April 21, 1925. 1,534,467

J. J. SHEA, JR

HINGE

Filed May 13, 1921

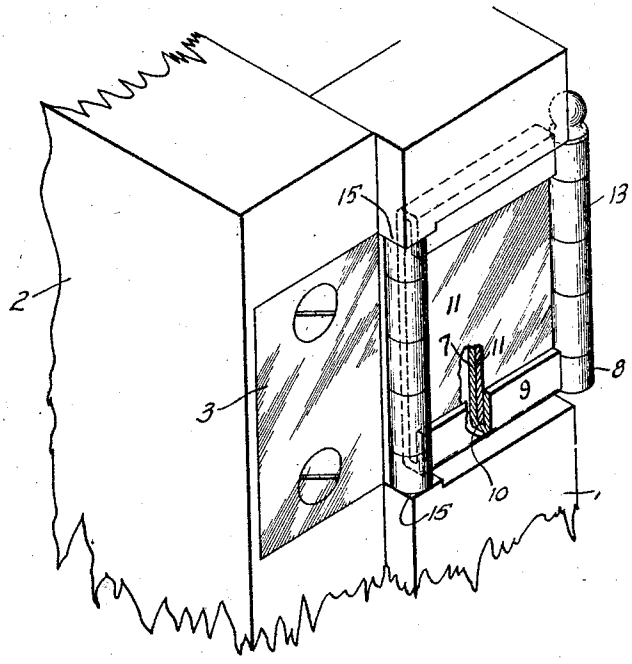


Fig. 1

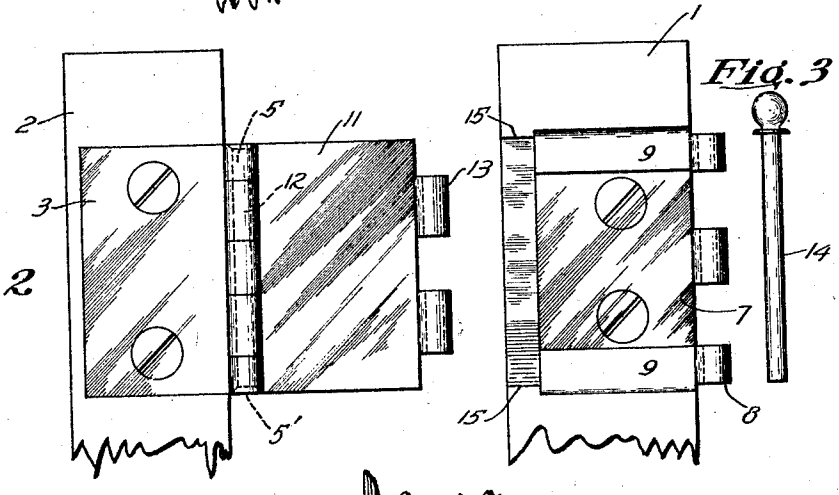


Fig. 2

Fig. 3

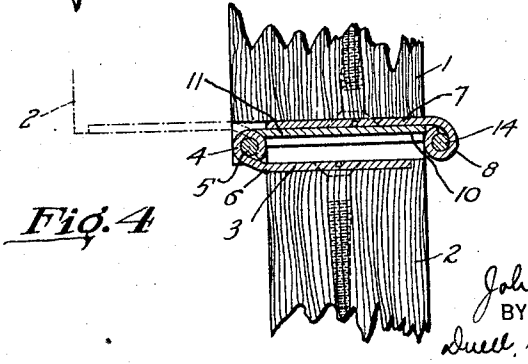


Fig. 4

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UNITED STATES PATENT OFFICE.

JOHN J. SHEA, JR., OF ELMHURST, NEW YORK.

HINGE.

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To all whom it may concern:

Be it known that I, JOHN J. SHEA, Jr., a citizen of the United States, residing at Elmhurst, in the county of Queens and State of New York, have invented certain new and useful Improvements in Hinges, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to hinge construction, and more particularly to such construction designed for mounting swinging doors.

It is an object of the invention to provide a hinge of improved construction for mounting doors, having readily detachable sections, the detaching means whereof is inaccessible from the exterior of the door.

It is a further object to provide an improved hinge for mounting swinging doors whereby the latter cannot be detached from its hinge mounting from a point to the exterior thereof while being readily detachable from an interior point.

A further object is to provide an improved hinge structure of the class mentioned having readily detachable parts, and which is easily applied and durable and efficient in use.

Often in buildings or other compartments where it is desirable to protect the interior from unauthorized access, hinged closures are frequently employed being provided with ample locking means for securing the closure in closed position. The hinge mounting in such cases has proved to be a weak point for attack, and forcible or unauthorized entry has been frequently accomplished by disconnecting or breaking the hinge parts. Entry is thus frequently gained in spite of the fact that the door lock proved efficacious to perform its functions. This invention renders it practically impossible to detach the stationary and movable hinge elements from each other from the outside of an outwardly swinging door while providing means whereby they may be readily detached from a point within, and the door quickly and easily removed from its mountings without the use of special tools. The door is also as readily mounted again in its hinged position in the door frame.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing wherein an illustrative embodiment of the invention is disclosed,

Figure 1 is a perspective fragmentary view showing an outwardly swinging door mounted in accordance with this invention;

Fig. 2 is a fragmentary elevation of one part of the improved hinge mounted in position on the door;

Fig. 3 is an elevation of a complementary part of the hinge mounted on the door post; and

Fig. 4 is a transverse sectional view of the hinge.

Referring to the drawing for a detailed description, the door post or frame is indicated at 1 and outwardly swinging door at 2. It will be understood that the compartment closed by the door is located at the right of the door post as viewed in Fig. 1. As many improved hinge units as desired may be employed for mounting a door, but as all units are of the same construction, disclosure of one will suffice.

The hinge butt or section 3 is secured to the edge of the door as by screws, being inset the thickness thereof into the edge of the door which is rabbeted for this purpose. The section 3 is provided at one edge adjacent the outward face of the door with spaced cylindrical lugs or knuckles 4, provided with central apertures for receiving the securing pin 5, the knuckles being offset or bent slightly away from the edge of the door as indicated at 6 in Fig. 4 for a purpose which will clearly appear hereinafter. A complementary butt or section 7 is firmly secured to the door post and has spaced cylindrical knuckles 8 at one edge corresponding to knuckles 4 and which in use are disposed adjacent the inner surface of the door post. The section 7 is also provided at its top and bottom edges with integral flanges 9 bent from the body thereof toward each other into a plane spaced from the body section, providing channels or grooves 10.

An intermediate hinge section 11 is adapted to be pivoted to the door section 3 being supplied for this purpose at one edge with knuckles 12, adapted to alternate in align-

ment with the knuckles 4. The intermediate section is permanently pivotally connected to the door section by the pin 5 passing through the aligning openings in the knuckles and headed at both ends as at 5' to prevent removal. At the opposite edge, section 7 is provided with lugs or knuckles 13 adapted to align in alternate positions with the knuckles 8 of section 7 and to be detachably secured thereto by a removable pin 14.

The intermediate section 11 is adapted to slidably engage at its upper and lower edges in channels 10 formed by the flanges 9 and is thereby firmly supported in co-operative relationship with section 7.

It will be noted that the section or butt 7 is rabbeted into the face of the door post bringing the pivot pin 5 inwardly beyond said face. The pin 5 is also set inwardly from the outward face of the door post as shown in Figure 4. This arrangement prevents removal of the pin 5 when hinge is mounted in position due to the overlying projections or shoulders 15 of the door post. Since the pin 5 is only removable by movement in the direction of its length, it will be seen that it cannot be removed without chiselling away the shoulders 15 of the door post as well as a considerable portion of the latter to permit the pin to move longitudinally. This will be particularly difficult of accomplishment particularly if the door post is of metal or other hard material. Also it will be noted that the pin 5 cannot be reached by a hack saw or similar cutting tool for the reason that it lies inwardly of the surface of the door post.

To prevent binding of the door in open or closed positions, and to permit swinging through 180°, the knuckles 4 are offset as at 6 to bring them into alignment with the knuckles on the section 11 which is slightly spaced from the section 3 as clearly shown on Fig. 4. The door is shown in closed position in full lines and in open position in dotted lines of this figure.

It will be readily perceived from the above disclosure that the door section of the hinge is supported through the intermediate section 11, the latter being firmly and immovably secured to the other hinge section by flanges 9 and pin 14. This connection is practically as firm and rigid as an integral connection and functions to support the swinging door in a thoroughly satisfactory manner. The pivot pin 5 being inaccessible when the hinge is in operative position, and moreover being permanently headed, unauthorized removal thereof, or the separation of the hinge sections is practically impossible, while at the same time the door is readily removable from its mountings from within by authorized persons merely by removing pin 14.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. The combination with an outwardly swinging door and a supporting door post therefor, of a hinge for mounting the door to swing outwardly, including a section to be secured to the door and a section to be secured to the door post, means for detachably securing said sections together, said securing means including an intermediate hinge section having a pivotal connection with one of said first mentioned hinge sections, said pivotal connection being inset into the hinge mounting to protect it from access from without when the door is in closed position.

2. The combination with an outwardly swinging door and a supporting door post therefor, of a hinge for mounting the door to swing outwardly, including a section to be secured to the door and a section to be secured to the door post, means for detachably securing said sections together, said securing means including an intermediate hinge section having a pivotal connection with one of said first mentioned hinge sections, said pivotal connection being inset into the hinge mounting to protect it from access from without when the door is in closed position, and said intermediate section having a detachable connection with one of the other sections disposed inwardly from the outer plan of the door post protected from access without when the door is closed but being accessible for detachment from within so that the door may be readily removed from its support by separation of the hinge sections.

3. The combination with an outwardly swinging door and a supporting door post therefor, of a hinge for mounting the door to swing outwardly, including a section to be secured to the door and a section to be secured to the door post, means for detachably securing said sections together, said securing means including an intermediate hinge section having a pivotal connection with one of said first mentioned hinge sec-

tions, said pivotal connection being inset into the hinge mounting to protect it from access from without when the door is in closed position, spaced channels for effecting sliding engagement between said intermediate section and one of the other sections, interdigitated apertured lugs upon said hinge sections, and a securing pin engaging said lugs and being protected from access from without when the door is closed but being accessible for detachament from within, so that the door may be readily disengaged from its support upon removal of said securing pin.

4. A hinge for outwardly swinging doors having sections permanently pivotally connected together on a line lying inwardly of the outer surface of the door post, so the door may swing outwardly while the pivotal connection between said hinge sections is protected from access from without and means spaced inwardly from said pivotal connection for detachably connecting said sections together.

5. The combination with an outwardly swinging door and a supporting door post therefor, of a hinge for mounting the door for swinging movement having sections with knuckles for pivotally connecting them together, a pivot pin connecting said knuckles and disposed inwardly of the outer surfaces of the door post so as to obstruct removal of the pivot pin, the knuckles of one section being offset so as to align with the knuckles on the other section, and connecting means spaced inwardly from said pivot pin for detachably connecting said sections together.

In testimony whereof I affix my signature, in the presence of two witnesses.

JOHN J. SHEA, JR.

Witnesses:
C. W. WEEKS,
M. A. CASHIN.