

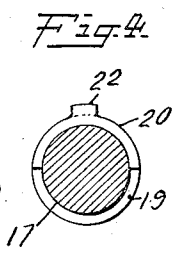
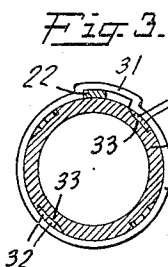
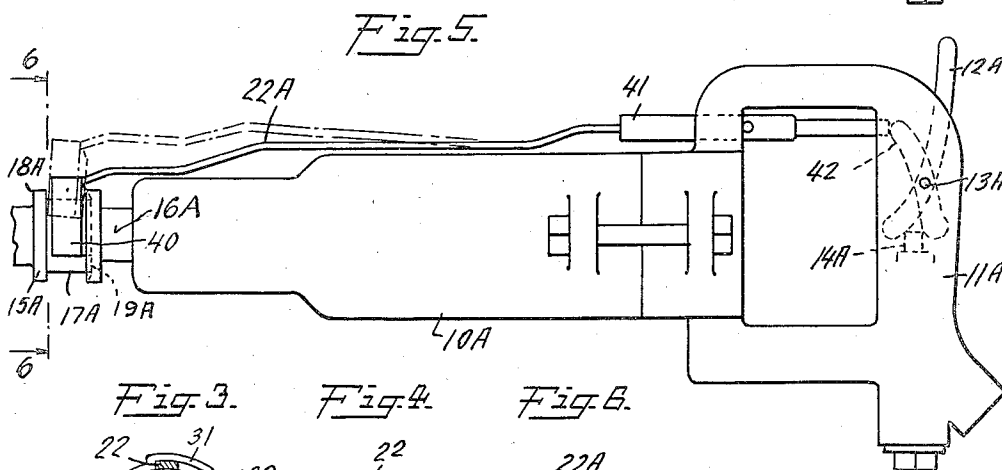
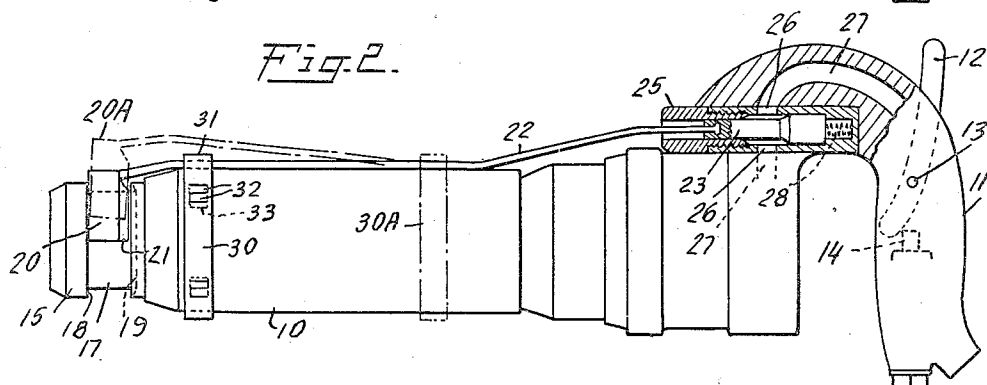
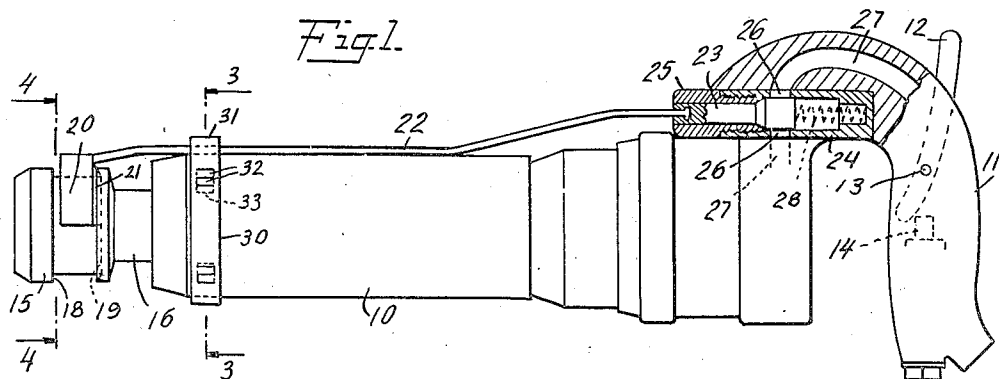
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W. F. O'GORMAN

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ATTACHMENT FOR MECHANICAL HAMMERS OR THE LIKE

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INVENTOR
William F. O'Gorman
BY
Marshall & Hawley
ATTORNEYS

UNITED STATES PATENT OFFICE

WILLIAM F. O'GORMAN, OF NEW YORK, N. Y., ASSIGNOR TO HYMAN MYRON, OF
BROOKLYN, NEW YORK

ATTACHMENT FOR MECHANICAL HAMMERS OR THE LIKE

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This invention relates to new and useful improvements in attachments for mechanical hammers or the like.

Its object is to provide a simple device for preventing the accidental removal of the rivet-set or other tool from the barrel of the hammer.

Another object is to provide an operative connection between the device and a controller for the motive power of the hammer.

A still further object is to provide an arrangement whereby the tool holding device may be moved readily into a releasing position to enable the insertion or removal of a tool.

Other objects of the invention will appear from the following specification.

Referring to the drawing,

Fig. 1 is an elevation of a riveting hammer with my invention applied thereto, a part being shown in section;

Fig. 2 is a similar view of the same mechanism with some of the parts shown in different positions;

Fig. 3 is a transverse section on the line 3—3 of Fig. 1;

Fig. 4 is a transverse section on the line 4—4 of Fig. 1;

Fig. 5 is a side elevation of a pneumatic clay digger equipped with a modified form of the invention; and

Fig. 6 is a transverse section on the line 6—6 of Fig. 5.

Like characters of reference designate similar parts on the various figures of the drawing.

10 designates the barrel of a pneumatic riveting hammer, within which is a reciprocating hammer piston, not shown. At one end of this barrel is a handle 11 in which is the usual valve, manually controlled by a trigger 12 pivoted at 13 and arranged to act upon a valve stem 14. 15 is a rivet-set having a cylindrical shank 16 which is adapted to fit slidably into the end of the barrel 10. This is constructed with a depressed annular neck 17, between shoulders 18 and 19, the latter of which is undercut as shown.

In the embodiment of the invention which is shown in Figs. 1, 2, 3 and 4, a semi-circular

collar 20 is provided which fits over the upper half of the neck 17 between the shoulders 18 and 19. This is somewhat narrower than the space between the shoulders and its rear edge 21 is beveled to fit into the undercut portion of shoulder 19. A strap 22 extends backwardly from collar 20 along the upper surface of the barrel 10 to a valve 23 to which it is affixed. The valve is slidable longitudinally in a valve casing 24 and a valve head 25. In the position in which it is shown in Fig. 1 it closes ports 26 in its casing 24 to prevent the flow of air from the trigger-controlled air-valve to the barrel 10 through a passage 27.

The strap 22 passes under a retaining ring 30 which surrounds the barrel 10 and is shaped to form a spanner 31 over the strap of sufficient width to allow for a limited rotation of the ring. Spring fingers 32, which are preferably formed by cuts in the ring, press inwardly from the ring and are arranged to enter annularly spaced grooves 33 in the outer surface of the barrel 10 to prevent the ring from sliding off the barrel inadvertently. But the ring can be removed if desired by first turning it sufficiently to move the fingers out of the grooves. When it is desired to remove the rivet-set, the ring is moved back on the barrel to some such position as that shown at 30A in Fig. 2 when the collar may be raised to the position shown at 20A to enable the removal of the rivet-set and the insertion of another one.

Now before going into a detailed description of the modifications shown in Figs. 5 and 6, the operation of the parts already described will be pointed out. The manner of inserting a rivet-set or other tool has been shown. When it is in place, the ring 30 is slid on the barrel up to its forward position, where it serves to hold the collar 20 seated on the neck 17. This will serve to prevent the accidental removal of the tool from the hammer. Assume that the parts are in the positions shown in Fig. 2 with the valve 23 back in position to open the ports 26: an accidental pressure on the trigger 12 will cause a blow to be struck on the rivet-set to drive it outwardly. This will cause shoulder 19 to en-

gage collar 20, which in turn will move valve 23 to its Fig. 1 position to shut off the air passage 27. At the same time the beveled edge 21 of collar 20 will pass into the undercut portion of shoulder 19 to more securely hold the collar seated upon the neck 17.

With the parts positioned as shown in Fig. 1, the hammer may be brought up to the work and the trigger 12 depressed. The motive fluid will not actuate the hammer until the rivet-set has been pushed against the work with sufficient pressure to open the ports 26. This will occur by engagement of shoulder 18 with collar 20 and the transmission of the movement thus obtained, through strap 22 to valve member 23. A spring 28 may be inserted back of the valve 23 if desired, but under usual conditions this is not necessary. If the workman inadvertently or intentionally releases the pressure of the rivet-set from the work without releasing the trigger, the motive fluid will be shut off automatically by the valve 23.

The tool shown in Fig. 5 is a pneumatic clay digger. Its barrel is designated by 10A, its handle by 11A, its trigger by 12A, its trigger pivot by 13A and its manual control valve stem by 14A. At the other end of the barrel is a clay chisel, a part of which is shown at 15A. This is provided with a shank 16A which fits into the barrel and with a neck 17A between spaced collars 18A and 19A, the latter of which is undercut.

The holding device in this case comprises a pair of spring fingers 40 which are adapted to engage the neck 17A and to extend slightly below the center thereof. The rear edge of these fingers is thin enough to enter the undercut part of shoulder 19A. A strap 22A runs back to a plunger 41 slidably mounted in the handle 11A. This is arranged to be pushed back against a lever 42 pivoted on the trigger pivot 13A, the other end of which is arranged to depress the control valve stem 14A.

The operation of this arrangement is so similar to that of the device shown in the other figures that no further description is necessary.

From the foregoing description it may be seen that by the simple expedient shown, the tool or die of a mechanical hammer is prevented from falling out, or from being shot out if the motive power is turned on accidentally when the tool is not applied to the work. Furthermore, the motive power is controlled by the application of the tool to the work, thus facilitating the use of the hammer. The device also increases the efficiency of the hammer as it cannot be operated when the tool has been moved forwardly to close the ports 26. The trigger may be eliminated altogether if desired, but in some cases it is desirable to retain it for the purpose of providing a variable power control.

The invention is applicable to many kinds of mechanical hammers, two of which have been shown, and to hammers which are actuated by pneumatic or steam pressure or by electrical power. I have also shown that its construction may be varied without departing from the scope of the invention and I intend no limitations other than those imposed by the appended claims.

What I claim is:

1. The combination with a mechanical hammer and a removable tool having spaced shoulders and an intermediate neck one of said shoulders having an undercut portion, of a holding device connected with the hammer and projecting forwardly therefrom, having on the projecting portion thereof a collar adapted to embrace the upper part of said neck, said collar having an edge arranged to engage the undercut portion of one of the shoulders on the tool to prevent lateral movement of the holding device.

2. The combination with a mechanical hammer and a removable tool having spaced shoulders and an intermediate neck one of said shoulders having an undercut portion, of a holding device connected with the hammer and projecting forwardly therefrom, having on the projecting portion thereof a collar adapted to embrace the upper part of said neck, said collar having an edge arranged to engage the undercut portion of one of the shoulders on the tool to prevent lateral movement of the holding device, and other means for holding the collar in engagement with the tool.

3. The combination with a mechanical hammer and a removable tool having spaced shoulders and an intermediate neck, of a holding device connected with the hammer and projecting forwardly therefrom, having on the projecting portion thereof a collar adapted to embrace the upper part of said neck, said collar being of resilient material and extending below the widest part of the neck, the ends of said collar being spaced apart a distance less than the diameter of said neck.

4. The combination with a mechanical hammer and a removable tool having spaced shoulders and an intermediate neck, one of said shoulders having an undercut portion of a holding device connected with the hammer and projecting forwardly therefrom, having on the projecting portion thereof a collar adapted to embrace the upper part of said neck, said collar being of resilient material and extending below the widest part of the neck, the ends of said collar being spaced apart a distance less than the diameter of said neck and having an edge arranged to engage the undercut portion of one of the shoulders on the tool to prevent lateral movement of the holding device.

5. The combination with a mechanical

hammer and a removable tool having spaced shoulders and an intermediate neck, of a holding device connected with the hammer and projecting forwardly therefrom, having on the projecting portion thereof a collar adapted to embrace the upper part of said neck, an edge of said collar being arranged to enter an undercut portion of one of the shoulders on the tool, and a retaining ring slidable on the body of the hammer and passing over the device to hold the collar in engagement with the tool.

6. The combination with a mechanical hammer, a control device therefor and a removable tool of a holding device extending from the control device to the tool parts of said tool and holding device having a lateral engagement and said holding device being arranged to prevent displacement of the tool and to cause movement of the tool relative to the hammer to actuate the control device.

7. The combination with a mechanical hammer, a control device therefor and a removable tool having spaced shoulders with an intermediate neck, of a holding device extending from the control device to the tool, having a collar adapted to embrace a part of said neck to prevent displacement of the tool and having means for preventing lateral movement of the collar from the neck of the tool, said holding device being arranged to cause movement of the tool relative to the hammer to actuate the control device.

8. The combination with a mechanical hammer having a body portion and a control device and a removable tool having spaced shoulders with an intermediate neck, of a holding device connecting the control device and the tool, said holding device extending along the body of the hammer and projecting forwardly therefrom, having on the projecting portion thereof a collar adapted to embrace a part of said neck and a slidable retaining ring surrounding the body of the hammer for maintaining the collar in engagement with the neck.

9. The combination with a mechanical hammer having a body portion and a control device and a removable tool having spaced shoulders with an intermediate neck, of a holding device connecting the control device and the tool, said holding device extending along the body of the hammer and projecting forwardly therefrom, having on the projecting portion thereof a collar adapted to embrace a part of said neck and a slidable retaining ring surrounding the body of the hammer for maintaining the collar in engagement with the neck, an edge of the collar being arranged to enter an undercut portion of one of said shoulders.

10. The combination with a mechanical hammer having a body portion and a control device and a removable tool having spaced shoulders with an intermediate neck, of a

holding device connecting the control device and the tool, said holding device extending along the body of the hammer and projecting forwardly therefrom, having on the projecting portion thereof a collar adapted to embrace a part of said neck, a slidable retaining ring surrounding the body of the hammer for maintaining the collar in engagement with the neck, and means for preventing the removal of said ring.

11. The combination with a mechanical hammer having a body portion and a control device and a removable tool having spaced shoulders with an intermediate neck, of a holding device connecting the control device and the tool, said holding device extending along the body of the hammer and projecting forwardly therefrom, having on the projecting portion thereof a collar adapted to embrace a part of said neck, a slidable retaining ring surrounding the body of the hammer for maintaining the collar in engagement with the neck, and means for preventing the removal of said ring, the last mentioned means comprising spaced spring fingers arranged to engage annularly spaced grooves in the body of the hammer.

12. A tool having a pair of spaced shoulders and an intermediate neck, a shank in axial alinement with said neck and extending therefrom, said shank being adapted to be inserted into the barrel of a mechanical hammer, a face of that one of the shoulders which is adjacent said shank being undercut to provide for lateral engagement of a holding device extending from the barrel of the mechanical hammer to the neck of said tool.

13. A tool having a pair of spaced shoulders and an intermediate neck, a shank in axial alinement with said neck and extending therefrom, said shank being adapted to be inserted into the barrel of a mechanical hammer, a face of that one of the shoulders which is adjacent said shank being undercut, and a holding device extending from the barrel of the mechanical hammer, having a hooked end arranged to engage said undercut face to prevent lateral movement of the holding device.

WILLIAM F. O'GORMAN.