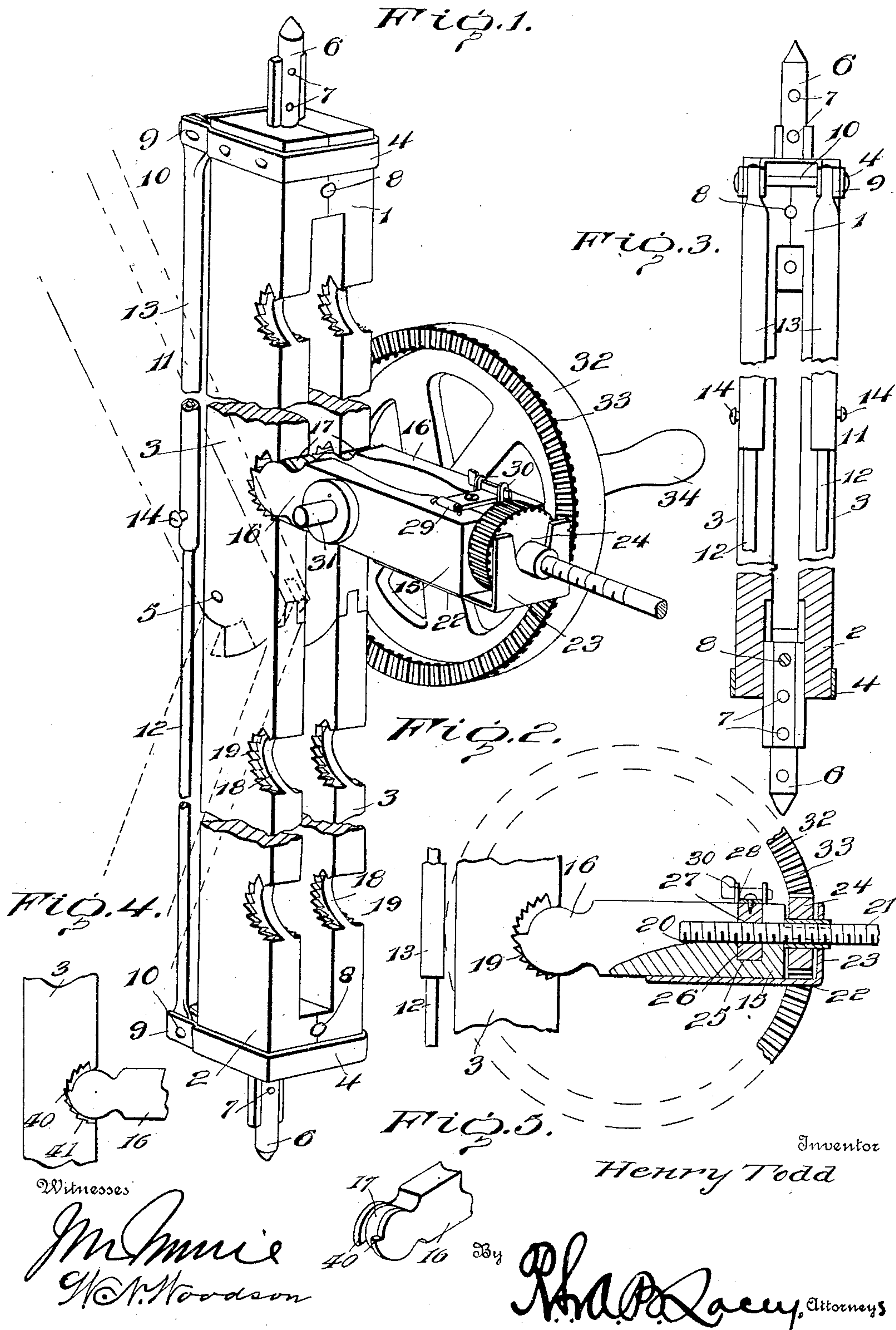


No. 810,513.

PATENTED JAN. 23, 1906.

H. TODD.
MINER'S DRILL.
APPLICATION FILED MAR. 23, 1905.



UNITED STATES PATENT OFFICE.

HENRY TODD, OF MARSHFIELD, OHIO.

MINER'S DRILL.

No. 810,513.

Specification of Letters Patent.

Patented Jan. 23, 1906.

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To all whom it may concern:

Be it known that I, HENRY TODD, a citizen of the United States, residing at Marshfield, in the county of Athens and State of Ohio, have invented certain new and useful Improvements in Miners' Drills, of which the following is a specification.

This invention has relation to improvements in coal drills or augers for use particularly for mining purposes. The invention resides in the provision of a peculiar construction of the support for the drilling mechanism and in improvements in the latter, whereby the same coöperates to preserve a maximum degree of rigidity of the support when the invention is in actual operation.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a perspective view of a device embodying the invention, dotted lines showing angular adjustment of the sections of the upright. Fig. 2 is a detail view, in side elevation, of parts of the drilling mechanism. Fig. 3 is a rear elevation of the supporting frame or upright. Fig. 4 is a broken view showing a modified form of the notched portion of the supporting-frame and the spaced members 16 of the drilling-mechanism frame. Fig. 5 is a detail view of a part of one of the members of the drill-frame.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The support for the drilling mechanism consists of a frame or upright embodying upper and lower sections 1 and 2, respectively. The sections 1 and 2 are of like construction and embody spaced bars 3, connected at one end by tie-plates 4. The spaced bars of each section 1 and 2 are connected at the opposite end with each other by means of pivot members 5. It will thus be noted that the sections of the frame for the drilling mechanism are pivotally connected at one end, the opposite ends—namely, the upper extremity of the section 1 and the lower extremity of the section 2—being provided with adjustable points 6 to directly engage the base and ceiling of the cut to properly position the frame therein. The points 6 are slidable between the end portions of the bars 3, which are con-

nected by the tie-plates 4, and said points are provided with a plurality of openings 7 longitudinally thereof, through which pins 8, arranged in transverse openings in the sections 1 and 2 adjacent the plates 4, are adapted to pass in order to hold the points 6 at a predetermined adjustment. Pivot-lugs 9 project from opposite sides of the tie-plates 4, and pintle-bars 10 connect said lugs. A brace 11 is connected at one end with the upper extremity of the section 1 and at its opposite end with the section 2. This brace comprises spaced truss-bars, which consist of telescoping or longitudinally-slidable sections 12 and 13, the sections 12 operating in the sections 13, which are tubular. Ends of the sections 12 and 13 are connected with the pintle-bars 10 of the sections 1 and 2 of the supporting-frame. The tubular sections 13 of the truss-bars of the brace 11 are provided with set-screws 14, which are arranged to engage the sections 12, so as to hold the parts of the brace in an adjusted position. The pivotal connection of the sections 1 and 2 of the supporting-frame permits shortening and lengthening of this frame as regards the distance between the points 6, so as to facilitate positioning of the drilling mechanism in the mine preparatory to operation thereof. In other words, the connection between the sections 1 and 2 of the upright aforesaid admits of vertical alinement of said sections, and should the height of the passage of the cut in the mine not be sufficient to admit of the vertical alinement of the sections of the upright the brace members may be so adjusted that said sections 1 and 2 may be disposed by pivotal movement at an angular adjustment, the sections of the brace members of course telescoping in shortening the same. The adjustment of the sections 1 and 2 of the upright at an angle to each other is shown in dotted lines in Fig. 1. The points 6 have longitudinal ribs, so as to prevent the revolution of said points and to direct the same, so that the pins 8 may be readily forced through the openings 7 thereof.

The drilling mechanism included in the invention consists of a frame 15, having spaced members 16 projecting from the rear end thereof, the outer extremity of the spaced members 16 being bifurcated, as shown at 17. The spaced bars 3 of the sections of the supporting-frame of the drilling mechanism are provided at one edge and longitudinally thereof with notches 18, the said bars 3 being re-

duced upon opposite sides adjacent the notches, as shown at 19. When the frame 15 of the drilling mechanism is in position upon the frame or support therefor, the portions of the bars 3 at opposite sides of the notches 18 are received between the bifurcated portions 17 of the spaced members 16. The spaced members 16 thus have interlocking connection with the spaced bars 3, and since the members 16 are rigid the bars 3 will be braced from a lateral spring movement in a manner which will be readily apparent. The frame 15 of the drilling mechanism is provided with a longitudinal recess 20, in which a drill-rod 21 operates, said drill-rod being threaded longitudinally in the usual manner. A bracket 22 is attached to the under side of the frame 15 and is provided with a vertical arm 23, arranged in spaced relation to the adjacent end of the frame 15. The upper portion of the arm 23 is bifurcated to receive the drill-rod 21 when the latter is in position. Mounted upon the drill-rod 21 is a pinion 24, having feather-and-spline connection with the rod 21. The pinion 24 is arranged upon the drill-rod between the arm 23 of the bracket 22 and the adjacent end of the frame 15. A vertical seat 25 is provided upon the frame 15 adjacent the pinion 24, and this seat receives the lower section 26 of a threaded boxing which coöperates with the threaded portions of the drill-rod 21 to advance the latter in the drilling operation. The upper section of the boxing (designated 27) is carried by a pivoted plate 28, mounted upon the upper portion of the frame 15. The plate 28 is pivoted at one end, as shown at 29, the opposite end being adapted to be received between spaced apertured lugs 30, projecting upwardly from the frame 15. When the upper section 27 of the rod-boxing is bound upon the lower section, an end of the plate 28 is received between the lugs 26 and a transverse pin is forced through the apertures in said lugs to hold the sections 26 and 27 together. Projecting outwardly from the spaced members 16 of the frame 15 are journal-studs 31, adapted to receive a crank-wheel 32, provided adjacent its peripheral portions with lateral teeth 33, arranged to mesh with the teeth of the pinion 24. A crank-handle 34 extends from the gear-wheel 32, and operation of this handle will rotate the wheel 32 and communicate motion to the pinion 24. When the pinion 24 is rotated, similar movement is imparted to the drill-rod 21, which latter is provided with a suitable drill-point or auger, such movement advancing the drill in a manner which will be obvious to those versed in this art.

As will be clearly seen in Figs. 1 and 4, the

spaced members 16 of the frame 15 are narrowed toward the extremities adjacent the supporting-frame 1, and lugs 40 project from the bifurcated portions 17 of said members 16 and are adapted to engage teeth 41 along the reduced portions 19 of the notches 18. The drilling-mechanism frame 15 when in or out of use is adapted to be held in an ascertained position upon the supporting-frame 1 by the interlocking connection afforded in the provision of the coöperating lugs 40 and the teeth 41, which engage each other when the frame 15 is mounted upon the upright or frame 1, as shown in the broken view of Fig. 4.

Having thus described the invention, what is claimed as new is—

1. In a miner's drill, the combination of a supporting-frame or upright composed of pivoted sections adapted for approximately vertical alinement or angular adjustment, points for the sections, and a brace connecting the sections and adjustable to hold the same vertically alined or arranged at an angle to each other.

2. In a miner's drill, the combination of a supporting-frame or upright composed of sections pivotally connected at one end, a brace comprising sections having a sliding connection at one end, each section having a pivotal connection at its opposite end with one section of the upright, and means for holding the sections of the brace at a predetermined adjustment.

3. In a miner's drill, a frame or upright embodying sections pivotally connected to one another, and a brace pivotally connected at one end with the upper extremity of one section of the supporting-frame and at its opposite end with the lower extremity of said frame, said brace consisting of telescoping sections.

4. In a miner's drill, the combination of a supporting-frame or upright provided longitudinally thereof with a plurality of notched portions, the notched portions being formed with a plurality of teeth in the length thereof, and a drilling mechanism including a drill-supporting frame having a member adapted to be seated in a selected notched portion of the upright or frame and formed with an engaging tooth adapted to engage a tooth in the length of such notched portion to hold the drill-supporting frame at a predetermined adjustment.

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

HENRY TODD. [L. S.]

Witnesses:

N. E. McCLURE,
CHAS. BARKER.