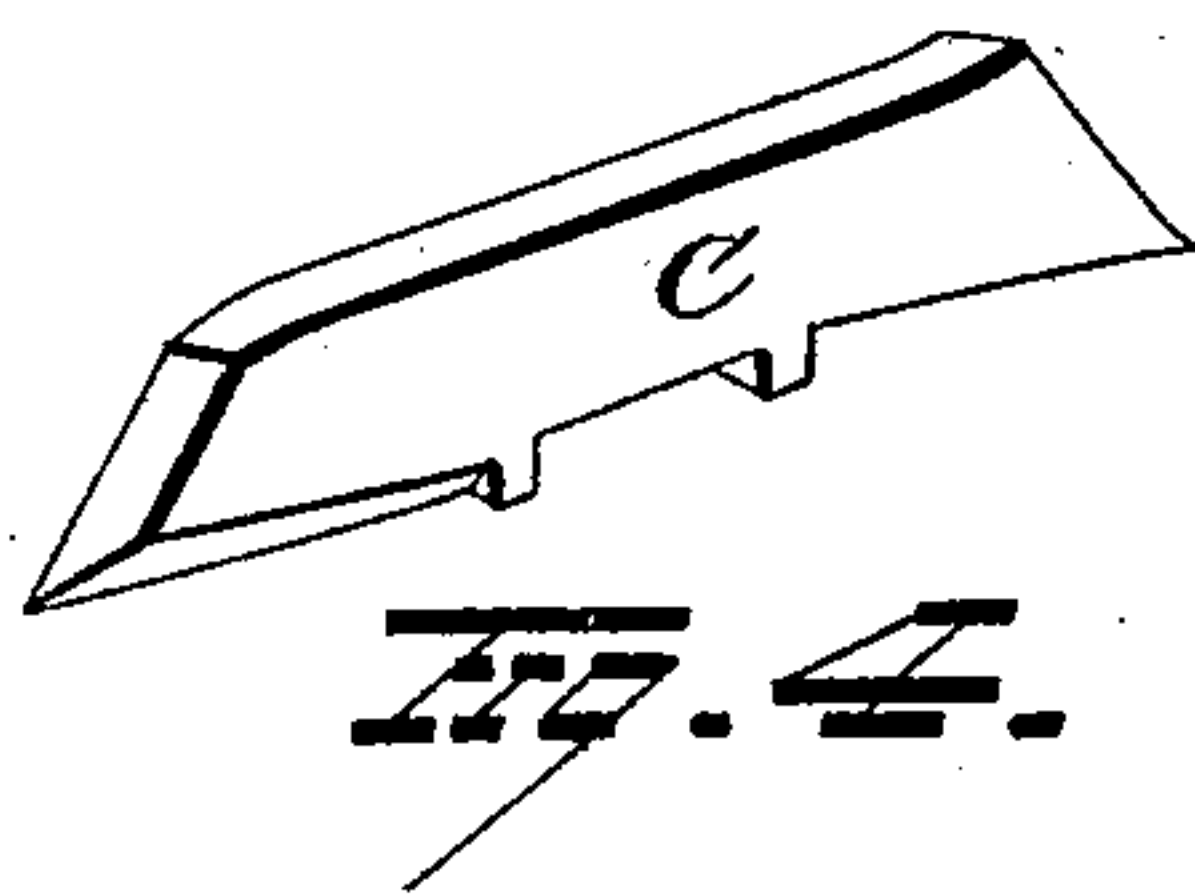
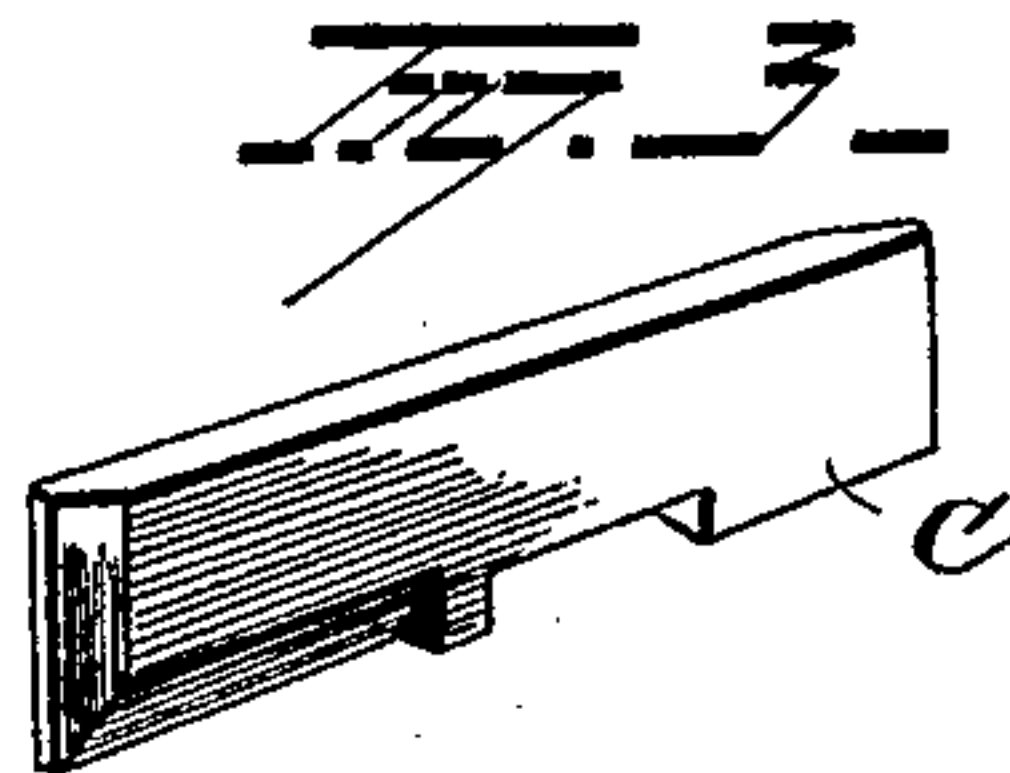
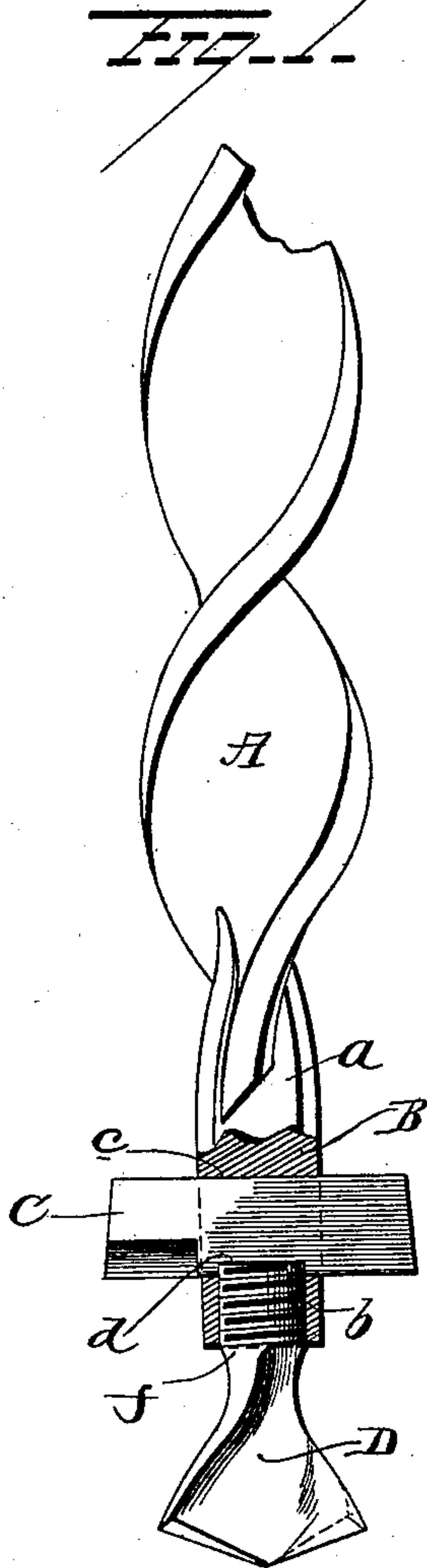
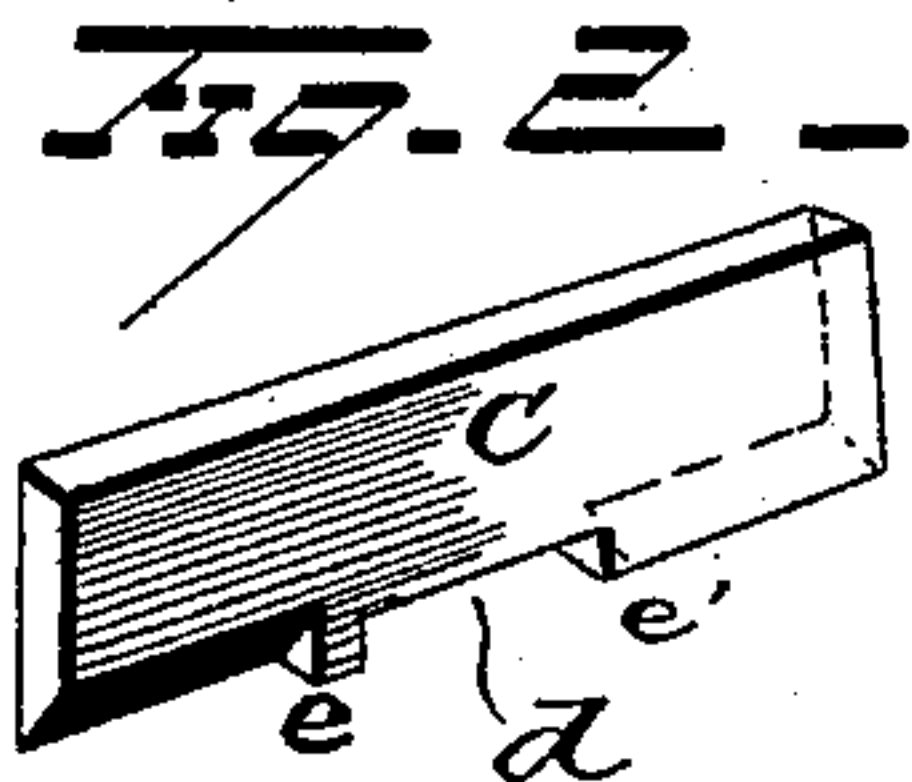


(No Model.)

J. EAGEN.
DRILL BIT.

No. 404,829.

Patented June 11, 1889.



Witnesses
E. Nottingham
G. F. Downing

Inventor
James Eagen.

By his Attorney
H. A. Symmes

UNITED STATES PATENT OFFICE.

JAMES EAGEN, OF WYOMING, PENNSYLVANIA.

DRILL-BIT.

SPECIFICATION forming part of Letters Patent No. 404,829, dated June 11, 1889.

Application filed October 3, 1888. Serial No. 287,067. (No model.)

To all whom it may concern:

Be it known that I, JAMES EAGEN, of Wyoming, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Drill-Bits; 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 an improvement in drill-bits.

The object is to provide a bit designed more especially for coal-drilling, and to this end the following valuable results are attained, namely: The device is so constructed that it keeps a straight path. It is easily operated, owing to the fact that ample provision for removing the borings is made. Different-sized knives can be substituted at a moment's notice and broken or blunted ones restored at a very slight expense, and, finally, the size of the knives or cutting-tools is reduced, so that a number of them can be carried at a time without inconvenience and be procured at a nominal expense.

With these ends in view my invention consists in certain features of constructions and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view, partly in section, of my improved device; and Figs. 2, 3, and 4 are detached perspective views of cutting-tools or knives.

A represents the stem twisted in the usual manner, it having a blunted tip B formed integral with one end, this tip being preferably square or octagonal in cross-section and somewhat narrower than the end of the twisted portion, and so connected with the latter that its edges extend beyond the sides of the tip, where they are sharpened or beveled in opposite directions, as shown at *a*, to form cutting-edges, which facilitate the removal of the borings. The tip has a screw-threaded bore *b*, and a slot *c* is cut in the tip conveniently at right angles to the adjacent end of the twisted portion of the bit. This slot is adapted to receive a cutting-tool or knife, while the screw-threaded bore forms a socket for the shank of a leader or pod. Of course both the knives and leaders may be differently formed; but

the essential point is this: In my construction one locks the other in place.

C represents several forms of knives.

In Fig. 3 the knife C consists of a plate of hard metal—such as steel—of a size suitable to slide freely into the slot. The ends of this plate slope outwardly, and midway between the ends a notch *d* is located to form a seat for the end of the leader when in place. Commencing a sufficient distance from the notch on either side thereof to leave suitable shoulders *e e'*, the edges of the knife on the side with the notch are beveled or sharpened in opposite directions to form cutting-edges. Another desirable form of tool is that shown in Fig. 3, in which the ends of the tool are also beveled or sharpened, and in Fig. 4 the ends are beveled and pointed and given a slight twist.

D represents the leader. This is slightly twisted and formed at the end similar to an ordinary bit—that is, beveled or sharpened from the center each way, so as to leave the tool slightly pointed at the center. At the opposite end this leader is provided with a screw-threaded stem *f*, designed to screw into the bore of the tip B.

The parts are assembled as follows: A knife C is inserted in the transverse slot *c*, with its notch *d* in alignment with the bore of the tip and the outer edges of the shoulders *e e'* flush with the sides of the tip. The leader is then screwed in and the parts are thus locked together.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself to the particular construction herein set forth; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a drill-bit, the combination, with a stem having a transverse opening therein, of a removable knife located within said opening and having cutting ends and a notched side edge, and a leader secured to the stem below the knife and locking the latter in position.

2. In a drill-bit, the combination, with a stem having a screw-threaded bore at one end

and a transverse slot through this bore, of
a knife having a notch therein and adapted
to enter this slot, and a leader having a screw-
stem designed to enter the bore and the notch
5 in the knife, whereby the knife is locked in
place, substantially as set forth.

3. In a drill-bit, the combination, with a
twist-stem and an integral tip having a screw-
threaded bore and a transverse slot through
10 the latter, of a knife having a notch in one
edge and oppositely beveled or sharpened

edges, and a twisted leader adapted to enter
the bore of the tip and be seated in the notch
of the knife, substantially as set forth.

In testimony whereof I have signed this 15
specification in the presence of two subscrib-
ing witnesses.

JAMES EAGEN.

Witnesses:

HIRAM WOLFINGER,
THOMAS LAWSON.