July 22, 1952 F. S. EVANS 2,603,824

HINGE WITH REMOVABLE SLEEVE

Filed April 19, 1948

FIG. 1

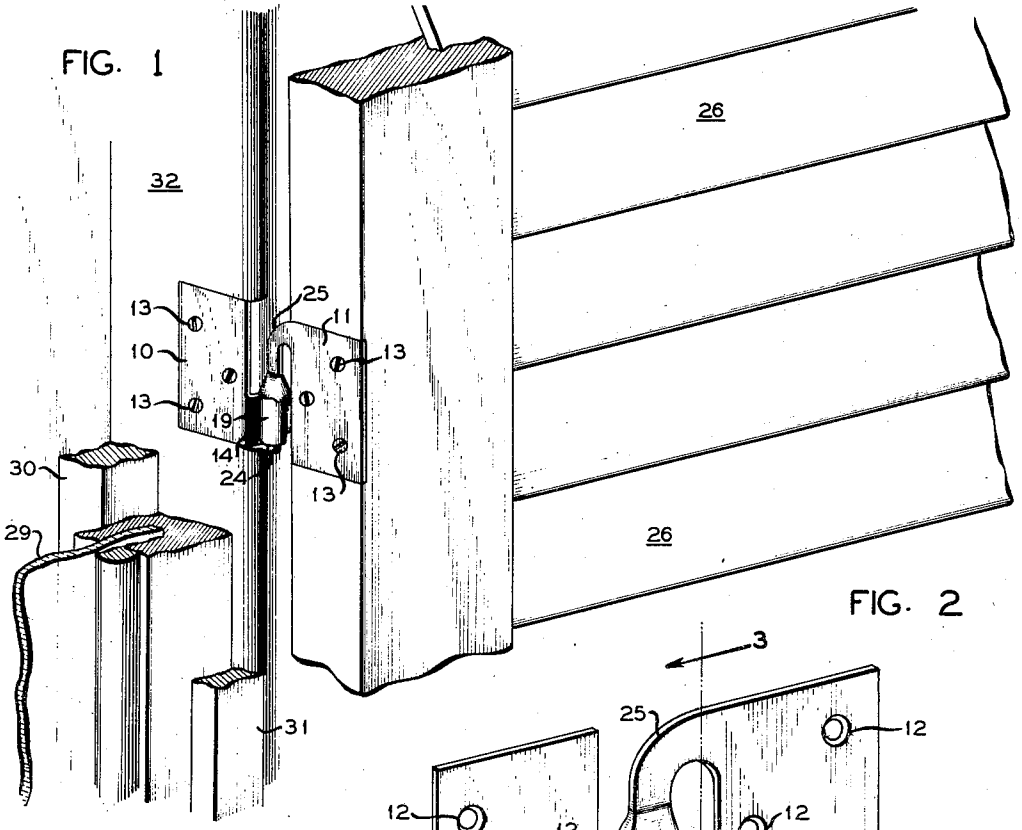


FIG. 2

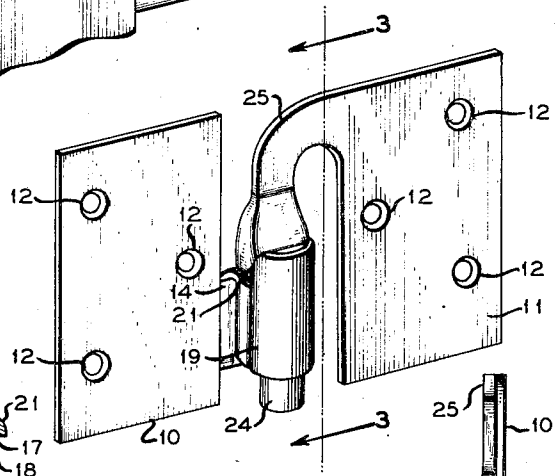


FIG. 3

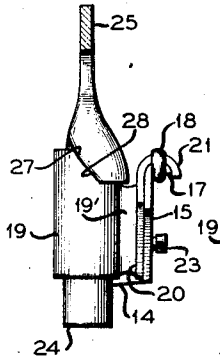


FIG. 4

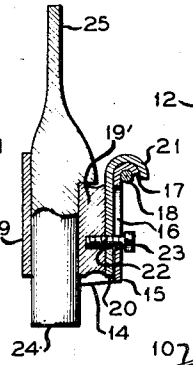


FIG. 5

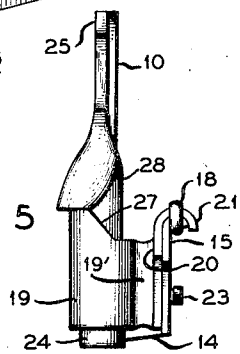
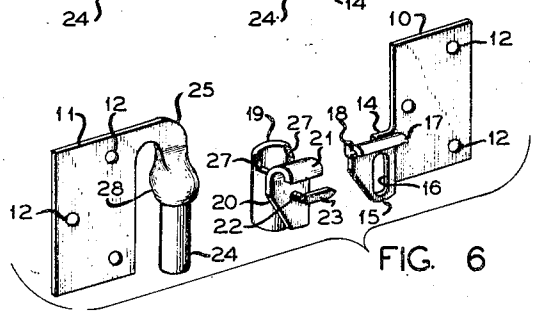


FIG. 6



INVENTOR.

F. S. EVANS

BY

Ayatt & Dowell

ATTORNEY

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HINGE WITH REMOVABLE SLEEVE

Fred S. Evans, Milton, Pa.

Application April 19, 1948, Serial No. 21,912

4 Claims. (Cl. 16—149)

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This invention relates to hinge construction and more particularly to an improved hinge for supporting shutters or other closure members supported adjacent windows or other openings of a building.

The present hinge is a modification of that shown in my prior applications, Serial No. 740,024 filed April 8, 1947, and Serial No. 775,449 filed September 22, 1947.

This invention and those described in the other two applications above-mentioned are intended to be used where storm windows and other closure means are employed. The mounting of shutters has been by means of hardware which projected into the window opening, and in applying or removing storm windows, screens and the like, it has been necessary to spend time and effort in the removal of such hinges. The reason for this was because it was necessary to clear the opening in applying storm windows, screens and the like, because the storm windows were the size of the window opening.

It is an object of the present invention to provide a simple, inexpensive, hinge which can be easily installed and which will effectively support a shutter or other closure member, but which can be simply and quickly removed in part without tools, in order to permit the application or removal of storm windows, screens or other objects.

It is a further object of the invention to provide a hinge which will maintain the shutter or other closure member fully open and in close parallel relation to the building without the necessity for additional holding means.

Further objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a perspective view illustrating the use of one application of the invention for supporting a shutter on a window frame in which is located a storm window;

Fig. 2 is an enlarged perspective at an angle to that of Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 2;

Fig. 4, a similar view with certain of the parts shown in section;

Fig. 5, an end elevation with the upper portion of the hinge at an angle of 180° from that of Fig. 3; and

Fig. 6, an exploded rear view of the hinge.

With continued reference to the drawings, the hinge of the present invention comprises hinge plates 10 and 11 of usual design having tapered

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openings 12 for the reception of screws or other fastening means 13, the taper of the heads of which correspond to that of the openings 12 in order that the fasteners may be countersunk and will not project above the surface of the plates 10 and 11. The plate 10 is provided with a flange 14 and a supporting bracket 15 located in a plane parallel to that of the plate 10, but slightly offset therefrom by means of the flange 14. The bracket 15 may be integral with the flange 14 and plate 10, or attached thereto by suitable means. The supporting bracket 15 is provided with a locking bolt slot 16, a hook bearing 17, and a limit stop 18, all for cooperation with complementary parts on an intermediate member in the form of a receiving sleeve 19. The receiving sleeve 19 is provided with a hanger 20 spaced therefrom by a thickened portion 19' of the sleeve 19, and having its upper end curled over to provide a supporting hook 21 adapted to rest upon and be supported by the hook bearing 17, outward movement being prevented by the limit stop 18. Separation of the supporting bracket 15 and the hanger 20 is prevented by a lug or threaded locking bolt 22 mounted on the hanger 20 and having a head 23. The slot 16 and locking bolt 23 forms in effect, a bayonet joint.

The receiving socket or sleeve 19 is disposed with its axis substantially in the plane of the hinge plate 10 and slightly forwardly thereof, in order to receive a pintle or pin 24 connected at its upper end by an arm 25 to the hinge plate 11, and serving to support the hinge plate and a shutter 26 in the proper rotary position for easy swinging of the said shutter 26 in the opening and closing movement of the same.

In order to maintain the shutter 26 in its fully opened position, cam means is provided, including cam surfaces 27 and 28, on the upper end of the sleeve and at the upper end of the pintle or pin 24, respectively.

From the foregoing it will be readily understood that a three-piece hinge is provided of simple and inexpensive construction which will efficiently support a shutter in open or closed position, and can be easily installed or removed, and when used the only projection in a window opening is the intermediate receiving sleeve, which is capable of being easily removed for insertion of an assembly, including a storm window 29 and guides 30 and 31.

In order to separate the parts of the hinge when they are applied it is only necessary for the hinge plate 11 carrying the pintle or pin 24 to be elevated, whereupon the receiving sleeve

19 can be raised slightly to cause the locking bolt 22 to move forwardly in the slot 16, whereupon the distance between the upper portion of the slot and the upper end of the limit stop is less than the distance from the locking bolt 22 and the inner surface of the supporting hook 21 so that the sleeve 19 can be rotated 90° until the head 23 of the locking bolt is in alignment with the slot 16, whereupon it can be easily drawn therethrough. After this is done the hinge plate 10 will still be attached to the window frame or jam 32. The plate 10, being countersunk into the window frame, nothing projects within the opening, the sleeve 19 having been removed, the supporting bracket 15 being offset by means of the flange 14.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. A three-piece hinge comprising a pair of hinge plates, a hinge pin carried by one of said plates, a removable pin receiving sleeve carried by the other plate, means connecting said removable sleeve and said other hinge plate comprising an offset supporting bracket on said other hinge plate having a portion with a vertical slot disposed parallel to said other hinge plate with an upper bearing surface and a supporting hook for said sleeve having a surface adapted to rest upon the bearing surface of said bracket, a headed locking member constructed to be extended through said slot in said bracket so that the head of said locking member may pass through said slot and thereafter be disposed at right angles to the length of said slot, and cam means on said pin and sleeve for maintaining the hinge plates in a definite position.

2. A hinge comprising a first plate, a pin arranged in spaced relation to said first plate and having its axis in the plane of the front face of said first plate and being fixedly secured at one end to said plate, a second plate having its front face movable into said plane, a sleeve having an opening of a size to pivotally and removably receive said pin, a bracket extending from said second plate and offset from the front face of said second plate and having a bearing surface at one end and an elongated slot therebelow, said sleeve bearing provided with a hook for engaging said bearing surface and said sleeve being provided with a lug having an elongated head adapted to be extended through said elongated slot for positioning transversely thereof before said hook engages the bearing surface.

3. A three-piece hinge comprising a pair of hinge plates, a hinge pin carried by one of said plates, a removable pin receiving sleeve carried by the other plate, means connecting said removable sleeve and said other hinge plate comprising an offset supporting bracket on said other hinge plate having an upper bearing surface and an elongated slot therein, a supporting hook for said sleeve having a surface adapted to rest upon the bearing surface of said bracket, a locking bolt having an elongated head with said bolt extending through said slot and said head extending transversely of the length of said slot, and cam means on said pin and sleeve for maintaining the plates in a definite position.

4. A three-piece hinge comprising a pair of hinge plates, a hinge pin carried by one of said plates, a removable pin receiving sleeve carried by the other plate, means connecting said removable sleeve and said other hinge plate comprising a supporting bracket on said other hinge plate having a bearing surface and a slot, a supporting hook on said sleeve having a surface adapted to rest upon the bearing surface of said bracket, a locking member constructed to extend through said slot in said bracket, an elongated head on said locking member for passage through said slot to be disposed transversely to the length of said slot for retaining the sleeve and said other hinge plate assembled, and cam means on said pin and sleeve for maintaining the plates in a definite position.

FRED S. EVANS.

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