

F. W. MARSTON.
REVERSIBLE HINGE.

Fig. 1.

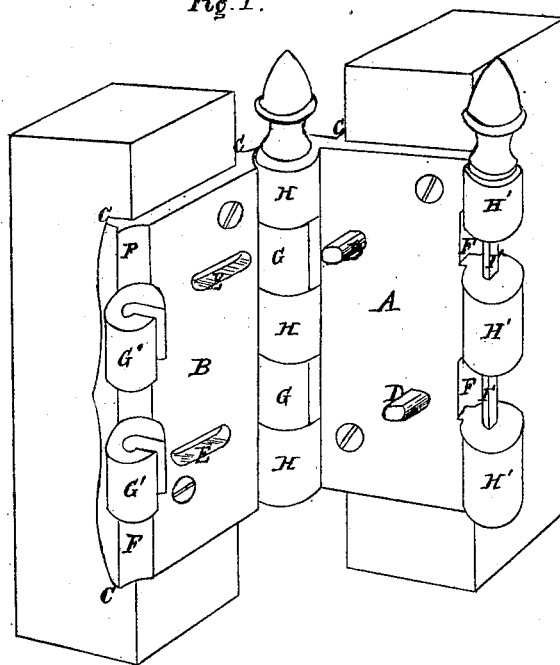


Fig. 2.

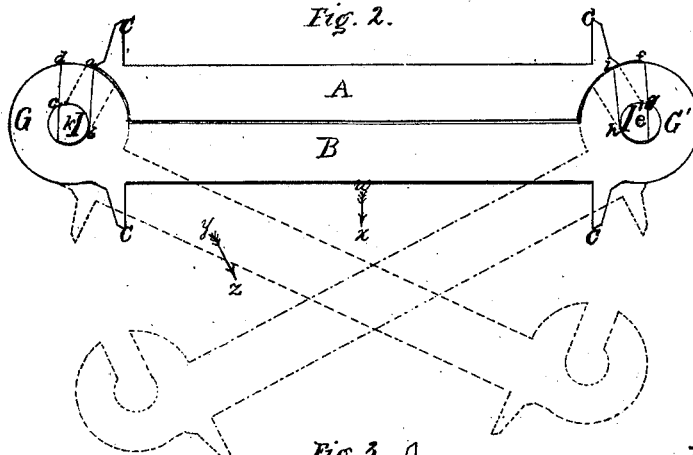


Fig. 3.

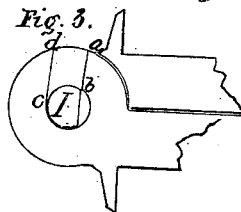
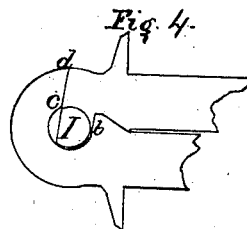


Fig. 4.



Witnesses

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Letters Patent No. 114,579, dated May 9, 1871.

IMPROVEMENT IN REVERSIBLE HINGES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, FRANK W. MARSTON, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Reversible Hinges; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use my invention, reference being had to the accompanying drawing which forms a part of this specification, and in which—

Figure 1 is a perspective view of my invention;

Figure 2, a horizontal section through the closed hinge, indicating by dotted lines its movement when opened in either direction; and

Figures 3 and 4, parts of a similar section, showing modifications of arrangement and construction.

The same parts are denoted by the same letters in all the figures.

This invention is a reversible hinge, consisting of two leaves connected only at their sides, and by means substantially as hereinafter described, so that the leaves cannot be detached from each other in any position.

A in the drawing represents that leaf of the hinge which is secured to the jamb, and

B the leaf which is secured to the door.

Both leaves have shoulders C C cast on each side to fit the door or jamb.

The leaf A is also constructed with studs D D, which, when the door is closed, fit into corresponding slots E E.

The edges which would be formed on each side by the intersection of the face with the shoulders are beveled off, as shown, at F, and on the beveled surfaces are cast or otherwise attached bosses of cylindrical form.

The bosses G G G' G' on the leaf B correspond to the spaces between the bosses H H H' H' H' on the leaf A, so as to fit snugly between them, as shown in fig. 1.

The pins I I', whose transverse section is a circular segment not less than a semicircle, are driven through the cylindrical bosses of the leaf A so that each pin is firmly secured to all the bosses on its side of the leaf A, and is in the line of their common axle.

The bosses G G on the leaf B are slotted, as shown in section at *a b c d*, fig. 2, the interior boundary of the slot *b c* being a circular arc concentric with the section of the boss, while the lines *a b c d*, which form the remaining boundaries of the open slot, are circular arcs described from the center *e* of the boss G' on the other side of the leaf B.

The distance between the arcs *a b* and *c d* (the difference of their radiuses) is just enough to admit the pin I, the radius of whose section is nearly equal to

the radius of *b c*, into the slot when its flat side is parallel or nearly so to *a b* and *c d*, and the pin is so adjusted that, when the hinge is closed and the convex surface of the pin in contact with the interior surface of the slot, (whose section is *b c*,) the flat side of the pin shall be just within the prolongation of the boundary or wall of the slot whose section is *c d*.

The slot *f g h i* is in like manner bounded by the arc *g h*, whose center is *e*, and by the arcs *f g h i*, described about the center *k* of the boss G; and the distance between these arcs is determined with relation to the pin I', and the pin adjusted as already explained.

The operation of these devices is as follows:

The door being closed, (in which position it is supported against sagging by the studs D fitting into slots E,) it may be opened in either direction, but cannot be detached from the jamb.

A strain on the leaf B, at right angles to its face, (in the direction of the arrow *w z*, fig. 2,) would not detach either the bosses G G or G' G' from their respective pins I and I', as it would only draw and bind the outer walls *c d* and *f g* of the slots against the adjacent edges of the pins. If, however, the force be oblique to the face of the leaf, (as in the direction of the arrow *y z*,) the wall *c d* will slide easily on the flat side of the pin I and the leaf will revolve about the center *e*.

As the door opens the concave surface *g h* of the slot turns on the convex surface of the pin I', the boss G' locking more firmly around the pin as the concave surface passes the edge of the pin, as shown in dotted lines in fig. 2.

The reverse operation takes place when the door is opened in the opposite direction, as shown in dotted lines in fig. 2, and in perspective in fig. 1.

The pins may also be adjusted with their flat sides in the opposite position to that shown in figs. 1 and 2. Fig. 3 represents this modification.

The slots in this case are described with relation to the pins in the manner already explained.

Instead of forming the slots as heretofore described, the inner projecting lip of the boss may be cut away, as shown in fig. 4, so as to save metal.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. A reversible hinge, consisting of two leaves, connected only at their sides, and by means substantially as described, so that the leaves cannot be detached from each other in any position.

2. The combination, operating as described, of the bosses G G' with the pins I I', whose transverse section is a circular segment not less than a semicircle.

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Witnesses:

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