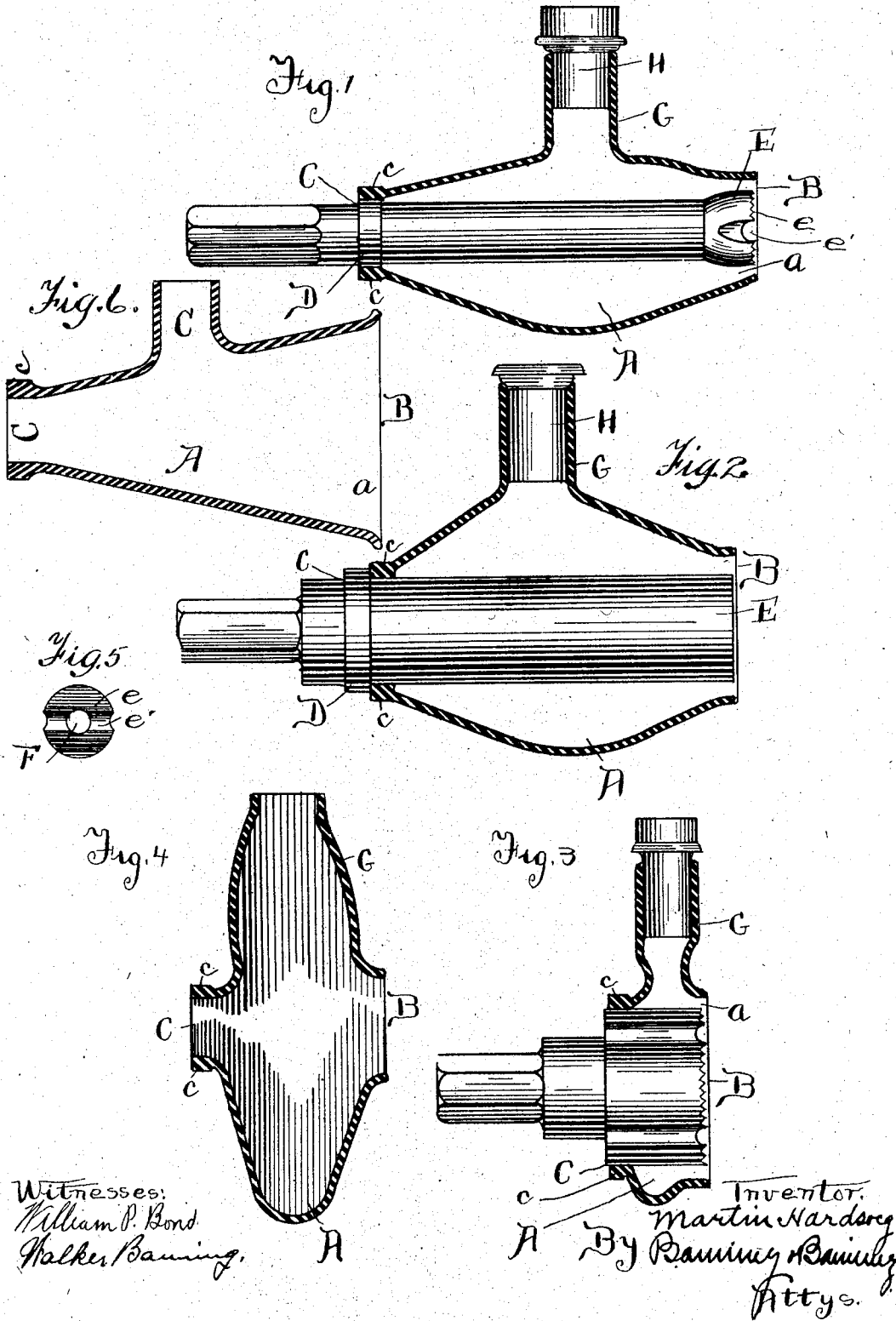


No. 796,327.

PATENTED AUG. 1, 1905.

M. HARDSOCC.
ATTACHMENT FOR ROCK DRILLS.
APPLICATION FILED JUNE 3, 1904.



UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR ROCK-DRILLS.

No. 796,327.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed June 3, 1904. Serial No. 210,964.

To all whom it may concern:

Be it known that I, MARTIN HARDSOCC, a citizen of the United States, residing at Ottumwa, in the county of Wapello and State of Iowa, have invented certain new and useful Improvements in Attachments for Rock-Drills, of which the following is a specification.

The device of the present invention is intended for use, primarily, with pneumatic rock-drills, although it may be used in other connections; and the object of the invention is to provide means for drawing away the dust from the cutting end of the drill, so that the cutting operation may be facilitated and the operator relieved from the annoyance and danger of working in the dusty atmosphere.

The device is so arranged and constructed that it may be readily applied to or removed from rock-drills or cutting instruments of any usual and well-known type without the necessity for changing or altering the construction of the instrument in any way.

The invention consists in the features of construction and combination of parts herein after described and claimed.

In the drawings illustrating the invention, Figures 1, 2, and 3 are sectional views of the device as applied to bits or rock-dressing tools of different shapes; Fig. 4, a sectional view of the device in compressed relation; Fig. 5, a view of the cutting-face of the tool of Fig. 1, and Fig. 6 a modified form.

The device consists, essentially, of a protective sheath or covering of rubber or other suitable flexible material having a body portion A of suitable diameter and provided at its outer end with an open mouth *a*, having a contacting edge or rim B, which rim or edge is adapted to abut against the rock around the point at which the drilling or dressing is to be done. At the opposite end is an opening C, provided with a reinforced rim or collar *c*, through which opening is inserted a bit of suitable formation, which bit is preferably provided with a flange D for the contact of the rim or collar of the protective sheath. The preferred type of bit (shown in Fig. 1) is provided with an enlarged cutting-head E, having a serrated cutting-face *e*, which face is provided with a transversely-extending groove or channel *e'*, communicating with a longitudinally-extending hole or opening F, which passes entirely through the bit for the pas-

sage of the exhaust-air from the hammer therethrough. At one side of the body portion of the protective sheath is formed a tubular collar G, adapted to have an exhaust-pipe H inserted therein.

In Fig. 3 is shown a tool having an enlarged cutting-head more especially adapted for the dressing of stone, and the shape of the protective sheath is correspondingly altered, since it is obvious that the particular shape or proportion of the various parts will in all cases be determined by the character of the tool to which the device is applied.

In use the sheath or cover is inserted into place on a tool of the character indicated and is held in place by the impingement of the neck or collar around the opening D. The elasticity or flexibility of the sheath or cover allows the contacting edge to be tightly pressed around the point of application of the bit, after which the bit is reciprocated in the usual manner, and as the bit advances into the stone the protective sheath will be compressed into the shape shown in Fig. 4, so that it does not impede in any way the operation of the bit. It will be understood that as the bit reciprocates the protective sheath will expand and contract accordingly, being more and more compressed as the bit advances farther into the rock. The exhaust-pipe, which is attached to an exhaust-fan or other suitable appliance, exhausts the air from around the cutting-face of the bit, so that dust or chips which are generated will be readily carried away and discharged at a suitable point, thereby relieving the operator from all danger and annoyance from such particles. When used with a bit of the character shown in Fig. 1, the exhaust-air from the pneumatic tool will be carried through the bit and discharged at the cutting end and then drawn off by the exhaust-fan, so that the air discharged around the cutting-face of the bit will serve to initially dislodge all chips or dust from the point of application of the bit, and when dislodged said particles will be carried away by the exhaust-pipe, so that the hole drilled by the bit will be kept free from refuse of all kinds and the cutting operation greatly simplified.

Although the device is especially adapted and intended for use with a bit of the character shown in Fig. 1, it may be employed with bits of any well-known and suitable kind, since it is not entirely dependent for its successful

operation upon the exhaust-air from a pneumatic tool. Although preferably formed of rubber, it may be formed of other suitable flexible material so arranged as to entirely inclose the cutting-tool.

As hitherto stated, the shape and proportion of the parts composing the sheath may be varied to suit the character of bit with which it is employed, and the radius of its operation will be determined by the size of the mouth around the bit. As shown in Fig. 6, the mouth is widely distended, giving the sheath a large radius from which it will exhaust the dust, whereas in Figs. 1 and 2 the mouth is more contracted.

What I regard as new, and desire to secure by Letters Patent, is--

1. In combination with a bit, a protective sheath having walls of flexible material adapted to be expanded by the forward movement of the bit and having a mouth adapted to abut against the substance being acted on and provided with an opening having walls adapted to impinge against the shank of the bit, and an exhaust-pipe for exhausting air from the interior of the sheath, substantially as described.

2. In combination with a bit, a protective sheath having walls of flexible material and having an enlarged body portion terminating at one end in a mouth having edges adapted to abut against the substance being acted upon, said body terminating at its opposite end in an opening surrounded by an elastic flange adapted to impinge against the shank of the bit for holding the sheath in fixed contact with the bit and allowing its body to be laterally expanded with the forward movement of the bit, and an exhaust-pipe for exhausting

air from the interior of the sheath, substantially as described.

3. In combination with a bit, a protective sheath of rubber provided with an enlarged body portion terminating at one end in a mouth having edges adapted to abut against the substance being acted on and terminating at its opposite end in an opening provided with a thickened rim or flange adapted to impinge against the shank of the bit and hold the sheath in fixed contact with the bit and allowing the body of the sheath to be expanded with the forward movement of the bit, a tubular flange in the side of the body portion, and an exhaust-pipe fitted therein for exhausting air from the interior of the sheath, substantially as described.

4. In a rock-drill, the combination of a bit adapted to be used with a pneumatic tool, said bit being provided with a longitudinally-extending passage opening through its acting face for discharging exhaust-air from the tool, a protective sheath consisting of an enlarged body portion having at its outer end a contracted mouth with edges adapted to contact the surface being acted on and provided at its opposite end with a contracted opening with walls adapted to contact the bit and hold the sheath in fixed relation to the bit at its attaching end and allow the body of the sheath to be expanded with the forward movement of the bit, and an exhaust-pipe for exhausting air from the interior of the sheath, substantially as described.

MARTIN HARDSOCC.

Witnesses:

EMMET A. WORK,
EVANGELINE H. DOUGLASS.