The present invention relates to liquid dispensing devices and more particularly to a liquid dispensing holder adapted to cooperate with portable receptacles or contain- ers provided with pouring or dispensing outlets of flexible material. This application is the division of co-pending application entitled "Dispensing Holder and Receptacle," Serial No. 186,191, filed April 9, 1962, now Patent No. 3,118,834, dated Jan. 7, 1964, in the name of Stuart W. Rapp, Fleming D. Long, and Joseph J. Masl.

An important object of the invention is to provide a supporting tray or holder constructed to receive a container which is formed or provided with a flexible, tubular outlet from which liquid may flow, such supporting tray including a releasable clamping mechanism to control the flow of liquid from the container.

Another object of the invention is to provide a dispensing tray or holder for a liquid container which has a flexible tubular outlet, such dispensing tray including separable parts for anchoring the tubular outlet of the container in fixed position and additional parts for releasable clamping the tubular outlet to close it and retain it in its closed position.

A further object of the invention is to provide a form of holder for dispensing liquid from a flexible bag contained in a suitable carton or other container, the bag having a tubular outlet member and the holder having a releasable clamping device for receiving the tubular outlet member and normally holding it closed.

A further object is to provide a simple and highly efficient construction of releasable holding and clamping elements to dispense liquid from a receptacle having a flexible, collapsed tubular spout, whereby the tubular spout may readily be fixed in position so that it will remain at all times in the desired relation to the releasable elements to assure proper opening and closing of the spout.

A still further object of the invention is to provide an effective form of flexible envelope and spout therefor, such envelope being particularly designed to cooperate with the novel structure of the dispensing holder.

Additional and more specific objects and advantages of the present invention will become apparent as the description proceeds.

In the drawings:

FIG. 1 is a perspective view of a tray made in accordance with the invention, showing in broken lines a rectangular container fitted within the tray and adapted to receive a plastic receptacle to hold the liquid;

FIG. 2 is a front elevation of the tray shown in FIG. 1, illustrating how one of the locking members may be moved away from its companion member to facilitate placement of the flexible dispensing spout of the plastic receptacle;

FIG. 3 is a sectional view taken along line 3—3 of FIG. 1, looking in the direction of the arrows, and showing the mechanism for spreading the spout-holding jaws to allow liquid to flow from the spout;

FIG. 4 is a vertical sectional view taken along line 4—4 of FIG. 3;

FIG. 5 is a fragmentary side elevation showing the locking lever which secures the movable holding member in operative position;

FIG. 6 is a vertical sectional view on an enlarged scale, taken along line 6—6 of FIG. 3, showing how portions of the flexible receptacle along the margins of the spout are secured to the tray;

FIG. 7 is a vertical sectional view, similar to FIG. 3, but showing the spout clamping elements in released position to permit liquid to flow through the spout; and

FIG. 8 is a view of a liquid-holding envelope or bag in collapsed condition, such envelope being particularly adapted for the dispensing holder illustrated in the preceding views.

In the packaging and distribution of liquid products, particularly such commodities as milk and non-carbonated beverages for homes and restaurants, it has been recognized that economies could be realized by packaging the liquids in disposable receptacles holding a gallon or more. One expedient is to employ a sturdy inexpensive paperboard container enclosing a flexible lining envelope or bag having a suitable tube or other dispensing opening. Thus, when the receptacle is emptied it can be readily discarded. For relatively small packages the use of a flexible envelope and outer paperboard container is feasible, except that the cost of the container has been found not to be competitive with that for other types of packages. The relative cost of the paperboard and flexible envelope compared with the value of the contents tends to decrease as larger unit quantities of liquid are packaged. However, as the packages are made larger, they are often cumbersome to handle if they must be tilted or partly inverted in the process of dispensing small quantities, such as filling drinking glasses of milk, juices or other beverages.

By the use of the present invention a package of a gallon or more of liquid may be prepared, employing a plastic envelope or bag having a closed-end tubular portion or spout formed at a suitable point. This bag is enclosed in a paperboard container having a small precut area to give access to the spout and through which the spout may protrude. To dispense the contents, the paperboard container is fitted into the tray herein disclosed. The closed-end spout is brought through the opening in the paperboard container and secured in fixed relation to an upstanding part of the tray which also includes what may be termed a valve arrangement comprising releasable clamping means to engage opposite sides of the spout. After the spout has been engaged, the closed end of the spout will be cut off and discarded, after which the liquid may be dispensed as desired.

By proportioning the tray so that it is relatively narrow and long, the assembly can be readily received on one of the shelves of a conventional refrigerator and will require only a limited space comparable to that of several ordinary sized containers, such as gallon or half-gallon milk bottles or cartons.

Referring more particularly to the drawings, the dispensing holder in its preferred form comprises an elongated metal base or tray portion 1 having an upstanding metal frame or panel section 2 to which is fixedly secured a jaw supporting part 3 extending over one half the section 2. A second jaw supporting part 4 is carried on the section 2 for quick removal and reinstallation.

An envelope or bag for which the holder is particularly designed is shown at 6 in FIG. 8. The envelope may conveniently be made in two generally rectangular sections of plastic material, one being laid flat against the other and sealed with heat and pressure around its marginal edges. A filling tube 7 is formed at one side and placed on the periphery of the flat, collapsed envelope. A dispensing spout 8 extends outwardly of the envelope, preferably near a corner of the generally rectangular envelope. This spout is formed with its end closed as indicated at 9. At the sides of the spout are formed...
upper and lower tabs 10 and 11 which serve to hold the spout in the desired position when in place within the holder.

The envelope is preferably placed within a suitable paperboard container, as indicated in broken lines at 12 in FIG. 2. This container is preferably formed as a regular slotted type container, which has a tubular body portion and upper and lower overlapping flaps to close the open ends of the tube. The lower end of the container is preferably fitted within the upstanding flanges 13, 13 and 13a of the base or tray portion. The main panel 14 of the base preferably is cut away as best seen in FIG. 1 in the interest of keeping the weight of the holder down to a minimum.

An appropriate panel of the paperboard container is partially cut over a small area to enable the cut portion to be removed readily to give access to the spout of the plastic envelope.

As shown in FIGS. 1 and 6 the upstanding panel section 2 of the holder is L-shaped, having an integral foot portion 17 fitted within a cut-away part of the base 1 so as to be flush with its lower surface. The two jaw supporting parts 3 and 4 are shown in FIG. 1 in section 2. The part 3 is designed to be permanently secured to the panel 2 and is held by suitable countersunk machine screws 18, 18. See FIG. 6. The jaw supporting part 4 is designed for ready removal and replacement. For this purpose the panel 2 has a forwardly projecting guide block 19 on its front face. This block is preferably integral with the panel 2 and is formed with undercut, angular guide faces 20, 20 extending to the outer edge of the panel (see FIGS. 2, 4 and 5) which cooperate with similarly shaped undercut guide faces 21, 21 formed in the rear side of the part 4.

Each of the parts 3 and 4 are similar, but reversely constructed, and are preferably formed as hollowed-out castings of aluminum or other suitable metal. As best shown in FIGS. 3, 4, 6 and 7, the parts 3 and 4 have similar, but reverse, recesses formed respectively by interior horizontal walls 23, 23a; interior vertical walls 24, 24a extending transverse to the general planes of the parts 3 and 4; the vertical exterior walls 25, 25a on the rear sides of the recesses; and the vertical exterior walls 26, 26a forming the front faces of the parts 3 and 4.

The spout engaging jaw members, which may also be termed clamping members, indicated at 38 and 38a, are preferably bow-like, relatively rigid, plastic pieces of irregular shape as best shown in FIGS. 3, 4, 6 and 7. The jaw members as shown herein are elongated vertically of the parts 3 and 4 and are swingably or pivotally mounted respectively at their upper ends on machine bolts 29, 29a received in openings in the walls 25, 25a and 25a, 25a. The bolts pass through front and rear walls of the jaw members indicated at 30, 31 for jaw 29 and at 30a, 31a for jaw 28a. These walls of the jaw members are suitably fitted between the exterior and interior walls of the parts 3 and 4 to provide freedom for swinging of the jaws. The jaws 28 and 28a are preferably urged to swing toward each other by means of coil springs 33 and 33a respectively, encircling the pivot bolts and having arms 34, 34a bearing against respective wall sections 24 and 24a. Opposite the arms 34 and 34a are respective arms 35 and 35a bearing respectively against the vertical walls 36 and 36a of the jaw members.

The purpose of opening or spreading the jaws there are provided vertically movable blocks or link members 38, 38a having lower end portions bearing upon shoulders 39, 39a respectively of the jaw members. Extended portions 38b and 38c of the respective blocks 38 and 38a project below the ends bearing on the shoulders and engage flip wings 40, 40a respectively sealed cut-out portions in the adjacent walls 36 and 36a of the jaw members. The upper portions of the blocks 38 and 38a are slotted to receive pins 40, 40a having their ends fixed to the front and rear walls of the jaw supporting parts 3 and 4 respectively.

In order to limit the upward movement of the blocks, shoulders 41, 41a are formed on the respective blocks 38, 38a. These shoulders bear against the under sides of the respective walls 23, 23a. If desired, the lengths of the slots in the blocks 38 and 38a may be formed so that the lower ends of the slots engage the pins 40 and 40a at the desired upper limit of movement of the blocks.

For the purpose of depressing the blocks 38 and 38a simultaneously the block 38a is preferably made shorter than block 38 and a horizontally extending arm 38d is formed at the upper end of block 38 to extend over and bear against the upper end of block 38a. An operating lever or handle 42, pivoted at 43 on the part 3, has a bearing roller 44 contacting the upper end of the block 38. From an inspection of FIGS. 3 and 7 it will be clear that downward movement of the lever 42 will cause both blocks 38 and 38a to move downward and these blocks, in turn, due to the pressure exerted on the shoulders 39, 39a of the jaw members will swing such members symmetrically away from each other.

The removable jaw supporting part 4 is held in place by a latch element 46 pivoted at 47 on panel 2. In its raised position as shown in broken lines in FIG. 5, the edge portion 43 will allow the part 4 to slide freely on its guides; and in lowered position, as shown in full lines, the end portion 49 extends over the outer edge of the part 4 to hold it in its operating position.

In order to hold the jaw holding part 4 firmly against the latch element 46, a pin 52 is secured in the block 38 and is received within a...
recess 53 in the companion block 38a after the tab 10 has been impaled upon the pin. Another pin indicated at 54 is secured in the jaw supporting part and projects outwardly of a vertical surface at the lower end of this part. The pin 54 is received in a recess formed in a similar surface of the jaw supporting part 4 after the tab 11 has been impaled upon it.

In the use of the dispensing holder a convenient procedure is to place a filled container assembly on the base of the holder after the spout has been withdrawn from the opening provided by removing the partially cut section of the wall of the outer container, as referred to above. The jaw supporting part 4 may then be moved laterally to a position such as shown in FIG. 2, or it may be removed completely from the holder. If desired, this may be done before placing the filled container on the base. The spout is then secured in position by impaling the tabs 10 and 11 on the respective pins 52 and 54. The spout and anchoring tabs will then appear in the arrangement shown in FIG. 6. The jaw supporting part 4 is then returned to the position shown in FIG. 1 and locked by the latch element 46. The spout is now firmly held between the pads 51 and 51a on the clamping jaws and the tubular portion will lie between the upper and lower ends of the pads so that the flow of liquid through the spout will be fully controlled. The closed end of the spout is then cut off and the device is ready to dispense the contents of the container.

The dispenser with the filled container in position may then be placed on a refrigerator shelf or other convenient support with the front wall of the parts 3 and 4 substantially flush with the outer edge of a shelf or other support. To facilitate the placement of the holder there are provided flanges 56, 56a extending below the plane of the underside of the holder and formed integrally with the jaw supporting parts 3 and 4. When the main portion of the holder is placed, for example, on a refrigerator shelf the holder may then be pushed rearwardly until the flange portions engage the front of the shelf. The holder is then in a suitable position for dispensing the contents of the container.

It will be noted that the latch 46 has an intermediate holding position. When the latch is raised to release the part 4 from its operative position and the latch then released, it will move to locking position and will come in contact with inner wall 24a. The latch must again be raised to clear the wall 24a and allow the jaw supporting part to be removed completely from its guides.

It is to be understood that when reference has been made herein to horizontal or vertical movement or positioning of various parts of the device, this is for convenience of description only and without any intent to limit the scope of the invention.

From the foregoing it is apparent that the present invention provides a neat, compact and efficient dispensing holder for the effective utilization of relatively large flexible envelopes for the packaging of liquids within paperboard containers. By reason of the spout construction and the arrangement of the clamping jaws, the envelope is maintained closed until the spout is in place between the jaws. After the spout is opened and dispensing of the contents is begun, it is apparent that the interior of the envelope will at all times be maintained in a completely sanitary condition and free from outside contamination, because the spout is always brought to closed condition as soon as the desired quantity of liquid is obtained and the user's hand is released from the lever 46.

By preparing the spout as well as the envelope in flat, collapsed form, the spout can be brought easily between the jaw holding parts and readily secured in exactly the correct relationship by securing the tabs 10 and 11 on the anchoring pins and subsequently clamping the tabs between the adjacent surfaces of the jaw supporting parts as they are brought together and latched in place.

While the present description sets forth a preferred embodiment of the invention, numerous changes may be made in the mechanism as disclosed without departing from the spirit of the invention, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

We claim:

A flexible, plastic bag, for packaging a liquid material, adapted for use in connection with a dispensing device having a pair of relatively movable pouring spout engaging members and a pair of pouring spout flange tab engaging members, comprising:

(a) a pair of relatively thin, flexible sheets of plastic material secured together in face-to-face engagement along marginal edges to form an envelope;

(b) said envelope including a flat, generally triangular outwardly tapering pouring spout projecting therefrom adjacent a corner thereof and terminating in a sealed outlet section arranged to be opened by severance of its free end;

(c) relatively narrow, flat, marginal flanges extending outwardly along the sides of said pouring spout; and

(d) a pair of aligned holding tabs projecting outwardly from respective marginal flanges on opposite sides of said pouring spout;

(e) said holding tabs having pin receiving openings formed therein for engagement with tab engaging members of a dispensing device to facilitate opening of the pouring spout for dispensing.

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