Oct. 29, 1935. H. A. MANZ 2,019,054

CABINET

Filed Jan. 20, 1933 3 Sheets-Sheet 1

FIG.1.

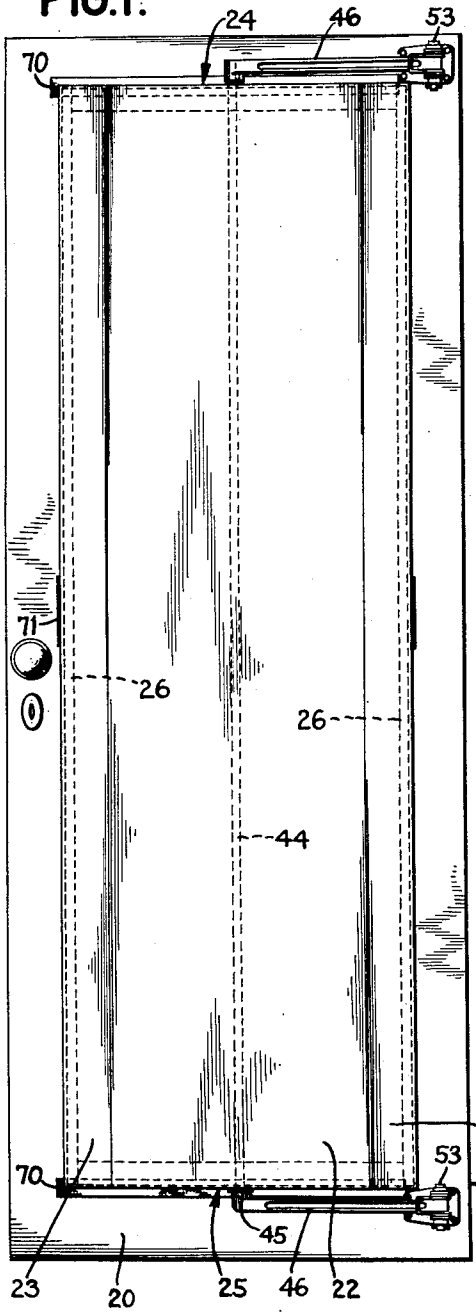
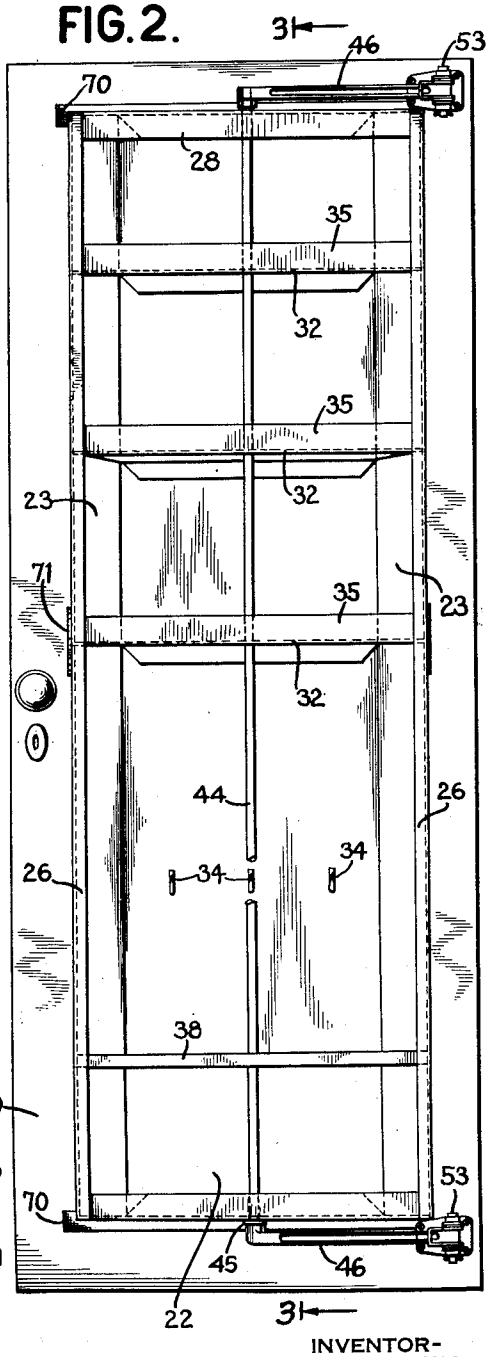


FIG.2.



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Filed Jan. 20, 1933 3 Sheets-Sheet 2

FIG.3.

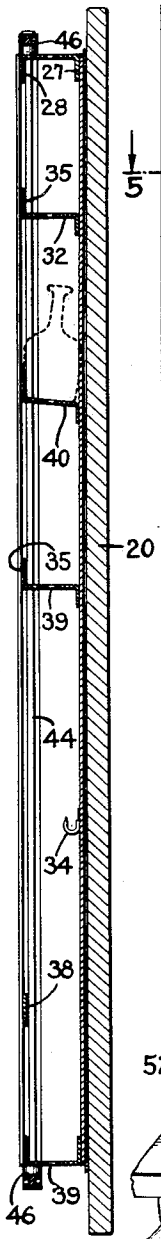


FIG.4.

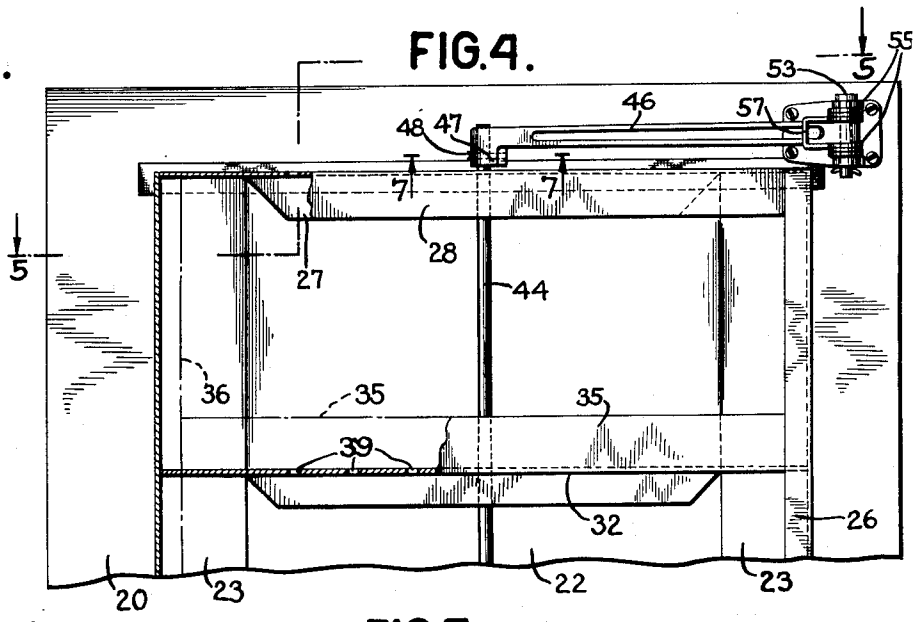


FIG.5.

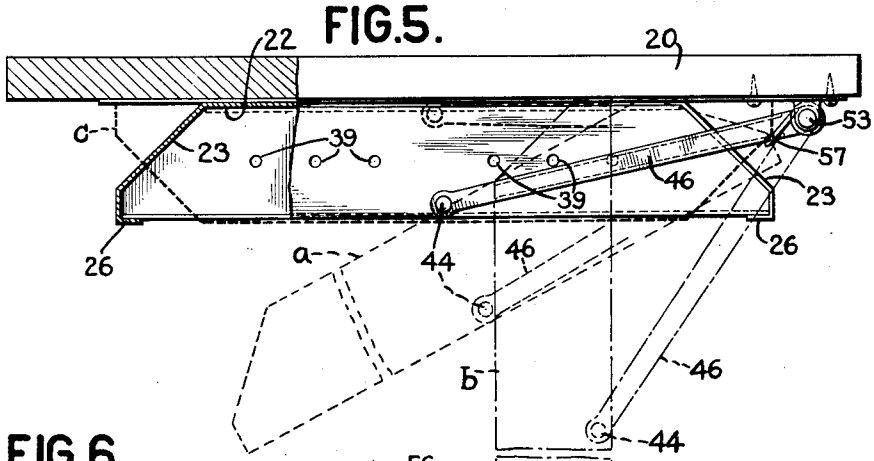


FIG.6.

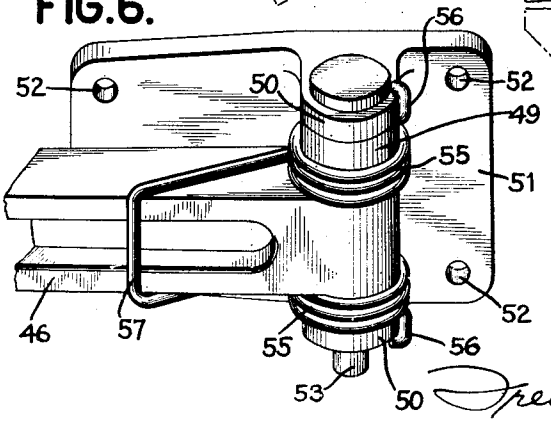
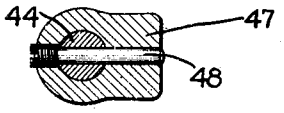


FIG.7.



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CABINET

Filed Jan. 20, 1933 3 Sheets-Sheet 3

FIG.8.

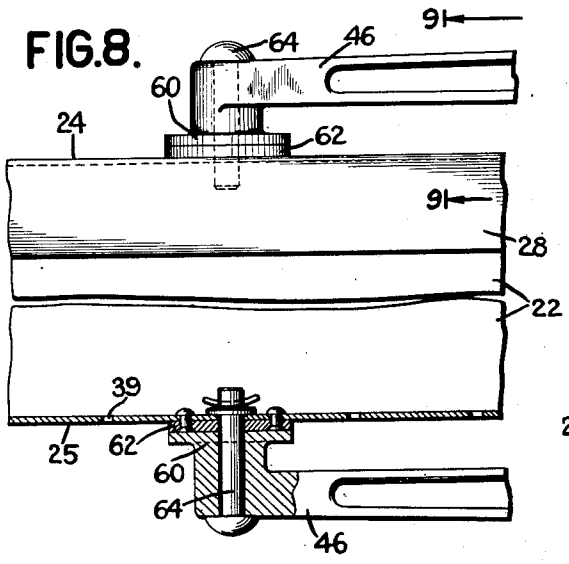


FIG.9.

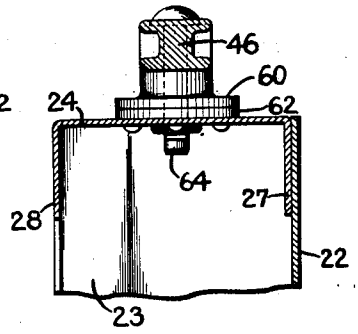


FIG.10.

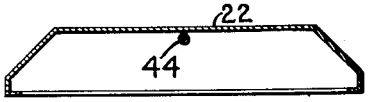


FIG.11.

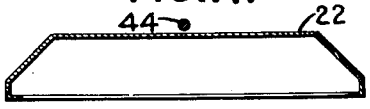
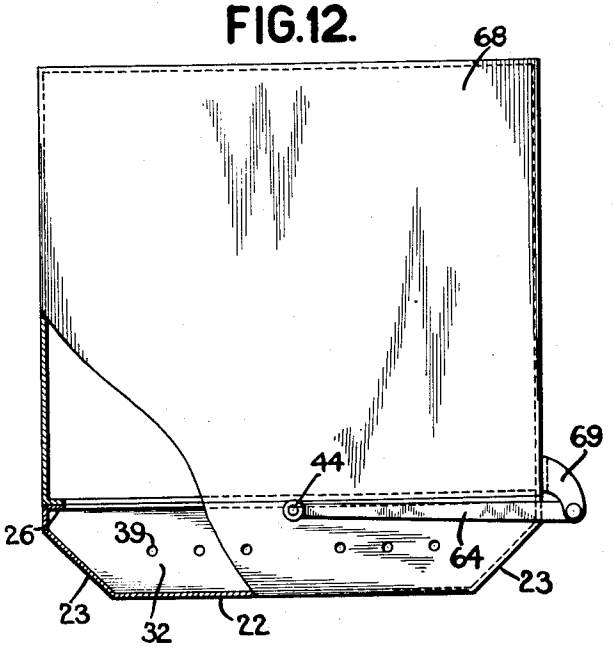


FIG.12.



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UNITED STATES PATENT OFFICE

2,019,054

CABINET

Henry A. Manz, Richmond Hill, N. Y.

Application January 20, 1933, Serial No. 652,619

5 Claims. (Cl. 312—112)

This invention relates to cabinets or closets of the kind supported upon a door or other surface and movable with respect to the door to permit access to the cabinet.

It has heretofore been proposed to provide a closet having rear, side and top and bottom walls whereby the front of the closet is open and to hinge such closet along one vertical edge, at the front face, to a door so that when the open front face is against the door, the closet is, in effect, closed and when the closet is swung on its hinges away from the door, access to the interior of the closet may be had through the open front face. Such a closet has the disadvantages that when the closet is open, so to speak, it projects outwardly from the door rendering considerable space in front of the door incapable of use and preventing the door from being opened and closed for momentary passage through the doorway.

Closets of this type are extremely useful since they may be installed upon the inside of a closet door, on the inner side of a room door or on a door in a hallway and serve as receptacles for medicines and toilet accessories or as a broom closet or for beverages or as additional space in which to hang clothing. They have, however, not gone into widespread use because of the disadvantages, among others, heretofore enumerated.

The present invention has for its primary object a cabinet for mounting on a door or other support which shall be free from all the disadvantages of the existing type.

The invention, therefore, seeks a cabinet which is movable from a closed position in which its open side lies flat against a door or other surface to an open position in which the cabinet is again flat against the door or surface.

Another object of the invention is a cabinet which is mounted to have a combined swinging and revolving movement to accomplish the purpose desired.

The invention also has for its object a pivotal support for the cabinet to permit the required movements to be attained.

Still another object of the invention is a pivotal mounting for a cabinet which shall insure the cabinet axis remaining in a vertical position throughout all movements and in all positions.

The invention also seeks a mounting for cabinets which shall serve to hold the cabinet in its closed position.

In carrying these aspects of the invention into effect, the cabinet is supported from the end of at least one arm pivoted on a door or other surface. Preferably two such arms are provided pivoted on the axis of revolution of the cabinet, one above and one below, and means are provided to prevent the cabinet tilting during movement thereof. The arms are preferably pivoted on the door or other supporting surface approximately outside of a side edge of the cabinet. To keep the cabinet against the door in either open or closed position, resilient means are provided which tend to urge the arms against the door.

In another of its aspects, the invention has to do with a closure for a closet or the like which is, itself, capable of use as a container. The cabinet of this invention may, therefore, serve as a door for a closet, for instance, a medicine wall closet and being capable of a combined swinging and revolving movement, may be reversed to expose the interior of the closure or moved as a door to permit access to the closet.

A further object of the invention is a cabinet of the character described which is practical from the standpoint of ease and cheapness of manufacture and convenience and durability in use.

These and other objects of the invention and the means for their attainment will be more apparent from the following detailed description, taken in connection with the accompanying drawings illustrating various embodiments by which the invention may be realized and in which:

Figure 1 is a view showing a door in side elevation to which a cabinet of this invention is affixed, the cabinet being in closed position;

Figure 2 is a view similar to Figure 1 but showing the cabinet in open position;

Figure 3 is a vertical sectional view of the cabinet taken in the plane indicated by the line 3—3 of Figure 2;

Figure 4 is an enlarged view showing details of one of the supporting arms shown at the top of Figure 2;

Figure 5 is a transverse sectional view of details of construction of the parts shown in Figure 4, taken in the planes indicated by the broken line 5—5 of Figure 4;

Figure 6 is an enlarged view showing the pivotal connections between one of the supporting arms and the door or surface to which it is attached;

Figure 7 is a fragmentary sectional view showing the connections between a supporting arm and the cabinet, taken on the line 7—7 of Figure 4;

Figure 8 is a view showing a modification of the means whereby the cabinet is prevented from

tilting, parts of the cabinet being broken away;

Figure 9 is a vertical sectional view of the structure of Figure 8, taken in a plane indicated by the line 9—9 of Figure 8;

Figure 10 shows another position of the axis of revolution of the cabinet from that shown in Figure 5;

Figure 11 shows still another position of said axis; and

Figure 12 shows a further modification of the invention in which the cabinet is used as a closure for, say, a medicine closet.

While the invention has been illustrated as a cabinet mounted upon a door herein, it will be apparent that the cabinet can equally well be applied to a wall or any other supporting surface.

Referring first to Figures 1 and 2, a door 20 adapted to close a doorway may be conveniently hinged or pivoted along one edge, say, 21. The space immediately in back of this door (in the drawings the space between the door and the eye of the observer) is frequently put to no use. By this invention, a cabinet is affixed to and supported on the door 20.

As shown, the cabinet comprises a back wall 22, side walls 23 and top and bottom walls 24 and 25, respectively, to form a relatively shallow cabinet. The back and side walls may conveniently be formed of a single sheet of metal bent to the shape illustrated in Figure 5 as by bending a metallic sheet of appropriate size in a die. The free edges of sides 23 are turned in as a strengthening flange 26 extending along the two vertical edges and defining the open front face of the cabinet. The top 24 and the bottom 25 are shaped to conform to the cross-sectional shape of the cabinet and have an inturned flange 27 and 28, Figure 4, at the front and rear, respectively. The rear flange 27 may be spot welded to the rear wall and the front flange 28 may be spot welded at its end to the vertical flanges 26.

Within the cabinet may be disposed one or more horizontal shelves 32, as desired, or no shelves may be provided and instead hooks 34 at any convenient height may be carried with the rear and side walls. The hooks may be spot welded to the wall. The shelves are likewise formed, conveniently, with upturned front flanges 35 conveniently spot welded at their ends to the vertical flanges 26 and rear flanges 36 bent downwardly and conveniently also spot welded to the rear wall 22. Where no shelves are provided, the front of the cabinet may be reenforced by transverse metal bars, such as the bar 38 at a predetermined distance from the lower end and a similar bar, not shown, if desired, at an equal distance from the upper end.

If desired, the shelves 32 and top and bottom 24 and 25 may be perforated, as at 39, for ventilation and cleaning purposes. The shelves may be either in a horizontal plane, as at 32 in Figure 3 or in a plane sloping to the rear, as shown at 40 in that figure, whereby bottles will not tend to tip and fall off as the cabinet is moved. The front flange 35 of each shelf holds objects on the shelf.

It is desirable that the cabinet lie against the door, when in both open and closed positions, so as to occupy little space and permit the door to be opened when required. To this end, the cabinet is so mounted on the door as to have a combined swinging and revolving movement. Accordingly, in the modification of Figures 1 to 7, a vertical rod 44 is disposed in the cabinet midway between its sides and in the preferred embodiment, just inwardly of the front open face. This rod 44 protrudes above and below the top and bottom, respectively. The cabinet revolves on this rod 44 as an axis.

To the ends of the rod 44 are secured arms 46 which are, conveniently, identical castings. Each arm 46, is provided at the one end with a boss 47 which acts as a bearing for the cabinet and which is fixed to the rod as by a pin 48 (Figure 7). If desired, a bearing washer 45 may lie between the cabinet and the boss 47. The opposite end of each arm is formed with an annular bearing member 49 received between ears 50 on a bracket 51 adapted to be secured to the door along one edge of the cabinet but above and below the same, and in any convenient fashion, as by screws passing through the holes 52. The bearing member 49 receives a pin 53 seated in the ears 50. Thus the arms 46 turn about the pins 50 through an arc which may be approximately 180° and the cabinet may revolve through 360° about its axis 44.

Figure 5 shows various positions which are assumed by the cabinet between open and closed positions. The open position of the cabinet and the position of the arms 46 are shown in full lines. It is moved most conveniently, if grasped by the edge remote from the pivots 53 and revolved about its axis 44 in a counter-clockwise direction as viewed in Figure 5. As the cabinet is moved to closed position, it revolves about its axis 44 through the dotted line position *a* at an angle to the door 20 to the position *b* at right angles to the door. It has by this time revolved on its axis 44 through 90°. At the same time, the arms 46 have moved through only a relatively small angle about the axis of the pin 53 against the action of spring 55 to the dot and dash line position. Further rotation of the cabinet about its vertical axis in the counter-clockwise direction will permit the arms 46 to swing back through the same angle until they lie substantially parallel to the door as shown in dotted lines when the cabinet will occupy the position shown in dotted lines at *c*. At this time, the open face of the cabinet is against the door and the cabinet has revolved through 180°.

To hold the cabinet in the closed position of Figure 1, the arms are urged into parallel relationship with the door by springs. As shown in Figure 6, a spring is coiled about the bearing portions 49, as at 55, with the free ends 56 turned outwardly and hooked around the ears 50 of the bracket. The intermediate portion 57 of the spring overlies the arm 46. The spring is applied to the arm so as to be under tension with a tendency for the part 57 to urge the arm 46 against the door. Preferably both arms have springs 55—57.

The springs 55—57 hold the cabinet against the door whether the cabinet is in open or closed position or whether the door 20 is being swung on its hinges or is stationary. No additional latch is, therefore, required.

The rod 44 may be fixed within the cabinet at the front, as shown in Figure 5, or at the back, as shown in Figure 10, or in rear of the rear wall 22, as shown in Figure 11. It is preferred to dispose it near the front face so that when clothing is hung in the cabinet, the rod 44 will serve to retain it therewithin.

Since the rod 44 unites the ends of the upper and lower arms 46 and since the pins 53 lie in a vertical line, the arms 46 move in and remain in a plane so that the cabinet cannot tilt when being revolved from open to closed position.

Another means of preventing the cabinet from

tipping is illustrated in Figures 8 and 9. Here the arms 46 are provided with bosses 60 having enlarged circular bearing surfaces lying in transverse planes. Cooperating circular bearings 62 are secured, as by rivets, to the top and bottom surfaces of the cabinet in the axis of revolution thereof. Pivot pins 64 hold the cooperating bearing surfaces 60 and 62 together. Being of sufficiently great area, these bearing surfaces prevent the cabinet tilting as the pivot of the arms on the door is relatively rigid.

In Figure 12, a closet 68, such as a so-called medicine cabinet, is shown which may be sunk within the wall of a room or be secured to the face thereof. Or the closet 68 may represent a so-called broom or utility closet or any clothes closet. The front face of closet 68 is open. A cabinet 22—26, such as hereinbefore described, serves as a closure for the closet. The arms 64, in this instance, are pivotally mounted on brackets 69 of any convenient shape carried by the closet. Thus, the cabinet, when in closed position, as shown in Figure 12, serves as a closure for the closet and when the cabinet is moved with the combined swinging and revolving movement to open position heretofore described, access may be had to the interior of the cabinet. When the arms alone are swung about their point of pivot on the brackets 69, the cabinet swings open as a door and access is had to the closet. In this instance, springs 55—57 are omitted in order that the cabinet may stand open, as a door. Springs may, however, be provided, if desired.

To prevent the cabinet marring the surface of the door 20, strips 70, conveniently of a non-metallic and preferably resilient material such as rubber reenforced with fabric, are secured to the door. These strips 70 are just about as long as the cabinet is wide and are conveniently disposed where the upper and lower edges of the cabinet might strike the door. Midway between, if desired, a wider strip 71 may be disposed. These strips also serve as buffers to cushion the shock of the cabinet striking the door and absorb or prevent any noise resulting therefrom.

It will thus be seen that a cabinet has been provided which has a combined swinging and revolving movement between a closed position in which its open face is flat against a vertical supporting surface and an open position in which the back of the cabinet is flat against the same area of the supporting surface and the interior of the cabinet is accessible. To hold the cabinet against the surface in either open or closed position, resilient means, such as spring pressed arms, are provided.

Various modifications will occur to those skilled in the art in the composition, configuration and disposition of the component elements going to make up the invention as a whole as well as in the use to which the invention may be put and no limitation is intended by the phraseology of the foregoing description and illustrations in the accompanying drawings, except as indicated in the appended claims.

What is claimed is:—

1. In a device of the character described, the combination with a vertical plane supporting surface, of a cabinet having a closed back and an open front, a vertical rod passing through the cabinet, about which the cabinet revolves as an axis, arms secured at their outer ends to the upper and lower ends, respectively, of said vertical rod, brackets carried by said plane supporting surface, for pivotally supporting the inner ends of said supporting arms, whereby the cabinet may be reversed for exposing or concealing the open front thereof.

2. In a device of the character described, the combination with a vertical plane supporting surface, of a cabinet having a closed back and an open front, arms by which the cabinet is supported, means pivotally mounting one end of each of the arms from the supporting surface on substantially a common vertical axis, a vertical rod connecting the free ends of the arms and passing through the cabinet in a vertical median plane of the cabinet, means rotatably supporting the cabinet with the rod whereby said cabinet is prevented from tilting from the vertical and spring means acting between the vertical supporting surface and each arm always engaging said arms about their pivots in the same direction whereby the cabinet may be swung toward and away from the supporting surface, with its open front resiliently held against said surface and thereby concealed.

3. A reversible cabinet, suitable for mounting on a door having a back wall, the front of the cabinet being open, supporting arms engaged at their outer ends with the cabinet, pivotally supporting it so that it can be turned about a vertical axis for reversing it, bracket means pivotally supporting the inner ends of said supporting arms, said supporting arms terminating at said brackets, whereby the vertical axis about which the cabinet turns is itself bodily movable outwardly in an arcuate path for permitting turning the cabinet 180° for reversing it to expose or conceal the open front thereof.

4. A reversible cabinet, suitable for use on a door, having a substantially flat back wall, the front of the cabinet being open, supporting arms engaged at their outer ends with the cabinet, pivotally supporting it so that it can be turned about a vertical axis for reversing it, bracket means pivotally supporting the inner ends of said supporting arms, said supporting arms terminating at said brackets, whereby the vertical axis about which the cabinet turns is itself bodily movable outwardly in an arcuate path for permitting turning the cabinet 180° for reversing it to expose or conceal the open front thereof, and spring means cooperating with said supporting arms, whereby the cabinet is resiliently held in either its obverse or reverse position.

5. A reversible cabinet, having a closed back and an open front, a bearing plate permanently secured to the top of the cabinet and providing a horizontal bearing surface, a bearing plate permanently secured to the bottom of the cabinet and providing a horizontal bearing surface, supporting arms having at their outer ends widened bearing plates having horizontal bearing surfaces adapted to bear against said horizontal bearing surfaces on the cabinet, respectively, pivotal means passing through the outer ends of the supporting arms and through said bearing plates, and bracket means for pivotally supporting the inner ends of the supporting arms, said mounting for the cabinet holding it against tilting and permitting its rotation 180° for reversing it.

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