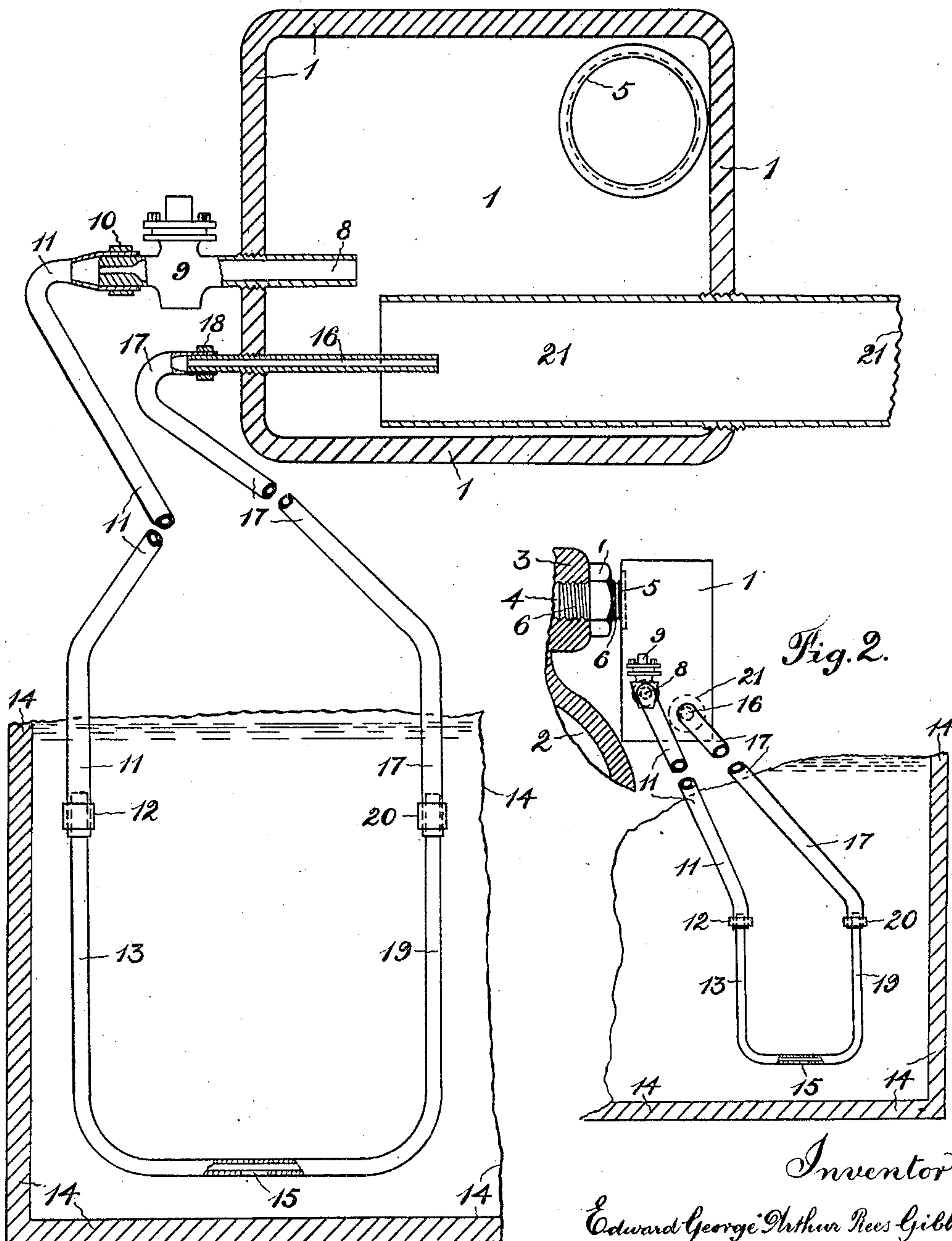


No. 844,745.

PATENTED FEB. 19, 1907.

E. G. A. REES-GIBBS.  
 SPRAY FOR ROCK DRILLS.  
 APPLICATION FILED SEPT. 17, 1906.



Witnesses:  
*Chas. Overdale*  
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Fig. 1.

Inventor:  
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 Attorney.



# UNITED STATES PATENT OFFICE.

EDWARD GEORGE ARTHUR REES-GIBBS, OF ROODEPOORT,  
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## SPRAY FOR ROCK-DRILLS.

No. 844,745.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed September 17, 1906. Serial No. 335,023.

*To all whom it may concern:*

Be it known that I, EDWARD GEORGE ARTHUR REES-GIBBS, a subject of the King of Great Britain, and a resident of Roodepoort, Transvaal, have invented certain new and useful Improvements in Sprays for Rock-Drills, of which the following is a specification.

This invention relates to sprays for rock-drills or rock-drilling machines or to means for producing and directing a spray of water or other suitable liquid on the rock-face round the bit or tool or the hole being formed thereby. Devices of this kind are employed for preventing the finely-comminuted or pulverized rock passing into and befouling the atmosphere in the workings of mines, &c.

As compared with devices heretofore designed for the purposes specified my invention gives the following advantages, namely: The water-supply which is utilized to form the spray is capable of being regulated so that an efficient spray can be produced with less water than is required in many of the spraying attachments at present employed. My spraying attachment is readily adaptable to most of the existing types of rock-drills, and it is of simple and cheap construction. It takes up no more space than the existing exhaust attachment of the machine.

The apparatus is actuated by means of the exhaust-air. With some of the attachments designed to be actuated by the exhaust-air from the machine the exhaust-port has hitherto been throttled or the free egress of the exhaust has been interfered with, causing a back pressure which has impaired the efficiency of the machine, and one of the objects of the invention is to obviate this defect.

The invention will now be described in detail by aid of the accompanying drawings, in which—

Figure 1 represents a side part-sectional elevation of the apparatus; and Fig. 2 is a front elevation of the apparatus, showing it fixed to a rock-drill or rock-drilling machine.

1 is a receiver of suitable capacity for the air exhausting from the rock-drill. This receiver may be made of any suitable configuration so as to fit or adapt it to any particular type of machine. In the drawings it is shown as a plain rectangular casing or box.

In Fig. 2, 2 represents a portion of the cylinder of a rock-drill or rock-drilling machine,

3 a portion of the air-chest, and 4 the exhaust-port, which latter is usually provided with an internal screw-thread. The receiver 1 is arranged and secured in a suitable manner in close proximity to the exhaust-port 4.

In the construction shown, 5 represents the inlet through which the exhaust passes into the receiver. This inlet 5 is made of the same diameter or approximately the same diameter as the exhaust-port 4, so that no impediment is offered to the free passage of the exhaust into the receiver. As shown, an externally-threaded pipe 6 is employed for conducting the exhaust from the port 4 into the receiver. This pipe 6 screws into the exhaust-port 4 at one end, is fixed to the casing in any suitable manner at the other end, and is provided with a nut 7, engaging its screw-threaded exterior for fixing the attachment to the machine.

In one side of the casing 1 is screwed or otherwise suitably fixed a tube 8, which at its inner end communicates with the casing. This tube 8 is fitted with a cock 9 for regulating the quantity of exhaust-air permitted to pass out of the casing through the tube 8. The bore of the outer end of the tube 8 beyond the cock 9 is made smaller than the bore on the other side of the cock, the area of the inlet end being approximately three times the area of the outlet.

Over the outer end of the tube 8 and secured by a clamping-ring 10 is one end of a hose or other suitable flexible pipe 11. The other end of the hose or flexible pipe 11 is passed over and secured by a clamp 12 or otherwise on one branch 13 of a U-shaped tubular piece. The U-shaped piece is placed in a conveniently-disposed vessel 14, which serves as the holder for the water or other liquid to be utilized in the production of the spray. The U-shaped piece in the bend is constructed with a hole or holes 15, which form an inlet or inlets for the water.

In the side of the receiver 1 is screwed or otherwise conveniently fixed another tube 16, over the outer extremity of which is passed the end of a hose or flexible pipe or tube 17, secured thereon by means of a clamping-ring 18 or otherwise. This hose or flexible pipe 17 at the other end is passed over the other branch 19 of the U-shaped piece, to which it is secured by means of the clamp 20 or in other convenient manner.



In the wall of the receiver 1 opposite the end of the tube 16 is screwed or otherwise fixed a pipe 21, which extends some distance into the interior of said receptacle and projects for some distance over the inner end of the tube 16. The inner end of the pipe 21 is open to the receiver, and the outer end, which constitutes the spraying-nozzle, serves also as the exhaust-pipe. The pipe 21 is of the same diameter (or larger) as the exhaust-port 4 of the machine.

In the operation of the apparatus the whole of the exhaust-air passes from the exhaust-port 4 into the receiver 1, and the exhaust-port communicating unrestrictedly therewith the exhaust is not throttled, so that back pressure in the machine is avoided. A quantity of the exhaust-air passes along the tube 8 through the cock 9 and the restricted outlet-orifice of the tube 8 to the flexible pipe 11 through the latter to the U-piece. In its passage round the bend a quantity of the water or liquid is drawn through the aperture or apertures 15 into the U-shaped piece from the vessel 14 and conveyed by the air up the other branch 19 through the flexible pipe 17 to the tube 16. As the water issues from the latter it commingles with the bulk of the exhaust-air which leaves the receiver 1 by the exhaust and spray pipe 21 and issues from the latter in the form of a spray. The pipe 21 is so arranged that the spray is directed on the rock-face around or in the vicinity of the hole being formed by the drilling or boring bit of the machine.

What I claim as my invention, and desire to protect by Letters Patent, is—

1. In a rock-drill spray, in combination, a receptacle for the exhaust, a liquid-holding vessel, a perforated tube immersed therein, a tube communicating at one end with the interior of the receiver and at the other end with one end of the immersed perforated tube, a second tube communicating with the receiver at one end and at the other end communicating with the other end of the immersed perforated tube, and an exhaust-outlet pipe communicating with the receiver at its inner end into which outlet-pipe the liquid is directed by the second tube.

2. In a rock-drill spray, in combination, a receptacle in communication with the exhaust-port, a liquid-holding vessel, a perforated tubular member immersed therein, a tube communicating at one end with the interior of the receptacle, a cock fitted in said tube, a flexible pipe placing the outer end of

said tube in communication with one branch of the immersed perforated tubular member, a second tube communicating at one end with the interior of the receptacle, a flexible pipe placing the outer end of said second tube in communication with the other branch of the immersed tubular member, and an exhaust-outlet pipe surrounding the inner end of the second tube, which pipe serves as the spray-nozzle.

3. In a rock-drill spray in combination, a receptacle having an opening providing an unrestricted inlet for the exhaust, a water-holding vessel, a U-shaped perforated tubular piece immersed therein, a tube communicating at one end with the receptacle and providing a restricted outlet-orifice at the other end, a cock in said tube, a flexible pipe placing the outer end of said tube in communication with one branch of the U-shaped perforated piece, a second tube communicating at one end with the interior of the receptacle, a flexible pipe placing the other end of said second tube in communication with the other branch of the U-shaped perforated piece, and an exhaust or spray pipe communicating with the receptacle, surrounding the second tube and serving to direct the spray.

4. In a rock-drill spray, in combination, the air-chest 3 formed with the exhaust-port 4, the receptacle 1 formed with an inlet 5 of substantially the same area as the exhaust-port 4, the externally-threaded tube 6 for conducting the exhaust from the port 4 into the receptacle, the tube 8 communicating with the receptacle and formed with a reduced outlet-orifice, the cock 9, the water-holding vessel 14, the U-shaped piece having the aperture 15 in the bend thereof, the hose or flexible pipe 11 connected at one end to the tube 8 and at the other end to one branch 13 of the U-piece, the tube 16 communicating with the receptacle, and the hose or flexible pipe 17 placing the other end of said tube in communication with the other branch 19 of the U-shaped piece, the exhaust-outlet and spray pipe 21 communicating with the interior of the receptacle below the level of the tube 8 and surrounding the inner end of the other tube 16, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWARD GEORGE ARTHUR REES-GIBBS.

Witnesses:

CHAS. OVENDALE,  
R. OVENDALE.