

(Model.)

2 Sheets—Sheet 1.

H. C. HART.  
SPRING HINGE.

No. 419,943.

Patented Jan. 21, 1890.

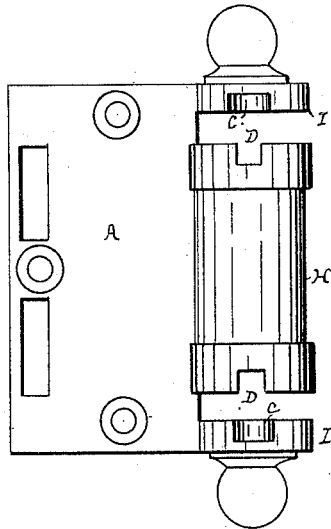


FIG. 1

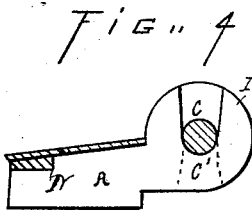
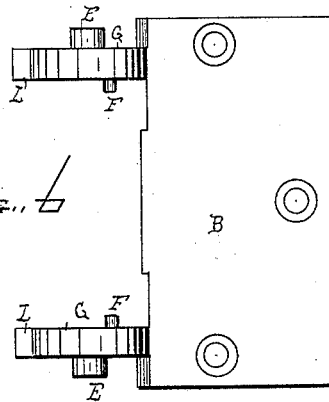


FIG. 3

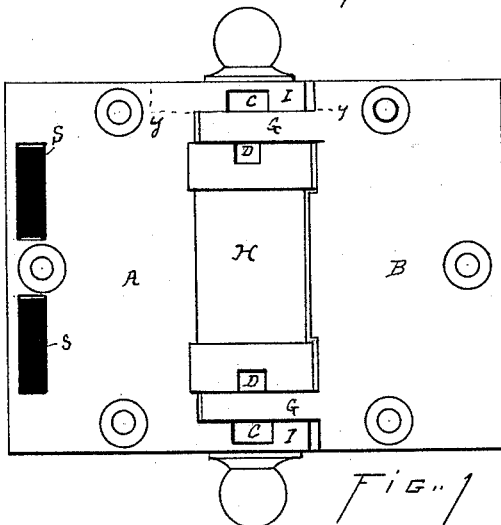
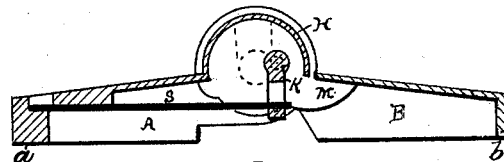
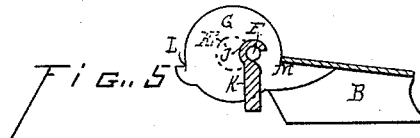


FIG. 6

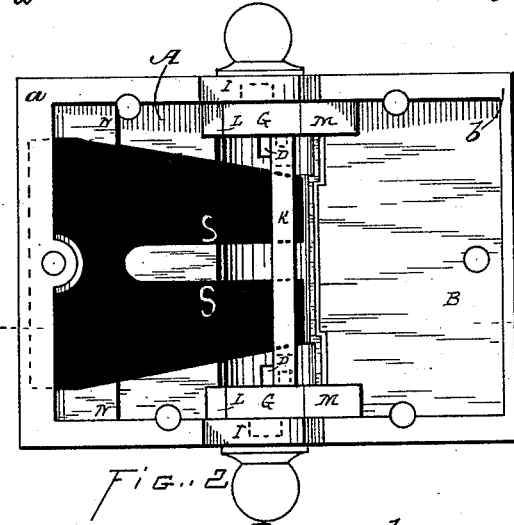


FIG. 7

Witnesses  
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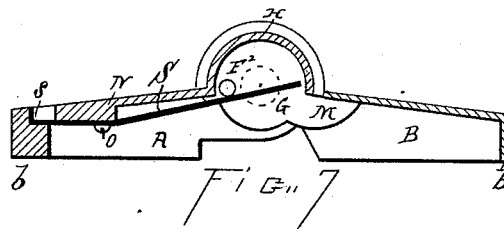
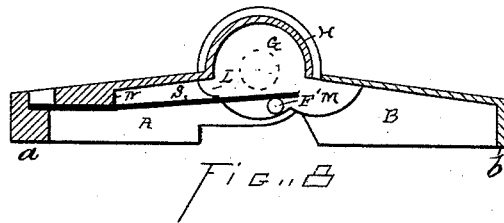
(Model.)

2 Sheets—Sheet 2.

H. C. HART.  
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No. 419,943.

Patented Jan. 21, 1890.



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# UNITED STATES PATENT OFFICE.

HENRY C. HART, OF DETROIT, MICHIGAN, ASSIGNOR TO THE VAN WAGONER & WILLIAMS COMPANY, OF NEW YORK.

## SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 419,943, dated January 21, 1890.

Application filed January 16, 1889. Serial No. 296,513. (Model.)

*To all whom it may concern:*

Be it known that I, HENRY C. HART, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Double-Acting Spring-Hinges, of which the following is a specification.

This invention relates to that type of spring-hinges which are constructed to hold a door or blind in its closed and open position when the hinge is closed and opened beyond what is termed the "dead point" or "center." In such spring-hinges it is required that the springs move across the pintles, and, as heretofore constructed, the springs have been coiled and located in the axial line of the pintles. In consequence thereof the spring mechanism in this particular type of hinges has never been, and cannot be, practically covered and concealed by a hood on one of the leaves.

The objects of my invention are to simplify the prior constructions of hinges, and also to provide a hinge of the character mentioned whereby a hood on one leaf conceals the flat spring mechanism without in any way interfering with the working of the hinge, and in which such hood does not project laterally beyond the knuckles of the hinge.

The objects of my invention I accomplish by the combination of devices and features of construction hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is a rear elevation. Fig. 3 is a section on line *x x*, Fig. 2. Fig. 4 is a section on line *y y*, Fig. 1. Fig. 5 is an inner elevation of one of the knuckles of leaf B. Fig. 6 is a front elevation of the two leaves of the hinge separated. Figs. 7 and 8 are sections similar to Fig. 3, illustrating modifications in construction.

A and B represent the two leaves of a surface hinge, each being cast or formed with a rearwardly-projecting web *a* and *b*, to raise the leaves from the door or casing. The leaf A has two knuckles I I, in each of which is a radial slot C, and the leaf B has two knuckles G G, on each of which is a short pintle E, adapted to enter the slots C, and on which the leaves swing. Each knuckle G has also

on its inner side a projecting stud F, placed eccentrically with relation to pintle E.

H represents a curved hood, which I usually form integral with leaf A, to cover the space between the knuckles G G, and provided with two slots D D, to permit the passage of the two studs F F when the hinge is assembled or taken apart.

L represents a projection on knuckle G to limit the movement of the leaf B by coming in contact with the leaf A.

N represents a projection on the underside of leaf A, and *s s* represent two slots cut in the web *a* of leaf A.

S represents a leaf-spring, one end of which is held in slots *s s*, while the free end is connected by a link K with the studs F F, as clearly shown in Figs. 2, 3, and 5.

M represents a re-enforce, where knuckles G are connected with leaf B.

The operation of my invention is as follows: The hinge being in the position shown in Figs. 1, 2, and 3, the spring S pulls more or less strongly on studs F F through link K, and as these studs F F are not in line with the pintles E the projection L is kept in contact with leaf A, and the hinge is held closed. When the hinge is opened, by swinging leaf B on the pintles, the studs F F move through an arc of a circle whose axis is the pintle-line of the hinge and draw the link K with them, thus compressing the spring S. The end of the spring is preferably permitted to slide in the link K during the operation. The force of spring S constantly tends to draw leaf B back to its closed position until the leaf B has moved to such a position that the link K crosses the axis of the hinge, in which position the spring S cannot act to either close or open the hinge, this being its dead-point. When the hinge is opened beyond this point, the spring exerts its pull on the studs F F on the other side of the axis, draws the leaf B open, and holds it in that position.

It is evident that the studs F F may be placed on the other side of the pintles E E, in which case the direction of the action of spring S must be reversed. It is also evident that the spring S may act directly upon

the studs F F without the interposition of link K. These modifications are illustrated in Figs. 7 and 8, the direction of action of the spring in Fig. 7 being the reverse of that in all the other figures, and the spring being directly connected with the studs F' F' and F<sup>2</sup> F<sup>2</sup> in both figures.

In hinges of the character or type described coiled springs are usually located in the axial line of the pintle, and therefore the spring mechanism cannot be concealed by a hood carried on one of the leaves unless that hood is made to project a greater distance than the outward swing or movement of the spring. By my construction the hood conceals the spring without interfering with the working of the hinge and without projecting beyond the hinge-knuckles.

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

1. In a spring-hinge, the combination of two recessed leaves connected by two short

pintles, and a leaf-spring lying within the recess, having one end directly connected to one hinge-leaf and the other end connected by a link with the other hinge-leaf, substantially as described.

2. A spring-hinge consisting of two leaves having knuckles pivoted together, and the knuckles of one leaf provided, respectively, with a pin located eccentric to the axial line of the pivotal connection, a leaf-spring having one end secured to a hinge-leaf and the opposite end portion loosely connected with the two eccentric-pins, and a curved hood extending from the inner edge of one hinge-leaf and terminating at its free edge adjacent to the inner edge of the other hinge-leaf, substantially as described.

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Witnesses:

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