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PNEUMATIC DRILL JACK

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FIG. 1

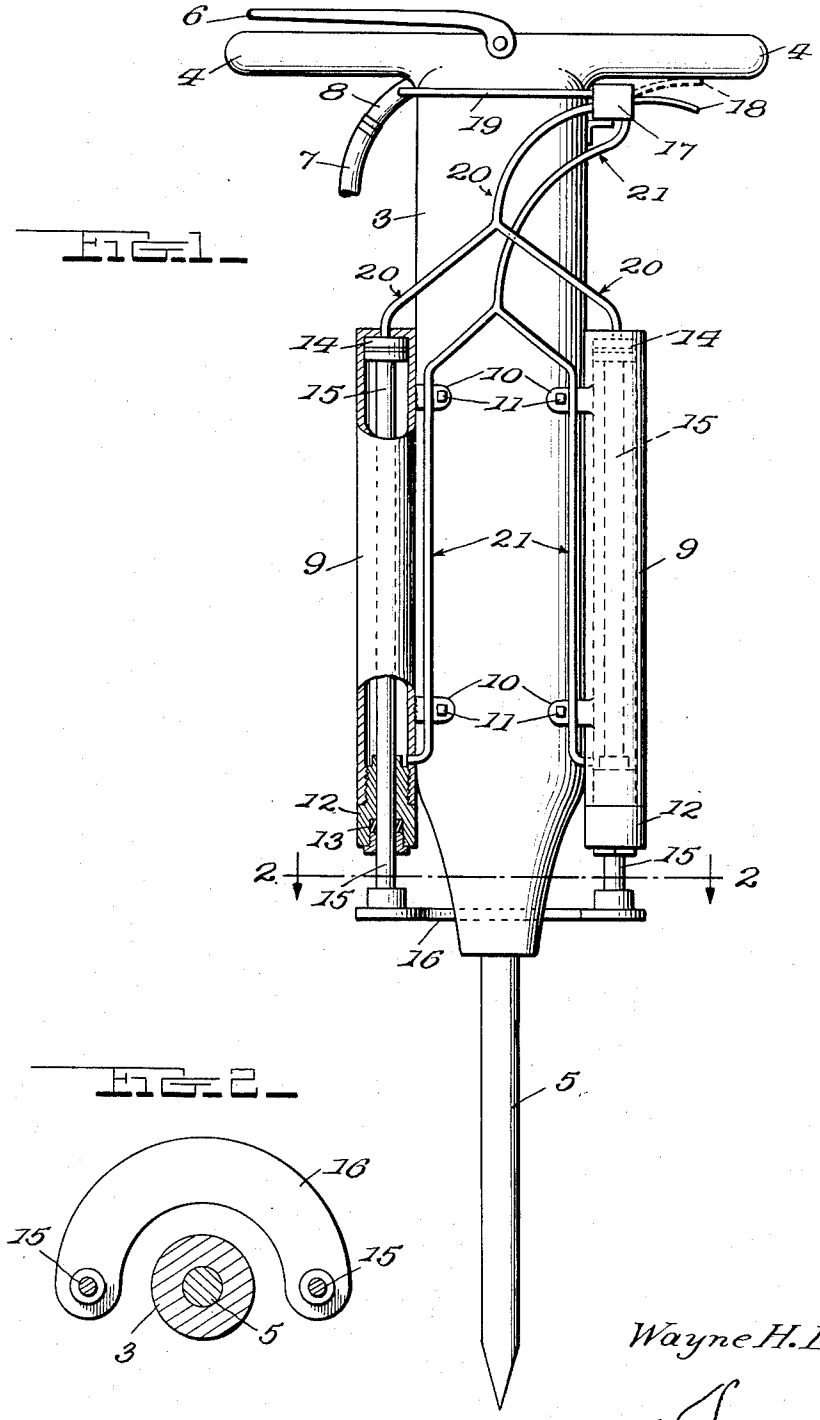


FIG. 2

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PNEUMATIC DRILL JACK

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1 Claim. (Cl. 125—33)

This invention relates to pneumatic drills such as those commonly used for drilling into concrete, asphalt, macadam, rock and earth. Such drills include a vertically elongated body having lateral handles at its upper end by means of which a laborer supports the drill in operative position, lifts it at the end of a drilling operation and moves it for the next operation.

The drills are necessarily very heavy and consequently a great deal of strength must be expended each day in lifting them from the drilled holes. The present invention however is designed to provide a novel pneumatic jack attached to the drill body and active at the will of the operator to lift the entire drill. A great deal of work is thus avoided, better time may be made on any job, and a man of unusual strength and stamina is not required for operating the drill.

The jack is provided with a control valve which receives compressed air from the usual compressed-air-conducting means of the drill, and a further object of the invention is to provide this valve with an operating handle disposed adjacent one of the drill handles to be actuated by the same hand which grips the latter.

A still further object of the invention is to provide a jack which will have no tendency to tilt the drill and bind the bit in the drilled hole when the drill is being lifted from the hole. To this end, two pneumatic cylinder-and-piston assemblies are mounted on opposite sides of the drill body and the lower ends of the piston rods are secured to a foot which engages the ground or the like during jack operation.

Yet another object is to provide the foot in the form of a U which partially circumscribes the lower end of the drill body and due to its shape will not prevent the operator from seeing the bit when starting a hole.

A still further object is to provide a simple and inexpensive yet an efficient and durable construction which may be expeditiously manufactured and profitably sold at a fair price.

With the above and other objects in view that will become apparent as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawing and claimed.

In the drawing:

Fig. 1 is a conventionalized front elevation, partly in section, showing a pneumatic drill improved in accordance with the invention; and

Fig. 2 is a horizontal sectional view on line 2—2 of Fig. 1.

A construction has been shown which will meet all requirements and may be considered as preferred. However, it is to be understood that variations may be made without departing from the spirit and scope of the invention as claimed.

The vertically elongated body of the drill is shown at 3 and its lateral handles at 4. The drill bit is shown at 5 and an operating lever for the usual control valve is indicated at 6. At 7 the compressed air supply line is

shown connected to a nipple 8 on the body 3. As all of these elements are common, their illustration has been conventionalized.

Two vertical cylinders 9 are disposed at opposite sides of the body 3 in parallel relation with the axis thereof. These cylinders have attaching lugs secured by cap screws or the like 11 to the body 3, and the lower ends of said cylinders have piston rod guides 12 containing suitable rod packing means 13. Pistons 14 in the cylinders 9 are provided with rods 15 which extends through the guides 12 and packing means 13.

The lower ends of the rods 15 are secured to a horizontal foot 16 to engage the ground or the like when the jack is operated to lift the drill. This foot 16 is of U-shape as seen in Fig. 2 and it only partially circumscribes the lower end of the body 3, leaving the front unobstructed to allow the drill operator to readily see the point of the bit 5 when starting each hole.

A control valve 17 is secured to the body 3 and is provided with an operating handle 18 adjacent one of the handles 4, to be operated by the same hand which grips the latter. A compressed-air-supply line 19 is connected to the nipple 8 and extends to the valve 17, and two branched lines 20 and 21 extend from said valve 17. The branched line 20 extends to the upper ends of the cylinders 9 and the branched line 21 extends to the lower ends of said cylinders. Each line 20, 21 is both an admission and an exhaust line, depending upon the position of the valve handle 18.

During drill operation the foot 16 is in raised position as seen in Fig. 1 and is so held by compressed air under the pistons 14. When a hole has been drilled to the required depth, the handle 18 is operated to admit compressed air over the pistons 14 and exhaust air from below said pistons. Consequently, the foot 16 will thrust downwardly upon the ground or the like and the entire drill will be lifted with no effort on the part of the operator. Then the valve 17 is operated to again raise the foot 17 and the drill is ready for the next operation.

From the foregoing, it will be seen that a novel and advantageous construction has been disclosed for attaining the desired ends. However, attention is again invited to the possibility of making variations within the scope of the invention as claimed.

I claim:

An improvement in a pneumatic drill of the type having a vertically elongated body, lateral handles at the upper end of said body, a drill bit projecting downwardly from said body, and compressed air-conducting means connected with said body; comprising a pair of pneumatic body lifting jacks, said jacks comprising a pair of elongated cylinders secured to said body and having their axes parallel with the axis of the body and at diametrically opposite sides of the body, a piston reciprocably disposed in each cylinder, a piston rod in each cylinder with the respective piston secured to one end thereof and the opposite end thereof projecting beyond the corresponding end of the cylinder, a surface engaging foot member connected to said projecting piston rod ends, a control valve in communication with said compressed air conducting means, a valve operating handle adjacent one of said lateral handles, said foot member being substantially semicircular in plan and being disposed substantially wholly to one side of said body for ground contact and out of the normal line of vision of the drill bit.

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