

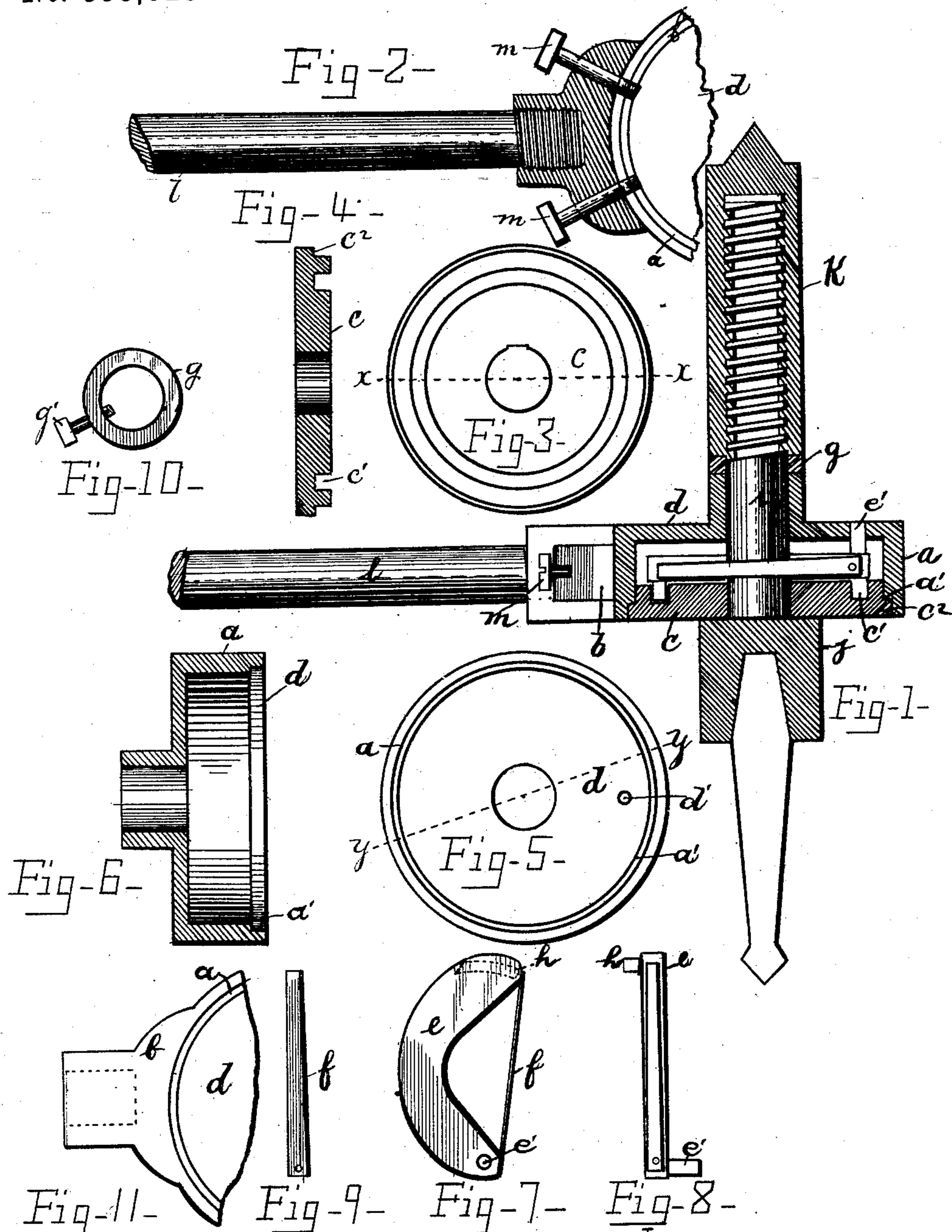
(No Model.)

W. H. McANDREWS.

DRILL.

No. 353,323.

Patented Nov. 30, 1886.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM H. McANDREWS, OF YOUNGSTOWN, OHIO.

DRILL.

SPECIFICATION forming part of Letters Patent No. 353,323, dated November 30, 1886.

Application filed January 16, 1886. Serial No. 188,784. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. McANDREWS, a citizen of the United States, residing in Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Apparatus for Drills; and I do hereby declare the following to be a full, clear, and exact description of my invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to that class of drilling apparatus used chiefly in drilling metals, known as "ratchet-drills," and its object is to remove some of the objections commonly urged against them, such as that of lost motion, noise, liability to break, and expensiveness of repair when broken. This object I secure by discarding the ratchet and substituting my lever-clutch, which is perfectly noiseless, is not liable to break, and operates without loss of motion, and also by providing a removable boss for the handle or lever-socket, so that, in the event of a break at this point of greatest strain, a new boss may be substituted and the connecting part not lost, as would otherwise be the case.

In the drawings, Figure 1 is a vertical central sectional view of a drilling apparatus provided with my improvements. Fig. 2 is a detail view showing a portion of the handle, the removable boss in section, and a part of the cap or flanged disk. Fig. 3 is a plan view of the grooved disk, which is keyed to the shank of the drill-stock. Fig. 4 is a sectional view of the same on the line X X. Fig. 5 is a plan view of the cap or flanged disk, having the edge of the flange facing or on the nearer side. Fig. 6 is a sectional view of the same on the line Y Y. Fig. 7 is a plan view of the clutch-lever, which is interposed between the two disks. Fig. 8 is an edge view of the same, having the spring on the nearer side. Fig. 9 is a view of the spring, which extends from end to end of the clutch-lever and holds it in a normal position. Fig. 10 is an end view of the collar secured to the shank of the drill-stock for holding the cap-plate in position. Fig. 11 is a modified form of cap, showing the boss integral therewith.

The drill-stock is provided with a threaded

shank, *i*, upon which the feed-sleeve *k* is mounted. These several parts are of common construction, and do not form part of my invention. The clutch, consisting of the disk *c*, cap or flanged disk *d*, and the clutch-lever *e*, intermediate the disks, is located upon the shank between the drill-stock and the feed-sleeve. The disk *c* is keyed to the shank, and has an annular groove, *c'*, near its outer edge. The grooved side is adjacent the cap or flanged disk *d*. The cap is free to turn about the shank, and its flange *a* overlaps the edge of the disk *c*, and has an annular offset, *a'*, near its edge, formed by reducing the flange on its inner side close to the edge. This offset or shoulder rests upon a corresponding offset, *c''*, formed upon the edge or periphery of the disk *c*, and limits the distance between the base of the cap and the disk *c*.

The clutch-lever *e* is semicircular, to fit around the shaft, and is located between the two disks or the cap and disk, and is provided at one end with a pin, *e'*, by which it is pivotally connected with the cap, and at the other end with a lug, *h*, by which the two parts of the clutch are held together. The pin projects laterally from one side and enters an opening, *d'*, in the cap, and the lug extends from the opposite side and fits into the groove *c'* in the disk *c*. The spring *f* extends across from one end of the clutch-lever to the other and holds it in a normal position, which position is with the inner edge resting against the shaft.

In practice, the cap receives an intermittent or a to-and-fro movement in the arc of a circle, having the shank *i* for its center. In the backward movement the lug *h* rides in the groove *c'*, and in the forward motion said lug binds at its diagonally-opposite corners upon the walls forming the groove, and causes the two disks to turn together carrying with them the drill stock.

The cap is provided with a handle, *l*, by which motion is imparted thereto. The inner end of the handle is threaded and screwed into a boss, *b*, secured to the side of the flange *a* of the cap. The boss may form an integral part of the cap, as shown in Fig. 11, or it may be removable, as shown in Figs. 1 and 2, and secured in place by set-screws *m*. The latter construction is preferable, because if that portion of the flange to which it is secured should

become broken out the boss can be shifted, or if the boss should be fractured it can readily be replaced.

5 The clutch is prevented from having any longitudinal movement upon the shank by the collar *g*, which is secured thereto by the set-screw *g'*.

Having thus described my invention, what I claim, and desire to secure by Letters Patent,
10 is—

15 1. The combination, with the drill-stock, of a disk keyed thereto, having an annular groove, the cap or flanged disk mounted loosely thereupon, the clutch-lever located intermediate the disk and the base of the cap and having a pin projecting laterally from one end, and forming a pivotal connection between it and the cap, and having a lug projecting from its

opposite end and fitted in the groove of the keyed disk, the boss secured to the flange of 20 the cap, and the removable handle, substantially as and for the purposes described.

2. The combination, with the drill-stock, the disk keyed thereto, the cap loosely mounted thereon, and intermediate clutching devices, 25 of a removable boss having a threaded socket and a handle removably fitted in the socket of the boss, substantially as and for the purpose described.

In testimony whereof I hereunto affix my 30 signature in the presence of two witnesses.

WILLIAM H. McANDREWS.

Witnesses:

A. E. KNIGHT,

B. F. WIRT.