(No Model.)

F. W. HOEFER.

SPRING HINGE.

No. 457,720. Patented Aug. 11, 1891.

Fig. 1.

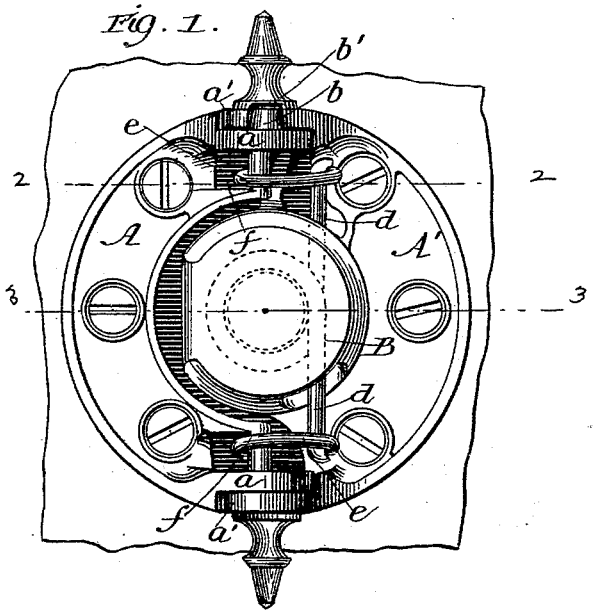


Fig. 3.

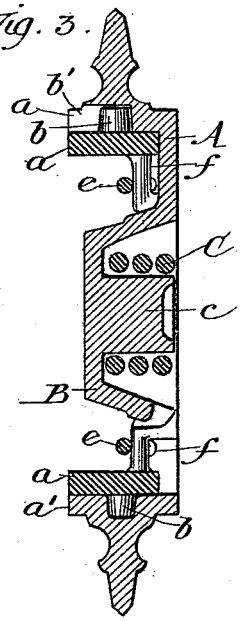


Fig. 5.

Fig. 2.

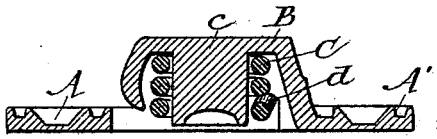


Fig. 4.

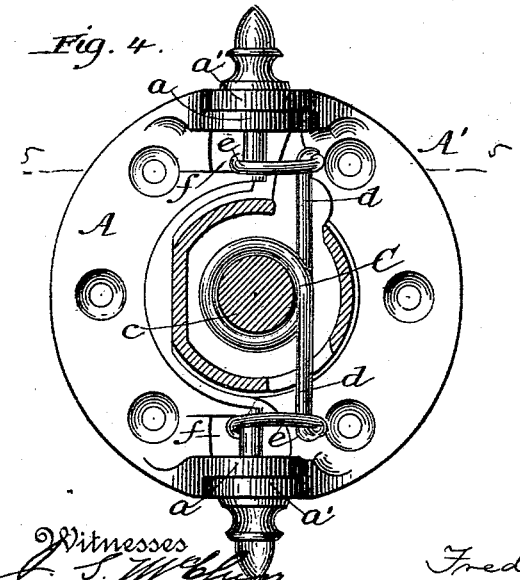
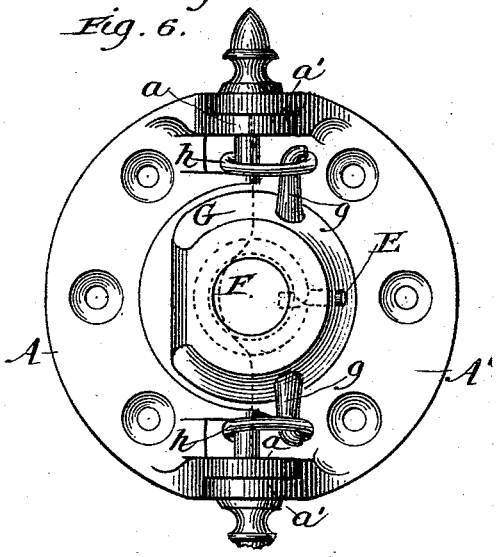


Fig. 6.



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FREDERICK WILLIAM HOEFER, OF FREEPORT, ILLINOIS.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 457,720, dated August 11, 1891.

Application filed July 31, 1890. Serial No. 360,484. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM HOEFER, of Freeport, Stephenson county, Illinois, have invented certain new and useful Improvements in Spring-Hinges, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of my invention is to furnish a cheap, simply-constructed, and durable spring-hinge, the parts of which can be easily put together and will not require any subsequent finishing after they are assembled.

In the drawings, Figure 1 is a plan view of my invention. Fig. 2 is a transverse section therethrough, taken on dotted line 2 2, Fig. 1. Fig. 3 is a longitudinal central section of my hinge. Fig. 4 is a plan view showing the hood broken away. Fig. 5 is a transverse section taken on dotted line 5 5, Fig. 4; and Fig. 6 is a plan view of a modification of my invention.

Referring to the drawings, A and A′ represent the two leaves or screw-plates of my invention, which may be of any suitable design—circular or rectangular—and are connected by suitable lugs in such manner that the lugs *a a* or plate A preferably come between and lap against the inner surface of the lugs *a′ a′* of the plate A′. These lugs are pivotally connected by pivotal studs *b b*, projecting from lugs *a* into suitable recesses in lugs *a′ a′*, one of which latter is cut away to the edge of the lug, so as to make a passage *b′* thereto for the contiguous pivotal stud, as a reference to the drawings will show.

Preferably cast integrant with and projecting centrally from the inner edge of plate A′ is a circular dome or hood B, which has a stud *c* projecting downward at right angles from the inner surface of the roof thereof and at right angles to the plane of the screw-plate A′, to which said hood is connected. Placed upon this stud from the under side of the plate A′ is a spiral spring C, consisting, preferably, of not more than two or three coils and having its ends *d d* terminate so that they respectively extend in opposite directions to each other and parallel to the center of oscillation of the hinge. They pass through suitable openings in the hood and terminate near the lugs *a* of the plate A, and the extremities of these ends *d d* are hooked, so as to retain and prevent from slipping off thereof the links *e e*. The links *e e* transversely connect the extremities of the said ends of spring C (which latter, it will be borne in mind, is secured to plate A′) to plate A at points next to the inner longitudinal edge thereof and below the pivotal center of the hinge. Thus when the hinge is opened and the plates are moved so as to close the same, or vice versa, as the points at which the links *e* are secured to plate A move away from plate A′ said links, pulling on the ends of the spring, tighten the same until the planes of said plates are about at right angles to each other, whereupon as they pass such position said points of connection again approach the plate A′ and the spring, assisting the movement, rapidly closes or opens the plates, as the case may be. It will thus be noticed that the tendency of the spring is to restore the plates to their original positions while moving in a given direction until past the position at which they are at right angles to each other, whereupon it assists them. This is so whether the hinge is being opened or closed.

I prefer to fasten the ends of the links adjacent to plate A to the same by making the eyes *f f* therein, which will be next the inner edge of said plate and in transverse register with the ends of spring C. This leaves a short web, on which said links can obtain a purchase. Studs projecting from said plate A, however, would answer just as well.

It is obvious that instead of the stud upon which the spring is secured depending from the inner surface of the roof of the dome or hood it could project outward from the plate A′ and the hood be dispensed with. In either event, however, plate A, if its inner edge is built up too near the adjacent edge of plate A′, would have to be cut away to accommodate the same. Should the stud project outward, a modification suggests itself, which is subordinate to the spirit of my invention and is shown in Fig. 6. This consists simply of fastening one end of the spring E to the stud F and the other end in a revolving hood or head G, which is journaled on the outer end

of said stud and has arms *g g* projecting therefrom in directions diametrically opposite and parallel with oscillating center of the hinge. To the end of these arms are secured the connecting spring-links *h h*, which are substantially like those hereinbefore described with reference to the design of hinge shown in the first five figures of the drawings.

The ends *d d* of spring C might, by being bent L-shaped, attach direct to plate A, thus dispensing with the links *e e*. I prefer the use of the latter, however.

What I claim is—

1. The combination, with the screw-plates of a spring-hinge, one of which is provided with a stud projecting at right angles to the face thereof at a point adjacent to its inner edge, of a spiral spring coiled upon said stud and having its ends extending tangentially and connected laterally to the other plate, as set forth.

2. The combination, with the screw-plates of a spring-hinge, one of which has a stud projecting therefrom at right angles to the face thereof at a point adjacent to its inner edge at about its center of length, of a spiral spring coiled upon said stud, having its ends extending tangentially in opposite directions, and links connecting the ends of said spring to the other plate, as set forth.

3. The combination, with the screw-plates of a spring-hinge, one of which has a hood formed integrant therewith at about its center of length adjacent to its inner edge, and a stud projecting downward from the inner surface of the roof of said hood, of a spiral spring coiled upon said stud and having its end extending tangentially in opposite directions through suitable openings in said hood, and links connecting the ends of said spring to the opposite plate, as set forth.

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