L. C. BAYLES.

TOOL RETAINER FOR HAMMER DRILLS.

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1,240,649. Patented Sept. 18, 1917.

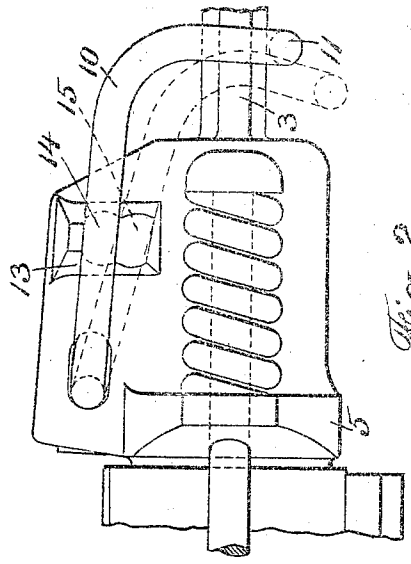


Fig. 2.

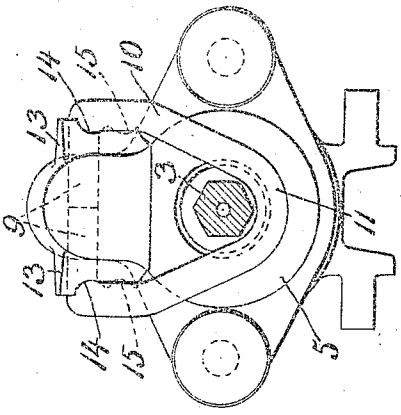


Fig. 4.

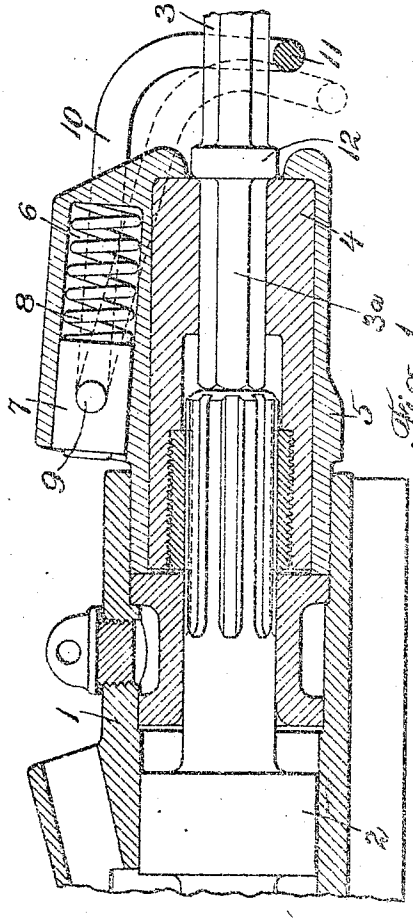


Fig. 1.

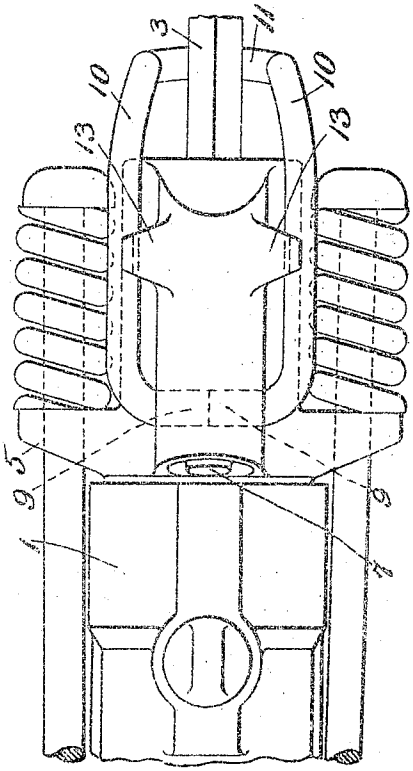


Fig. 3.

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TOOL-RETAINER FOR HAMMER-DRILLS.

1,240,649. Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed January 30, 1917. Serial No. 145,410.

To all whom it may concern:

Be it known that I, LEWIS C. BAYLES, a citizen of the United States, residing at Easton, in the county of Northampton and State of Pennsylvania, have invented a certain new and useful Improvement in Tool-Retainers for Hammer-Drills, of which the following is a specification.

This invention relates to tool retainers, and especially to a retainer adapted to be applied to hammer drills in order to retain the drill steel or other tool in the front end of the machine.

The object of the invention is to provide a tool retainer for this use which is simple, durable and convenient of manufacture, and in which the supporting means for the tool retainer are inclosed within the front head of the hammer drill.

With this and other objects in view my invention consists in the features of construction and operation set forth in the following specification and claims and illustrated in the accompanying drawings.

In the drawings which are annexed hereto and form a part of the specification,

Figure 1 is a longitudinal sectional view of the forward portion of a hammer drill with the tool retainer shown in position,

Fig. 2, a side elevation of the retainer and front head of the hammer drill,

Fig. 3, a top plan view of my tool retainer, and Fig. 4, a front elevation of the same.

The construction comprises a pneumatic or other tool body 1 in which a piston 2 is adapted to reciprocate and strike against the shank 3ª of a drill steel or other implement 3. The drill steel 3 is retained in a chuck 4 contained in the front head 5 of the pneumatic tool and in which the chuck and drill are adapted to rotate. This is all a standard construction of hammer drill and forms no part of the present invention with the exception of the front head, which is adapted to receive parts of the drill steel retainer.

Upon one side of the front head 5 is mounted a cylinder 6 whose axis is at a slight angle to the longitudinal axis of the front head 5, although, if desired, the two axes may be made parallel. Within the cylinder 6 a plunger 7 is adapted to slide against the pressure of a compressible spring 8, also contained in the cylinder 6 and which rests against the plunger 7, the forward motion of the plunger 7 being opposed by the compressible spring 8. Pivotally mounted upon the plunger 7, at 9, are the side arms 10 of the tool retaining yoke 11. The yoke 11 is shaped to embrace the drill steel 3 in advance of the collar 12 mounted upon the drill 3 when in the full-line position shown in the figures of the drawing, and permits the latter to freely move forward until the collar 12 engages the yoke 11.

The object of the resilient member between the yoke 11 and the front head 5 is to absorb the shock which would occur if the drill steel is not against the work at the time it is struck by the piston. This force would be so great that it would break almost any form of rigid connection which might be used to arrest its movement. If desired, any other form of resilient means may be inserted in place of the compressible spring 8, such, for instance, as a block of rubber or even air under line pressure may be admitted to the cylinder 6.

On the outside of the cylinder 6 and located on each side thereof are lugs 13 which are provided with depressions 14 and 15 in which the side arms 10 are adapted to lodge. When the side arms 10 are lodged in the depressions 14 the yoke 11 will closely embrace the drill steel for about one half its circumference and is in operative position to retain the drill steel in the tool, but when the side arms are lodged in the depressions 15 the yoke is far enough removed from the drill steel to permit the free passage of the collar 12 on the steel 3 and the yoke is therefore in an inoperative position to work as a drill steel retainer. The side members 10, as shown clearly in Fig. 4, are shaped so that when the yoke and side members are in the position shown in dotted lines in Figs. 1 and 2 the opening between said side arms is ample for the removal of the tool.

The yoke 11 and the side arms 10 are of spring steel or other suitable material, so that while shaped to rest in the depressions 14 and 15 they have enough elasticity to permit the side arms being forced over the ridges separating the depressions 14 and 15 without permanent distortion.

From the above it is thought that the operation of this tool retainer will be obvious, and it is to be understood that while the present showing and description discloses only one specific embodiment of the present

invention, other forms and modifications are included within the spirit and scope of the same, as expressed in the claims.

What I claim is:

1. In a tool retainer of the class described, a tool, a yoke for limiting the forward movement of said tool, two side arms extending back from said yoke and pivotally engaging resilient means contained within the front head of the machine for resisting the forward movement of the yoke and side arms.

2. In a tool retainer of the class described, a tool having a collar on its shank, a yoke movable into and out of engagement with said collar, side arms extending back from said yoke and pivotally engaging a plunger, and resilient means contained within the front head of the machine for resisting the forward movement of the yoke, side arms and plunger.

3. In combination with a hammer drill having a front head, a collared drill steel, a yoke adapted to engage said collar when said drill steel is forced forward, said yoke having two side arms extending back to and pivotally engaging resilient means within said front head to resist the forward movement of said yoke and side arms.

4. In a pneumatic tool having a front head, a cylinder mounted upon said front head, a plunger slidable within said cylinder and side arms pivotally connecting said plunger to a yoke embracing a drill steel inserted in said front head.

5. In a pneumatic tool having a front head, a cylinder mounted upon said front head, a plunger slidable within said cylinder, lugs mounted on the outside of said cylinder and side arms connecting said plunger to a yoke embracing a drill steel inserted in said front head, said lugs retaining said side members and yoke in operative and inoperative position.

6. In combination with a hammer drill, a drill steel retainer comprising a yoke engaging said steel, side arms extending back from said yoke and pivotally engaging resilient means contained within the hammer drill for resisting the forward movement of said yoke, and means for holding said side arms in operative and inoperative position.

7. In combination with a hammer drill, a drill steel retainer comprising a yoke engaging said steel, side arms, resilient means contained within the hammer drill for resisting the forward movement of said yoke, and means mounted on said hammer drill holding said side arms in operative and inoperative position.

In testimony whereof, I have hereunto set my hand.

LEWIS C. BAYLES.