

(No Model.)

R. H. ELLIOTT.
REAMER.

No. 560,787.

Patented May 26, 1896.

FIG. 1.

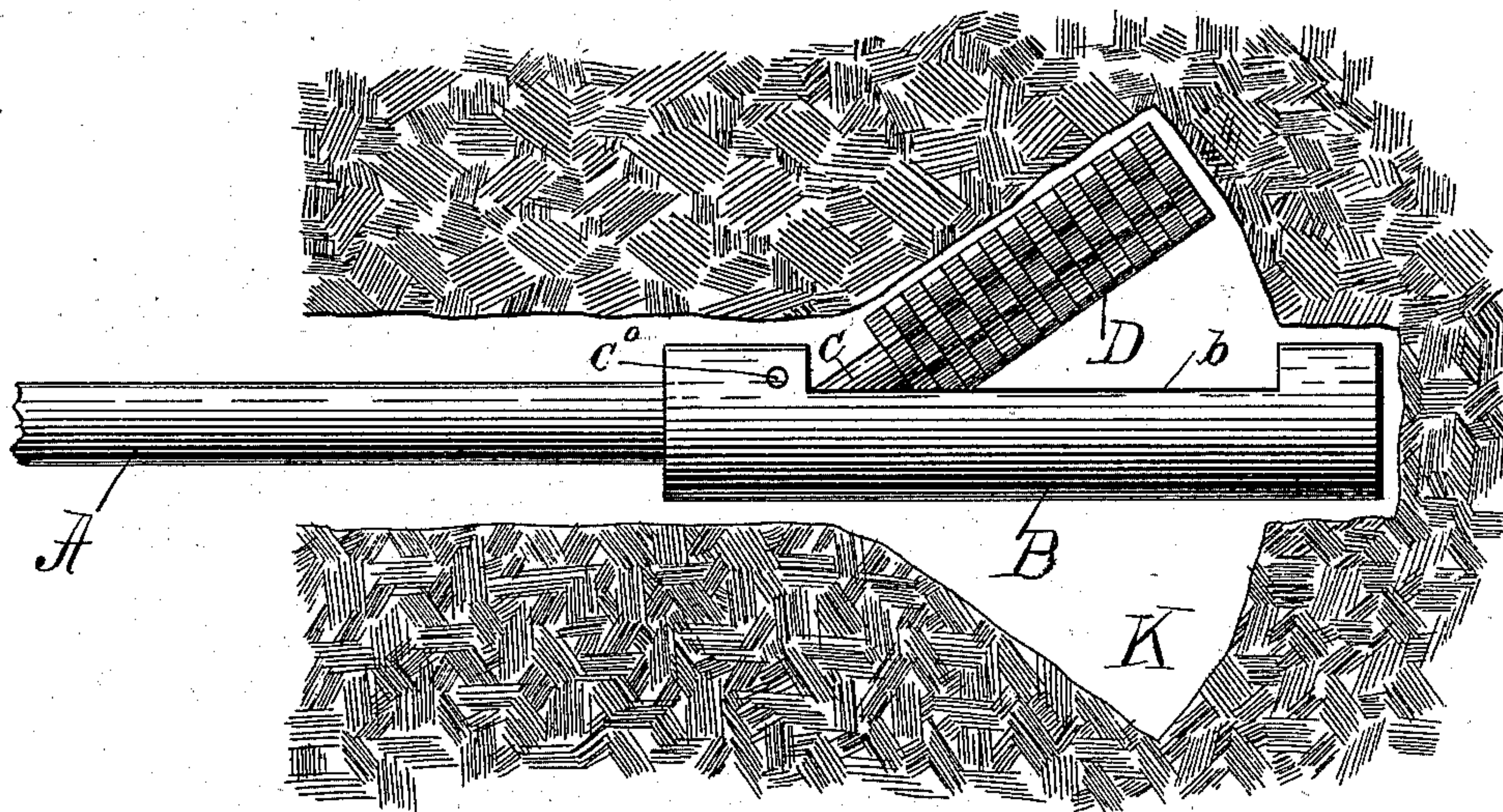


FIG. 2.

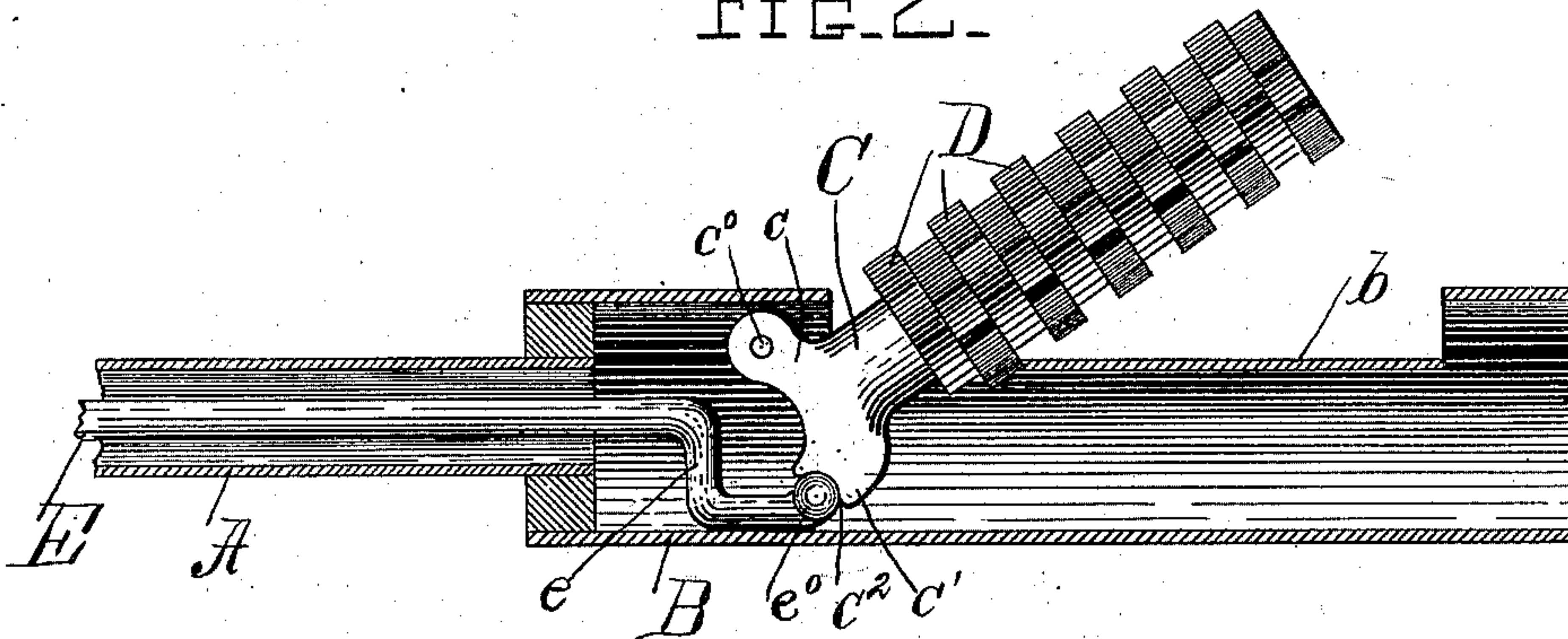
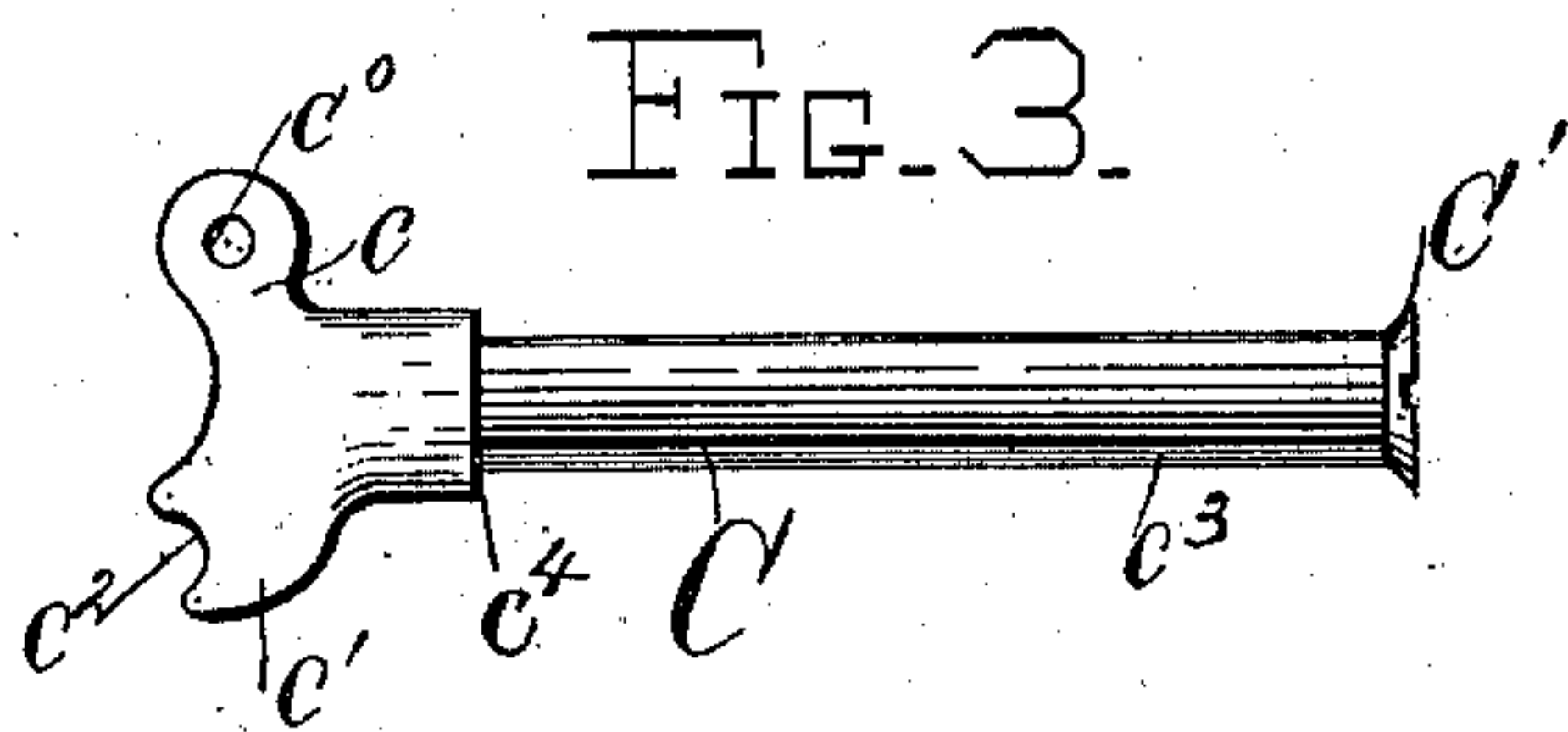


FIG. 3.



UNITED STATES PATENT OFFICE.

ROBERT H. ELLIOTT, OF BIRMINGHAM, ALABAMA, ASSIGNOR TO THE
ALABAMA BLASTING AND MINING COMPANY, OF SAME PLACE.

REAMER.

SPECIFICATION forming part of Letters Patent No. 560,787, dated May 26, 1896.

Application filed September 3, 1895. Serial No. 561,253. (No model.)

To all whom it may concern:

Be it known that I, ROBERT H. ELLIOTT, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Reamers; 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.

My invention relates to improvements in reamers or other boring-tools for use in the mining of coal or other like soft mineral; and the said invention consists in certain novel features hereinafter described and claimed.

Reference is had to the accompanying drawings, in which the same parts are indicated by the same letters throughout the several views.

Figure 1 represents a section through the center of the bore-hole and shows a reamer in operation. Fig. 2 represents a longitudinal section through the center of the reamer-head and represents the reamer-blade in elevation and in the operative position. Fig. 3 represents the pivot-bar on which the various star-wheels constituting the reamer-blade revolve, and Fig. 4 represents one of the star-wheels detached from the pivot-bar.

A represents a hollow drill-spindle through which air is blown for the purpose of removing the cuttings in any well-known or convenient way. To this drill-spindle the reamer-head B is rigidly attached, which reamer-head is also hollow and is cut away, as at *b*, to permit the swinging in and out of the pivot-bar C, carrying the cutting-wheels D, which latter are preferably made of hard steel. This pivot-bar C is provided with arms *c* and *c'*, the former pivoted at *c⁰* in the reamer-head B and the latter hollowed out, as at *c²*, to receive the ball *e⁰* on the end of the operating-rod E, which is bent, as at *e*, and is operated from the rear in any well-known or convenient way. By means of this rod E the reamer-blade may be forced outward, as desired. This bar C is shouldered, as at *c⁴*, and beyond this shoulder is made cylindrical, as at *c³*, while this cylindrical portion terminates in a screw C', having threads engaging opposite to the normal direction of rotation of the star-wheels D, whereby there is no tendency of the said

screw to unscrew in the operation of reaming. This screw C' is preferably countersunk in the face of the outermost star-wheel, so as to present a flush surface, as shown in Figs. 1 and 2.

While I have shown in Fig. 4 a star-wheel having five points, it will be obvious that the number of the said points and the contour of the wheel may be varied at will so long as angular cutting edges are provided.

It will be seen that in the operation of the device the points of these stars come against every part of the reamed cavity in succession and that each point will successively strike a slight blow on the coal or other mineral, and will so cut it away.

It will be obvious that various modifications in the manner of mounting these star-wheels on the pivoted bar or other supporting device might be made which could be used without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a mining-reamer, the combination with an extensible arm A, pivoted in the reamer-head, cylindrical at *c³* and provided at one end with a screw C' and the other end terminating in a head, and a plurality of star-wheels D having cutting-teeth mounted on the cylindrical portion of the aforesaid arm, substantially as described.

2. In a mining-reamer, the combination with an extensible arm C, cylindrical at *c³* and provided at one end with the screw C' and at the other end terminating in a bevel, a plurality of star-wheels D rotatably mounted upon said cylindrical portion of the said arm, the said arm being provided with the boss *c* pivoted to the hollow reamer-head, and the actuating-rod E, bent as at *e* and terminating in the ball *e'*, and adapted to swing the free end of the spindle out and press the cutters thereof against the surface to be cut, substantially as described.

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

ROBERT H. ELLIOTT.

Witnesses:

S. F. STOLLENWERCK,
WILL T. DILLON.