

No. 895,228.

PATENTED AUG. 4, 1908.

A. O. BARTLETT.
DUST COLLECTOR.
APPLICATION FILED OCT. 1, 1907.

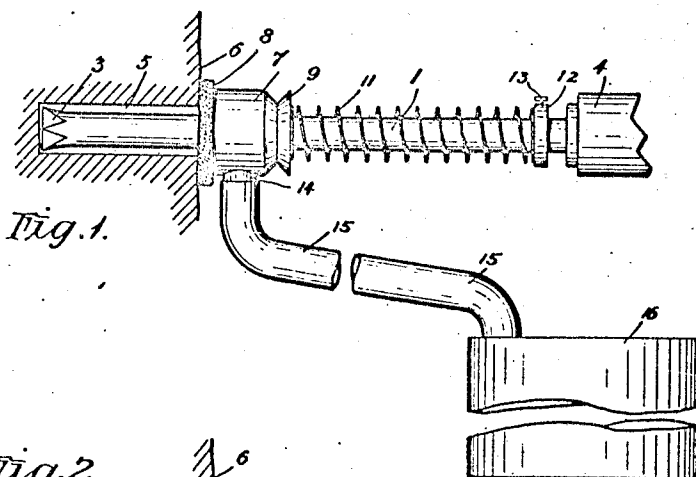


Fig. 1.

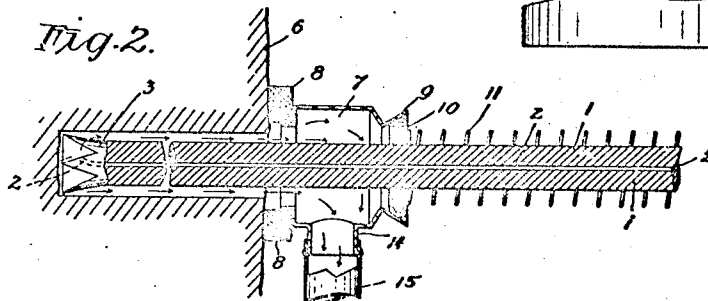


Fig. 2.

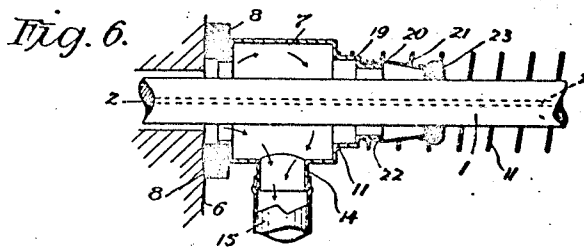


Fig. 6.

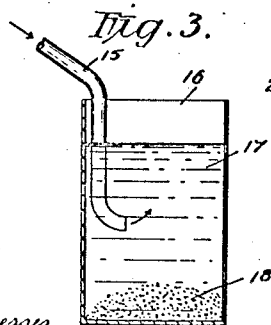


Fig. 3.

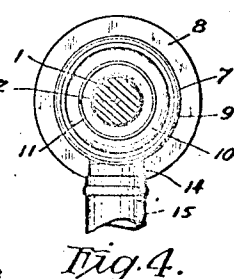


Fig. 4.

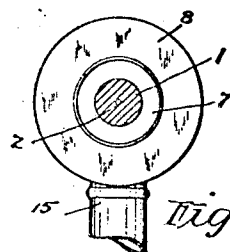


Fig. 5.

Witnesses
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UNITED STATES PATENT OFFICE.

AUBREY CLAUDE BARTLETT, OF YERRANDERIE, NEW SOUTH WALES, AUSTRALIA.

DUST-COLLECTOR.

No. 895,228.

Specification of Letters Patent.

Patented Aug. 4, 1908.

Application filed October 1, 1907. Serial No. 395,346.

To all whom it may concern:

Be it known that I, AUBREY CLAUDE BARTLETT, a subject of the King of Great Britain, residing at Yerranderie, in the State of New South Wales, Australia, have invented certain new and useful Improvements in Dust-Collectors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is devised to provide means for arresting the dust arising from the working of the well known type of pneumatic drill, in which air under pressure passes along a hole or perforation through the length of the drill and escapes at the cutting portion or bit, the object of thus directing the air being to blow away the disintegrated matter from the hole being drilled.

The apparatus constructed in accordance with my invention is especially adapted for use in connection with hand pneumatic hammer drills, and consists essentially of a rigid air box or chamber surrounding the exterior of the hole to be drilled and closing around the drill; the air box being held in position by an adjustable spring; means being provided for allowing the drill to work out of line with the air box and also for a tube leading to a receptacle containing media for arresting dust and purifying the air.

In order that my invention may be the more easily understood reference may be made to the accompanying drawings, in which—

Figure 1 is a side elevation showing my apparatus connected with a pneumatically operated drill. Fig. 2 is a sectional view of part of Fig. 1. Fig. 3 is a sectional view of the dust arrester and air purifier drawn to a smaller scale than Fig. 1. Fig. 4 is an elevation of the air box (to be hereinafter described) taken from the back. Fig. 5 is an elevation of the air box taken from the front, while—Fig. 6 is a sectional view showing an alternative form of air box packing. Figs. 2, 4, 5 and 6 are drawn to a larger scale than Fig. 1.

In these drawings 1 is the drill which is provided with the hole or perforation 2. This perforation has its outlet at the cutting edge or bit 3.

4 indicates a pneumatic machine (part only of which is shown) containing mechanism for acting in the well known manner on the end of the drill 1.

5 is the hole being drilled and 6 is the working face.

7 is an air box which surrounds the drill (see Fig. 2). This is provided with a packing ring 8 of soft rubber or other suitable material. This packing is designed so that it may be pressed against the face of the rock 6, to effect an air tight joint around the exterior of the hole 5 between the box 7 and the face 6. The box is provided at the back (see Fig. 2) with a tapered recess or seat 9 to receive a packing pad or plug 10. This pad or plug 10 surrounds the drill 1, and may be formed of a rubber ring wound with soft hemp, its object being to make an air tight joint between the box 7 and the drill 1 and allows the drill to operate out of line with the air box. The pad or plug 10 is backed up by a spring 11, which presses same tightly against the tapered recess or seat 9; it also holds the box 7 and the packing 8 in position, and presses the latter tightly against the face of the rock 6. The spring 11 may be restrained at the back (see Fig. 1) by a collar 12, secured on the drill 1 by a set screw 13, or otherwise.

On the lower part of the box 7 is a short projecting tube 14 designed to have connected with it one end of a flexible pipe 15. The pipe 15 proceeds into a receptacle 16 (see Fig. 3) containing water or other suitable liquid or medium 17; the end of the pipe 15 is a short distance under the surface of the liquid 17. If desired the water 17 may contain some purifying agent (such as permanganate of potassium or the like) to better fit the air for human use.

When the drill 1 is in operation, the air under pressure passes along the perforation 2 and escapes at the cutting edge or bit 3 into the hole 5. The air passes between the drill 1 and the inside of the hole 5 to the air box 7, carrying with it disintegrated matter produced by the action of the drill, down the pipe 15 and into the receptacle 16 a short distance under the liquid 17. The air passes through the liquid and escapes to the atmosphere, while the particles of matter sink to the bottom of the receptacle 16, as shown at

18 (Fig. 3). The accumulated matter will require to be removed at intervals from the receptacle 16 and fresh liquid added.

Referring to Fig. 2, the form of packing 5 illustrated therein, namely the pad or plug 10 and the tapered recess or seat 9, enables the drill 1 to be turned somewhat, as is required in order to produce a circular hole. An alternative form of packing is illustrated in 10 Fig. 6—here the air box 7 is reduced in diameter at the back by two annular steps 19 and 20. A tube 21 of strong air proof canvas, rubber or other suitable material is provided, one end of which is bound by a wire 15 22 to the annular step 20 and the other end of which encircles a rubber ring 23, the latter being of such a diameter and degree of elasticity as to close tightly all around the drill 1. The spring 11 encircles and grips the annular 20 step 19. The other parts are as described with reference to Fig. 2. It is obvious that the form of packing may be varied to a considerable extent. I would preferably employ a small amount of a lubricant such as 25 black lead to reduce the friction and consequent wear between the drill and the rubber ring 23 or pad 10.

I claim as my invention:—

1. In a dust collector the combination with 30 a hollow drill through which air under pressure passes to the hole being drilled, of a rigid air box around said drill and exterior of the hole being drilled, a packing ring at one end of the air box and adapted to bear upon the face of the rock to be drilled, a flexible 35 air-tight joint between the back of the air-box and the drill, a spiral spring, an adjustable collar on the said drill by which the tension of the said spring is regulated and a

lead-away pipe from the said air box terminating in media in a receptacle, substantially as and for the purposes described.

2. The combination with a hollow drill through which air under pressure passes to the hole being drilled, of a rigid air box surrounding said drill and exterior of the hole 45 being drilled, a packing ring at one end of the air box and adapted to bear against the face of the rock to be drilled, a tapered seat 9, a block of packing 10, a spring 11, a collar 12 50 by which the said spring is adjusted, and a lead-away pipe from said air box passing into a purifier 16 substantially as and for the purposes described.

3. In a dust collector, the combination 55 with a hollow drill through which air under pressure passes to the hole being drilled, of a rigid air box around said drill and exterior of the hole being drilled, a packing ring at one end of the air box and adapted to bear 60 upon the face of the rock to be drilled, a flexible air-tight joint between the back of the air box and the drill, means for exerting a pressure against said air box to maintain the same in position against the rock in which a 65 hole is to be drilled, adjustable means whereby the pressure exerted by the aforesaid means is regulatable and a lead-away pipe from the said air box, substantially as and for the purposes described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AUBREY CLAUDE BARTLETT.

Witnesses:

ANTONY WILLIAM ELDBERTON WEAVER,
WILLIAM ACHIE HERBERT ALLWORTH.