April 30, 1957 S. ROSEN 2,790,591

COMMODITY BAG FOR AUTOMATIC FILLING MACHINES

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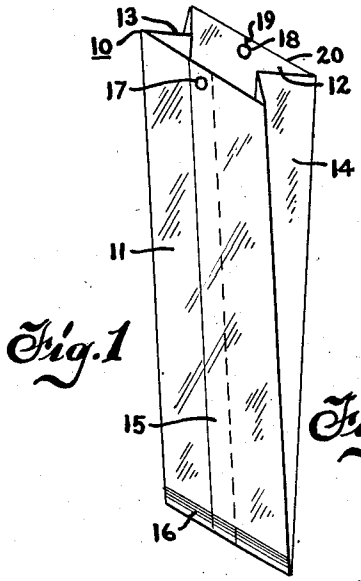

Fig. 1

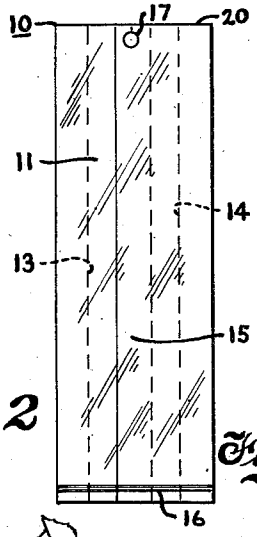

Fig. 2

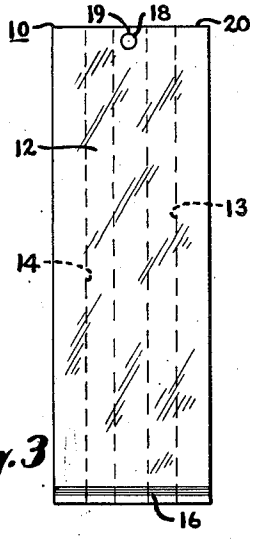

Fig. 3

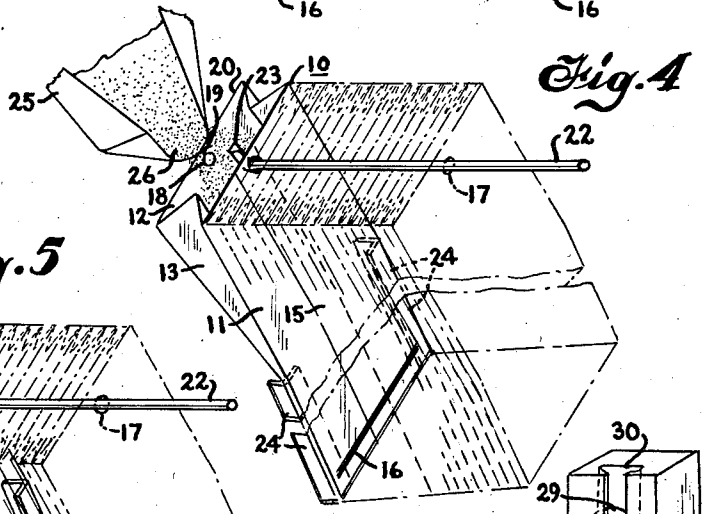

Fig. 4

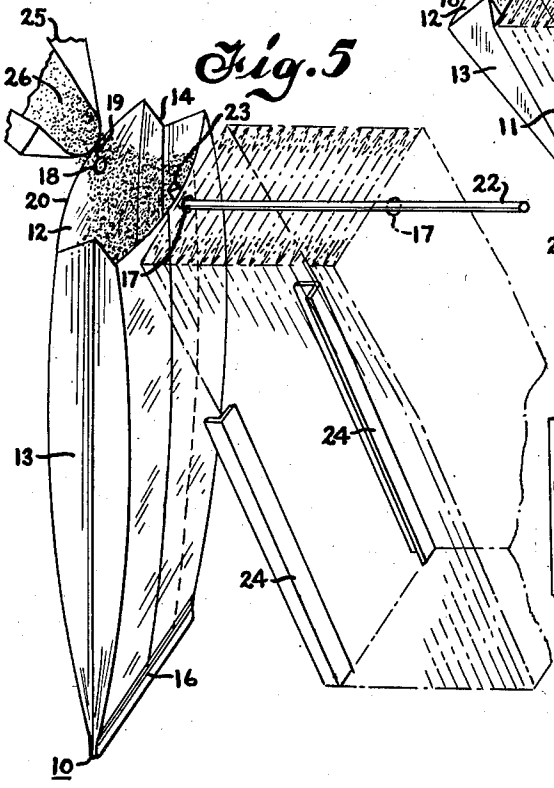

Fig. 5

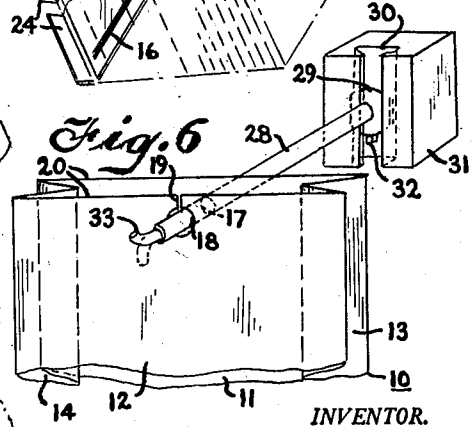

Fig. 6

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COMMODITY BAG FOR AUTOMATIC FILLING MACHINES

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3 Claims. (Cl. 229—53)

The present invention relates generally to improvements in the art of packaging commodities, and relates more particularly to improvements in the construction of commodity bags and dispensers therefor.

A primary object of the invention is to provide an improved commodity bag of simple and inexpensive construction which is especially adapted for use with automatic filling machines and to an improved dispensing device for supporting the bags during filling and automatically releasing the same when filled.

It has heretofore been proposed to provide automatic bag-filling devices incorporating a spindle or hanger arm for receiving a plurality of flexible commodity bags suspended thereon by means of apertures in the lip portions thereof and adapted to be successively filled with a commodity and then torn or severed from the hanger when supplied with a desired quantity of the commodity. However, all of the commodity bags heretofore proposed for use with such devices were of the so-called "lip" type in which one of the side walls extends beyond the end of the other side wall at the mouth of the bag, thereby permitting the formation of a suspension aperture within the extending margin or lip of the longer wall so that the bag mouth could be opened for filling purposes. Since all flexible packaging materials and especially polyethylene and the like are not readily adaptable for fabrication of lip type bags or for handling when so formed and also because of the fact that such bags are relatively expensive to produce and require rather sensitive and complicated bag-making equipment in the production thereof, the application and use of this automatic bag-filling apparatus has heretofore been necessarily undesirably limited. Furthermore, the rupturing or severance of the filled bags upon removal from the spindle or hanger arm is objectionable since it results in a rather unattractive final commodity package in which the mouth portion is sometimes rather difficult to firmly seal.

It is therefore a more specific object of this invention to provide a commodity bag and dispenser therefor which obviates these disadvantages and objections attendant automatic bag-filling operations.

Another specific object of my invention is to provide a straight or square cut bag having coinciding lip portions and which is nevertheless readily adaptable and usable with existing automatic bag-filling apparatus.

Another specific object of the invention is to provide an improved suspension device for flexible commodity bags which permits ready opening and filling of successive bags with desired predetermined quantities of a commodity and which thereupon automatically releases the filled bags without rupturing or severing the same.

Still another specific object of my present invention is to provide a bag structure which permits the use of any desired known flexible packaging materials in the construction thereof, which is moreover extremely economical and inexpensive to produce with the aid of more-or-less standard and relatively simple bag-making equipment, and which may be readily and effectively utilized with automatic bag-filling apparatus.

A further specific object of the present invention is to provide an improved commodity bag having co-extensive side walls provided with alined apertures in the mouth portion thereof inwardly of the marginal edges, one of the side walls being slit from the marginal edge inwardly to its aperture.

An additional specific object of the present invention is to provide an improved suspension and dispensing device for commodity bags having alined apertures in the mouth portions thereof comprising, a rigid suspension arm adapted to penetrate the apertures of the bags for supporting the same, and a flexible tip at the outer end of the arm adapted to be flexed under a predetermined weight to release a bag positioned thereon.

These and other specific objects and advantages of the invention will become apparent from the following detailed description.

A clear conception of the several features constituting my present invention, and of the mode of constructing and of utilizing commodity bags and dispensers therefor embodying the present improvements, may be had by referring to the drawing accompanying and forming a part of this specification wherein like reference characters designate the same or similar parts in the various views.

Fig. 1 is a perspective view of a typical straight-cut side-gusseted commodity bag embodying the present invention and showing the bag partially open to more clearly reveal the suspension apertures;

Fig. 2 is a plan view of the bag from one side thereof;

Fig. 3 is a plan view of the bag from the other side thereof;

Fig. 4 is a fragmentary perspective view of a conventional suspension and bag-filling device with one of the improved bags being shown suspended therefrom and partially opened at the start of the filling operation, a number of unfilled bags being shown in suspended and unopened condition by means of dot-and-dash lines;

Fig. 5 is a similar perspective view of the same suspension device and bags but with the full-line bag shown in fully opened and practically filled condition and about to be torn away from the suspension arm;

Fig. 6 is a fragmentary perspective view of one of the improved bags suspended from the arm of one of my improved dispensers.

While the invention has been particularly shown and described herein as being especially advantageously applicable to side-gussetted commodity bags formed of polyethylene and with the improved dispenser embodying a metal arm provided with a rubber bag-releasing tip, it is not desired or intended to unnecessarily restrict or limit the scope or utility of the improvements by virtue of such limited embodiments, since the invention may obviously be more generally applicable to plain square bags of any suitable packaging materials with the suspension arm being likewise formed of other materials such as combinations of plastic and spring steel or the like; and it is also contemplated that certain specific descriptive terms used herein shall be given the broadest possible interpretation consistent with the disclosure.

Referring to the drawing, the commodity bag shown therein comprises, in general, a sheet of flexible packaging material folded to form a flat tube 10 having co-extensive side walls 11, 12 jointed at their side edges by gussets or bellows folds 13, 14, the longitudinal edge portions of the sheet being overlapped and secured to each other by means of heat sealing or adhesive to form a longitudinal side wall seam 15 extending along the medial portion of the wall 11 and one end of the tube 10 being sealed transversely across the walls 11, 12 by means of

heat and pressure or by a suitable adhesive to form the bag bottom **16**. The bag thus described is of more-or-less conventional construction referred to generally as a straight or square cut type bag; and in accordance with the present invention, the side walls **11, 12** are provided with alined apertures or perforations **17, 18** respectively for purposes to be hereinafter more fully described, the aperture **17** being preferably located within the double-thickness portion of the seam **15** of the side wall **11** and the side wall **12** being slit as at **19** directly from the aperture **18** to the upper margin or lip **20**.

In the filling of these bags with the aid of available bag-filling equipment, a plurality of the empty flat units are placed on a rigid suspension arm **22** supported at an angle up to ninety degrees relative to the horizontal and having a knife-edged hook **23** at the lower free end thereof, the arm **22** penetrating the apertures **17, 18** and the bags being positioned on the arm **22** with the walls **12** having the slits **19** therein facing the lower hooked end **23** of the arm. The bags are normally retained in closely stacked and alined relation by means of suitable flanged members **24** coacting with the marginal side edge portions of the bag nearest to the hook **23**; and to fill the successive bags, means may be provided to initially open the mouth of the lower-most bag for reception of a commodity **26** supplied from a suitable charging chute **25** or the like. As the lower-most bag adjacent to the hook **23** is opened and supplied with the commodity, the side walls **11, 12** are expanded and the bag falls from the retaining flanges **24** to a vertical position on the hook **23**; and when filled with the commodity, the weight of the commodity laden bag on the knife-edge of the hook **23** causes the side wall **11** to be severed or torn from the aperture **17** to the lip **20**, whereupon the mouth of the bag may be sealed to provide the final package.

With reference particularly to Fig. 6, an improved and novel suspension and dispensing device which eliminates the need for severing or tearing the side wall **11** for release of the bag is provided. In the improved dispenser, a rigid angularly disposed arm **28** is provided for receiving and retaining a plurality of the bags in the same manner as hereinabove described with reference to Figs. 4 and 5, the arm **28** being supported at its inner or upper end by means of a flanged head **29** seated within a dovetail groove **30** of a support **31** with a stop **32** provided for preventing displacement of the head **29** from within the groove **30**. However, in this improved dispenser, the knife-edged hook is eliminated and is replaced by a flexible end tip **33** adapted to be distorted or flexed, as shown in dot-and-dash lines in Fig. 6, when a commodity-laden bag of predetermined weight is supported thereon to thereby release the bag without tearing or cutting the same.

From the foregoing detailed description, it is believed apparent that the present invention contemplates provision of an improved commodity bag and dispenser therefor which are extremely simple and economical in construction and which are moreover highly efficient and practical in actual use. By reason of the improved bag structure, commodity bags for use in automatic bag-filling operations may be readily fabricated at low cost from any desired packaging materials including polyethylene; and with the improved dispenser, the bags may be automatically filled and removed from the suspension arm **28** without tearing or otherwise rupturing or severing the bag mouth. The flexible tip **33** of the improved dispenser may be formed of rubber, spring steel or any other suitable material adapted to be flexed, as shown in dot-and-dash lines in Fig. 6, to thereby release the successive commodity-laden bags under a predetermined load, and the rigid arm portion **28** may be formed of any suitable material adapted to support a plurality of the flat empty bags. The operation of the suspension and dispensing device shown in Fig. 6 is precisely the same as described with reference to Figs. 4 and 5 except that the knife-edged hook is replaced by the flexible bag releasing tip **33** to thereby eliminate mutilation of the bag mouth; and it will be especially noted that straight or square cut type bags formed either with or without side gussets may be utilized in these automatic bag-filling operations by reason of the invention.

It should be understood that it is not intended to limit this invention to the exact details of construction or to the precise mode of use herein shown and described, since various modifications within the scope of the appended claims may occur to persons skilled in the art to which this invention pertains.

I claim:

1. A container for use in automatic filling machines comprising, a bag-like body formed of flexible material and having co-extensive side walls, one of which is plain and unseamed and the other of which has a longitudinal center seam of double thickness, said side walls being provided with alined apertures in the mouth portion thereof inwardly of the adjacent marginal edge and extending through said seam, the plain unseamed side wall only being slit inwardly from the lip to the aperture therein.

2. A container for use in automatic filling machines comprising, a bag-like body formed of flexible material and having co-extensive side walls and a rectilinear lip extending perpendicular to the side edges of said walls with a longitudinal seam extending along one of said side walls, said side walls being provided with alined apertures in the mouth portion thereof spaced inwardly of the lip a predetermined distance and one of which extends through said seam, the plain unseamed side wall only being slit inwardly from the lip to the aperture therein along a line extending perpendicular to said lip.

3. A container for use in automatic filling machines comprising, a bag-like body formed of flexible material and having side walls terminating at one end in a mouth portion, one of said side walls being plain and unseamed and the other having a longitudinal center seam of multiple thickness, said side walls being provided with alined apertures in the mouth portion thereof inwardly of the adjacent lip forming marginal edge and extending through said seam, the plain unseamed side wall only being slit inwardly from the lip to the aperture therein.

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