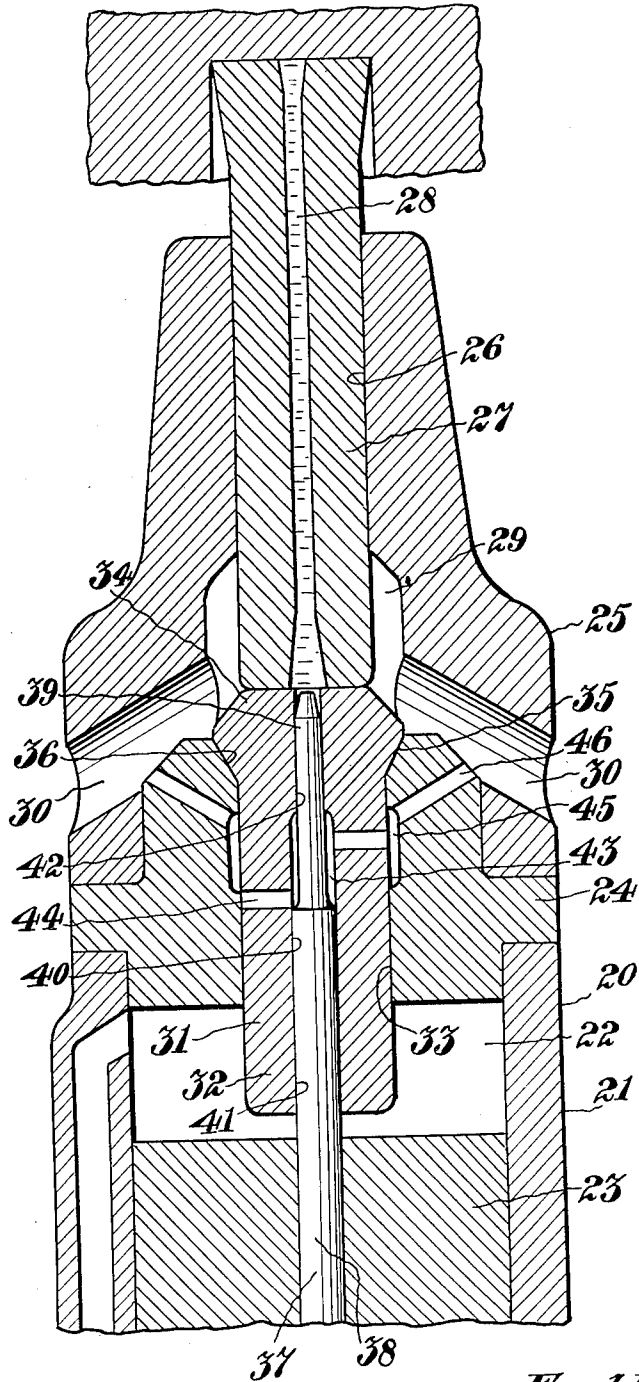


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F. M. SLATER
DUSTLESS ROCK DRILL
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INVENTOR.
Fred M. Slater.
BY *Charles H. Allen*
HIS ATTORNEY.

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DUSTLESS ROCK DRILL

Fred M. Slater, Easton, Pa., assignor to Ingersoll-Rand Company, Jersey City, N. J., a corporation of New Jersey

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2 Claims. (Cl. 121—10)

This invention relates to rock drills, and more particularly to fluid actuated rock drills of the hammer type having an anvil block for transmitting the blows of the hammer piston to the working implement and a flushing system for removing the cuttings from the drill hole.

One object of the invention is to prevent leakage of pressure fluid through the anvil block and along the water tube into the drill steel.

Other objects will be in part obvious and in part pointed out hereinafter.

The accompanying drawing is a sectional elevation of the front end of a rock drill constructed in accordance with the practice of the invention.

Referring more particularly to the drawing, 20 designates, in general, the front end of a rock drill of the stoper type comprising a cylinder 21 having a piston chamber 22 to accommodate a reciprocatory hammer piston 23. A closure is provided for the front end of the cylinder 21 by a front cylinder washer 24 having end projections which extend into the cylinder 21 and into a front head 25.

In the front head 25 is a bore 26 to receive and guide a drill steel 27 having a passage 28 extending longitudinally therethrough for conveying cleansing liquid into the hole being drilled. The portion of the bore 26 adjacent the front cylinder washer 24 is enlarged, as at 29, and said enlarged portion communicates with the atmosphere through passages 30 in the front head, thereby providing an escape for such water and entrained cuttings as may flow downwardly along the drill steel into the front head.

As an additional function the front cylinder washer 24 serves as a guide for an anvil block 31 which transmits the blows of the hammer piston 23 to the drill steel 27. The anvil block comprises a shank 32 slidable in a bore 33 in the front cylinder washer and an enlargement or head 34 of which the rear surface 35 is tapered to cooperate with a seating surface 36 at the front end of the bore 33 to prevent the entrance of water from the bore 26 into the bore 33.

The water conveyed by the passage 28 to the drill hole is introduced into said passage by a water tube 37 extending through the percussive element of the drill, including the anvil block 31, and preferably terminates with its

front end at a point immediately rearwardly of the drill steel 27.

In accordance with the practice of the invention, the water tube consists of a body portion 38 and a reduced portion or tip 39, and the anvil block 31 is provided with a bore 40 consisting of an enlarged portion 41 to accommodate the body of the tube 37 and a forward reduced portion 42 to receive the tip 39. The portions 41 and 42 of the bore 40 are only sufficiently larger than the portions of the water tube lying therein to assure free slidable movement of the anvil block on the tube and at the same time to effect a substantial seal between these elements in order to prevent excessive leakage of pressure from the front end of the piston chamber 22 into the bore 40.

The rear end of the tip 39 of the water tube lies within the enlarged portion 41 of the bore 40 thus providing an annular space 43 around said tip and from which space extends a radial passage or passages 44 to provide communication between the bore 40 and an annular groove 45 in the front cylinder washer 24. The annular groove 45 is communicated with the atmosphere through passages 46 opening, in the present instance, into the passages 30.

During the operation of the device, such pressure fluid as may find its way from the front end of the piston chamber 22 into the bore 40 passes through the passages 44, 45, 46 and 30 to the atmosphere instead of entering the drill steel to commingle with the water flowing therethrough and causing dust in dry form to be expelled into the atmosphere. The various passages serving to divert such leakage pressure fluid are so positioned that the bore 40 is at all times in communication with the atmosphere, irrespective of the position of the anvil block. Owing to the snug fits maintained between the several portions of the bore 40 and the water tube the loss of pressure fluid through the anvil block will be greatly minimized.

I claim:

1. In a rock drill, the combination of a casing having a piston chamber and a hollow drill steel extending into the casing, a hammer piston in the piston chamber, an anvil block in the casing to transmit the blows of the hammer piston to the drill steel and having a bore, a water tube in the anvil block for supplying cleansing water to the

drill steel, and a passage in the anvil block and the casing communicating the bore with the atmosphere to permit the escape of pressure fluid leaking from the piston chamber into the bore.

supplying cleansing water to the drill steel and having portions of different diameters extending into the enlarged and reduced portions and cooperating with the walls of said portions to minimize the leakage of pressure fluid through the bore, and a passage in the anvil block and the casing communicating the bore with the atmosphere to permit the escape of pressure fluid leaking from the piston chamber into the bore.

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2. In a rock drill, the combination of a casing having a piston chamber and a hollow drill steel extending into the casing, a hammer piston in the piston chamber, an anvil block in the casing to transmit the blows of the hammer piston to the drill steel and having a bore comprising an enlarged portion and a reduced portion, a water tube

FRED M. SLATER.