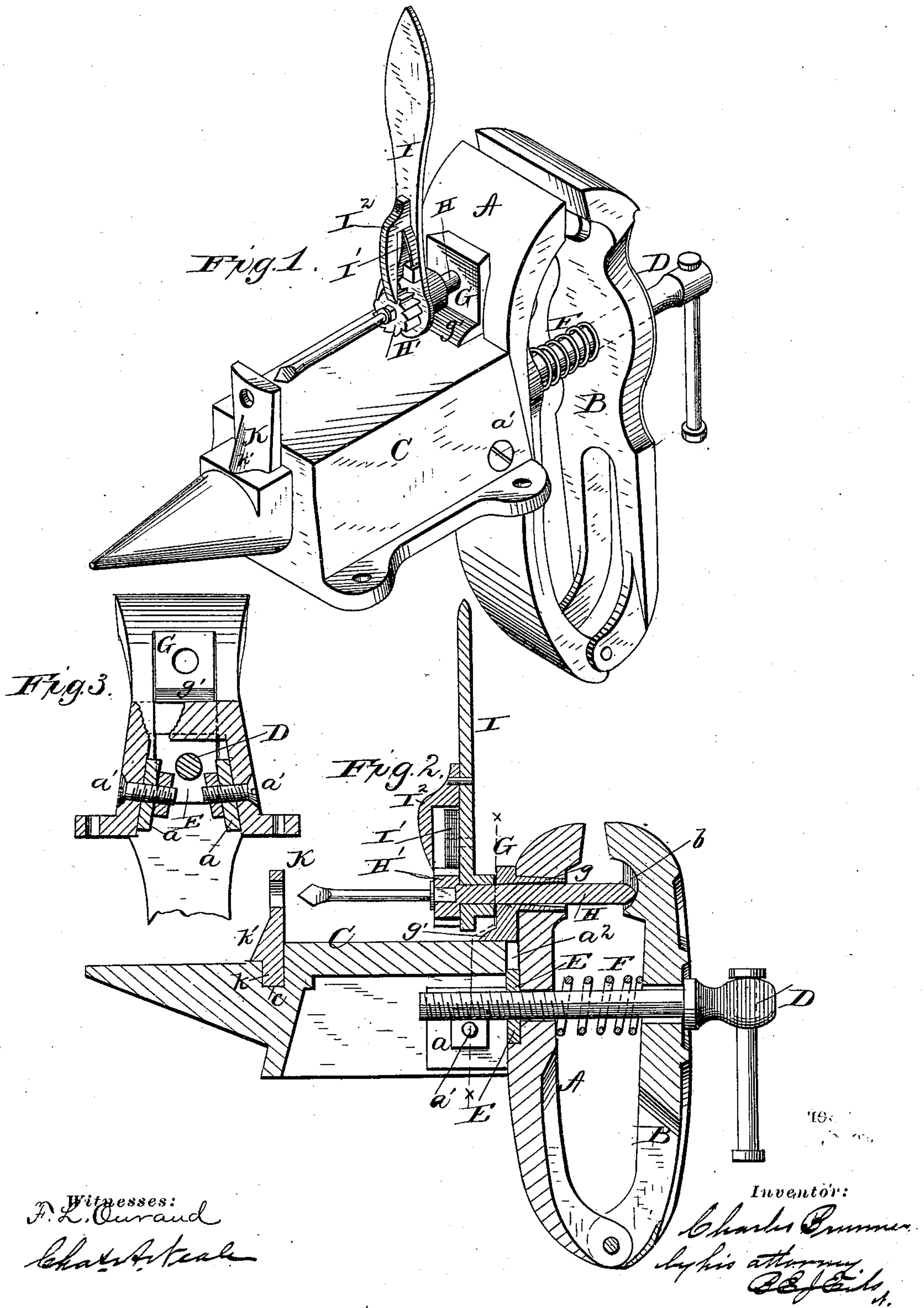


C. BRUNNER.
Combined Vise and Drill.

No. 226,709.

Patented April 20, 1880.



UNITED STATES PATENT OFFICE.

CHARLES BRUNNER, OF PERU, ILLINOIS.

COMBINED VISE AND DRILL.

SPECIFICATION forming part of Letters Patent No. 226,709, dated April 20, 1880.

Application filed December 30, 1879.

To all whom it may concern:

Be it known that I, CHARLES BRUNNER, of Peru, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Combined Vise and Drill, of which the following is a full, clear, and exact description.

Generally speaking, this invention relates to bench-vises attached to an anvil and provided with drill attachment, although some features of the invention do not require the presence of all three of said elements.

The object of my invention is to provide for the use of a sliding drill-spindle adapted to be fed in a straight line by the pivoted jaw of the vise; also, to provide for the convenient removal of the drill attachments; also, to provide for convenient connection of the hand-lever to the drill-spindle and the ratchet-wheel thereof.

To these ends my invention consists of certain novel features of construction, and also of certain combinations set forth in the claims at the close of this specification, respectively relating to and made up out of mechanical devices, of which the following are the principal: A vise composed of a fixed jaw and a pivoted movable jaw; an anvil, to which the vise is secured; a nut for the screw of the vise, resting in a recess open at one end; a sliding drill-spindle; a removable bearing for the drill-spindle; a removable rest for the support of the work against the action of the drill; a hand-lever provided with a pawl to act on the ratchet-wheel of the drill-spindle and with a latch to hold it in proper relation to the ratchet-wheel.

In order that my invention may be fully understood, I have illustrated in the annexed drawings and will proceed to describe the form thereof which I deem the best, although the details of construction may be varied to suit special circumstances or the views of manufacturers and users.

Figure 1 is a perspective view of my improved combination bench-vise, showing the drill attachments in position. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a cross-section in the plane indicated by line $x x$ of Fig. 2, and as the vise appears without the drill attachments.

The same letters of reference are used in all the figures in the designation of identical parts.

The stationary jaw A of the vise is backed against the forward end of the anvil C, and firmly secured thereto by screws a' , which bolt the lugs a of said jaw to the sides of the anvil. The anvil is hollow, and the end adjoining the jaw A of the vise is open, so that the lugs a of said jaw may pass into and be embraced by it. The lugs a fit snugly between the sides of the anvil, as shown in Fig. 3. The movable jaw B of the vise is pivoted at its lower end to the stationary jaw A, and is closed by a screw, D, which passes through holes in the respective jaws and operates in a nut, E, on the back of the stationary jaw. The square nut E is fitted in a recess, a^2 , formed on the back of the stationary jaw and running up to a point where its bottom intersects or meets the curved upper surface of said jaw. The space between the bottom of this recess a^2 and the adjacent end of the anvil is slightly in excess of the thickness of nut E, so that said nut may freely pass down the recess, past the end of the anvil, to its proper position to be engaged by the screw D. The recess a^2 also provides for the withdrawal of the nut, whenever it requires to be replaced by a new one, without necessitating any detachment of the parts from each other or from the bench. The head of the screw carries the usual sliding cross-handle for turning it. A spring, F, encircles the screw between the jaws A and B, and operates to open the movable jaw on unscrewing screw D.

At a point some distance above the face of the anvil a hole is bored through the stationary jaw for the reception of the hub g of a bearing-block, G, which fits snugly in the recess a^2 of said jaw, and is constructed with a foot, g' , with which to rest on the face of the anvil.

The hub of the bearing-block is made slightly tapering, corresponding to the taper of the hole in the jaw A, so that the said hub may bind in the said hole when the bearing-block is put in place and force the foot thereof firmly down on the anvil, all for the purpose of fixing the bearing-block in position without the use of extraneous devices, so that

it may be the more readily attached and detached. The hole through this bearing-block G is adapted to receive a horizontal drill-spindle, H, one end of which is to reach toward the inner side of the movable jaw B of the vise, so that it may be fed thereby. This pointed or rounded end of the drill-spindle enters a vertically-elongated concavity, b, in the movable jaw, so that said jaw may play on the spindle (to the extent required by reason of its swinging movement) and feed it in a straight line without binding on it. The other end of the drill-spindle, which overhangs the anvil, carries a fixed ratchet-wheel, H', having in its outer face a socket for holding a drill, as shown.

A hand-lever, I, is mounted on the drill-spindle adjoining the ratchet-wheel thereof. The hand-lever carries a spring-pawl, I', adapted to engage the teeth of the ratchet-wheel.

The drill-spindle, ratchet-wheel, hand-lever, and pawl constitute a ratchet-drill, as will be readily observed.

In order to hold the hand-lever in position with reference to the ratchet-wheel, as well as to provide for its ready detachment from the drill-spindle for convenience of storage, the said hand-lever is provided with a hard-turning latch, I², which is turned to reach down the outer face of the ratchet-wheel when the drill is put in readiness for operation.

The article to be drilled is supported against the rest K, the shank k of which enters a hole, e, in the horn of the anvil, and which has a foot, k', to brace it.

In operating the ratchet-drill the workman oscillates its hand-lever with one hand and feeds, by gradually turning the screw D up with the other hand. The drill attachments

may be readily applied to the vise and its anvil, and as expeditiously removed and stored in the workman's chest or drawer, when not required.

The anvil is constructed with suitable base-lugs, by which to secure it upon a bench.

To provide against endwise movement of nut E, its upper end may reach up before the front edge of the top plate of the anvil.

The bearing-block G might be dispensed with and the drill-spindle supported directly in the stationary jaw A; but I prefer to use said bearing-block.

The rest K might be a permanent fixture; but I prefer to use a removable rest, as shown.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, substantially as before set forth, of the sliding drill-spindle, the stationary jaw of the vise supporting it, and the movable jaw of the vise for feeding the drill-spindle.

2. The combination, substantially as before set forth, of the sliding drill-spindle, the detachable bearing-block thereof, the stationary jaw of the vise, and the movable jaw thereof.

3. The combination, substantially as before set forth, of the sliding drill-spindle, the stationary jaw of the vise, the movable jaw thereof, and the anvil carrying a rest for the support of the work to be drilled.

4. The combination, substantially as before set forth, of the drill-spindle provided with ratchet-wheel, the hand-lever provided with a pawl, and the latch on the hand-lever.

CHARLES BRUNNER.

Witnesses:

P. W. OLMSTEAD,
THOMAS MOLLOY.