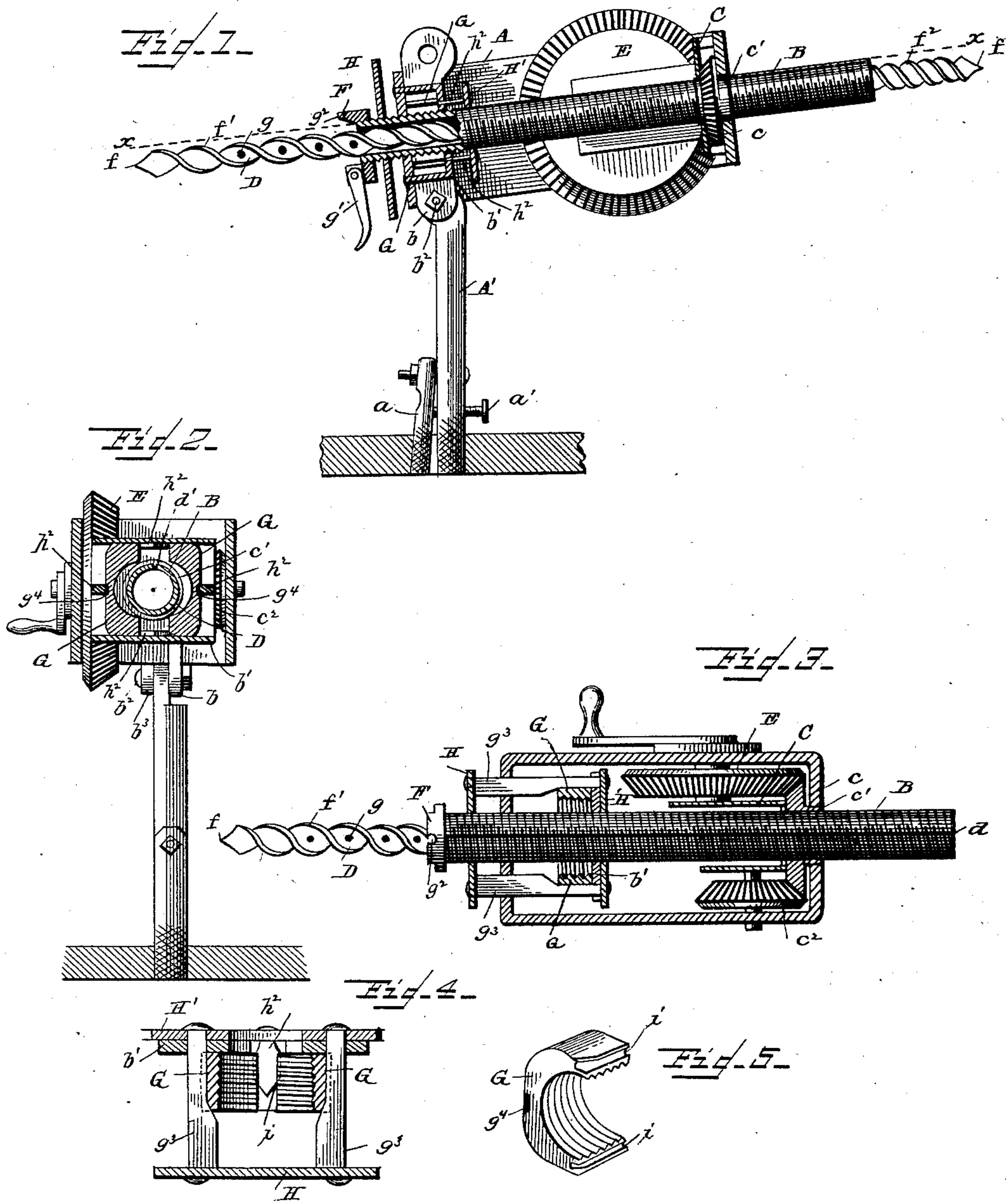


(No Model.)

W. THORNTON.  
MINING DRILL.

No. 367,472.

Patented Aug. 2, 1887.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

WILLIAM THORNTON, OF ST. JOHN, ILLINOIS.

## MINING-DRILL.

SPECIFICATION forming part of Letters Patent No. 367,472, dated August 2, 1887.

Application filed March 21, 1887. Serial No. 231,732. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM THORNTON, a citizen of the United States, residing at St. John, in the county of Perry and State of Illinois, have invented certain new and useful Improvements in Mining-Drills, of which the following is a specification.

This invention relates to coal or rock drills; and its object is to provide an improved drill of this class which will possess advantages in point of simplicity in construction and durability and general efficiency in operation.

In the drawings, Figure 1 is a vertical longitudinal sectional view of a drill embodying my invention. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a horizontal section on the line *xx*, Fig. 1. Fig. 4 is a detail sectional view of the locking device and nut. Fig. 5 is a detail perspective view of one of the nut-sections.

Corresponding parts in the figures are denoted by the same letters of reference.

Referring to the drawings, A designates the main frame of the device, which is of any suitable construction, and is swiveled or pivotally connected to a standard or support, A', planted and clamped in position at its lower end in a solid heavy base or foot piece. A semi-wedge-shaped piece, *a*, is connected at its upper end by a bolt and nut to said standard, and a clamp-screw, *a'*, which passes through said standard and presses against the piece *a*, thus firmly securing the same in said base or foot piece. The pivotal or swivel connection between the frame A and standard or support A' comprises either of two apertured lugs, *b*, projecting from opposite sides of an inner angular casting, *b'*, at one end of the frame, and a pivot-bolt, *b<sup>2</sup>*, provided with a collar, *b<sup>3</sup>*, at its headed end, and passed through an aperture in the upper flattened end of the standard and the aperture of whichever lug *b* or side of the frame A it is to be applied, the threaded end of the bolt then having a nut fitted thereon. This arrangement permits of the adjustment or disposition of the frame at any desired angle to the horizontal for varying the position of the tool according to the point it is desired to reach or operate upon.

B is a left-hand screw-threaded barrel or cylinder, which is arranged to extend longi-

tudinally through the frame A, being passed through a pinion, *c*, in one end of the frame, and through the inner casting, *b'*, at the opposite end of the frame. The pinion *c* is provided with a hub, *c'*, whose outer end bears in the frame A, while its inner end bears in the upper part or plate of an inner frame, C, secured within and to the frame A, the barrel or cylinder being thus isolated from the frame.

The barrel or cylinder B is provided upon its exterior with a longitudinal groove, *d*, extending throughout its length and receiving a stud or projection, *d'*, upon the interior or bore of the hub *c'* of the pinion *c*, whereby, as the barrel or cylinder is revolved by said pinion, said cylinder or barrel will also be permitted to have a longitudinal or endwise movement, as is requisite in this class of tools. Motion is transmitted to the said pinion *c* through the handled or crank-carrying wheel E, gearing therewith, and whose shaft is journaled in one side of each of the frames A and C, while said pinion *c* is geared with and balanced by a similar pinion, *c<sup>2</sup>*, the shaft of which is journaled in the opposite sides of the said frames.

Within the barrel or cylinder B is carried the auger or boring implement D, having a bit or point, *f*, at each end, and convoluted blades *f'* *f<sup>2</sup>* *m*, of different sizes, one extending from each point or bit and terminating about centrally of the implement, thus enabling the implement to be reversed after having been "used up" from one end and utilized from its opposite end, the advantages of which are obvious.

The auger or implement D is provided at suitable points with apertures *g*, through one of which is passed, in order to cause it to partake of the movement of the barrel or cylinder B, a latch or retaining bar, *g'*, pivoted to one edge of a collar, F, fast upon one end of the barrel or cylinder and resting in a notch, *g<sup>2</sup>*, in the edge of said collar, and from which latch or bar the auger or implement can be readily released by simply moving the latter endwise independently of the barrel or cylinder B.

G G is a nut composed of two screw-threaded sections or members and adapted to conform to the external circumference and engage with



the screw-thread of the barrel or cylinder B, which nut-sections are seated in the casting  $b'$ , and are provided with opposite incline-bottomed grooves,  $g^4 g^4$ , which receive opposite 5 incline-faced bars or wedges,  $g^3 g^3$ , secured to rings or annuli H H', and acting upon said nut-sections when moved one way—inward—by pressing in that direction upon the outer ring or annulus, H, so as to bring said nut-sections into engagement with the screw-thread 10 of the barrel or cylinder B, and thus permit of the impartation of the longitudinal movement of the latter. From the annulus or ring H' project inwardly into recesses in the casting  $b^2$ , directly opposite the points of separation 15 between the nut-sections, arms  $h^2 h^2$ , the same being of an approximately V shape and acting upon correspondingly-formed opposite surfaces of the nut-sections, as at  $i i$ , whereby 20 the latter will be forced apart in order to release or disengage them from the barrel or cylinder B, upon pulling outward upon the annulus or ring H to permit, when it has reached its maximum projection in the operation of 25 drilling, the retraction or return of the barrel or cylinder to its original position, as required to begin another boring or drilling operation.

I claim as my invention—

1. The boring-implement-carrying frame 30 provided with a sectional nut and a contrivance carrying inclined bars or wedges acting upon the nut-sections, and approximately V-shaped arms or projections, in combination with a screw-threaded barrel or cylinder, sub- 35 stantially as and for the purpose set forth.

2. The combination, with the boring-implement-carrying frame and its gear for operating the boring implement, of the annuli or contrivance provided with inclined bars or 40 wedges and approximately V-shaped arms, and the nut-sections provided with inclined bottomed grooves and recesses, together with the screw-threaded barrel or cylinder provided with a longitudinal groove which re- 45 ceives a projection or stud from a pinion of the said gear, substantially as and for the purpose set forth.

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

WILLIAM + THORNTON.  
mark.

Witnesses:

CHARLIE FREEMAN,  
THOMAS H. BOND.