

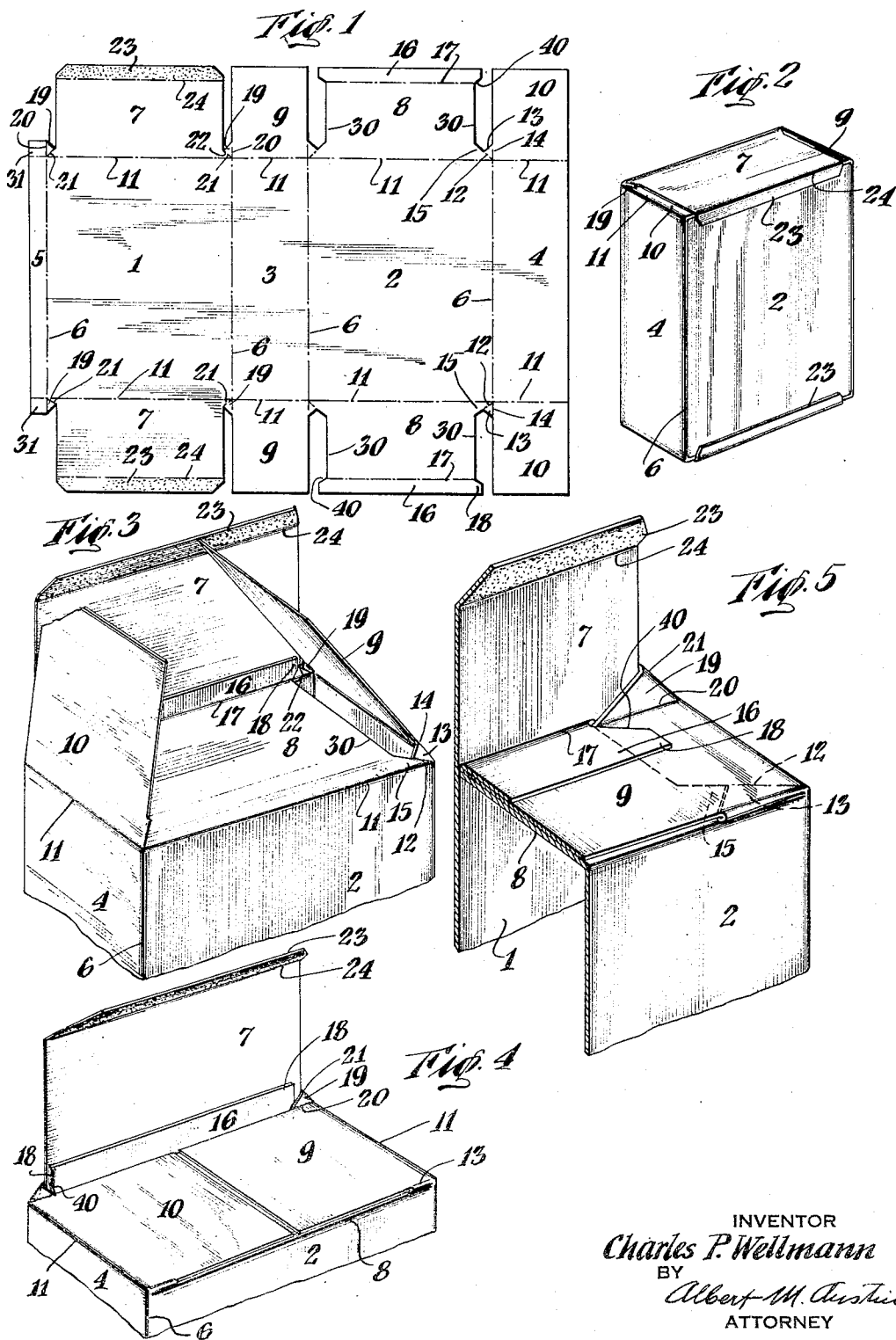
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CONTAINER

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CONTAINER

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6 Claims. (Cl. 229—37)

This invention relates to a container for pulverized materials and more particularly to a paperboard container which may be closed and sealed in such a manner as to prevent any sifting of the pulverized contents from the container.

The packaging of pulverized, finely granular and flaky materials in paperboard containers has heretofore presented a serious problem due to the sifting of the contents particularly through the end closures of the container. In paperboard containers heretofore made the contents generally either (a) sift through at the corners of the container, (b) sift between the various closure flaps until it finds its way out of the container. The problem presented by the sifting of the contents through the corners of the container has been heretofore eliminated by the employment of bellows parts which connect the side and end closure flaps. No satisfactory means has heretofore been provided, however, for preventing sifting between the flaps. It has heretofore been attempted to hold the flaps together by means of glue. Gluing the flaps, however, does not solve the problem since the glue has little or no tensile strength when it is allowed to dry without pressure and readily cracks or loosens when the container is handled, permitting the flaps to separate. This has been particularly true on the last end sealed as no interior pressure could be relied upon to hold the sealing flaps in close contact while the glue was setting.

This invention is concerned with a paperboard container formed from a single blank of paperboard material which is so made that, when set up and packed with pulverized, granular or flaky materials, the contents find no avenue of escape therefrom. The container generally comprises a tubular body portion of any convenient form or size. The body portion is closed at its ends by a novel arrangement of flaps and parts which prevent escape of the contents therefrom. A side flap is provided which extends over substantially the entire end area of the body member when turned inwardly, and end flaps are then folded inwardly to rest on the side flap. The side flap has a lip portion which is folded around and over a side edge of the end flaps and may be glued to the inside face of a second side flap. The second side flap also covers substantially the entire end area of the container and is adapted to be folded over the end flaps. When thus arranged the overlapping lip portion associated with the first side flap locks the side flap and end flaps in close intimate contact preventing any possible separation of the flaps. As to further guard against

leakage, the side flaps and end flaps may also be glued together. It will be noted that with this arrangement substantially no tensile strain is placed upon the glue and for this reason it is less likely to crack or separate from the closure flaps. Full advantage of the glue as a means for preventing leakage is thus obtained. The second side flap is also provided with a lip portion which overlaps and is glued to the outside face of the body portion of the container. Bellows parts which connect the side and end flaps are provided which prevent sifting and leakage at the corners of the container.

The container as thus presented has proven eminently satisfactory in use for the packaging of the finest powders, pulverized materials and granular products. No sifting or leakage of the pulverized contents occurs even after the roughest usage and handling of the packed container.

An object of this invention is to provide a paperboard container which is especially adapted to hold finely pulverized, powdered, flaky and granular products without sifting or leakage of the contents therefrom.

Another object of this invention is to provide a container formed from a single blank of paperboard material which is so made as to prevent sifting and leaking of the contents from the container from any point, and which is provided with a perfect closure at the corners and between the closure flaps which will not give way under extreme hard usage and handling.

Another object of this invention is to provide a sift-proof container of paperboard material which can be conveniently, easily and quickly assembled, packed and sealed, which is low in cost, strong and durable and will withstand extreme hard usage without permitting the contents to leak or sift through any portion of the container.

Other objects of this invention will become apparent as the disclosure proceeds.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its objects and advantages, and the manner in which it may be carried out, may be better understood by referring to the following description taken in connection with the accompanying drawing forming a part thereof, in which

Fig. 1 represents a blank of material from which a sift-proof container may be formed;

Fig. 2 is a perspective view of the container as it appears when completely assembled and filled with the contents;

Fig. 3 is a perspective view of an end portion of the container as it appears at one stage of the sealing operation;

Fig. 4 is a perspective view of an end portion of the container as it appears at a further stage of the sealing operation; and

Fig. 5 is a perspective view of an end portion of the container as it appears at a still later stage of the sealing operation, certain of the parts being somewhat exaggerated in size.

Similar reference characters refer to similar parts throughout the several views of the drawing.

I have shown in Fig. 1 a blank from which the sift-proof container may be formed. The blank may comprise paperboard, fiberboard, composition, or other desired material which possesses a certain degree of toughness and strength. The blank comprises generally a body portion which comprises side walls 1 and 2 and end walls 3 and 4, defined by score lines 6. The body portion is held in tubular form by means of a securing tab 5 which is glued or otherwise firmly secured to the free edge of the end wall 4. An end closure portion at each end of the body portion is provided which may be identical in form. Each end closure portion generally comprises side flaps 7 and 8 hinged to the end of the side walls 1 and 2 respectively, along the score lines 11. End flaps 9 and 10 also hinge from the end walls 3 and 4 respectively along the score lines 11.

In sealing the end closure, the side flap 8 is first turned inwardly as shown more particularly in Fig. 3. The side flap 8 is of sufficient area to substantially cover the entire end area of the container. A lip portion 16, hinged to the free edge of the side flap 8 along the score line 17, may be glued or otherwise secured to the inside face of the side flap 7. Bellows parts connect the side flap 8 to the end flaps 9 and 10 at the corners of the container. As shown more particularly in Figs. 1 and 3, these bellows parts comprise generally a triangular portion 13 hinged to the adjacent end flap along the score line 14. The triangular portion 13 hinges about the transverse score line 12 and is foldable to overlie the triangular tab projection 15 provided along the side edge of the side flap 8. When the end flaps 9 and 10 are folded inwardly in superimposed relationship over the side flap 8, the triangular bellows parts 13 and 15 collapse together to completely seal and close these corners of the container. The end flaps 9 and 10 are of sufficient size to fully cover the entire end area of the container, but preferably do not overlap. The end flaps 9 and 10 may be glued if desired to the side flap 8.

The side flaps 7 and the end flaps 9 and 10 are connected at the corners by a slightly modified bellows arrangement. One of the triangular bellows parts 19 is hinged to the end flap 9 and the other is hinged to the corresponding part 31 which is glued to the end flap 10 and forms a part thereof. The triangular part 19 is also hinged along the score line 21 to the triangular tab portion 22 projecting from the side edges of the side flap 7. The triangular part 19 is arranged to overlap the end flaps 9 and 10 and to fold under said flaps 7, as shown more particularly in Figs. 4 and 5, thus sealing this pair of corners of the container.

As a final step, the side flap 7 is folded over the end flaps 9 and 10 and glued thereto if desired. A lip portion 23 hinged to the side flap 7 along the score line 24 is then glued to the side

wall 2 of the container and the sealing operation is complete.

It will be noted by referring to Fig. 5 that when the container is completely sealed, the lip portion 16 is folded around and overlaps the end flaps 9 and 10. The side flap 8 and end flaps 9 and 10 are thus held in close intimate contact preventing any separation of these flaps so as to permit the contents to sift therebetween. By means of the locking arrangement effected by the lip portion 16, it is further evident that no tensile strain is placed upon the glue distributed between the flaps, and for this reason, the glue does not crack between flaps or otherwise separate so as to furnish any opening through which the contents may sift.

As a further precautionary measure, the lip portion 16 may be provided with lateral extending tab portions 18. The tab portions 18 are provided with a mitered edge 40, which, when the container is completely closed, abuts against the edge of the triangular bellows parts 19, thus securely holding and locking the lip portion 16 in place. The lip portion 16 and the tab portions 18 may also be glued to the end flaps 9 and 10 if desired. The side edges 30 of the side flap 8 may be cut out to the form shown in Figs. 1 and 3, if desired, or these edges 30 may be extended to substantially abut against the end walls 3 and 4 of the container. The final sealing step is accomplished when side flap 7 is glued to the end flaps 9 and 10 and the lip portion 23 is glued to the outside face of the side wall 2.

The container as above described may be made in any desired form or shape. All corners of the container are completely sealed and closed so that the pulverized contents cannot leak out at the corners. The side and end flaps are securely locked together so that they lie in close, intimate, superimposed contact so that there is no opportunity for the pulverized material to work its way out between the flaps of the container. Furthermore, any glue applied to the flaps also becomes effective to prevent sifting, due to the fact that the glue is not likely to crack or break because it is relieved from all tensile strains. All four closure flaps are thus locked, bound and held together in intimate contact.

While certain novel features of the invention have been disclosed and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. A container of the character described having a tubular body portion and an end closure for said body portion including a side flap covering substantially the end area of the container, end flaps overlying said side flap, a lip portion associated with said side flap extending around an edge of and over said end flaps to hold said end flaps in intimate contact with said side flap, a second side flap extending over said end flaps, and bellows parts at each corner of the container connecting adjacent side and end flaps, said bellows comprising foldable portions formed of the full thickness of the body portion of the container and integral therewith.

2. A container for powdered materials having a rectangular tubular body portion, and a sift-proof end closure for said body portion, said end closure including a side flap covering substantially the end area of the container, end flaps overlying said side flap, a lip portion associated

with said side flap extending around an edge of and over said end flaps locking said end flaps in intimate contact with said side flap, a second side flap superimposed over said end flaps, bellows parts at each corner of the container connecting adjacent side and end flaps, said bellows comprising foldable portions formed of the full thickness of the body portion of the container and integral therewith and a lip portion extending from said second side flap overlapping and secured to the body portion of the container.

3. A paperboard container for powdered materials having a rectangular tubular body portion, an end closure for said body portion including a side flap extending over substantially the entire end area of the container, end flaps overlying said side flap, a lip portion associated with said side flap extending around an edge of said end flaps and holding said end flaps in intimate contact with said side flap, and bellows parts at each corner of the container connecting adjacent side and end flaps, said bellows comprising foldable portions formed of the full thickness of the body portion of the container and integral therewith.

4. A container for powdered materials having a rectangular tubular body portion, and a sift-proof end closure for said body portion including upper and lower side flaps, end flaps overlying said lower side flap, a lip portion associated with said lower side flap extending around an edge of said end flaps, bellows parts at the corners of the container connecting the upper side flap and said end flaps, and tab portions extending laterally from said lip portion operative to interlock with the adjacent bellows parts to hold said flaps in close intimate contact.

5. A container for powdered materials having a rectangular tubular body portion, and a

sift-proof end closure for said body portion including a side flap, end flaps overlying said side flap, a lip portion associated with said side flap extending around an edge of and over the end flaps to lock said flaps in close intimate contact, a second side flap superimposed over said end flaps, bellows parts at the corners of the container connecting adjacent side and end flaps, said bellows comprising foldable portions formed of the full thickness of the body portion of the container and integral therewith, one pair of bellows parts being foldable inwardly between said first-mentioned side flap and the superimposed end flaps and another pair of bellows being foldable inwardly between said end flaps and said second superimposed side flap and a lip portion extending from said second side flap overlapping and secured to the body portion of the container.

6. A container for powdered materials having a tubular body portion, and a sift-proof end closure for said body portion including a side flap extending over substantially the entire end area of the container, end flaps overlying said side flap, a lip portion associated with said side flap extending around an edge of and over said end flaps and locking said end flaps in close intimate contact with said side flap, bellows parts at each corner of the container connecting adjacent side and end flaps, tab portions extending laterally from said lip portion operative to interlock with the adjacent bellows parts to hold said flaps in close intimate contact, a second side flap overlying said end flaps and extending substantially over the entire end area of the container, and a lip portion extending from said second flap overlapping and secured to the body portion of the container.

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