

F. BRUCKER & M. T. LOVE.

SPRING HINGE.

APPLICATION FILED FEB. 24, 1909.

948,410.

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

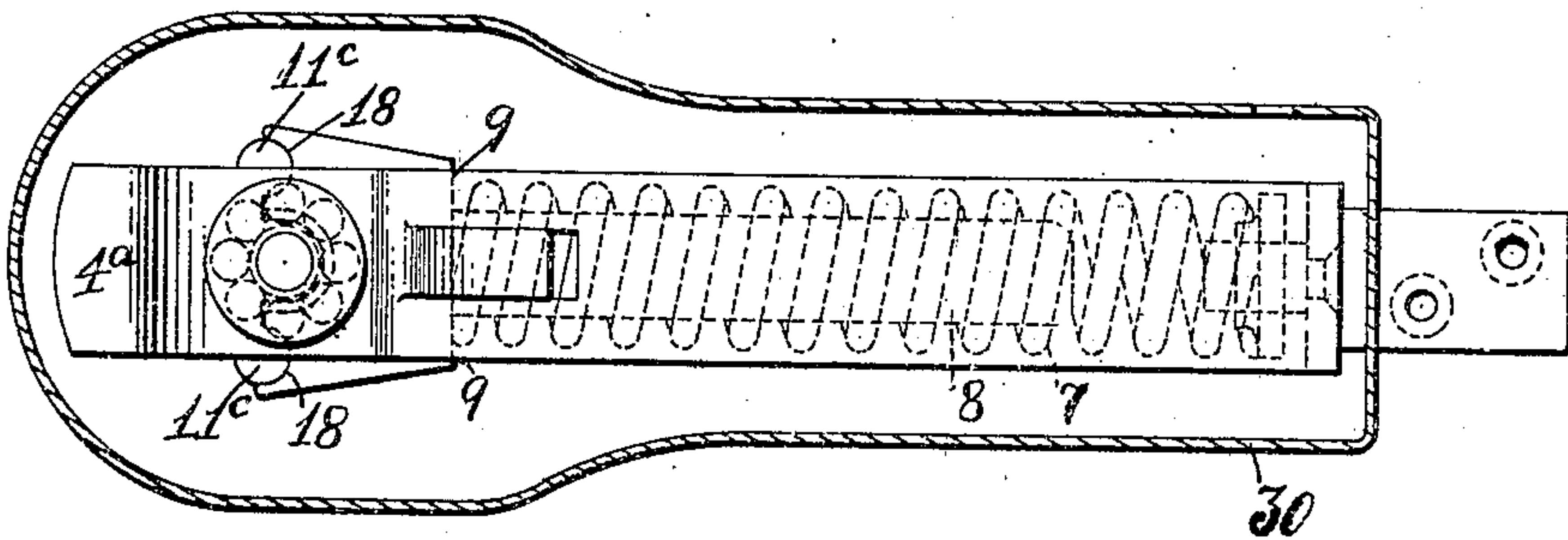


Fig. 2.

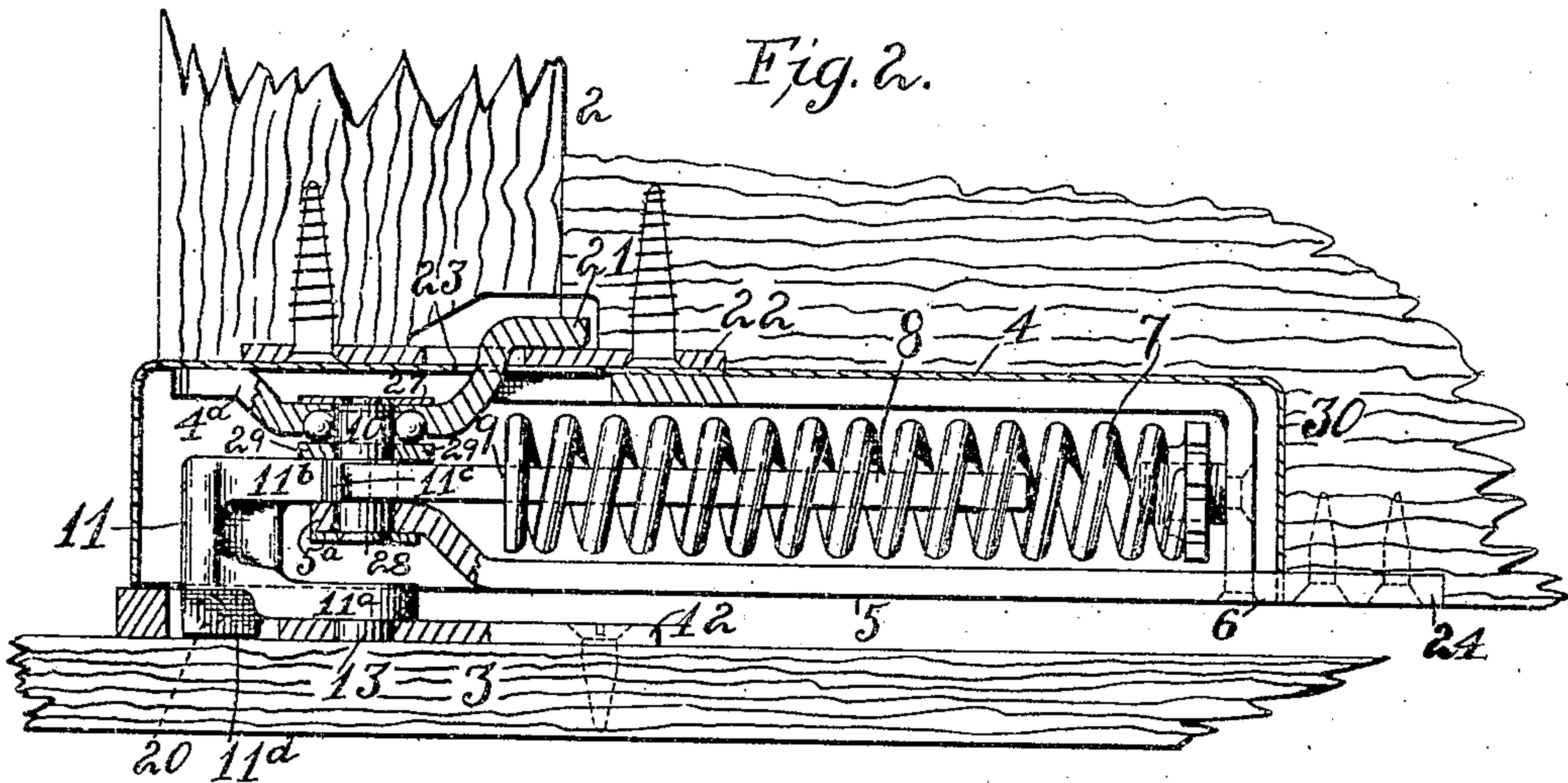


Fig. 3.

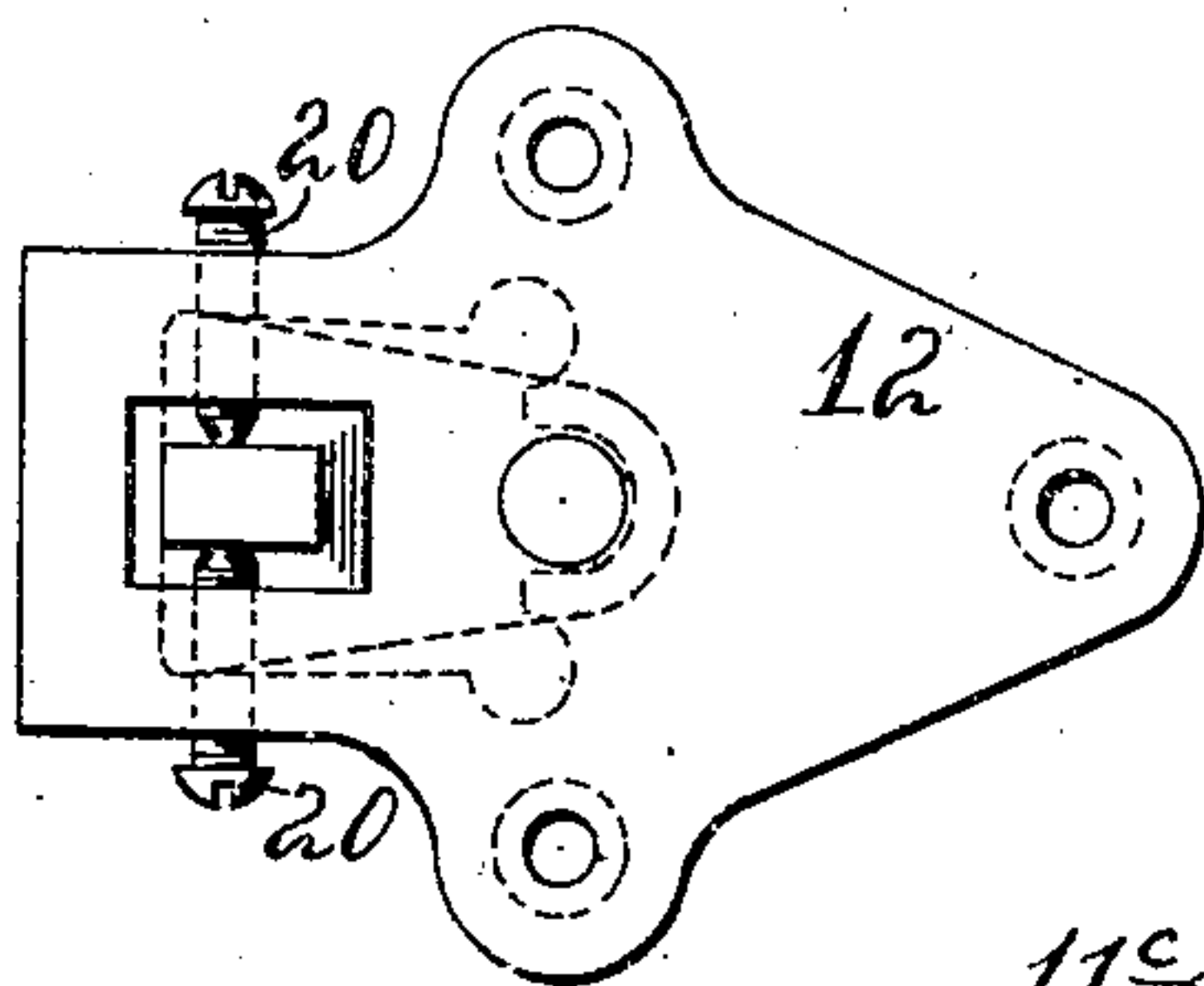


Fig. 4.

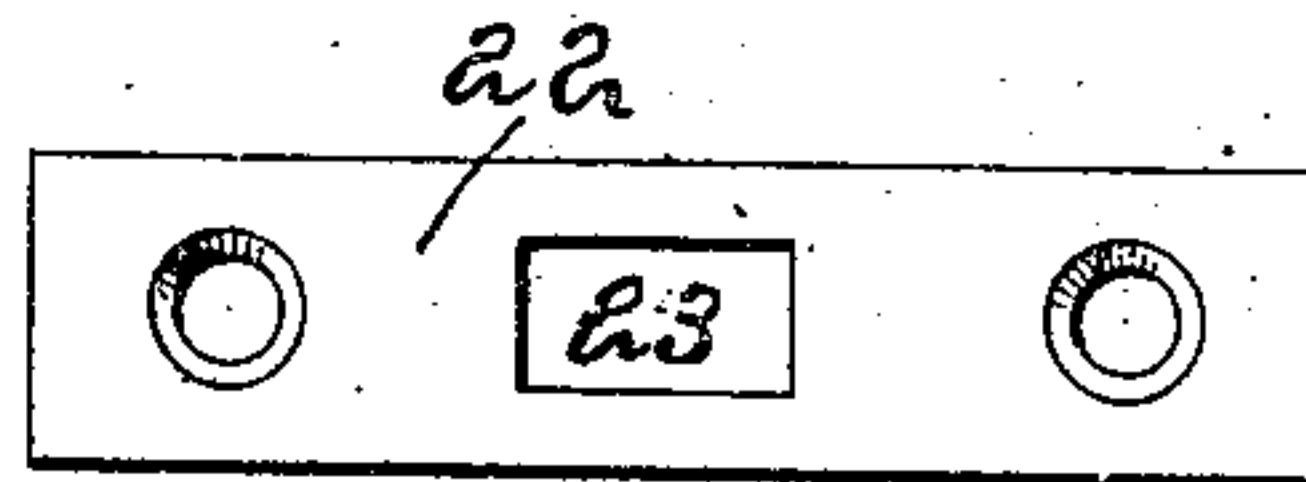
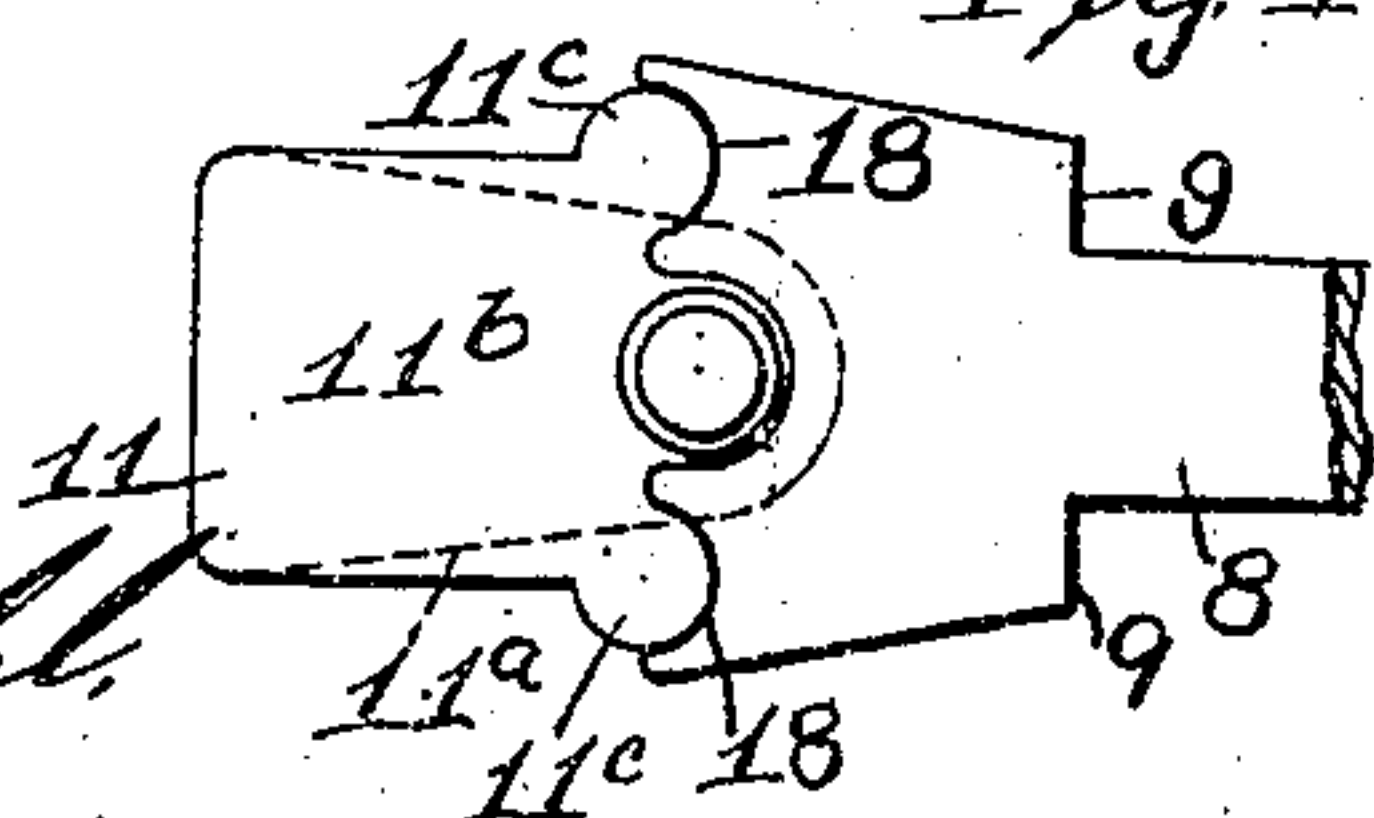


Fig. 4a.



ATTEST.

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Fig. 5.

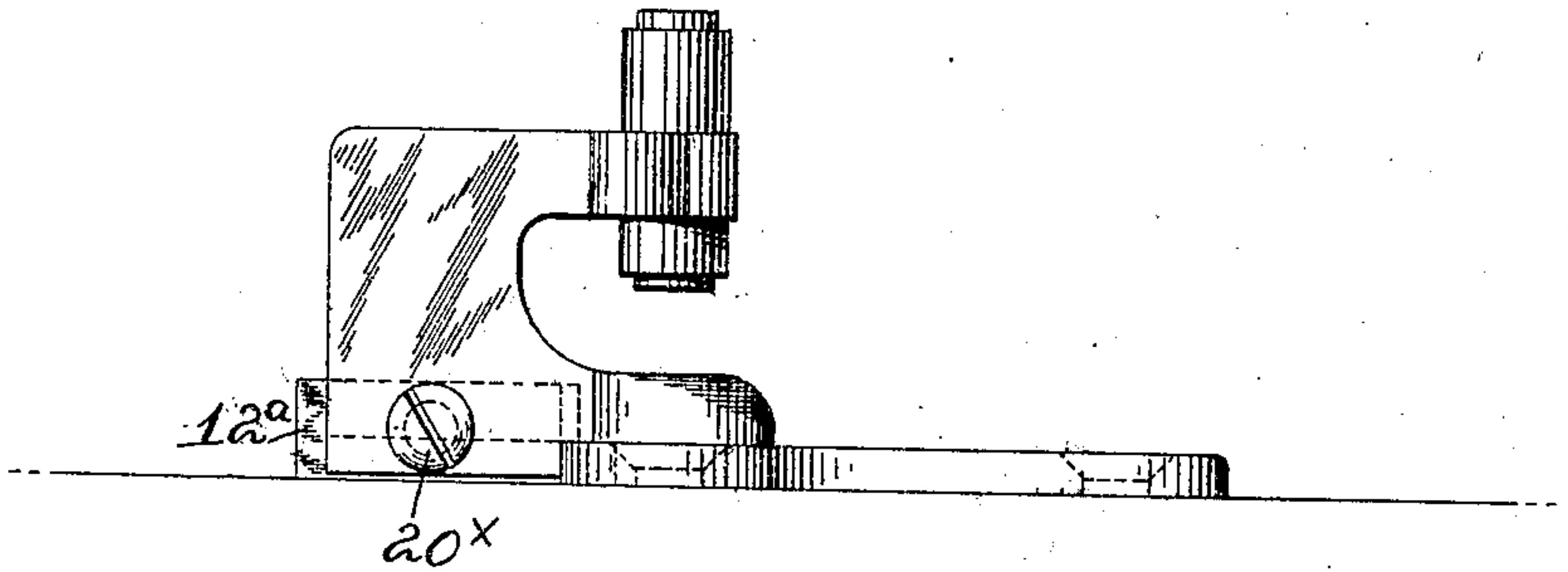


Fig. 6.

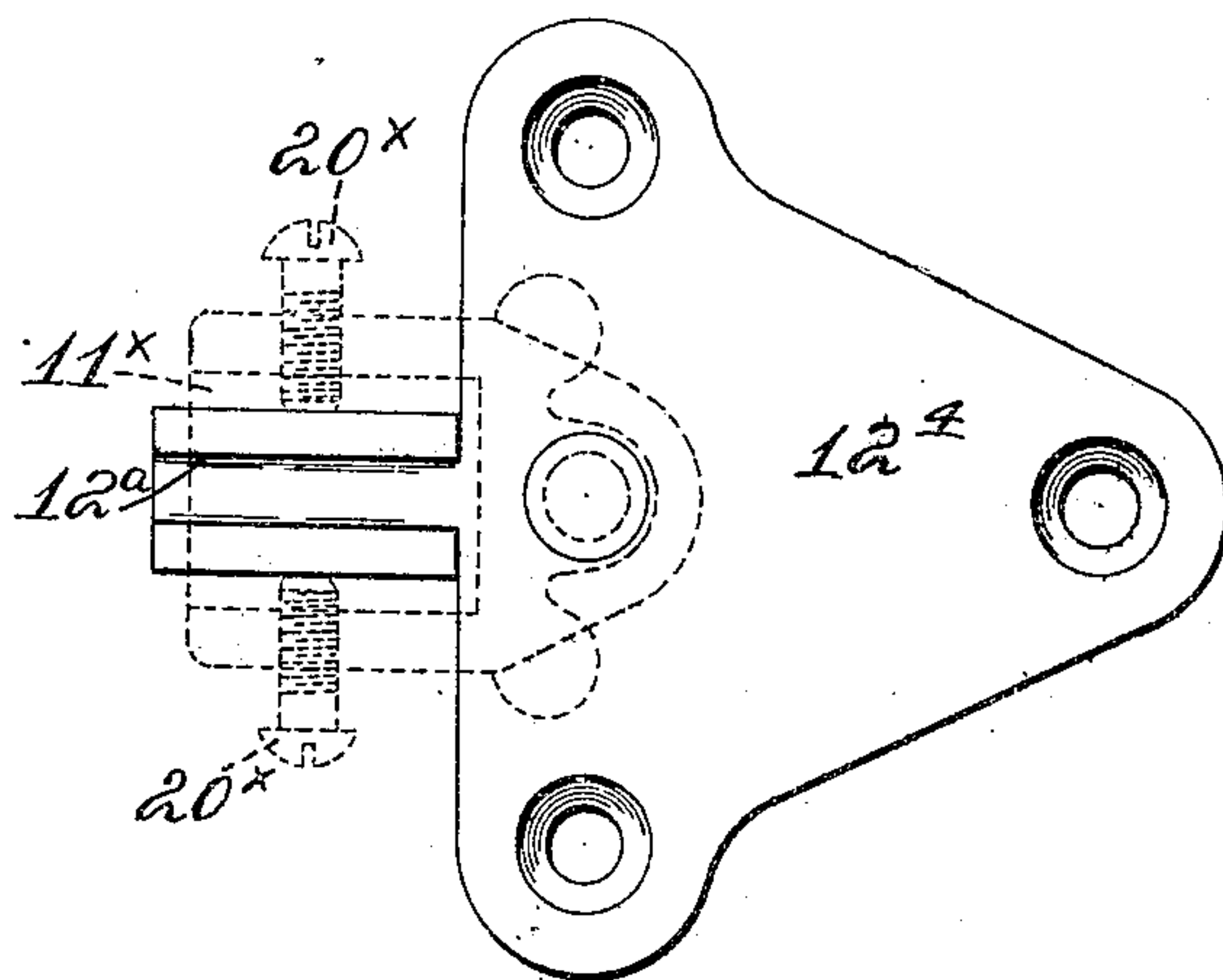
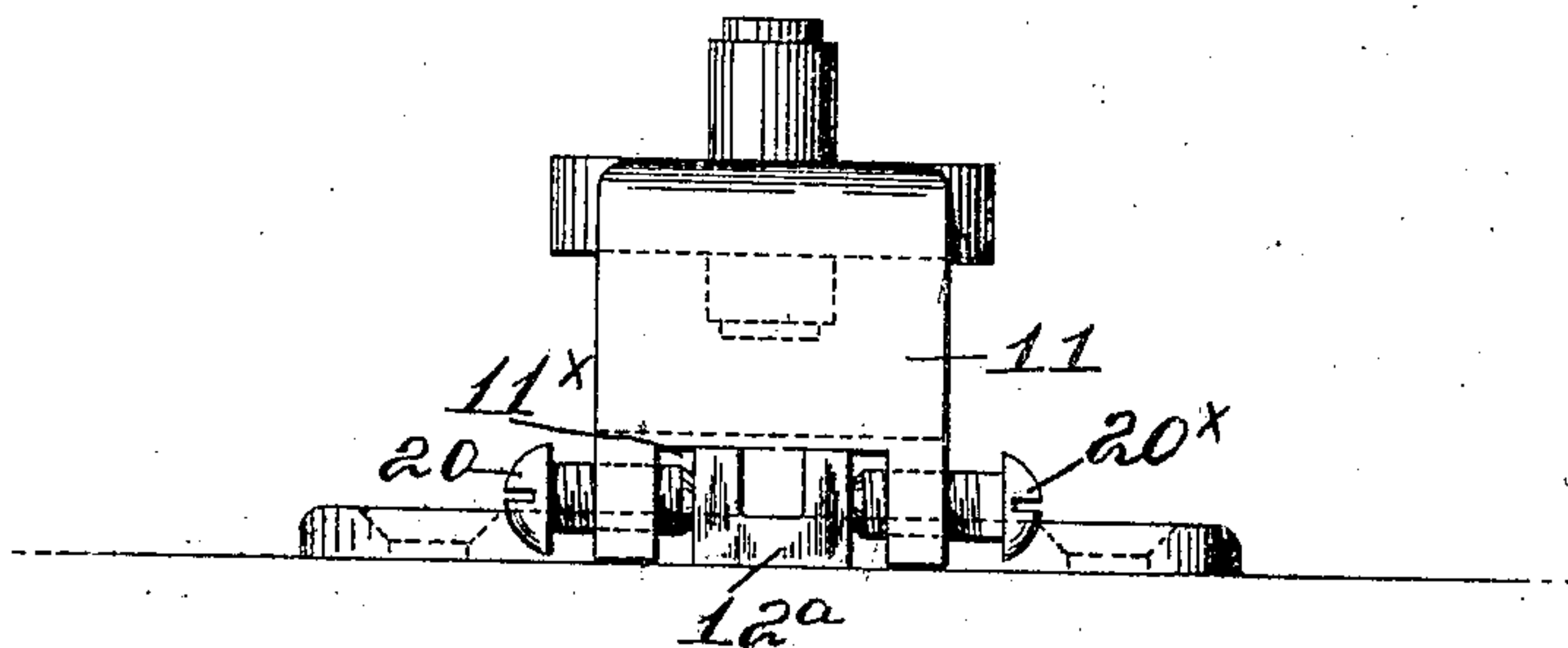


Fig. 7.



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UNITED STATES PATENT OFFICE.

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SPRING-HINGE.

948,410.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed February 24, 1909. Serial No. 479,706.

To all whom it may concern:

Be it known that we, FRANCIS BRUCKER and MATTHEW T. LOVE, citizens of the United States, residing at Shelby, Ohio, have invented certain new and useful Improvements in Spring-Hinges, of which the following is a specification.

Our invention relates to spring hinges, of that class shown in an application filed by Francis Brucker in the United States Patent Office, August 1, 1907, and numbered 388658.

The improvements herein consist of details of construction of advantage in the operation of the hinges, and in its construction. These are set forth hereinafter, and are illustrated in the accompanying drawings, in which,

Figure 1 shows the device unattached and in top view; Fig. 2 shows a central longitudinal section of the hinge in place, parts being in elevation. Figs. 3, 4 and 4^a show details detached and in plan. Fig. 5 represents a slight modification of the post and floor plate adjustment in side elevation. Fig. 6 shows a plan view of the same with the post in dotted lines, and Fig. 7 shows a rear view.

In these drawings, referring particularly to Fig. 2, the door is indicated at 2, and the floor or base at 3. The frame which holds the working parts is composed of an upper rib 4, and lower rib 5, the upper rib having a part extending at right angles, and connected to the lower rib at 6. The spring 7 having its adjustable bearing in the turned down end of the upper rib, and the plunger shank 8 inclosed therein with the spring bearing against the shoulders 9, 9, on the shank, are not claimed herein as novel parts of the combination.

The construction of the frame is new in this, that the ends of the ribs instead of being brought together, as heretofore, and closing the end of the frame at the edge of the door, are separated, and one end of the lower rib terminates at the pivot pin 10, leaving the frame open at its inner end. The lower rib 5 is turned up and terminates at 5^a a little outside the bearing of the axis on which the door turns. The upper rib 4,

is in like manner turned down, but beyond this axis is again bent up, so that its extremity 4^a forms an extended bearing for the edge of the door. The contraction caused by this bending of the ribs reduces the space between them to the proper dimension of the end of the shank 8, and the corresponding end of the arm 11^b of the post, and permits a pivot pin 10 carried by said arm to form the connection between the ribs, at their rear or inner ends.

The hinge post 11 is of improved construction. It has a broad lower bearing 11^a adapted to be seated on the base plate 12, a rear upright part, and an arm 11^b, extending from this upright part between the contracted ends of the ribs. The lower forward part of the hinge post has a round projection 13, extending down in axial alignment with the pivot of the post, and adapted to engage with a corresponding hole in the base plate whereby the part may be rotated for the purpose of adjustment. The base of the post extends rearward upon the floor plate, and has a broad bearing thereon, and at the rear end extends downward into a recess in the rear end of the plate. The standard or upright part of the post is made stout to support the weight imposed upon it, and has an arm 11^b extending forward, fitting between the contracted ends of the ribs. Its forward end carries the pivot pin 10, and on each side of the pivot is a forwardly projecting rounded bearing 11^c for the forked head of the shank 8 of the plunger. These bearings fit into corresponding recesses 18 on each side of the head of the shank 8 which has a curved recess to fit the pivot pin. The post is adjusted so that these bearings shall bear on the recesses in the head accurately to hold the door in proper position when closed. The adjustment is effected by means of screws 20, in the base plate, arranged to bear on each side of a downward projection 11^d on the post. A modification of this adjusting means is shown in Figs. 5, 6 and 7. In this, instead of a downward projection the rear end of the post is wider and recessed, as shown at 11^x and in the recess is located an extension 12^a of the plate. The adjusting screws 20^x pass through the

walls on each side of the recess and bear on the sides of the extension.

We have provided the hinge with better and more convenient means for connecting it with the door, in this that the upper bar is formed with a tongue, which may be cut from the rib itself and turned up, as shown at 21. It projects forward, and engages with a plate 22, fixed in the bottom edge of the door, entering said plate through a slot 23. The hinge may be made to engage by placing it in proper position and then moving it forward until the tongue passes over the edge of the plate. The parts are held together by means of screws which pass through the extended end 24 of the lower rib.

It will be observed that the pivot pin or post 10 passes through the ribs at the point where these are brought most nearly together, and is reduced at each end to receive washers, as indicated at 27, 28, held in place by upsetting the reduced portions of the pivot pin. The upper rib has an annular recess around the pivot pin, in which are antifriction rollers, which bear upon a washer 29, resting directly upon the arm of the post. This pivot pin is a section of a plain rod, and, in a simple manner this construction holds firmly the rear ends of the ribs, and permits the arm of the post to enter into its place from the rear, in which place it is held, when the post is seated on the base plate. The shell or casing 30 covers the hinge as in the prior patent hereinbefore referred to. It will be understood that when the door swings in either direction the head of the shank presses upon the rounded bearing of the post arm, causing compression of the spring, reaction of which returns the door to its normal position.

We claim:

1. In a spring hinge, a frame comprising upper and lower ribs having their rear ends contracted, a post with means for connecting it to the floor, said post having an arm lying between the contracted portions of the ribs, a pivot pin carried by the post and connecting the ribs, and a spring pressed shank carried within the frame and bearing against the post, substantially as described.

2. In a spring hinge, a frame comprising upper and lower ribs having their rear ends contracted, the upper rib being extended beyond the lower and deflected upwardly again, a post with means for connecting it to the floor, said post having an arm lying between the contracted portions of the ribs, a pivot pin carried by the post and connecting the ribs, and a spring pressed shank carried within the frame and bearing against the post, substantially as described.

3. In a spring hinge, a frame comprising

upper and lower ribs having their rear ends contracted, a post with means for attachment to the floor, said post having an arm extending forwardly between the contracted portions of the ribs, a pivot pin carried by the post having its ends seated in openings in the ribs, said post having bearing openings extending on each side of the pivot pin, a plunger having a forked head provided with a central recess to embrace the front side of the pivot pin with the arms of the fork bearing against said bearing portions, and a spring exerting tension on the plunger, substantially as described.

4. In a spring hinge, a frame open at its rear end, a post having means for attachment to the floor, and having an arm entering said open rear end of the frame, a pivotal connection between said post and frame, said post having bearing portions projecting on each side of said pivotal connection, a plunger having arms bearing on said projections, and a spring exerting tension on said plunger, substantially as described.

5. In a spring hinge, a frame open at its rear end, a floor plate, a post carried by the floor plate having a horizontally extending arm entering the open end of the frame, means for pivotally connecting the post and frame, a spring in the frame, and means for causing the spring to be compressed by the post when the frame is swung in either direction, substantially as described.

6. In a spring hinge, the combination with the door member comprising a suitable frame, a spring and plunger, of a post, having pivotal connection with said frame, and coacting with the plunger, said post having a broad bearing base, a floor plate by which said post is supported, and upon which said post is pivoted, said floor plate having a recess in rear of the pivoted point and said post having a projection depending within the recess, and means in connection with the base plate operating against said projection for adjusting the post, substantially as described.

7. In combination with the post of a spring hinge, and with a base plate, one of said parts having a recess in its rear, the other a projection located within the recess, and adjusting screws passing through the walls on each side of the recess and engaging opposite sides of the projection, substantially as described.

8. In a spring hinge, the combination with a door member comprising a frame open at its rear end, and a spring and plunger, of a floor member comprising a base plate, a post removably connected with the base plate and having an arm adapted to enter the rear end of the frame and coact with the plunger and spring, said post, base and arm being con-

structed in one piece, substantially as described.

5 9. The hereindescribed means for connecting a spring hinge to a door comprising a plate on the door having an opening and a tongue on the hinge frame projecting upwardly into the opening and engaging the plate.

In testimony whereof, we affix our signatures in presence of two witnesses.

FRANCIS BRUCKER.
MATTHEW T. LOVE.

Witnesses:

S. F. STAMBAUGH,
ESTELLA CLOWES.