YOUNG & WHIPPLE.

Metal Drill.

No. 68,827. Patented Sept. 10, 1867.

Fig. 4

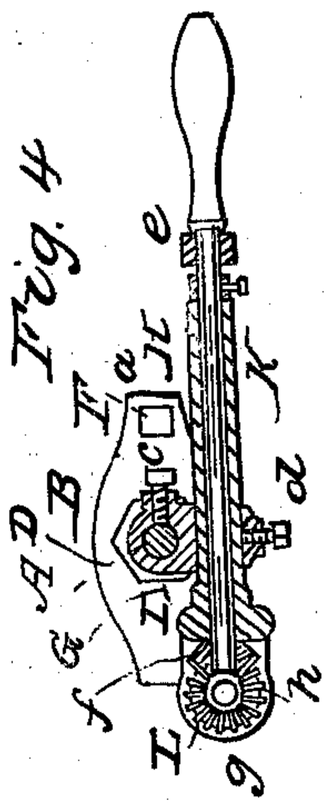


Fig. 3

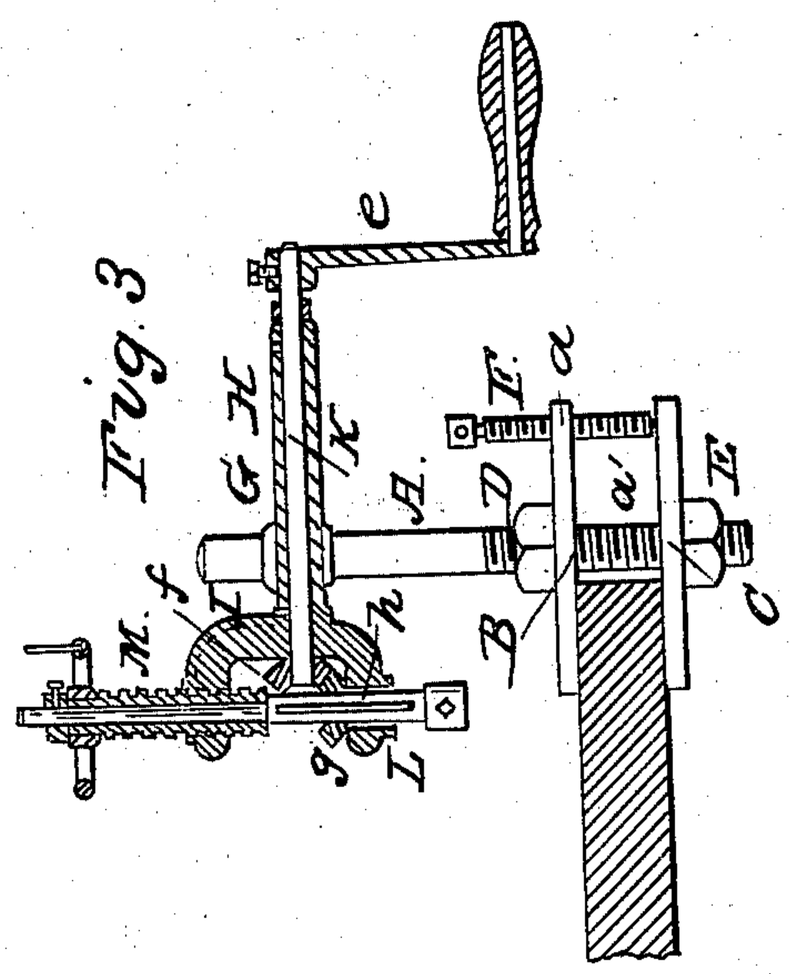


Fig. 1.

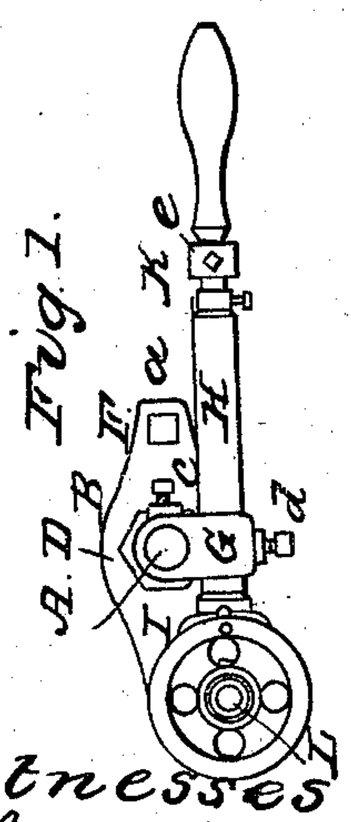
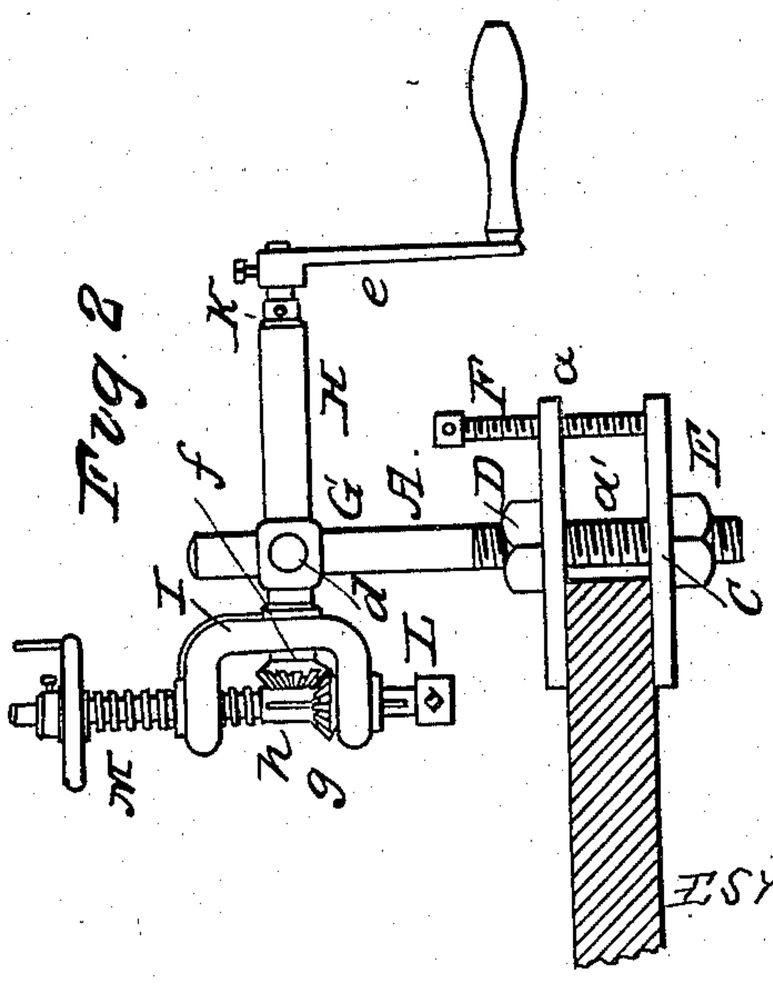


Fig. 2



Witnesses

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EDWARD S. YOUNG, OF WORCESTER, AND AMOS WHIPPLE, OF WHITINGSVILLE, ASSIGNORS TO EDWARD S. YOUNG, OF WORCESTER, MASSACHUSETTS.

Letters Patent No. 68,827, *dated September* 10, 1867.

IMPROVED DRILL.

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

TO ALL PERSONS TO WHOM THESE PRESENTS SHALL COME:

Be it known that we, EDWARD S. YOUNG, of Worcester, and AMOS WHIPPLE, of Whitingsville, in the county of Worcester, and State of Massachusetts, have made a new and useful invention or improvement having reference to Drills or Boring Mechanism; and we do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view,

Figure 2 a side elevation, and

Figure 3 a vertical section of our new boring or drilling machine.

Figure 4 is a horizontal section of it taken through the axis of its driving-shaft.

In the said drawings, A denotes a cylindrical standard having a male screw, *a'*, cut on it from its lower end, about one-third the length of such standard. The said screw passes through two parallel and horizontal clamp-jaws B C, and is provided with two nuts D E, which are screwed upon it, and arranged with respect to the jaws in manner as represented in fig. 2. Another screw, F, is screwed through the tail *a* of the upper jaw, and against that, *b*, of the lower one. These screws and nuts are for adjusting the jaws at their proper distance asunder, connecting them with the standard, and clamping them upon any article to which it may be desirable to connect the standard and the drilling mechanism appertaining thereto. On the said standard is a slider, G, which is so applied to the standard as to be capable of being turned horizontally thereon, as well as of being slid either up or down it, the slider having a set-screw, *c*, screwed into it and against the standard for the purpose of clamping it to the standard, as occasion may require. The slider also has a cylindrical hole made through it horizontally for the reception of a tubular cylindrical shaft, H, so applied to the slider as to be capable of not only being revolved within it, but of being slid lengthwise through it. Another set-screw, *d*, applied to the slider, bears against the tubular shaft and serves to clamp it to the standard. The tubular shaft has a head, I, fixed on one end of it, and formed as represented. A cylindrical shaft, K, running concentrically through the shaft H, has a crank, *e*, fixed on one end of it and a bevelled gear, *f*, fastened on its other end. The said gear *f* engages with another bevel gear, *g*, which is supported by the head I, so as to be capable of being revolved therein. This latter gear is applied to or encompasses the drill-shaft L, which it revolves by means of a feather connection, the feather or spline of which is shown at *h*. This drill-shaft extends up through and is supported on a feed-screw, M, screwed into the head I, and applied to it and the shaft in manner as represented. With the drilling machine so made the drill-shaft, which supports the drill, can be moved either toward or away from the standard A. With the head supporting it, such drill-shaft can be revolved through an entire vertical circle so as to adjust the drill therein to operate at any angle with respect to the horizon or a horizontal plane passing through the axis of the driving-shaft, and this whether the drill be either above or below the said plane. Besides all this the drill-shaft, with its operative and supporting mechanism, can be revolved about the standard A in a horizontal plane and fixed in any position within such, and can be moved vertically relatively to and fastened to the standard so as to bring the drill to a desirable position to enable it to be fed into an article.

What we claim as our invention, is—

The combination as well as the arrangement of the slider G, the cylindrical tubular shaft H, and the clamp-screws *c d*, with the cylindrical standard A, the head I, and the drill-driving and feeding mechanisms, substantially as described, the standard A being provided with the screw *a'*, the jaws B C, and their operative mechanism, or their equivalent.

EDWARD S. YOUNG,
AMOS WHIPPLE.

Witnesses:
GEORGE W. LEGG,
FREDERIC B. DEANE.