April 26, 1927.

E. G. GARTIN

1,626,277

ROCK DRILLING DEVICE

Filed Jan. 14, 1922

Fig. 1.

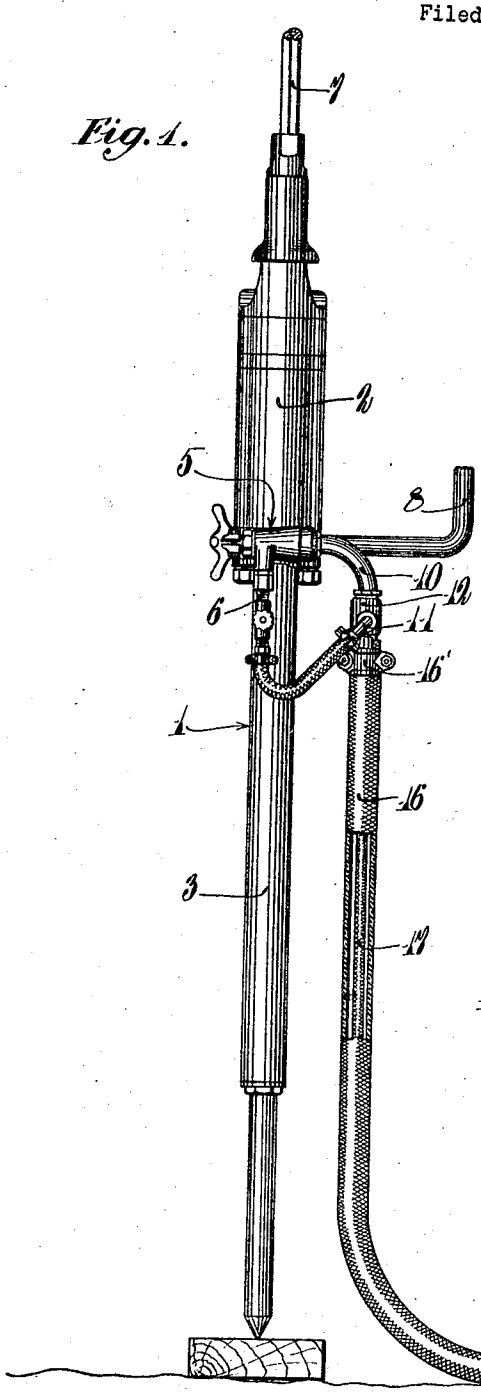
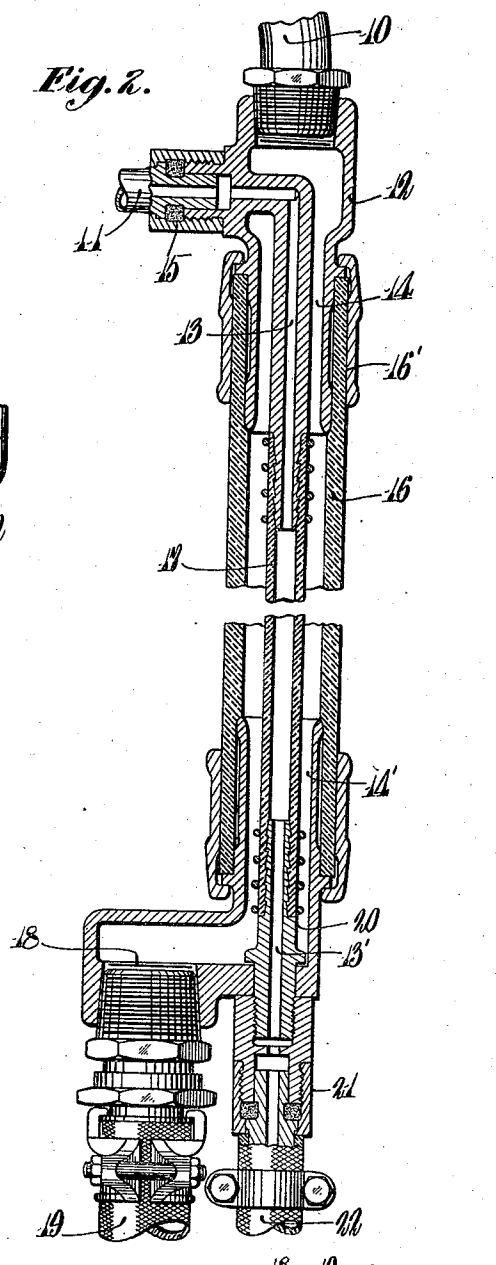


Fig. 2.





Inventor:
Elmer G. Gartin.
By Horace L. Schley
Atty.

Patented Apr. 26, 1927. 1,626,277

UNITED STATES PATENT OFFICE.

ELMER G. GARTIN, OF CLAREMONT, NEW HAMPSHIRE, ASSIGNOR TO SULLIVAN MACHINERY COMPANY, A CORPORATION OF MASSACHUSETTS.

ROCK-DRILLING DEVICE.

Application filed January 14, 1922. Serial No. 529,165.

My invention relates to means for supplying liquid and gaseous fluids to points of use, and more particularly to improved means for supplying liquid and gaseous fluids to rock drilling devices.

An object of my invention is to provide improved liquid and gaseous fluid conducting means. Another object of my invention is to provide improved liquid and gaseous fluid conducting means for supplying motive fluid and cleansing fluid to rock drilling devices. A further object of my invention is to provide improved means for supplying compressed air and water to rock drilling devices whereby the latter may be more conveniently handled than is now the case. Other objects and advantages of my invention will hereinafter more fully appear.

In the accompanying drawings I have shown for purposes of illustration one form which my invention may assume in practice.

In these drawings,—

Fig. 1 is a view mainly in elevation, but with parts broken away of my improved liquid and gaseous fluid conducting means shown applied to a rock drilling mechanism.

Fig. 2 is a view on an enlarged scale of my improved conducting means, the parts being shown in section to disclose more clearly the structure.

It is a well known fact that for certain classes of rock drilling it is highly desirable to supply liquid to the hole being drilled to allay the dust and this is commonly done by supplying the liquid through the hollow drill steels which are employed for drilling the holes. In prior devices, however, it has been necessary to lead separate motive fluid and cleansing liquid supply connections to the rock drilling device and the two pipes necessitated thereby have greatly interfered with the use of the machines during rock drilling, the pipes tending to tangle and trip the drill runners and requiring an inordinate amount of care. For the purpose of overcoming these difficulties I have devised an improved mechanism the illustrative form of which I shall now describe.

Referring to Figure 1, it will be noted that I have shown a drilling mechanism, generally indicated 1, of the well known stoper type, which drilling mechanism comprises a pneumatic motor 2 and pneumatic feeding means 3 therefor. In the use of this device motive fluid is supplied to the motor 2 under control of a valve mechanism generally indicated by 5 and liquid cleansing fluid supplied through a connection 6 is likewise controlled by this valve mechanism and conducted in any one of a number of well-known methods to the interior of a hollow drill steel 7. A portion of the motive fluid may also be supplied to the steel 7 along with the liquid in any usual manner. The type of tool that I have shown is of the hand rotation type having a lever or handle 8 which is grasped by the operator and oscillated in order to insure the boring of a true hole. Now it will be understood that if separate air and water connections were employed, there would be two pipes hanging down near the base of the feed mechanism and constantly tending to trip the drill runner. I have accordingly provided means, whose illustrative form I shall now describe, for reducing the danger of entanglement and for facilitating the use of the drilling mechanism as a whole.

Connected to the end of the valve mechanism 5 is a curved connector member 10, while a second connector 11 leads to the liquid cleansing fluid supply connection on the tool. The connectors 10 and 11 lead to a manifold member 12 which is divided herein into coaxially disposed passages 13 and 14, although it will be obvious that the passages need not be coaxial provided one lies within the other. The connector 11, which is the liquid supplying connection, communicates by a suitably packed joint 15 with the passage 13 and the connector 10 communicates with the passage 14. It will be noted that a hose 16 through which air is supplied is connected as at 16′ to the exterior of the member 12 and communicates with the passage 14 while within the hose 16 a second hose 17 is arranged and communicates with the passage 13, both hoses being held against detachment in any suitable manner as, for example, by the collars and windings shown. At the opposite ends of the hoses a somewhat similar manifold member is provided, this manifold member having a passage 14′ formed therein corresponding to the passage 14 and communicating with an outlet 18 to which a line 19 leading from an air supply passage may be attached. A passage forming member 20 is

secured within the passage 14 and has therein a passage 13′. The hoses 16 and 17 are similarly secured to the passage forming means and a connection 21 for a liquid supply pipe 22 will be noted to communicate with the passage 13′.

The mode of operation of this device will be obvious. The connectors 11 and 10 are connected respectively to the liquid and motive fluid supply ports on the motor 2. Suitable pipes 19 and 22 leading to the supply of air under pressure and cleansing liquid will be connected to the opposite ends of the pipes 16 and 17 by means of the connections 18 and 21. The cleansing liquid will then be conducted by the inner pipe and the motive fluid by the pipe surrounding the inner pipe as may be requisite. Any leakage will normally be from the air into the inner pipe and so no danger of flooding the motor will arise. As there will be but a single flexible member for which the workman must look out, leading from a point at some distance from the drilling device to the drilling device, it will be apparent that the use of the drill will be greatly facilitated.

While I have in this application specifically described one form which my invention may assume in practice, it will be understood that this form of the same is shown for purposes of illustration and that the invention may be modified and embodied in various other forms without departing from its spirit or the scope of the appended claim.

What I claim as new and desire to secure by Letters Patent is:

External fluid supply connections for a rock drilling mechanism having internal fluid conducting means, comprising coaxial gaseous and cleansing liquid pressers supply lines, manifold members arranged at each end of said coaxial supply lines, and branch connections communicating with each of said manifold members and with said internal fluid conducting means and the source of supply respectively.

In testimony whereof I affix my signature.

ELMER G. GARTIN.

Certificate of Correction.

Patent No. 1,626,277. Granted April 26, 1927, to

ELMER G. GARTIN.

It is hereby certified that error appears in the printed specification of the above-numbered patent requiring correction as follows: Page 2, line 41, in the claim, for the word "pressers" read *pressure;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 7th day of June, A. D. 1927.

[L. S.]

M. J. MOORE,
Acting Commissioner of Patents.