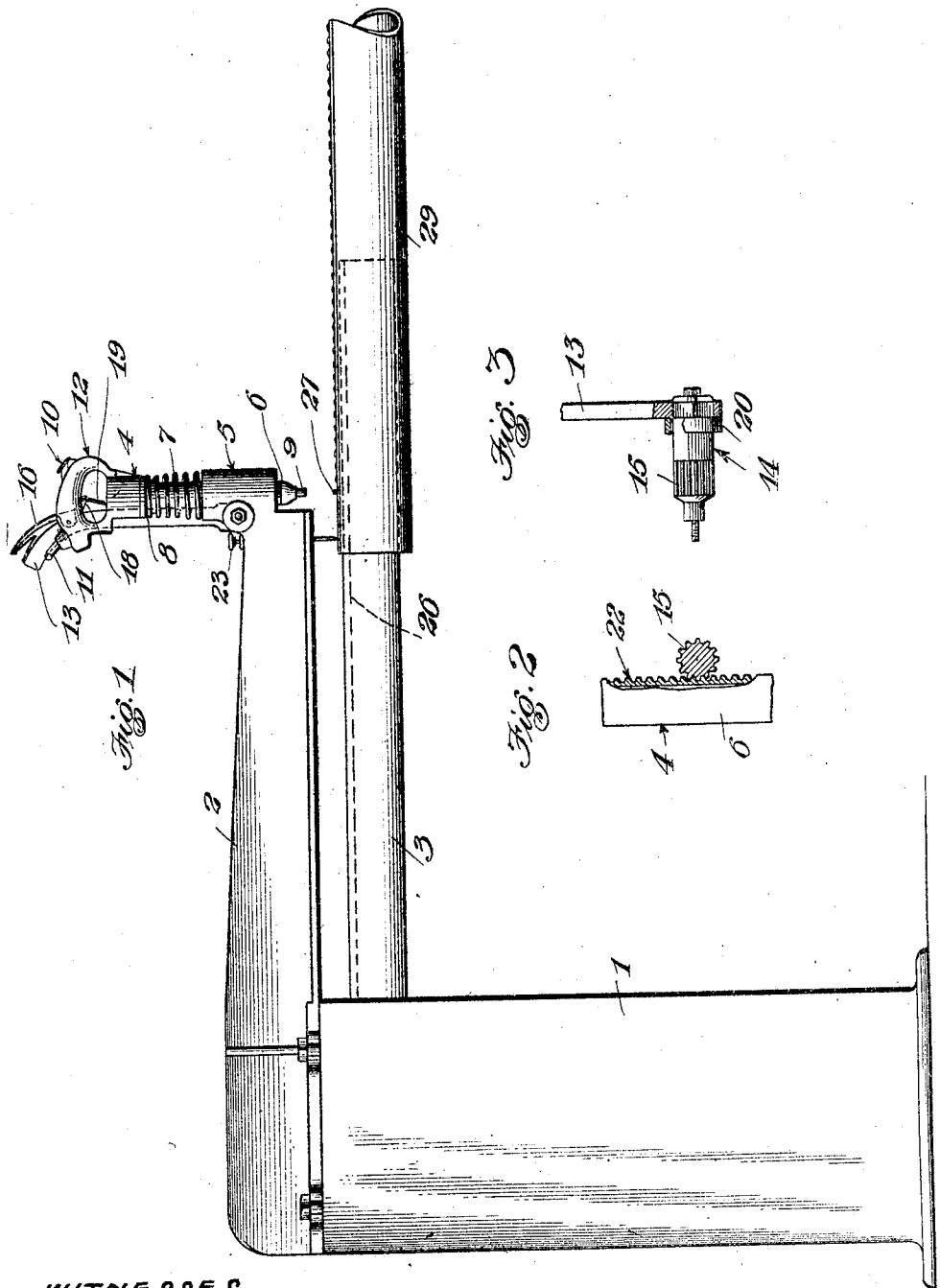
No. 812,787. PATENTED FEB. 13, 1906.

J. R. FRENCH.

PNEUMATIC RIVETING MACHINE.

APPLICATION FILED FEB. 1, 1904.

2 SHEETS—SHEET 1.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4

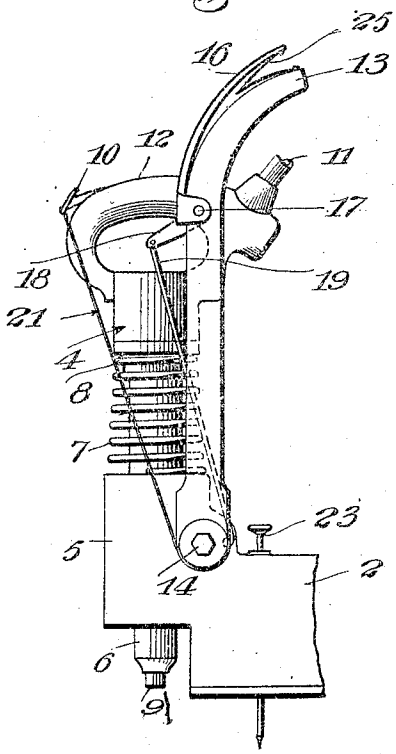
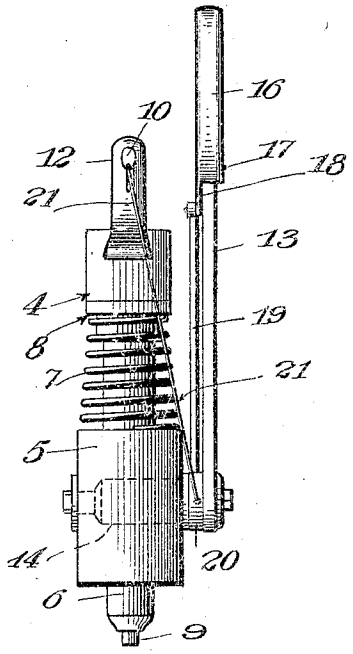


Fig. 5



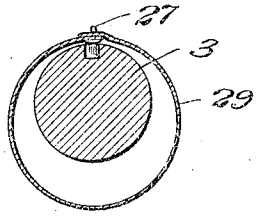
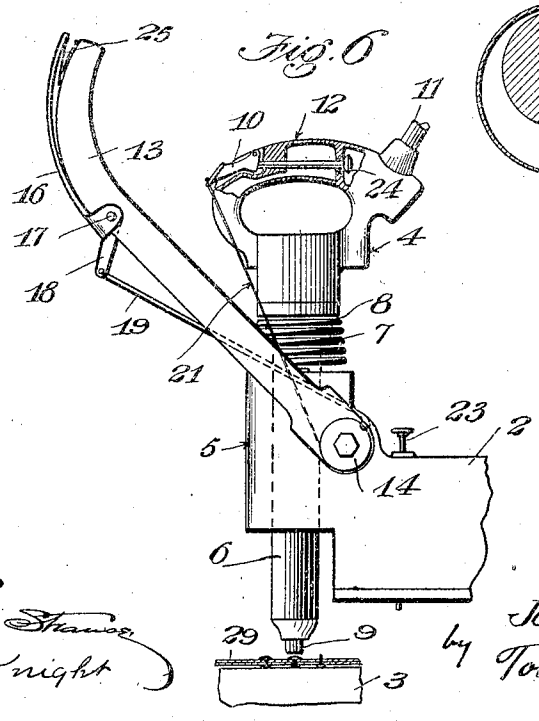


Fig. 6



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UNITED STATES PATENT OFFICE.

JOHN R. FRENCH, OF LOS ANGELES, CALIFORNIA.

PNEUMATIC RIVETING-MACHINE.

No. 812,787. Specification of Letters Patent. Patented Feb. 13, 1906.

Application filed February 1, 1904. Serial No. 191,443.

To all whom it may concern:

Be it known that I, JOHN R. FRENCH, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Pneumatic Riveting-Machines, of which the following is a specification.

The primary object of this invention is to provide a pneumatic riveting-machine with improved means for bringing the riveter to working position and holding it there in such manner as to largely remove the strain from the hand of the attendant and permit of better adjustment.

A further object of the invention is to provide convenient means for turning on and off the compressed-air supply to the riveter, such means being so located as to be operated by the same hand which operates to adjust the position of the riveter.

My invention comprises, in connection with a movable riveter, a fixed support or holder for the work, toward which the riveter is moved or adjusted by a lever. In applying the invention to pipe-riveting, to which purpose it is particularly adapted, the fixed support will be a mandrel, over which the pipe-sections will be placed.

The accompanying drawings illustrate the invention, and, referring to the same, Figure 1 is a side elevation of a riveting-machine embodying my invention. Fig. 2 is a detail section, partly in elevation, of the riveter-body and its operating-gear. Fig. 3 is a detail elevation of the riveter-operating gear and arbor with the handle and valve-controlling ring shown partly in section. Fig. 4 is an elevation of part of the machine, taken on the opposite side to Fig. 1 and showing the riveter in inoperative position. Fig. 5 is an end elevation of the riveter. Fig. 6 is a view similar to Fig. 4, showing the riveter in operative position and partly in section.

The frame of the machine comprises a standard 1 and overhanging arm or support 2, which is of sufficient length to accommodate or extend over the work to be operated upon—for example, a section of pipe. A fixed mandrel or work-holder 3 extends from the standard 1 beneath the arm 2. The riveter 4 is mounted to move vertically on the arm or support 2, said arm having a vertical cylindrical bearing 5, in which the cylindrical body 6 of the riveter slides. The riveter 4 is normally held in elevated position or away from the work-holder or mandrel 3 by a spring 7, surrounding the cylindrical body 6 and engaging at opposite ends, respectively, with the top of the bearing 5 and with a shoulder 8 on the riveter.

The riveter 4 may be of any of the well known types, and its internal construction is therefore not illustrated, said riveter having a longitudinally-reciprocating hammer 9, a controlling valve-lever 10, and a pneumatic or air-pressure supply means 11, consisting of the usual flexible pipe or pneumatic connection.

12 represents the usual head or grip-handle of the riveter, which in this case, however, is not used as a hand-grip, the movement of adjustment of the riveter to the work being effected by the lever 13, carried by a rock-shaft or arbor 14, pivoted or journaled in the arm and provided with a pinion 15, engaging in a rack 29 in the cylindrical body of the riveter, so that partial rotation of the lever 13 will cause reciprocation of the riveter. The lever 13 is provided with a hand-grip portion for effecting such movement, and adjacent to such portion said lever is provided with means for effecting the operation of the riveter-controlling valve-lever 10, so that said valve-lever may be controlled without removing the hand from the lever. Said means consists of a supplementary lever 16, pivoted at 17 to lever 13 and having an arm 18 connected by rod 19 to a ring or rocking member 20, loosely mounted on the arbor 14, so as to turn freely thereon. A wire or rod 21 is connected to the other side of this disk and to the valve-lever 10, so that when the lever 16 is pressed toward the handle portion of lever 13 by closing the hand thereon the resulting rotation of ring 20 will, through the wire 21, cause the valve-lever 10 to be operated to open the valve 24 of the riveter. (See Fig. 6.)

The rocking member 20 being pivoted concentrically with hand-lever 13, the movement of the latter does not materially affect said member. Supplementary lever 16 has a return-spring 25, that presses it away from the handle portion of lever 13.

In order to enable the work to be accurately set at each operation in proper position for the riveter, a finder 23 may be provided, consisting of a pin, which may be depressed to bring its lower end into a rivet-hole in advance of the one being riveted.

In applying my invention to pipe-riveting

the support or mandrel 3 may have a groove (indicated at 26) for holding the rivets, (indicated at 27,) which are supplied and pushed up through the rivet-holes in any usual or suitable manner, automatically or otherwise, by any usual rivet-inserting means, (not shown,) which may be either manually or automatically operated. The mandrel 3 extends horizontally, the groove 26 being in the top thereof, so that the rivets placed within said groove will stay in place. The riveter is mounted to move vertically and in the plane of the groove, the spring 7 serving to balance or sustain the weight of the riveter.

The operation is as follows: The work to be riveted—for example, piping (indicated at 29)—is placed on the work-holder or mandrel 3 with the rivet-holes in the vertical plane of the riveter-hammer and brought to proper position by use of the finder 23. A rivet 27 is then shoved up into the rivet-hole beneath the riveter and the lever 13 is operated by grasping the handle portion and turning the handle forwardly in the direction toward the left in Fig. 4 until it reaches the position shown in Fig. 6, which brings the hammer 9 to operative position in proximity to the rivet. During this movement the ring 20 turns bodily with the handle and arbor and draws the wire 21 down; but as the riveter-body is descending at the same time the valve-lever 10 follows up this downward movement of the wire, the parts being so proportioned that the downward movements of the valve-handle and the wire will be substantially equal. The riveter having been brought to operative position, the attendant presses the supplementary lever 16, which through the connection 19 20 21 operates the valve-lever 10 to admit compressed air to the riveter, whereupon the hammer of the latter is operated in the usual manner to perform the riveting operation. This having been effected, the attendant releases the lever 16 and allows the main lever 13 and the riveter to be moved back to normal position by the spring 7. The piping is then moved forward to bring the next hole into line and the operation is repeated.

The lever 13 enables the attendant to adjust the riveter to position with great accuracy and also enables him to withstand the kick or recoil of the riveter with comparatively little strain.

What I claim is—

1. In a pneumatic riveting-machine, a support, a riveter movably mounted therein and provided with valve mechanism, means for moving the riveter, and a connector from the valve mechanism to said means so arranged as to be operable to control the valve at any position of the riveter.

2. In a pneumatic riveting-machine, a support, a longitudinally-movable riveter mounted therein and provided with valve mechanism, a lever for moving the riveter, and a connector longitudinally movable from the valve mechanism to the lever so arranged as to control the valve at any position of the lever and riveter.

3. In a pneumatic riveting-machine, a support, a riveter movable thereon and having a controlling-valve, a handle connected to the riveter to move it on its support, and controlling means on said handle connected to said valve.

4. In a pneumatic riveting-machine, a support, a riveter movable thereon, a pivoted hand-lever connected to move the riveter, a controlling-valve for the riveter, a member pivoted concentrically with the said hand-lever and connected to said controlling-valve, and operating means on the hand-lever connected to said member.

5. In a pneumatic riveting-machine, a support, a riveter movable thereon, and provided with a controlling-valve, a pivoted hand-lever connected to move the riveter, a rocking member connected to the controlling-valve and a supplementary lever on the hand-lever connected to said rocking member.

6. In a pneumatic riveting-machine, a work-holder, a support, a riveter mounted to move vertically on said support, a rock-shaft pivoted on said support, an operating-handle on said rock-shaft, a pinion in said rock-shaft, a rack on the riveter engaged by said pinion, a rocking member loose on said rock-shaft, a supplementary lever on the aforesaid handle, a controlling-valve for the riveter, and connections from said rocking member to said supplementary lever and to said valve.

7. In a pneumatic riveting-machine, a support, a riveter sliding in said support and provided with a controlling-valve, a spring engaging with the riveter and with the support to move the riveter to inoperative position, a rock-shaft carrying an operating-lever and a pinion, a supplementary lever on said operating-lever, a rack on the riveter engaged by said pinion, a ring mounted to turn on said rock-shaft, and members connecting said ring with said supplementary lever and said valve.

8. In a pneumatic riveting-machine, a support, a longitudinally-movable riveter mounted therein and provided with valve mechanism, means for moving the riveter, a longitudinally-movable connector from the valve mechanism to said means, means for moving the connector longitudinally without operating the valve mechanism as the riveter is moved longitudinally, and means for moving the connector at any time to operate the valve mechanism.

9. In a pneumatic riveting-machine, a longitudinally-movable riveter provided with a valve, a lever for operating the valve, a handle provided with means for moving the riv-

eter longitudinally, a lever on said handle, a longitudinally-movable flexible connector from the valve-lever to the lever on the handle, and means for taking up the slack of said connector as the riveter is moved longitudinally in its support.

In witness whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, county of Los Angeles, and State of California, this 23d day of January, 1904.

JOHN R. FRENCH.

Witnesses:
ARTHUR P. KNIGHT,
FREDERICK S. LYON.