

J. D. Beck,

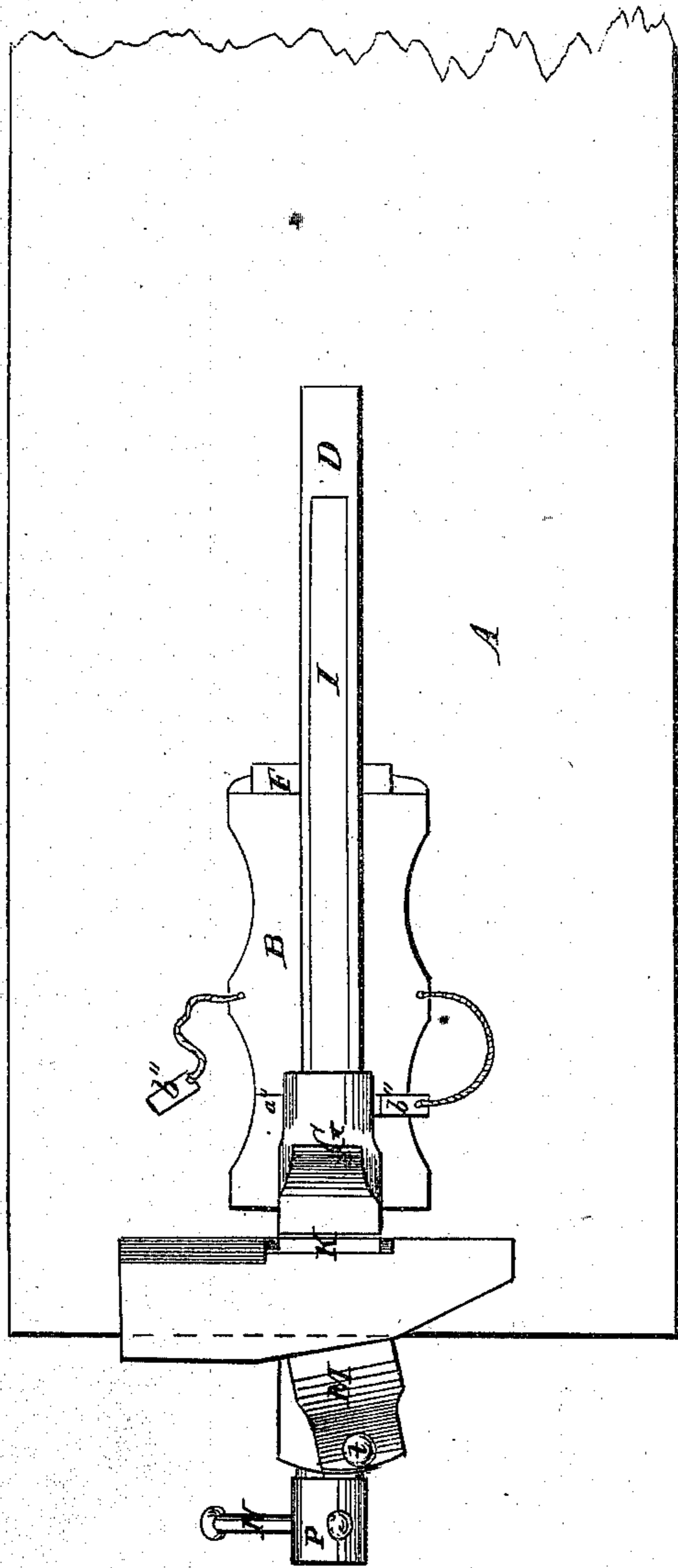
3. Sheets, Sheet 1.

Vise.

No. 104,541.

Patented June 21, 1870

Fig. 1.



Witnesses.
L. Little Anderson.
Chas. Kenyon.

Inventor.
J. D. Beck,
Chipman, Hosmer & Co.
Attorneys.

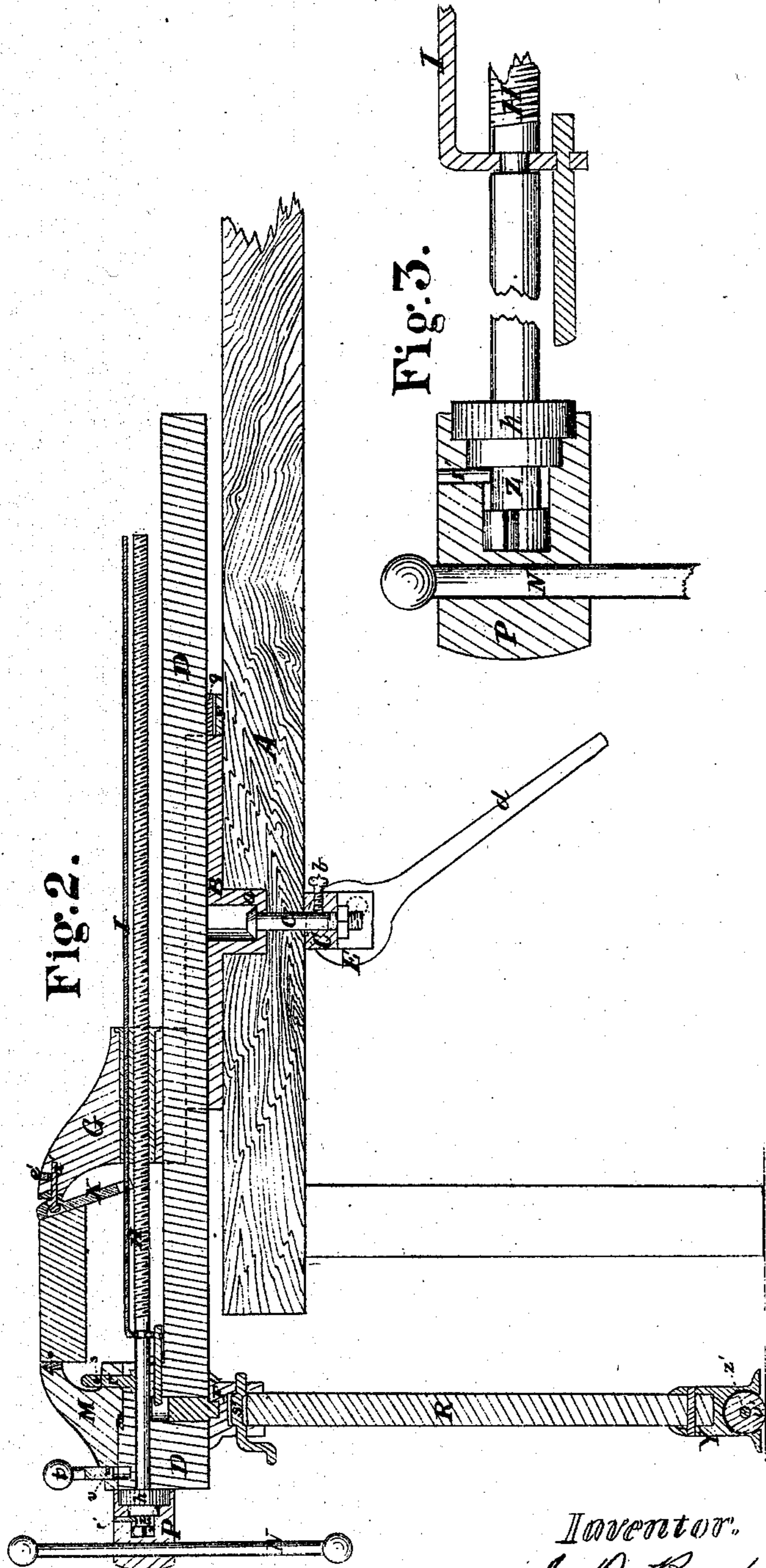
J. D. Beck,

3. Sheets, Sheet 2.

Vise.

No. 104,541.

Patented June 21, 1870.



Witnesses.
Village Anderson
Chas. Kenyon.

Inventor.
J. D. Beck
Chipman, Hosmer & Co
Attorneys.

J. D. Beck,

3. Sheets, Sheet 3

Vise.

No. 104,541.

Patented June 21, 1870.

Fig. 5.

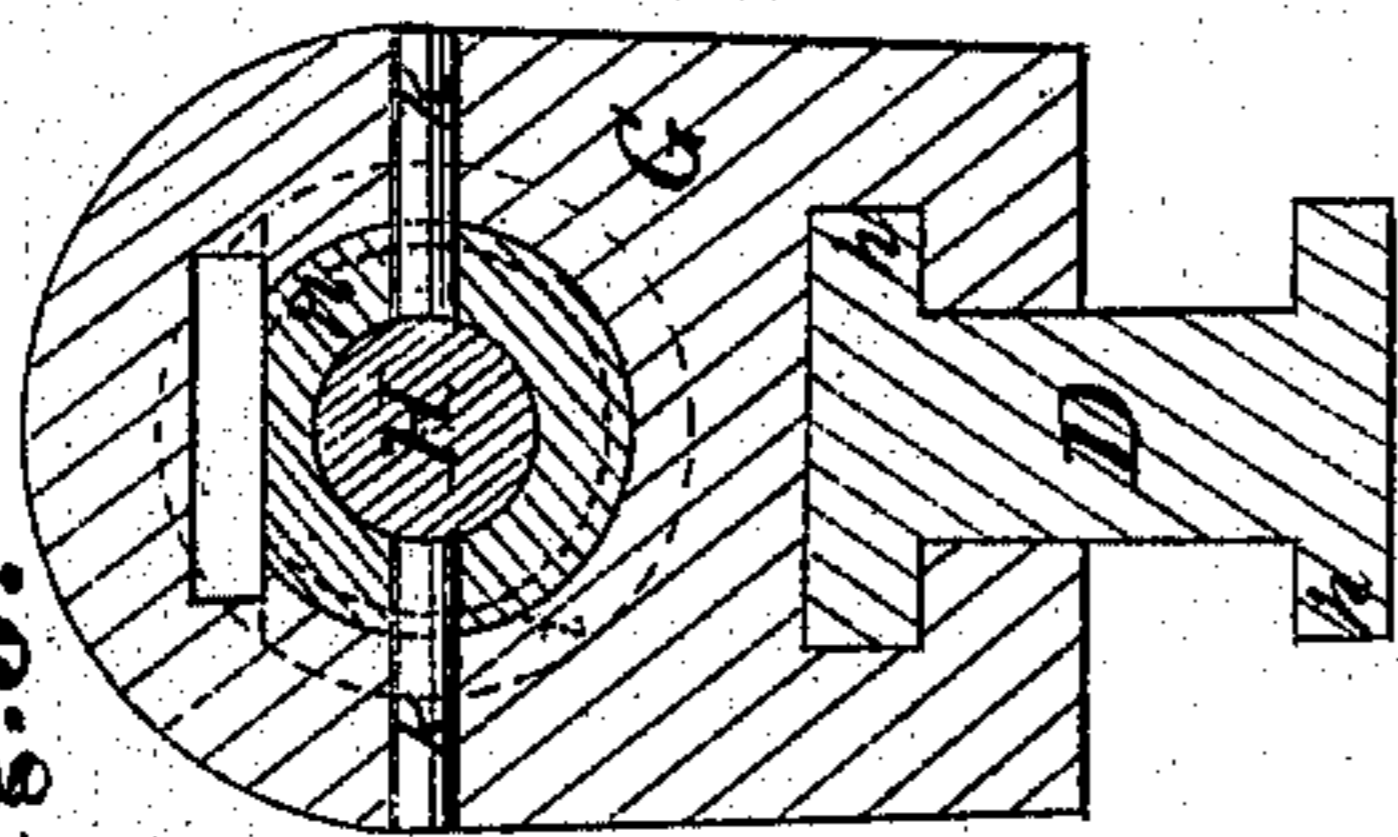


Fig. 7.

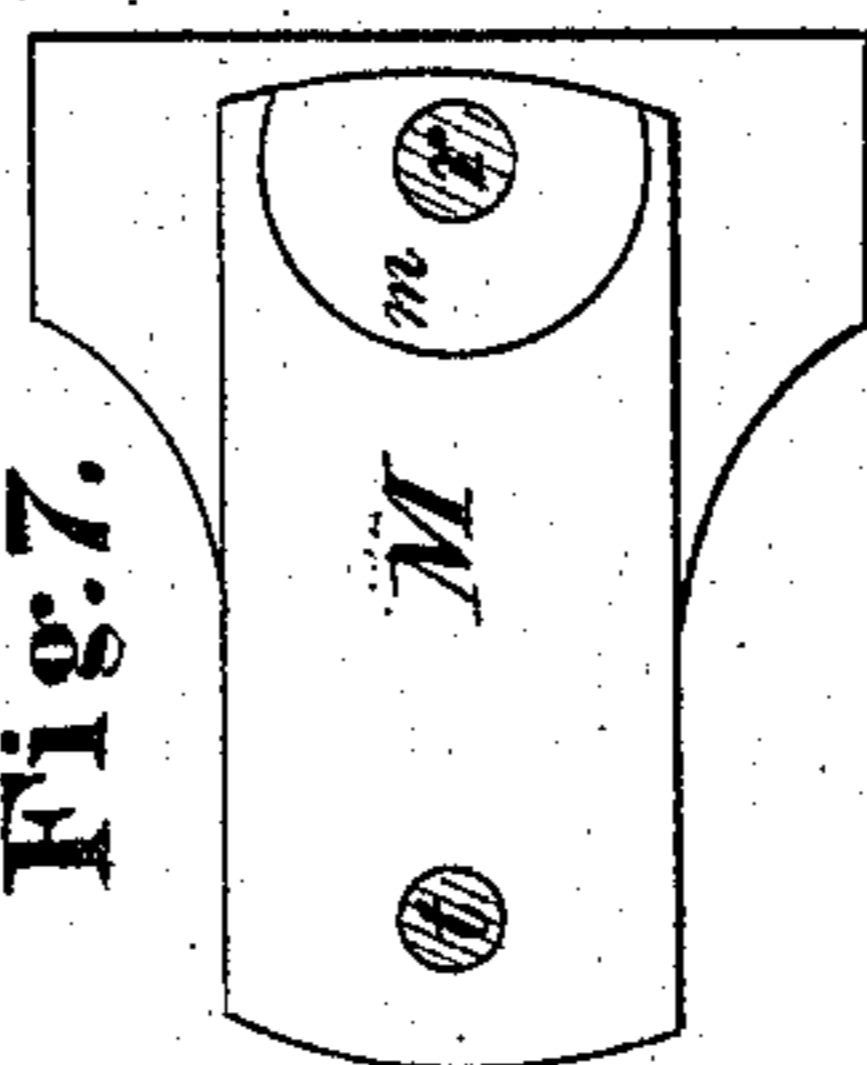


Fig. 4.

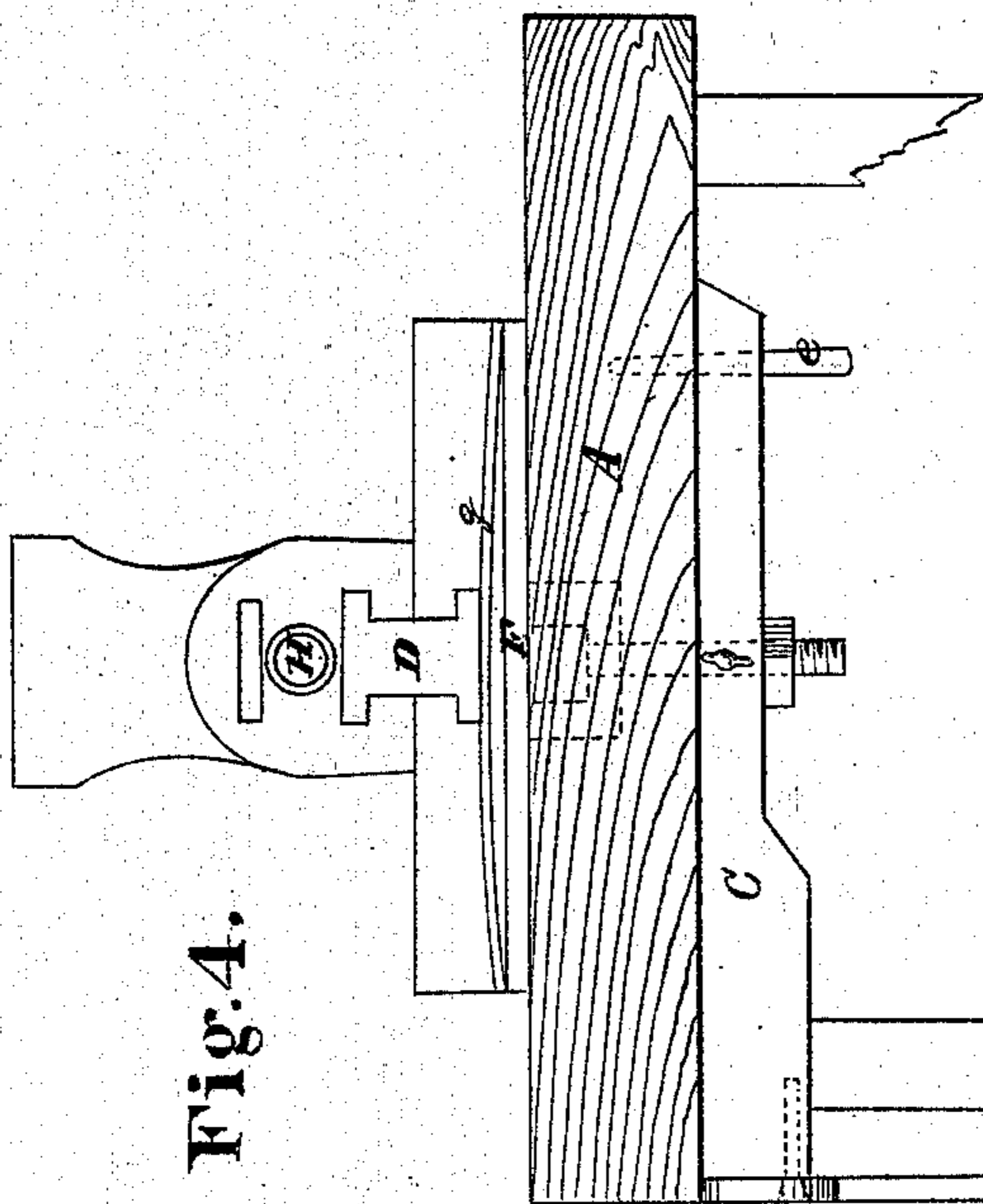
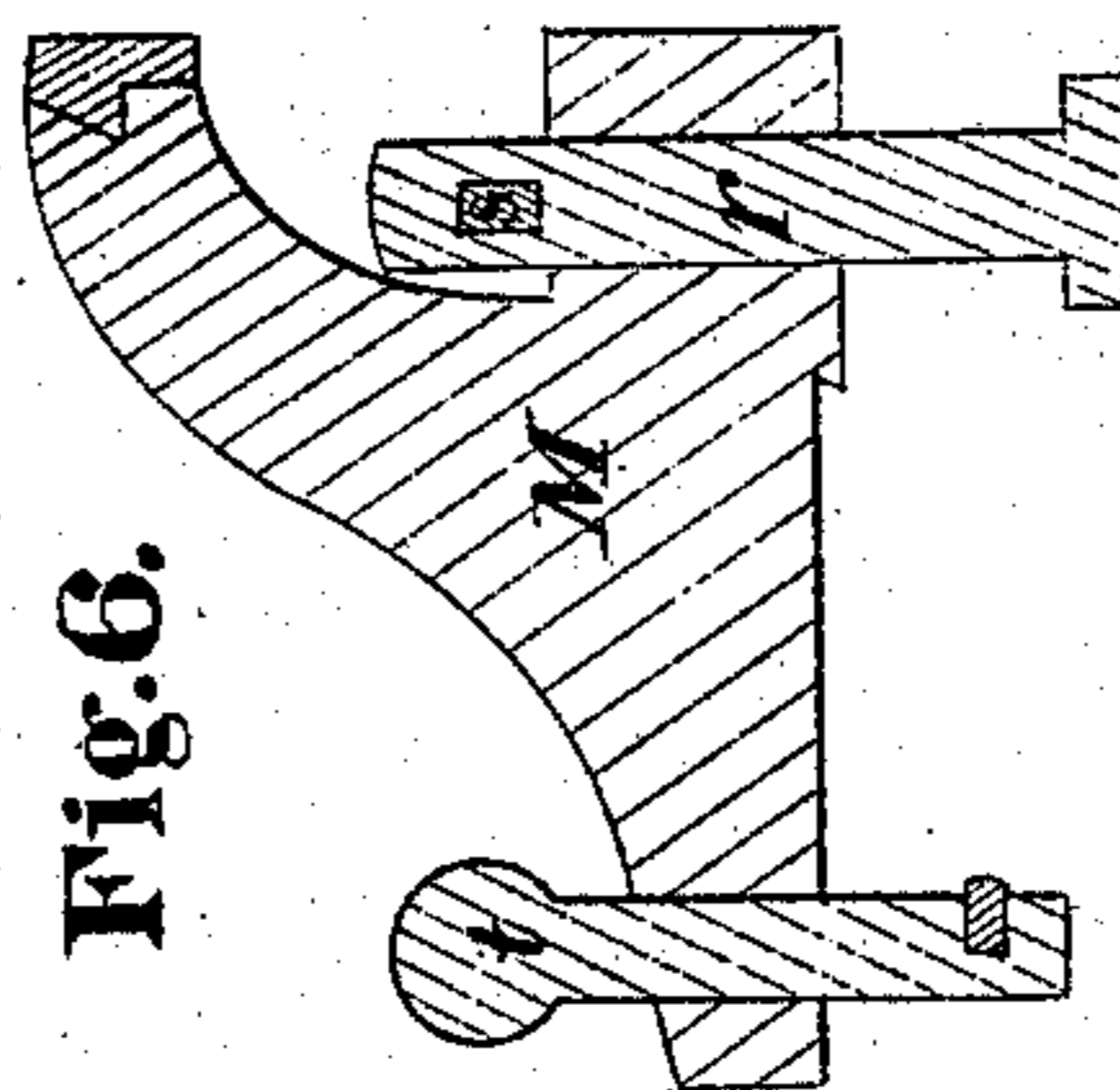


Fig. 6.



Witnesses.
Lillette Hudson.
Chas. Kenyon.

Inventor.
J. D. Beck.
Chipman, Hosmer & Co
Attorneys.

United States Patent Office.

JONAS D. BECK, OF LIBERTY, PENNSYLVANIA.

Letters Patent No. 104,541, dated June 21, 1870.

IMPROVED VISE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JONAS D. BECK, of Liberty, in the county of Tioga and State of Pennsylvania, have invented a new and valuable Improvement in Vises; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a top view of my invention.

Figure 2 is a central vertical longitudinal section thereof.

Figures 3, 4, 5, 6, and 7 are details.

My invention relates to bench-vises, and consists, mainly, in the construction and arrangement of certain improvements designed to provide an automatic adjustment of the jaws, to suit angular forms of any description, and to enable the vise to take any desired angular position with regard to the edge of the work-bench, and to be adjusted toward or from the same with great facility in such a manner that the work may either lie above the bench, or not over it at all, but at its side, according to the convenience of the workman.

The letter A of the drawing designates a work-bench, in which is formed a socket for the reception of a hollow journal, *a*, of the base-plate B.

C represents a clamping-bar, placed on the under side of the bench-top, and attached to the base-plate by means of a bolt and nut, *c*, which is prevented from turning by the key or set-screw *b*.

To the end of the clamping-bar C is pivoted an eccentric, E, which is operated by a lever or handle, *d*, and serves to draw the clamping-bar downward, thereby securing the base-plate in any desired position.

A pin, *e*, is used to keep the clamping-bar from rotating around the bolt *c*.

A transverse bar, F, is attached to the rear of the base-plate, and serves as a seat for the bent key *g*, provided with a corrugated or frictional surface, and serving to fix the extension-bar D in any desired position.

Flanches *h h* are cast on the sides of the extension-bar D, above and below, whereby it is connected to the base-plate and to the rear jaw of the vise.

G designates the rear jaw, within which is fastened, by the pins *k k*, the nut *n*, through which operates the worm H. Sometimes, as an additional security, the sectional washer *i* is introduced, but in operating upon heavy work it will be found advantageous to rely solely upon the pins, which are made weaker than the other more costly parts. By this arrangement, should an undue strain be produced on the parts, the

pins will break in preference to another part, and both time and expense will be saved in the repairing.

Through the jaw also, and above the worm, slides the guard-plate I, which prevents damage to the worm from the accidental falling of heavy work between the jaws, and provides a smooth bearing for the lower end of the clamping-plate K.

The rear portion of the clamping-plate K is curved in its vertical section. A vertical slot is formed in the center of its upper portion, through which is passed the pin *a'*, which connects it to the jaw proper.

Rubber packing *e'* is placed in the opening of the jaw G, whereby a means is provided for holding the shank of the pin without rendering its extraction difficult, should it be desired to remove the clamping-plate.

The foot of this plate is notched, to keep it in position upon the guard-plate I. This clamp is only adjustable vertically, and is so arranged that it will adapt itself automatically to the bevel of the work, whatever be its vertical inclination.

M designates the forward jaw, provided with a circular shoulder, *m*, arranged to revolve in a corresponding circular depression in the upper surface of the head of the extension-bar D. The circular shoulder *m* is concentric with the pin *r*, by which the jaw is fastened to the bar D.

A key, *s*, is passed through the projecting end of the pin *r*, and is made weaker than the other parts, so that, in case of an undue strain, it will break, and thus save time and expense in the repairing.

The pin *t* operates to keep the jaw in a position perpendicular to the line of movement. When a laterally-inclined surface is to be held, the pin is drawn up out of the socket in the bar D. The jaw will then automatically adjust itself to the inclined surface, and hold it securely without defacement.

A small rubber block is inserted into the side of the pin *t*, whereby it may be retained above the socket in the bar D, and still remain at hand in the jaw.

The guard-plate is secured to the head of the extension-bar, and the end thereof is bent down, and notched to engage in a circular groove in the worm H, thereby keeping it place, while allowing free motion of revolution.

The shank of the worm passes through the head of the bar D, and is secured by a circular flanch, *h*, whose perimeter is toothed or cogged to correspond with the internal teeth in the cavity of the adjustable turning-block P.

Transversely through the head is passed the operating lever N.

The block P is adapted to receive the end of the worm H, and is provided with a pin, *r'*, within it, arranged to engage with the circular groove *z* of the

worm. By this arrangement the block P may be readily disconnected from the toothed flanch of the worm. When it is desired to remove the block entirely, it should be turned until the pin r' is brought opposite the notch in the flanch end of the worm.

Under the head of the bar, and secured thereto by means of a pin and socket, is the block F', which serves as the attachment for the prop R.

The foot Y of the prop contains a roller, which is arranged to rotate on an elastic journal, z' . This supporting device is designed to be used when the work is heavy and not immediately over the table, and is readily adjusted to the floor by means of the cam-shaft s' , turning in bearings in the block F', and resting on the end of the prop R.

When the key g is inserted between the bar D and the seat F, the bar D is rendered stationary, and the rear jaw G will be movable.

By removing the key g , and inserting the keys $b''b''$ into the notches $a''a''$ in the bed-piece and jaw G, this jaw will be rendered stationary, and the bar D, bearing the forward jaw M, will become movable.

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

1. As an improvement upon the laterally-adjustable jaw of my vise patented October 26, 1869, the automatic laterally-adjustable jaw M, provided with the circular shoulder m , located near the pivot of said jaw, and secured to its pivot-bolt by the safety-key s , substantially as shown and described.

2. The automatic vertically-adjustable clamp K, having pin a' , in combination with the jaw G, having rubber clamp c' , and the guard-plate I, when con-

structed and arranged to operate substantially as and for the purposes herein set forth.

3. The combination of the extension-bar D, guard I, nut n , with its safety-pins $k k$, worm H, bed-plate B, and keys g and $b''b''$, when constructed and arranged to operate substantially as specified.

4. In combination with a bench-vise, the clamping-plate B, having journal a , clamping-bar C, bolt c , connecting the two, and operating cam E, when constructed and arranged to operate as herein described and shown.

5. The adjustable turning-block P, having a toothed cavity and internal pin r' , in combination with the worm H, provided with cogged flanch h , channel z , and notched flanch at its end, when constructed and arranged to operate as and for the purposes herein substantially shown and described.

6. The adjustable prop R, having foot Y, with roller i , rotating on an elastic journal, z' , and block F, provided with cam-shaft s' , when constructed and arranged to operate substantially as specified.

7. The improved vise herein described, arranged to hold the work over or at the side of the bench, and pivoted thereto in such a manner as to take any angular position with regard to the edge of the bench, substantially as specified.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

J. D. BECK.

Witnesses:

I. B. WERLINE,

I. L. DE COURSEY.