(No Model.)

G. W. PITTMAN.

BENCH VISE.

No. 277,158. Patented May 8, 1883.

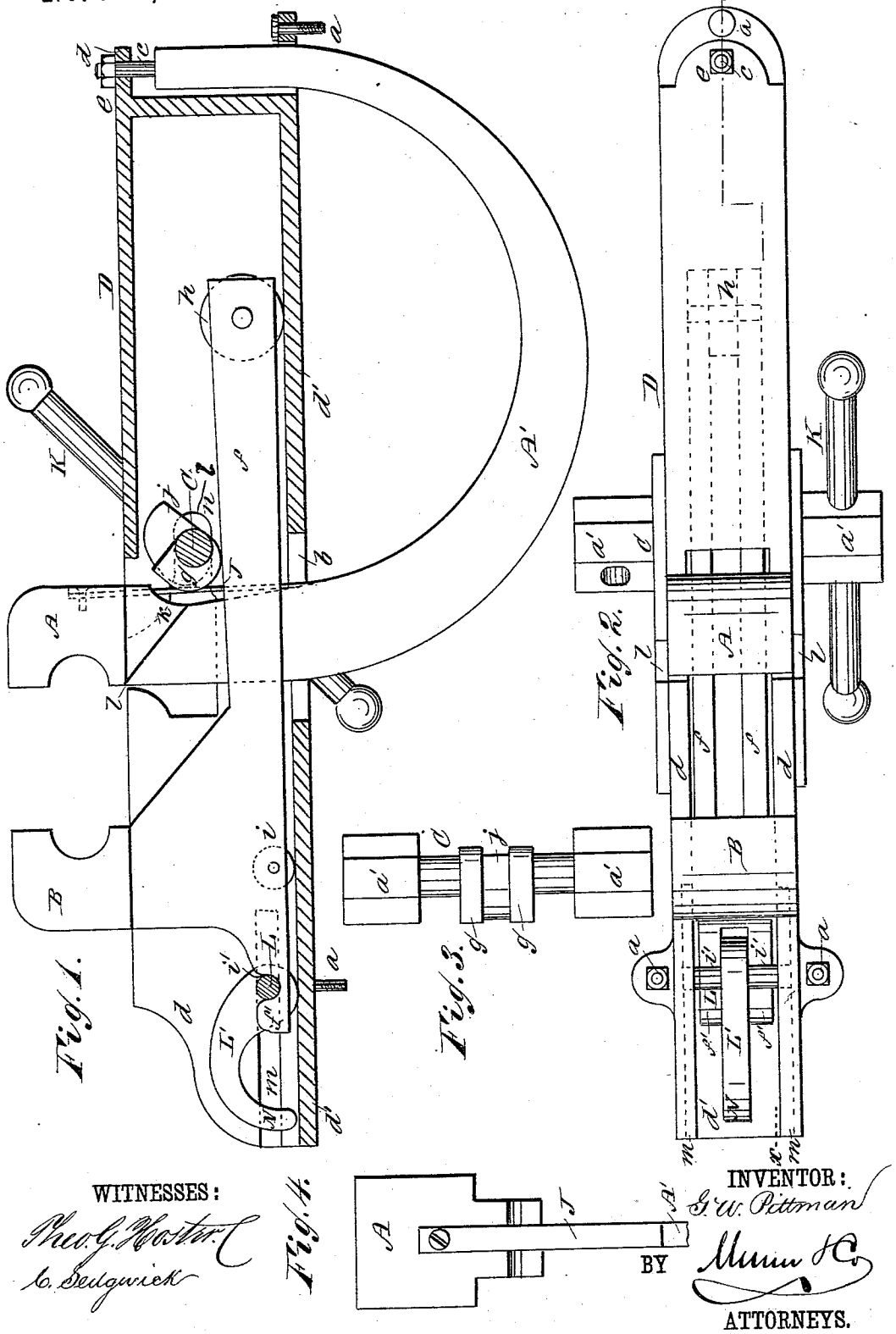


Fig. 1.

Fig. 3.

Fig. 2.

Fig. 4.

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GRANVILLE W. PITTMAN, OF KEOKUK, IOWA.

BENCH-VISE.

SPECIFICATION forming part of Letters Patent No. 277,158, dated May 8, 1883.

Application filed October 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, GRANVILLE W. PITTMAN, of Keokuk, in the county of Lee and State of Iowa, have invented a new and useful Improvement in Bench-Vises, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of my improved vise, taken on the line *x x* of Fig. 2. Fig. 2 is a plan view of the vise. Fig. 3 is a front elevation of the cam-shaft removed from the vise; and Fig. 4 is a detailed view of the stationary jaw, showing its spring.

The object of this invention is to provide a novel and cheaply-constructed vise which shall be capable of quick and easy operation.

A represents the stationary jaw, B the movable jaw, and C the cam-shaft. These parts are placed in the frame or casing D, which is adapted to be secured to a bench or other similar object for use by means of the screws or bolts *a a*.

The jaw A is formed with the long extension A′, which is curved downward, backward, and then upward, as shown in Fig. 1, and when in place passes down through the slot *b* in the bottom of the casing D, and is secured at its rear end to the casing by the reduced portion *c* thereof passing up through the perforated lug *d* on the rear end of the casing, where it receives the nut *e* above the lug, as shown.

The jaw B is formed with the parallel arms *f f*, which, when the jaw is in place, straddle the jaw A and reach within the casing D under the cam-shaft C, as shown clearly in Fig. 1, and it is formed also with the rear extensions, *f′ f′*, which are formed with the depressions *i′ i′*, in which the axle L of the cam or eccentric L′ rests. The ends of the axle L reach into and are adapted to move in the grooves *m m*, formed in the side walls, *d d*, of the casing D, so that when the eccentric L′ is turned to the position shown in Fig. 1, with its lower curved edge impinging upon the bottom *d′* of the casing D, it will hold the jaw B from backward movement. The upper edges of the arms *f f* are slightly inclined, so that when the cams *g g* of the cam-shaft are turned down upon them they will clamp and hold the jaw B against all danger of backward movement. Between the ends of the arms *f f* is journaled the friction-wheel *h*, which facilitates the backward movement of the jaw to and from the object to be held by or released from between the jaws; and under the movable jaw B, in front of the jaw A, is placed the friction-wheel *i*, which holds the forward part of the jaw B on a level with the rear ends of the arms *f f*, which are slightly elevated by the friction-wheel *h*, and also facilitates the backward and forward movement of the jaw. At the point where the cam *j* of the cam-shaft C comes in contact with the back of the jaw A the said jaw is cut away, as shown at *k*, and is provided with the strong flat spring J, which prevents the jaw A from being forced back against the cam when the jaw B is pressed forward against any object placed between the jaws, and thus prevents the cam *j* having full and direct action upon the jaw A until after the cams *g g* shall have come in contact with the arms *f f* of the jaw B. The spring J will be of sufficient strength to hold any ordinary light object placed in the vise without the shaft C being turned, so as to cause the cams *g g* to grasp the arms *f f*, and the cam L′ will resist such pressure; but for heavy work the shaft C will be turned so that the jaw B will be held both by the cam L′ and the cams *g g* acting upon the inclined arms *f f*.

The cam-shaft C is made with the heads *a′ a′*, through which the handle or lever K passes for turning the shaft, and the shaft is placed in its bearings *n n* in the casing through the open curved slots *l l*, which lead from the upper edges of the side pieces, *d d*, of the casing down to said bearings, thus making it a quick and easy operation to remove the shaft C and jaw A from the casing and to return them to place.

The long curved extension of the jaw A serves as a spring and always holds the jaw back, so that the spring J will always rest in contact with the cam-shaft, and permits sufficient forward movement of the face of the jaw to firmly grasp any object placed in the vise after the jaw B shall have been brought by the hand of the user, or by separate lever power against the object to be held.

To use the vise it is only necessary to raise the outer handle end, N, of the eccentric L′ and shove the jaw B away from the jaw A, and place the object to be held between them, and then to draw the jaw B forward against the object, leaving the rear end of the eccentric L′ down to the position shown in Fig. 1, for holding the jaw B. If the object requires only to be held slightly, the cam-shaft C is to be given but a slight turn, which will bring the eccentric *j* against the spring J and force the jaw A forward with sufficient force to hold the object, the jaw B being held from backward movement by the action of the cam L′ alone, as above mentioned; but if the object requires to be held with considerable firmness, the shaft C will be given a greater turn, which will cause the cams *g g* to grasp the arms *f f*, and act in conjunction with the cam L′ for holding the jaw B.

It will thus be seen that large and small objects may be placed between the jaws and held with equal facility, and without the labor and loss of time incident to the necessary unscrewing and screwing up again of the jaws of vises of ordinary construction. Besides, the vise is simple and cheap of construction, and is adapted for both heavy and light work.

Instead of forming the jaw A with the curved extension A′ for forming a spring for holding the jaw against the shaft, a separate spring for this purpose might be used; but the construction shown is preferred, as it simplifies and cheapens the construction of the vise.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The jaw B, formed with the inclined arms *f f*, in combination with the jaw A and cam-shaft C, formed with the cams *g g* and *j*, substantially as and for the purposes set forth.

2. The jaw B, formed with the rear extensions, *f′ f′*, in combination with the eccentric L′, axle L, and slots *m m*, the said extensions being formed with the depressions *i′ i′*, substantially as and for the purposes set forth.

3. The jaw A, formed with the curved extension A′, and secured at its rear end to the casing D, in combination with the jaw B and the cam-shaft C, substantially as described.

4. The jaw A, cut away as shown at *k*, and provided with the spring J, in combination with the cam-shaft C, sliding jaw B, and eccentric L′, substantially as and for the purposes set forth.

5. The jaw B, formed with the arms *f f* and rear extensions, *f′ f′*, and provided with the wheels *h* and *i*, in combination with the curved jaw A, cam-shaft C, and casing D, substantially as described.

6. In a vise, the casing D, formed with the open slots *l l*, bearings *n n*, and slot *b*, in combination with the jaw A and cam-shaft C, whereby the shaft and jaw may be easily removed from and put in place in the casing, as described.

7. The vise made substantially as herein shown and described, consisting of the curved jaw A, secured to the casing D, and cut away at *k*, and provided with the spring J, and the sliding jaw B, formed with inclined arms *f f* and rear extensions, *f′ f′*, in combination with the eccentric L′ and the shaft C, formed with the cams *g g* and *j*, substantially as and for the purposes set forth.

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