(Model.)

A. SCHWEINFURT.

SPRING HINGE.

No. 351,469. Patented Oct. 26, 1886.

FIG. 1

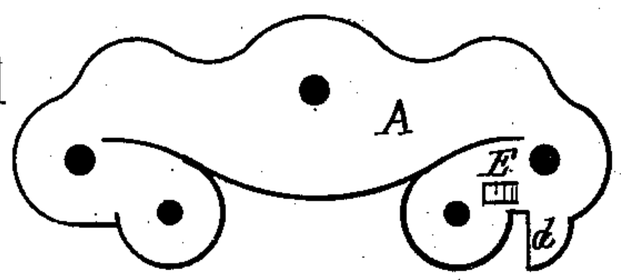


FIG. 2

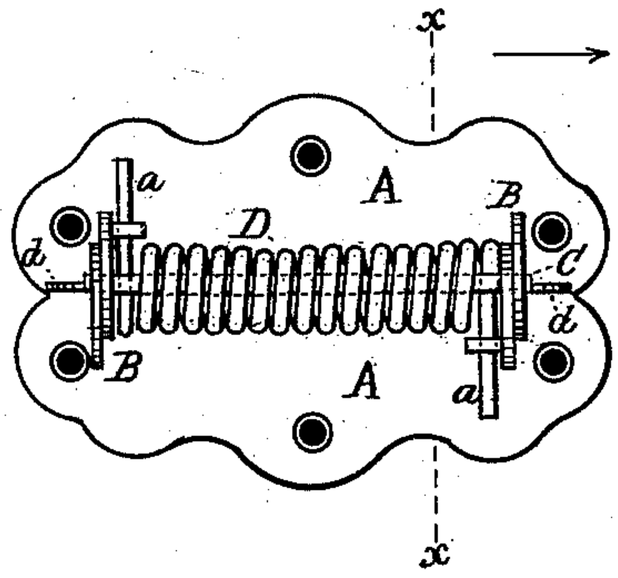


FIG. 3

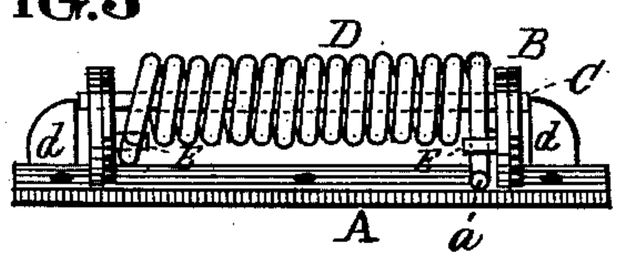


FIG. 4

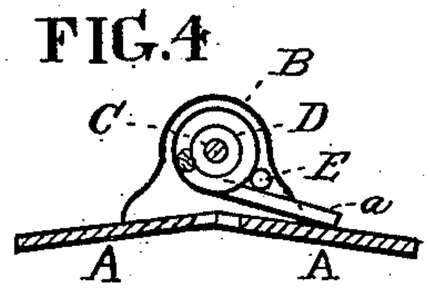


FIG. 5

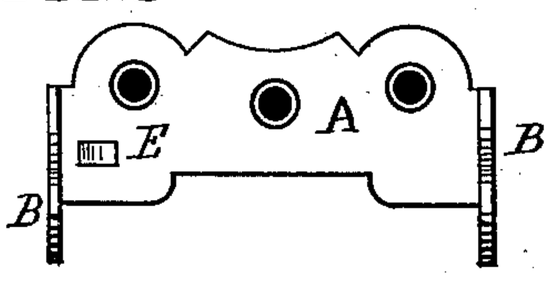


FIG. 6

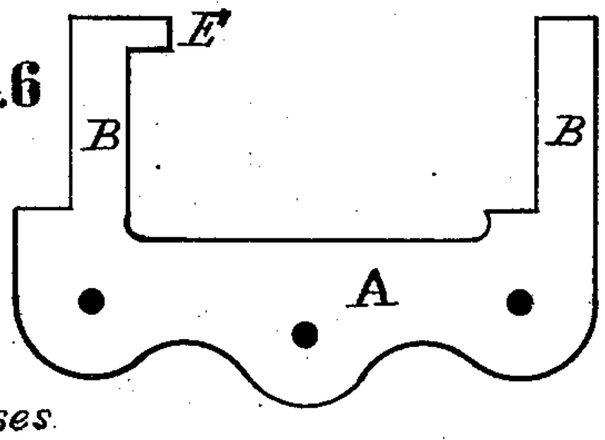


FIG. 7

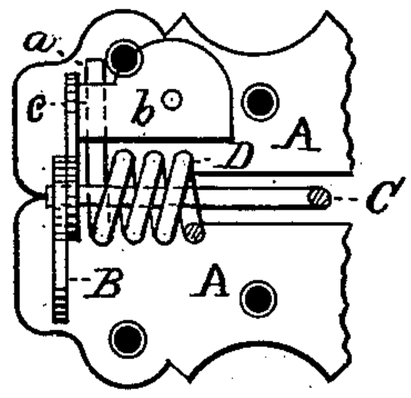
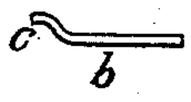


FIG. 8



Witnesses.
S. E. W. Bewley.
C. A. Burns.

Inventor.
Augustus Schweinfurt.
per Thomas J. Bewley, Att'y

UNITED STATES PATENT OFFICE.

AUGUSTUS SCHWEINFURT, OF PHILADELPHIA, PENNSYLVANIA.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 351,469, dated October 26, 1886.

Application filed October 17, 1885. Serial No. 180,207. (Model.)

To all whom it may concern:

Be it known that I, AUGUSTUS SCHWEINFURT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Spring-Hinges, of which the following is a specification.

My invention is an improvement upon hinges constructed with a helical spring surrounding the pintle, the resilient ends of the spring bearing upon the flaps of the hinge. These springs are liable to break by reason of the great strain upon them. When a break occurs, the spring loses its resiliency, and during the movements of the hinge resulting from the opening and closing of the door to which it is attached the free ends of the spring frequently protrude beyond the knuckles, and are a cause of much annoyance by tearing the garments of a person passing.

To overcome this difficulty is the object of my invention, as also to provide a means whereby to dispense with the necessity of riveting the pin to the knuckles of a completed hinge.

The invention consists, in the first place, in forming a stud or projection upon the plate or inner face of the inner knuckles in such a manner that the free ends of the spring shall rest and slide beneath the studs.

The invention further consists in forming a lug upon each flap of the hinge outside of the knuckles, which is bent at right angles to the plate after the pintle is in position, in such a manner that the inner edges of the lugs bear against the ends of the pintle, preventing its withdrawal, and obviating the necessity of riveting or forming heads upon the ends of the pintle, as will be more fully hereinafter described.

In the accompanying drawings, which make a part of this specification, Figure 1 is a face view of a blank for forming a flap of a hinge. Fig. 2 is a face view of a hinge. Fig. 3 is an edge view of the same. Fig. 4 is a cross-section taken through the line *x x* of Fig. 2 in the direction of the arrow. Fig. 5 is a face view of a flap of a hinge, showing the stud E formed on the plate. Fig. 6 represents a face view of a blank for forming a flap, in which the knuckles B B are to be rolled around the ends of the pintle, showing the stud E formed upon the edge of the knuckle. Fig. 7 is a face view of one end of a hinge, showing a clamp riveted to the plate of the flap for confining the end of the spring. Fig. 8 is an edge view of the clamp.

Like letters of reference in all the figures indicate the same parts.

A A are the flaps of the hinge; B B, the knuckles; C, the pintle, and D the helical spring. These parts are common to all spring-hinges.

E is a stud, which may be formed on the inner face of the inner knuckles by the same die that forms the plate; or it may be formed in the plate, as represented in Fig. 1, or a hole drilled in the knuckle, the stud inserted, and riveted thereto, as may suit convenience, sufficient room or space being provided to permit of the insertion of a free end, *a*, of the spring D between the lower edge of the stud E and plate of the flap, to retain the end *a* and allow the same to slide therein during the movements of the hinge in opening or closing a door.

A modified form is shown in Figs. 7 and 8, in which a plate, *b*, is riveted to the flap of the hinge, with its edge *c* curved up, as seen in Fig. 8, to allow of the insertion of the free end of the spring.

While the spring remains intact, its resiliency causes the ends to rest or hug closely to the inner faces of the contiguous knuckles; but should the spring be broken, as frequently happens, consequent upon the great strain to which it is subjected, the studs E retain the ends in their normal position and prevent their protruding and inflicting damage, as often occurs where these springs are in use upon doors of show-cases. When the flaps of the hinge and knuckles are constructed of malleable or cast metal, the stud may form an integral part of the same.

In Fig. 1 is shown a projection, *d*, that is formed on the plate by the cutting-die. This projection or lug is bent at right angles upward with the plate, as shown in Figs. 2 and 3, after the pintle C is in place, the ends of the pintle resting against the inner edges of the lugs, obviating the necessity of forming heads upon the ends of the pintle and preventing its withdrawal.

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

1. In a spring-hinge, the stud-pins E, pro-

jected from the faces of the inner knuckles or from the flaps, in combination with the resilient ends of the spring D, whereby said ends are retained in position bearing against the surfaces of the flaps, substantially in the manner herein described, for the purpose set forth.

2. In a spring-hinge, the flaps A, provided with lugs *d* upon their ends, bent at right angles, in combination with the pintle C and knuckles B, whereby said pintle is held in its connected position with said flaps, substantially in the manner and for the purpose herein shown and described.

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