(No Model.)

T. G. HALL.

VISE.

No. 311,487. Patented Feb. 3, 1885.

Fig. 1.

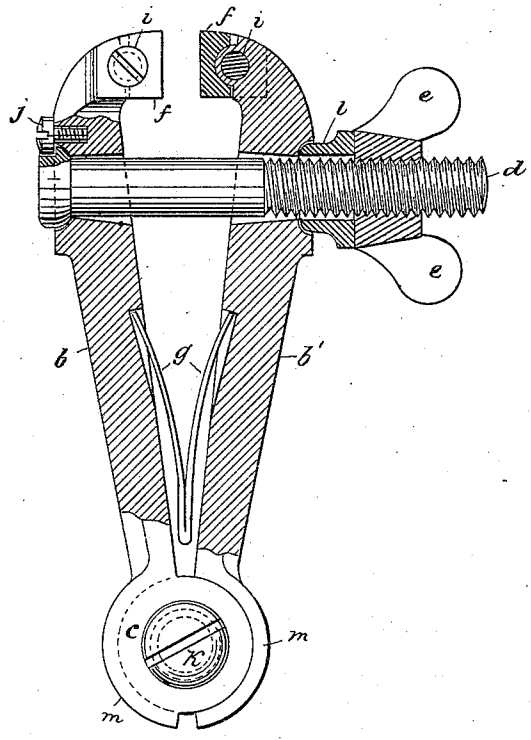


Fig. 2.

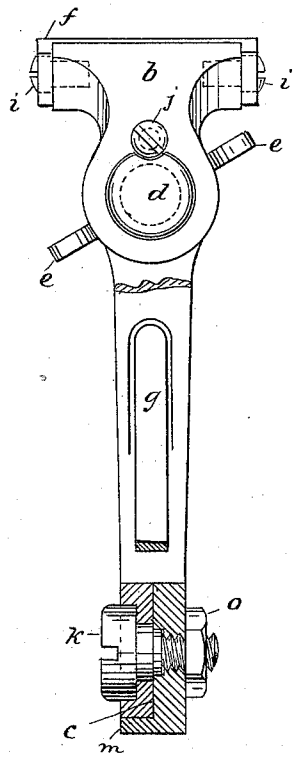
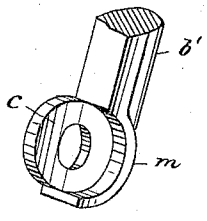


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

THOMAS G. HALL, OF BROOKLYN, NEW YORK.

VISE.

SPECIFICATION forming part of Letters Patent No. 311,487, dated February 3, 1885.

Application filed March 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, THOMAS G. HALL, residing in the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Vises, of which the following is a description in such full, clear, concise, and exact terms as will enable any one skilled in the art to which my invention belongs to make and use the same, reference being had to the accompanying drawings, making part of this specification, and to the letters and figures of reference marked thereon, in which—

Figure 1 represents a side view of my invention, Fig. 2 a front view, and Fig. 3 a detail part of the same in perspective.

Similar letters of reference indicate corresponding parts in all the figures.

My present invention consists in certain improvements upon a vise for which Letters Patent of the United States have been heretofore granted to me, dated September 16, 1879, and numbered 219,719.

Referring to the annexed drawings, *b b'* are the limbs of a vise pivoted together at *k*, and governed in their movements by the V-shaped spring *g*, the screw-threaded bolt *d*, and thumb-screw *e*. The upper ends of these limbs *b b'* are formed into longitudinal ribs tapped to receive the screws *i i*, which form pivots, upon which the adjustable vise-jaws *f f* turn, said jaws being formed with external ears tapped to receive the screw-pivots *i i*, and with longitudinal grooves to correspond with and nicely fit the aforesaid ribs upon the ends of the limbs. These parts—with the exceptions hereinafter specified—are formed and combined substantially as illustrated in the drawings, and described in the specification of the patent above named, to which reference is made for a fuller description of the same and their operation. In my present invention, however, instead of arranging the thumb-screw *e* to bear directly upon the side of the limb *b'*, as shown in said patent, I have inserted between these parts the thimble or washer *l*, having preferably a rounded inner end, resting in a corresponding groove cut around the orifice in the limb *b'*, through which the bolt *d* protrudes, said surfaces operating to keep the washer or thimble always centered, and thus prevent contact and binding on the bolt *d*. This washer, which is free to revolve, furnishes even bearings on all sides of the thumb-screw *e* at whatever angle the limbs *b b'* may stand with reference to each other, diminishes the friction between the parts, sustains the wear which would otherwise fall on the limb *b'*, and can be readily replaced when worn out. The rim of the head of the bolt *d* is cut to receive the set-screw *j*, to prevent its turning on its axis while the thumb-screw *e* is being screwed up or down. The inner surface of the head of the bolt *d* is curved and rests in a correspondingly-shaped seat bored in the limb *b*, so that at whatever angle the bolt *d* may stand with relation to the limb *b*, a full bearing-surface between the said limb and the head of the bolt will be maintained. The set-screw *j* does not interfere with this limited play of the bolt, while it prevents its turning on its axis. The perforations in the limbs of the vise through which the bolt *d* passes are funnel-shaped to permit such lateral movement of the bolt.

If desired, the adjustable jaws may be provided with a spring (not shown in the drawings) to keep their upper edges normally pressed back.

Fig. 3 is a perspective drawing illustrating the form of the lower ends of the limbs *b b'* where they are pivoted together. The metal of each limb at the lower end is bored out to form the circular disk *c*, with the rim *m* surrounding one side. The two limbs are made counterparts, and fit accurately in each other, the edge of one disk bearing on the internal circumference of the rim *m* of the opposite limb. They are pivoted together by the bolt *k*, screw-threaded, and provided with the nut *o*, as shown. The effect of shaping the limbs of the vise in this manner is to give great strength and stiffness to the entire device.

The disks and rims above described sustain the greater part of the strain and friction, which would otherwise fall upon the pivot *k*, and add greatly to the efficiency of the device.

Instead of a single piece of metal riveted to one limb and bearing against the other, operating as a spring to press the limbs apart, (shown in the former patent referred to,) I prefer to use a V-shaped spring set in notches cut on the inside of the limbs *b* and *b'*, as illustrated in the drawings.

Having thus described my invention, I claim

and desire to secure by Letters Patent the following:

1. In a vise, the limbs *b b'*, pivoted together and formed with bearing-surfaces *c c* and rims *m m*, being counterparts of each other at the points of juncture, substantially as described, for the purpose specified.

2. In a vise, the combination of limbs *b b'*, bolt *d*, with its attendant parts for operating the jaws of the vise, and set-screw *j*, said bolt having a head formed with curved interior surface seated in a correspondingly-shaped groove in one of said jaws, and said jaws being pierced with funnel-shaped perforations, substantially as and for the purpose set forth.

3. In a vise, the limbs *b b'*, pivoted together and formed with bearing-surfaces *c c* and rims *m m*, combined with a V-shaped spring held loosely in notches cut in said limbs, substantially as described.

THOMAS G. HALL.

Witnesses:
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CHAS. T. YOUNG.