

(No Model.)

L. M. DEVORE.

SPRING HINGE.

No. 392,667.

Patented Nov. 13, 1888.

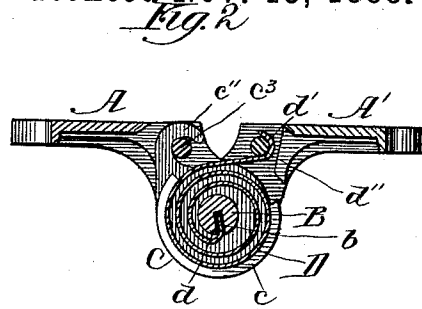
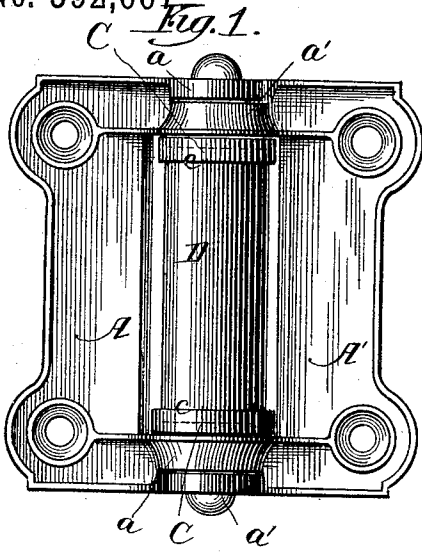


Fig. 3.

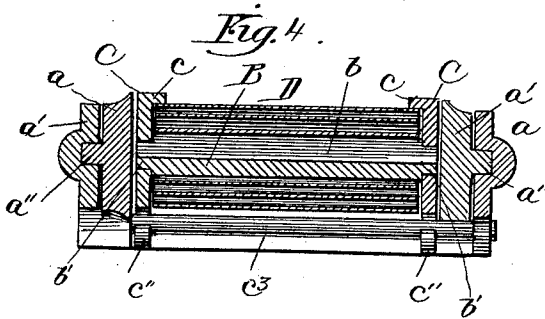
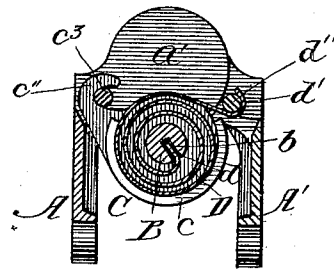


Fig. 8.

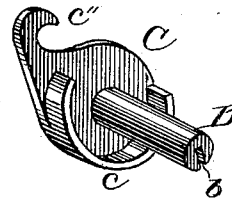


Fig. 5.

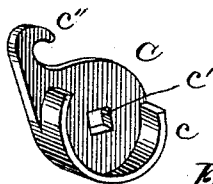


Fig. 6.

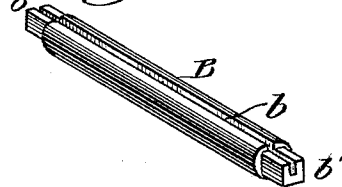
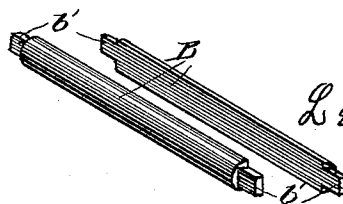


Fig. 7.



Witnesses:
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SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 392,667, dated November 13, 1888.

Application filed March 26, 1887. Serial No. 232,507. (No model.)

To all whom it may concern:

Be it known that I, LEVI M. DEVORE, residing at Freeport, in the county of Stephenson and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Spring-Hinges, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation; Fig. 2, a cross-section showing the parts in position when the door is closed; Fig. 3, a cross-section showing the parts in position when the door is open; Fig. 4, a longitudinal section through the arbor and spring; Fig. 5, a detail showing a form of the connecting-link between the arbor and hinge-leaf; Fig. 6, a perspective view of the detached or independent arbor; Fig. 7, a modification in the form of the arbor; Fig. 8, another modification in the form of the arbor. This invention relates to that class of hinges in which a spring is combined with the leaves of the hinge to act and hold a door or other object either closed or open, and in which the spring has a movement wholly independent of the movement of the hinge-pivots. This class of spring-hinges has heretofore been constructed to employ a spring made of coiled wire, and in use it has been found necessary, in order to maintain the spring in alignment with the hinge-pivots, to provide a frame or other connection by which the torsional action of the spring is prevented from throwing the body of the spring to one side of the line of the pivots or hinge-pintles.

This invention has for its objects to construct a hinge employing a spring for holding the hinge in its open or closed positions, and at the same time have the spring in proper alignment with the hinge pivots or pintles whether the hinge is opened or closed, with a connection to one leaf only of the hinge, dispensing with the use of a frame or other connection, as has heretofore been required to prevent the throwing of the spring out of alignment, and a further object is to overcome the objection of the torsional strain and to improve the construction and operation of the hinge as a whole; and its nature consists in the several parts and combinations of parts hereinafter described, and pointed out in the claim as new.

In the drawings, A A' represent the two leaves of a hinge, having ears *a a'*, respectively, and united at their ends by pivots *a''*, as usual.

B represents a detached or independent arbor, which can be formed of a single piece, as shown in Fig. 6, having a longitudinal slot, *b*, with a square tenon, *b'*, at each end, or which can be formed of two halves, as shown in Fig. 7, the square tenons *b'* being formed partly on each half of the arbor, or it can be formed, as shown in Fig. 8, of two pieces, so that when together they will be disconnected at the center, or such arbor can be otherwise formed to be independent and adapted for attachment to one end of the operating-spring.

C represents the links, one for each end of the arbor B, for connecting the arbor with one leaf of the hinge. Each link for use with the arbor having a square tenon, *b'*, is provided with a square hole, *c'*, to receive the tenon *b'*, and each link has an extension terminating in a hook, *c''*, for connecting the links C with the rod *c'* on one of the hinge-leaves, and, as shown, each link C is provided with a semi-circular flange, *c*, to encircle the end of the spring; but such flange can be omitted, if so desired, without affecting the operation of the spring.

D represents the operating-spring, formed of a strip of steel wound in a helix or a clock-spring form, and of a length to fit between the links C around the arbor B. As shown, the spring D is connected with the arbor B by turning the end *d* and entering it in the slot *b* or by inserting such end between the halves of the arbor shown in Fig. 7. The outer end of the spring D is bent to form a half-loop, *d'*, which partly encircles the rod *d''* on the hinge-leaf not having the rod *c''*, as shown in Figs. 2 and 3.

Each leaf is provided with screw-holes or other means for attachment of the hinge to a door or other object, and the parts are assembled by placing the two leaves together, connecting the end *d* of the spring with the arbor B, and attaching the leaves by the links C, or otherwise, to the arbor, and then connecting either the link or the spring with the hinge-leaf and drawing the parts for connection with the other hinge-leaf, and when together the form of the spring is one which will

draw uniformly and without torsional action that will tend to throw the spring out of alignment, the result being that in use the spring is maintained in proper alignment with the hinge
5 pivots or pintles under all circumstances and is effectual and reliable for the purpose for which it is intended.

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

10 In a spring-hinge, the combination of the leaves A A', having ears *a a'*, united by the pivots *a''*, the clips C C, provided with hooks

c'' c'', the rod *c'''*, connected with one of the leaves, A, with which rod the said hooks engage, the rod *d''*, connected to the other leaf, 15 A', the independent arbor B, connecting the clips C C together, and the helical spring D, one end of which is connected directly with the arbor B, while the other end is connected with the bar *d''*, substantially as described.

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Witnesses:

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