

(No Model.)

J. WEATHERS.
COMBINED ANVIL, VISE, AND DRILL.

No. 533,689.

Patented Feb. 5, 1895.

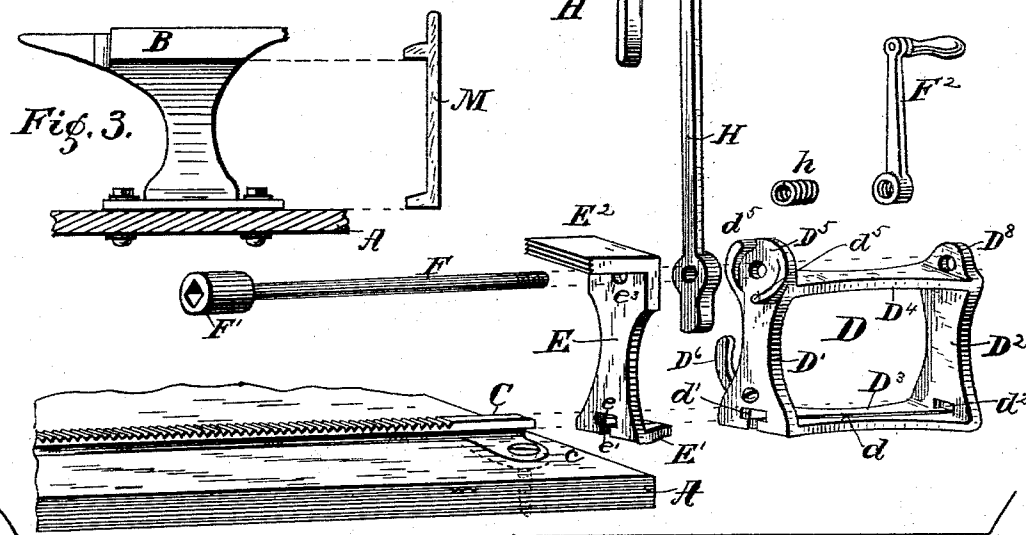
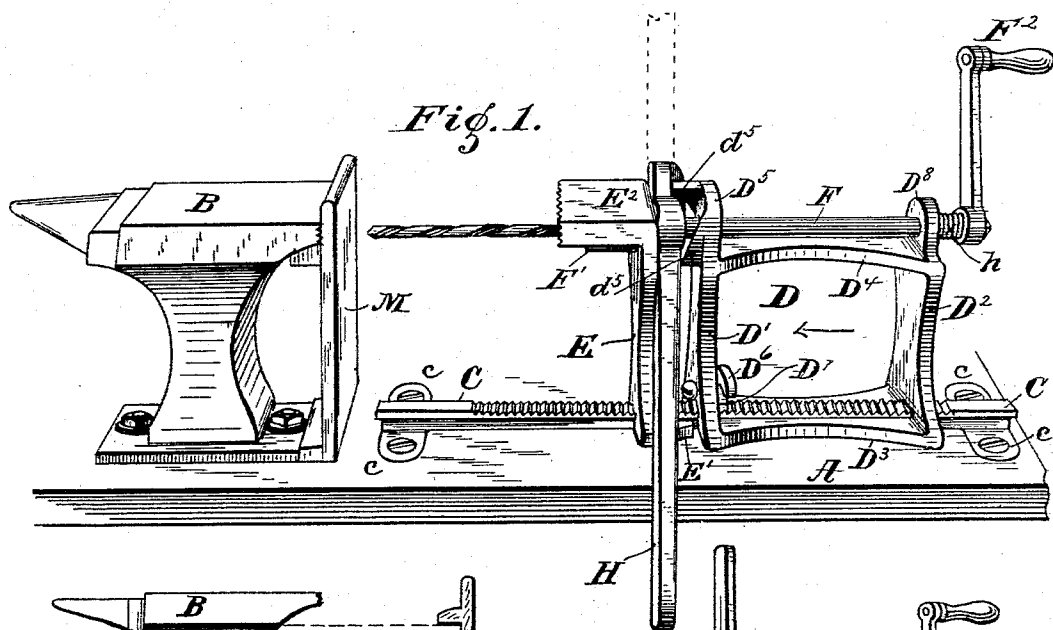
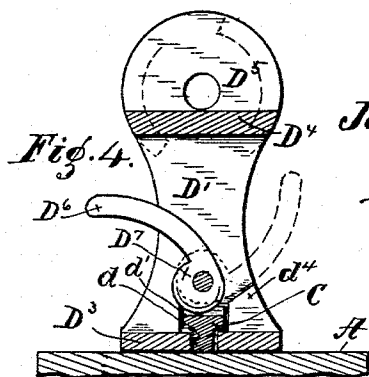


Fig. 2.



Witnesses;
T. F. Meany
L. Q. Minturn

James Weathers,
Inventor,
By Joseph A. Minturn
His Attorney,

UNITED STATES PATENT OFFICE.

JAMES WEATHERS, OF INDIANAPOLIS, INDIANA.

COMBINED ANVIL, VISE, AND DRILL.

SPECIFICATION forming part of Letters Patent No. 533,689, dated February 5, 1895.

Application filed August 18, 1894. Serial No. 520,673. (No model.)

To all whom it may concern:

Be it known that I, JAMES WEATHERS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in a Combined Anvil, Vise, and Drill; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide a tool that can be used as an anvil, vise, and drill, and can be quickly adjusted to operate upon material of varying size; second, to provide a tool that will be cheap to manufacture and so plain and simple in its construction that an inexperienced person will have no difficulty in putting the parts together.

I accomplish the objects of the invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of my complete tool showing the drill in position for making holes, the article to be drilled not being shown; Fig. 2, views in perspective of the several parts forming, when united, the movable portion of my vise and drill. This view is intended to make clear the relative position of the different pieces and assist in setting up the machine. Fig. 3 is a detail in side elevation of the anvil which also forms one of the jaws of the vise. This figure also shows the removable board against which the material to be drilled, will rest. Fig. 4 is a sectional elevation of the movable block looking in the direction of the arrow, Fig. 1. This view shows the cam by which the block is secured to the rack bar.

Similar letters refer to like parts throughout the several views of the drawings.

A is a work bench or table upon which the tool is mounted and to which it will be secured by means of screws, bolts, or by other suitable means.

B is the anvil which is secured in a stationary manner to the bench or table. The anvil B also forms one of the jaws of the vise and is the support against which the material to be drilled will be pressed.

C is a rack bar, T shaped in cross section, and is provided with the laterally projected

ears *c* by which the bar is fastened to the top of the bench A in the manner clearly shown in Figs. 1 and 2.

D, is a movable block constructed of the standards D^1 and D^2 and the horizontal connections D^3 and D^4 joining the extremities of said standards. The lower horizontal connection D^3 is provided with a longitudinal central slot *d* which communicates at each end with the transverse openings or slots d' and d^2 in the standards D^1 and D^2 . The slots *d*, d' and d^2 correspond in size, shape and position to the cross section of the rack bar C and are adapted to receive the rack bar which latter will form a guide to direct the movement of the sliding block D. D^1 is a cam pivotally secured to the inside of the standard D^1 as clearly shown in Fig. 4. When the cam is in its lowest position the edge will engage the teeth of the rack bar and form a lock whereby the sliding block D may be locked at any desired adjustment upon the rack bar. The periphery of the cam will preferably be grooved to provide teeth or threads to engage the teeth of the bar C. While such a construction will make the engagement more positive I do not consider it as absolutely essential to the operation of my machine and neither do I consider it essential that the bar C be provided with teeth, for it is evident a cam such as I have shown and described would form a lock when pressed firmly against a bar having a smooth upper face. The toothed rack bar and grooved cam working into the toothed bar, however, provides a construction more positive in its action. The cam D^1 is provided with the extension D^5 to form a handle by which the cam is operated. The dotted lines in Fig. 4 represent the position of the cam and handle when the cam is out of engagement with the bar C. A lug d^4 cast integral with the standard D^1 forms a stop to check the backward movement of the cam.

D^5 and D^8 are extensions of the standards D^1 and D^2 , respectively, and are projected a suitable distance above the horizontal connection D^4 to form the journals for a revolving shaft to which the drill will be secured. The extensions D^5 and D^8 will be provided with suitable openings to receive the shaft.

Formed on the outer face of the extension

D⁵ and concentric with the opening for the shaft, are the two wedge shaped lugs d⁵, the sloping faces of which will form part of a cam movement hereinafter fully described.

5 E is a vertical standard having the foot piece E' cast integral with its lower end. This foot piece and standard will be provided with the slot e e' similar to the slots d d' in the block D. The purpose of the slot e e' is to
10 receive the rack bar C. E² is an extension of the upper end of the standard E and forms the second jaw of the vise. An opening e³ is provided through which the drill shaft will be projected.

15 F represents the drill shaft which will be projected through the opening e³ and through the openings in the extensions D⁵ and D⁸ in the manner as shown in Fig. 1. The socket F', to receive and hold the drill, will be provided, and this socket will also serve as a
20 shoulder or enlargement of the shaft to keep the latter from being drawn entirely through the openings. A crank F² will be secured to the outer end of the shaft and will form a lock
25 to prevent the removal of said shaft. The crank may be screwed onto the threaded end of the shaft in the manner as shown in the drawings or it may be keyed or fastened to the shaft in any suitable manner.

30 H is a lever which will be pivotally secured to the shaft F between the sliding block D and the standard E. The sides of the lever next to the sloping lugs d⁵ will be correspondingly beveled to form the opposite side of a
35 cam, whereby, when the block D is locked to the rack bar, the standard E with its attached jaw can be moved forward an additional distance by lowering the lever H. In order to
40 allow for this movement of the standard E a compressible spring h will be introduced between the extension D⁸ and the crank, which will allow the shaft to move longitudinally a
45 suitable distance. It will thus be seen that a quick adjustment of the sliding block along the bar C may be had and then a careful and very powerful additional movement may be

secured by means of the cam, controlled by the lever H.

When using the tool as a drill the board M will be placed against the anvil to form a rest
50 for the work. The cleats m will help to hold it in place while in use. The board will be removed when the tool is to be used as a vise and anvil.

Having thus fully described my improved
55 anvil, vise, and drill, what I claim as new, and wish to secure by Letters Patent of the United States, is—

1. In a combined anvil, vise and drill, a stationary block made in the form of an anvil
60 and adapted to be used as such and also to serve as one of the jaws of the vise and as a bearing for the material to be drilled, a stationary guide bar, a movable block sliding,
65 upon said guide bar, a cam whereby the block may be locked to the guide bar, a standard sliding upon the guide bar and forming the other jaw of the vise and placed between the
70 block and the anvil, a cam between the standard and the block operated by a lever, where-
by the standard may be moved independently
of the block, and a drill journaled to the movable block and a crank to operate the said
drill, all combined substantially as described
and for the purposes specified. 75

2. The stationary anvil B arranged to form
one of the jaws of a vise and the stationary
guide bar C, in combination with the movable
block D having the cam D⁷, the extensions
80 D⁵ and D⁸ and the sloping lugs d⁵, the standard E having the slotted foot E' and the extension E², the lever H shaft F having the
socket F', spring h and the crank F², all substantially as described and for the purposes
85 specified.

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

JAMES WEATHERS.

Witnesses:

JOSEPH A. MINTURN,
WM. HOFER.