottom, and associated with all the plies in such a manner that upon seizure by the operator he can shear or tear the plies in rear of the tab zone to expose a pouring orifice as described herein and defined in the claims.

In the accompanying drawings:

Fig. 1 is a plan view of a multiply bag fragment showing a blockbottom closure in the preliminary folding stage displaying a tear tab formed on the innermost ply of a multiply bag and projecting freely beyond the outermost ply margin lying lengthwise of the blockbottom.

Fig. 2 is a plan of the completed blockbottom closure seen in the preliminary stage in Fig. 1 and with the tab pulled rearwardly or transversely of the blockbottom to shear the plies in its tab zone and expose a pouring orifice.

Figs. 3 and 4 are similar plan views to Figs. 1 and 3 of a blockbottom closure in which the tab is formed on the innermost ply but one of the bag.

Fig. 5 is a plan view of a multiply bag in the preliminary blockbottom folding stage of which all the plies have headings or margins flush with one another and not stepped as seen in Figs. 1 and 2.

Fig. 6 is a plan view of the completed closure of the blockbottom seen in the preliminary folding stage in Fig. 5 and before the tab is operated to tear an opening.

Hereinafter the invention will be described, by way of example, both with reference to bags made from flush ended bag tubes and to bags in which the plies

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at each face of the flattened bag are so arranged that the bag tube ends thereof progressively overlap to provide stepped or staggered headings of which those of one face are adhesively secured to those of the other face in folding the closure. The current practice in producing headings of the above character is to perforate the tube forming webs of paper transversely and longitudinally to outline projecting and recessed portions at bag length intervals and subsequently rupture the bag lengths from the folded tube at the perforations.

In carrying the invention into effect according to one mode, described by way of example, see Figs. 1 and 2, for producing a tab openable pouring orifice in a blockbottom and closure, the web for the innermost ply *a* of the series (in this instance) *a-e*, when perforating the stepped headings is also perforated or slit to outline a tab or tongue form *f* which when the bag lengths are ruptured from the bag tube leaves the tab *f* extending from the ply *a* on the outer face flap *g*, of such length that it will project beyond the edge *e'* of the outermost ply *e* of the outer face flap *g*, when such is sealed down on the inner face flap *h* in the folding of the blockbottom closure, to afford a seizable manipulating hold for the operator. The web for the outermost ply *e* is slit, as at *e²*, so that the slits in the subsequently folded bottom will lie on each side of the projecting tab to afford a lead for the tearing operation. If desired, more than one ply may have an edge slit adjacent the tab zone.

The headings of the opposite faces of the bag are secured together by pasting in the normal manner to seal the closure of the several overlapped headings. The pasting may however be omitted from certain of the headings of the flap *h* which lie under the tab zone in the closed bottom, to lessen the effort in pulling up and freeing the tab from the said headings, when tearing open the pouring orifice. It is sufficient for sealing purposes if the inside surface of the tab is adhesively secured to the heading *a* and to the heading *e* of the flap *h*. In tearing back the tab the underside thereof is readily separated from the pasting at these headings. With regard to the headings on the flap *g* which overlie the tab when the bottom is closed, paste should be applied preferably to all the headings so that they are stuck across the outer side of the tab.

In order to facilitate the early stage in rupturing the paper, on each side of the tab in the tearing operation the heading *d* of the flap *g* may be recessed, as at *d'*, for the width of the tab zone when perforating the bag tube web for rupture into bag lengths. Thus the tab at the start will have to tear through only a single thickness of paper at *e²*, the edge *e'* of which is slit at *e²* as mentioned above.

According to the above arrangement, when the projecting end of the tab *f* is pulled up and backward, tearing will occur at each side of the tab through all the plies of flap *g* lying above it and will separate from the paste on the other flap *h*. The tear will occur after the manner seen at *f'* in Fig. 2, the tear extending back to the blockbottom fold line *i* exposing a pouring orifice bounded on each side by the tear lines *f'* and fore and aft by the edge of ply *a* of flap *h* and fold line *i*.

According to a modification, the tab instead of being provided on the innermost ply of the outer flap *g* may be formed on the innermost ply but one, ply *b*, as seen in Figs. 3 and 4 at *f* (or on another inner ply), as it has been found that such an arrangement will operate successfully provided the heading (or headings) inward of the tabbed ply is pasted to the latter in rear of the tab. In the present example, the heading *a* of flap *g* is slit at *a'* and between the slits in rear of the tab is

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pasted to the heading of the ply *b*. The edge *e'* of the outermost ply *e* is slit at *e*² as in Fig. 1 but in Fig. 3 the ply heading *d* is shown exemplified with the omission of the recessing seen in Fig. 1 at *d'*. Otherwise, the pasting, arrangement and operations may be the same as described in reference to Figs. 1 and 2.

Instead of forming the tab integral with its ply as seen in Figs. 1 to 4, a rectangular piece of paper or thin card may be adhesively secured in position on the innermost ply of the flap *h* and the bottoming closure may be pasted and treated in the same way as for the integral tab described in reference to Figs. 1 to 4.

Although a single projecting tear tab has been described above extending from one of the plies, it will be understood that a tab (or tabs) may be provided on another or other plies, in which case the projecting portions of the tabs may be adhesively secured together or to a heading in the tab zone. The tabs may be on consecutive plies or on plies spaced by intervening untabbed plies.

According to an example of the provision of more than one tab, an inner ply heading is provided with a tab which may terminate short of the outermost ply and not project beyond it but is adhesively secured to the heading of the next adjacent heading or headings outward of the ply carrying the tab. A heading or headings inward of the tabbed ply is secured to the latter in the tab zone. In this form of the invention the outermost ply is provided with a short tab for seizure by the operator, and by reason of the pasting of one heading to another in the tab zone and to the inner of the two tabs the operator is able successfully to rupture the plies on each side of the tabs to expose a pouring orifice. Alternative with very heavy duty bags, where for instance five or six plies are employed, the tearing may take place in two stages, the outer tab being first seized to expose the inner tab, which in turn is seized to complete the tearing operation.

Certain multiply bags are made from bag tubes having flush ends, that is to say, in which the ends of the tubes are coterminous instead of having stepped headings.

In carrying out the invention as applied to this form of bag, see Figs. 5 and 6, the innermost ply *a* of, say, a three-ply bag, is formed with an integral tab *f*, or alternatively each ply or other plies may have a tab, the outline of the several tabs coinciding with one another. In this kind of bag the margins of the flush end of the bag are interply pasted together and paste may also be applied to the tabs where several are employed. The inner flap *h* is folded down and pasted at the triangular corner flaps and the outer flap *g* is folded and pasted upon it in the normal manner, leaving the tab *f* freely projecting from under the edge *e'* of the plies of the flap *g* ready for seizure by the operator. In this case, it will be seen that the inner side of the tab between the slits *e*² will be adhesively attached to the flap *h* only on a single ply of paper from which the portion between said slits will come away when the tab is torn back. All of the plies may be slit, as at *e*², at the tab edges to provide a lead for the tearing operation as in the previously described modes of carrying out the invention. In flush-ended bags it will be seen that the tear must occur through all plies simultaneously and not progressively as in bags having stepped headings where the tear takes place through one ply and then another. In consequence of

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this, it is not advisable to apply the invention to multiply bags having, say, more than three plies, if reliable tearing is to be ensured.

In the foregoing modes of carrying out the invention, the tab instead of being made integral with one of the plies of the bag may be in the form of a separate piece of paper or thin card secured in position by adhesive to the ply heading when the folding operation, seen in Fig. 1 or 3, is being carried out. Also in those cases where the tab is directed transversely across the length of the blockbottom, it may be positioned in the centre as in Figs. 1 and 2, or to one side of the centre as in Figs. 3 and 4 and Figs. 5 and 6.

I claim:

1. A multiply blockbottom paper bag of the kind indicated having: multiply inner and outer blockbottom face flaps, inwardly folding corner flaps, the said face flaps being folded and adhesively secured one over the other and over the said inwardly folded corner flaps, a tab extending from at least one of the inner plies of the outer of said blockbottom face flaps and projecting substantially beyond the edge of the outer ply of said outer flap and overlapping the outer ply of the inner face flap, said tab projecting portion being free and unattached to said inner face flap ply to provide a freely accessible manipulating tear hold, and a transverse slit extending rearwardly on each side of said tab in at least the outer ply of the outer of said face flaps with the portions of the plies of the outer flap in rear of the tab and between said slits adhesively secured together, the arrangement being such that on being pulled back the tab tears the said outer flap plies in rearward extension of the sides of the tab to expose a pouring orifice penetrating through the side outer face flap.

2. A multiply bag as claimed in claim 1 and wherein: the face flaps have staggered overlapped headings, the said tab is integral with and projects from the innermost ply of the outer face flap and the said slits at the sides of the tab extend inward into the heading of the ply next to the outermost ply, the portion thereof between said slits being removed forming a recess and the outer surface of the tab is adhesively secured to the outermost ply over the area of the said recess.

3. A multiply bag as claimed in claim 1 and wherein: the plies of each face flap terminate flush with one another and are interply pasted together, the said tab is integral with the inner ply and the margin of that ply and of the overlying plies of the outer face flap are slit in line with the sides of the tab to provide the said leads for the tearing of the pouring opening.

4. A multiply bag as claimed in claim 3 wherein more than one ply of the said outer face flap has a tab, the outlines of the several tabs being coincident and wherein the tabbed plies are slit in line with the sides of said tabs to provide the tearing lead.

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