

(No Model.)

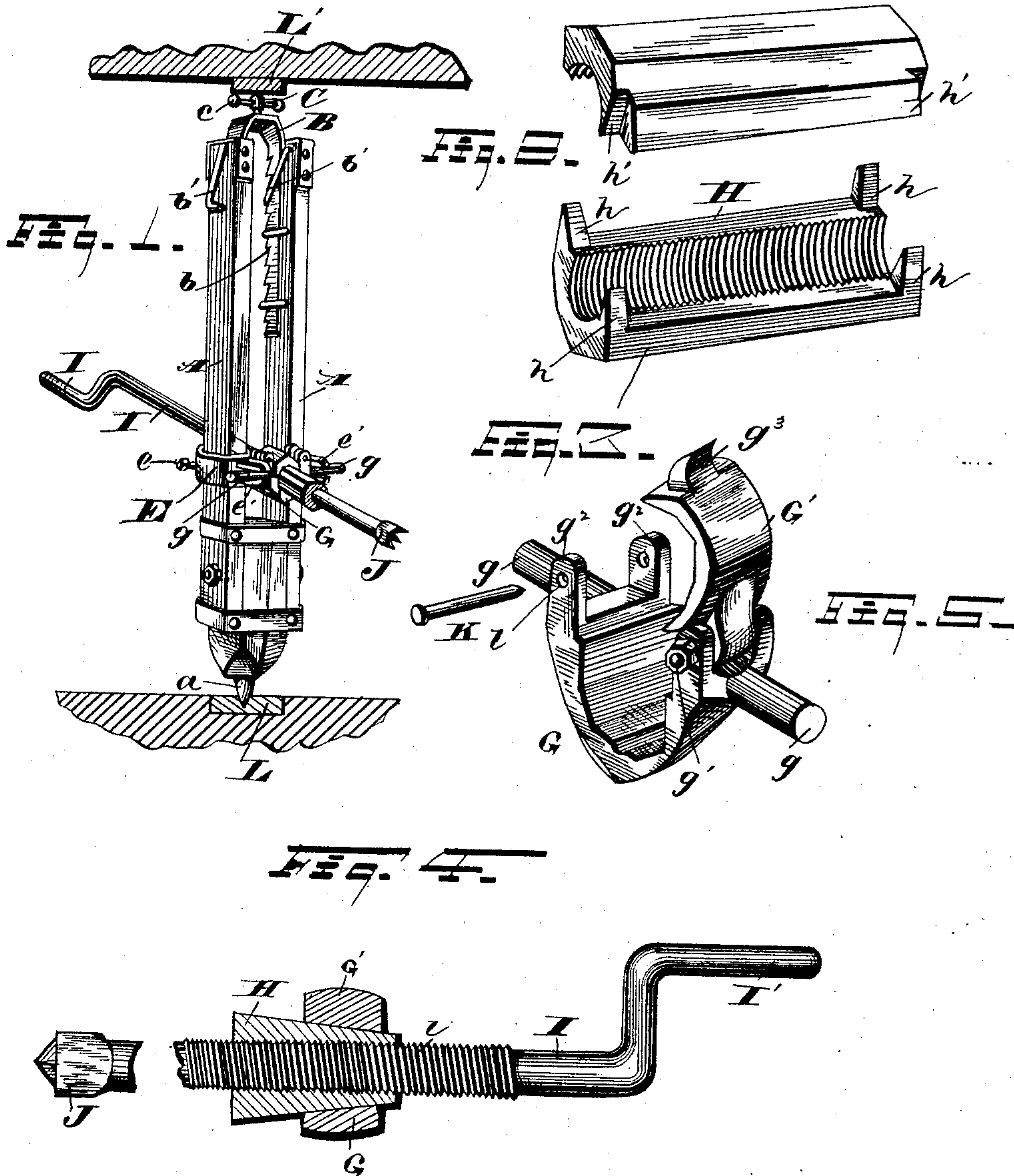
2 Sheets—Sheet 1.

J. F. MATHEY.

MINING DRILL.

No. 328,327.

Patented Oct. 13, 1885.



WITNESSES

Wm M. Monroe,
Geo. W. King

INVENTOR

Joseph F. Mathey
Leggett & Leggett
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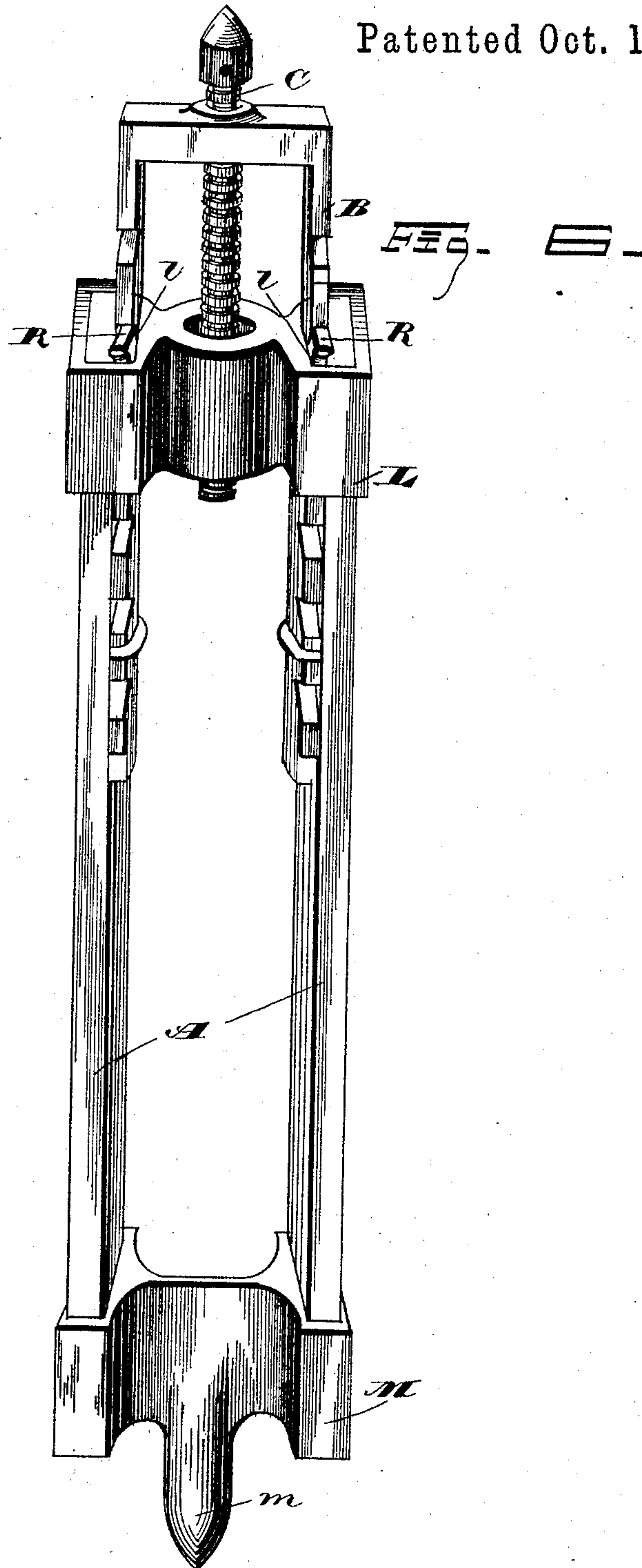
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UNITED STATES PATENT OFFICE.

JOSEPH F. MATHEY, OF STRUTHER'S STATION, OHIO.

MINING-DRILL.

SPECIFICATION forming part of Letters Patent No. 328,327, dated October 13, 1885.

Application filed March 17, 1885. Serial No. 159,193. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH F. MATHEY, of Struther's Station, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Mining-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 pertains to make and use the same.

My invention relates to improvements in drilling apparatus designed more especially for coal-mining; and it consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of a drilling apparatus embodying my invention. Fig. 2 is a view in perspective of the top portion of a nut. Fig. 3 is a view in perspective of the lower portion of the nut. Fig. 4 is an elevation of the drill-rod and a section of the nut and nut-holder. Fig. 5 is a view in perspective of the nut-holder. Fig. 6 shows a modification in the supporting-frame attachments.

A represents an upright frame provided at the bottom with a pointed spindle, *a*, for engaging the floor or bottom of the mine.

B is a sliding frame or yoke, usually of metal, that operates in suitable grooves or channels in the uprights A, and has notches *b* that are engaged by links *b'*, that are pivoted to the frame A, and hold the yoke at the desired elevation, the upper end usually extending up to near the roof or top of the mine. A screw-rod, C, screws into the upper end of the yoke, and has a pointed upper end for engaging the roof or top of the mine, and is provided with some convenient means of turning the rod—for instance, a hand-wheel, *c*, or a square part, as may be preferred. By tightening the rod C the point thereof, and of the spindle *a*, engage the top and bottom of the mine and hold the frame A firmly as against lateral pressure, but the frame may turn easily on these pivotal points or bearings.

E are broad bands that slide respectively on the parts A, and are secured by set-screws *e*. These bands have lugs *e'*, extending laterally, that are slotted or notched on the ends to receive the trunnions *g* of the nut-holder G.

This holder has a cap, G', hinged at *g'*, and ears *g''*, that, when the cap is closed, embrace the part *g'''* of the cap. A pin or key, K, is inserted in the holes *l*, and extends across on top of the lip *g'''* and holds the cap down on the body of the holder, forming a socket for the nut H. This nut, as shown in Figs. 2 and 3, is divided longitudinally into halves, the one half having lugs *h* that engage corresponding notches, *h'*, in the other half, by means of which, when the two parts of the nut are together, they are held in the exact position to make the threads match. The nut is usually octagonal in cross-section, and tapering, as shown more clearly in Fig. 4, and the socket of the nut-holder is correspondingly tapering, and when the parts are assembled, as shown in Fig. 1, the small end of the nut is presented toward the frame A.

I is the drill-spindle, that is threaded at *i* to engage the threads in the nut H, and has a crank, I', for revolving the same. The drill J may be integral with the spindle I, or may be separate and connected with the spindle by any suitable coupling.

When the parts are assembled, as shown in Fig. 1, the frame A may be turned on its pivotal supports, and the nut-holder may be turned on its trunnions, by means of which the drill may be pointed in the direction required. The drill is operated by turning the crank I', and by means of the screw *i* the drill is fed to the work and the nut H is pressed firmly into the socket of the holder G. When a hole has been drilled to a sufficient depth, (sometimes several feet,) the key or pin K is driven out, thereby releasing the cap G', so that the nut H can be separated and the spindle I drawn back without the tedious process of turning back the screw. The nut, by reason of its tapering shape, is forced into the socket and held, for the purpose required, as firmly as a solid nut.

In case the top or bottom of the mine is too soft to hold the points *a* and C, any suitable stepping or blocking, L and L', may be used, as shown in Fig. 1.

In Fig. 6 is shown a modification, where castings L and M support, respectively, the top and bottom of the side pieces of the frame A.

The part L has recesses *b*, through which

the yokes B may slide, and dogs R may be employed for engaging the teeth on the yoke instead of the links *b'*, (shown in Fig. 1.)

5 The part M has the point *m* attached corresponding with the spindle *a*, and the operation of the device is substantially the same as with the construction shown in Fig. 1.

10 The apparatus for holding and operating the drill is omitted in Fig. 6, being the same as shown in the other figures.

What I claim is—

1. In a drilling apparatus, the combination, with a screw-threaded spindle for revolving and feeding the drill, of a feed-nut divided
15 longitudinally into two or more parts and made tapering on the outside, a nut-holder with a tapering socket to receive the nut, with a hinged part to open and release the nut, and the nut-holder mounted on trunnions that ad-
20 mit of the drill being adjusted at the desired

angle in a vertical plane, substantially as set forth.

2. In a drilling apparatus, in combination with an upright extension-frame arranged to revolve in a horizontal plane, a nut-holder 25 arranged to revolve in a vertical plane, and suitable means for adjusting the height of the nut-holder and supporting it from the upright frame, a tapering feed-nut, and a corresponding tapering socket in the nut-holder, and the 30 nut and holder arranged to open and release the spindle, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 12th day of January, 1885.

JOSEPH F. MATHEY.

Witnesses:

T. M. CHRISTIANSON,
GEO. STAMBAUGH.