T. I. DUFFY.

HINGE MECHANISM FOR WINDOWS, &c.

APPLICATION FILED APR. 24, 1906.

925,568. Patented June 22, 1909.

Fig. 1.

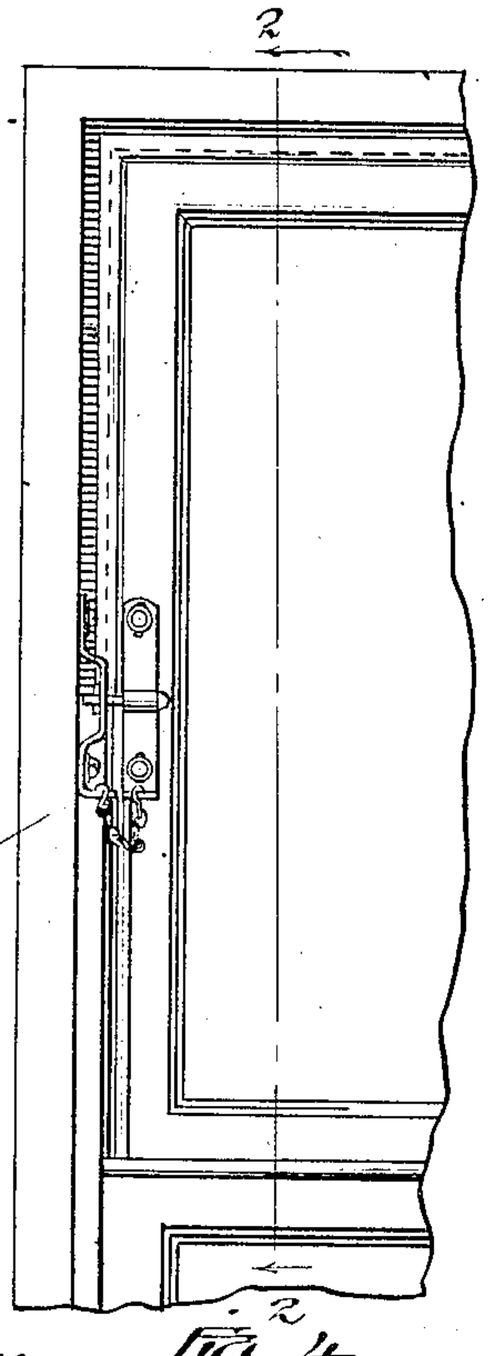


Fig. 2.

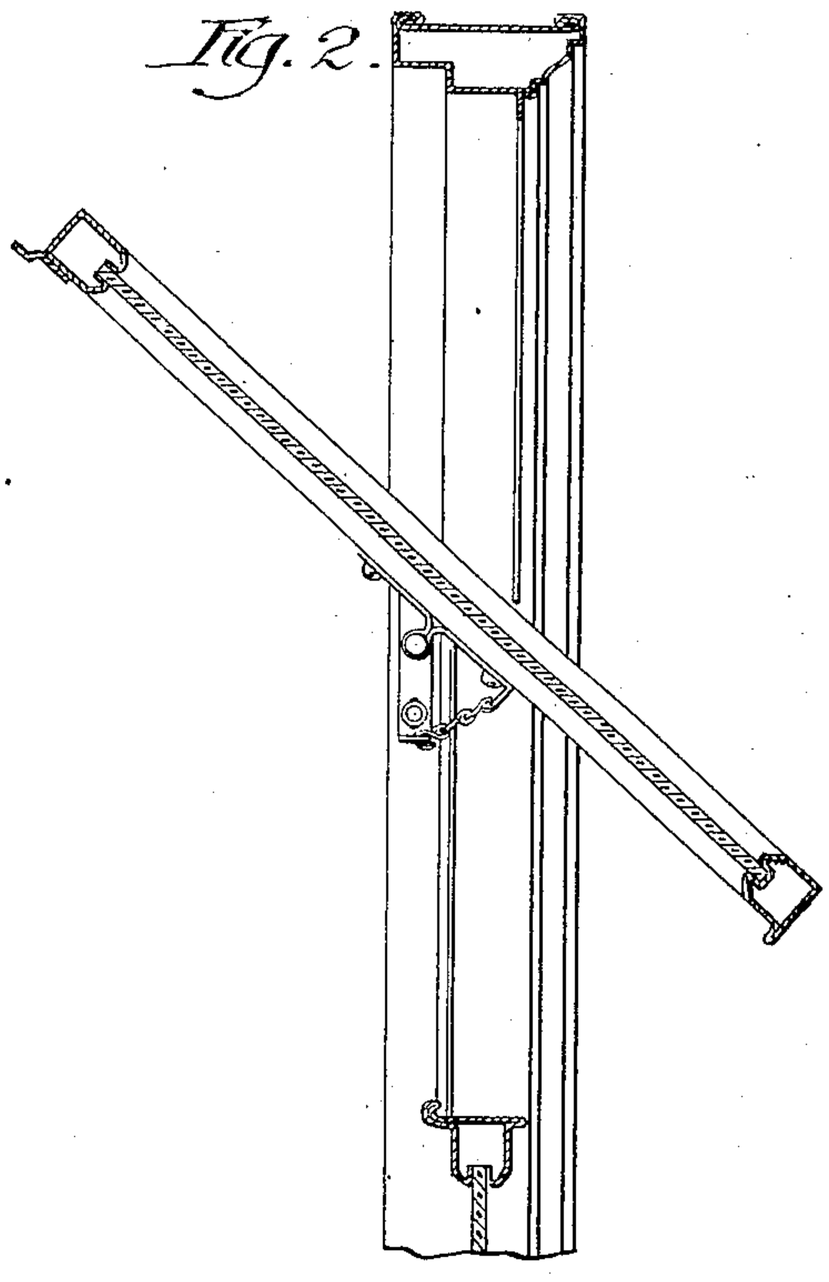


Fig. 3.

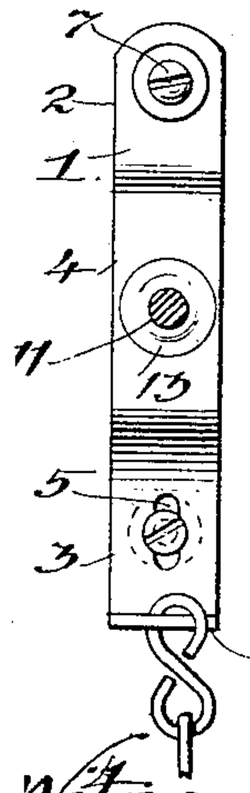


Fig. 4.

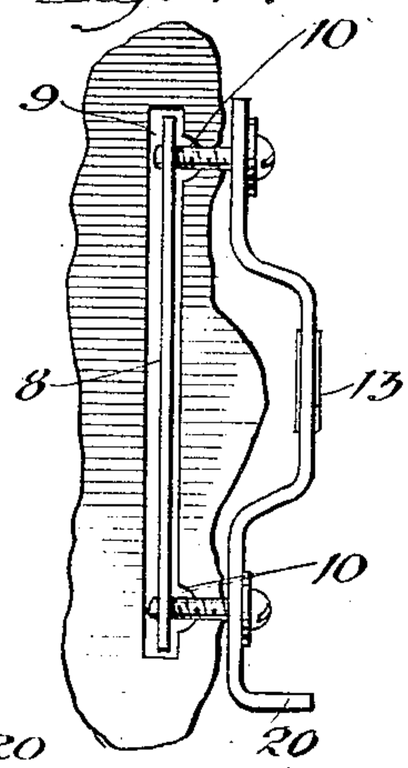


Fig. 5.

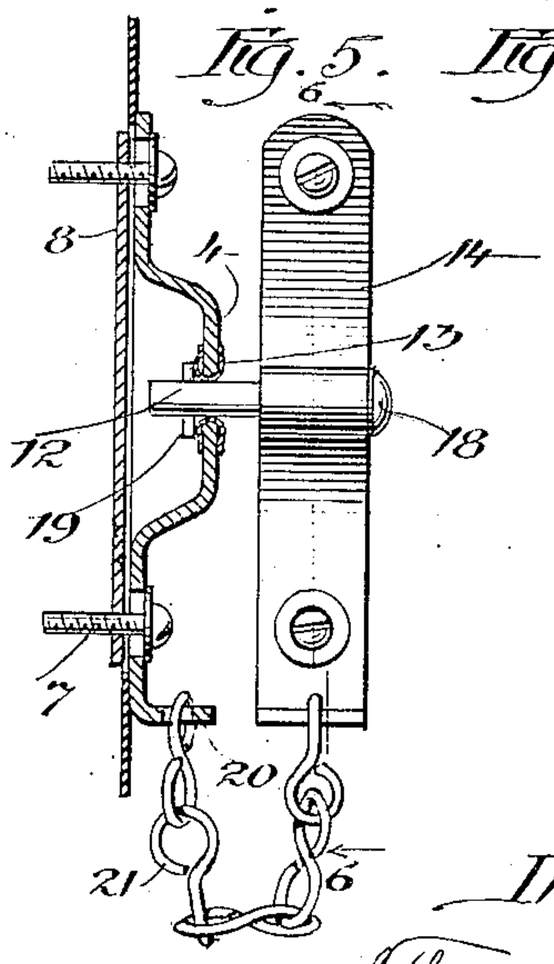
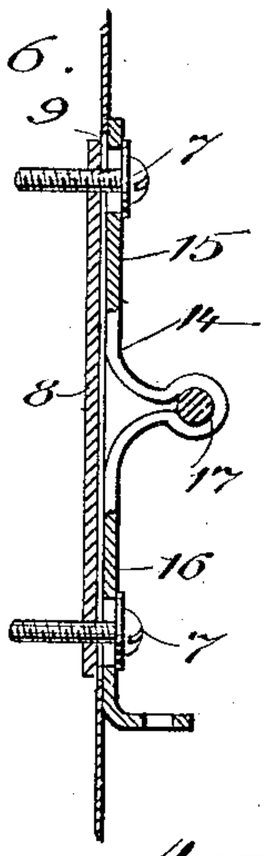


Fig. 6.



Witnesses:

Frank S. Blanchard

Frank L. Belknap.

Inventor:

Thomas I. Duffy.

By Albert N. Graves

Attorney

UNITED STATES PATENT OFFICE.

THOMAS I. DUFFY, OF CHICAGO, ILLINOIS, ASSIGNOR TO VOIGHTMANN & COMPANY, OF CHICAGO, ILLINOIS, A COPARTNERSHIP.

HINGE MECHANISM FOR WINDOWS, &c.

No. 925,568. Specification of Letters Patent. Patented June 22, 1909.

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To all whom it may concern:

Be it known that I, THOMAS I. DUFFY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hinge Mechanisms for Windows, &c., of which the following is a specification.

This invention relates to improvements in hinge mechanisms, and it has for its object to provide a construction which may be very cheaply and accurately manufactured, and which is so constructed that it may be applied to a window after the latter has in other respects been completely finished, and may also with equal facility be detached.

The invention will be readily understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a fragmentary view showing in elevation parts of a window frame and sash equipped with my invention; Fig. 2 is a sectional view taken on line 2—2 of Fig. 1; the sash being shown in partly open or tilted position; Fig. 3 is a face view of the stationary member of the hinge, the pintle or pivot stud being shown in section; Fig. 4 is a view showing a fragmentary portion of the window frame and the manner of adjusting the stationary member to position in the frame; Fig. 5 is a view showing the stationary hinge member in central vertical section and the movable member in elevation, the two members being shown in properly assembled relation; Fig. 6 is a view taken on line 6—6 of Fig. 5 showing the manner in which the movable member is applied to the window sash.

In mounting window sash within the frames, particularly where the structure is of the fireproof type and the sash is designed to close automatically, it is important to provide a construction in the pivot or hinge connections which permits of such adjustment as to allow the sash to swing with the utmost freedom, *i. e.* without binding in any of its movements, and also so constructed that the axis of the hinge falls considerably outside of that center of gravity which coincides with the plane of the window in order that the weight of the sash itself may serve to effectually close it when released. Metal windows of the fireproof type are usually painted or otherwise provided with an outside finish, which is applied after the frame and sash have been completed and before the glazing is set. It requires much care and the expenditure of unnecessary time to paint carefully around the hardware attachments, and on the other hand it produces an unsightly finish to undertake to paint or otherwise coat the hardware attachments besides tending to clog the hinges and interfere with the freedom of movement of the sash. These and other objections I overcome in my present construction.

Describing the mechanism, 1 designates a stationary member which takes the form of a strap of metal having end portions 2 and 3 adapted to rest flatwise against the window frame, and an intermediate or central portion 4 which is offset and lies in a plane near the edge of the window sash. The base portions 2 and 3 are preferably longitudinally slotted, as indicated at 5, and the member is secured to the side frame 6 of the window by means of screw-bolts 7 inserted through these slots. Inside of the sheet metal casing is arranged a flat strap or plate 8 apertured and threaded to receive the inner ends of the screws 7, as seen clearly in Fig. 5. In order that this reinforcing clamping plate may be adjusted to position after the window frame is constructed, the frame is slotted, as indicated at 9, the slot being somewhat wider than the thickness of the plate 8, and at points in lateral register with the screws 7 the slot 9 is laterally enlarged or notched, as indicated at 10. The screws 7 are of considerable length, and by applying the plate 8 to the ends thereof, substantially as shown in Fig. 4, and presenting the edge of the plate to the slot it may be passed through the casing and into position, or buttoned in, so to speak, and thereafter brought into the proper plane and position, and the screws tightened down so as to clamp the sheet metal of the frame firmly between the plate 8 and the base portions of the member 1.

The offset portion 4 is provided with a pivot aperture 11 for the reception of the pivot stud 12 of the hinge, and desirably this aperture is eyeleted, as indicated at 13, to present a more finished appearance and to form a smooth bearing for the pintle. By using the eyelet 13 these hinge members

may be blanked out with an ordinary punch press, the holes produced by which are more or less rough.

14 designates as a whole the companion hinge member, which is mounted upon the sash, and will therefore for convenience of description be termed the movable member. This member has its end portions 15 and 16 constructed substantially like the corresponding portions 2 and 3 of the member already described, and it is secured to the side rail of the sash in substantially the same manner, viz: by screws 7 extending through a slot 9 in the sash rail and into a clamping plate 8 adjusted to position as before described. The central portion of the member 15 is deflected laterally outward and formed into an eye 17 within which is rigidly seated the pintle or pivot stud 12. The pintle is headed at one end, as indicated at 18, and through its opposite end inside of the offset portion 4 of the member 1 a split key 19 is inserted. The member 15 is slotted at the points where screws 7 pass therethrough so that it may be adjusted up and down, and by reason of the width of the slot 9 at the points where these screws pass through the same the member 15 may be adjusted laterally also.

In windows of this character it is desirable to limit the extent to which the sash may open on its pivotal axis, and to this end the members 1 and 15 are each provided at their lower end with eyes 20 with which are connected the respective ends of a short chain 21.

While I have shown and described a preferred embodiment of the invention, yet it will be understood that the details may be somewhat modified without departing from the spirit of the invention.

I claim as my invention:

1. A hinge mechanism comprising a strap-like socket member having a base portion adapted to be fixedly secured against a frame an offset web portion provided with a pintle socket, a strap-like pintle member having a base portion adapted to be secured to the frame and an offset web portion formed into an elongated socket-like eye and arranged at right angles to said first web portion, and a pintle fixed in said eye and engaging the socket of the first mentioned member.

2. A hinge mechanism comprising a strap-like socket member provided at each end with a base portion adapted to be fixedly secured against a frame and an intermediate offset web portion provided with a pintle socket, a strap-like pintle member provided at each end with a base portion adapted to be secured to a frame and an intermediate offset web portion formed into an elongated transversely extending socket-like eye, and arranged at right angles to said first web portion, and a pintle fixed in said eye and engaging the socket of the first mentioned member.

3. A hinge mechanism comprising a strap-like socket member having at each end a base portion and a screw-bolt inserted therethrough, an intermediate offset portion provided with a pintle socket, a reinforcing clamping plate mounted upon the inner ends of said screws, a strap-like pintle member having at each end a base portion, and a screw-bolt inserted therethrough, an offset intermediate portion formed into an elongated socket-like eye and arranged at right angles to said first offset portion, a pintle fixed in said eye and adapted to engage the socket of the first mentioned member, and a clamping plate mounted upon the inner ends of the screw-bolts and extending through the base portion thereof.

4. In combination with a hollow metal window frame provided with a narrow slot in one of its faces and a hollow metal sash frame fitting the window frame and likewise provided with a slot in one of its faces, a hinge mechanism comprising a strap-like socket member having base portions adapted to rest flatwise against the face of the window frame over the slot therein, screw-bolts inserted through said base portions and said slot, a reinforcing clamping plate threaded upon the inner ends of said screw-bolts and underlying the slot, a strap-like pintle member having base portions adapted to rest flatwise against the sash frame and over the slot therein, screw-bolts inserted through the base portions and said slot, a clamping plate threaded upon the inner ends of said latter screw-bolts and underlying said slot, and a pintle carried by said pintle member and operatively engaging a socket in the socket member.

THOMAS I. DUFFY.

Witnesses:
FRANK L. BELKNAP,
EMILIE ROSE.