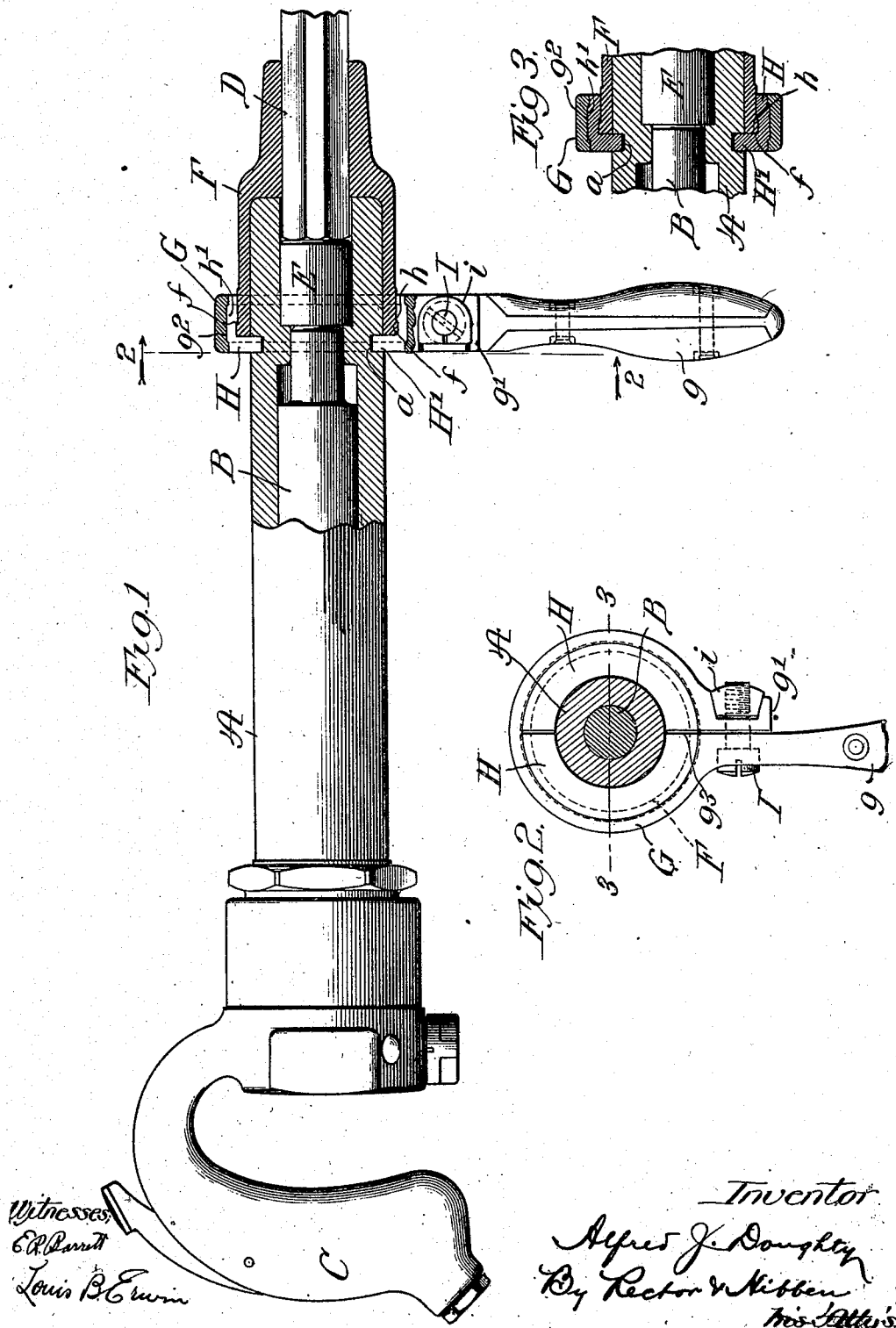


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PATENTED OCT. 1, 1907.

A. J. DOUGHTY.
PNEUMATIC HAMMER.
APPLICATION FILED AUG. 15, 1905.



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UNITED STATES PATENT OFFICE.

ALFRED J. DOUGHTY, OF DETROIT, MICHIGAN.

PNEUMATIC HAMMER.

No. 867,353.

Specification of Letters Patent.

Patented Oct. 1, 1907.

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To all whom it may concern:

Be it known that I, ALFRED J. DOUGHTY, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Pneumatic Hammers, of which the following is a specification.

My invention relates to improvements in pneumatic hammers of that type known as plug drills, in which the drill which receives the blows of the hammering piston of the pneumatic hammer is turned or rotated, in the present instance such rotation being manual.

The object of my invention is to provide a simple and efficient means for thus rotating the drill or tool and at the same time providing for the connection or clamping (in rotatable relation) of the cylinder or barrel of the hammer and the nose-piece which carries or receives the drill.

The various features of advantage and utility of my form of construction will be apparent from the description hereinafter given.

In the accompanying drawing, Figure 1 is a side elevation of a plug drill with the forward end of the hammer proper and also the nose-piece of the combined handle and clamp shown in section; Fig. 2 a sectional elevation on the line 2—2 of Fig. 1, and Fig. 3 a section on the line 3—3 of Fig. 2.

It will be understood that my invention relates to simple and suitable means for efficiently rotating the nose-piece, which carries the drill and for connecting such nose-piece to the barrel or cylinder of the hammer proper and consequently, as is evident, my invention may be applied to pneumatic hammers of different styles and makes, and therefore the following description is given of my invention in connection with the particular form of hammer shown and described, without any intention of limitation thereto.

Referring to the pneumatic hammer illustrated in the drawing, the same comprises essentially the cylinder or barrel A having a piston chamber in which travels or reciprocates the piston B, and which is further provided with a grasping handle C secured to its rearward end. The front end of the cylinder is provided with an opening or bore to receive the shank of the drill B between whose inner end and the hammering tip or extension of the piston is arranged a block E located within said bore at the front end of the cylinder. The nose-piece F is a cylindrical socket piece arranged to fit over the front end of the cylinder and the same is provided at its front end with a longitudinal bore which is angular so as to receive the corresponding angular shank of the drill D.

As hereinbefore stated, my invention comprises means for rotating the nose-piece and consequently rotating the drill and also for connecting the nose-piece to

the cylinder. According to the present embodiment of my invention, the means referred to is an operating piece comprising a combined clamp and rotating element or device. The rotating device and clamp consists, as shown in the drawing, of a circular yoke or strap G of suitable material and of a size to properly cause the clamping of the nose-piece and cylinder in a manner hereinafter explained. One end of the yoke or strap terminates in the handle g, while the other end terminates in a lug or ear g' extending parallel to the longitudinal axis of the handle and adjacent to one side thereof. Within the strap or yoke is arranged a two-piece split collar H adapted to be clamped securely to the nose-piece and fitting over the cylinder to connect them together. For the purpose of thus clamping the split collar upon the nose-piece so as to grip the latter and cause it to turn with the handle, I employ the single bolt or screw I passing through the handle and through the lug g' and engaging a lock nut i set into the lug, with the result that when the screw I, having a screw-driver head, is turned, the yoke or clamp is tightened or loosened according to the direction of rotation of such screw. By preference, the nut i is split and tapered and fits in a taper bearing or recess in the lug g' or end of the clamp whereby an efficient lock is formed inasmuch as the nut is pinched together when the screw is tightened.

As indicated in Figs. 1 and 3, the nose-piece F is provided with an end shoulder f which faces forwardly and is engaged by a rearwardly facing shoulder h on the inner face of the split collar and likewise the collar and strap are held against displacement by groove and flange connection, such as the groove g² on the inner face of the strap receiving the flange h' on the outer face of the collar, with the result that when the parts are assembled, as shown in Fig. 1, the nose-piece is held securely against longitudinal movement with respect to the clamping and rotating device. For the purpose of clamping or connecting the nose-piece to the cylinder and yet permit such nose-piece to rotate on the latter, the split collar is provided with an annular inturned flange H¹, which is adapted to be received within an annular groove a formed towards the front end of the cylinder A and at right angles to the longitudinal axis of the hammer.

By the use of my invention the nose-piece is enabled to be rotated by a simple device or arrangement and at the same time by means of the same device the nose-piece is held or connected to the cylinder so that such nose-piece is permitted to rotate but held in proper relationship with the hammer cylinder and held against longitudinal movement. Moreover, the

device is under the control of a single screw by turning which in one direction or the other the device may be rendered operative or inoperative at will, causing the device to clamp the nose-piece or to loosen it therefrom, as the case may be.

I claim:

1. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, an operating piece for engaging and rotating the nose-piece and holding the same to the cylinder or body of the hammer.

2. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, a clamping handle arranged to clamp the nose-piece and having means for connecting the latter with the cylinder or body of the hammer.

3. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, of a hand rotating device comprising a rotatable yoke or strap encircling the nose-piece and connected therewith and with the cylinder against longitudinal movement, and means for tightening the yoke onto the nose-piece to clamp the same.

4. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, of a hand rotating device comprising a yoke or strap encircling the nose-piece and connected therewith and with the cylinder against longitudinal movement, and a screw engaging said yoke for tightening the yoke onto the nose-piece to clamp the same.

5. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, of a hand rotating device comprising a yoke or strap encircling the nose-piece and connected therewith and with the cylinder against longitudinal movement, said yoke having a projecting handle, and a screw engaging said handle and an end of the yoke for tightening the yoke onto the nose-piece.

6. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, a clamping device encircling the nose-piece, said device and nose-piece having engaging shoulders, and means for tightening the yoke onto the nose-piece.

7. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, a clamping device encircling the nose-piece, and means for tightening and loosening the device, said device being arranged to engage the cylinder or body of the hammer and hold the nose-piece in proper relation with such cylinder.

8. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, a clamping device encircling the nose-piece and having an intumed annular flange, said cylinder having a correspondingly annular groove to receive the flange, and means for clamping the device upon the nose-piece.

9. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, a clamping device encircling the nose-piece and having an intumed annular flange, and also an internal shoulder, said cylinder having a corresponding annular groove to receive the flange and the nose-piece having a shoulder to cooperate with said shoulder of the clamping device, and means for clamping such device upon the nose-piece.

10. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof to receive a drill or other working tool, a hand rotating device comprising a yoke or strap and a split collar engaging the nose-piece, said yoke being arranged to clamp

the collar onto the nose-piece and means for operatively connecting the nose-piece to the cylinder.

11. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof to receive a drill or other working tool, a hand rotating device comprising a yoke or strap, and a collar made in two pieces arranged within the spoke or strap and engaging the nose-piece, said yoke being arranged to clamp the collar onto the nose-piece and means for operatively connecting the nose-piece to the cylinder.

12. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof to receive a drill or other working tool, a hand rotating device comprising a yoke or strap having a handle extension, and a split collar engaging the nose-piece, said yoke being arranged to clamp the collar onto the nose-piece and means for operatively connecting the nose-piece to the cylinder.

13. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof to receive a drill or other working tool, a hand rotating device comprising a yoke or strap, and a split collar having a groove and flange connection with the nose-piece, said yoke being arranged to clamp the collar onto the nose-piece and means for operatively connecting the nose-piece to the cylinder.

14. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof to receive a drill or other working tool, a hand rotating device comprising a yoke or strap, and a split collar having a groove and flange connection with the nose-piece and also with the yoke or strap, said yoke being arranged to clamp the collar onto the nose-piece and means for operatively connecting the nose-piece to the cylinder.

15. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof to receive a drill or other working tool, a hand rotating device comprising a yoke or strap, and a split collar arranged within the yoke and clamping the nose-piece and engaging the cylinder to connect the nose-piece thereto.

16. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof to receive a drill or other working tool, a hand rotating device comprising a yoke or strap, and a split collar arranged within the yoke and clamped by the rotating device, said collar having a groove and flange connection with a nose-piece and also with the cylinder.

17. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, a clamping yoke encircling the nose-piece and having a handle-piece *g*, a two-part collar *H* within the yoke and adapted to engage the nose-piece and cylinder, and a screw or bolt for clamping the yoke onto the collar and thereby clamping the collar onto the nose-piece and cylinder.

18. In a pneumatic hammer having a rotatable nose-piece arranged on the front end of the cylinder thereof and adapted to receive a drill or working tool, a clamping yoke encircling the nose-piece and terminating at its ends respectively in a handle-piece, *g*, and an extension *g'*, a two-part collar within the yoke to engage the nose-piece and cylinder, and a single screw engaging the extension *g'*, and the handle *g* for drawing them together and thereby clamping the yoke upon the collar.

19. The combination, with the hammer cylinder *A* having the annular groove *a*, of a nose-piece *F* having a forwardly facing shoulder *f*, a collar *H* having a shoulder *h* engaging the shoulder *f* and also having a flange *H'* engaging the groove *a*, a yoke *G* encircling the collar and having an internal groove *g'*, said collar having a flange *h'* received by the groove *g'*, a handle *g* on the yoke, and a single screw *I* engaging the yoke to clamp it to the collar and the latter to the nose-piece.

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Witnesses:

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