

Oct. 8, 1957

H. D. MINOR
DOOR CONSTRUCTION AND A CONCEALED
HINGE ASSEMBLY THEREFOR

2,808,610

Filed May 26, 1954

2 Sheets-Sheet 1

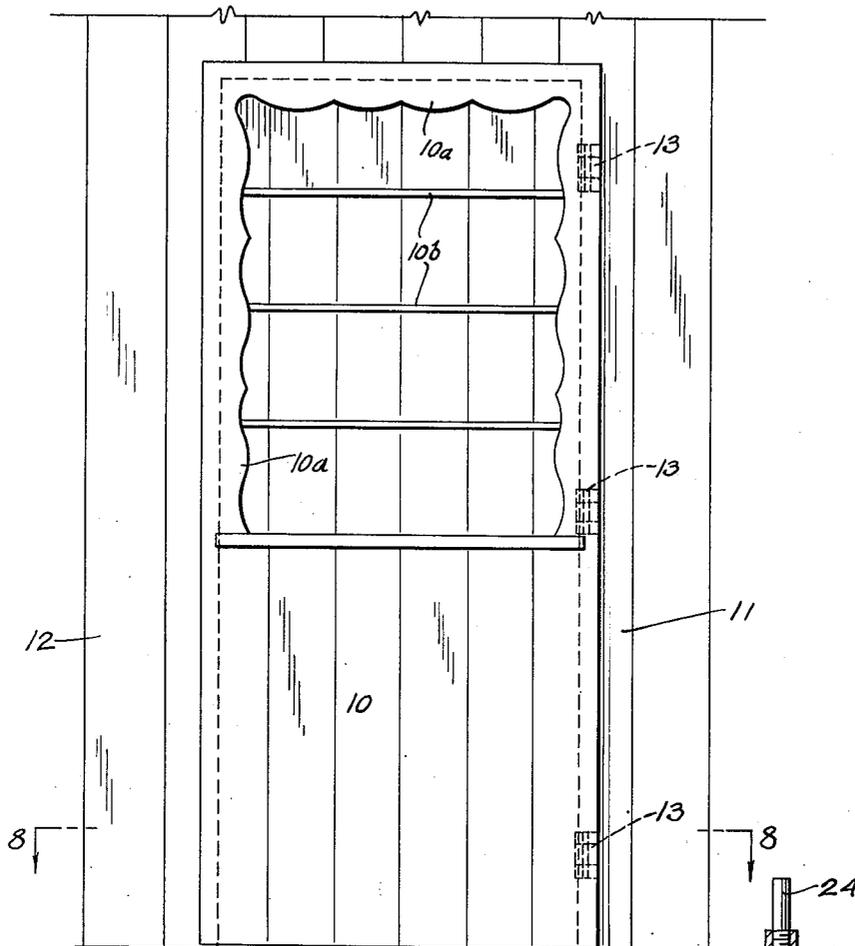


FIG. 1.

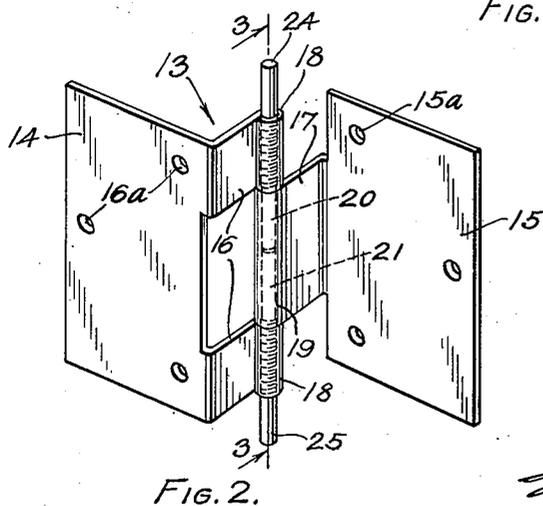


FIG. 2.

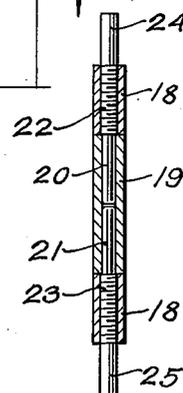


FIG. 3.

INVENTOR.
HAROLD D. MINOR
BY
McGraw & Edwards
ATTORNEYS

Oct. 8, 1957

H. D. MINOR
DOOR CONSTRUCTION AND A CONCEALED
HINGE ASSEMBLY THEREFOR

2,808,610

Filed May 26, 1954

2 Sheets-Sheet 2

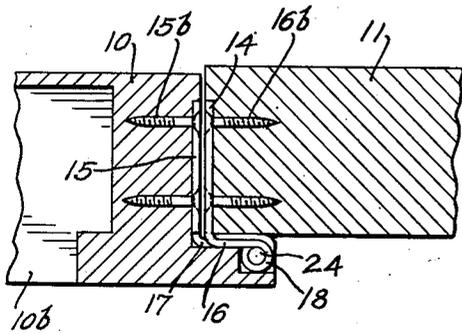


FIG. 4.

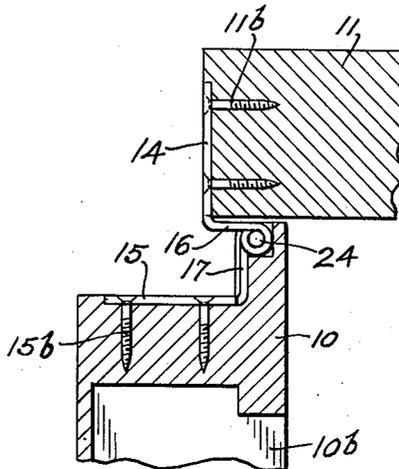


FIG. 5.

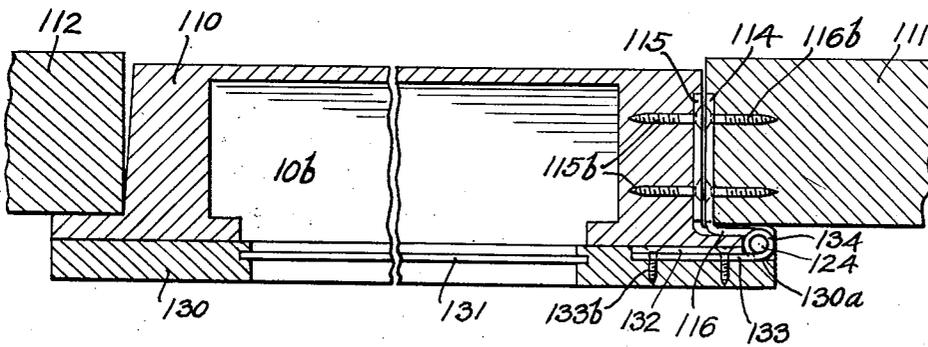


FIG. 6.

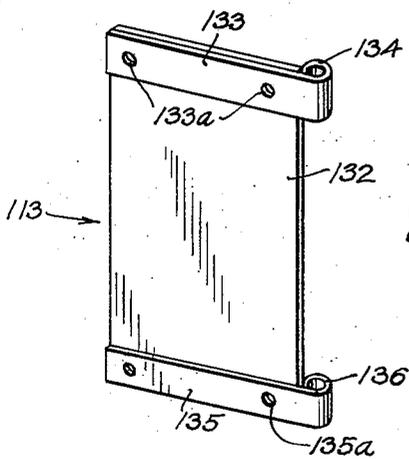


FIG. 7.

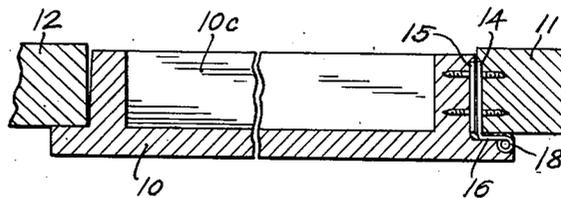


FIG. 8.

INVENTOR.
HAROLD D. MINOR
BY
W. Green & Edwards
ATTORNEYS

1

2,808,610

DOOR CONSTRUCTION AND A CONCEALED HINGE ASSEMBLY THEREFOR

Harold D. Minor, Denver, Colo.

Application May 26, 1954, Serial No. 432,438

6 Claims. (Cl. 16—162)

My present invention relates to a door construction and to a concealed hinge assembly for the same. It has to do particularly, although not exclusively, with a concealed hinge assembly for a swinging door construction or unit, which door structure may be ornamental, as well as utilitarian, in which the construction may consist of a main door and an auxiliary or overlying door with or without a transparent panel therein, or of the main door alone, and in which the main door is provided with shelves built into its upper outer portion and with additional shelves built into its lower inner portion.

As is well known, conventional panel-like doors for closets, between rooms, and for use in closing other conventional wall openings, serve solely as closure members for those openings. At best, the most use that has been made heretofore of the inner side or face of a closet door has been by way of hanging garments from hooks or nails driven into the material of the door, or to support shoe bags or portable shoe supporting racks which were mounted on the door face by means of nails or screws. In most instances, the available space on the back or inner face or surface of a closed door has not been utilized.

Moreover, with conventional doors as mentioned in the preceding paragraph, conventional door hinges have been used to hang the doors, the pintle and pintle holding portions of said hinges being exposed at all times and projecting outwardly from the edge of the door and door jamb to be unsightly, or at least non-ornamental.

It is, therefore, one of the objects of my present invention to provide a new and improved door having ornamental as well as additional utilitarian characteristics other than serving merely as a closure for an opening.

Another object of my invention is to provide a new and improved door structure having accessible means on both sides or faces thereof for receiving, storing, and displaying a wide variety of articles.

A further object is to provide a composite or double door construction having article-supporting means or members on both outer and inner sides or faces, together with means for displayingly protecting articles on the article-supporting surfaces from dust, damage, or dislodgement.

Another object of the invention is to provide a new and improved hinge assembly for a door construction comprising either a single main door, or a main door and an auxiliary overlying door, in which all parts of the hinge assembly are completely concealed from view from either side of the door construction when the doors are closed.

A further object is to provide a hinge assembly for supporting a single main door having means for the attachment of an auxiliary overlying door, in which the hinge assembly is completely concealed from view whether supporting a single main door or a main door and an auxiliary door when the main door or the main and auxiliary doors are closed.

2

Still another object of the invention is to provide a new and improved concealed hinge which is of relatively simple construction, easy to assemble and install, and one which can be manufactured at relatively low cost by assembly line methods.

The foregoing and other objects and advantages of the invention will be apparent from the following description and appended claims when considered in conjunction with the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

In said drawings:

Fig. 1 is a front elevational view of one form of my new door construction and new concealed hinge assembly.

Fig. 2 is a perspective view of the hinge assembly embodying the present invention.

Fig. 3 is a vertical sectional view taken substantially along the line 3—3 of Fig. 2, looking in the direction of the arrows.

Fig. 4 is a fragmentary horizontal section showing my new hinge assembly applied to a door and a door jamb, with the door in closed position.

Fig. 5 is a view similar to Fig. 4 but showing the door in open position.

Fig. 6 is a horizontal sectional view, partly broken away, through another form of door structure embodying my invention, in which there is an inner main door and an outer auxiliary or covering door and illustrating my improved hinge assembly for use with such dual doors.

Fig. 7 is a perspective view of one form of third hinge member or hinge leaf structure for use in connection with the hinge structure or assembly shown in Figs. 2 and 3; and

Fig. 8 is a fragmentary horizontal sectional view, partly broken away, taken substantially along the line 8—8 of Fig. 1, looking in the direction of the arrows and being on a reduced scale.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. It is to be understood also that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

Figs. 1 through 5 and Fig. 8 illustrate one form of my improved door construction and one use and form of my improved hinge assembly. The door of this form is indicated as a whole at 10 and at its upper outer face portion is provided with an ornamental or scalloped trim 10a, the upper outer portion of the door also being recessed or deep enough to support a series of shelves 10b. These shelves may be independently adjustable relatively to one another, if desired. The lower portion or section of door 10 is decreased or deep enough to provide space for a series of inner shelves 10c, see particularly Fig. 8, which shelves may also be independently adjustable if desired.

Door 10 is set into an opening between a door jamb 11 and the adjacent portion of a wall 12. The door is supported in position by hinges, each of which is shown as a whole at 13 and three such being illustrated. Thus, the door is not only attractive and ornamental to simulate a corner cupboard, but it serves two utilitarian purposes, namely to close the opening in the wall and to provide means for supporting articles on the outer side or face of the door, as well as on the inner side or face of the door, by virtue of the provision of the shelves 10b and 10c.

The hinge of the present invention in accordance with one of its forms, is best seen in Figs. 2, 3, 4 and 5. The

hinge 13, as shown, comprises two parts 14 and 15, the hinge member or leaf 14 being adapted to be fastened to the edge of door jamb 11, and the hinge member or leaf 15 to the adjacent edge of door 10, see Figs. 4 and 5. Hinge member 14 is provided with a pair of substantially right angularly disposed offset portions 16, 16 which terminate at their outer free ends in rolled portions providing sockets 18. Hinge member or leaf 15 is provided with a single substantially right angular offset portion 17 which terminates at its outer end in a rolled portion or socket 19. The member 17 interfits with members 16, 16 and it should be noted that the portions 16, 16 and 17 are offset in the same direction. Hinge member 14 is provided with openings 16a for the reception of screws 16b to permit the member to be attached to door jamb 11. Hinge member 15 is provided with holes or openings 15a to permit it to be attached to the edge of door 10.

As best seen in Figs. 1 and 2, when the rolled portions or sockets 18, 18 and 19 of the cooperating hinge portions 16, 16 and 17 are aligned, an upper hinge pin or pintle 20 and a lower hinge pin or pintle 21 are inserted. Pintle 20, as shown, has a threaded portion 22 and pintle 21 has a similarly threaded portion 23. These pintles may, however, be plain or unthreaded. Moreover, a single hinge pin or pintle may be employed instead of the two pins or pintles 20 and 21. Upper hinge pin 20 has an outer unthreaded projection or extension 24 beyond the edge of the upper socket member 18 and the lower hinge pin or pintle 21 has a similar unthreaded extension or projecting end portion 25 which extends below the lower socket 18 of hinge member 14. The projecting portions or extensions 24 and 25 provide means which permit the attachment and support of a third hinge member which is employed in the event the hinge assembly is to be used with an inner door and an outer door similar to the structure seen in Fig. 6. This will be explained fully below.

As best seen in Figs. 4, 5 and 8, the door 10 is provided with wall-overlapping edges which overlap the wall or supporting structure around three sides of the door. The overlapping portion of the door at the right edge thereof provides means for completely hiding or concealing the hinge assembly 13, see particularly Figs. 4 and 5. This is an important feature of the invention. In effect, the door 10 and its arrangement and design have the appearance of a corner cupboard due to the fact that the supporting hinges for the door are completely concealed or hidden from view.

With particular reference to Figs. 6 and 7 of the drawings, there is shown therein a composite or dual door construction having wall-overlapping edges and also my improved hinge assembly for supporting a main door and a covering or overlying door. The main or inner door is shown as a whole at 110, the adjacent door jamb at 111, and the adjacent wall portion at 112. The hinge assembly 113 for supporting the main door 110 of the form shown in Fig. 6 is identical with the hinge assembly 13 best seen in Fig. 2. It comprises a hinge member or leaf 114 which is attached to the edge of the door jamb 111. This hinge leaf 114 has a substantially right angular offset upper portion 116 which terminates in a rolled end or socket (not shown) and which corresponds to the upper socket 18 of the hinge shown in Figs. 2 and 3. The member 114 also has a lower offset portion 116 which is not shown but which underlies the offset portion of the other hinge member 115. The second hinge member or leaf 115 is attached to the adjacent edge of main door 110 by means of screws 115b. Similar screws 116b are used to attach the member 114 to the door jamb 111. The second hinge member 115 has a centrally disposed substantially right angular offset portion (not shown) which corresponds to the offset portion 17 of hinge member 15 of Fig. 2. This offset member interfits with and is disposed between the offset por-

tions 116, 116 in the same manner as the corresponding parts of Figs. 2 and 3.

With special reference to Fig. 7, there is shown in this view a so-called third hinge member or hinge leaf, indicated as a whole at 113. As shown, hinge member 113 comprises a flat rectangular plate 132 having at its upper edge a flat strap-like member 133 which is attached to the plate in any suitable manner, as by welding, and which terminates at its free end in a rolled portion or socket member 134. The plate 132 and strap 133 are provided with holes or openings 133a to receive screws 133b to permit the hinge member to be attached to a recessed portion on the inner face of the covering or overlying outer or auxiliary door 130. A second flat strap-like member 135 having holes or openings 135a therein is adapted to be removably attached to the lower portion of plate 132 when hinge member 113 is assembled with door 130. The free end of the flat strap-like member 135 is rolled to provide a socket 136 which is in axial alignment with the upper rolled portion or socket 134.

After the inner or main door 110 has been attached by means of the hinge assembly 113, the inner face of the outer or covering door 130 is recessed at 130a to receive the third hinge member 113. Before assembling, it will be understood that the lower removable strap or hinge member 135 is separate from the rest of the hinge member 113. The auxiliary door 130 is now lifted to bring the rolled portion or socket 134 of the upper strap 133 into alignment with the projecting pintle portion 124 and after the door has been lowered to telescope member 134 over the pin portion 124, the strap member 135 is telescoped over the lower projecting pin portion (not shown) which corresponds to the lower projection 25 of the hinge of Figs. 2 and 3. After the parts have been properly adjusted, additional screws 133b are inserted through the openings 135a in strap member 135 and through corresponding or registering openings (not shown) in the plate 132 whereupon the installation is complete.

As seen in Fig. 6, when the hinge assembly 113 is employed to support the inner or main door 110 and the outer or auxiliary door 130, as shown, and with these doors closed, the entire hinge assembly is completely concealed from view, this being due to the novel formation or shape of my improved hinge, coupled with the fact that both the inner and outer doors have wall-overlapping edge portions.

It will be understood, of course, that if desirable, the hinge member 113 may be varied in form from the one shown in Fig. 7. In fact, it is merely necessary to employ the two spaced flat strap-like members 133 and 135 which could be set into grooves or recesses in the inner face of door 130 and secured thereto by the screws 133b. The assembly of the parts would follow the order or sequence of steps as outlined above. That is to say, the strap member 133 with its socket portion 134 would be set into the grooved door and secured thereto. The socket 134 would then be telescoped over the projecting pin 124 to support the door. Thereafter, the other hinge or strap member 135 with its socket 136 would be brought into proper relationship with the lower projecting portion of the hinge pin or pintle (not shown) but which corresponds to the projecting portion 25 of Figs. 2 and 3 and the strap 135 set into its recess in the door and secured thereto by additional screws 133b.

From the foregoing it will be seen that with the novel arrangement and construction of doors embodying the present invention and the novel arrangement and structure of the hinge assemblies embodying the invention, a single door, such as illustrated in Fig. 1 may be employed with the hinge structure as shown in Fig. 2 and with the addition of the hinge structure 113 of Fig. 7, an inner or main door 110 and an outer or covering door 130 may be supported by the new and novel hinge assembly. In both instances, the hinge assemblies are com-

pletely concealed from view when the door, or doors, as the case may be, are closed.

It is desirable for certain purposes and use that the outer upper shelves 10b be covered and protected by a transparent panel. When such is desired, the dual door structure of Fig. 6 is employed, in which case the outer covering or auxiliary door 130 which preferably has an ornamental edge similar to that shown at 10a in Fig. 1, is rabbeted out to receive a pane or sheet of glass 131, see Fig. 6.

Door 130 is preferably only of sufficient height to cover the upper outer shelving section of the main door 110. Thus, only the upper two hinges, as seen in Fig. 1, will need to have the third hinge member 113 added to provide support for the outer door. If, however, for any reason it should be desired to have an outer or covering door which extends the full height of the main or inner door, this can be achieved by simply adding the third hinge member 113 to the lower or bottom hinge 13 seen in broken lines in Fig. 1.

I claim:

1. A hinge assembly for a main door having wall-overlapping edges and an auxiliary door adapted to overlie the main door, comprising a hinge leaf for attachment to a door jamb, a cooperating hinge leaf for attachment to the main door, said hinge leaves having interfitting substantially right angular extensions offset in the same direction with their free outer ends rolled and intermeshed to provide an elongated socket for the reception of a removable pintle, a removable pintle in said elongated socket, said pintle having outer end portions projecting beyond both ends of said elongated socket, and a third hinge leaf for the auxiliary door, said third leaf comprising a flat plate secured to the inner face of the auxiliary door and having a pair of spaced extensions projecting beyond one edge thereof, said extensions being rolled at their outer ends to provide sockets telescoped over the outer end portions of the pintle to align with said elongated socket and be detachably supported thereby to cooperate with the other hinge leaves and support the auxiliary door, the entire hinge assembly being completely concealed from view when the main and auxiliary doors are closed.

2. A hinge assembly according to claim 1, wherein at least one of the spaced extensions is removably attached to said flat plate.

3. A hinge assembly for a main door having wall-overlapping edges, and an auxiliary door adapted to overlie the main door, comprising a hinge leaf for attachment to a door jamb, a cooperating hinge leaf for attachment to the main door, said hinge leaves having interfitting substantially right angular extensions offset in the same direction with their free outer ends rolled and intermeshed to provide an elongated socket for the reception of a removable pintle, a removable pintle in said elongated socket, said pintle having outer end portions projecting beyond both ends of said elongated socket, and separate hinge means for supporting an auxiliary door in position to overlie the main door when the auxiliary door is closed, said hinge means being attached to the inner face of said auxiliary door and removably engaged with the outer end portions of said pintle and cooperable with said hinge leaves to support said auxiliary door, the entire hinge assembly for both doors being completely concealed from view when the main and auxiliary doors are closed.

4. A hinge assembly for a main door having wall-overlapping edges and an auxiliary door adapted to overlie

the main door, comprising a hinge member for attachment to a door jamb, a cooperating second hinge member for attachment to the main door, said hinge members having interfitting right angular extensions offset in the same direction and disposed between the door jamb and an overlapping edge of the main door, the free outer ends of the extensions being rolled and intermeshed to provide an elongated socket for the reception of a removable pintle, a removable pintle in said elongated socket, said pintle having outer end portions projecting beyond both ends of said elongated socket, and a third hinge member attached to the inner face of the auxiliary door and engaged with the end portions of the pintle to support said auxiliary door, the entire hinge assembly being completely concealed from view when the main and auxiliary doors are closed.

5. A hinge assembly for association with a door jamb, a main door and an overlying auxiliary door, comprising a hinge member adapted for attachment to the door jamb, a cooperating second hinge member adapted for attachment to the main door, said first and second hinge members having interfitting substantially right angular extensions offset in the same direction with their free outer ends rolled and intermeshed to provide the hinge assembly with an elongated socket for the reception of a hinge pin, a hinge pin in said elongated socket having outer end portions projecting beyond both ends of the elongated socket, and a third hinge member adapted for attachment to the auxiliary door and having socket portions removably engaged with the outer end portions of said hinge pin to support said auxiliary door in cooperative relationship with said main door to overlie the same when desired, all parts of said hinge assembly being concealed from view by the doors when closed.

6. A concealed hinge assembly adapted for use with a door construction in which there is a main inner door and an overlying outer door or the like, comprising a hinge member adapted for attachment to a fixed support, a second cooperating hinge member adapted for attachment to the main inner door, said first and second hinge members having interfitting substantially right angular extensions offset in the same direction with their free outer ends rolled and intermeshed to provide an elongated socket for the reception of a hinge pin, a hinge pin in said elongated socket and having outer end portions projecting beyond both ends of said elongated socket, and a third hinge member adapted for attachment to the outer door and having socket portions removably engaged with the outer end portions of said hinge pin to support the outer door in cooperative relationship with the inner door, all parts of said hinge assembly being concealed from view when both of the doors are closed.

References Cited in the file of this patent

UNITED STATES PATENTS

292,005	Gilfillan	Jan. 15, 1884
750,193	James	Jan. 19, 1904
1,620,701	Teich	Mar. 15, 1927
2,150,064	John et al.	Mar. 7, 1939
2,346,430	Hauser	Apr. 11, 1944
2,604,156	Lillethroup	July 22, 1952
2,624,067	Tassell	Jan. 6, 1953

FOREIGN PATENTS

30,679	Switzerland	Jan. 21, 1904
511,013	Belgium	May 15, 1952
532,788	Great Britain	Jan. 30, 1941