April 14, 1925. 1,533,497

H. HERMANI

DETACHABLE CLOSURE FOR DISPLAY CONTAINERS

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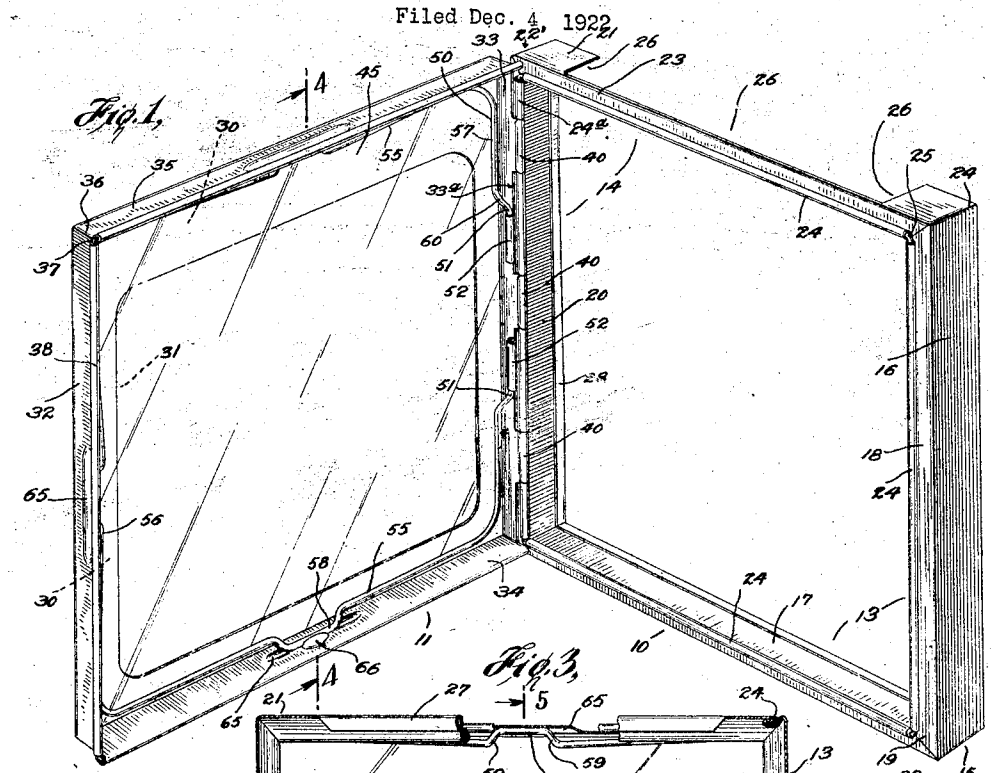


Fig. 1.

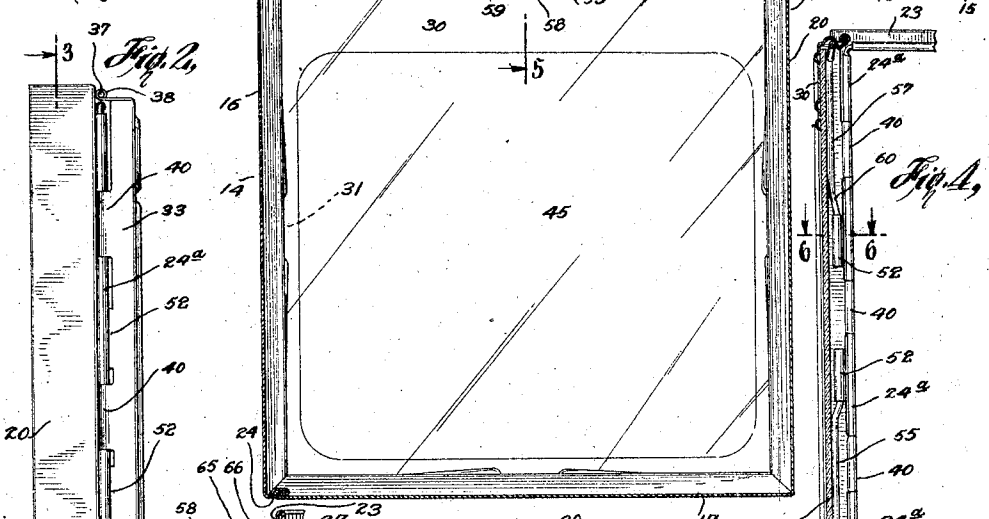


Fig. 3.

Fig. 2.

Fig. 4.

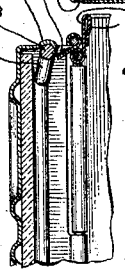


Fig. 5.

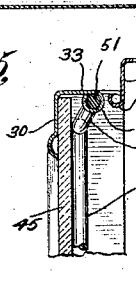


Fig. 6.

INVENTOR
Henry Hermani,
BY
Meyer, Cavanagh & Whitehead
ATTORNEYS

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UNITED STATES PATENT OFFICE.

HENRY HERMANI, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE TIN DECORATING COMPANY OF BALTIMORE, OF BALTIMORE, MARYLAND, A CORPORATION OF NEW JERSEY.

DETACHABLE CLOSURE FOR DISPLAY CONTAINERS.

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To all whom it may concern:

Be it known that I, HENRY HERMANI, a citizen of the United States, and resident of Baltimore and State of Maryland, have invented certain new and useful Improvements in Detachable Closures for Display Containers, of which the following is a specification.

My invention relates to the class of closures, especially adapted for ready attachment to containers for the advantageous display and vending of various commodities in retail stores.

Although display containers of this class are not limited as to the nature of the goods to be displayed or vended, they are more frequently employed for various edibles, such as cakes, crackers and biscuits, candies and other food articles. The containers, which may be rectangular cartons or metal "cans", with one open end, are usually arranged in groups in a suitable rack and the closures are designed for ready emplacement or attachment to the cartons or cans. The closure must have a movable door or cover to give access to the goods. It is necessary to provide an opening in the closure to permit the contents of the container to be observed, and in order to preserve the contents and protect it from dust and dirt it is practically necessary that the opening shall be protected by a transparent covering, and this covering for practical reasons is almost necessarily of glass. Since it is usually desirable to make the movable closure cover almost as large as the open end of the container, in order to give ready access to the commodity, and for other reasons, it is desirable or necessary to secure the glass which protects the inspection opening to the movable cover.

The object of my invention is to provide a sheet metal closure which conforms to the general requirements of articles of this class, including those above mentioned, and which is of simple, economical and strong construction; to stiffen or reinforce the structure in certain ways by simple means, so that any considerable bending or twisting of the device is prevented; to provide a simple, inexpensive and easily operated device for securing the glass in position and to arrange this device so that it can be quickly and easily manipulated to permit removal and replacement of the glass for cleaning or in case of breakage; to provide at the same time for a yieldable or flexible mounting of the glass so that the liability to breakage is very much reduced; to provide an especially simple and advantageous connection for the glass securing device to the closure which permits the device to be easily manipulated while it remains for all ordinary purposes permanently connected to the closure so that loss of the device is practically prevented; and in various ways improve the structural and functional characteristics of appliances of this sort.

A closure of this type comprises two principal portions, one of which may be described as a main frame or container-fitting body and the other part may be identified as the movable cover portion or cover frame which is most desirably hinged to the main frame. The main frame serves as a means for securing the closure to the open end of the container, which is in most cases a sheet metal can of rectangular outline, and at the same time as a support for the movable cover or cover frame. The closures are designed for attachment to existing types of display cans, which are already in the hands of retailers and, therefore, the closure appliances are usually, if not always, made and shipped separate from the cans and it is, therefore, desirable that each closure appliance shall be made so that it can be handled and put in position on a container can as a substantially unitary structure. To provide the necessary strength and rigidity to resist ordinary or even rough handling before application to the container, the frame structures are suitably reinforced. To provide the desired reinforcement in the main or attachment frame this frame is desirably made in two parts, each part constituting substantially two sides of the frame and corresponding ends of the two parts are secured together most desirably by lock seams, so that the frame is rigidly reinforced at diagonally opposite corners by the seam connections. This frame is further reinforced at the rear edges by inturned or lapped portions of the sheet metal and the portion of the frame surrounding the front opening which is usually almost as large as the exterior outline of the frame, is further reinforced by a substantially continuous metal

rod or wire around which portions of the sheet metal frame walls are bent and secured. This reinforcing wire is most desirably arranged to serve at the same time as a long hinge connection of the piano type for the movable cover frame, one side of which is provided with tongues or projections which are bent around the reinforcement wire to form the cover hinge members. While the glass retaining device is most desirably easily movable to permit removal and replacement of the glass, and while in a physical embodiment of the invention as herein disclosed it is actually removable in some cases, it is for ordinary purposes permanently connected to a suitable part of the closure, such as the cover frame, and this connection is most desirably a hinge connection having novel characteristics, as hereafter explained. The entire structure, therefore, as arranged for shipment to a retail dealer and for attachment to the container cans, is a substantially unitary structure with all its parts connected and secured against any accidental displacement or loss. The cover frame is reinforced by structural details of its front and side walls as explained hereafter, and especially by a reinforcing rod or wire about the edges of the side walls or usually all of the side walls, except one, as also further explained below.

The characteristics and advantages of the invention are further sufficiently explained in connection with the following detail description of the accompanying drawings, which show one exemplifying embodiment of the invention. After considering this, persons skilled in the art will understand that modifications may be made within the principles of the invention, and I contemplate the employment of any structures that are properly within the scope of the appended claims.

In the drawings:

Fig. 1 is a perspective view of the closure structure with the cover in open position.

Fig. 2 is a side elevation from the hinge side of the structure, that is from the left of Fig. 1, with the cover closed.

Fig. 3 is a vertical section at 3—3, Fig. 2.

Fig. 4 is a fragmentary vertical section at 4—4, Fig. 1.

Fig. 5 is an enlarged detail section at 5—5, Fig. 3.

Fig. 6 is a sectional detail at 6—6, Fig. 4.

The principal parts of the closure appliance as shown in Fig. 1 are the main or attachment frame 10 and the cover frame 11. The main frame is most desirably made in two principal parts 13 and 14. The frame part 13 consists of a strip of sheet metal of substantial width bent at a right angle at 15 to form a side member 16 and bottom member 17. The side and bottom members have portions or flanges 18 bent in at right angles to form narrow front wall portions of the main frame. These front flanges are cut away diagonally at 19 so that the edges of the adjacent flange portions fit closely together.

The other main frame portion 14 is of similar construction comprising a side flange or member 20 and a top flange 21 connected by a right angle bend at 22 and the side and top flanges have shallow front flanges 23. The two frame members are connected together, most desirably, by lap or lock-seam joints 24, the seam interlocking portions being formed in the adjacent ends of the side and top flanges 16 and 21 and the bottom and side flanges 17 and 20. The frame member connections are thus arranged at diagonally opposite corners of the completed frame and serve to stiffen these corners and prevent frame distortion. To additionally strengthen the frame and resist bending or twisting, the front flanges 18 and 23 are provided with projecting portions at their inward edges which are rolled over to form integral tubular portions 24 closely fitting around a reinforcing rod 25, which is usually a piece of wire of substantial diameter and of suitable stiff material bent into rectangular form. This rod or wire reinforcement directly surrounds the large opening formed in the outer face of the main or attachment frame.

In order to accommodate projections which are usually located on the upper side of a can or other container to which the closure appliance is to be affixed, the top flange 21 is usually cut away to form a recess 26 wide and deep enough to accommodate such can projections. In cutting out the aperture a narrow strip 27 of sheet metal is left integral with the upper front flange 23 and this is bent down and inward parallel to the front flange, as best shown in Fig. 5 to provide a reinforcement along the front face of the aperture 26. Desirably also the side flanges 16 and 20, the bottom flange 17 and the top flange 21 are provided with integral extensions 28 which are folded over and flattened down against the main flange members, as best shown in Fig. 1 to form inward edge reinforcements.

The other main closure member, or cover frame 11, may be constructed more or less in accordance with the structure of the main frame 10, but in a preferred embodiment as illustrated, this cover frame may consist of a single piece of sheet metal shaped to form a front wall 30 provided with a large aperture 31, which may be more or less centrally located in the front wall, but usually is located so that the upper portion of the front wall above the aperture is somewhat wider than the side and bottom portions. Parts of the frame sheet are bent over to form side flanges 32, 33, a bottom flange 34 and a

top flange 35, these flanges being bent at right angles to the front wall and having their end edges more or less closely abutting as at 36. The inner face of the cover frame thus formed may be reinforced in various ways, this reinforcement consisting in a preferred embodiment as shown, of a rod or wire 37 similar to the rod 25 previously described, enclosed in edge portions 38 of the bottom and top flanges 34 and 35 and of the side flange 32, these edge portions being rolled over to enclose the reinforcing wire which thus serves to connect the three flanges mentioned and to reinforce their inward edges.

The cover frame and the main frame are preferably movably connected to each other and this connection is preferably in the form of a hinge to permit the cover to be easily opened and closed, and this hinge is moreover in a preferred example made so that when the hinge formation is completed the frames are permanently connected together to provide an integral or unitary structure for reasons previously mentioned. In the present embodiment of the invention, therefore, the hinge pintle consists of the portion of the reinforcing rod 25 which lies along the inward edge of the front flange 18 at the front edge of the main frame side flange 20. Portions of the tubular formation 24a surrounding this part of the rod are cut away and similar tubular formations 40 are provided on the inward edge of the cover side flange 33, these formations being bent about the rod and fitting in the spaces in the tubular member 24a. In this way a hinge of the piano type is formed which has ample strength and stiffness to maintain the cover in the proper relation to the main frame when in closed or open position.

The cover aperture 31 is of ample size to permit the contents of the container to be inspected. To properly protect the container contents it is usually desirable and in fact practically necessary to close the aperture with a transparent covering, and for practical purposes this must be a sheet of glass, and it is most desirable to locate this glass at the inner side of the cover front wall. A cover glass 45 is, therefore, provided located against the inner face of the front wall 30, and this glass is most conveniently about the size of the inner dimensions of the cover frame so that it fits in the frame with moderate clearance between its edges and the frame walls 32, 33, 34 and 35. The glass may in some cases be permanently secured, but these glasses are fairly often broken, and it is also desirable to clean them frequently, and this cleaning is best done when the glass is removed from the frame. For these reasons means are provided for securing the cover glass in position so that it can be quickly removed and easily replaced. The glass fastening means is constructed and arranged so that although it may be removed from the appliance if necessary or desirable, it is in an operative sense secured to the closure appliance so that there is no risk of misplacing or using it when it is manipulated to release the glass. The glass securing device is also in the present embodiment of the invention constructed and arranged so that it provides a yielding or cushion support for the glass and which materially reduces the risk of breaking the glass by pressure applied to its outer surface, or by ordinary handling or even rough treatment in shipment, or when the appliance is in position on the container. For these purposes the glass holding device in the present embodiment of the invention consists principally of a rod or wire 50 bent in approximately rectangular form and having free ends 51 hingedly connected to the cover frame at one side. The hinge connection may vary, but in the present embodiment it consists of hinge sleeves 52 which are tubular bent portions or flanges extending from inner edges of the cover frame side wall 33. Specifically, these hinge members are originally formed as tongues or flanges projecting from the edges 33a of the wall 33 between the tubular hinge members 40 previously described. The free ends 51 of the retaining wire are inserted in the hinge tubes 52 by first springing the ends of the wire apart and when so inserted the natural resiliency of the wire holds the retainer to all intents and purposes permanently in position, although if it is necessary it may, of course, be removed when the retaining wire is swung inward away from the cover frame by merely pulling the ends 51 out from the hinge tubes.

The retaining wire is formed with upper and lower members 55 arranged to lie along inner faces of the upper and lower cover flanges 35 and 34, and these portions are connected by a portion 56 arranged to lie along the inner face of the cover flange 32, and the end portions 51 are connected to the portions 55 by short portions 57 arranged to lie close to the cover flange 33. Substantially at the mid-length of each wire portion 55 and 56 an outwardly bent or cranked member 58 is provided and the short arms 59 which connect the members 58 to the main stretches of the wire are bent slightly inward, as best shown in Fig. 5; and the wire portions 60 which connect the ends 51 to the wire members 57 are also bent angularly inward as shown in Fig. 4. Outwardly pressed beads or sockets 65 are provided in the cover flanges to receive the wire portions 58 and centrally of these sockets the flange metal is cut and inbent to form latch members 66 with angular outer faces. The

glass is put in position when the fastening wire is released from the cover frame and swung inward, and then the fastening wire is swung against the glass and its members 55 and 56 are bent inward as the wire members 58 are forced over the angular latch faces 66 until they snap into the sockets 65 behind the latches. The latches then retain the fastening wire firmly in position and portions of the wire adjacent to the cranked or offset members 58 press against the inner face of the glass and hold it resiliently or yieldingly against the cover front wall 30 so that any force applied tending to press the glass inward is yieldingly resisted by the fastening device and glass breakage is thus to a very great extent prevented. To remove the glass for cleaning or to substistute a new glass for a broken one, it is only necessary to bend one or more of the wire members 55 or 56 inward until its cranked portion 58 is free from the adjacent latch 66, and then the remaining wire members are easily freed from the latches and the entire wire fastening device is swung inward on its hinges 51, and the glass is then free to be removed.

The appliance is positioned for use on a commodity container of the class previously described, simply by pushing the main frame over the open end of the carton or container can, the side walls or flanges of the main frame being designed to closely fit the container mouth and the aperture 26 in the main frame upper flange 21 being designed to accommodate projections on the upper face of the can mouth, as previously explained.

These containers are usually located on their shelves or in their racks so that the open mouth of the container is not vertical but is tilted somewhat upwardly. Therefore, when the closure appliance is put in position the cover 11 when closed remains in closed position by the force of gravity and it is not necessary usually to provide any latch to hold it in closed position. Such a latch may, however, be provided when necessary or desirable. The structure is usually designed so that the inner edges of the cover flanges 34 and 32 engage the beaded flange on the main frame provided by the tubular formations 24 more or less snugly, so that the cover will stay shut, even if the container is arranged horizontally with its open mouth in vertical position.

What I claim is:—

1. A closure structure designed for ready attachment to a display container, comprising an open main frame of sheet metal having side walls adapted to closely fit the walls of a container about the open mouth thereof and a front wall surrounding an opening in the front face of the frame, the front wall being reinforced by a metal rod enclosed in tubularly bent inward margins of said front wall, and a sheet metal cover having an apertured front wall and side walls, said sheet metal side walls formed to fit closely around the reinforcement of the front wall of the main frame, the cover being hingedly connected to the main frame by marginal portions of one of its side walls tubularly bent about said main frame reinforcement rod at one side of the main frame opening.

2. A closure structure designed for ready attachment to a display container, comprising an open main frame of sheet metal having side walls adapted to closely fit the walls of a container about the open mouth thereof and a front wall surrounding an opening in the front face of the frame, the front wall being reinforced by a metal rod enclosed in tubularly bent inward margins of said front wall, and a sheet metal cover having an apertured front wall and side walls, the sheet metal of the side walls formed to fit closely around the reinforcement of the front wall of the main frame, the cover being hingedly connected to the main frame by marginal portions of one of its side walls tubularly bent about said main frame reinforcement rod at one side of the main frame opening, the cover being reinforced by a rod extending along the edges of certain of its side walls and enclosed in tubularly formed marginal portions of said walls.

3. In a closure designed for ready attachment to a display container, an open main frame structure comprising two main members, each consisting of a strip of metal of substantial width bent at a right angle to form two adjacent side flanges and each having narrow front wall portions, the adjacent ends of the side flanges of the two frame members being permanently connected by lock seam formations providing reinforced connections at diagonally opposite corners of the main frame structure, a reinforcing wire in substantially rectangular form lying along the inner edges of said front wall members and enclosed in tubularly formed inner marginal portions thereof, the described wall reinforcement defining an opening in the front wall structure of the frame, and a sheet metal cover hinged to said wire reinforcement, said cover having a display opening.

4. In a closure designed for ready attachment to a display container, an open main frame structure comprising two main members, each consisting of a strip of metal of substantial width bent at a right angle to form two adjacent side flanges and each having narrow front wall portions, the adjacent ends of the side flanges of the two frame members being permanently connected by lock seam formations providing reinforced connections at diagonally oppo-

site corners of the main frame structure, a reinforcing wire in substantially rectangular form lying along the inner edges of said front wall members and enclosed in tubularly formed inner marginal portions thereof, the described wall reinforcement defining an opening in the front wall structure of the frame, and inner edge margins of said side flanges being bent inward against the flanges to form edge reinforcements, and a sheet-metal cover hinged to said wire reinforcement, said cover having a display opening.

5. A closure structure for display containers, comprising an open main frame of sheet metal adapted to fit the container and having a large aperture in its outer face and provided with a hinge pintle at one side of the aperture, a cover frame comprising an apertured front wall and side walls of sheet metal, one of which is provided with hinge members bent around said pintle, a glass located within the cover against its front wall to protect the aperture therein, side walls of the cover being provided with substantially centrally located, beveled, inwardly projecting latch members, and a glass retainer consisting substantially of a single piece of wire bent in approximately rectangular form and having an offset portion in each of its side members adapted to yieldingly cooperate with said glass and latches to retain the glass detachably in position, the retainer wire having its end portions rotatably inserted in tubular hinge sockets consisting of rolled marginal portions of the cover side wall arranged parallel with the hinge members first mentioned, whereby the said cover and glass retainer may swing on their hinges in substantially the same direction.

6. A closure structure designed for ready application to the open end of a display container and comprising an open main frame of sheet metal having side walls adapted to fit the container end and front walls surrounding a large front opening, a cover frame of sheet metal having an apertured front wall and narrow side walls, a rod constituting a hinge pintle for the main frame and cover, said rod being located at one side of the respective members and enclosed by tubular formations on the inner margin of one of the main frame front walls and one of the cover frame side walls, a glass located within the cover and against its front wall to protect the cover opening, and a one-piece retainer wire in approximately rectangular form having members adapted to cooperate with wire engaging formations in the cover side walls, said wire at one side being located in a tubular hinge socket consisting of a marginal portion of the cover side wall intermediate certain of the first-named tubular hinge formations thereon.

7. A closure structure designed for ready application to the open end of a display container and comprising an open main frame formed of sheet metal and having side walls adapted to fit the container end and front walls surrounding a large front opening, a cover frame formed of sheet metal having an apertured front wall and narrow side walls, a rod constituting a hinge pintle for the main frame and cover, said rod being located at one side of the respective members and enclosed by tubular formations on the inner margin of one of the main frame front walls and one of the cover frame side walls, a glass located within the cover and against its front wall to protect the cover opening, and a retainer wire in approximately rectangular form having members adapted to detachably cooperate with wire engaging formations in the cover side walls, said wire having its free ends located for swinging movement in tubular hinge sockets consisting of marginal portions of the cover side wall arranged intermediate and parallel with the first named tubular hinge formations thereon, whereby said retainer wire may be swung in planes parallel with movements of the hinged cover.

8. A closure structure designed for ready attachment to a display container, comprising an open main frame of sheet metal having side walls adapted to closely fit the walls of a container about the open mouth thereof and front walls surrounding an opening in the front face of the frame, the front walls being reinforced by a metal rod enclosed in tubularly bent inward margins of all of said front walls, and a cover of sheet metal having an apertured front wall and narrow side walls formed to fit closely over the reinforced front portion of the main frame, the cover being hingedly connected to the main frame by marginal portions of one of its side walls tubularly bent about said main frame reinforcement rod at one side of the main frame opening, a glass located within the cover against the cover front wall and covering the aperture therein, glass-retainer wire bent in approximately rectangular form and having members detachably cooperating with retaining members formed in the cover side walls, the retainer wire being hingedly secured to the cover by tubular hinge members integrally formed on one of the cover side walls, and extending parallel with said hinge reinforcement rod whereby said retainer wire may be freely swung on its hinged connections toward and from the main frame and independently of swinging movements of the cover.

Signed at Baltimore, State of Maryland this 29th day of November A. D. 1922.

HENRY HERMANI.