Aug. 16, 1938. R. H. KINGDON 2,126,995

PANEL CABINET

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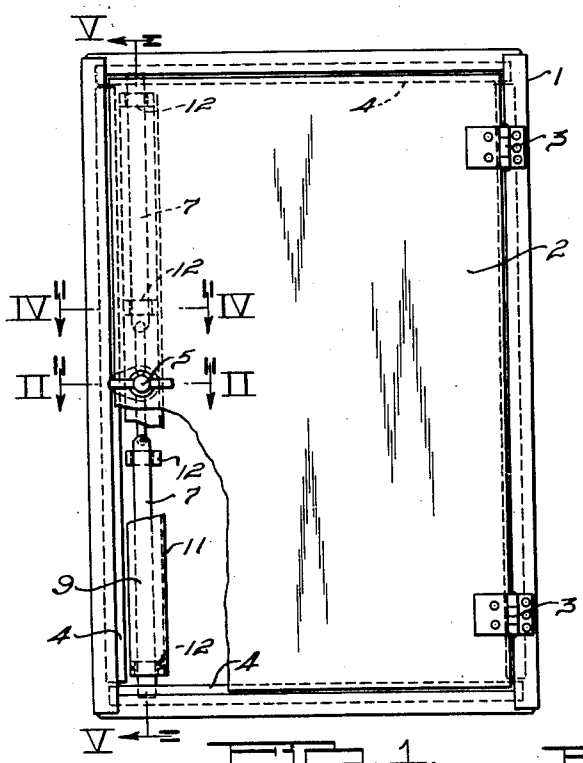

FIG. 1.

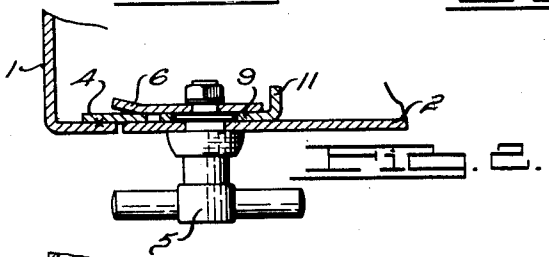

FIG. 2.

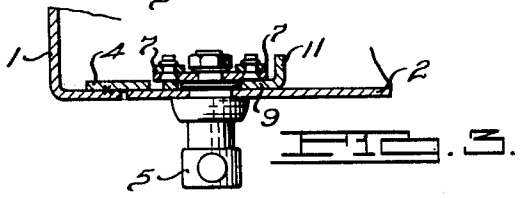

FIG. 3.

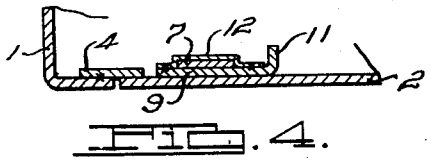

FIG. 4.

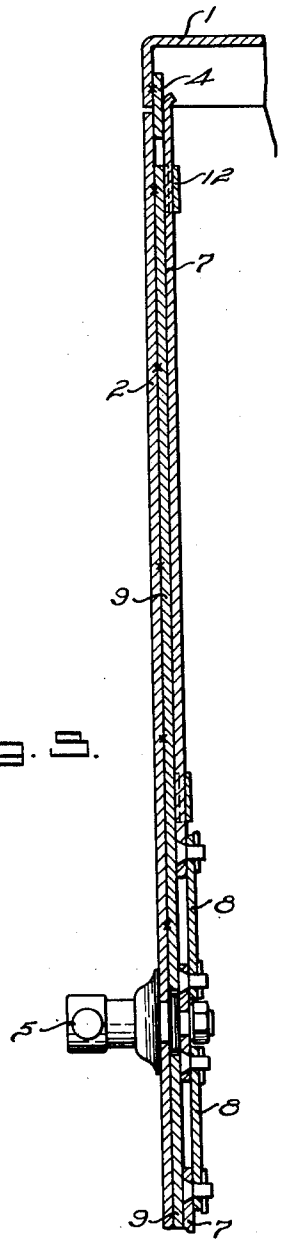

FIG. 5.

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PANEL CABINET

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Application February 23, 1935, Serial No. 7,777

5 Claims. (Cl. 312—189)

This invention relates to sheet metal cabinets and more particularly to the closing and latching of sheet metal doors for cabinets for electrical equipment such as panel cabinets.

One object of this invention is to provide a sheet metal door with a stiffening plate to secure positive engagement of the top and bottom of the door.

Another object of this invention is to provide a sheet metal cabinet door with a stiffening plate, and the door being bowed to provide for engagement of the top and bottom before the central portion thereof.

Another object of this invention is to provide a sheet metal cabinet door having shoot-bolts at its ends and a central latch and a single means for operating the shoot-bolts and latch, with a stiffening plate and an outward bow to provide for the positive engaging and latching of said door solely by the manual manipulation of said single operating means.

Other objects and features of the invention will be readily apparent to those skilled in the art from the following specification and appended drawing illustrating certain preferred embodiments of the invention in which:

Figure 1 is a front elevational view of the cabinet with a portion of the door broken away to more clearly show the stiffening and latching parts.

Figure 2 is an enlarged detail sectional view taken on the line II—II of Figure 1.

Figure 3 is a view similar to Figure 2 but with the handle turned to unlocked position.

Figure 4 is an enlarged detail sectional view taken on the line IV—IV of Figure 1.

Figure 5 is an enlarged sectional view taken on the line V—V of Figure 1 with the lower portion thereof broken away.

A sheet metal cabinet 1 is provided with a sheet metal door 2 pivotally secured thereon as by means of hinges 3. The edges of the cabinet door opening are bounded by stop plates 4 rigidly secured to the edges of the opening as by welding and projecting beyond the edge of the opening to serve as stops for the door. Intermediate the top and bottom of the door and adjacent its free edge a handle 5 is mounted for rotary movement and has a stem extending through the door. On this stem a latch plate 6 is rigidly secured for rotary movement therewith as is well known in the art.

Disposed along the free edge of the door at the top and bottom thereof are shoot-bolts 7, 7 connected to latch plate 6 by means of links 8 to provide for common movement of the shoot-bolts and latching plate by means of handle 5. To provide for positive positioning and engagement of the shoot-bolts and the latching plate by means of pressure exerted on handle 5 alone, the free edge of the door is provided with a stiffening plate 9 having a stiffening angle 11 at one side thereof. This stiffening plate may be channel-shape in cross section if desired to provide a greater stiffening effect. Stiffening plate 9 may be secured to the door along side of the latching mechanism previously described but to permit the positioning of the parts closely adjacent to the free edge of the door and to provide for the use of straight shoot-bolts as will be more fully explained hereinafter, the plate is mounted closely adjacent to the edge of the door and the stem of the operating handle 5 projects therethrough. The shoot-bolts are mounted on this plate for reciprocatory motion within guide straps 12 rigidly secured to said plate as by welding. The plate 9 is also welded or otherwise rigidly secured to the door 2. The plate 9 is of a thickness equal to that of the stop plates 4 so that with the door in closed position they will lie in the same plane and the shoot-bolts 7 may be in the form of straight bars which in their extended position engage behind the stop plates to latch the door in position. Where the shoot-bolts are mounted directly upon the door the end portions thereof must be offset to provide for the difference in the plane of the door and the stop plates.

Considerable difficulty has been experienced in the past in properly positioning the top and bottom edges of the door due to the relatively large warping to which these large sheet metal doors are ordinarily subjected. The use of the stiffening angle plate or channel plate makes the free edge of the door quite rigid and prevents the end portions thereof warping out of position.

To further provide for the positive positioning of the latching elements by the sole use of the operating handle, the door and stiffening plate are given a slight bow to provide for engagement of the top and bottom portions of the door before the central portion. With this construction it is seen that upon closing the door by the operating handle, the top and bottom edges will engage with the stop plates with the shoot-bolts in position to be moved into engagement therewith and that upon pressure from the operating handle the central portion of the door will be moved into engagement with the stop plate whereupon a single rotary movement of the handle 5 will positively engage all three latching elements and secure the door in position without the necessity

of independently forcing the door adjacent the ends of the shoot-bolts into position as has been necessary in the past due to warping of the door from a true plane.

While certain preferred embodiments of the invention have been specifically disclosed, it is understood that the invention is not limited thereto as many variations will be readily apparent to those skilled in the art and the invention is to be given its broadest possible interpretation within the terms of the following claims.

What is claimed is:

1. A sheet metal cabinet, a sheet metal door hingedly mounted at one edge on said cabinet, a stiffening plate extending along the opposite edge of said door on its inner face and rigidly secured thereto, a latching means on said door at the top and bottom thereof and adjacent said opposite edge, said edge being formed with a slight bow so that on closing the door the top and bottom will engage before the central portion thereof.

2. A sheet metal cabinet, a sheet metal door hingedly mounted at one edge on said cabinet, a stiffening plate extending along the opposite edge of said door on its inner face and rigidly secured thereto, a stiffening flange on said plate, latching means on the inside of said door comprising latching elements at the top, bottom and central portions of said door adjacent said opposite edge and an operating handle adjacent to said central element on the outside of said door, said opposite edge being slightly bowed so that on closing the door the top and bottom will engage before the central portion, thus positively positioning and engaging the three latching elements by a single manual member.

3. A sheet metal cabinet, a plate-like sheet metal door hingedly mounted at one edge on said cabinet, an outside handle pivoted in said door adjacent its opposite edge and intermediate the top and bottom thereof, a latching member mounted on the inside of said door for rotary movement by said handle, said latching member engaging a stationary part on the cabinet when in locking position, a stiffening angle bar extending along said opposite edge only of said door on its inner side, opposite shoot-bolts mounted on the inner face of said door adjacent said opposite edge for reciprocatory movement into engagement with stationary parts on said cabinet and a mechanical connection between said bolts and said latching member to provide for common locking movement thereof.

4. A sheet metal cabinet, a sheet metal door hingedly mounted at one edge on said cabinet, an outside handle pivoted on said door adjacent its opposite edge and intermediate the top and bottom thereof, a latching member mounted inside said door for rotary movement by said handle, said latching member engaging stationary parts of the cabinet when in locking position, a stiffening angle bar extending along said opposite edge of said door on its inner side, opposite shoot-bolts mounted on the inner face of said door adjacent said opposite edge for reciprocatory movement into engagement with stationary parts on said cabinet, a mechanical connection between said bolts and said latching member, said opposite edge of said door being provided with a slight bow whereby the end portions will engage before the central portion thereof to provide for positive positioning and latching of the door by a single manual member.

5. A sheet metal cabinet, a sheet metal door hingedly mounted at one edge on said cabinet, a flanged stiffening plate rigidly secured to the inner face of said door and extending along the opposite edge thereof, a rotary handle mounted on the outside of said door and having a part projecting through said door and said plate, a latching member on said part for rotary movement therewith, straight shoot-bolt bars mounted on said plate for opposite reciprocatory movement, and links connecting the ends of said bars with the latching member, said opposite edge of said door being provided with a slight bow whereby the top and bottom thereof will engage before the central portion to provide for positive positioning and latching of said door by manual manipulation of said handle.

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