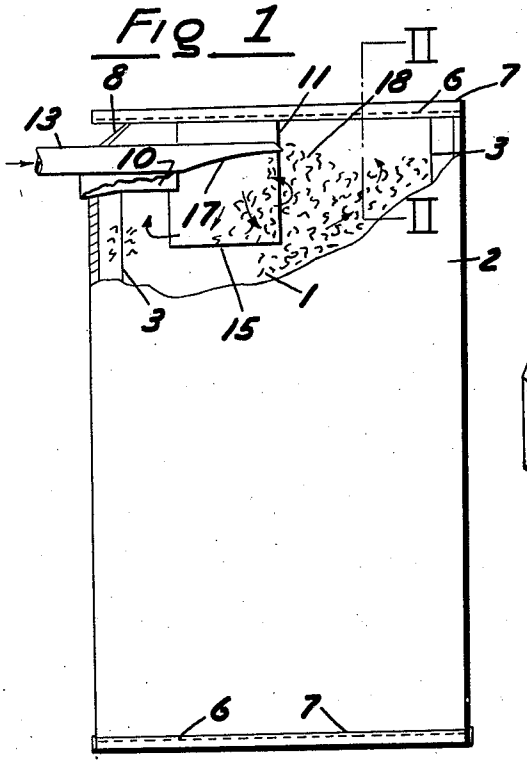
April 15, 1947. H. M. JOHNSON 2,418,975

VALVE CLOSURE FLAP

Filed Oct. 5, 1944

Fig 1



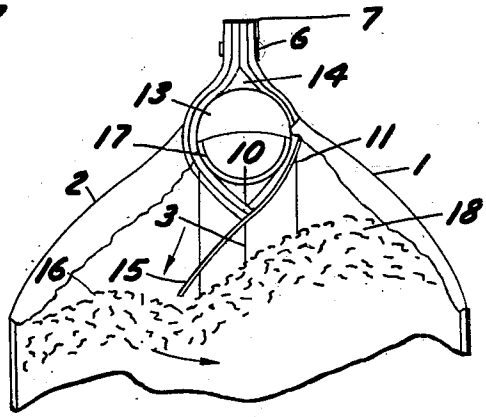


Fig 2

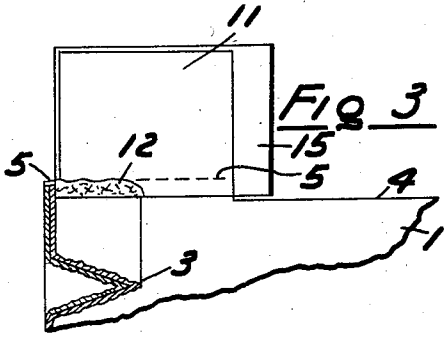


Fig 3

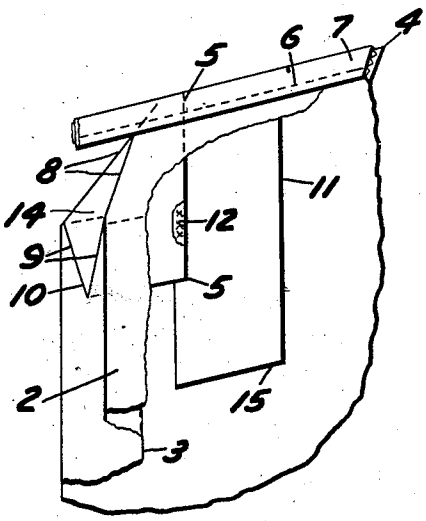


Fig 5

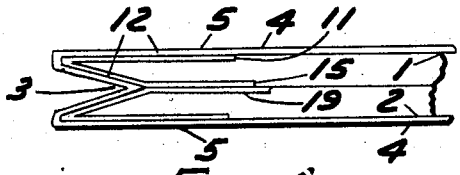


Fig 4

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VALVE CLOSURE FLAP

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Application October 5, 1944, Serial No. 557,265

1 Claim. (Cl. 229—62.5)

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This invention relates to automatic closure means for containers as charged with bulk material, more particularly as impelled or blown thereinto.

This invention has utility when incorporated in extension or flap means inward from the intake valve of the foldable or collapsible type as in the pneumatic charging of valve bags with cement, lime hydrate, gypsum, flour, cereals, etc.

Referring to the drawings:

Fig. 1 is a side elevation, with parts broken away, of a bag in bulk charge receiving position, and having an embodiment of the invention herein incorporated as a flap extension hanging loosely adjacent the spill or discharge portion of the bag filling tube or nozzle, as protruding thru the valve into the bag;

Fig. 2 is a section on the line II—II, Fig. 1, looking in the direction of the arrow, and showing the flap as pulled out into the central portion of the bag by the nozzle and with the bulk material circulating back thereof;

Fig. 3 is a fragmentary side elevation of an end portion or ply paper tubing or blank for a bag end or top having a flap of the invention herein, attached at the end offset or extension determining the inner limit for the valve, the flap having a fully loose portion depending below the trough or lower portion of the valve;

Fig. 4 is a plan view of a ply paper bag end, with two flaps, instead of but one, as shown in Fig. 3; and

Fig. 5 is a fragmentary perspective view of the valve portion of a valve bag, equipped with the invention herein, in the form of a single flap.

Those handling the storage of bulk materials, such as flake, granular or powdery products, frequently adopt plural thickness of paper to form bags, a quite considerable proportion being of three or more ply kraft paper stock. In practice, the strip stock has adhesive along longitudinal edge portions, and such are successively brought together in forming say three concentric tubes, in the instance of three-ply bag production. These long strips of tubing as assembled, are cut into lengths for paper bags with opposite flat or major sides 1, 2, (Fig. 4), with V-folds 3 connecting the margins of the sides 1, 2. An open end 4 as the top has a valve-defining narrow extension portion 5 which extends across a fold 3 and about as much further than the fold along each of the sides 1, 2, therefrom. The opposite end of the tube section may have a stitching 6 to assemble a fold-over or binding strip 7, say of crepe stock, in completing an end closure for

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the bag. The opposite end of the tube which has the valve-defining portion 5 beyond the end 4, has a fold line 8 from the junctions of the ends 4 of the sides 1, 2, with the portion 5. These folds 8 have continuation folds 9 therefrom in the V-fold 3. There is thus located a trough bottom portion 10 at right angles to the general direction of the fold 3, as a terminal section of the fold 3 forming a way with the portion 5 as its inner open end. Additional stitching 6 may now assemble another binding strip 7 at this end in a line determined by the ends 4 of the sides 1, 2, and the remote V-fold 3, not involving the folds 8, 9, except the ends of the folds 8.

Under the invention herein, before the stitching 6 applies the strip 7 at the end 4, 5, a flap 11 may have an attaching connection, as by adhesive 12 to the inside-the-bag-side of the portion 5 in the extension of the portion 5 inward from junction with the end 4. The important limit of extent for this connection of the flap 11 along the portion 5, is to have such terminate at the trough bottom portion 10, so that as filling tube or nozzle 13 be thrust into valve opening 14, there is a depending loose free end portion 15 in the bag upper portion beyond the valve opening terminus 5.

The velocity pouring or blowing of loose bulk material 16 in being discharged from opening 17 of the tube 13, distends the sides 1, 2, of the bag for the material to fall freely against the bag bottom portion and accumulate up toward the top. The material 16, in this rise tends to seek upper unfilled or clear regions. The portion 5 in the region of the trough bottom 10, is drawn away from the side 1, and as so drawn brings with it the connected portion of the flap 11, thereby to locate the loose depending flap portion 15 centrally of the bag and below the discharge opening 17 of the filling tube 13. The flap portion 15 thereby establishes a quiet region back thereof from the opening 17 into which the loose material 16 piles up into a hump 18.

In the event there be an additional flap 19, similar to the flap 11, but for the opposite side of the valve opening 14 along the other portion 5 to the bottom 10, there is thus located centrally of the bag a pair of loose depending flap portions between which the filling tube discharges for the loose material 16 to lodge into heaps or humps 18 on each side away from the tube 13.

When the determined, or weighed quantity of material has lodged in the bag, the supply may be discontinued, the charged bag removed from the tube 13, and as slumping down, the

humped material 16 of the region 18, flexes the flap portion 15 across the inner portion of the valve opening 14. Therefore it follows automatically that in the collapsing of the valve upon the withdrawal of the tube 13, the flap 15 serves as an automatic check valve to supplement outflow cut-off as partially achieved upon the collapse.

The valve operation hereunder, as discussed for multi-ply paper bags, may be for single ply, other flexible stock than paper, as cloth, and even for cartons or rigid wall containers, having a foldable valve portion or section. Likewise, the flap may be of kraft paper stock, desirably readily flexible, or of cloth, or other flexible material.

The showing in Fig. 5 discloses the in-turning of the top corner of a bag, to which there is attached a flexible strip 11. In this folding of the bag corner, the end of the strip 11 rising from the junction of the end portion 4 with the portion 5 (Fig. 3), is now swung into line with the portion 4 to have the binding 7 attach such strip portion thru the stitching 6. The strip 11 thus has attachment at the top by the stitching 6 as a side extension into the bag beyond the inner end of the opening 14. Furthermore, the adhesive 12 so connects the strip portion as coming down from the bag end stitched portion 4 that as the side of the opening 14 is drawn away from the bag side 1, the attached portion of the strip 11 is drawn or pulled away from the bag side therewith, at least along the region of the adhesive 12. The strip 11 has its flap 15 depending below the opening 14, for it does not have any anchor connection or attachment to the opening side walls extending past or across the trough bottom 10.

It is thus seen that tuck-in corner type of valve bag is equipped hereunder, with a supplemental loose flap or lateral extension, short of extending beyond, or materially beyond the trough bottom 10, whereby the length of the trough is not increased. The practice with the bags as made up, is for such to be brought to the bag filling machine, and the collapsed valve or opening 14 opened by thrusting a filling tube 13 thereinto. When the bag is filled, and the filling tube 13 is withdrawn, the infolded corner at once tends to recollapse. Under the invention herein, the flexible open bottom extension flap strip 11, 15, has such quantity of the loose bulk material lodged back thereof, that in the crowding down of the top of the bag at the recollapse of the opening 14, the inner terminus of such opening is automatically clogged and effectively shut or closed by the strip 11 and its portion 15.

What is claimed and it is desired to secure by Letters Patent is:

An improvement in valve bags having an intake valve of foldable collapsible type comprising a flap secured to one side only of the collapsed valve on the bag side thereof and extending beyond and below the open inner end of the valve, said flap being also secured at its upper end to the bag adjacent the upper end of the valve and the closed end of the bag and being otherwise unsecured, the flap terminating in a free edge below the folded valve in collapsed condition and also terminating in a free edge beyond the inner open end of the valve, whereby the flap is adapted to lie flat against the valve in operative position and aid in sealing the valve opening.

HAROLD M. JOHNSON.

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