June 22, 1926. 1,589,613

H. S. MOUNTFORD ET AL

HINGE

Filed Sept. 7, 1922

Fig. 1.

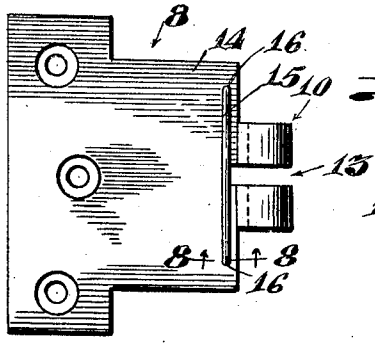


Fig. 3.



Fig. 2.

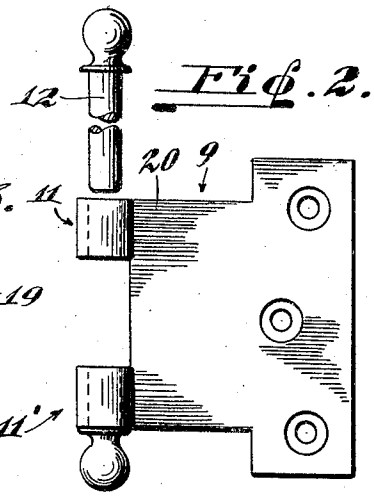


Fig. 4.

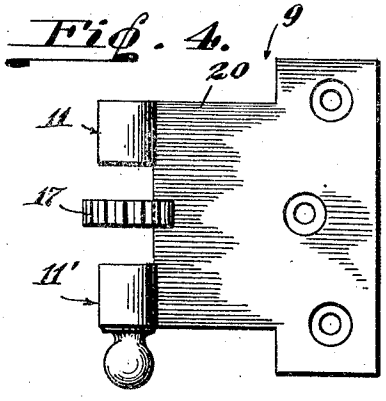


Fig. 5.

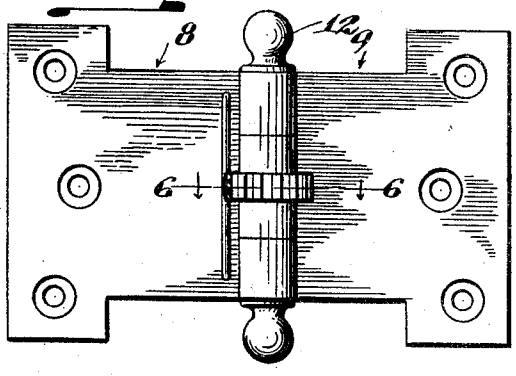


Fig. 6.

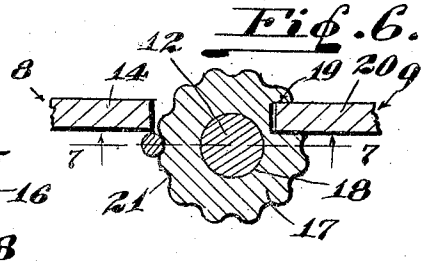


Fig. 8.

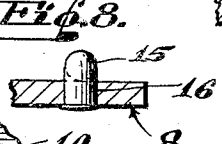
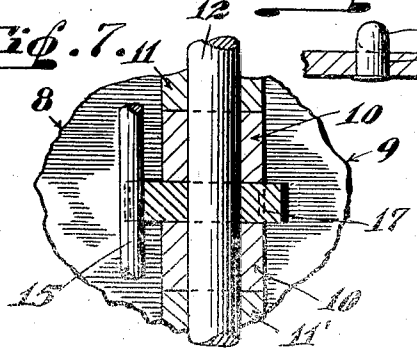


Fig. 7.



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UNITED STATES PATENT OFFICE.

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HINGE.

Application filed September 7, 1922. Serial No. 586,627.

Our present invention particularly pertains to a hinge of the frictional lock type.

An object of our invention is to provide a construction in hinges whereby movement of the leaves of the hinge relative to each other will be yieldably opposed so that a closure carried on hinges embodying the invention may be frictionally held against free movement in either direction, and swinging of the closure from any position yieldably resisted.

Another object is to provide a means whereby an ordinary loose pin hinge may be converted into a frictional lock hinge with but slight change of the original hinge structure.

With the foregoing objects in view, together with such other objects and advantages as may subsequently appear, our invention consists of the parts and the combination, arrangement and construction of parts hereinafter described and claimed and illustrated in the accompanying drawing, in which:—

Figures 1, 2 and 3 are views showing the parts of the hinge disassembled; Fig. 1 being a view in elevation of one of the hinge leaf members; Fig. 2 being a view in elevation of the other hinge leaf member, with the removable pivot pin, and Fig. 3 being a perspective view of a ratchet disc attachment to be embodied in the hinge.

Fig. 4 is a view in elevation of one of the hinge leaf members, showing the manner of applying the ratchet disc.

Fig. 5 is a view in elevation showing the hinge as assembled.

Fig. 6 is a detail in section as seen on the line 6—6 of Fig. 5.

Fig. 7 is a detail in section as seen on the line 7—7 of Fig. 6.

Fig. 8 is a detail in section as seen on the line 8—8 of Fig. 1.

Referring to the drawings, more specifically, 8 and 9 indicate the straps or leaves of the hinge which are formed with perforated projections or knuckles 10 and 11—11′, respectively, and which knuckles are adapted to be pivotally connected by a pintle or pin 12 in such a manner that the leaves may have articulate movement relative to each other, as is common in hinge construction.

In the hinge here shown the knuckle 10 on the leaf 8 is interposed between a pair of spaced knuckles 11—11′ on the leaf 9 and pivotally carried on the latter by the pin 12, which pin passes through the upper knuckle 11, through the knuckle 10, and engages the lower knuckle 11′; the pin 12 being preferably loose and being demountable to permit ready connection and separation of the hinge leaves.

In carrying out our invention the knuckle 10 is formed with a transverse slot 13 intermediate its ends, which slot extends into the plate portion 14 of the hinge leaf a short distance beyond the juncture of the plate with the knuckle, and mounted on the plate is a spring 15 here shown as comprising a substantially straight length of wire arranged to extend tranversely across the inner end portion of the slot 13. The ends of the spring are rigidly affixed to the plate in any suitable manner, being here shown as bent and passed through openings 16 in the plate and riveted in place as shown in Fig. 8.

A demountable circular ratchet disc 17 is provided, which disc is formed with transverse serrations on its perimeter and is adapted to be inserted in the slot 13. A central opening 18 is formed in the disk adapted to register with the opening in the knuckle 10 and through which opening the pin 12 is designed to extend. The disc 17 is of a diameter exceeding that of the knuckle 10 and is formed with a transverse channel 19 on one side thereof, adapted to receive the edge of the plate portion 20 of the hinge leaf 9 as particularly shown in Fig. 6, whereby the disc is engaged with the leaf 9, and held against rotation relative thereto.

In assemblying the hinge the disc 17 is mounted on the leaf 9 intermediate the knuckles 11—11′, as shown in Fig. 4, whereupon the knuckle 10 is placed between the knuckles 11—11′ with the disc arranged in the slot 13.

The pin 12 is then inserted in place and in passing through the disc serves in conjunction with the notch 19 to hold the disc firmly in place.

When the hinge is assembled, as shown in Fig. 5, the serrated perimeter thereof is located concentric with the axis of the pivot pin 12, and the serrations of the disk are engaged by the spring 15 which bears under tension against the edge of the disc and normally extends into the transverse recesses 21 formed by the serrations on the disc in

such fashion so as to frictionally lock the leaves 8 and 9 against free articulate movement. The wire 15 is circular in cross section and the recesses 21 are arcuate to conform to the curved periphery of the spring, which construction permits the spring riding from one recess to another on sufficient pressure being brought to bear on the leaf members tending to impart articulate movement thereto. The spring is of such tension as to cooperate with the serrated disc, and form a ratchet-like detent.

From the foregoing it will be seen that we have provided a construction whereby an ordinary leaf hinge may be converted into a frictional lock hinge, in which articulate movement of the hinge leaves will be yieldably opposed in either direction.

A hinge constructed in accordance with our invention is particularly applicable for use on casement windows to inhibit free swinging movement of the window, and permits the window being disposed and held in an open, closed, or partially open position, without the use of fasteners other than that afforded by the hinge.

It will also be seen that by constructing the frictional locking element of the hinge as herein set forth, the hinge may be manufactured with the frictional locking feature at a cost slightly greater than that of the ordinary hinge not so equipped, and that by forming the serrated disk so that it is demountable the disk may be readily removed and replaced which permits its being renewed in event the serrations become excessively worn.

We claim:

1. In a hinge, a pair of leaf members formed with alined knuckles, a pivot pin connecting said knuckles, a disc arranged between adjacent said knuckles having a serrated edge, said disc being engaged by said pivot pin and held against movement relative to one of the leaf members, and a spring wire carried by the other leaf member frictionally engaging the serrations on said disc and adapted to slide successively over the serrations of said disc on articulate movement of said leaf members in either direction.

2. In a hinge, a leaf member formed with a knuckle having a transverse slot extending through the knuckle, a spring member on said leaf extending transversely of said slot, a second leaf member having spaced knuckles positioned astride the knuckle on the other leaf member, a disc arranged in said slot having a serrated edge engaged directly by said spring and held against movement relative to the last named leaf member, and a pivot pin connecting the knuckles of the leaf members and passing through said disc.

3. A hinge, comprising a leaf member formed with a knuckle and having a transverse slot extending through said knuckle, a spring wire carried by said leaf member having its ends affixed thereto, said spring wire arranged to extend transversely across the inner end portion of said slot, a disc formed with a serrated edge, said disc arranged in said slot with its serrated edge engaged by said spring wire, said disc being formed with a notch a second leaf member having knuckles arranged astride the knuckle on the other leaf member, said second leaf member engaging the notch in said disc, and a pivot pin connecting the knuckles on said leaf members and extending through said disc.

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