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P. GUERRINI ET AL

SUPPORT FOR DRILLS

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2 Sheets-Sheet 1

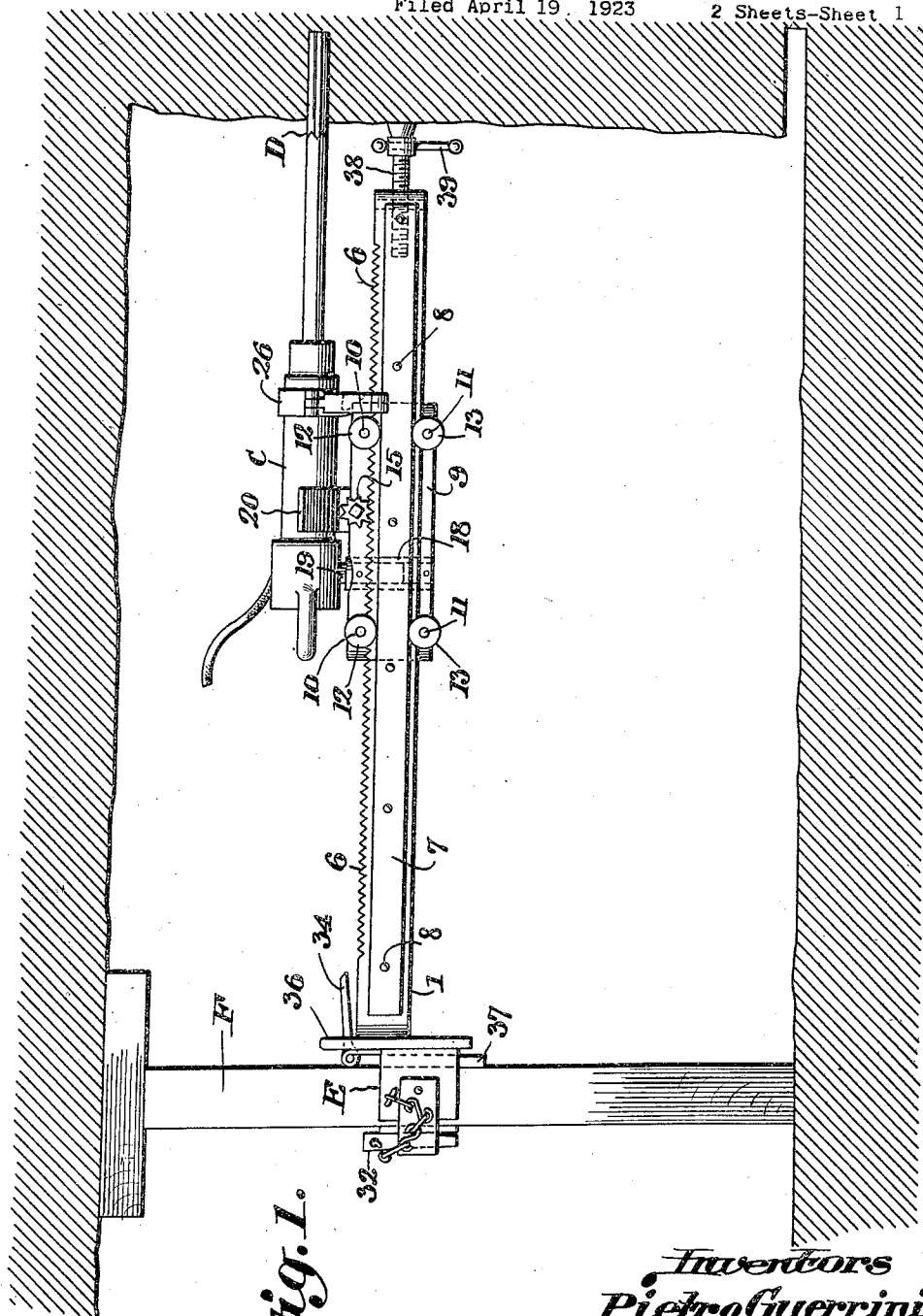


Fig. 1.

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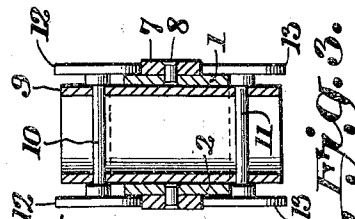
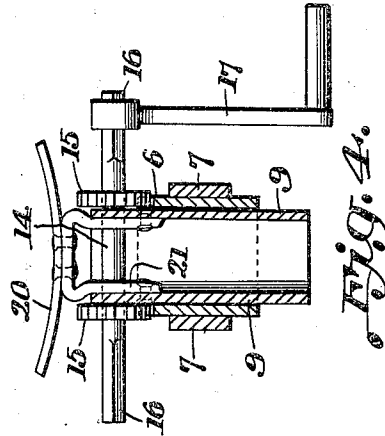
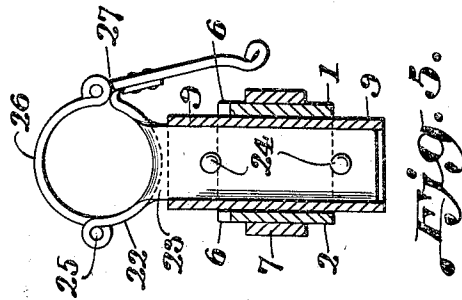
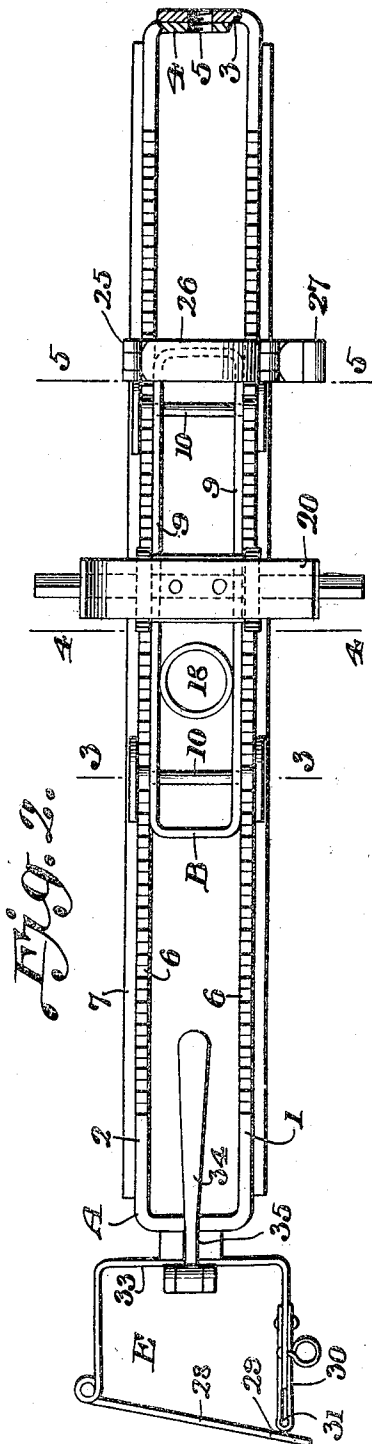
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SUPPORT FOR DRILLS

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

PIETRO GUERRINI AND LUIGI ZACCARIA, OF NOKOMIS, ILLINOIS.

SUPPORT FOR DRILLS.

Application filed April 19, 1923. Serial No. 633,185.

To all whom it may concern:

Be it known that we, PIETRO GUERRINI and LUIGI ZACCARIA, subjects of the King of Italy, and residents of Nokomis, in the county of Montgomery and State of Illinois, have invented certain new and useful Improvements in Supports for Drills, of which the following is a specification.

This invention relates to a support for coal or other drills, whether operated by electricity, compressed air, or by hand, which support can be secured in position in the mine and upon which a travelling carriage carrying the drill can move as desired.

An object of the invention is to provide such a support by which the drill can be supported at any desired angle, either horizontally or vertically, without interfering with the feed thereof. It also firmly supports and guides the drill in whatever position it may be placed.

Another object is to provide a device of this character in which the moving carriage travels readily on the support but without any side motion in any direction.

Other objects will be apparent from the following detailed description and the appended claims.

In the drawings:

Figure 1 is a perspective view of my invention supporting a drill in operative position in a mine, and shows the manner in which the device is held in position.

Figure 2 is a top plan view of the drill support with the drill removed.

Figure 3 is a cross section on the line 3—3 of Figure 2.

Figure 4 is a cross section on the line 4—4 of Figure 2.

Figure 5 is a cross section on the line 5—5 of Figure 2.

The drill support comprises a main member A formed preferably from a single piece of metal having sides 1 and 2 which are parallel. At one end the side 1 is bent to form an end piece 3 and the side 2 is bent to form an end piece 4. These two end pieces overlap and have a threaded opening 5 there-through for a purpose hereinafter set forth. One edge of each of the side frame members 1 and 2 is formed with rack teeth 6. Fastened to the outside of the bars 1 and 2 as by rivets 8 or similar securing means are bars

7 which extend substantially the full length of the bars 1 and 2 and are about equidistant from the two edges of these bars.

Within the main member thus described there travels a carriage B of generally rectangular form having sides 9, and adapted to fit snugly within the sides 1 and 2. Near each end of the carriage B is an upper spindle 10 and a lower spindle 11. The upper spindle is provided with rollers 12 and the lower spindle with rollers 13. These rollers run on the edges of the bars 7, and the parts are so proportioned that the two sets of rollers have close engagement with the bars and prevent any lost motion of the carriage in one direction. The carriage walls B fit snugly between the walls 1 and 2 and prevent any lost motion of the carriage sideways. But both this engagement and that of the rollers with their trackways will permit easy movement of the carriage B along the main member A in a direction longitudinally thereof. Moreover, by the provision of upper and lower sets of rollers the support may be placed in any position; horizontal, vertical or at any angle thus giving it a wide range of utility.

Near its middle a spindle 14 passes through the walls 9 of the carriage near one edge, and on this spindle are rigidly mounted pinions 15 which mesh with the rack teeth 6 on the bars 1 and 2. Each end of the spindle 14 is extended and has a non-circular end 16 adapted to receive a handle 17 by which the spindle may be turned. Turning of the spindle will rotate the pinions 15 and cause the carriage to travel along the main frame member A. The travelling movement of the carriage can be obtained when the support is in any desired position.

A cylindrical member 18 fits tightly between the walls 9 or may be fastened there as desired, and into this may fit a member 19 carried by the drill C. An arc shaped plate 20 has legs 21 which are riveted to the sides 9 of the carriage. The body of the drill C will rest on this. A semi-circular clamp member 22 has a projecting portion 23 secured by rivets 24 to the walls 9. A second semi-circular clamp member 26 is hinged at 25 to the member 22, and at its other side is detachably engaged with the member 22 by any suitable latch mechanism

27. This clamp fits over the body of the drill as shown in Figure 1. It will be noted that the drill will thus be supported by the carriage when in substantially any position, and can be fed in either direction by proper movement of the handle 17.

The drill has been conventionally illustrated with a drill point D, and it may be driven by electricity, compressed air, manually or in any desired manner. In any event, it can be firmly held and easily fed as desired, regardless of the position in which it is placed.

A supporting clamp E may be detachably connected to one end of the main frame A as shown in Figures 1 and 2. This clamp consists of a substantially rectangular member having a hinged side 28 provided with an opening 29 adapted to fit over a tongue 30 of the adjacent side. This tongue may be formed of a folded member with a space 31 between the parts into which may be dropped a holding pin 32. The opposite side 33 of the clamp E has ears between which is hinged a latch arm 34 adapted to be dropped into a slot 35 in the end of a member 36 attached to the end of the frame A. The clamp may be applied to a beam F in the mine as shown in Figure 1, a small block of wood 37 being used to space the clamp from the timber if desired.

A screw threaded brace member 38 screws within the opening 5 and has its end placed against the coal or suitable support. By turning this member through the common sliding bar 39 carried thereby as shown in Fig. 1, the frame A may be moved to wedge the parts firmly between the two end supports. Although held against any accidental movement, it can be readily released and the drill support moved to another position.

It will thus be evident that we have provided a very efficient support for a drill wherein the travelling carriage can be easily moved in the desired direction, but will be positively prevented from any movement in other directions. If the friction between the pinions 15 and rack teeth 6 is not sufficient to hold the carriage against accidental movement, any desired detent mechanism can be employed, or the parts blocked temporarily. However, the carriage is designed to be fed by the operation of the handle 17 and can be held in position in the same manner.

By our invention a drill can be readily placed in any desired position and operated efficiently. Obviously various detail changes can be made without departing from the scope of the invention, and it is to be understood that the invention is limited only by the scope of the appended claims.

We claim as our invention:

1. A drill support comprising an open rectangular member, track rails on the outer

sides of said member, rack teeth on one edge of each of the sides of said member, a carriage fitting within said member and traveling longitudinally thereof, upper and lower sets of wheels supported by the carriage and running on both edges of the track rails, and pinions supported by said carriage and engaging said rack teeth.

2. A drill support comprising a frame member having two elongated sides, track rails on the outer sides of said member, rack teeth on one edge of each of said sides, a drill supporting carriage fitting within said member and extending above and below the same, spindles carried by said carriage above and below the edges of sides of the frame, wheels on said spindles running on the edges of the track rails, and pinions supported by the carriage and engaging the rack teeth.

3. A drill support comprising a frame member having two elongated sides, track rails narrower than the sides and attached to the outer surface thereof, a supporting carriage slidably fitting within said frame to travel longitudinally thereof, upper and lower wheels carried by the carriage and engaging both sides of the track rails, and means for moving said carriage longitudinally of said frame.

4. A drill support comprising a frame member having longitudinal sides separated from each other, track rails on the outside of the sides, a carriage slidably fitting within the frame member, guiding means carried by the carriage and engaging said rails on both edges thereof to prevent sidewise movement of the carriage in one direction relative to the frame, the engagement of the carriage with the frame preventing relative movement in a direction perpendicular to the first direction, and means for moving the carriage in a third direction perpendicular to the other two.

5. A drill support comprising an open rectangular frame member, rack teeth on one edge of each side thereof, a carriage slidably fitting within the frame member for movement longitudinally thereof, rails supported by the frame member on the outside thereof, rollers carried by the carriage and engaging the rails on both edges, the engagement of the carriage with the frame and of the guiding means with the rails preventing any movement between the frame and carriage except the longitudinal movement, and pinions carried by the carriage and engaging the rack teeth, the rotation of the pinions producing said longitudinal movement.

6. A drill support comprising a frame member, two rows of rack teeth on said member, a carriage adapted to travel along said member, pinions carried thereby and engaging said rack teeth, track rails on said member, and wheels on said carriage engag-

ing both edges of the track rails, the engagement of the carriage and member and of the wheels with the rails preventing any movement of the carriage except longitudinally
5 of the member.

7. A drill support comprising a frame member, a clamp detachably carried by one end thereof to engage a timber or suitable support, a brace adjustably carried by the
10 other end of the frame member, a carriage

guided for longitudinal movement on said frame, and means for guiding said carriage and preventing any relative movement between the frame and carriage except said longitudinal movement.

In testimony whereof, we have hereunto
subscribed our names.

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PIETRO GUERRINI.
LUIGI ZACCARIA.