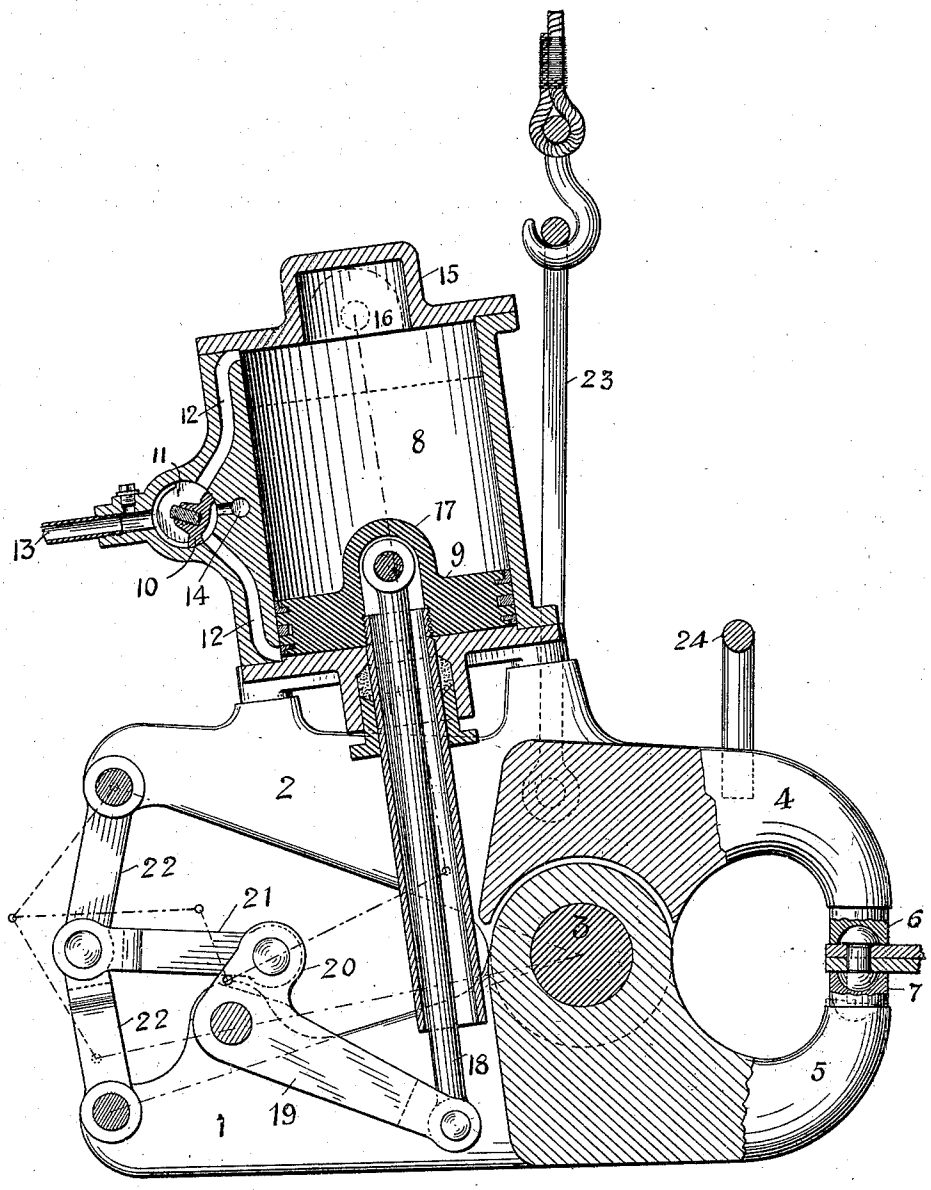
No. 709,167. Patented Sept. 16, 1902.

G. E. MARTIN.

RIVETING MACHINE.

(Application filed Dec. 21, 1901.)

(No Model.)



Witnesses
Charles Hanimann.
W. R. Talbot.

George E. Martin Inventor
By his Attorney Chas. M. Forbes

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE E. MARTIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE PEDRICK AND AYER COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

RIVETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 709,167, dated September 16, 1902.

Application filed December 21, 1901. Serial No. 86,732. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. MARTIN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Riveting-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a portable riveting-machine in which a shear-framework with pivoted arms carrying the riveting devices and connected operating mechanism is employed.

The invention consists in the relative arrangement of the power-cylinder and transmitting operative mechanism whereby a maximum degree of force is applied and the machine balanced and rendered compact and convenient for use.

In the accompanying drawing, forming a part of this specification, the figure represents a side elevation, partly in section, of a machine embodying my invention.

The main framework of the machine consists of the arms 1 and 2, pivoted or journaled at 3.

4 and 5 are the jaws to which the riveting-tools 6 and 7 are attached, shown with interposed plates and a rivet under compression.

The operative mechanism comprises the power-cylinder 8, fitted with a trunk-piston 9 and valve 10 for controlling the admission and exhaust of the pressure fluid, which may be compressed air, steam, or other medium. The cylinder is provided with a valve-chamber 11 and the usual passages 12, leading from the valve-chamber to the respective sides of the piston, and also the inlet and exhaust ports 13 and 14, respectively, communicating with the valve-chamber. The cylinder is also provided with a head or bonnet 15, in which a recess 16 is extended to accommodate the projecting hollow part 17 of the piston, the latter being designed to provide room to journal the piston-rod 18 therein, but also serving in connecting with the recess 16 to produce a cushion to relieve the action of the piston at the termination of its return stroke. These features of construction and the valve device shown form no part of the present invention and are not specifically claimed herein.

The mechanism for transmitting the power from the power-piston 9 to operate the riveting-jaws 4 and 5, together with the relative position of the power-cylinder therewith, embrace the essence of the present invention.

The position of the power-cylinder 8 is inclined with respect to the axis of the movement of the arms 1 and 2, which provides for the employment of a greater length of the long arm of the bell-crank lever 19, which is directly connected with the piston-rod 18. The short arm 20 of the lever 19 is also formed of such length and relatively connected to the link 21, which in turn is connected to the toggle device 22, to derive the greatest possible leverage and range of movements within the boundary of the machine and limited range of movement of the arms 1 and 2, thereby rendering the machine compact and obtaining increased force of compression. The inclined position of the power-cylinder also produces a distribution of the weight to better balance the machine when suspended.

The operation of the machine will be readily understood by an inspection of the drawing, the power-piston being shown at the extreme movement of the compression-stroke and the connecting mechanism, with the operating-arms 1 and 2, shown in their relative operative position. In the return stroke of the power-piston the pivotal and line positions of the parts are shown in the dotted lines.

The machine may be provided with handles or bails 23 and 24 for suspending and manipulating it in use.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination with the vibrating arms of a riveting-machine, a power cylinder and piston located upon one arm thereof and a bell-crank lever mounted upon the opposite arm, the long arm of the lever connecting with the power-piston rod and the short arm

with a toggle-lever mechanism for vibrating the arms as set forth.

2. In combination with the vibrating arms of a riveting-machine, a power cylinder and piston located at an inclination to the axis of the movement of said arms, a bell-crank lever having its long arm connected to the power-piston rod, and its short arm with a toggle-lever device connected to the respective riveting-arms for vibrating the same, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE E. MARTIN.

Witnesses:

ARTHUR E. MARTIN,

J. HARRY COOK.