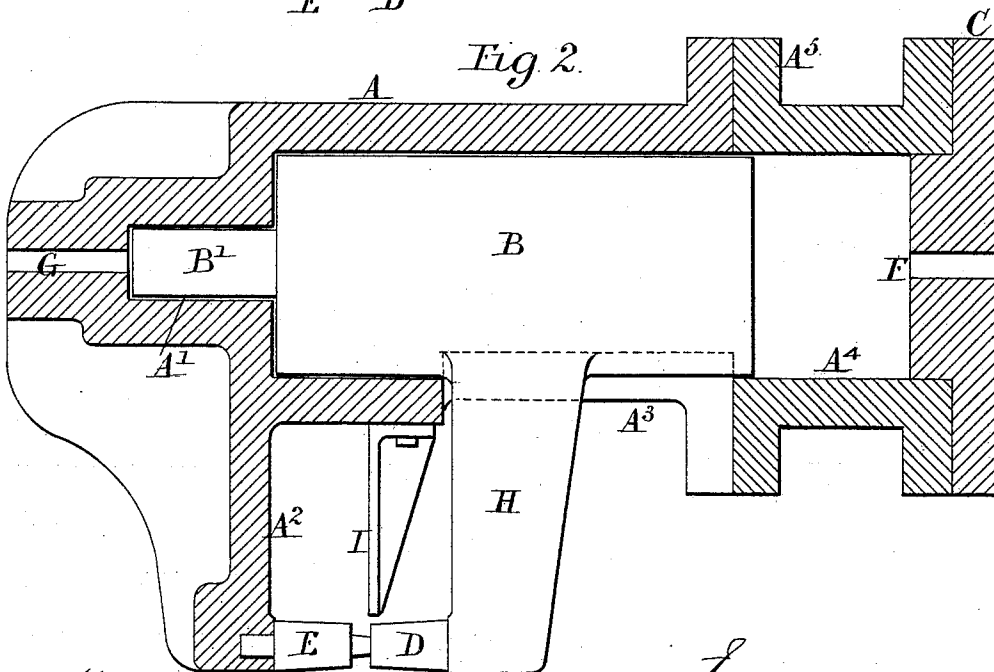
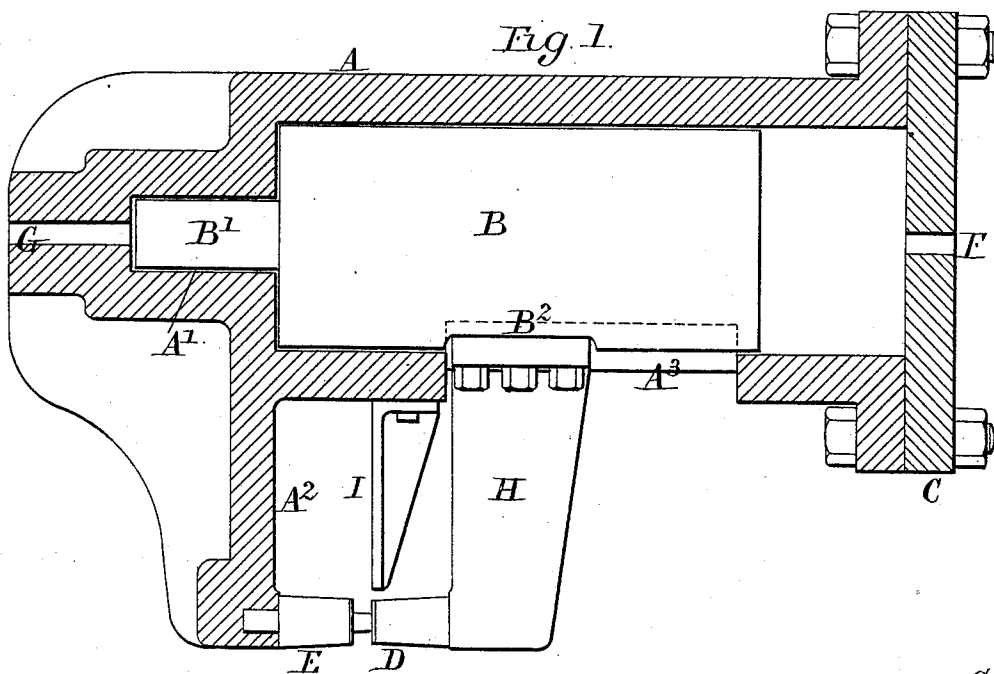


(No Model.)

A. C. A. HOLZAPFEL.
PORTABLE PUNCHING AND RIVETING MACHINE.

No. 472,357.

Patented Apr. 5, 1892.



Witnesses:
J. A. Rutherford
Albert C. A. Holzappel

Inventor:
Albert C. A. Holzappel.
By Wm. L. Norris
Attorney.

UNITED STATES PATENT OFFICE.

ALBERT C. A. HOLZAPFEL, OF LONDON, ENGLAND.

PORTABLE PUNCHING AND RIVETING MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,357, dated April 5, 1892.

Application filed February 23, 1892. Serial No. 422,550. (No model.)

To all whom it may concern:

Be it known that I, ALBERT CHARLES AUGUSTUS HOLZAPFEL, a citizen of England, residing at 116 Fenchurch Street, in the city of London, England, have invented new and useful Improvements in Portable Punching and Riveting Machines, of which the following is a specification.

My invention relates to a construction of portable punching and riveting machines, described in the specification of an application, Serial No. 422,549, filed by me and bearing equal date herewith. In the said machine a cylinder supplied with fluid-pressure contained a piston having an elbow-shaped extension passing through the cylinder-cover and projecting laterally so as to carry a punching or riveting tool facing an abutment on an arm projecting from the cylinder.

According to my present invention instead of carrying the punching or riveting tool by an elbow-shaped extension passing through the cylinder-cover, I carry the tool by means of an arm projecting laterally from the side of the piston and passing through a slot in the cylinder.

Figure 1 of the accompanying drawings shows a longitudinal section of a punching and riveting machine constructed according to my said invention. Fig. 2 shows a modification thereof.

In the arrangement shown at Fig. 1 the cylinder A is formed with a slot A³, and the piston B is formed with a flat face B² opposite such slot, to which face is securely bolted an arm H, projecting through the slot and carrying at its end the punching or riveting die D, situated opposite the abutment-piece E, carried by the arm A² of the cylinder A. I is a guard, fixed to the cylinder when the machine is used for punching, for facilitating the withdrawal of the punch from the hole of the sheet metal operated on. A' is a cylindrical recess on the cylinder, into which fits a cylindrical extension B' on the piston, so that by admitting fluid-pressure through the passage G the piston and arm H are made to effect their return motion after having been forced forward by the fluid-pressure admitted through the passage F.

In the arrangement shown at Fig. 2 the arm H is formed in one with the piston B, instead of being fixed thereto, and in order to enable it to be introduced into the slotted cylinder this is formed in two separate parts, as shown, the front part A being formed with the slot A³ extending right to the rear end, so that the piston can pass in through it, after which the rear part A⁴, which constitutes the cylinder proper, is bolted onto A by means of the flanges A⁵. The other parts of the machine are precisely the same as previously described.

Having thus described the nature of my invention and the best means I know for carrying the same into practical effect, I claim—

1. In a machine for punching and riveting, the combination of a cylinder A, having a projecting arm A², carrying an abutment-piece, and a longitudinal slot A³, and a piston B, subjected to fluid-pressure and having an arm H, projecting laterally therefrom through the slot of the cylinder to the same distance as the arm of the cylinder and carrying the punching or riveting tool, substantially as described.

2. In a machine for punching and riveting, the combination of a slotted cylinder A, having an arm A², carrying an abutment-piece, a piston B, subjected to fluid-pressure, a cylindrical extension B' on the said piston fitting into a cylindrical recess A' on the cylinder A and also subjected to fluid-pressure, and an arm H, projecting laterally from the piston through the slot of the cylinder to the same distance as the arm of the cylinder and carrying the punching or riveting tool, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 8th day of February, A. D. 1892.

A. C. A. HOLZAPFEL.

Witnesses:

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