

(No Model.)

J. F. LOFTUS.
COAL AND ROCK DRILL.

No. 328,495.

Patented Oct. 20, 1885.

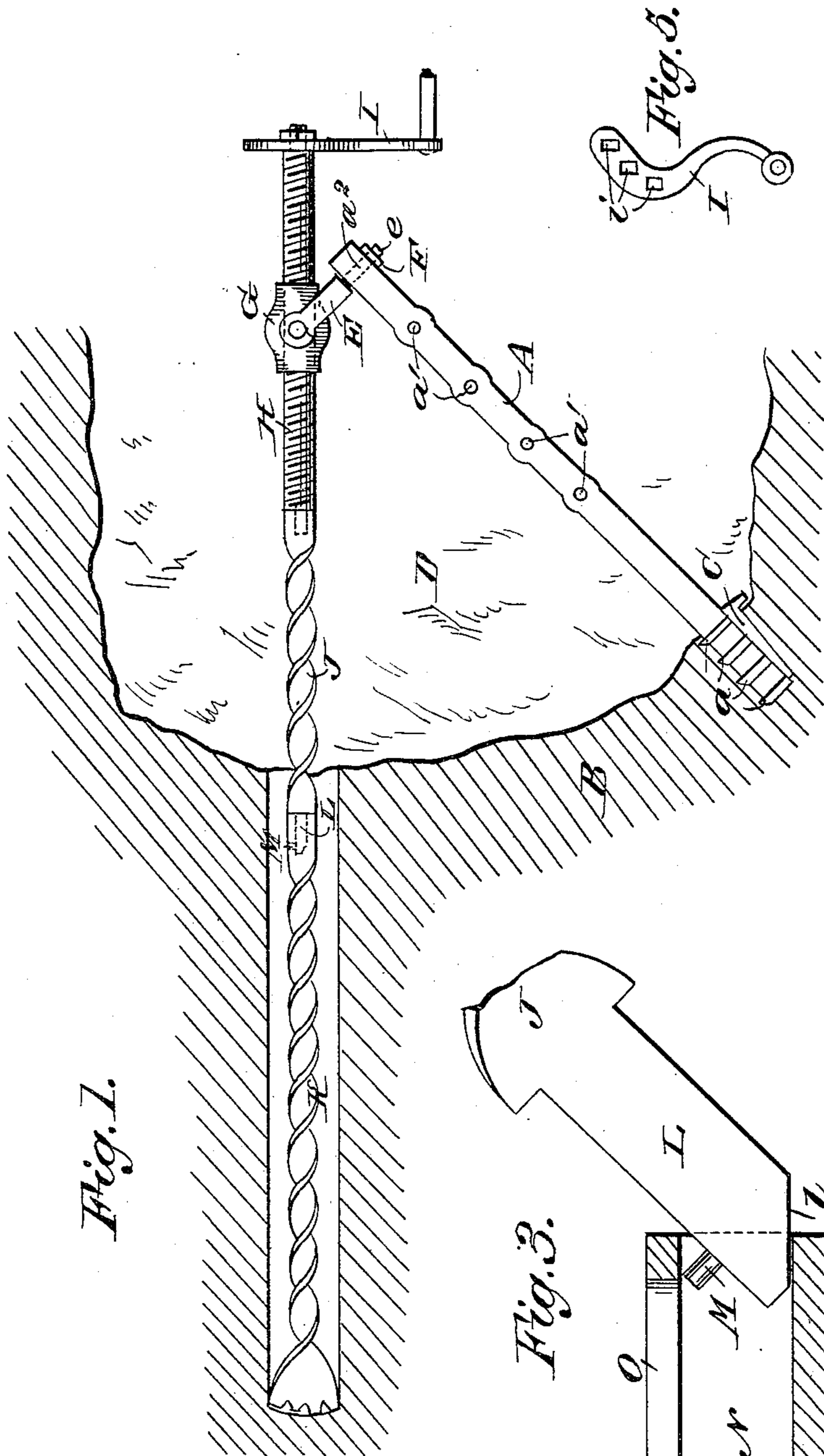


Fig. 7.

Fig. 3.

Fig. 5.

Fig. 4.

Fig. 2.

WITNESSES:

WITNESSES:
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JAMES F. LOFTUS, OF WINTON, PENNSYLVANIA.

COAL AND ROCK DRILL.

SPECIFICATION forming part of Letters Patent No. 328,495, dated October 20, 1885.

Application filed February 4, 1885. Serial No. 154,888. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. LOFTUS, of Winton, in the county of Lackawanna and State of Pennsylvania, have invented certain
5 new and useful Improvements in Coal and Rock Drills, of which the following is a full, clear, and exact description.

My invention is an improvement in a class of coal and rock drilling machines in which
10 the stem or shank of the drill proper is screw-threaded and works through a nut hinged or swiveled to a suitable support.

The invention consists in the construction and combination of parts hereinafter described
15 and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate
20 corresponding parts in all the figures.

Figure 1 is an elevation of my improved drill as at work. Fig. 2 is an enlarged side
25 elevation of the jointed ends of the main drill and its extension-bar with the socket of the drill in section and the parts in position for use. Fig. 3 is a sectional side elevation illustrating the manner of inserting the end of the
30 extension-bar into the drill-socket. Fig. 4 is a plan view at right angles with Fig. 2, and Fig. 5 is a front elevation of the crank by which the screw-shaft is turned.

The letter A indicates the fastening bar or standard of the drill, the inner end of which
35 has ribs *a*, which are forced into the sides of a hole made in the coal or rock B to be mined by driving a wedge, C, along the flat back
40 side of the bar A, in the usual manner, so that the bar projects into the cutting or shaft D at a proper angle or position to support the drilling mechanism. The fastening-bar A has a
45 series of holes, *a'*, through it, and a hole, *a''*, at its end at a right angle with the others to receive the pivot *e* of the yoke or clevis E, which
50 may be held in any one of the holes by a nut, F, as shown in Fig. 1.

G is the nut, which is pivoted between the
side arms of the yoke E, and H is the drill-
operating screw, which is threaded into the
nut G, and has a square or flat sided shank at
each end which will fit any one of the holes *i*
50 in the crank I, and sockets made in the back
ends of the drills, and of the extension drill-
bar J, which bar J is fitted to the long drill K

in a peculiar manner presently described. I
make the drill K and extension-bar J prefer-
ably in the twisted form shown, and the drill
55 may have any preferred shape at its cutting
end.

An important feature of my invention is the
manner of connecting the bar J to the drill
K, so they may readily be separated when
60 the drill is withdrawn from the hole, and will
be inseparable while the joint or connection is
in the hole to allow the drill to always be eas-
ily and quickly withdrawn. In making this
joint I form on the inner end of the extension-
65 bar J the tenon L, which is cut on an angle
or bevel at one side of its inner end, as at *l*;
and in the edge of the tenon opposite the bev-
eled part *l* is fixed a pin or stud, M, which,
when the tenon L is passed into the socket N
70 formed in the back end of the drill K, enters
a slot, O, in the side wall of said socket N, as
in Fig. 2.

To connect or disconnect the extension-bar
J with or from the drill K, the bar must be
75 brought to the position shown in Fig. 3, or at
an angle of about forty-five degrees with the
line of the drill, when the end bevel at *l* will
rest on the edge or wall of the socket oppo-
site the slot O, while the pin M enters or leaves
80 the slot. As the tenon L loosely fits the sock-
et N the pin M is not subjected to breaking
strains, while the drill is worked by the aid
of the extension-bar.

In using the drill the nut-supporting yoke
85 E will be swiveled in one of the holes of the
bar A, and the screw H will be run back, and
a short drill—say about two feet long—will be
applied at its forward end to start the hole
and bore it for about two feet, which is the
90 working length or stroke of the screw. The
screw then will be turned back a little to draw
it from the drill-socket, will be swung around
with the yoke E, and the handle I fastened to
its other end. The drill K, which is about
95 four feet long, is then to be inserted in the
hole, and the end of the screw H entered in
its socket N. The screw will again be ad-
vanced its full length or until the drill K has
bored for nearly its full length. The screw H
100 will again be backed and swung around end
for end, and the extension-bar J connected to
the drill K, as above described, the end of the
screw will enter the back-end socket of the

bar J to turn it, and the drill to complete the boring of the hole for the full length of the drill K, or farther, as in Fig. 1, the joint of the bar and drill remaining rigid to hold the bar and drill in line for boring a straight hole, from which the drill may easily be withdrawn by pulling on the projecting bar J.

By swiveling the yoke E to the bar A and pivoting the nut G to the yoke E, I am enabled to bore or drill holes horizontally, perpendicularly, or at any desired angle, as will readily be understood.

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

1. In drilling-machines, the combination,

with the drill K, having a socket, N, and slot O, of the extension-bar J, having a tenon, L, adapted to the socket, and provided with the end bevel *l*, and a pin, M, adapted to enter slot O, substantially as herein set forth.

2. In drilling-machines, the drill K and extension-bar J, made in twisted form, and said drill having the end socket, N, and slot O, and the extension-bar having the tenon L, provided with the end bevel *l* and pin M, substantially as herein set forth.

JAMES F. LOFTUS.

Witnesses:

W. J. BURKE,
JOHN FINNIGAN.