(No Model.)

A. G. TURNER.

DRILL.

No. 480,978. Patented Aug. 16, 1892.

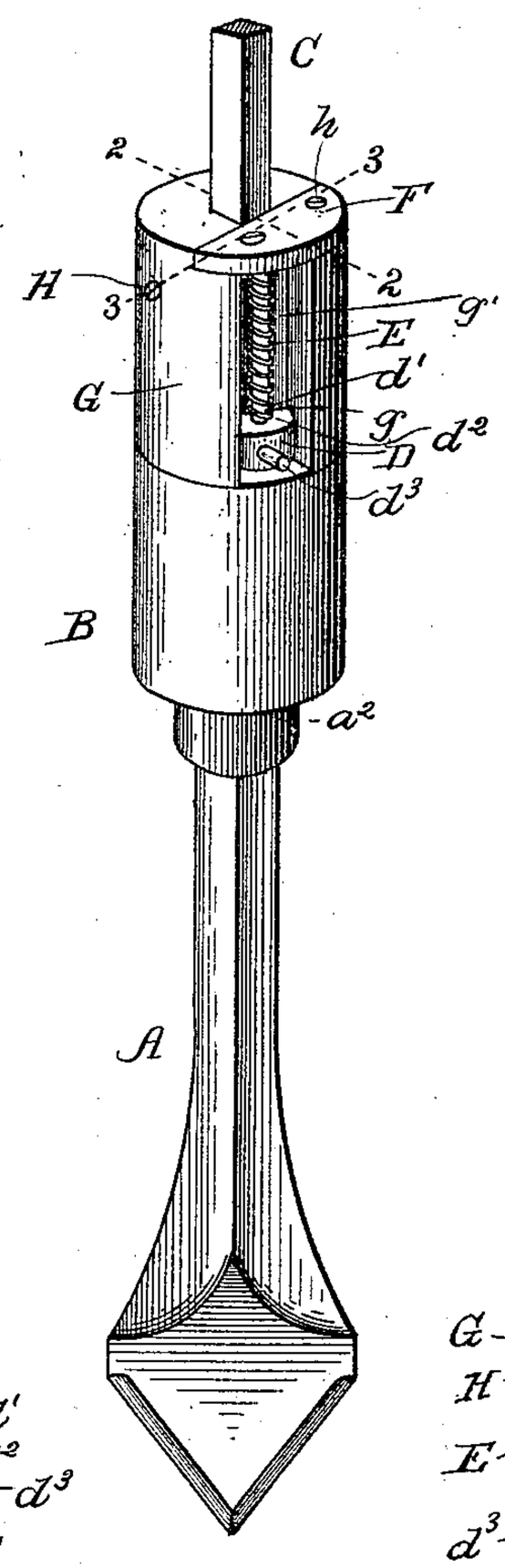


Fig. 1.

Fig. 2.

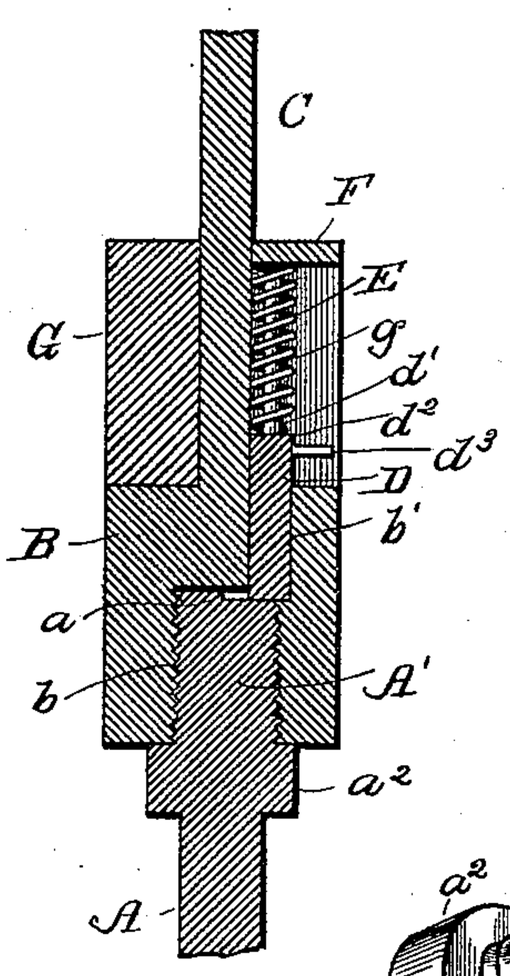


Fig. 3.

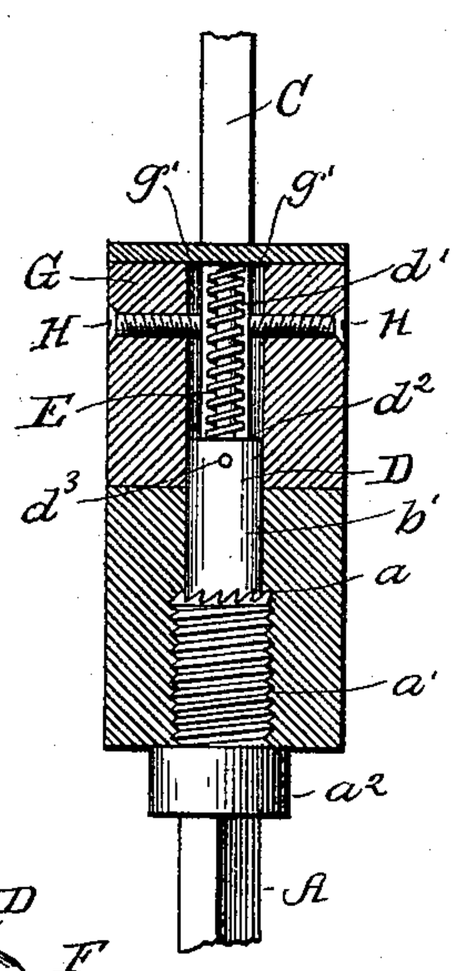
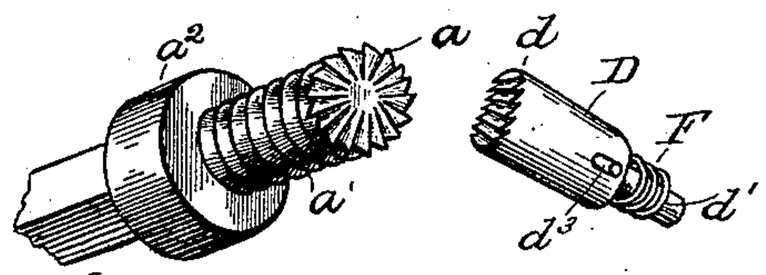


Fig. 4.



A

WITNESSES.
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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. 480,978, dated August 16, 1892.

Application filed February 5, 1892. Serial No. 420,418. (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 in the means for holding the same in the drill-holder.

It has for its objects, among others, to provide simple and efficient means for preventing turning of the drill in the holder and yet permit of ready removal of the drill when desired. To accomplish this object I provide a locking device which engages the drill-shank, said device comprising in its preferable form a spring-actuated bolt having, preferably, a cross-section other than circular, so as to prevent its turning in its socket and having serrations to take into serrations on the drill-shank.

A further object of the invention is to protect the locking device during the working of the drill or during transportation or while not in use and yet permit of ready access thereto for the purpose of disengaging it from the shank of the drill when it is desired to remove the drill. The shield or protector for the said locking device is so constructed as to permit of its application to the holder-shank between the shoulders or stops thereon. The locking-bolt has a lateral projection which serves not only as a means for manipulation of the bolt, but also as a stop when it is desired to hold the bolt out of engagement with the drill-shank.

Another object of the invention is to improve generally in the details of construction, whereby a better, more durable, and serviceable device will be produced.

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 perspective view of my invention. Fig. 2 is a longitudinal section thereof on the line 2 2 of Fig. 1. Fig. 3 is a similar section on the line 3 3 of Fig. 1 or at right angles to the section of Fig. 2. Fig. 4 is a perspective view of the bolt and the drill-shank detached.

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

Referring now to the details of the drawings by letter, A designates a drill, which may be of ordinary construction so far as its working portion is concerned, it being only necessary that its upper end or the upper end of its shank A′ shall be provided with some means, as the radially-disposed serrations or teeth *a*, for the engagement of the locking-bolt. The drill-shank is provided with screw-threads *a′*, fitted to the threaded socket *b* of the drill-holder B, and at the lower termination of these screw-threads is a shoulder or collar or analogous provision a^2, to engage the under face of the drill-holder and limit the inward movement of the drill, as will be readily seen from Figs. 2 and 3.

The drill-holder B is formed with the threaded socket *b*, above mentioned, and has rigid therewith, preferably integral, the shank or shaft C, which is designed to be connected with the drill-jar or plunger or other part of the operating mechanism (not shown) in any suitable manner; but as this forms no part of the present invention such parts have not been shown. The devices hereinafter described for connecting the drill and holder may be employed, if desired, by a mere reversal of the parts.

The drill-holder B is further formed with a longitudinal channel or socket *b′*, which extends from its upper face downward and communicates with the socket *b*, as seen in Fig. 2. It is arranged in line with one side or face of the shank C, as seen in Fig. 2, and in this channel or socket is designed to slide the locking-bolt D, which is of a shape in cross-section preferably other than circular, so that it will not rotate therein. It is shown as being substantially oval; but I do not wish to restrict myself to such form. Its lower

end is provided with teeth or serrations d to engage the serrations of the drill-shank, and projecting upward from its upper end is the pin or rod d', around which is arranged a coiled spring E. This spring finds one point of resistance against the shoulder d^2 on the bolt and the other against the plate or cap F, which will soon be described. The channel b' in the drill-holder should of course conform to the shape of the locking-bolt. The bolt is provided with a lateral projection or pin or analogous device d^3, which serves as an aid in raising the bolt, and this projection is further useful in case it is desired to hold the bolt elevated against the tension of its spring, in which case the bolt will be raised and a block or any suitable device placed between the pin or projection and the upper face of the drill-holder, as will be readily understood upon reference to Figs. 1 and 2. Any form of spring may be employed, that shown being but one of the forms employed, perhaps the preferable one.

The operation of the parts thus far described is as follows: The drill-shank is screwed into the threaded socket of the holder, and when screwed home the serrations thereof are engaged by those of the locking-bolt, which will hold the drill from turning in its holder in either direction. When it is desired to remove the drill, all that it is necessary to do is to raise the locking-bolt, so as to disengage the serration thereof and those of the drill-shank, when the drill can be unscrewed and taken out.

In order to protect the bolt, I provide a shield or casing G of the desired length, which shield or casing is provided with a passage for the shank C, and in order that it may be slipped onto the shank sidewise it is open upon one side, as seen at g, which opening also provides space for the working of the bolt and its spring, as shown in the several views. This opening beyond the passage for the shank is enlarged, thus forming vertical shoulders g', which serve as guides for the bolt in its longitudinal movements, as seen in Figs. 1 and 3. The lateral projection or pin d^3 is confined within the periphery of this casing, as shown in Fig. 2. The cap-piece F is removably secured to the top of the casing in any suitable manner, as by screws h. The casing G is supported on the drill-holder B and is held to the shank C by screws H, as seen in Fig. 3.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as new is—

1. The combination, with a drill-holder and a drill having a serrated upper surface, of a spring-actuated locking-bolt provided with serrations working through the holder and engaging the drill, and a casing supported on the holder and protecting the bolt and its spring, substantially as described.

2. The combination, with a drill-holder and a drill having a serrated upper surface, said serrations being radially disposed, of a spring-actuated locking-bolt provided with serrations working through the holder and engaging the drill and a casing supported on the holder and protecting the bolt and its spring, substantially as described.

3. The combination, with a drill and its holder having a rigid shank, of a sliding locking-bolt and a casing supported on the holder and having passage for the shank and open upon one side and a removable cap-piece to said casing, as set forth.

4. The combination, with a drill-holder having a rigid shank and a drill having a serrated upper surface, of a spring-actuated locking-bolt working through the holder and engaging the drill and a casing supported on the holder and having passage for the shank and open upon one side and a removable cap-piece to said casing, substantially as described.

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

ALONZO G. TURNER.

Witnesses:

VICTOR J. EVANS,

L. M. MARBLE.