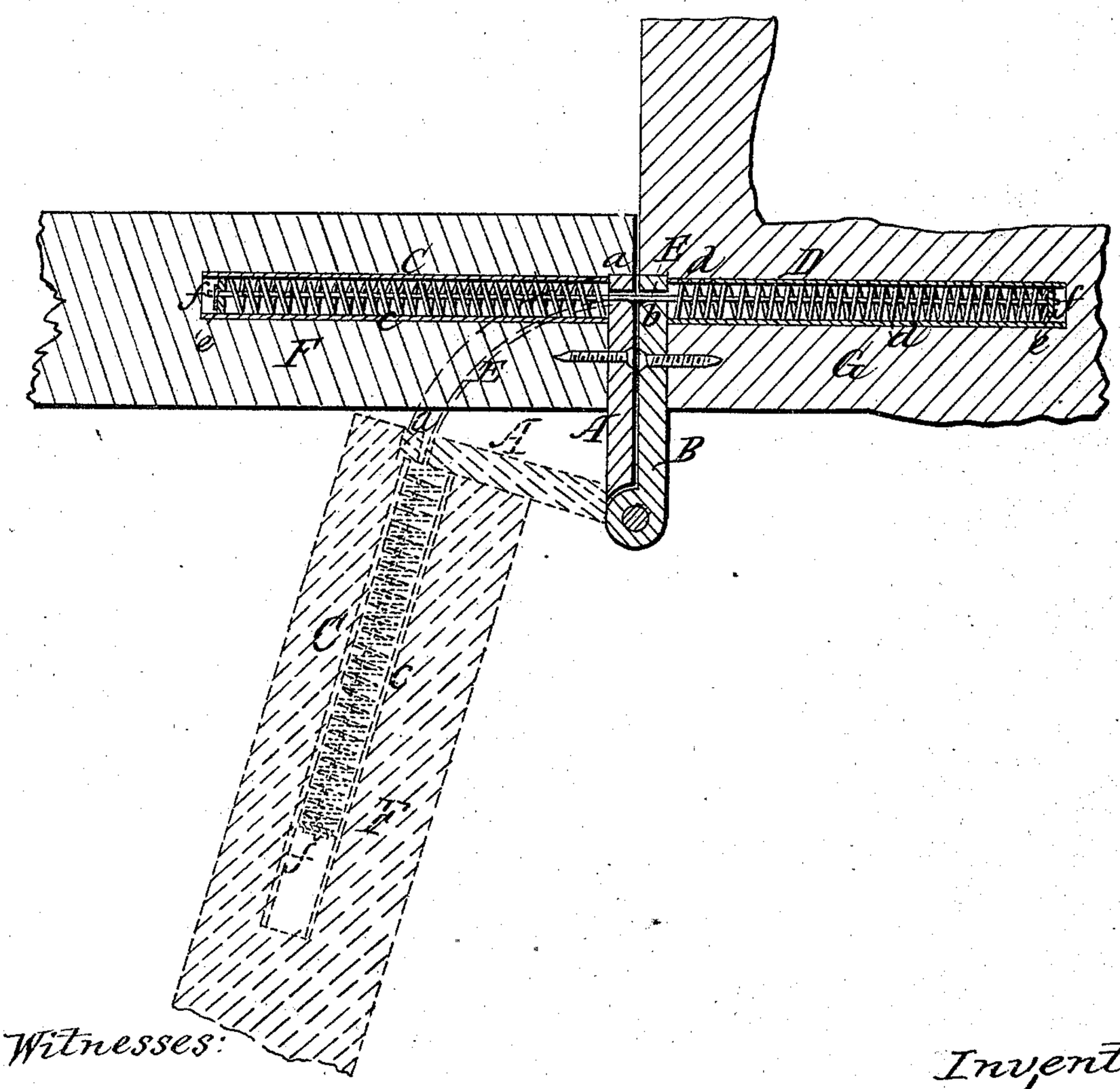
C. W. Lawrence,

Spring Hinge.

No. 62,140. Patented Feb. 19, 1867.



Witnesses:

M. Daley.

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by Poole

United States Patent Office.

CHARLES W. LAWRENCE, OF MILTON, INDIANA.

Letters Patent No. 62,140, *dated February* 19, 1867.

IMPROVEMENT IN SPRING HINGES.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that I, C. W. LAWRENCE, of Milton, in the county of Wayne, and State of Indiana, have invented certain new and useful Improvements in Spring Hinges; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, which represents a horizontal section of a hinge to which my improvements have been applied.

The nature of my invention consists in connecting the two leaves of a but or other hinge of suitable construction, by a flexible and elastic rod or band of steel or brass, which is acted on by one or more springs in such manner that the said leaves shall always close or come together when not held apart by external force or power.

To enable those skilled in the art to understand and use my invention, I will now proceed to describe the manner in which the same is or may be carried into effect, by reference to the accompanying drawings.

The hinge to which my improvements are applied differs in no respect from an ordinary hinge. Upon the exterior of its leaves A B, and removed as far as possible from the joint *x*, are tubes, C D, open at each end. These tubes are placed in such position as to be at right angles to the leaves, and are respectively secured to the leaves A B by solder or other suitable means. Instead, however, of being made separately from the leaves, they may, if desired, be formed or cast in one piece with them. At the points where they are secured to the leaves, slots or openings, *a b*, are formed in the latter, the inner edges—or edges nearest the axis *x*—of such slots being bevelled. Within the tubes are placed spiral springs, *c d*, of suitable size to fit the interior of the tubes. The springs, at their front ends, bear against the leaves A B, and their rear ends are held in position as will be described. The two springs *c d*, and leaves A B, are connected by a flexible and elastic rod or band, E, of highly tempered metal. This rod extends from the outer end of the tube C, through the slots *a* and *b*, into the tube D, at whose further end it is secured by suitable means. It is placed within the spiral springs *c d*, as shown in the drawings. That end of it which is in the tube C is held in place by a circular plate or disk, *e*, which fits over it, and is held in place by a pin, *f*. The opposite end of the rod is held in the tube D by similar means. It will thus be seen that the springs *c d* bear at one end against their respective leaves A B, and at the other against the plates *e*, the latter being placed in such position on the rod E as to slightly compress the springs within their tubes, and that by this means their constant tendency is to close or force together the leaves of the hinge. The hinge thus arranged is fastened to the door F and wall G, as shown in the drawing. In both door and wall suitable holes are bored, or otherwise made, to receive the tubes C D, after which the hinge is secured in proper position by the ordinary means. When the door F is opened, as shown in red lines in the drawings, the leaves A B are separated, drawing out the rod E from the tubes, which rod, in being drawn out, causes, by means of the plates *e* attached to each of its ends, the compression of the springs *c d*. As soon as the hand is taken from the door the pressure from the springs is removed, and they immediately expand, drawing back the rod E within the tubes, and closing the door. One tube and spring may be used instead of the two shown in the drawing. In this case the rod E will, of course, extend out from the tube only far enough to be connected with the opposite leaf. The employment of the highly tempered steel or brass band E as a connecting medium is advantageous in many respects. It can be used to much better advantage than a chain or link, or other jointed connection, because it is not only flexible, but also elastic, and always tends to reassume the shape from which it is bent by the opening of the door. It, moreover, has no joints, and therefore presents fewer points at which there is liability of its breaking; and, on account of its smooth and even surface, friction is lessened, and it is not liable to catch in the slots in the hinge through which it passes, thus rendering the employment of friction-rolls unessential. The springs, tube, and connecting-rods may be used separately from the hinge if desired, the springs, either with or without the surrounding sheaths, being placed in cylindrical sockets formed in the door and in the jamb, as above described. When the tubes are used their front ends should be closed, so as to afford a bearing surface to the springs, and so as to form a plate which can be secured to the door or jamb by screws, &c. In case the tubes are not employed, plates provided with openings similar to the slots *a b* may be used for closing the mouths of the sockets which contain the springs. The rod E is attached to and operates in connection with the springs in the manner above stated, whether the device be used with a hinge or separately therefrom.

Having described my invention, and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the leaves of a hinge of otherwise ordinary or suitable construction, of one or more compression springs, placed at right angles and transversely to such leaves, and connected by a flexible and elastic steel or brass band, under the arrangement and for operation as herein shown and described.

2. The combination of the tubular sheath or sheaths and the spiral spring with the elastic and flexible rod or band, substantially as shown and set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

C. W. LAWRENCE.

Witnesses:
J. H. FRAZEE,
GEO. A. HURD.