

UNITED STATES PATENT OFFICE.

THOMAS W. VARE, OF PHILADELPHIA, PENNSYLVANIA.

VICE.

No. 813,260.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed August 12, 1905. Serial No. 273,893.

To all whom it may concern:

Be it known that I, THOMAS W. VARE, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have made a certain new and useful Invention in Vises; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view of my vise. Fig. 2 is a central cross-section of the same. Fig. 3 is a section on the line 3 3, Fig. 2

The invention relates to parallel double-screw leg-vises; and it consists in the novel construction and combination of parts, as hereinafter set forth.

In the accompanying drawings, illustrating the invention, the letter *a* designates the main jaw of the vise, which is supported by a leg *b*, and *c* represents the movable jaw. The main screw is shown at *d*, and the lower or parallel screw at *e*. These screws are journaled in bearings *f* of the downward extension *k* of the movable jaw. The head of the upper or main screw is transversely perforated to receive the sliding lever *h*. The screws *d* and *e* are parallel to each other, and they are in engagement with each other through gearing, so that when the main screw is turned the parallel screw turns in unison with it. As they have equal pitch, the movable jaw has exact parallel motion toward and from the main jaw. In the construction illustrated the screws *d* and *e* are provided with gear-wheels *m* and *n*, respectively, which engage an intermediate train of idler-wheels *w*. All of these wheels are located near the plane inner face of the extension *k* of the movable jaw. To said extension and between the screws are secured the upper guide-bar *v* and the lower guide-bar *u*, which extend parallel to each other and to the screws, through guide-bearings 2 and 3, located, respectively, above and below each other in the main jaw between the threaded bearings *g* of said main jaw and exactly parallel thereto and to each other. These guide-bars are cylindrical, and they are designed to fit their bearings 2 and 3 neatly, yet so that they will slide easily back

and forth therein. Two of the idler-wheels *w* are located on these guide-bars near the face of the jaw, the guide-bars thus forming bearings for said idler-wheels, which turn thereon. If three guide-bars are used, the three idler-wheels may be mounted thereon in a similar manner. When two such bars are used, a separate short spindle is provided for the third idler, as indicated at 4. The bearings 2 and 3 in the main jaw for these guide-bars are extended by means of increments of said jaw in order to give said bearings length, which tends to truth of movement of the movable jaw toward and from the main jaw. The guide-bars are separated by an interval of sufficient extent to brace the movable jaw against lateral motion, which under the leverage exerted on the main screw would tend to throw the jaws out of alinement as well as to cause the screws to wear unequally. In order to protect the end of the main screw back of the main jaw, a bearing-ledge 5 is provided on the latter, to which is bolted a tubular protector 6, which fits closely to the rear of the main jaw. This protector may be made with an anvil portion 7, which is cast integral therewith and is designed to serve a useful purpose in this location back of the main jaw.

It is apparent that the weight of the movable jaw is designed to be supported by the upper and lower guide-bars and their extended bearings in the main jaw and that these guide-rods being axially in the plane of the screws one above the other and separated by a distance of several inches are designed and serve, respectively, to counteract any binding tendency and to equalize their sliding movements in the bearings in such wise as to practically obviate irregularity of motion of the movable jaw not only with reference to the vertical plane of movement, but also transversely of such plane.

In order to protect the main screw, it is designed that the bearing of the upper screw in the main jaw extension be rabbeted or enlarged at its inner end and this enlargement threaded to receive the threaded end of a short section of pipe which extends toward the movable jaw and forms a tubular protector 8 around the screw, and in order to protect the gearing a removable casing-plate 9, having perforations for the passage of the screws and guide-bars, is attached to the downward extension of the movable jaw.

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Having described the invention, what I claim, and desire to secure by Letters Patent, is—

5 1. In a parallel-motion vise, the combination with a fixed jaw and its downward extension having upper and lower threaded bearings, and intermediate guide-bearings in the same vertical plane, of a movable jaw having a downward extension, of upper and
10 lower parallel screws pivoted in the extension of the movable jaw, a train of gear-wheels in connection with said screws, and upper and lower guide-bars between and parallel to said screws and forming journals of
15 gear-wheels of said train, substantially as specified.

2. In a parallel-motion double-screw vise, a movable jaw having a downward extension, upper and lower parallel screws journaled in

said extension, an upper cylindrical guide-
bar and a lower cylindrical guide-bar be- 20
tween and in the plane of said screws, a train of gear-wheels connecting said screws and a detachable protecting-casing for said gear-wheels, substantially as specified. 25

3. A parallel-motion double-screw vise, having between and in the plane of its screws an upper cylindrical guide-bar and a lower cylindrical guide-bar and a train of gear-wheels connecting said screws and mounted
30 on said guide-bars, substantially as specified.

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

THOMAS W. VARE.

Witnesses:

JOHN O'CONNELL,
RAYMOND L. VARE.