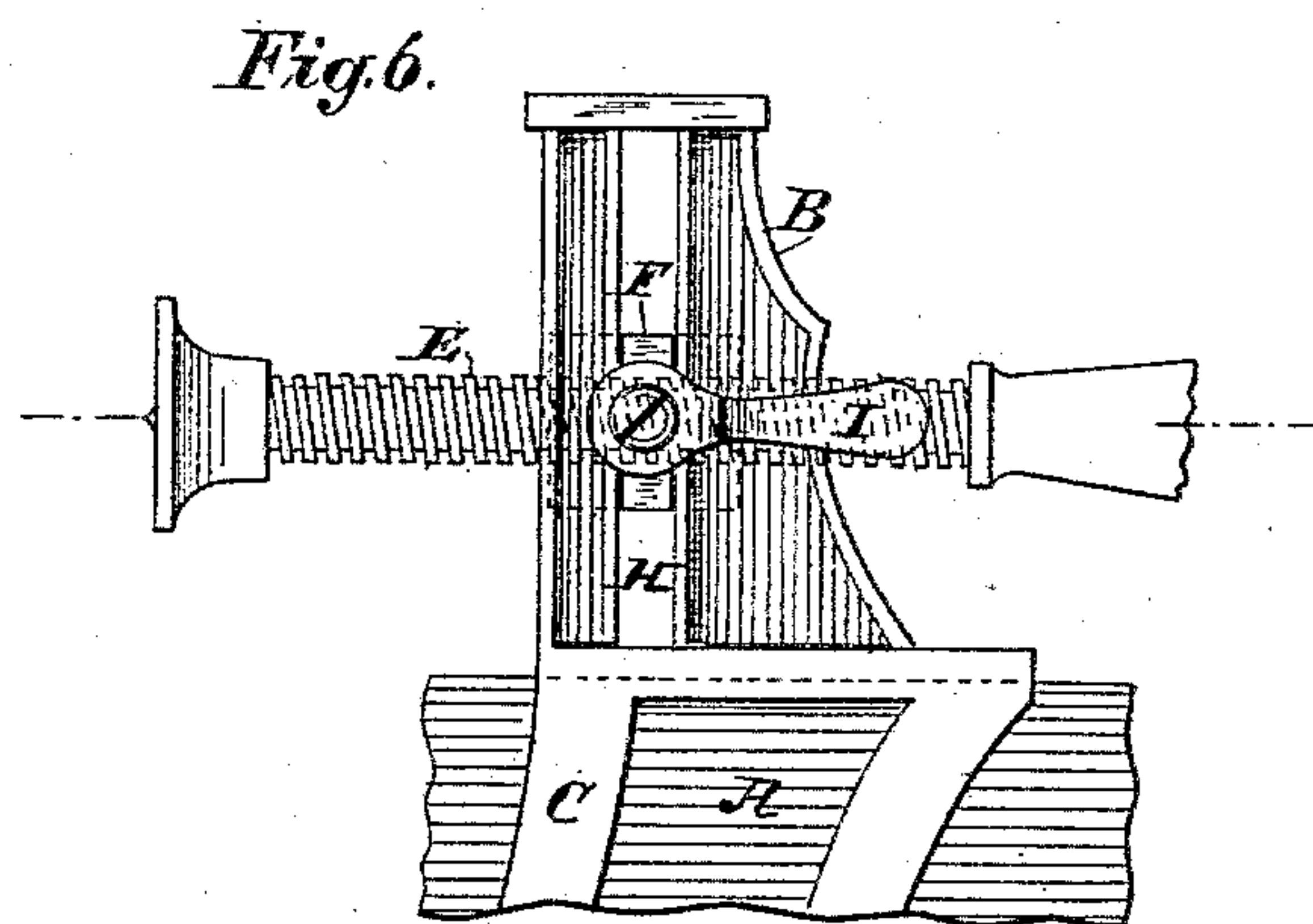
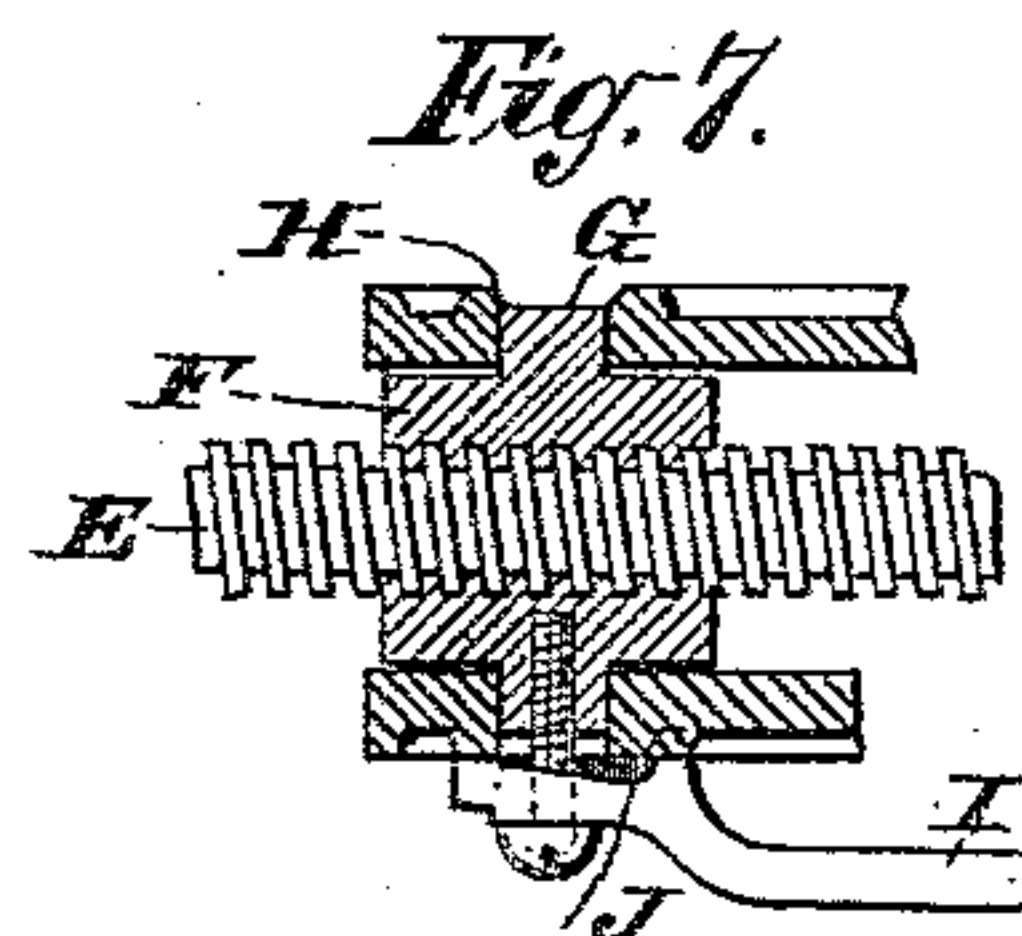
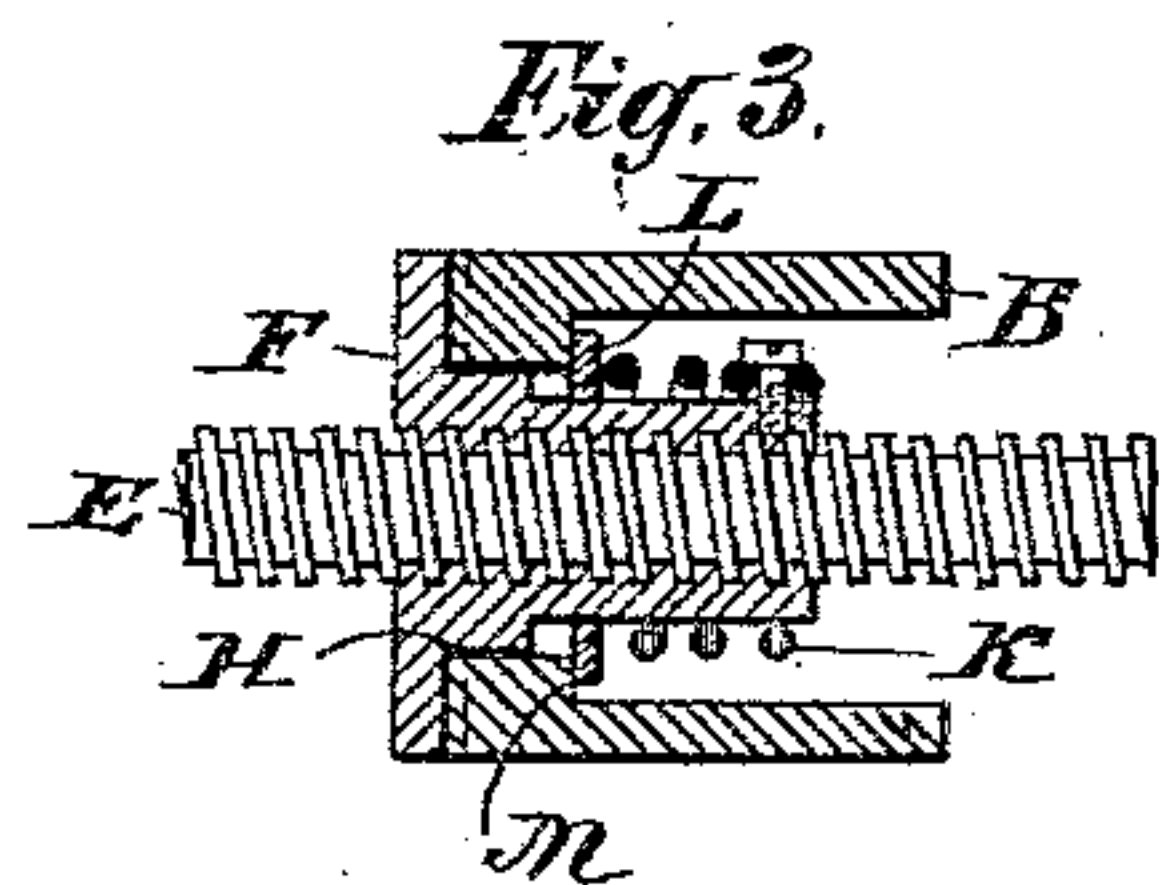
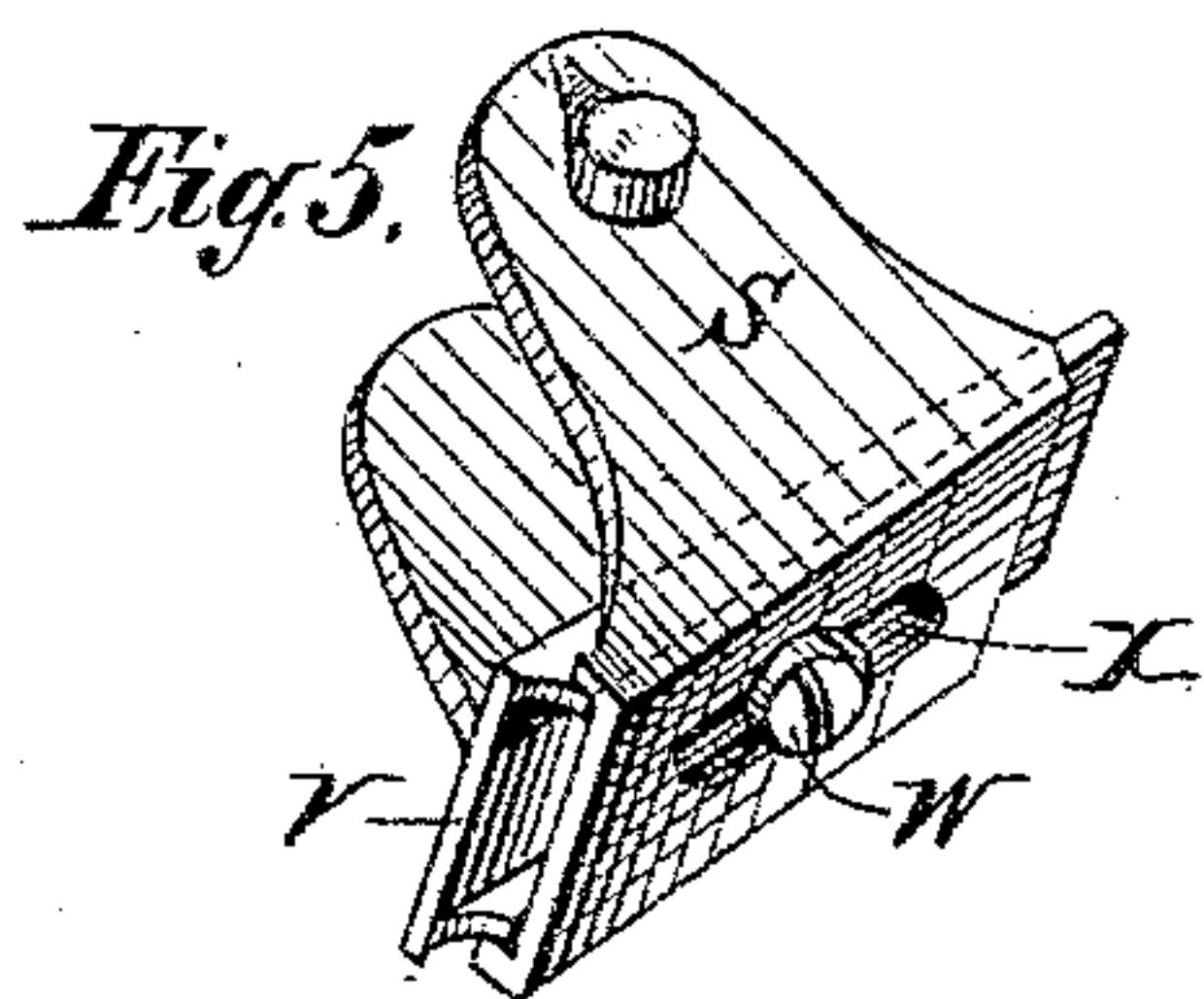
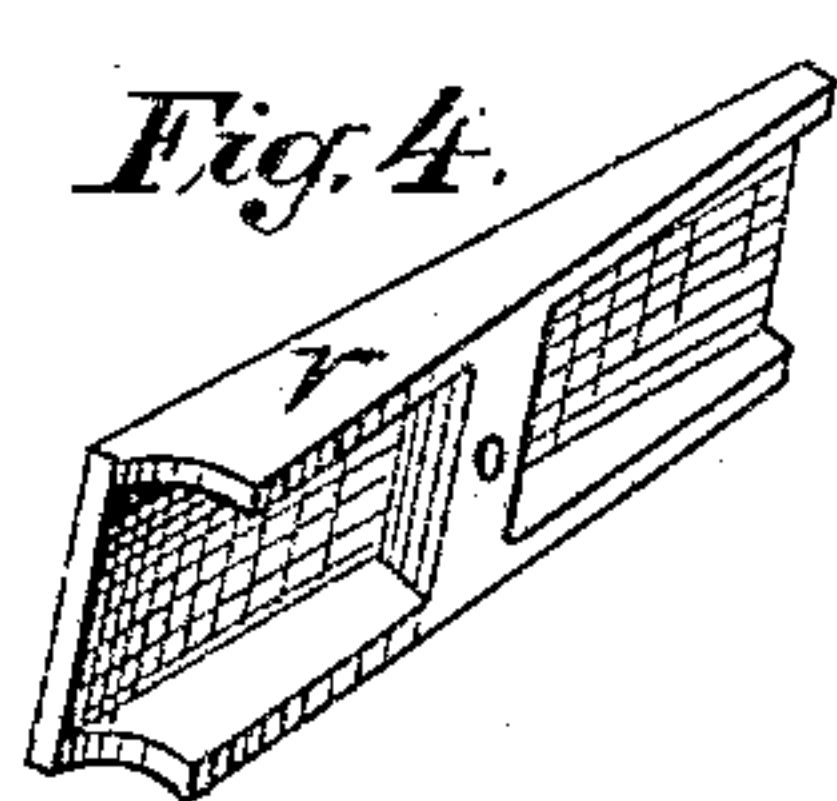
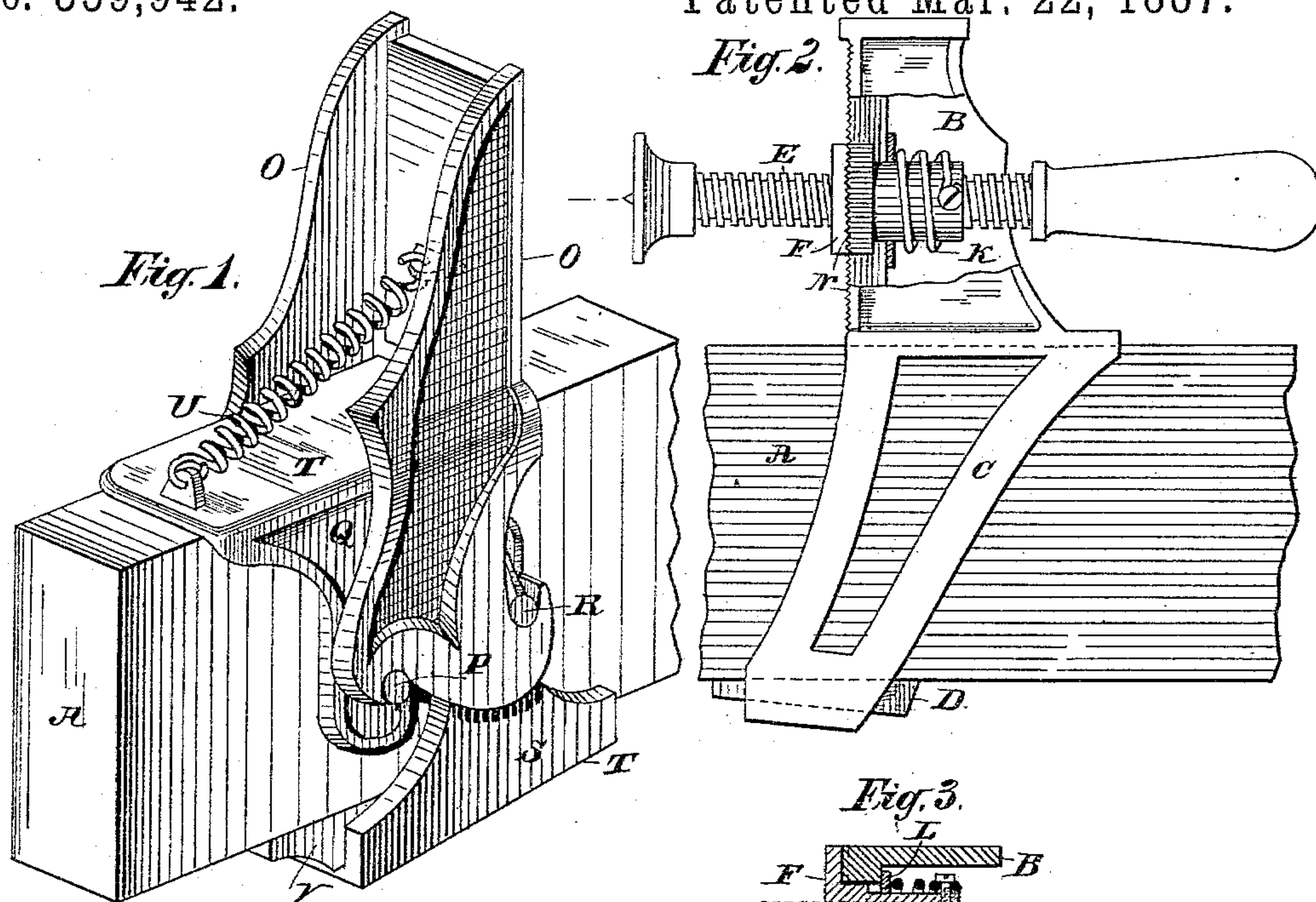


(No Model.)

E. SHAW.

CLAMP.

No. 359,942.

Patented Mar. 22, 1887.

Witnesses:

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UNITED STATES PATENT OFFICE.

EDGAR SHAW, OF LYNN, MASSACHUSETTS.

CLAMP.

SPECIFICATION forming part of Letters Patent No. 359,942, dated March 22, 1887.

Application filed May 7, 1886. Serial No. 201,473. (No model.)

To all whom it may concern:

Be it known that I, EDGAR SHAW, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful
5 Improvements in Clamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The invention relates to joiners' beam-clamps, but it is applicable to other forms of beam-clamps having an adjustable jaw or clamping-arm; and the invention specially relates to that form of such clamps in which the faces of the beam consist of flat continuous or
15 unnotched surfaces and the adjustable clamping-jaw is frictionally locked to the beam.

In one form of such clamps (as described and claimed in my application for a patent made November 10, 1885, and numbered
20 182,398) the movable or adjustable jaw is locked to the beam by arranging it so that it has a slight rocking or angular motion when the clamping pressure is applied, and this motion is availed of to close the clamping-jaw, together with the parts that hold it on the
25 beam, to pinch or grasp the beam, and thereby lock the jaw thereto. One objection to such form of clamps is, that the movable jaws are arranged so that their pivot or fulcrum points
30 are a little above or on the upper edge of the beam, or below or on the lower edge thereof, and hence the parts to be clamped must be placed between the clamping-jaws at some distance from the beam, in order to insure the
35 movement of the movable jaw necessary to lock it to the beam. Thus, with some kinds of work, it is often desirable to clamp pieces that are too slender or thin to withstand the clamping pressure without bending, and in such cases it
40 is desirable to have such pieces rest on and be supported by the beam, and thereby obviate the use of blockings or other supports; but with the forms of clamps referred to this cannot be done, as the movable jaw could not then
45 be operated to lock upon the beam. In thus clamping pieces of varying thickness it is requisite that the clamping-screw of the fixed jaw be made adjustable vertically, so that it may be brought down upon the upper edge of the
50 beam to clamp thin pieces, or elevated so as to bear centrally against thick pieces. Heretofore such clamping-screw has been made ad-

justable by a screw-bolt, which was secured to the block in the fixed jaw, through which the clamping-screw passes, and passed through a
55 fixed nut on the lower edge of the beam, which nut was turned to raise and lower the clamping-screw block; but this method of adjusting the clamping-screw is too slow and occasions the loss of much time. Another
60 plan was to use a spring between the clamping-screw block and the fixed jaw, which spring would tend to hold the blocks in position; but in this device the clamping-screw would readily get out of adjustment in handling the
65 clamp, since the spring did not positively hold the block in place.

My invention consists, therefore, of a clamp in which the adjustable jaw is attached at a point between the opposite edges or sides of
70 the beam to a slide or similar device clamping the beam and arranged to be operated by the clamping pressure to lock the jaw to the beam.

The invention also consists in supporting the clamping-screw of the fixed jaw in a block
75 made vertically adjustable in or on the jaw, to adapt the clamp to pieces of various thickness, such block being provided with means for locking it to the jaw.

In the drawings, Figure 1 is a perspective
80 view of a portion of the beam of a beam-clamp and an adjustable clamping-jaw embodying my invention. Fig. 2 is an elevation view of a fixed clamping-jaw embodying my improvements, parts being broken away. Fig. 3 is a
85 section through the clamping-screw of the same. Figs. 4 and 5 are detail views of parts of the adjustable jaw. Fig. 6 is an elevation view of another form of the fixed jaw, and Fig. 7 is a cross-section of the same through its
90 clamping-screw.

In these views, A represents the beam, which has continuous plain faces and edges. Preferably it is of the shape shown, though it may be of other forms.
95

B is the fixed jaw, and the jaw that usually carries a clamping-screw. It is secured to the beam by the band C and wedge D.

E is the clamping-screw.

F, Figs. 6 and 7, is a block tapped for the
100 screw E, and moving freely vertically between the side plates of the jaw, being guided and held in place by lugs G and slots H.

I is a cam-lever pivoted to one of these lugs

and provided with the cam-bearing J, constructed to bear upon the edges of the slot H when the lever is in the position shown, and thereby hold the clamping-screw at any vertical position on the jaw, and positively and securely locking it to the fixed jaw, so that it cannot be moved out of adjustment. I show in Figs. 2 and 3 another way of accomplishing this same result. Here the block F slides in a slot, H, in the face of the fixed jaw, and is held at its various vertical positions by a spring, K, which bears against the washer L, sliding on shoulder M, and thereby causes the corrugated faces of the block to lock into the similarly corrugated face N of the jaw, and hold these two parts fixedly together.

O indicates the movable or adjustable clamping-jaw, its lower end being connected by pivots P to a yoke, Q, sliding on the upper edge of the beam, and by pivots R to the yoke S, sliding on the lower edge of the beam. These yokes have extended bearing-surfaces T, by which to effect a strong frictional hold upon the beam without indenting the same.

U is a spring attached to one end of the upper yoke and to the jaw O, which acts to cause the yokes to grasp the beam with sufficient force to hold the jaw at any desired position on the beam, but not so tightly as to prevent the jaw being readily slid along the beam.

V is a wedge-shaped shoe arranged between the lower yoke and the beam, and is secured to the yoke by screw W and slot X. By moving this wedge along the yoke the available space between the yokes may be increased or decreased, and thus the shrinkage or wear of the beam can be compensated and the parts adjusted and kept in such relative position as to insure the clamping-face of the jaw being vertical or at right angles to the beam when the clamp is in use.

It will be now understood that whenever pressure is applied to the clamping-jaw, as when clamping a piece of furniture or other articles, the adjustable jaw will be slightly rocked, and thereby draw the yokes together, and cause them to take a strong frictional grip upon the beam; also, that, whenever desired, a thin or plate-like piece may be laid upon and supported by the beam, and by lowering the clamping-screw to the edge of the beam may be effectively clamped, the adjustable jaw always locking to the beam, be the piece it holds on the beam or away from it.

It will be manifest that the adjustable jaw may carry the clamping-screw, as also that the fixed clamping-jaw may be used with other

forms of adjustable jaw; but the arrangement here shown is preferred. So, too, the spring which causes the yokes to constantly grasp the beam with a slight pressure may be otherwise arranged to produce this result, and the compensating-shoe, by which the movable jaw and its yokes are adjusted to the beam as it shrinks or wears, or for other causes, will serve its purpose if arranged between the upper yoke and the beam.

What is claimed as new is—

1. In a clamp, the combination of a beam having plain edges or sides, and provided with a fixed clamping jaw or arm carrying a clamping-screw, and a slide clamping the beam and carrying a clamping arm or jaw pivoted thereto between the edges of the beam, and adapted to frictionally lock said yoke to the beam when pressure is applied to said jaw.

2. In a clamp, the combination of a beam provided with a fixed jaw carrying a clamping-screw, separate sliding yokes oppositely arranged upon the edges of the beam, and a clamping jaw or arm attached to such yokes and arranged to draw them together upon the application of clamping pressure to the jaw, and thereby lock them and the jaw to the beam.

3. In a clamp, the combination of a beam, a fixed clamping-jaw, sliding yokes oppositely arranged upon the edges of the beam, and a clamping jaw or arm pivotally attached to such yokes between the edges of the beam and arranged to draw them together upon the application of clamping pressure to the jaw, and thereby lock the jaw upon the beam.

4. In a clamp, the combination of a beam, an adjustable clamping-jaw, a fixed jaw, a block carrying a clamping-screw and mounted on the fixed jaw so as to have vertical adjustment, and a cam-lever carried on said block and adapted to positively lock the block to the jaw, substantially as described.

5. In a clamp, the combination of a beam, a fixed clamping-jaw, sliding yokes oppositely arranged upon the edges of said beam, a clamping-jaw pivotally attached to said yokes and arranged to draw them together upon the application to the jaw of a clamping pressure, and a spring attached to said pivoted jaw and to the upper yoke for causing these parts to clamp the beam and hold their position thereon, substantially as described.

EDGAR SHAW.

Witnesses:

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A. W. PAIGE.