(No Model.)

W. S. CRANE.

SPRING HINGE.

No. 510,896. Patented Dec. 19, 1893.

Fig. 1.

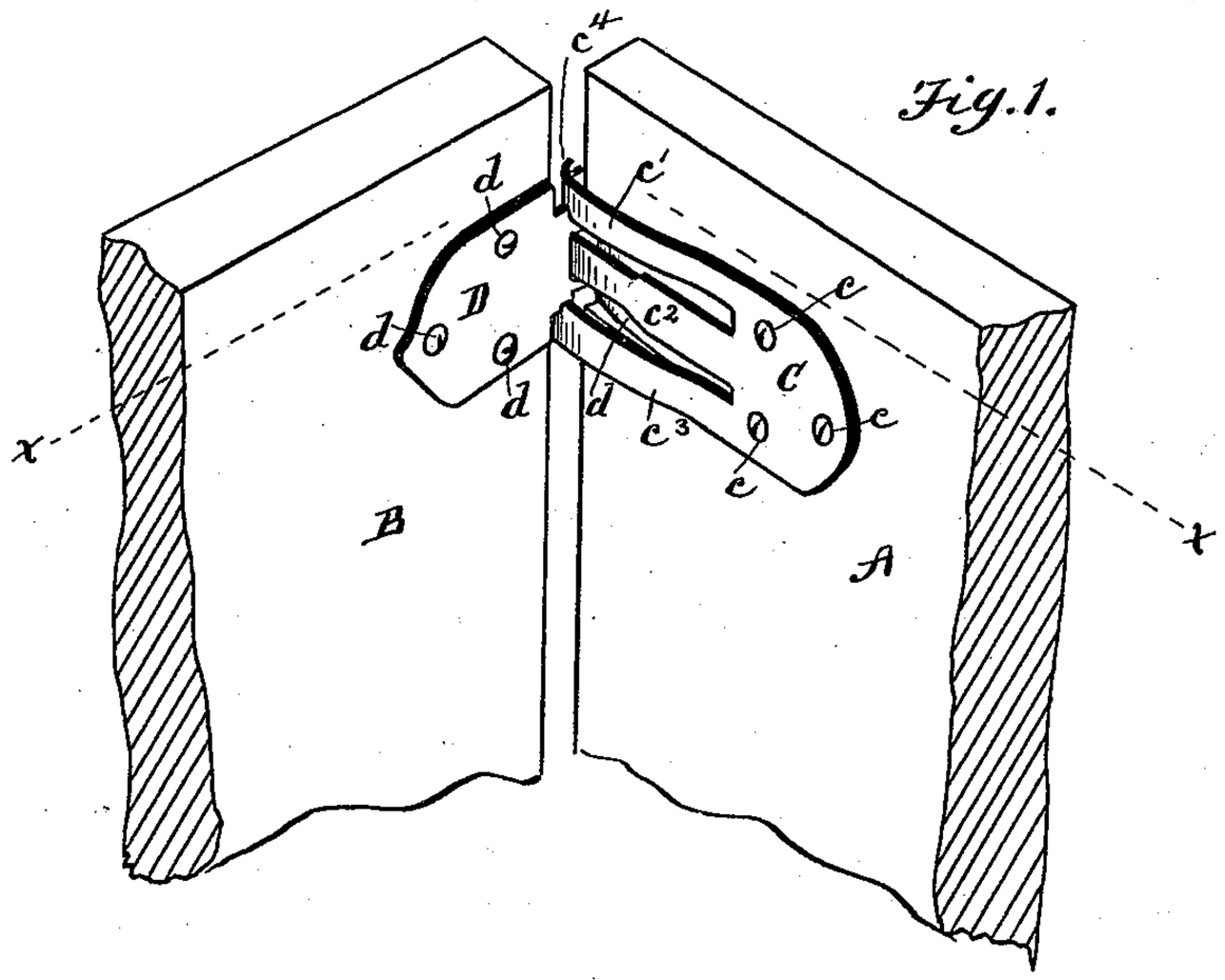


Fig. 2.

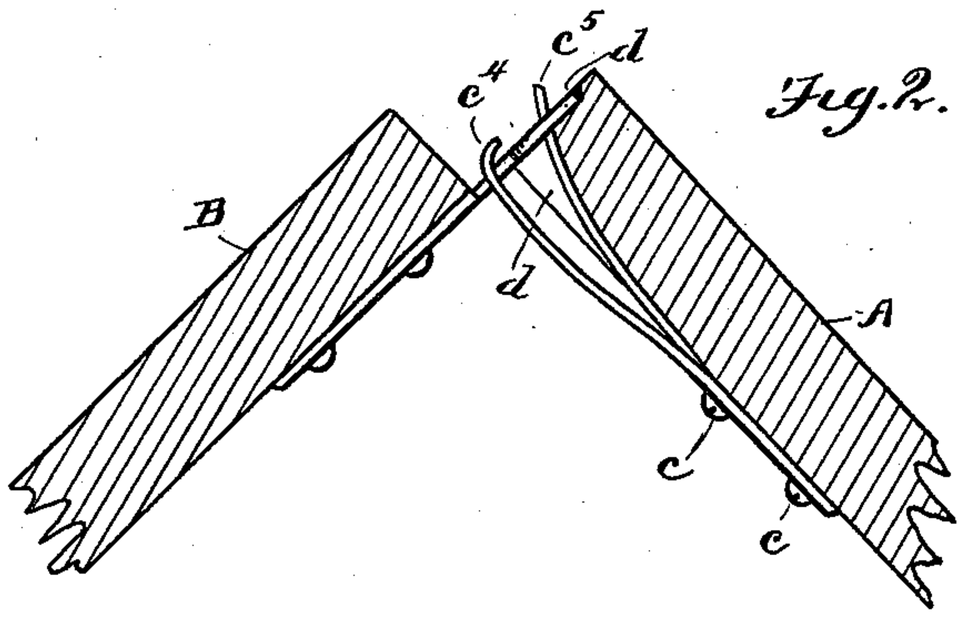


Fig. 3

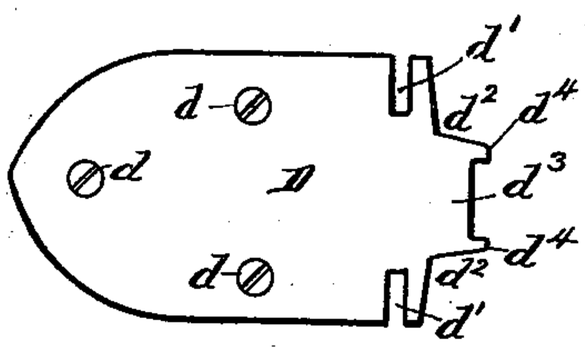
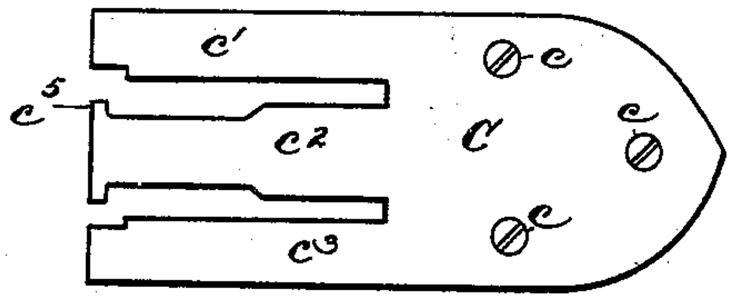


Fig. 4.



WITNESSES

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SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 510,896, dated December 19, 1893.

Application filed June 3, 1893. Serial No. 476,456. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. CRANE, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Spring-Hinges; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to spring hinges, and consists in the peculiar construction, arrangement and combinations hereinafter specified and claimed.

In the drawings, Figure 1 is a perspective view of my hinge as attached to a rigid object, and connected with a swinging object pivoted thereto and thereby. Fig. 2 is a partial sectional drawing on the line *x*—*x* of Fig. 1, showing the relative position of the parts, with the swinging piece at right angles to the fixed piece. Fig. 3 is a detail plan view of one of the lugs. Fig. 4 is a detail plan view of the spring lug.

Similar letters refer to similar parts.

In the drawings, A represents what may be termed the fixed piece, to which one of the lugs, and preferably the spring lug, is attached.

B represents the swinging piece, to which the opposite and engaging lug, shown in Fig. 3, is attached.

C is a spring lug, and is attached to the rigid piece A by means of screws at *c*, *c*, *c*.

D is the engaging lug attached to the swinging piece B, and is also attached thereto by means of appropriate screws *d*, *d*.

It is obvious that the two lugs C and D might be transposed in their relative attachments to the rigid and swinging pieces without departing from the invention. The rigid piece A has at the point of attachment, and extending from its rear and engaging edge transversely, a slot *a*, with a curved bottom, the convex side being uppermost. The lug C has three prongs or tongues, each of which are tempered and form springs marked c', c^2, c^3. The outer ends of the tongues, c' and c^3, are bent at right angles to the line of the direction of the tongue, as shown at Figs. 1 and 2 at c^4. As both are alike, it is unnecessary to describe them otherwise in detail. The central tongue, c^2, is cut out upon either side, as seen especially in Fig. 4, and at the end has a widened portion or head, as shown at c^5. The lug D is formed of a single piece of uniform thickness, and is cut in the form as shown in Fig. 3. Two slots, opposite and approaching each other, are cut, one from either side, as shown at d'. The extensions of the slots d', in combination with the cutting away at the corners d^2 d^2, form prongs or tongues. The central portion is extended transversely at d^3, and has two extending tongues, with a central depression, the tongues being marked d^4. The lugs are engaged, as shown in Fig. 1, the tongue c' engaging in the slot d', and the tongue c^3 engaging in the opposite slot d'. The tongue c^2 is placed under the projection of D, marked d^3. On bringing the two lugs at right angles, as shown in Fig. 1, the tongues c' and c^3 are sprung outwardly from the piece *a*, and the tongue c^2 is sprung inwardly in the groove hereinbefore mentioned, *a*, by means of the operation and the peculiar construction of the lug D, as hereinbefore described. While in this position they are retained in their places, as shown in Fig. 1, without any tendency to compel the swinging piece B to rotate upon the engagements of the two lugs as a center. This is shown more particularly in Fig. 2. Upon withdrawing the swinging piece B from its right angled position with reference to piece A, each of the tongues c' c^2 c^3 being under spring tension and acting upon the lug D by virtue of its conformation, they tend to force the lug D into the same plane with the lug C, and consequently force its attached swinging piece B into line with the immovable piece A.

The operation of this device is as follows: Assuming that the immovable piece A is attached rigidly to a box, ceiling, or wall, and that B is a cover or door, it is obvious that the tension of the springs c' c^2 c^3, as operating on the lug D by virtue of their peculiar interlocking, will tend to keep the so called door B in the same plane with the so called wall A, and to resist any endeavor to open the door B or to place it in the position shown in Figs. 1 and 2. However, when the tension of the spring is overcome and the door B forced in the position shown in Figs. 1 and 2,

the lugs d^4 d^4 engaging against the projection upon the tongue c^2 at c^5, the door is prevented from passing beyond the angle, as shown substantially in Figs. 1 and 2, but is held in that position by virtue of the tension of the springs and the friction of the parts. As soon, however, as it is swung from this position back toward its original position, the tension of the three springs c' c^2 c^3,—the outer ones acting against the inner one, intending to force the lug D into a plane corresponding to that of the lug C,—tends to shut the door B, or at least to place it in the same plane with the wall A.

What I claim is—

In a spring hinge, the combination of a lug having opposing springs, the ends of one set of such springs forming hooks engaging an opposite lug, and the opposing spring having a stop also engaging the opposite lug whereby the two lugs are prevented from separating and afford a turning point against the resistance of the springs, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIAM S. CRANE.

Witnesses:

FRANCES CLOUGH,

MARION A. REEVE.