

No. 661,346.

Patented Nov. 6, 1900.

M. LINCOLN.

SPRING HINGE.

(Application filed May 25, 1900.)

(No Model.)

Fig. I.

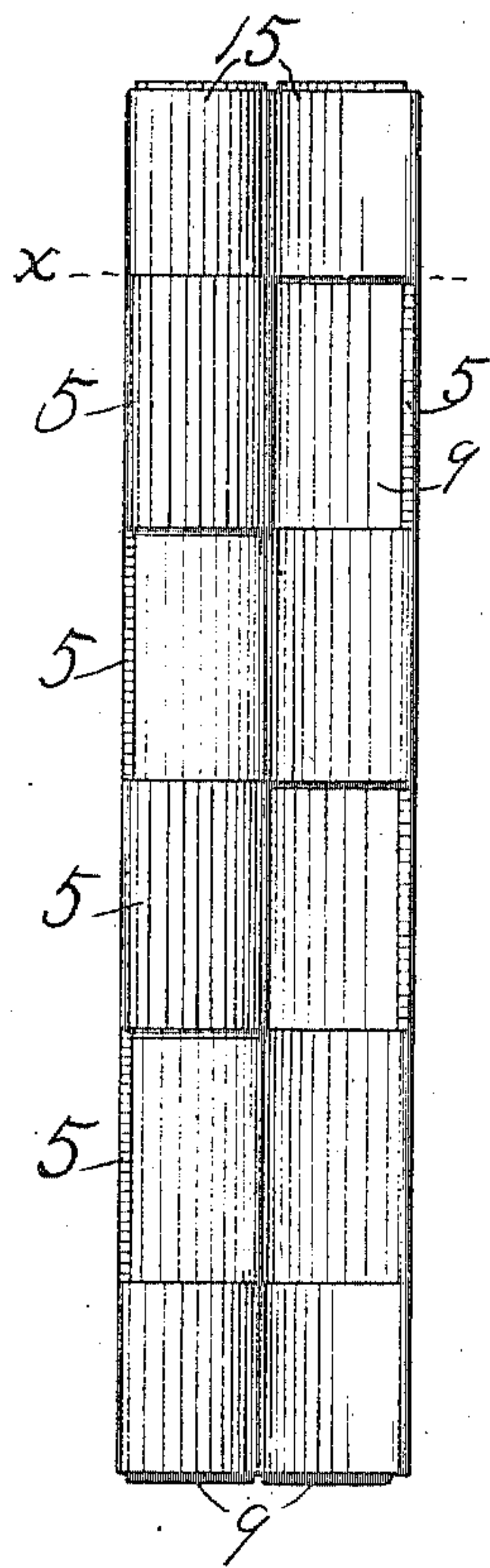


Fig. II.

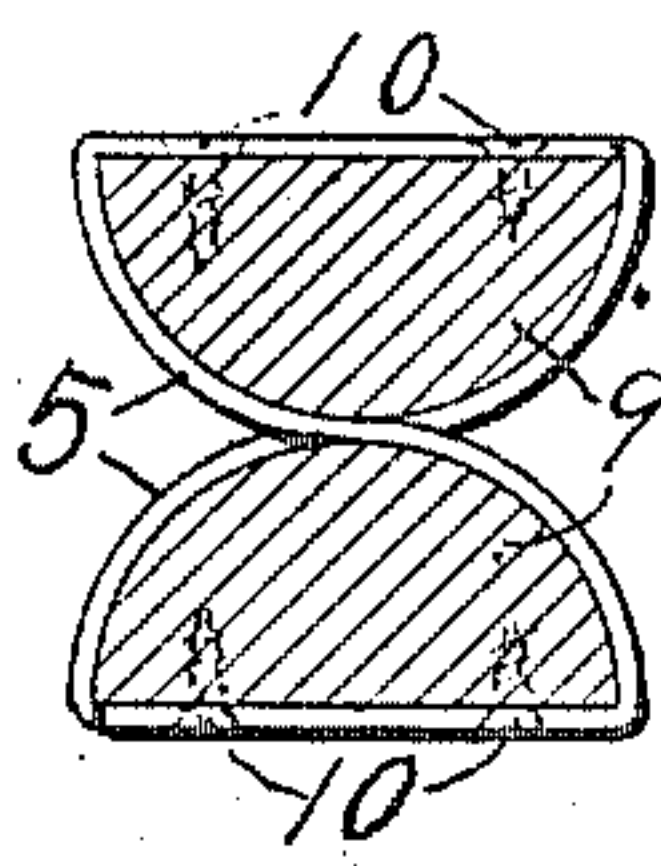


Fig. IV.

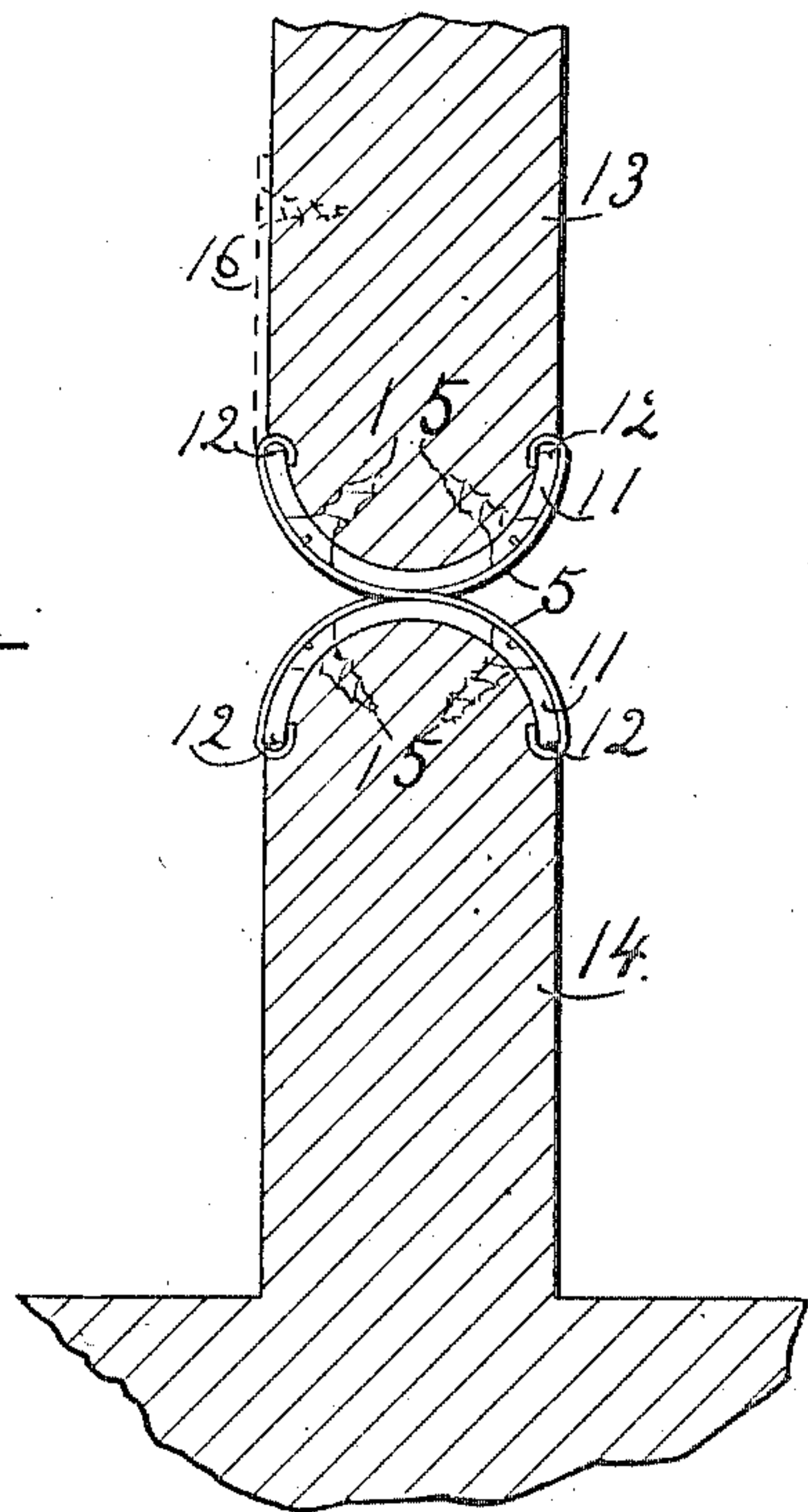
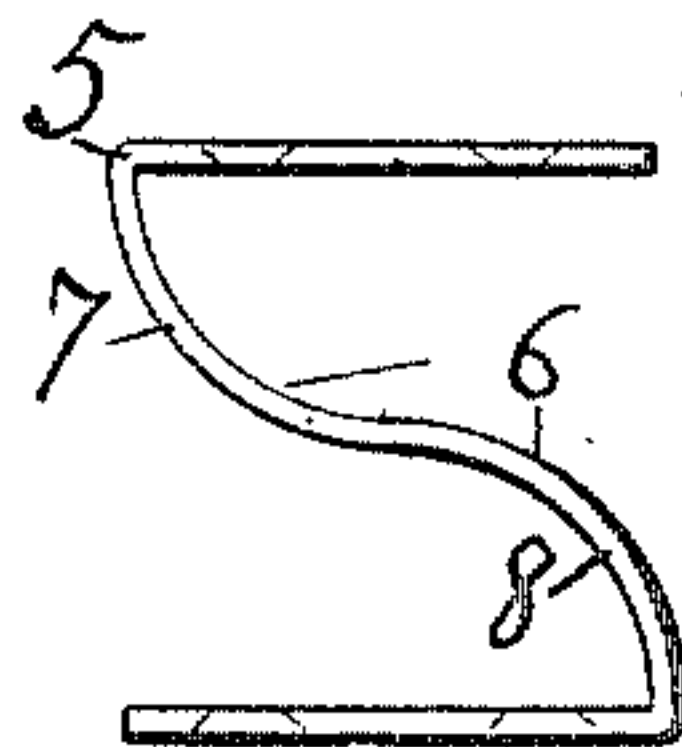


Fig. III.



WITNESSES,

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UNITED STATES PATENT OFFICE.

MARVIN LINCOLN, OF MALDEN, MASSACHUSETTS.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 661,346, dated November 6, 1900.

Application filed May 25, 1900. Serial No. 17,994. (No model.)

To all whom it may concern:

Be it known that I, MARVIN LINCOLN, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Spring-Hinges; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates in general to that class of hinges which are provided with means for restoring to its normal position the door or other swinging device hung thereby, and more particularly to spring-hinges which are adapted to permit the door to swing either way from a central point and to restore the door to that point when left free.

To this end my invention consists in the construction and combination of parts forming a spring-hinge hereinafter more fully described, and particularly pointed out in the claim, reference being had to the accompanying drawings, in which—

Figure I represents in side elevation a hinge according to my invention adapted to serve as a hanger for a door, gate, or window. Fig. II is a horizontal section of the same at line *x*. Fig. III is an end view of a spring member of such a hinge. Fig. IV is an end view of a modification of such a hinge.

Numeral 5 represents the spring members which are the main characteristic of my invention in this hinge. They are made of elastic sheet or strap material, such as spring-steel or spring-brass, and in some cases parchment is sufficiently strong and elastic, or a mere wire might answer the purpose. In any case this spring member is to be formed in Z shape, the body 6 being an ogee curve whose two reverse elements 7 and 8 are each a quarter of a circle in order that the spring may fit normally upon the two semicylindrical body members 9, as shown in Fig. II. These body members 9 may be made of hard wood or any other suitable material and long enough to hold as many spring members 5 as may be required. 15 represents mere bands or ferrules around the ends of the body members 9. Each of the spring members when set one end up will face to the right, and when the other end up it will face to the left, and when two or more of them are applied alternating right and left upon two body members

9 and are secured thereto in any suitable manner, as by screws 10, they form therewith a commercial hinge, as shown in Figs. I and II, for a door or for other purposes. In the modification shown in Fig. IV the body portions 9 are substituted by semicylindrical members 11, formed of sheet metal, over the edges 12 of which the spring members 5 are hooked. For convenience of expression I use the word "door" to represent anything that is to be hung to swing upon these hinges. In this case the body portion 13 of the door and 14 of the casing may be made semicylindrical to fit solidly into the trough-shaped members 11, and the latter may be permanently secured thereto by means of screws 15. This hinge was originally designed by me for use in artificial limbs, particularly for the ankle-joint, where it is desirable that the foot should assume a normal position about at right angles to the line of the tibia whenever the person's weight is relieved from the heel or from the ball of the foot. It forms a rolling or rocking bearing between the parts which it joins when one works upon the other and serves as a shoe that prevents such parts from becoming worn in use. The rolling contact avoids attrition and prevents wear at the joint. When made in due proportions for such service, it is particularly well adapted for those rocking-chairs that have the chair mounted to rock on a stationary base. For screen-doors, for doors across passages, and for gates that require to be swung open both ways this spring-hinge is peculiarly applicable, and there are many other situations to which its simplicity adapts it, both as a hinge and a spring. If many springs of wire shaped to the form shown in Fig. III were associated like the members 5 in Fig. I, the same object would be accomplished, though the hinge would not be as rigid against longitudinal pressure. In the normal position of the door these springs are inert or unstrained; but each spring resists with both its leaves any movement of the door to swing either way, so that one pair of springs offers the resilience of four spring-leaves to return the door to place. For heavy doors any required number and thickness of springs may be used, even to extending the hinges the whole length of the door. In the drawings

it has been necessary to show the springs somewhat exaggerated in thickness. When considered as both a hinge and a spring, this device is inexpensive and very economical.

5 Having thus fully described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

In spring-hinges, two body portions and two or more straps joining them; the adjacent
10 cent faces of the body portions being cylindrical and parallel and the straps being

springs tempered in ogee shape to fit upon the said cylindrical surfaces, and means for attaching the straps to the body portions at points beyond their contact-surfaces, substantially as described. 15

In testimony whereof I affix my signature in presence of two witnesses.

MARVIN LINCOLN.

Witnesses:

FLOYD E. DAVIS,
M. E. WOOD.