J. H. Hanes,

Drilling Iron.

No. 101,614. Patented Apr. 5, 1870.

Fig: 1.

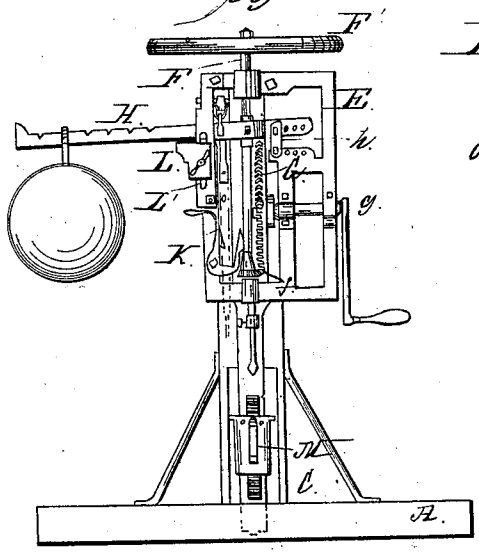



Fig: 3.

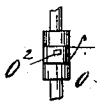
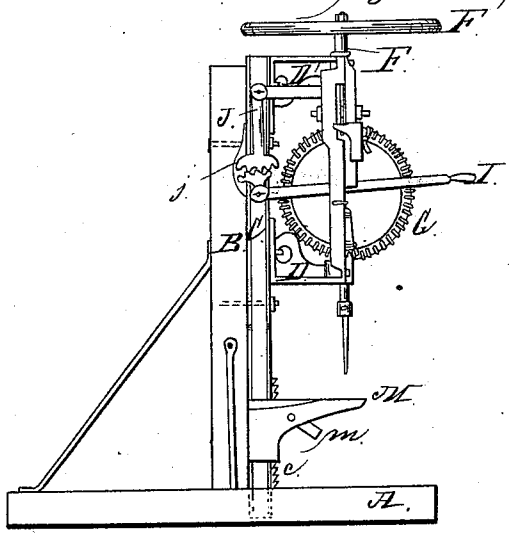



Fig: 2.




Witnesses:

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# United States Patent Office.

JOSEPH H. HANES, OF CAPE MAY, NEW JERSEY.

*Letters Patent No.* 101,614, *dated April* 5, 1870.

## IMPROVED SELF-FEEDING DRILL

The Schedule referred to in these Letters Patent and making part of the same

*To all whom it may concern:*

Be it known that I, JOSEPH H. HANES, of the city of Cape May, in the county of Cape May and State of New Jersey, have invented a new and Self-feeding Drill for Drilling Iron, Steel, &c.; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

This invention has for its object the production of an improved self-feeding drill, which shall be capable of adapting itself to different classes of work and different sizes of drills, and consists in certain details of construction, which will be fully described hereinafter.

In the drawings—

Figure 1 represents a front elevation of my improved drill, and

Figure 2, a side elevation of the same.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and operation.

A represents a base of any proper form and size.

B represents a standard rising perpendicularly from said base, to which is securely bolted the drill-standard C.

D D′ represent arms, extending horizontally from the stand C, which arms support the frame-work E.

F represents a perpendicular shaft, which revolves in suitable bearings above and below, as shown, and is socketed at its lower end for receiving the shank of the drill, which latter is secured by a set-screw in the usual manner.

The shaft is provided at its upper end with the fly-wheel F′.

*f* represents a pinion, securely attached to shaft F near its lower end, which engages with the bevel-gear wheel G.

This latter wheel is attached to the shaft *g*, which turns in suitable bearings in the frame, and is provided at its outer end with a crank or pulley for receiving motion.

To the upper part of shaft F are rigidly attached collars $f^1$ $f''$, and loosely between them the sleeve $f^2$, which latter is secured for vertical movement upon the shaft by means of the collars, and prevented from revolving with it by means of set-screws, which secure it to the beam H.

It will be observed that the shaft F is permitted to move freely in a vertical direction within certain limits, it being made loose in its bearings, and loose vertically in the pinion *f*.

Its vertical position is regulated by the beam H, which is attached to the shaft F by means of the sleeve $f^2$.

The short end of this beam is connected, by means of the link *h*, to the frame E.

It is provided with holes, as is also the frame, for the purpose of permitting adjustment of the beam when desired.

The long arm of the beam is notched, as shown, and provided with a weight, which is adjusted as may be desired, to bear more or less heavily upon the drill-shaft.

This beam is operated by means of a lever, I, the short arm of which is cogged, and engages with the cogs *j* of the bell-crank J, which latter is connected to the beam by means of clevises, as shown.

By raising the lever the long arm of the beam is depressed, and, consequently, also the drill-shaft.

To hold up the beam when desired, I provide the pivoted catch K, by means of which the lever is caught and held when it is depressed sufficiently far.

For the purpose of limiting the motion of the beam, and, through it, of the drill-shaft also, I provide an adjustable stop, L, which may be secured in any desired position upon the guide L′, by means of the set-screw.

M represents an adjustable table or bed, upon which the work to be drilled is placed.

It is adjusted by means of the dog *m*, which engages with the cogs *c* upon the standard C.

By raising the long arm of the dog, its short arm is disengaged from the cogs, and the table is free to move either up or down.

The operation is as follows:

The plate to be drilled is placed upon the table M, the latter being adjusted so as to barely touch the drill.

The lever I should now be disengaged, and the drill be let down on the work.

Motion is now communicated to the machine, until the hole is drilled through, when the lever is depressed and caught, and the beam-shaft thereby raised.

If it is desired to bore a number of holes to a certain depth, the stop L is adjusted in such manner as to stop the downward motion of the shaft at the proper point.

Some of the advantages of my improved drill are as follows:

It feeds itself automatically, the adjustment of the weight permitting it to be adapted for all classes of work and all sizes of drills.

In drills fed by gearing, the feed must be always

alike for iron and steel, and different sizes of drills. It consequently follows that when the feed is right for steel, it would not feed fast enough for iron. This difficulty, it will be seen, is entirely obviated in my drill.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the beam H and collar $f^2$ with the link $h$ and frame E, when the beam and frame are provided with corresponding series of holes, as described, for the purpose set forth.

2. The improved machine described, consisting of the standard B, frame E, drill-shaft F, weighted beam H, operating-lever I, catch K, stop L, table M, and gearing G $f$, when combined as described, for the purpose set forth.

This specification signed and witnessed this 11th day of December, 1869.

JOSEPH H. HANES.

Witnesses:

J. S. GARRISON,

GILBERT ARNOLD.