

J. D. BECK.
Improvement in Machinists Vises.
No. 121,149. Patented Nov. 21, 1871.

Fig 1

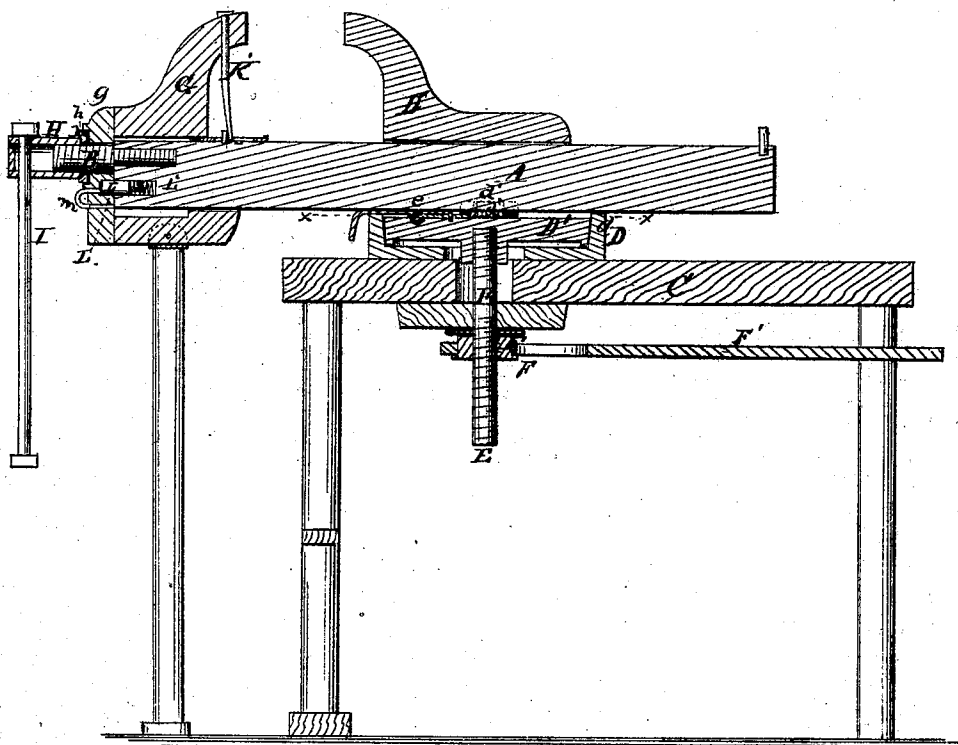


Fig: 2

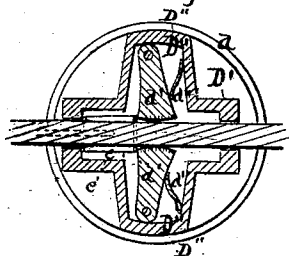


Fig: 4

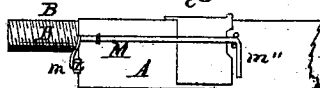
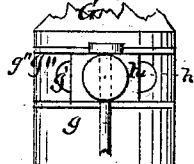
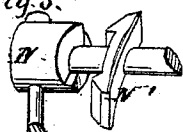


Fig: 3



Witnesses
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Fig: 5



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UNITED STATES PATENT OFFICE.

JONAS D. BECK, OF LIBERTY, PENNSYLVANIA.

IMPROVEMENT IN MACHINISTS' VISES.

Specification forming part of Letters Patent No. 121,149, dated November 21, 1871.

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 Clamping Devices; 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 representation of a central vertical longitudinal section of my invention. Fig. 2 is a horizontal section through the line *x x*, Fig. 1. Figs. 3, 4, and 5 are detailed views.

This invention has relation to certain improvements in vises; and it consists in the construction and novel arrangement of devices designed to render the vise applicable to the clamping of irregular or inclined forms and changeable to different positions, as hereinafter described.

Referring to the drawing, A represents the extension-bar, into the forward end of which is turned the clamping-screw B. C represents the vise-table holding the bed-plate D, having a flange or rim, *d*, to receive the base of the rear jaw D'. The latter is formed with side recesses D'', in which dogs *d'* are pivoted or held and acted on by springs *d''*. The extension-bar passes through the jaw D', and is held by the dogs *d'*, which have their ends serrated for the purpose of allowing them to bite the sides of the extension-bar. A flanged plate, *e*, which slides underneath the extension-bar and is provided with a projecting handle, is pressed against the dogs in order to release the bar A. A notch cut in the flanged plate adapts it to the under edge of said bar. E designates a set-screw, which, being imbedded in the base of the jaw D', extends downward through the open center of the bed-plate D and through a hole cut in the vise-table. F represents a flanged nut fitted to the screw E and operated by an adjustable wrench, F'. The object of the screw-nut and wrench is to regulate the position of the jaw D', so that it may be held at whatever position it is placed. The base of the jaw and the interior of the bed-plate flange should be correspondingly serrated, in order to keep them together at any point. G designates the front jaw, which is adjustable along the bar

A, and may be turned from side to side to fit different-shaped articles to be clamped. The interior of this jaw is a cavity with sides tapering inwardly toward the back or clamping face. The wide end of this cavity is concave, and may be formed in a solid piece or cap, *g*, fitted to the jaw, or it may be cast with the jaw. A curved slot, *g'*, cut in said end, which is convex on its outer face, admits the clamping-screw to pass through. In front of the slot *g'* a groove, *g''* is cut in the face of the cap *g*, and a curved plate or washer, *h*, fitted to it and arranged to slide from side to side. The clamping-screw also passes through this plate and is provided with a nut, H, holding a sliding-lever, I. The jaw is propelled along the extension-bar A by the turning of the nut H by the lever I. A spring, K, secured to said jaw and arranged to come in contact with a projecting pin fixed in the top of the bar A, tends to keep this jaw toward the jaw D'. The jaw G may be adjusted to either side, so as to fit it to the angles of the object to be clamped. L represents a pin arranged within a chamber cut in the front end of the extension-bar, in which a spiral spring, L', is placed, which has a tendency to keep the pin projecting. The outer end of said pin fits a recess cut in the center of the cap, and, when both jaws are parallel, it enters said recess and retains the jaw G in such relative position with respect to the rear jaw. The pin L is pressed back from the recess by a key, *m*. M represents a rod with a bent end, *m'*, and thumb-piece *m''*. It is arranged to slide in loops at the side of the extension-bar, and may be so turned as to place the bent end over the forward end of the pin L after the latter has been pressed back by its key, and so retain the pin L while the jaw G is out of parallel with the back jaw. A groove is cut in one side of the jaw cavity to receive the rod when the jaw is turned to one side.

The operation of the vise is as follows: The dogs *d'* are first released from the extension-bar and the front jaw taken hold of and pulled out so as to take with it the extension-bar. Space being made for the work it is placed between the jaws and the front jaw adjusted to its form, after which the latter is pushed back until it touches the work, when, by turning the clamping-screw to the right, it will be securely clamped. It will be observed that the clamping-screw operates

to push the jaw only a short distance; but its force is great, and when the jaw is brought in contact with the work, as described, it may be readily tightened in place. The washer *h* serves as a friction-plate between the jaw and clamping-nut to compensate for wear.

In Fig. 5 a device is shown, by using which a greater amount of force may be exerted in clamping work. It consists of the clutch-nut *N* and clutch-plate *N'* applied in place of the plate *h* and nut *H*.

I claim as my invention—

1. The jaw *D'* having the chambers *D''*, in which are the dogs *d'* and key *e*, as and for the purpose specified.

2. The pin *L*, spring *L'*, key *m*, and rod *M*, in combination with the jaw *G* and bar *A*, as and for the purpose set forth.

3. The friction-plate *h*, in combination with the laterally-adjustable jaw *G*, screw *B*, nut *H*, and bar *A*, as described.

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

JONAS D. BECK.

Witnesses:

L. W. JOHNSON,
WM. NARBER.

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