

A. French,
Spring Hinge,
No 13,085, Patented June 19, 1855.

Fig. 2

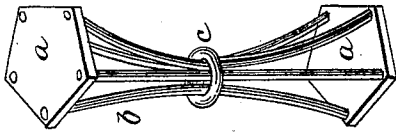


Fig. 1.

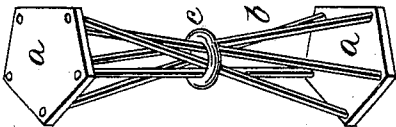
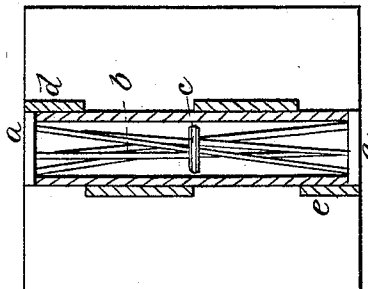


Fig. 4.



Fig. 3.



Witnesses
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ARASMUS FRENCH, OF WATERBURY, CONNECTICUT, ASSIGNOR TO A. BRACKETT AND T. KEECH.

SPRING FOR HINGES, &c.

Specification of Letters Patent No. 13,085, dated June 19, 1855.

To all whom it may concern:

Be it known that I, ARASMUS FRENCH, of Waterbury, in the State of Connecticut, have invented a new and useful Improvement in Springs Applicable to Hinges and other Purposes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—
10 Figure 1, is a perspective view of the spring when distended. Fig. 2, a like view when under full tension. Fig. 3, is a longitudinal section of a hinge with the improved spring applied; and Fig. 4, a cross
15 section of the same.

The same letters indicate like parts in all the figures.

My invention consists in composing a spring of steel or other elastic rods connected at the ends to plates and at equal or
20 nearly equal distances from the centers thereof, and surrounded by a collar or ring at or near the middle of their length in such manner that the said elastic rods shall
25 be held at a greater distance apart at the ends, where they are connected with the plates, than at the middle, where they are surrounded by the ring or collar, so that when the two plates are turned in opposite
30 directions, or one is held and the other turned, the several rods shall be gradually bent, thus gradually increasing the tension of the spring, until they coincide with
35 planes radiating from the axis of the two plates, and then moving in either direction will relax the spring.

In the accompanying drawings, *a, a*, represent two like plates of metal, with five
40 holes at equal distances apart, and all equally distant from the center. And *b, b, b*, represent five rods of steel wire cut of equal length, and first inserted together in a collar or ring *c*, of such diameter as to
45 hold the rods together and allow them to play freely within it. The ends of the rods are then inserted in the two plates.

As the bore of the collar or ring *c*, is less than the circle of holes in the plates in which the ends of the wires are inserted, it
50 follows that while the rods are straight they must be diagonal to the line of the axis of the two plates, as represented in Fig. 1.

In that condition the spring is fully distended; but when either or both plates are turned, as represented in Fig. 2, so that each
55 rod will be in a plane radiating from the axis of the plates, all the rods will be bent to the greatest extent in the middle of their length, and then the spring will be at its
60 fullest tension and will therefore tend to turn the two plates in opposite directions. The force of a spring thus constructed can be increased or decreased by either increasing or decreasing the number of rods—or
65 their length, or the relative diameter of the collar and the circle of holes in the plates in which the rods are inserted.

When the spring is applied to a hinge the knuckle *d*, of one leaf must be at one end and a corresponding knuckle *e*, of
70 the other leaf or wing at the other end, and one of the plates *a*, fitted to each one of these knuckles so that the spring will be located within the knuckles, the middle of
75 which is fitted to, and holds the collar as represented in Fig. 3. The better to keep the knuckles of the hinge in line, a tube surrounding the spring may be inserted.

With springs such as these inserted in a hinge its tension will, from a certain point,
80 act in opposite directions, and thus keep a door or window blind either open or shut, and for window blinds it will be especially advantageous as it will dispense with the use of fastenings. But although I have
85 described my improved spring as applied to hinges it will be obvious that it can be applied to many other purposes not necessary to enumerate, whether the two bodies connected with it be made to move or one be
90 stationary and the other movable.

It will be obvious from the foregoing that the form of the parts and the application of my improved spring may be
95 greatly modified without changing its principle or mode of operation, and therefore I wish it to be distinctly understood that I do not limit myself to the form or application herein specified so long as the same
100 mode of operation is attained by the substitution of mere equivalents.

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

The method substantially as herein speci-

fied of composing a spring of a series of elastic rods connected at each end to plates or their equivalents, and at or nearly at equal distances from the center of the plates
5 and surrounded at, or nearly at, the middle of their length by a collar or ring so that they shall be held nearer together at the middle, than at the ends, substantially as specified.

ARASMUS FRENCH.

Witnesses:

S. W. HALL,
HENRY W. FRENCH.