

(Model.)

G. M. JEWETT.

2 Sheets—Sheet 1.

SPRING HINGE.

No. 252,470.

Patented Jan. 17, 1882.

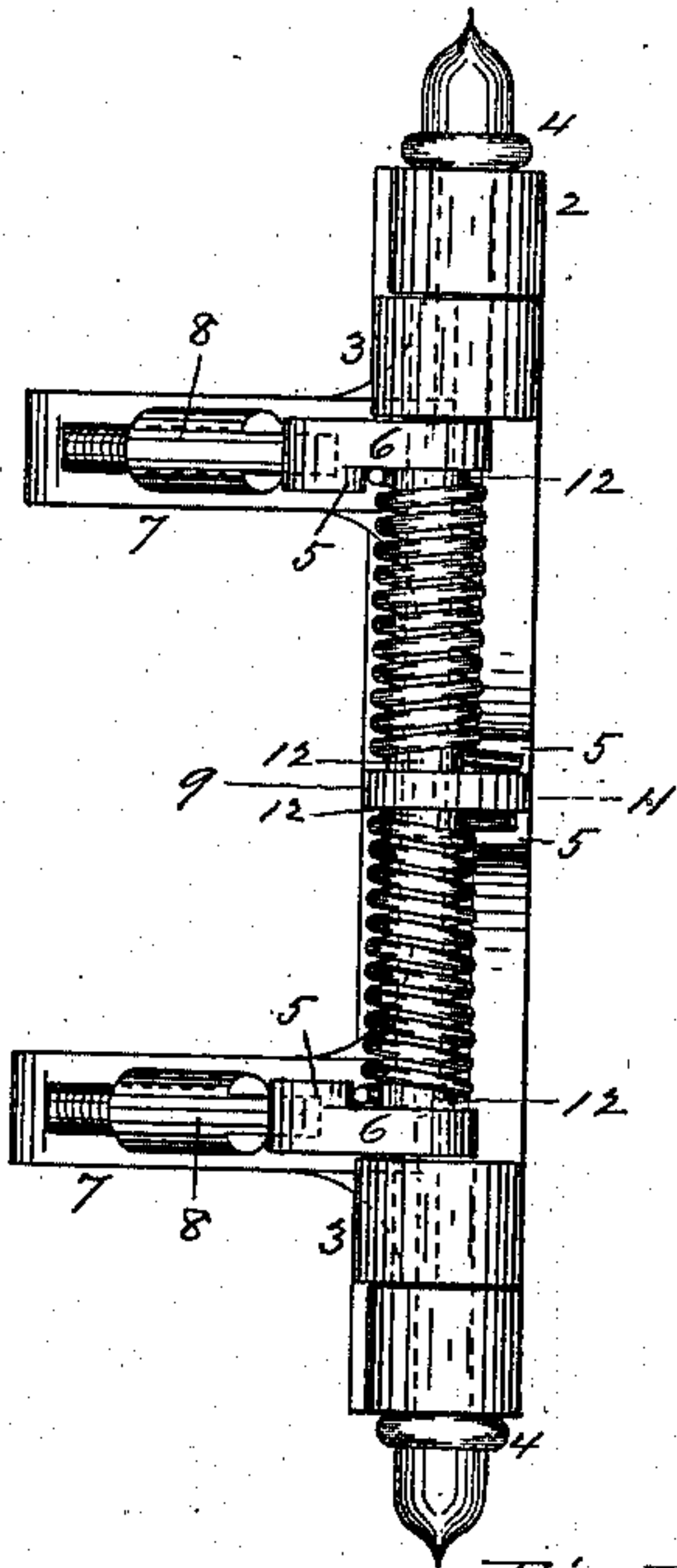


Fig. II

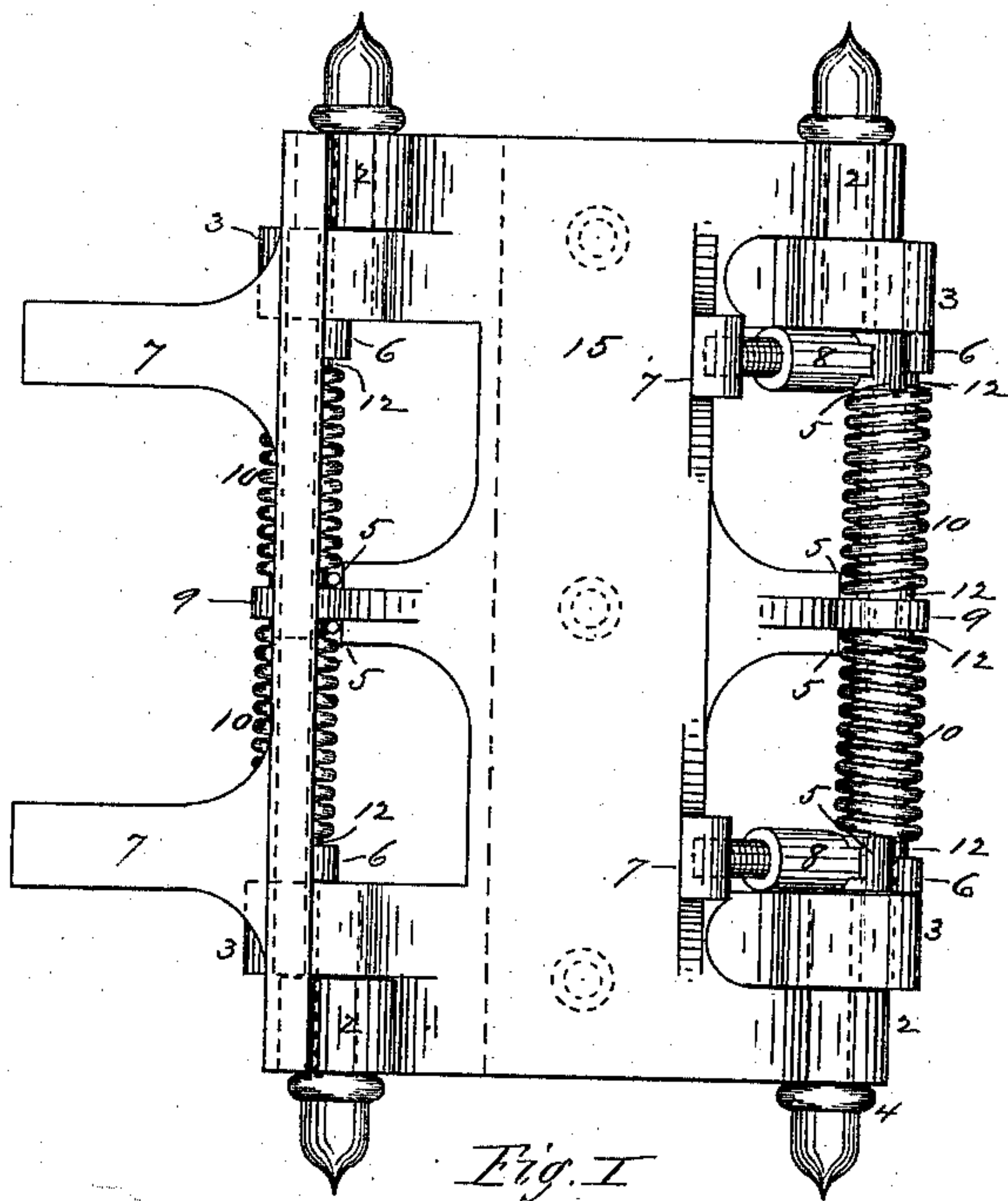


Fig. I

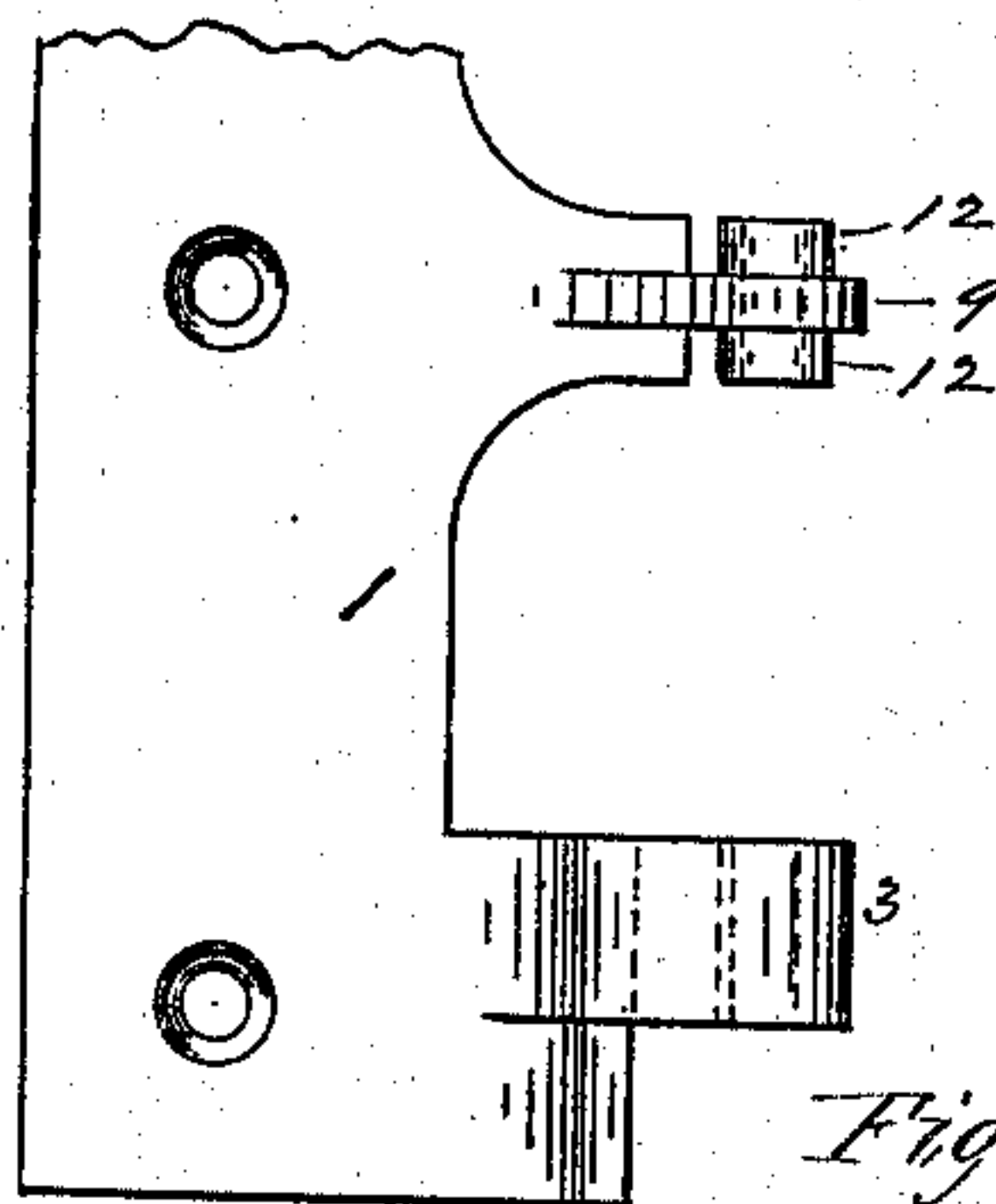


Fig. VI

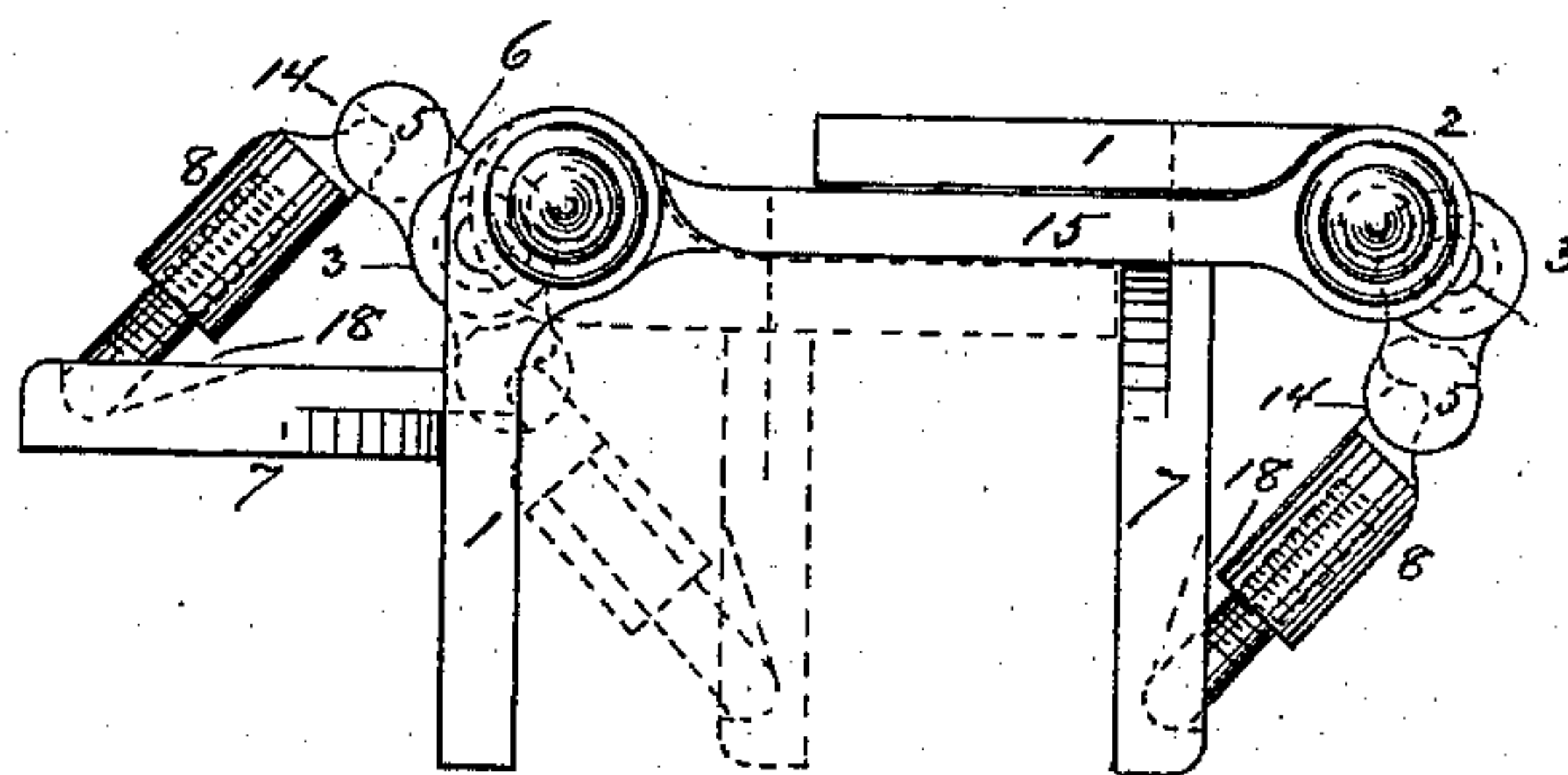


Fig. III

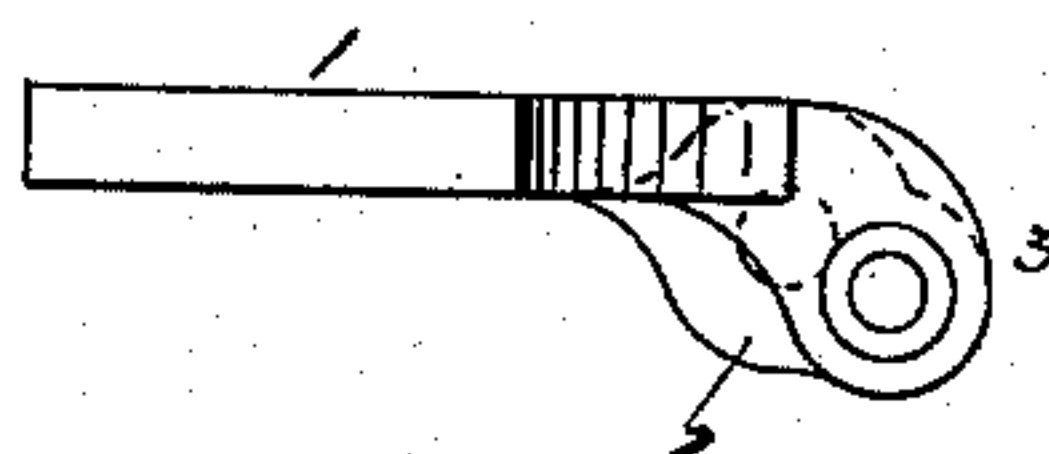


Fig. VII

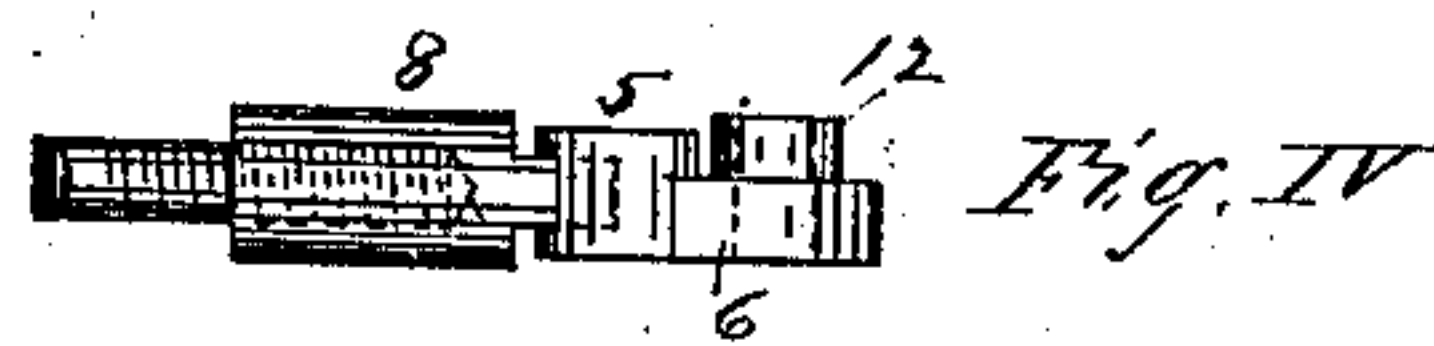


Fig. IV

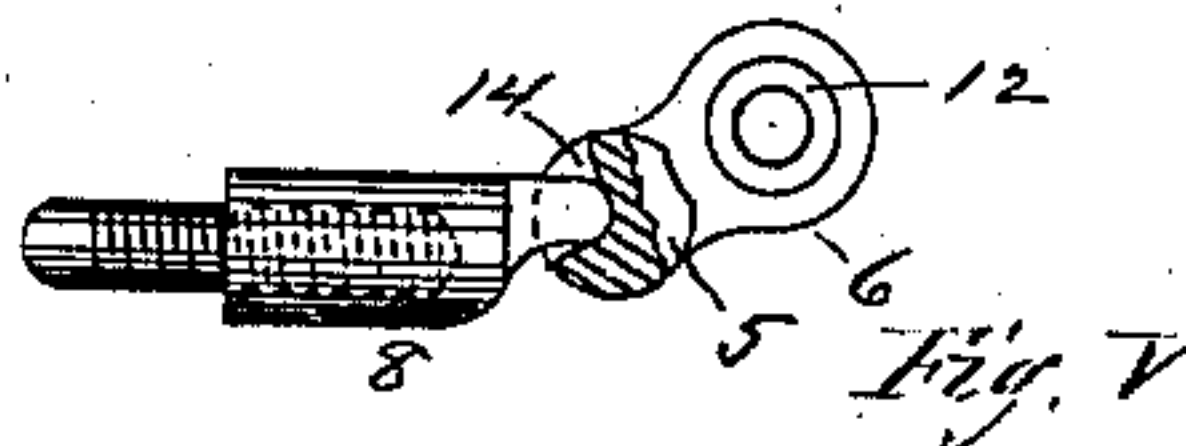


Fig. V

Witnesses.

C. H. Wood
E. M. Bissell

Inventor.
George M. Jewett.
By J. A. Curtis.
his atty.

(Model.)

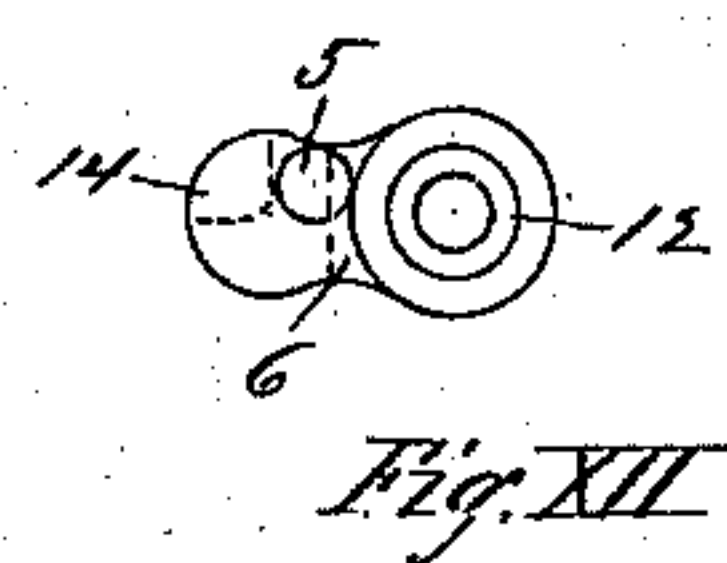
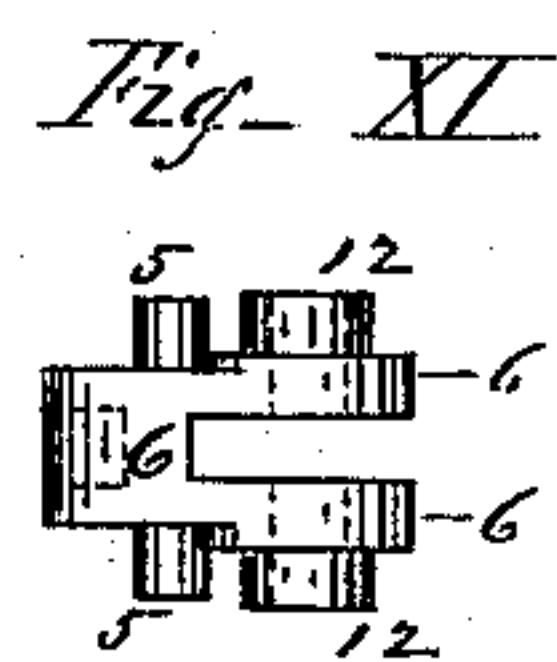
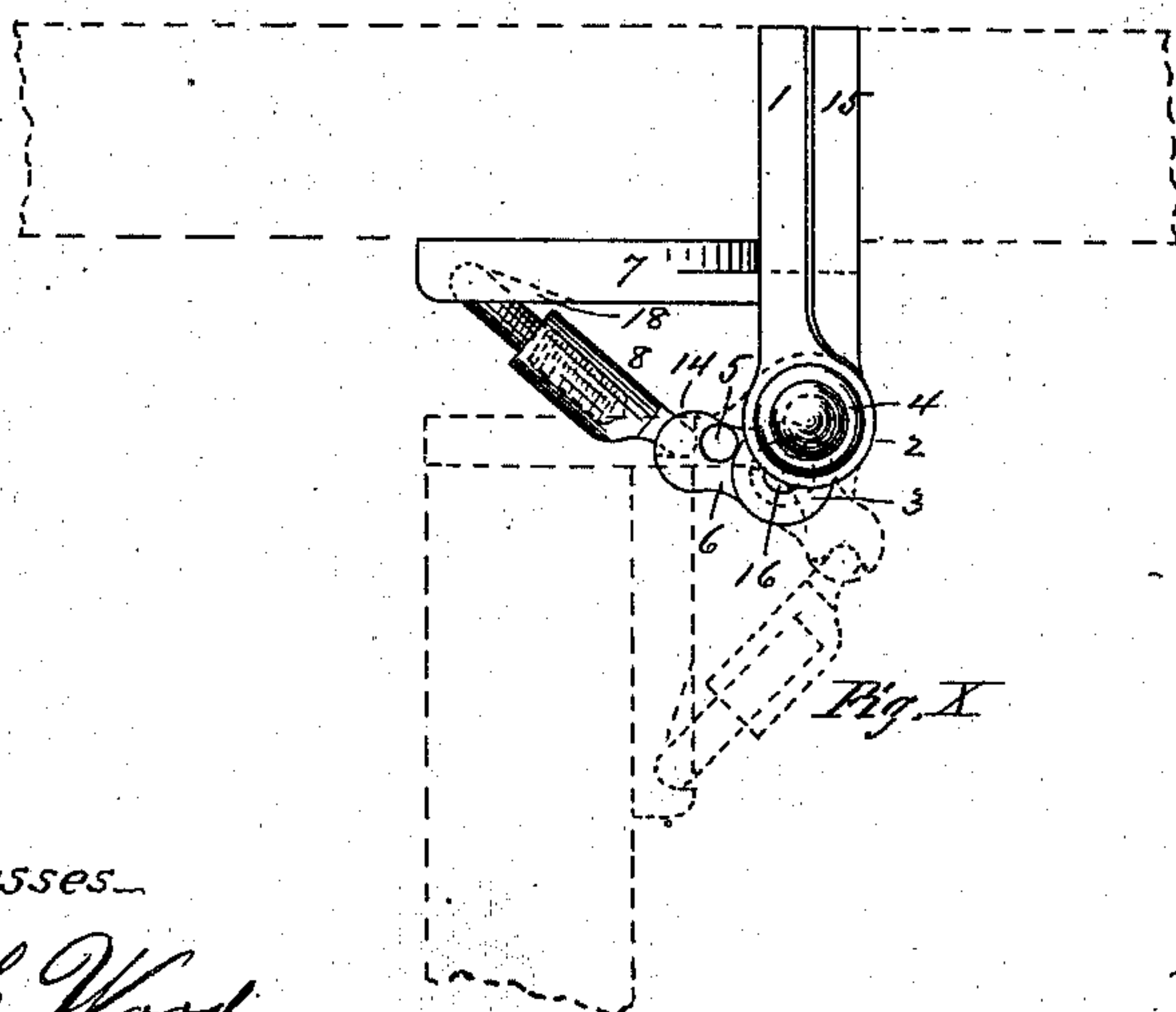
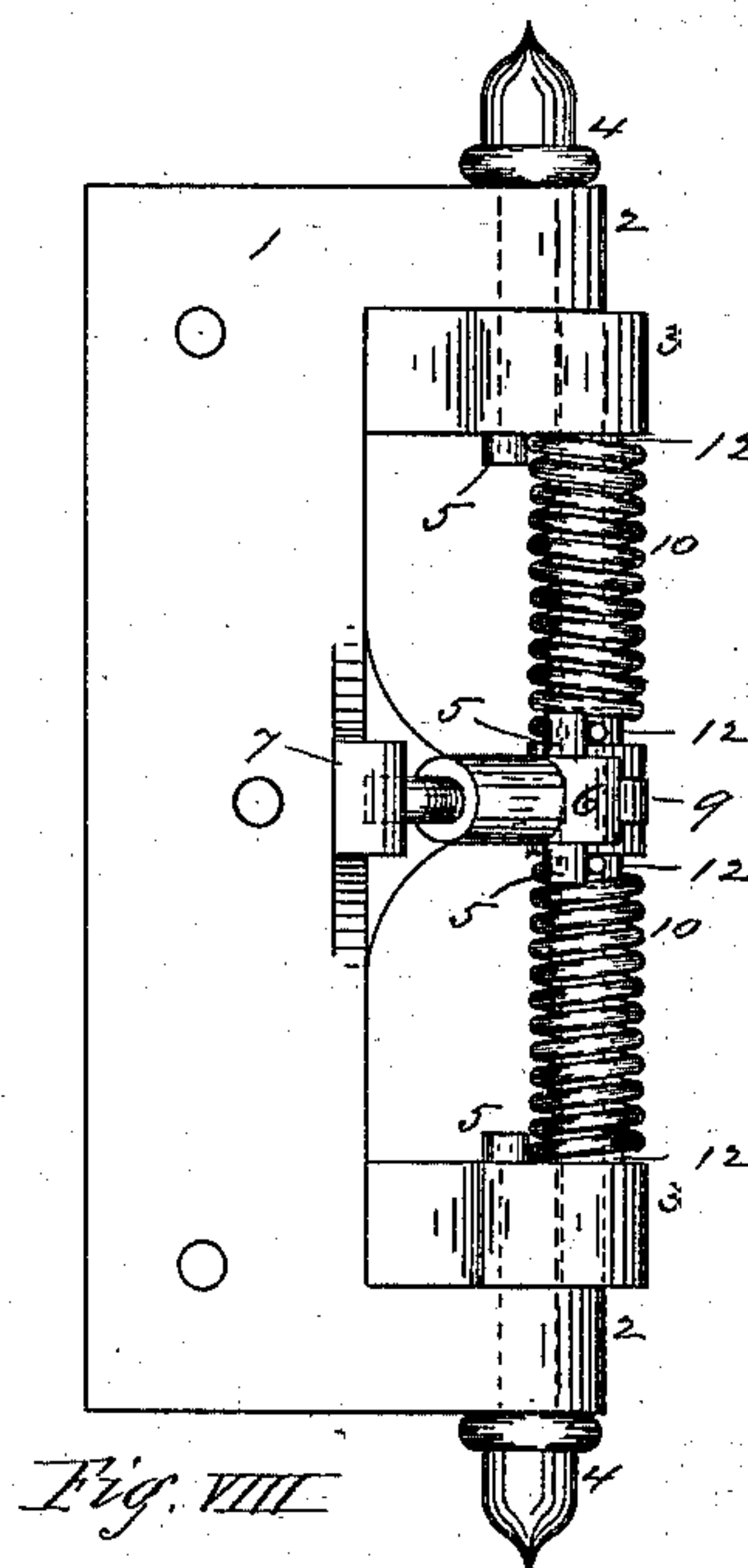
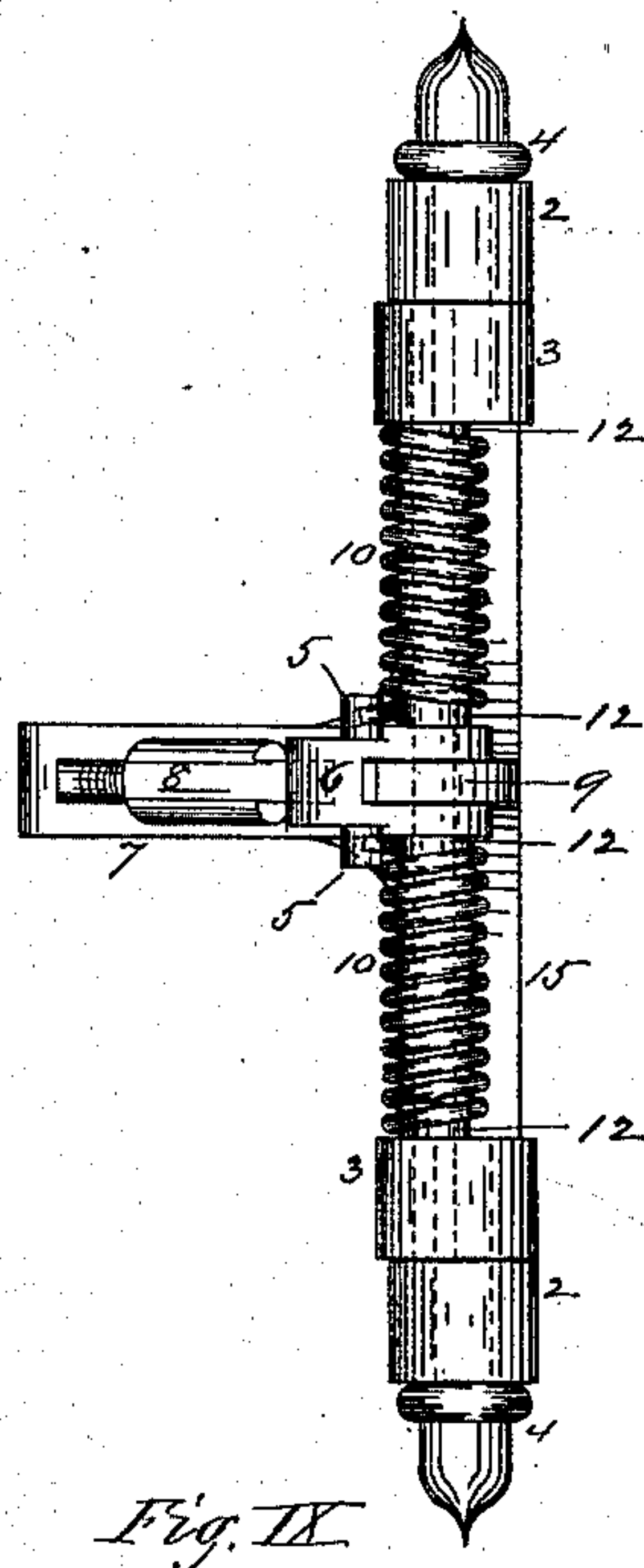
2 Sheets—Sheet 2

G. M. JEWETT.

SPRING HINGE.

No. 252,470.

Patented Jan. 17, 1882.



Witnesses

C. H. Wood
E. M. Pissell

Inventor,

George M. Jewett.
By T. Allentis,
his atty.

UNITED STATES PATENT OFFICE.

GEORGE M. JEWETT, OF UNIONVILLE, CONNECTICUT.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 252,470, dated January 17, 1882.

Application filed May 31, 1881. (Model.)

To all whom it may concern:

Be it known that I, GEORGE M. JEWETT, of Unionville, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Spring-Hinges, of which the following is a specification and description.

The object of my invention is to provide a cheap and effective spring-hinge, which may be made so as to cause the door to swing either way when attached thereto, the use of the hinge being to cause a door to shut of itself when left open; and I accomplish this by the means substantially as hereinafter described, and illustrated in the accompanying drawings, in which—

Figure I is a front view of a double spring-hinge made according to my invention with one of its leaves open. Fig. II is a side view of the same. Fig. III is a top view of the same. Fig. IV is a side view of the knuckle-bar and the cam connected therewith and with the actuating-spring. Fig. V is a top view of the same, with a part broken away to show the recess in the cam which receives the end of the knuckle-bar. Fig. VI is a front view of a portion of one of the leaves of a double hinge. Fig. VII is a top view of the same. Fig. VIII is a front view of one modification of a single hinge made according to my invention. Fig. IX is an edge view of the same. Fig. X is a top view of the same, showing its application to a door. Fig. XI is a side view of one modification of the cam which receives the end of the knuckle-bar, constructed for use with the modification of hinge shown in Figs. VIII and IX; and Fig. XII is a top view of said cam.

In the drawings having reference to a single hinge, as shown in Figs. VIII and IX, 1 denotes one leaf of the hinge provided with a projection, as 2, at each end, which is drilled to receive a pivot, 4, and 15 denotes the other leaf of the hinge, which is provided with a similar, although somewhat longer, projection, as 3, at each end, also drilled to receive the same pivot 4, by which means these two leaves are hinged or pivoted together. A trunnion, as 12, is made on the upper face of the lower projection, 3, and also on the lower face of the upper one, at a point just outside the pivot 4, and about on a line with the leaf 1 of the hinge,

or if the trunnions are not used a hole is made at that point in said projections 3 as shown at 16 in Fig. X, and a wire or spindle is secured therein extending from one projection 3 to the other, and firmly secured in both.

Extending out from the outer face of the leaf 1, and at its inner edge, is a post, as 7, and hung on the spindle or wire, and preferably on each side, a brace, as 9, extending out from the inner edge of the leaf 15. Midway the length of said spindle or wire is a cam, as 6, which, in the construction of the single hinge shown in Figs. VIII, IX, and X, I have shown as made double, and in a single piece to straddle the brace 9; and in the end of this cam 6 is a cavity, as 14, (shown in dotted lines,) to receive the end of the knuckle-bar 8. This bar I prefer to make in two parts, one smaller than the other, and having a screw-thread on its exterior to turn into the threaded bore of the other and larger part, and one end of the bar 8 is inserted in a cavity, as 18, in the post 7, and the other end of the bar is inserted in a cavity, as 14. This cam 6 may be made single, as shown in Fig. IV, or double, as shown in Fig. XI, and when made single it is provided with a boss or bridge, as 12, cast on one side, as shown in Fig. IV, and also a short stud, as 5, cast on the same side, and when made double these are cast on both sides, as shown in Fig. XI. The purpose of these bosses or bridges, as 12, is to give a good bearing for and hold the spring, as 10, firmly in place; but it may not be found necessary to use them in all cases, because if the wire or spindle extends through the spring this may be found quite sufficient to give a good firm bearing for the spring to keep it in place.

In a single spring, or in one having only two leaves, each with a single post, 7, I use two coiled springs to each leaf, as shown in Figs. VIII and IX, in which case one is coiled in one direction, or is a right hand spring, and the other is coiled in the other direction, or is left hand.

In inserting the springs in place the ends of each spring are placed against the studs 5 with the bridges 12 inserted in the ends of the coil, at top and bottom, the cam being first put in place, as shown clearly in Figs. VIII and IX, and the wire or spindle is inserted through the holes made in the projections 3 to receive it, and passed inside the springs 10, through the

brace 9 and cam 6, pivoting the cam to the brace, and securing the spring firmly in place between the projections 3, the holes in the latter receiving and securing the ends of the wire or spindle. The free end of the cam 6 is then moved away from the post 7 and the end of the knuckle-bar 8 inserted in the cavity 14 of the cam, and the other end of the bar inserted in the cavity 18 in the post 7. The boss or stud 5 may be made circular in form, if desired, and made of the full size of the end of the cam, as shown clearly in Figs. IV and V.

It will be perceived that the bar 8 is not pivoted to any other part of the hinges, but when desired it may be easily removed from its sockets in the post and cam by holding the latter back against the spring, and the bar may also be lengthened or shortened by turning one part either out or into the other part more or less, to give quicker and stronger action to the hinge in moving the door.

In making large or double hinges it may be found desirable to have two posts, as 7, one at the upper end and one at the lower end of each leaf, with a knuckle-bar, 8, and cam 6 in connection with the post, as shown clearly in Figs. I and II, in which case the cams, as 6, may be made single, as shown clearly in Fig. IV, and in this construction the brace 9 is provided with shoulders, as 5, which answer the same purpose as the studs 5 on the cam 6—namely, as a bearing for the end of the wire spring 10.

It will be seen that I am enabled by my construction to use two springs to each leaf of a hinge, and if at any time it should seem desirable that the hinge should not act upon the door with so much force to close it, the end of one of the springs of one leaf may be disengaged from the stud 5, so that that spring will be inoperative as to any force exerted against the door, so that if the latter with both springs of a leaf in operation had been closed too quickly by such disengagement of one of the springs it will be closed more easily and slowly.

It will thus be seen that by making the knuckle-bar 8 in two parts so as to make said bar variable in its length, and by making the hinge with two springs to each leaf, a great variety of adjustments as to the strength of each hinge in its action upon the door may be successfully made, and the hinge thus adapted to be used in various positions where other hinges of this class, but not made with this adjustable feature, could not be successfully used.

When the hinge is made double, as shown in Figs. I, II, and III, to be used in connection with a door which swings in both directions, the two outer leaves, 1, are to be secured, one to the door and the other to the door-frame, with the middle leaf, 15, operating as an idler between when the door is swung in one direction, and swinging with the door in the other direction.

It is evident that the brace 9 is not a necessary feature in the invention, inasmuch as its

introduction is only for the purpose of adding strength or stiffness for the bearing for the spring.

I am aware that spring-hinges, both single and double, have heretofore been made and used, which were provided with a toggle-joint, all the members of which were pivoted together and to the hinge, and these could not be used unless they were so pivoted, and I do not claim the same, nor any part thereof, irrespective of a hinge made according to my construction as hereinbefore described.

In the spring-hinges heretofore made the toggle portion of the hinge into which the spring is harnessed is pivoted together, so that the pivoted parts cannot be disconnected, and in the use of hinges the doors to which they are secured, when swung about half-way open, will be held open by the reverse action of the hinge. This is an undesirable feature, inasmuch as a person entering is liable to open the door so wide as that it will be held open by the action of the hinge when he intends that it shall close, and supposes as he enters that it will close of itself. This objection is owing to the fact that the reverse action of the hinge takes effect too quickly in the natural swing of the door.

My invention entirely obviates this objection, as the reverse action of the hinge does not take effect unless the door is swung wide open, and for the purpose of being held open, and it is not therefore liable to be left open accidentally.

Having thus described my invention, what I claim as new is—

1. The combination, in a spring-hinge, of two leaves, one provided with a post projecting therefrom, and both leaves provided at each end with a hinge-projection, which two projections are pivoted together, an actuating-spring located between and secured to the upper and lower projection of one of said leaves and outside the line of the hinge-pivots, a cam secured to said spring, and an operating or knuckle bar having a loose socket-connection with said cam at one end and connected with said post at the other end, substantially as described.

2. The combination, in an improved spring-hinge, of two leaves, one provided with a post, 7, and both leaves provided at each end with a projection, which two projections are pivoted together, a spring located between the upper and lower projections on said leaves, a cam connected with and secured to said spring, with a knuckle-bar having a loose socket-connection with said cam, and made in two parts, and adjustable as to its length, and connected with said post at the other end, substantially as described.

GEORGE M. JEWETT.

Witnesses:

M. A. HILL,
G. W. FRISBIE.