H. A. CLARK.

Spring Butt Hinges.

No. 137,178. Patented March 25, 1873.

FIG. 1.

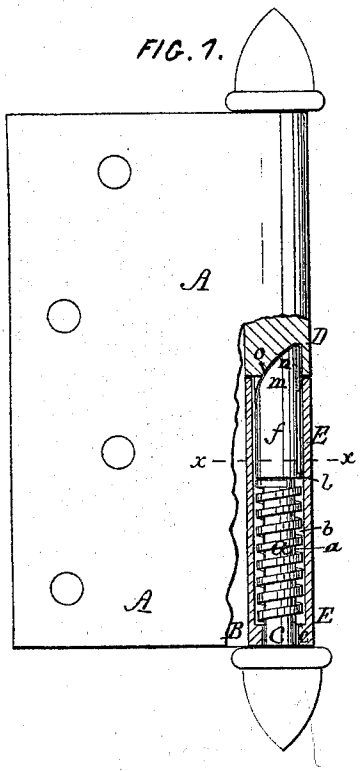


FIG. 2.

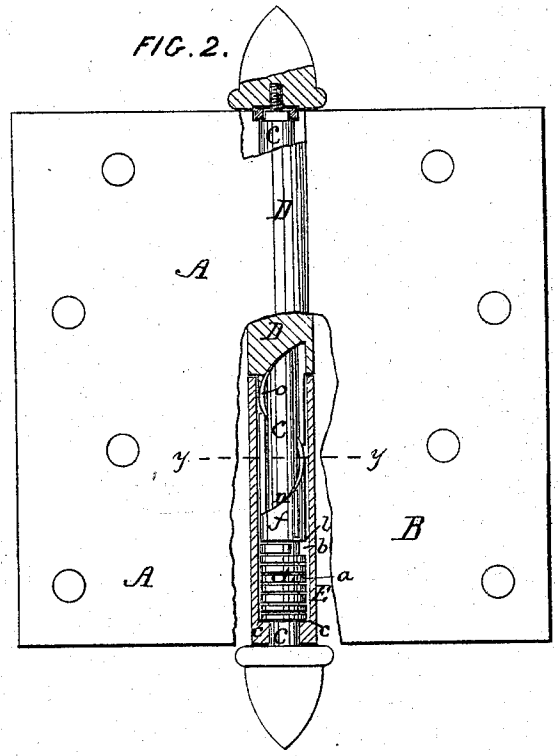


FIG. 3.

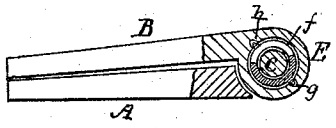
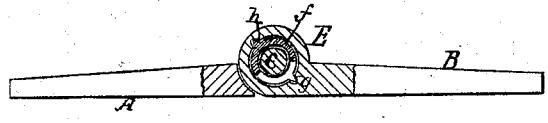


FIG. 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

HENRY A. CLARK, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SPRING BUTT-HINGES.

Specification forming part of Letters Patent No. **137,178**, dated March 25, 1873.

To all whom it may concern:

Be it known that I, HENRY A. CLARK, of Boston, in the county of Suffolk and State of Massachusetts, have invented a certain new and useful Improvement in Butt-Hinges; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying plate of drawing.

This invention relates to certain improvements in self-closing hinges; and consists in providing the slide with V-shaped projections, which are adapted to corresponding recesses formed in the knuckle portion, which control the movements of the slide. The slide is also provided with a spiral cam-edge, and a spring is arranged beneath the slide, the said cam portion bearing against a spiral cam-edge upon the upper knuckle portion, whereby, when the hinge is opened, the cam-edge on the knuckle portion will act on the slide and cause it to descend and compress the spring, thus imparting force thereto, which, on reaction, will automatically close the hinge.

In the accompanying plate of drawing my improvement in butt-hinges is illustrated, Figure 1 being a side view of the hinge closed, but broken out at its knuckle to show an arrangement of a spring and a slide according to this invention; Fig. 2, a side view of the hinge open and similarly broken away as in Fig. 1; Fig. 3, a section in plane of line *x x*, Fig. 1; Fig. 4, a section in plane of line *y y*, Fig. 2; Fig. 5, a detached view in detail of the slide.

A and B in the drawing represent the two leaves of a butt-hinge, having a common pintle, C, secured to the knuckle portion D of one leaf, A, and loose within the knuckle portion E of the other leaf, B, the whole substantially as in ordinary butt-hinges, for the leaves A B to open and close; *a*, a spiral spring placed within chamber *b*, about the pintle C of the hinge-leaf B, resting upon the shoulder *c* at the lower end of said leaf B. This spring *a* lies along the length of the knuckle part of the leaf B, and is about the pintle C, and, under the present arrangement, is, in its normal position, about two-thirds as long as the said knuckle part; *f*, a slide located in chamber *c* of hinge-leaf B above the spring *a*. This slide *f* is adapted, by diametrical V-ribs *g*, to move in corresponding diametrical V-grooves *h* along the length of the internal periphery of the chamber *c*, and it surrounds loosely the pintle-rod C of the hinge, as shown. The slide, by its end *l*, rests on the upper end of spring *a*, and at its other end, *m*, it is made with an upwardly-extending spiral cam-edge, *n*, which, when the two leaves of the hinge are together, is in contact with and bears upon a corresponding-shaped spiral cam-edge, *o*, that is fixed to the knuckle portion D of the hinge-leaf A in proper position therefor.

Under the construction and arrangement, hereinabove described, of the slide *f* within the knuckle of a hinge, obviously the slide is held from turning by its V-shaped interlock with the hinge, but it is free to travel in a direction along the length of the knuckle; that, as the cam-edge of the slide *f* and the cam-edge *o* on the knuckle portion D of the hinge-leaf A are applied the one to the other, as herein described and shown, (see Figs. 1 and 2, more particularly, of the drawing,) in the opening of the hinge by the cam action of the parts stated, the slide travels in a downward direction, compressing the spring *a*, which spring, as it reacts, obviously moves the slide back to its original position, thereby closing the hinge.

The V-ribs may be one upon the hinge-knuckle and the V-grooves upon the slide, and the form of cam-edge to operate the slide employed may be varied from that described, and thus the slide made to compress the spring with any desired degree of force upon either a full or a partial opening of the hinge.

I am aware that a spring-hinge has been provided with a pintle carrying projections which act on cam-slides, each of which is in turn acted on by a spring, so that, by turning the pintle, it forces one slide upwardly and the other downwardly, which compresses the springs and imparts force to the same to automatically close the hinge; but such is not my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The knuckle portion D of the leaf A of a hinge provided with a spiral cam-edge, *o*, in combination with the slide *f* having V-shaped projections *g* adapted to similar-shaped recesses in the knuckle portion, and with a spiral cam-edge *n* and a spring arranged beneath the slide, all arranged to operate substantially as described.

The above specification of my invention signed by me this 11th day of February, A. D. 1873.

HENRY A. CLARK.

Witnesses:

EDWIN W. BROWN,

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