

Dec. 7, 1965

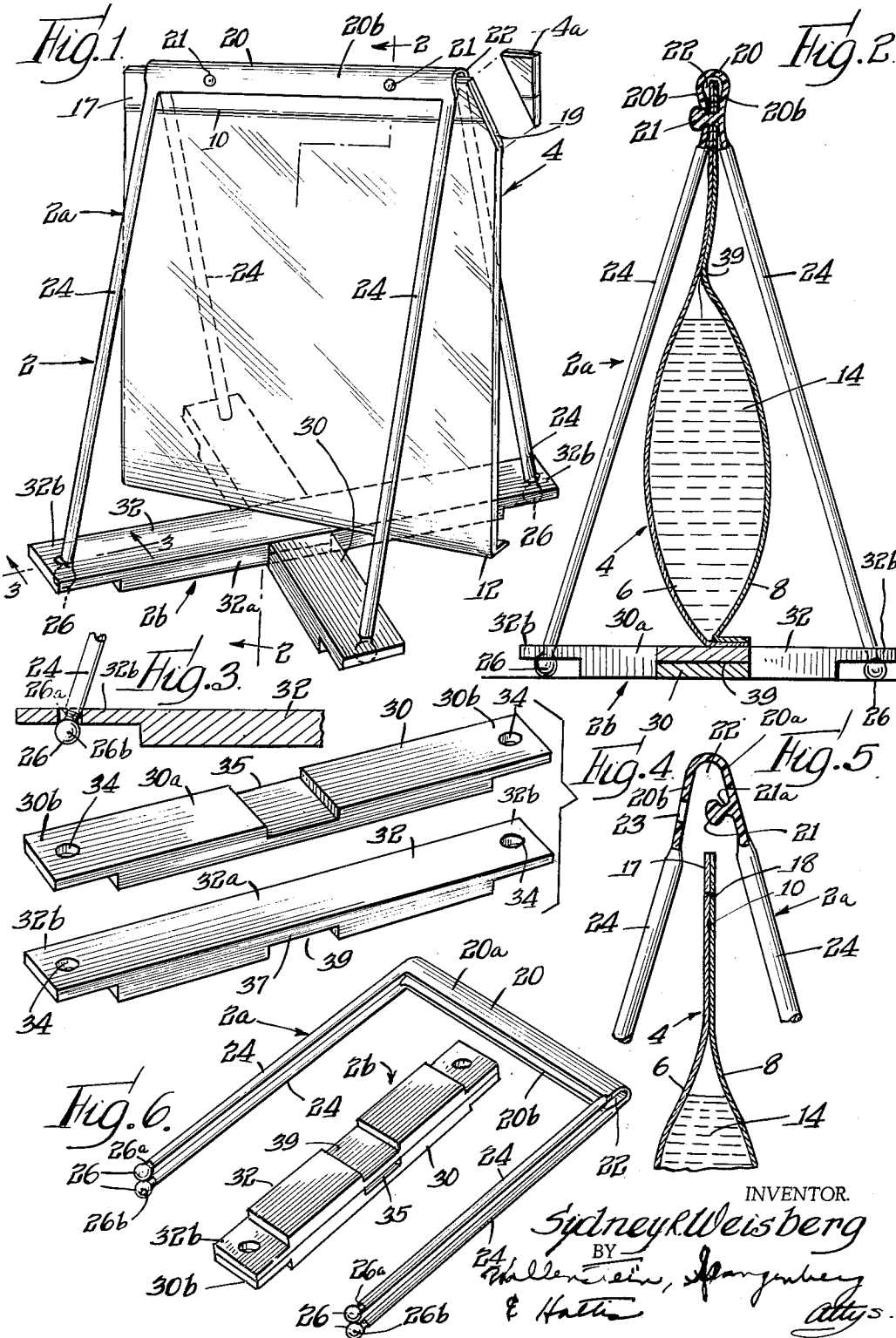
S. R. WEISBERG

3,222,019

SUPPORT STAND

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2 Sheets-Sheet 1



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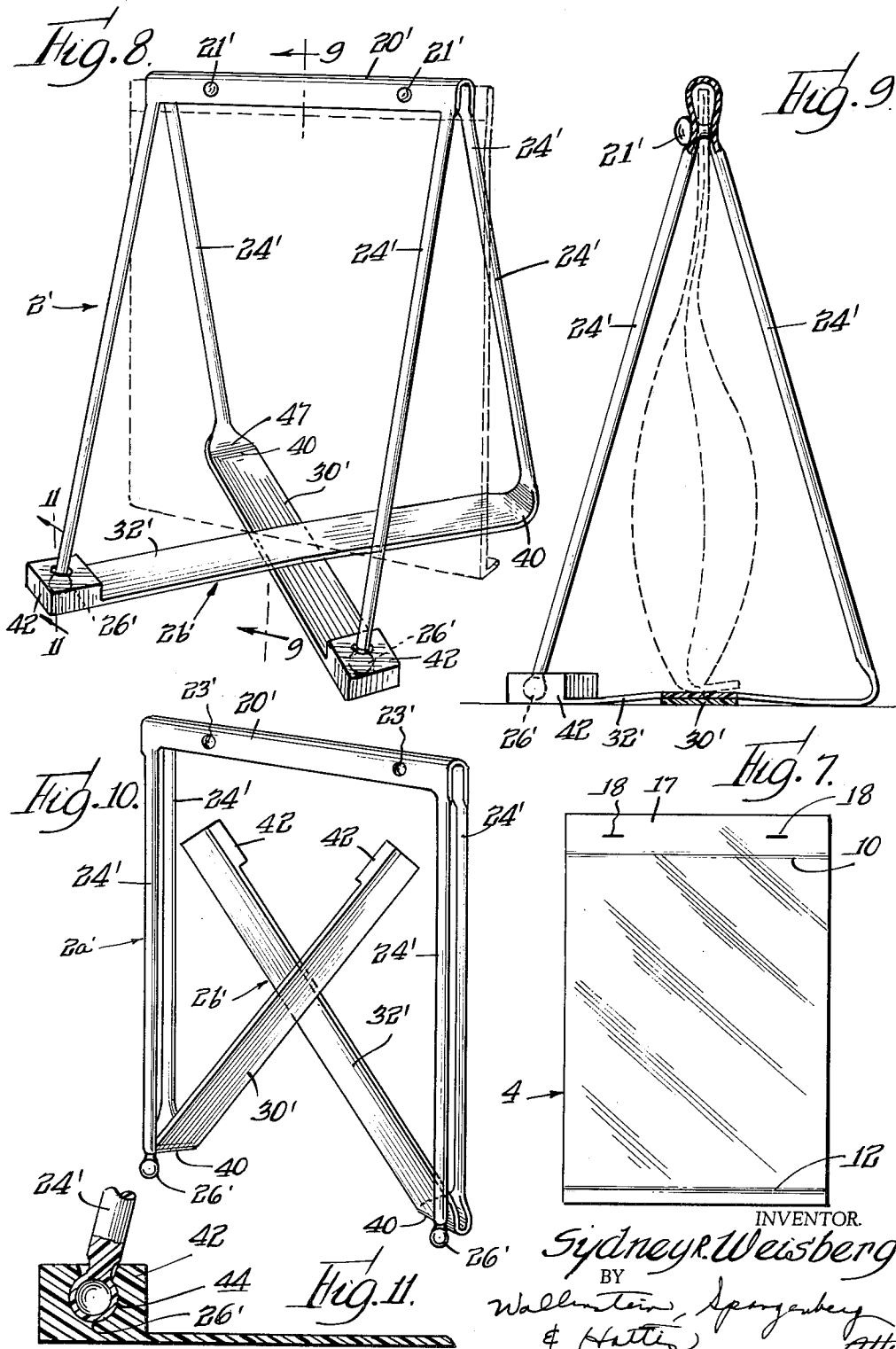
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SUPPORT STAND

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3 Claims. (Cl. 248—97)

This invention relates to support stands which have their most important application in supporting flexible bags in an upright position.

The practice of packaging liquid and solid substances in moisture and air impervious plastic containers has expanded markedly in recent years. In some instances the plastic containers are flat flexible bags which are substantially non-self-supporting. Generally speaking, the flat flexible bags are enclosed in a rigid or semi-rigid auxiliary container to provide support for the bags after they have been opened and a portion only of the contents thereof used. However, these containers or supports have been bulky and inconvenient to use. In many instances, no such associated supporting container is provided for the flexible bags, and the user, after opening the bags and removing therefrom less than all of the contents contained therein, is faced with the annoying and oft times frustrating experience of having to devise means for keeping the remainder of the contents of the bag from leaking out, or spilling.

It is one of the objects of this invention to provide a sturdy, yet simple and inexpensively constructed stand for supporting flexible bags of the type referred to above. A related object of the invention is to provide a stand as just described which can be shipped in an extremely compact form and which can be readily assembled into a relatively large, stable triangular, support structure.

Another object of the invention is to provide an assembly of a support stand and a flat flexible bag as described above, wherein the contents of the bag readily can be poured from a spout at the upper corner of the bag while the bag remains on the stand, and wherein, after the bag is empty, it may be readily removed from the stand and replaced by another similar bag.

Other objects of the present invention and preferred examples of stand and bag constructions for carrying out these and other objectives of the invention will become apparent upon making reference to the specification to follow, the claims and drawings wherein:

FIG. 1 is a perspective view of a unique stand and bag assembly constituting one form of the present invention;

FIG. 2 is a vertical transverse section of the assembly of FIG. 1, taken substantially along the section line 2—2 therein;

FIG. 3 is an enlarged fragmentary sectional view through the base of the stand of FIG. 1, taken substantially along the line 3—3 therein;

FIG. 4 is a perspective view of the cross members forming the base of the stand of FIGS. 1 through 3;

FIG. 5 is a fragmentary sectional view of the top portion of the stand, showing the removal of the bag from the stand;

FIG. 6 shows a perspective view of the various parts making up the stand shown in FIGS. 1 and 2 arranged compactly for shipment or storage;

FIG. 7 is a view of the bag shown in FIGS. 1 and 2;

FIG. 8 is a perspective view of a modified form of the stand formed as a one piece synthetic plastic molded unit;

FIG. 9 is a vertical transverse sectional view of the stand of FIG. 8, taken substantially along the line 9—9 therein;

FIG. 10 shows the stand of FIG. 7 in its folded position for shipment or storage; and

FIG. 11 is a fragmentary enlarged vertical sectional

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view of the base of the stand of FIG. 8, taken substantially along the line 11—11 therein.

Refer now more particularly to the form of the invention shown in FIGS. 1 through 6. The stand there shown, generally indicated by reference numeral 2, as well as the other stand 2' shown in FIGS. 8 through 11 to be described, have a particular utility for supporting flat type flexible bags generally indicated by reference numeral 4.

The flexible bag 4 is desirably fabricated of a thin transparent thermoplastic sheet material which is sealed by conventional heat-sealing techniques. The finished bag is essentially impermeable to aqueous media and air, does not readily tear and yet can be easily opened to expose the contents thereof for use. A number of transparent, flexible thermoplastic film materials are commercially available for this purpose, such as polyethylene.

The bag 4 may be made from a flattened open-ended tubular blank forming a pair of opposed walls 6 and 8 which are hermetically sealed at their opposite ends by seals 10 and 12 thereof to form a sealed compartment partially filled with a solid or liquid material 14. To increase bag strength and sealing ability, the bag may comprise two telescoped and flattened blanks (not shown) sealed together in the manner of the bag 4. (In either case, the bag is essentially non-self-supporting. It is to be understood that the form and constructional details of the flexible bag 4 may vary in accordance with the desires of the manufacturer, and so the description of the flexible bag herein given is by way of illustration and not limitation.)

In the embodiment of the bag 4 shown in FIGS. 1—9 of the drawings, the upper seal 10 advantageously is spaced from the upper margin of the bag to provide a marginal area 17 which serves as an area of attachment to the stand 2. To this end, the bag is provided with a pair of horizontally spaced slits or holes 18—18 (FIG. 7) extending through the top of the bag 4 above the seal 10 to avoid breaking the seal. A pouring spout 19 (FIG. 1) is formed by severing the corner of the bag to expose the interior of the bag below the seal 10.

The stand 2 comprises a superstructure portion generally indicated by reference numeral 2a and a base portion generally indicated by reference numeral 2b. The superstructure portion 2a is most advantageously constructed so that it can be molded as a single integral unit, as shown more clearly in FIG. 6. When removed from the mold, the superstructure portion 2a includes an elongated support section 20 which preferably has an inverted U-shaped cross-section to provide a pair of space confronting walls 20a and 20b intersecting at the upper margin of the superstructure portion 2a. A longitudinal channel 22 is defined between the walls 20a and 20b which runs the full width of the superstructure portion to open onto the longitudinally facing ends thereof. In the unstressed state of the superstructure portion 2a, the walls 20a and 20b are preferably approximately parallel.

The wall 20a is provided on the inner side thereof with a pair of horizontally spaced projections 21—21 each having a reduced neck portion 21a. The projections 21 are spaced apart the same distance as the bag slits 18—18 and are positioned opposite correspondingly positioned openings 23—23 in the opposite stand wall 20b. The projections 21 can be snapped through the openings 23—23 to draw the two walls 20a and 20b together.

A pair of generally parallel extending leg-forming members 24—24 form generally coplanar extensions of each end of the inverted U-shaped support section 20. There are thus provided two pairs of laterally spaced, leg-forming members 24—24 and 24—24 which can be separated in planes at right angles to the support sec-

tion 20 to form a triangular support frame as best shown in FIGS. 1 and 2. The leg-forming members may have a variety of cross-sectional shapes but, as illustrated, have a circular cross-section. The outer or bottom end of each leg-forming member terminates in a protuberance 26 which has a narrow neck portion 26a having a cross-section somewhat less than that of the leg-forming member and a head portion 26b having a greater cross-section than that of the leg-forming member.

The base portion 2b of the stand 2 comprises a pair of separate cross members 30-32 each preferably having a generally elongated rectangular shape. Each cross member 30 or 32 has a relatively thick central portion 30a or 32a which terminates in relatively thin undercut end portions 30b-30b or 32b-32b which are elevated above the bottom plane of the thicker central portion 30a or 32a. The undercut end portions 30b-30b or 32b-32b of the cross members are provided with circular holes 34 which are slightly smaller in cross-section than the protuberances 26 so that the latter readily can be snapped through the holes 34. When the protuberances 26 are just beyond the bottom faces of the cross member end portions 30b or 32b, the bottom extremities of the protuberances will be in the plane of the bottom surface of the cross member.

The cross members are designed so that they extend diagonally across the bottom of the stand between different opposite-diagonally related pairs of the leg-forming members at opposite ends and opposite sides of the superstructure portion 20 of the stand, as best shown in FIG. 1. This gives the assembled stand structure substantial rigidity. Thus, the spacing of the holes 34 at the ends of the cross members 30 or 32 correspond to the desired spacing of the diagonally opposed leg-forming members at opposite ends and on opposite sides of the superstructure portion 2a of the stand 2 in its bag supporting position. The angular relationship of the leg-forming members with respect to the vertical axis of the holes 34-34 and the resiliency of the leg-forming members will cause the latter to be tightly held in place within the holes 34-34, as shown in FIG. 3.

The cross members 30 and 32 are designed so that one is nestled within the other, permitting the bottom planes of the two cross members to be coplanar. To this end, one of the cross members 30 is provided with a transverse channel 35 in its upper face which receives the relatively thin central portion 37 on the other cross member 32 when the latter is extending crosswise of the same. The thin portion 37 of the cross member 32 is formed by an undercut or channel 39 in the bottom face thereof. When the bottom surface of the thin undercut portion 37 of the cross member 32 is resting on the bottom of the channel 35 in the cross member 30, the bottom surfaces of the two cross members will be in the same horizontal plane.

Since the stand 2 is initially molded so that the leg-forming members 24 extend generally parallel to one another, the superstructure portion 2a is normally in a very compact condition for convenient storage and shipment (see FIG. 6). The cross members 30 and 32 are stacked for convenience in shipment and storage.

As previously indicated, the stand 2 is assembled by pulling the leg-forming members 24 outwardly to enable the insertion of the protuberances 26 of diagonally related leg-forming members into the holes 34 of the cross members 30 and 32. After the stand has been set up in this manner, a flat non-supporting bag 4 can be hung on the stand by simply pushing the projections 21-21 at the top of the stand through the correspondingly positioned bag slits 18-18. Then, by further pushing the projections 21-21 through the associated stand openings 23-23, the stand walls 20a and 20b are brought together and the bag 4 is securely locked in place on the stand.

The width of the bag 4 is appreciably greater than the width of the stand so that the corners of the bag will project substantially beyond the adjacent ends of the stand. The bag can thus be opened by severing the

projecting corner 4a of the bag by a scissors or the like to form a very narrow pouring spout from which the contents of the bag can be poured. Since the bag is supported at two horizontally spaced points at the top of the stand, the bag 4 will not pivot appreciably with respect to the stand in the plane of the bag so that the user can tilt the bag for pouring by grasping the stand and tilting the stand in the direction of the spout.

The spacing between the bag slits 18-18 and the bottom bag seal 12 is less than the spacing between the stand projections 21-21 and the top surface of the cross members 30 and 32 so that, when the stand is resting on a horizontal support surface, the weight of the bag will be applied in part upon the top surface of the cross members 30 and 32. This will cause the bag 4 to tilt somewhat as shown in FIG. 2 which applies a compressive force along a fold line 39 (FIG. 2) above the level of the contacts of the partially filled bag to form a seal below the pouring spout thereof. When the bag is made of a material like polyethylene, the confronting bag surfaces tend to stick together somewhat, and this together with the compressive force applied at the line 39 effect such a tight seal that evaporation of any liquid contents within the bag 4 and ingress of moisture into the bag are prevented.

Refer now to the embodiment of the invention shown in FIGS. 8 through 11 wherein a modified stand 2' is illustrated. The stand 2' is used in the same manner as the stand 2 previously described and differs from the stand 2 primarily in that the superstructure and base portions of the stand 2' are formed as one integrally molded unit. When the stand 2' is removed from the mold, it may have the compact shape shown in FIG. 10. The superstructure portion 2a' of the stand 2' is substantially identical to the superstructure portion 2a previously described, and the corresponding parts thereof have the same reference number except that a prime (') has been added thereto. The base portion 2b' of the stand 2' comprises cross members 30' and 32' which are integral extensions of a pair of leg-forming members 24'-24'. The cross members 30' and 32' illustrated in FIGS. 8-11 are relatively thin but wide elongated rectangular members for most of their length and terminate at their outer ends in relatively thick leg-receiving blocks 42. The points of intersection of the latter leg-forming members 24'-24' and the cross members 30' and 32' are so thin that the cross members can be readily folded with respect to the leg-forming members along fold lines 40-40 into the general plane of the superstructure portion 2a' of the stand, as shown in FIG. 10. In their unfolded positions, the cross members make a large angle with respect to the leg-forming members 24'-24' as shown in FIGS. 8 and 9.

The leg-receiving blocks 42-42 have sockets 44 therein (FIG. 11) in which bottom ends of the protuberances 26'-26' of the other leg-forming members 24'-24' can be snapped. The thinness of the intermediate portions of the cross members 30' and 32' are such that they are sufficiently flexible to enable the uppermost cross member 32' to be bent over the top of the other cross member 30' in the middle of the stand, so that the remaining portions of the cross members are resting flat on the horizontal support surface involved.

The present invention has thus provided a stand having its most important application in supporting flexible bags in a vertical pouring position, the stand being designed so that it may be stored and shipped in a fully compact position and readily be set up to form a stable triangular base. Also, the upper portion of the stands are designed readily to removably receive flat plastic bags, so that a used up bag can be readily replaced by a filled bag. Also, the relationship between a stand mounted bag and the stand is such that the stand may form a grasping means for tilting the bag supported thereby to dispense the contents of the bag through a spout at a projecting corner of the bag.

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It should be understood that numerous modifications may be made in the preferred forms of the invention described above without deviating from the broader aspects of the invention.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. The combination comprising: a flat, non-self-supporting flexible bag having closely spaced confronting walls which sealingly engage each other on all sides thereof to form a flat bag having an article-containing compartment therein and a spout forming section at the top of the bag from which the contents of the bag can be passed, the bottom margin of the seal at the upper portion of the bag being spaced appreciably from the top margin of the bag, a stand supporting the bag in an upright position above a bag contacting surface, with said spout forming section projecting beyond the stand, said stand comprising an elongated support section at the top of the stand, said support section having a pair of confronting walls between which the top of the bag is positioned, one of said walls having a pair of horizontally spaced projections on the inner side thereof, the upper portion of said bag having a pair of openings above the bottom margin of the seal thereat which receive said spaced projections, the other confronting wall having a pair of openings which lockingly receive the end portions of said projections, said stand further having a first pair of leg members inclining downwardly and outwardly from the opposite sides of one end portion of said support section, and a second pair of leg members inclining downwardly and outwardly from the opposite sides of the opposite end portion of said support section.

2. The combination comprising: a flat, non-self-supporting flexible bag having closely spaced confronting walls which sealingly engage each other on all sides thereof to form a flat bag having an article-containing compartment therein and a spout forming section at the top of the bag from which the contents of the bag can be passed, a stand supporting the bag in an upright position above a bag contacting surface, with said spout forming section projecting beyond the stand, said stand comprising an elongated support section at the top of the stand, said support section having means for engaging the top of said flexible bag at two horizontally spaced points, said stand further having a first pair of leg members inclining downwardly and outwardly from the opposite sides of one end portion of said support section, a second pair of leg members inclining downwardly and outwardly from

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the opposite sides of the opposite end portion of said support section, and means holding the bottoms of said leg members in place comprising cross members each secured between the bottom ends of two of the leg members.

3. The combination comprising a flat, partially filled non-self-supporting flexible bag having closely spaced confronting walls which sealingly engage each other on all sides thereof to form a flat bag having an article-containing compartment therein and a spout forming section at the top of the bag from which the contents of the bag can be poured, a stand supporting the bag in an upright position above a bag contacting surface, with said spout forming section projecting beyond the stand, said stand comprising an elongated support section at the top of the stand, said support section having means engaging the top of said flexible bag at two horizontally spaced points where the bottom of the bag will rest on said bag contacting surface and cause a compressive force which forces the bag walls to form a seal above the level of the contents of the bag, said stand further having a first pair of leg members inclining downwardly and outwardly from the opposite sides of one end portion of said support section and which can be flexed into parallel confronting relation to each other, a second pair of leg members inclining downwardly and outwardly from the opposite sides of the opposite end portion of said support section and which can be flexed into parallel confronting relation to each other, and means holding the bottoms of said leg members in place comprising cross members each secured between the bottom end portions of two of the leg members.

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