No. 663,819. Patented Dec. 11, 1900.

E. B. NEWNAM.

FOOT VISE.

(Application filed Aug. 22, 1898.)

(No Model.) 2 Sheets—Sheet 1.

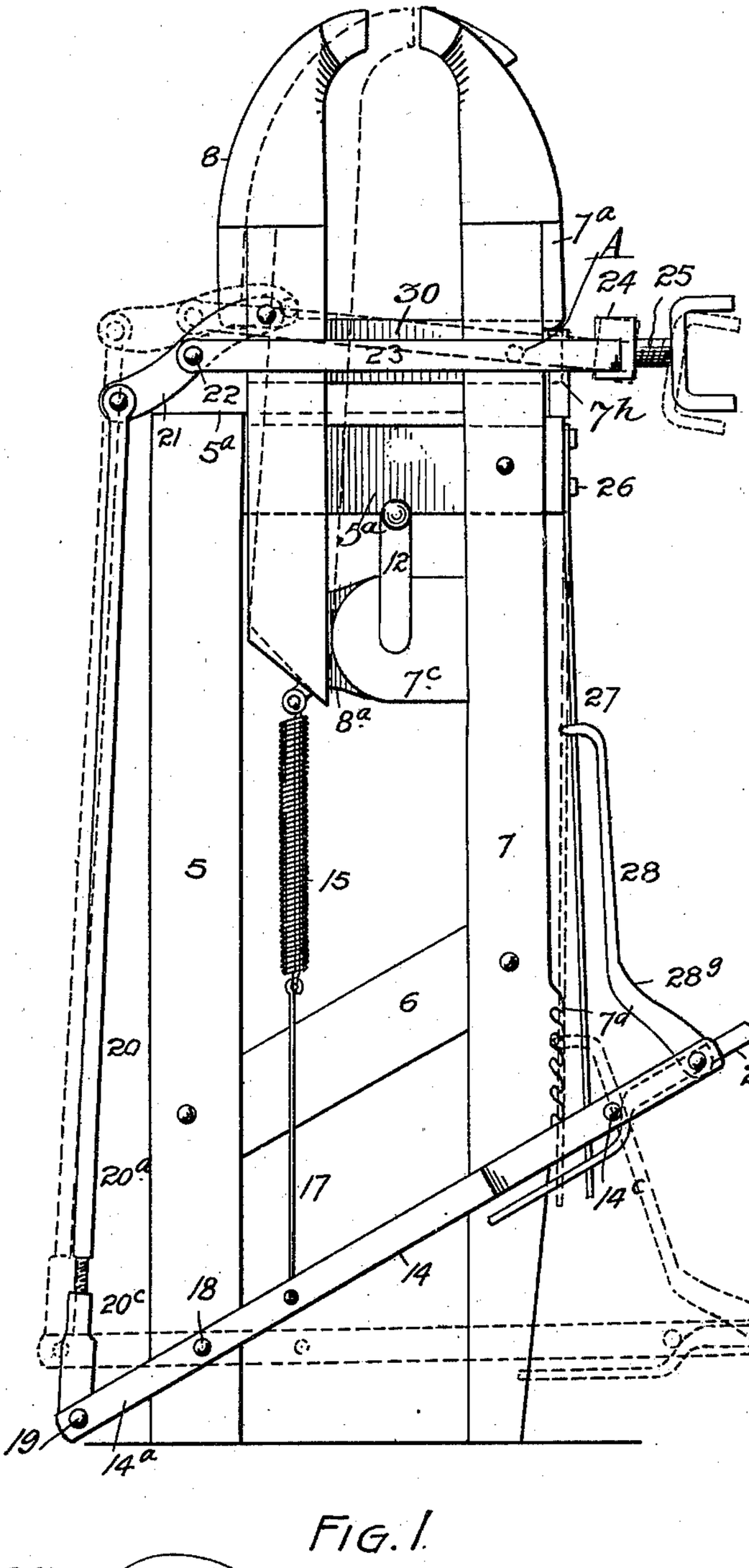

FIG. 1.

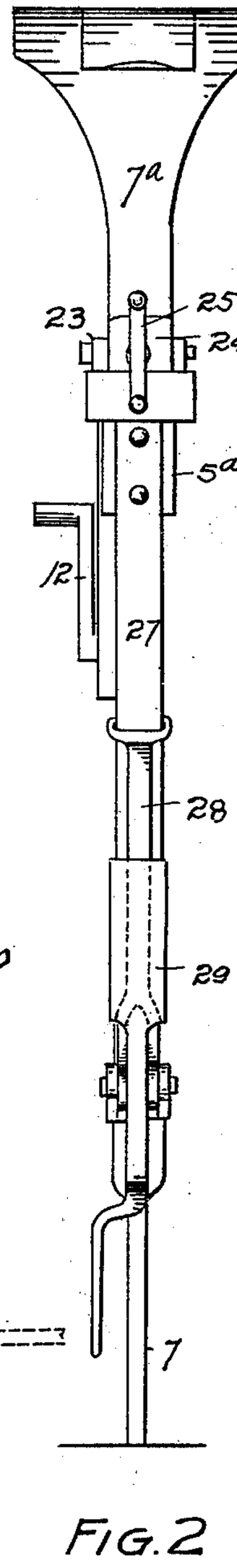

FIG. 2.

Witnesses
P. J. O'Meara.
Edith Hemsworth.

Inventor
E. B. Newnam.
By Leo Attorney
A. W. Brown

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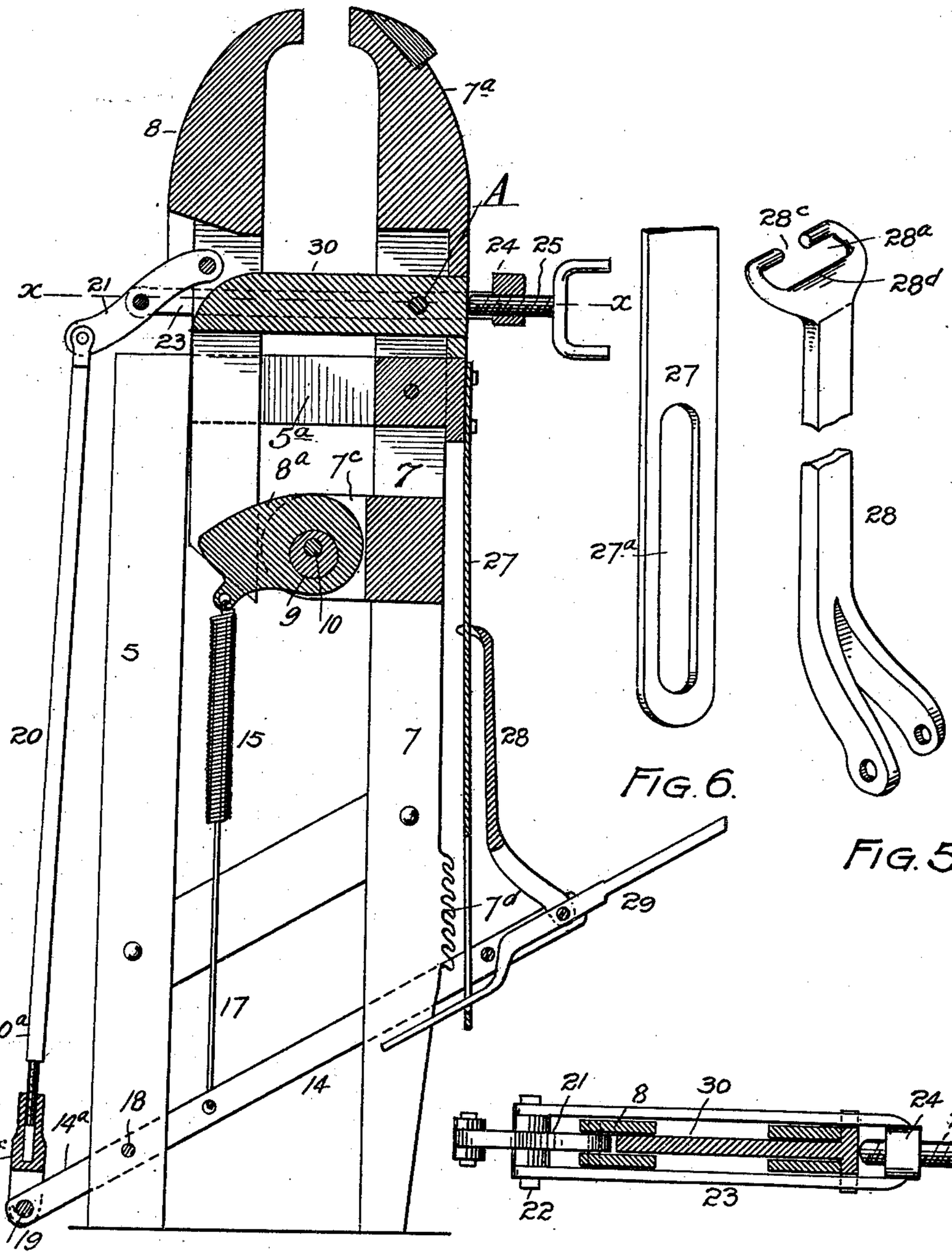

FIG. 3

FIG. 6.

FIG. 5

FIG. 4

Witnesses
P. J. Coleandet.
Edith Hemsworth.

Inventor
E. B. Newnam
By his Attorney
A. H. Bate

UNITED STATES PATENT OFFICE.

EDWARD B. NEWNAM, OF DENVER, COLORADO.

FOOT-VISE.

SPECIFICATION forming part of Letters Patent No. 663,819, dated December 11, 1900.

Application filed August 22, 1898. Serial No. 689,202. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. NEWNAM, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Foot-Vises; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in foot-vises of the class set forth in United States Letters Patent No. 556,433, issued to me March 17, 1896; and to this end the invention consists of the features hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side elevation of my improved foot-vise. Fig. 2 is an edge view of the same. Fig. 3 is a vertical section taken through the vise. Fig. 4 is a cross-section taken on the line *x x*, Fig. 3. Fig. 5 is a perspective detail view of the locking-arm. Fig. 6 is a fragmentary perspective view of the guard-spring which normally holds the locking-arm in the released position.

Similar reference characters indicating corresponding parts in the views, let the numeral 5 designate a stationary upright bar provided at its top with a right-angular extension 5^a, which is made fast to the stationary jaw of the vise. The part 5^a is formed integral with the part 5 and occupies a position on the farther side of the vise or beyond the other parts. (See Figs. 1 and 3.) To the bar 5 is rigidly connected by means of a plate 6 another upright bar 7, whose upper extremity is fashioned to form the stationary jaw 7^a of the device. The movable jaw 8 is provided at its lower extremity with a laterally-projecting tongue 8^a, apertured to receive a closely-fitted disk 9, eccentrically mounted on a spindle 10, journaled in a projection 7^c of the upright bar. This spindle is provided with a crank-arm 12, by means of which the eccentric disk may be actuated for the purpose of raising the jaw 8, as set forth more in detail in the patent previously issued to me as aforesaid. The lower extremity of the jaw 8 is connected with the foot-lever 14 by means of a coil-spring 15 and a rod 17. The lever 14 is fulcrumed on the frame-bar 5, as shown at 18. Its short arm 14^a is pivotally connected, as shown at 19, with the lower extremity of an extensible rod 20, whose upper extremity is connected with a lever 21, the latter being fulcrumed, as shown at 22, on one extremity of a loose yoke 23, surrounding the two jaws of the vise. The opposite extremity of the lever 21 is pivotally connected with the movable jaw 8. The extremity of the yoke 23 remote from the fulcrum 22 is provided with a nut 24, through which passes a band-screw 25, whose inner extremity bears against the stationary jaw 7^a. By means of this screw and the yoke the position of the movable jaw with reference to the stationary jaw may be regulated at will. The yoke 23 rests on and is supported by a cross-plate 7^h, mounted on the stationary bar 7.

To the bar 7, below the jaw, is attached by means of bolts 26 or other suitable fastening device a leaf-spring 27, provided with a slot 27^a, through which a series of teeth 7^d, formed on the outer edge of the bar 7, protrude when the spring is pressed toward the bar or to the position shown by dotted lines in Fig. 1. To the extremity of the foot-lever 14 remote from the fulcrum 18 is pivotally connected an arm 28, whose upper extremity or head, which is flattened and turned inwardly at an angle to the body of the arm, is provided with an opening 28^a, through which the spring 27 passes and on which the arm is adapted to slide freely. The upper extremity of the arm 28 is further provided with an opening 28^c, communicating with the opening 28^a to allow the head of the arm to embrace the toothed edge 7^d of the bar 7. This head opposite the opening 28^c is provided with a jaw 28^d, which is adapted to engage the teeth 7^d and lock the foot-lever in any desired position of adjustment. To the outer extremity of the foot-lever 14 is also pivotally attached an auxiliary lever 29, whose inner arm is adapted to en-

gage a stop 14ᶜ, whose function is to keep the auxiliary lever in alinement with the main lever and give the two elements the effect of a single lever while applying power to the vise. This auxiliary or extension lever is adapted to fold up against the main lever when not in use, as explained in my previous patent.

The bar 7 is provided with a horizontal arm 30, which projects into an opening formed in the movable jaw 8, which is guided by the said arm. The arm 30 may be secured to the bar 7 in any suitable manner. As shown in the drawings, a rivet A is employed.

The rod 20 consists of two parts 20ᵃ and 20ᶜ, one of which is provided with a threaded socket, which the reduced threaded extremity of the other is adapted to engage. By means of this construction the length of the rod may be regulated at will by disconnecting the part 20ᶜ from the lever 14.

From the foregoing description the use of my improved foot-vise will be readily understood. The space between the jaws when open is regulated by means of the hand-screw 25. The jaw 8 is moved toward the jaw 7ᵃ by pressing downwardly on the auxiliary lever 29 with the foot, thus moving the rod 20 upwardly and actuating the normally-inclined power-lever 21, which as it approaches the horizontal position moves the jaw 8 toward the right (referring to Fig. 1) and causes it to grip whatever may be placed between the two jaws. The movable jaw is locked in the gripping position by means of the arm 28, which though normally held in the unlocked position by the leaf-spring 27 may be quickly thrown to engagement with the teeth 7ᵈ, as shown by dotted lines in Fig. 1, by sliding the foot forward to engagement with the lower portion 28ᵍ of the locking-arm 28, which is inclined to facilitate this action by the user of the vise. When the arm 28 is in this position, the jaw 8 is securely held as adjusted. The locking-arm may be quickly released by pressing on the foot-lever, when the spring 27 will immediately and automatically throw the locking-lever out of engagement with the teeth 7ᵈ. The spring 15 will then throw the foot-lever to the full-line position in Fig. 1, thus opening the jaw 8 or moving it from the jaw 7ᵃ to the full extent.

Having thus described my invention, what I claim is—

1. In a foot-vise, the combination of a stationary jaw, a movable jaw, a yoke embracing the two jaws, a power-lever fulcrumed on the yoke having one arm pivotally connected with the movable jaw, a foot-lever, a rod connecting the foot-lever with the other arm of the power-lever, a locking-arm pivotally mounted on the foot-lever, a spring normally holding the locking-arm in the released position, the frame being provided with teeth which the locking-arm is adapted to engage when moved in opposition to the spring.

2. In a vise, the combination of a stationary jaw, a movable jaw, a yoke embracing the two jaws, a nut mounted on the yoke, a screw passing through the nut and engaging one of the jaws, a power-lever fulcrumed on the yoke and connected with the movable jaw, a foot-lever, and a suitable connection between the foot-lever and the power-lever, whereby the two levers are simultaneously actuated.

3. In a vise, the combination of a stationary jaw, a movable jaw pivotally connected with the stationary jaw, a yoke surrounding the two jaws, means attached to the yoke for regulating the space between the jaws when open, a power-lever fulcrumed on the yoke, and connected with the movable jaw, and suitable means for operating the power-lever.

4. The combination with a stationary frame and two jaws, of a power-lever fulcrumed in suitable proximity to one of the jaws, one arm of the lever being suitably connected with the jaw, a foot-lever, a rod connecting the two levers, a locking-arm pivotally mounted on the foot-lever, a spring normally holding the locking-arm in the released position, the frame being provided with teeth which the locking-arm is adapted to engage when moved in opposition to the spring.

5. The combination with the jaws of a vise, of a power-lever fulcrumed on a movable support and connected with the movable jaw, a foot-lever, a suitable connection between the two levers, whereby the levers and the movable jaw may be simultaneously actuated, a locking-arm pivotally mounted on the foot-lever, a spring normally holding the locking-arm in the released position, the frame being provided with teeth which the locking-arm is adapted to engage when moved in opposition to the spring.

6. In a vise, the combination of a stationary frame, a foot-lever fulcrumed thereon, a locking-arm pivotally mounted on the foot-lever, notches or teeth formed on the frame, and a spring normally holding the locking-arm in the released position, the locking-arm being adapted, when moved in opposition to the spring, to engage the teeth and lock the foot-lever in any desired position of adjustment.

7. In a vise, the combination with a suitable frame and a foot-lever fulcrumed thereon, of a locking-arm pivotally mounted on the foot-lever, and a leaf-spring engaging the locking-arm and normally holding it in the released position, the frame being provided with notches or teeth which the locking-arm is adapted to engage when moved in opposition to the spring.

8. The combination with a frame, of a spring-held foot-lever fulcrumed thereon, a locking-arm pivotally mounted on the foot-lever and having an open head, a leaf-spring passing through the head and provided with a slot, teeth formed on the frame and adapted to protrude through the slot in the spring and

engage the head of the arm which is fashioned to engage the teeth and lock the lever in any desired position of adjustment.

9. In a foot-vise, the combination with a stationary jaw, a movable jaw, and a loose yoke embracing the two jaws, of a power-lever fulcrumed on the yoke and connected with the movable jaw, a foot-lever, a rod connecting the two levers, a locking-arm mounted on the foot-lever and adapted to engage teeth formed on the frame, and a spring normally holding the locking-arm in the released position.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD B. NEWNAM.

Witnesses:
A. J. O'BRIEN,
EDITH HIMSWORTH.