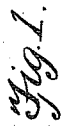


983,131.

2 SHEETS—SHEET 1.



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BENCH VISE.
APPLICATION FILED DEC. 8, 1909.

Patented Jan. 31, 1911.
2 SHEETS—SHEET 2.

Fig. 4.

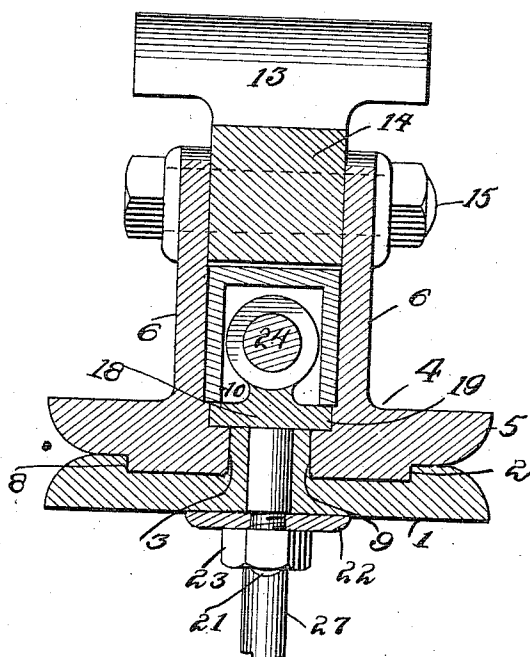
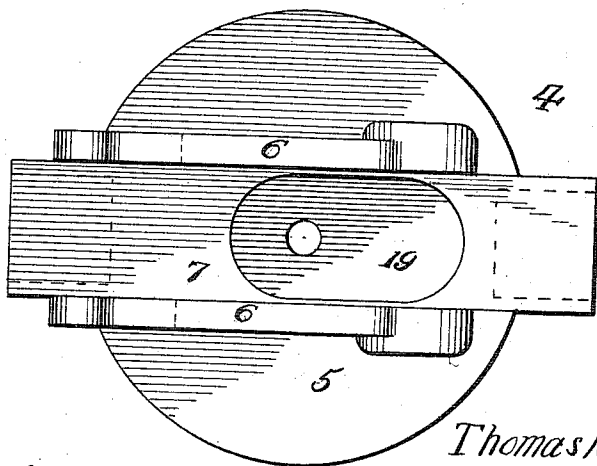


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

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BENCH-VISE.

983,131.

Specification of Letters Patent.

Patented Jan. 31, 1911.

Application filed December 8, 1909. Serial No. 531,959.

To all whom it may concern:

Be it known that I, THOMAS A. GANNOE, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented new and useful Improvements in Bench-Vises, of which the following is a specification.

This invention is an improved bench vise for use by machinists and other artisans and consists in the construction, combination and arrangement of devices hereinafter described and claimed.

One object of my invention is to effect improvements in the construction of a vise of this class whereby one of the jaws is caused to frictionally grip an element of the other jaw when the jaws are closed by the operating screw and cause the jaws to be the more firmly held in closed or gripped position on the work.

A further object of the invention is to effect improvements in the construction of the vise whereby when the jaws are closed by the action of the operating screw, the housing or body portion of the vise which carries one of the jaws is gripped upon the base to prevent pivotal or angular movement of the vise.

In the accompanying drawings:—Figure 1 is a vertical longitudinal central sectional view of a bench vise constructed in accordance with my invention. Fig. 2 is a detail elevation of the body or housing of the vise. Fig. 3 is a similar view of the nut which is engaged by the operating screw. Fig. 4 is a vertical transverse sectional view of my improved bench vise on the plane indicated by the line *a—a* of Fig. 1. Fig. 5 is a detail plan of the body or housing portion of the vise.

In the embodiment of the invention here shown, the base plate 1, which is circular, and which may be secured by any suitable means on a bench or other suitable supporting object is provided in its upper side with a circular recess 2 at its center on its upper side with an upwardly extending cylindrical boss 3. The body or housing of the vise comprises the lower portion 5 and a pair of vertical walls or webs 6 which rise therefrom, are properly spaced apart and form a guideway 7 between them. The under side of the body or housing is formed with a cylindrical boss 8 to fit into the recess 2 and with a central opening to receive the cylindrical boss 9 of the base, so as to adapt the

body of the vise for pivotal or angular movement on the base and to connect said body or housing to the base.

An arm 10 is fitted in the lower portion of the guideway 7, is movable longitudinally in said guideway and bears on that portion of the body or housing 4 which forms the bottom of said guideway. The said arm 10 is hollow, is open on its lower side, and is formed with a solid portion 11 which closes its outer end and is also formed at its outer end with a jaw 12.

A jaw 13 which is opposed to the jaw 12 has an extended base or arm 14 which is fitted between the webs or sides 6 of the base or housing 4 and is mounted for movement in the upper side of the guideway toward and from the upper side of the arm 10. A pivot bolt 15 passes through alined openings in the front portions of the walls or webs 6 and the front portion of the arm 14 of the jaw 13 so that said jaw is pivotally mounted for angular movement toward and from the upper side of the arm 10 of the jaw 12, and a bolt 16 also passes through openings in the rear portions of the walls 6 and an opening 17 in the arm 14 of the jaw 13, the said opening 17 being somewhat elongated to permit of lateral or angular play of the end of the arm 14 on said bolt 16 so that the base or arm portion 14 of the jaw 13 is adapted for movement to and from the opposed upper side of the arm 10 of the jaw 12. A plate 18 is detachably fitted in a recess in the upper side of the lower portion 5 of the body or housing 4 and is formed near one end and on its upper side with a nut 20, which is disposed within the hollow arm 10. On the under side of the said plate 18 and near the opposite end of the said plate 18 is a depending bolt or screw stem 21 which extends through central alined openings in the base 1 and the lower portion 5 in the body or housing 4. A washer 2 on said screw stem bears against the lower side of the center of the base 1 and also against the lower side of the boss 3 and a nut 23 is screwed on the said screw stem or bolt, the latter serving to secure the housing on the base 1 while permitting angular movement thereof so that the vise can be turned as may be required. It will be observed upon reference to the drawings, particularly Fig. 1, that the nut 20 is eccentrically disposed with reference to the screw 21. The operating screw 24 of the jaw 12 engages the threads

in the nut 20, its major portion is disposed in the hollow of the arm 10 and its outer portion is swiveled to the outer end of said arm as at 25 and is formed with a head 26 having a diametrical opening through which extends a longitudinally slidable lever bar 27, which has stop heads 28 at its ends.

In the operation of my improved vise, when the jaw 12 is moved toward the jaw 13 so as to close the jaws on opposite sides of the work gripped between them, the force of the screw will partly turn the jaw 13 on its pivot 15 so that that portion of the arm or base of the jaw 13 which is opposite the pivot 15 will move angularly toward the arm 10 and frictionally grip and bite upon the same and cause it to co-act with the screw in firmly locking the jaws in closed position on the work and greatly add to the security with which the work is held between the jaws.

The action of the operating screw 24 in closing the jaws also, by reason of the eccentric relation of the nut 20 to the bolt or screw stem 21 will tend to tilt or incline the plate 18 and, hence, cause the screw stem 21 to draw the housing 4 to the base 1 and frictionally grip the same, thus locking the

housing on the base against angular movement until the jaws are released.

Having thus described the invention, what is claimed, is:—

In a vise the combination with a base, of a housing swiveled thereon, a bolt connecting the housing to the base, a hollow jaw arm slidably mounted in the housing and having a jaw thereon, a plate integral with the bolt and seated in said housing, a nut on the plate offset from the bolt, a screw carried by the jaw and lying in the hollow arm in engagement with the said nut, a second jaw pivoted to the housing, said screw serving when the jaws are closed to tilt the plate and cause the bolt to clamp the housing on the base, an extension end on the second jaw adapted to be thrown into engagement with the jaw arm when pressure is placed on said second jaw, and means to limit the movement of said extension end.

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

THOMAS A. GANNOE.

Witnesses:

VICTOR GRANQUIST,
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