Feb. 5, 1924. 1,482,704

M. SCHWARTZ

DOOR HANGER

Filed March 6, 1922

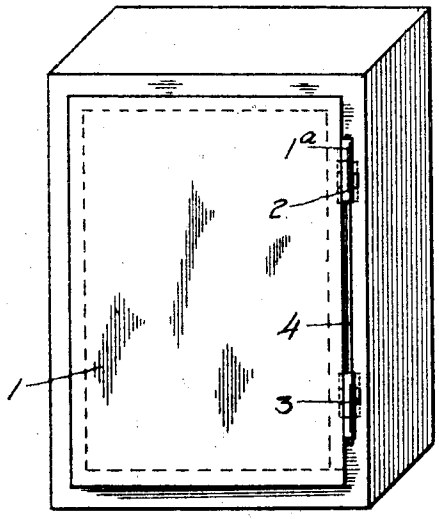


Fig. 1.

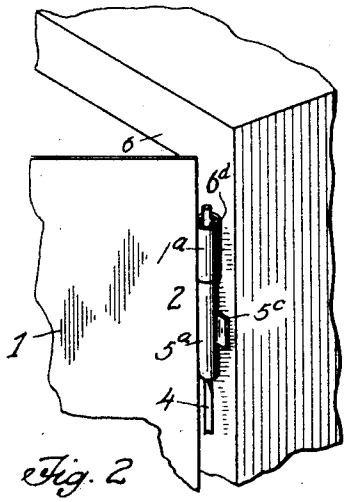


Fig. 2

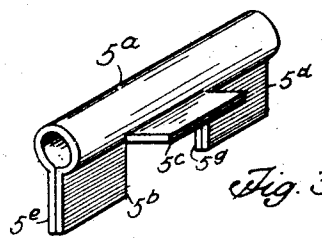


Fig. 3.

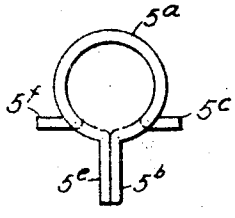


Fig. 4.

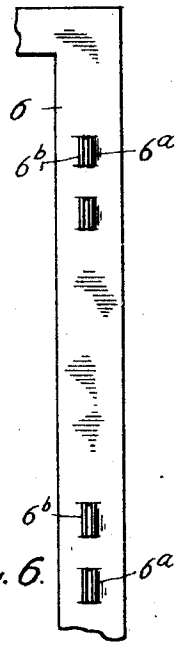


Fig. 6.

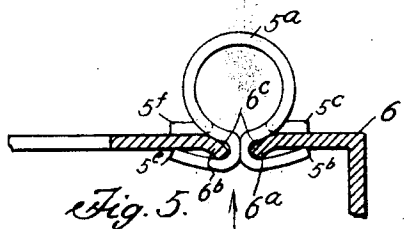


Fig. 5.

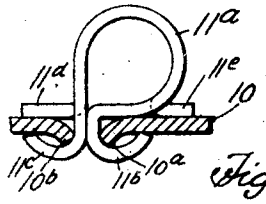


Fig. 7.

INVENTOR:
Morris Schwartz,
By Oliver O. Martin.
HIS ATTORNEY.

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UNITED STATES PATENT OFFICE.

MORRIS SCHWARTZ, OF CHICAGO, ILLINOIS.

DOOR HANGER.

Application filed March 6, 1922. Serial No. 541,433.

To all whom it may concern:

Be it known that I, MORRIS SCHWARTZ, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Door Hangers, of which the following is a specification.

This invention has relation to a metal cabinet, such as used for the storage of food and other commodities in the home or place of business, and it refers particularly to means for hanging the door, or doors, of such cabinet.

In former days when the home was a spacious dwelling, fitted with pantries and cellar compartments, there was ample room for everything, and a special place for every particular article, but we are now entering upon a period of condensation, wherein every inch of space becomes worthy of consideration, and where compact and sanitary devices supersede the spacious storing places of old. One of these devices is a metal cabinet for storing food, either containing ice, or iceless. Wood is not desirable for such purposes, on account of its odor absorbing qualities, also because it swells, warps and decays, but enameled or galvanized metal is, on the other hand, well adapted for the purpose. The door, or doors, of the cabinet must be relatively large, in order that ready access to the corners of the cabinet may be had for cleaning purposes. The cabinet must be light, so as to be easily moved or carried from place to place, and in order that it may be light it must be made from thin sheet metal. It must be of neat and pleasing appearance, or no woman will feel inclined to place it within her home. And the door must fit tightly, and it must be strongly supported in order to continue to fit tightly.

With the foregoing conditions in view the object of the present invention is the provision of improved means for hanging the door on such cabinet. A further object is to provide a substantial device of the character specified and which may be applied to a metal cabinet without distorting the metal of the cabinet, but which will look neat and be strong and durable.

A structure embodying the invention will be hereinafter fully described, and a drawing is hereto annexed, in which such structure is illustrated as a whole and also in its details.

In the drawing:

Fig. 1 shows, in perspective, a metal cabinet embodying the invention,

Fig. 2 is a view, on a larger scale, of the upper front right-hand corner of the cabinet,

Fig. 3 is a perspective view of one of the hinge elements of the invention,

Fig. 4 is an end view of the same member,

Fig. 5 illustrates my improved method of securing said member on the cabinet front,

Fig. 6 is a fragmentary view of the cabinet front as it appears before the hinge member is mounted in position, and

Fig. 7 shows a modified form of structure.

The structure of Fig. 1 represents a simple form of cabinet. But it has this in common with all good cabinets of the type considered, that its door 1 covers near the entire front of the cabinet. The door is hung upon a pair of hinges 2 and 3, and these hinges are connected by a common hinge pin 4. The hinge portion 1^a of the door may conveniently be formed and bent up from the metal of the door itself, substantially as shown. But the hinge portion of the cabinet cannot be made in this manner, because it would not be possible in that case to make a tight fit between the door and cabinet. In order to provide such tight fit I provide a pair of hinge members 5, which members conveniently and preferably may be identical in shape. Each member comprises a cylindrical body portion 5^a, and a pair of flanges divided into three parts 5^b, 5^c, 5^d and 5^e, 5^f, 5^g. The middle flange-parts 5^c, 5^f are bent outward at right angles to the end parts, so as to form low bases for contact with the front of the cabinet, 6. In this front is provided narrow apertures, see also Fig. 6, through which the flange parts 5^b, 5^e and 5^d, 5^g are forced, whereupon these parts are bent outward over the aperture edges 6^a, 6^b, and then pressed against the inner surface of the cabinet front, substantially as shown.

In making the slits in the front plate 6 no metal is removed, but the metal is merely separated and the edges 6^a, 6^b are then curled inward, substantially as shown, far enough to permit the said flange parts to be forced through the apertures. This feature is of considerable importance. For one thing it

is noticed that the inwardly curving surfaces 6^c form a cradle for the outer cylindrical surface of the body portion 5^a. Said body portion is firmly held to resist twisting strains. In the second place it is to be observed that the pressure against the structure in clinching the flange parts against the inner surface of the front, in direction of the arrow in Fig. 5, operates to force the aperture edges 6^a, 6^b toward each other, thereby pressing the intermediate portion of the flange parts tightly together. A third important feature of this construction is that the pressure required to clinch the flange parts against the inner surface of the cabinet front will not be sufficient to straighten out the aperture edges, which remain somewhat projecting. When thereupon the flange parts are completely pressed into position it is noticed that only the ends of said parts rest against the inner surface of the front, and that the portion intermediate the ends and the aperture edges is slightly spaced away from said surface. In this manner it is seen that the full benefit is obtained of the natural resiliency of the metal, and that the twisting strain on the hinge body is taken on the ends of the flanges, at a point far removed from the center of said body. Rivets will pull loose in such thin metal, or fall out entirely, sharp bends over aperture edges, which have not been curved inward, will fulcrum the structure at such bends and not at the ends of the flanges, but in the structure shown a substantially continuous curve is found from one end of a flange part, through the aperture, around the body, and back to the opposite flange end. The thin metal can at no time offer more resistance to strains than its molecular strength will permit, and I do not claim that the structure of my invention will do more, but I have found that an outward pull on the hinge body will tend to draw the aperture edges together, and thereby tighten the grip on the flanges confined therebetween, and that ample leverage and the full elastic strength of the metal is available to resist pulling and twisting strains.

The feature of drawing the parts tightly together is also important, as it operates to provide a substantially air tight joint, an essential element especially in an ice box.

It may here be suggested that the front plate 6 will have to be slightly recessed, substantially as indicated at 6^d in Fig. 2, in order to afford operating clearance for the door hinge portions 1^a, but as such recessing can be made at the same time the apertures become formed in the plate, it need not add to the cost of the device. It is, however, possible to avoid this operation by employing a modified form of structure, such as illustrated in Fig. 7.

Here the cabinet front is made with apertures, as aforesaid, and a hinge member comprising a body portion 11^a, from which extend end flanges 11^b, 11^c, is seated in said apertures, substantially as described. But it is noticed that the body 11^a is not quite cylindrical, and that it does not seat in the recess formed by the incurving edges 10^a, 10^b of the apertures. The body 11 is made one-sided and it rests on top of the cabinet front surface. Comparing this construction with the one shown in Fig. 5 it is readily seen that it is not nearly so strong as the first described structure. It may be possible to loosen the hinge member 11 by pulling on the body until the flange 11^a rises from its resting surface 10, without noticeably distorting the metal of the cabinet front. But it has not been found possible to twist the body 5^a loose without first spoiling the cabinet front.

Aside from the weakness just pointed out, I wish to state that this modified form of my invention retains the important features incident to the incurving apertures, and the hinge piece having flanges disposed at right angles to each other and made from a simple rectangular or square piece of sheet metal, without any waste of metal.

I claim:

1. In combination with sheet metal door and jamb, both made with apertures made by slitting the metal and curving the edges of the slits inward, of hinge members made from sheet metal folded to provide a cylindrical body from which extend flanges lying close together and slit, the center portion of the flanges bent outward at right angles to the end portions, the latter pressed through said slits and clinched, the center portions resting against the front of the door and jamb, the cylindrical body seated in said curved edges.

2. A cabinet provided with slits having inwardly curving edges, a hinge member having cylindrical body seated in the curved recess of said edges, said member made with flanges pressing against the outer surface of the cabinet and provided with flanges capable of being forced through said slits and clinched against the inner cabinet surface.

3. A cabinet provided with alined slits having inwardly curved edges, hinge members seatable in said slits, each member comprising a tubular cylindrical body seatable in the recess of said curved edges and having flanges forced through said slits for clinching on the inner surface, the intermediate portion of said body flared out so as to press against the flat portion of the outer cabinet wall intermediate said slits.

4. A cabinet having thin metal facings and made with alined slits in the front facing, the slit edges curved inward, a sheet metal member for each slit and comprising

a cylindrical body seated in the curved recess of the slit edges and having end flanges forced through the slit and clinched, said body made with intermediate flanges pressing against the outside surface of the facing.

5. A sheet metal container having alined apertures adjacent to the door opening, said apertures produced by slitting the metal and then curving the edges of the slits inward, and a hinge member made from sheet metal folded over to form a loop from which extends end flanges capable of being forced through said apertures and curved over against the inner surface of the cabinet, the metal of said member, intermediate the said end flanges, bent outward, right and left, at right angles to the flanges so as to rest against the outside surface of the cabinet.

6. As an article of manufacture, a hinge member made from a square or rectangular piece of sheet metal folded over on one center line to form a loop, the portions of the piece on each side of the loop extending in the form of flat abutting flanges, said flanges divided by two slits at right angles to the axis of said loop into three parts, the middle parts bent outward, right and left, at right angles to the end parts.

In testimony whereof I have hereunto affixed my signature.

MORRIS SCHWARTZ.