(No Model.)

H. H. FULLER.

DRILL PRESS.

No. 456,560. Patented July 28, 1891.

Fig. 2.

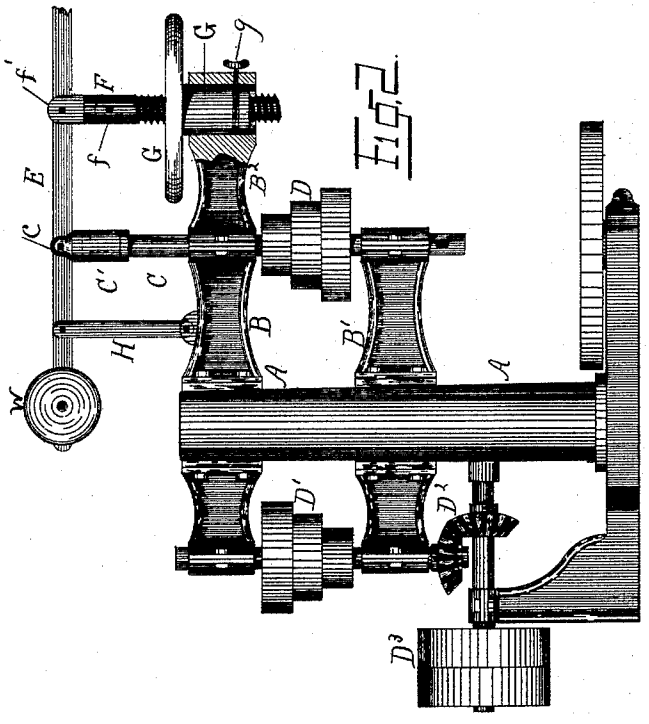
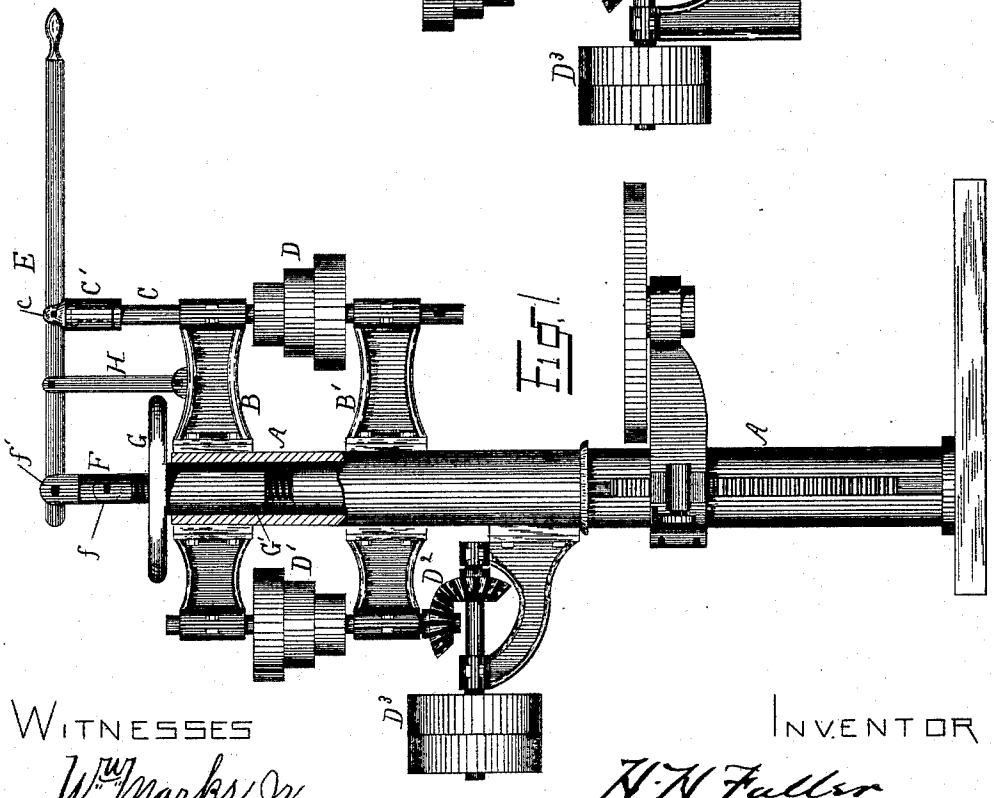


Fig. 1.



WITNESSES

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HIRAM H. FULLER, OF MEADVILLE, PENNSYLVANIA.

DRILL-PRESS.

SPECIFICATION forming part of Letters Patent No. 456,560, dated July 28, 1891.

Application filed January 26, 1891. Serial No. 379,100. (No model.)

To all whom it may concern:

Be it known that I, HIRAM H. FULLER, a citizen of the United States, residing at Meadville, in the county of Crawford and State of Pennsylvania, have invented certain new and useful Improvements in Drill-Presses; 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.

This invention relates to drill-presses; and it consists in certain improvements in the construction of the same, as will be hereinafter fully set forth, and pointed out in the claims.

The invention is illustrated in the accompanying drawings as follows:

Figure 1 is a side elevation view of a drill-press having my improvements embodied therein. Fig. 2 is a like view of a bench drill-press in which is shown an alternative application of my invention, which is equally applicable to the type of machine shown in Fig. 1.

The object of my invention is to provide a drill-press with both a lever and a screw feeding mechanism, so that the operator can use either, as the work allows.

When the drill is small or the material to be drilled is soft, the operator will use the lever-feed, and when the drill is large or the material to be drilled is hard he will use the screw-feed. When thus equipped, the machine will be better adapted to general shop-work, and one machine will be often sufficient where without such equipment two machines would be required.

The construction and operation of my device is as follows:

A is the main post or column of the machine.

B B′ are the cross-arms.

C is the drill-spindle.

D D′ D^2 D^3 mark the operating-gearing.

The foregoing parts are substantially the same as in many types of drill-presses commonly in use.

H is a pivoted fulcrum-post, on which is pivoted a drill-feeding lever E.

C′ is a swivel-block on the drill-spindle C, which is pivoted to the lever E at *c*. By raising or pulling down on the lever E the drill-spindle will be raised or lowered and the drill withdrawn or fed to its work.

In the construction shown in Fig. 1 there is a nut G′, with a hand-wheel G, seated loosely in a cavity in the upper end of the column A, and in this nut is a screw-post F, jointed at *f* and pivoted to the lever E at *f′* on the opposite side of the fulcrum-post H from the drill-spindle. The nut G′ is free to revolve or slide up and down in its seat in the post A, and it is made large, so as to be of sufficient weight to fully or nearly counterbalance the drill-spindle, as desired. By revolving the hand-wheel G, which is fixed to the nut G′ and carries it with it, the screw-post F will be raised or lowered, according to the direction in which the wheel is turned, and this will move the drill-spindle up or down, as the case may be.

When the operator desires to feed the drill by the lever E, he grasps the handle on the end of the lever and moves it to suit his work, the screw F, wheel G, and nut G′ acting as a counter-balance and moving vertically as the lever is moved; but if the operator desires to feed the drill by the screw he grasps the hand-wheel and turns it as the work requires.

In the construction shown in Fig. 2 the object of the modification is to bring the screw-feed into a more accessible position nearer the point where the operator naturally stands. In this construction the cross-arm B is extended by the addition B^2, and the nut G′ is seated in the end of this addition, and the screw F takes hold of the lever E near its handle. In this position the screw and nut lose their office of counterbalancing the spindle, and a weight W is applied to the lever beyond the fulcrum H. When the screw is to be used in this construction to feed the drill, it is necessary to hold the nut in its bearing against vertical action, and to this end I provide a set-screw *g*, which when applied enters a groove in the nut, as shown.

When the operator desires to feed the drill by the lever alone, he loosens the set-screw *g*, and the nut and screw are free to move vertically in their bearings as the lever is moved up or down; but when the operator desires to use the screw to feed the drill he enters the set-screw *g* in the groove in the nut G′ and operates the hand-wheel G.

It will be seen that in either construction

the operator can at any time and without delay use either the lever E or the screw-wheel G to feed the drill, and that the machine is at all times adapted for light or heavy work.

What I claim as new is—

1. In a drill-press, the combination, with the drill-spindle, of a hand-lever E for moving the same, and a nut-and-screw device attached to said lever and adapted, substantially as shown, to move said lever when desired.

2. In a drill-press, the combination, with the drill-spindle, of a hand-lever for moving the same, and a nut-and-screw device attached to said lever and adapted, substantially as shown, to move said lever when operated or to move with said lever when it is operated by hand.

3. In a drill-press, the combination, with the drill-spindle, of a hand-lever for moving the same, and a nut-and-screw device attached to said lever and adapted, substantially as shown, to move said lever when operated or to move with said lever when it is operated and to counterbalance the weight of the drill-spindle.

4. In a drill-press, the combination, with the drill-spindle, of the hand-lever E, the screw F, pivoted to said lever, and the hand-wheel G and nut G′ on said screw, said nut and screw being adapted, as shown, to operate said hand-lever when desired and when not to move with said lever when it is operated by hand.

5. In a drill-press, the combination, with the drill-spindle, of the lever E, the fulcrum-post H, the screw F, and nut G′, said parts being arranged to operate together, substantially as and for the purposes mentioned.

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

HIRAM H. FULLER.

Witnesses:

JNO. K. HALLOCK,

WM. P. HAYES.