(No Model.)

A. G. TURNER.

DRILL.

No. 480,979. Patented Aug. 16, 1892.

Fig. 1.

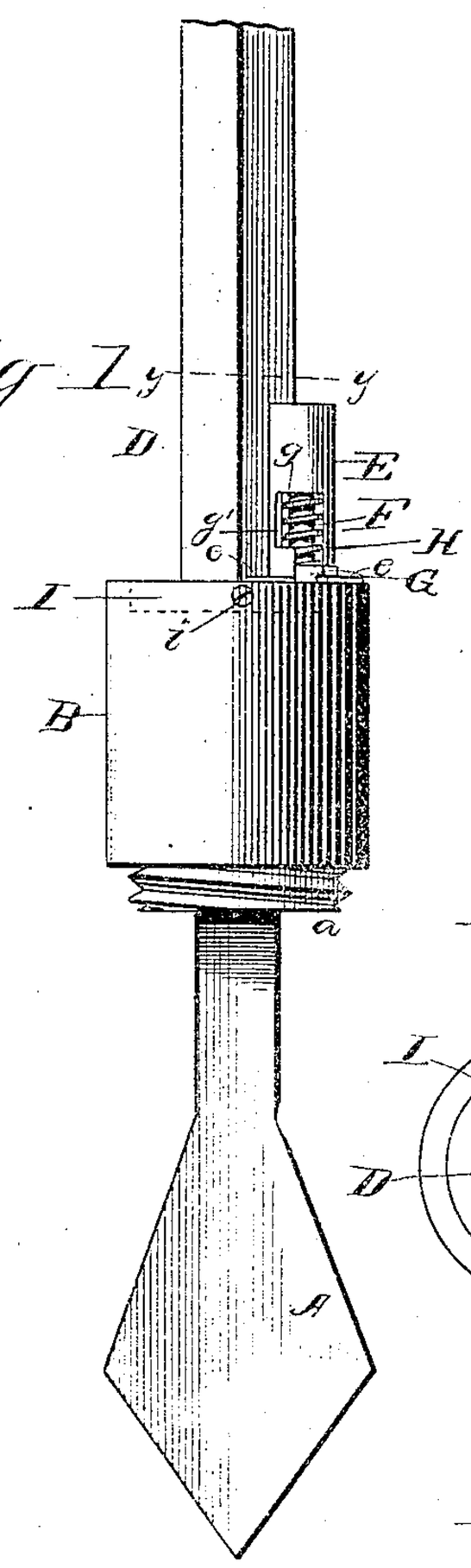


Fig. 2.

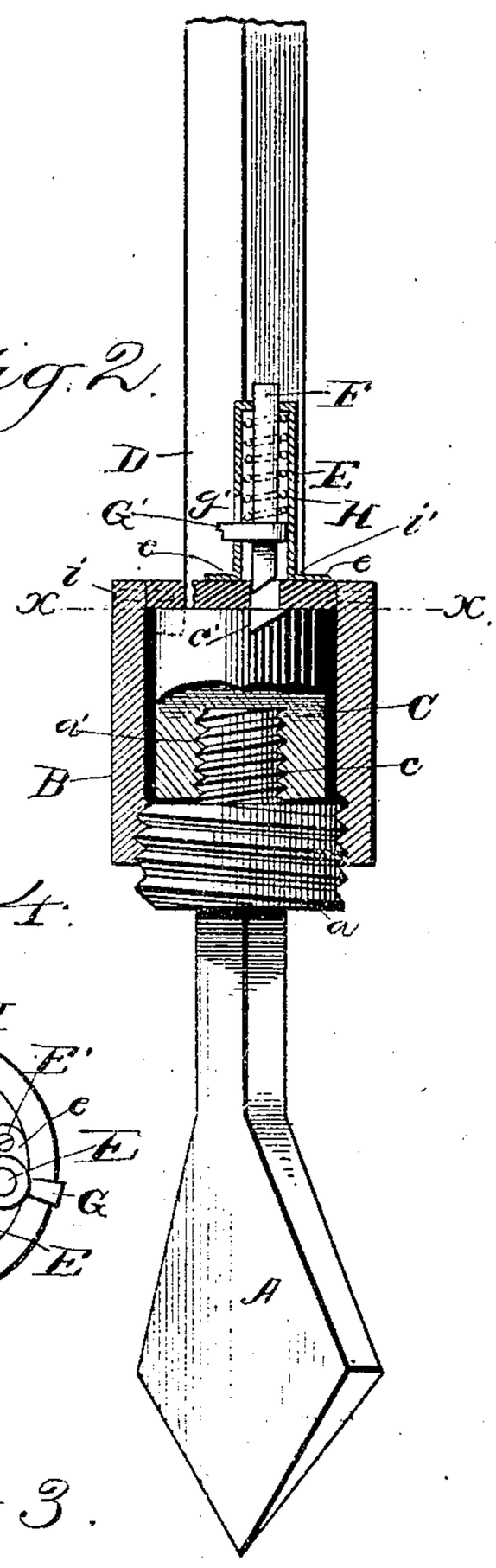


Fig. 4.

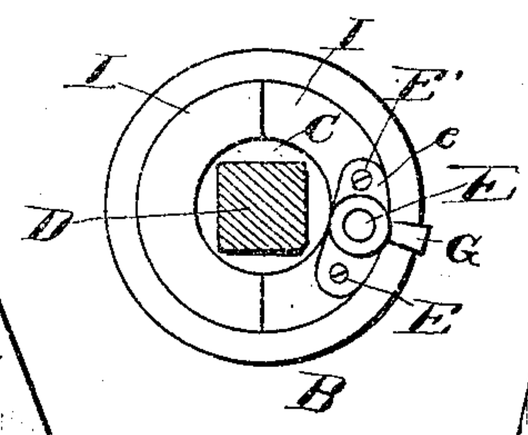
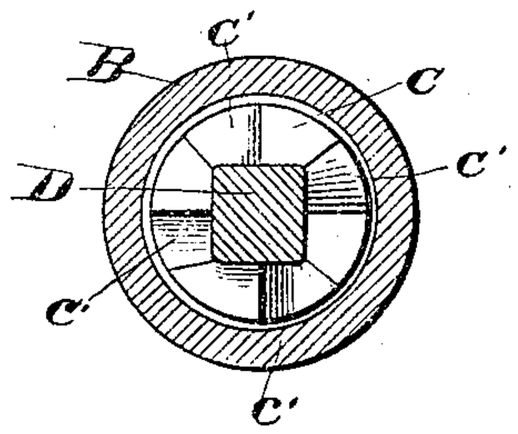


Fig. 3.



WITNESSES:

J. W. Reynolds.

E. H. Bond.

INVENTOR

Alonzo G. Turner

BY E. M. Marble

ATTORNEY.

UNITED STATES PATENT OFFICE.

ALONZO G. TURNER, OF DURANGO, COLORADO, ASSIGNOR OF TWO-THIRDS TO FRANK A. KIMBALL, OF SAME PLACE, AND ALEXANDER LEVY, OF WALSENBURG, COLORADO.

DRILL.

SPECIFICATION forming part of Letters Patent No. 480,979, dated August 16, 1892.

Application filed March 8, 1892. Serial No. 424,214. (No model.)

To all whom it may concern:

Be it known that I, ALONZO G. TURNER, a citizen of the United States, residing at Durango, in the county of La Plata and State of Colorado, have invented certain new and useful Improvements in Drills; 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 certain new and useful improvements in drills, and more particularly to means for connecting the drill to the stock or drill-rod.

It has for its objects, among others, to provide a simple and efficient means for detachably connecting the drill and drill-rod, to prevent turning of the drill when thus held, and to permit of the attachment of the parts to the lower end of the drill-rod without separation of the drill and its sleeve.

To accomplish this object, I provide the drill with a shank of two different diameters, one part having a right and the other a left hand screw-thread, the one engaging internal threads of a sleeve and the other engaging interior threads of a boss on the lower end of the drill-rod. The upper face of this boss is provided with a plurality of notches, with which is designed to engage a spring-pawl mounted upon the exterior of the sleeve and working in a casing, with provision for holding the pawl out of engagement with the notches when desired. The sleeve is provided with an interior collar in two parts detachably held in place, so that they may be readily removed when it is required to place the sleeve over the boss of the drill-rod from the lower end, as sometimes happens.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side elevation illustrating my improvement with the parts connected. Fig. 2 is a view, partly in side elevation and part in vertical section, with a portion of the boss of the drill-rod broken away. Fig. 3 is a cross-section on the line $x\,x$ of Fig. 2. Fig. 4 is a cross-section on the line $y\,y$ of Fig. 1.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates the drill, the shank of which is provided with a left-hand threaded portion a to engage the interior threads of a sleeve B and at its upper end with the right-hand threads a' to engage the interior threads c of the boss C on the lower end of the drill-rod D. The upper face of this boss is provided with a plurality of notches c', as seen best in Fig. 2. The portion of the drill-rod above the upper face of this boss is rectangular in form, as shown.

Upon the upper face of the sleeve B is mounted a cylindrical casing or tube E, the lower end of which is split, as seen best in Figs. 2 and 4, to provide ears e for the reception of the securing means E′, which hold it to the sleeve, and endwise movable within this tube or casing is a pawl F, the lower end of which is beveled, as seen in Fig. 2, to engage the notches in the upper face of the boss. This pawl is provided with a horizontal lug or thumb-piece G, which works in a vertical slot g in the said tube or casing, and this slot is formed with a horizontal or side slot g', as seen best in Fig. 1, upon the lower wall of which this thumb-piece is designed to be supported to hold the pawl out of engagement with the notches of the boss. A suitable spring H is confined within the tube between the thumb-piece and the cap of the tube, as seen in Fig. 2, and exerts its influence to force the pawl downward and into engagement with its notch in the boss.

I is a sectional collar fitted to and detachably held in the upper end of the sleeve in any suitable manner, as by the screws i, (see Fig. 1,) and through a vertical opening i' in one section of this collar the pawl F works, as seen in Fig. 2. The opening in this collar is of less diameter than the boss on the lower end of the drill-rod, so that the boss cannot be passed through this opening, as will be understood from Fig. 2. When it is desired to

place the sleeve, with its drill, upon the drill-rod from the lower end or without disconnecting the drill-rod at the upper end, this collar I is removed, when the sleeve can be slipped over the boss from the lower end upward, and then the collar placed in position and secured by its screws.

When the parts are assembled and the pawl is in engagement with one of the notches of the boss, the drill cannot be separated from the drill-rod; but when the pawl is disengaged from the notch in the boss the threaded portion *a* of the shank can be unscrewed from the sleeve and then the portion *a'* can be disengaged from the boss. Accidental separation of the parts is impossible.

Having thus fully described my invention, what I claim as new is—

1. The combination, with a drill-rod having an interiorly-threaded boss, of an interiorly-threaded sleeve surrounding said boss, a drill having oppositely-threaded portions to engage with said boss and said sleeve, and a detachable sectional collar within the upper end of said sleeve, substantially as described.

2. The combination, with a drill-rod having an interiorly-threaded boss having notches in its upper surface, and an interiorly-threaded sleeve surrounding said boss and provided with a detachable sectional collar, of a spring-actuated pawl mounted on the upper end of the sleeve and working through an opening in the collar, and a drill having a shank provided with oppositely-threaded portions, substantially as described.

3. The combination, with a drill-rod having an interiorly-threaded boss having notches in its upper surface, and an interiorly-threaded sleeve surrounding said boss, of a spring-actuated pawl mounted on the upper end of said sleeve, a casing surrounding and supporting said pawl, and a drill provided with oppositely-threaded portions, substantially as described.

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

ALONZO G. TURNER.

Witnesses:
HARRY Y. DAVIS,
L. M. MARBLE.