Dec. 2, 1930. C. A. OLSON ET AL 1,783,445

SHEARING AND RIVETING MACHINE

Filed Aug. 6, 1928

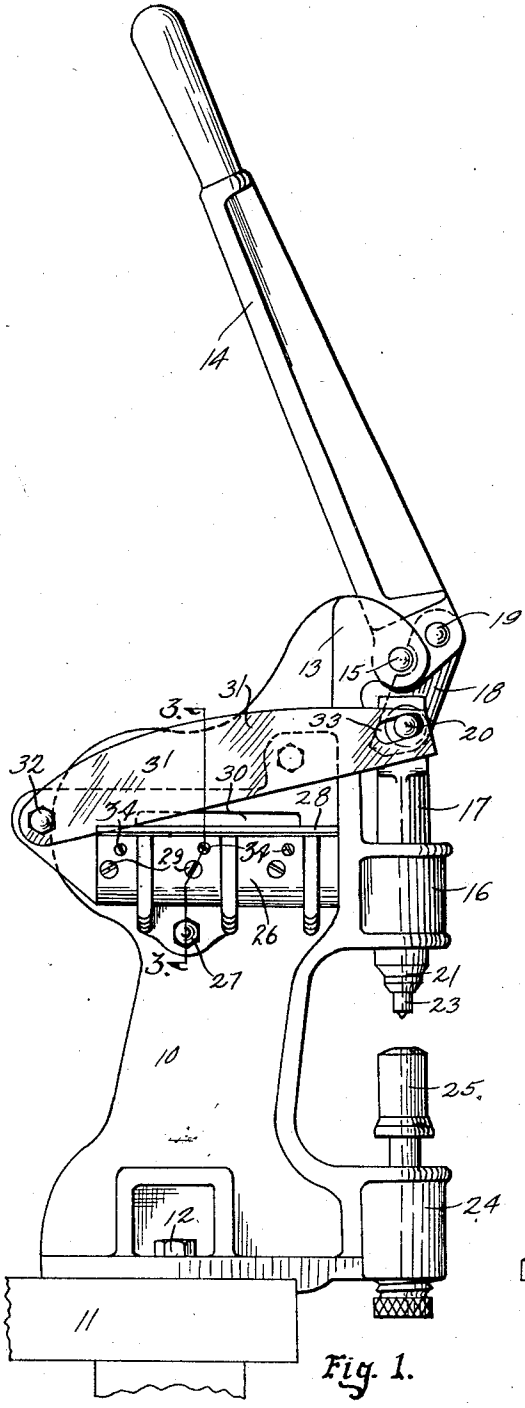


Fig. 1.

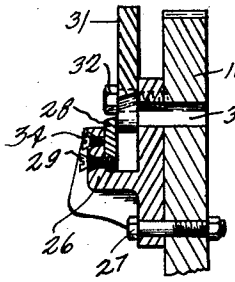


Fig. 3.

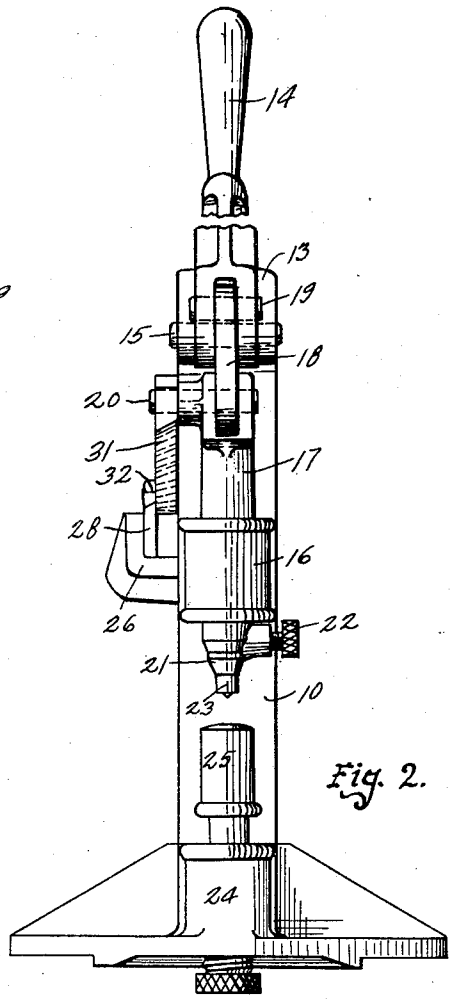


Fig. 2.

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UNITED STATES PATENT OFFICE

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SHEARING AND RIVETING MACHINE

Original application filed September 12, 1927, Serial No. 218,983. Divided and this application filed August 6, 1928. Serial No. 297,622.

The subject matter of this application was originally included in and has been divided from our application filed September 12, 1927, Serial Number 218,983.

The particular object of the present invention is to provide an improved construction for a machine which embodies the characteristics of a shear and a riveter and is so arranged that the movable blade of the shear and the tool-carrying member of the riveter are operated by a single lever mechanism.

A further object of this invention is to provide improved means for mounting a shear blade on a machine frame and providing a sliding pivotal connection with a reciprocating member, whereby the blade is oscillated upon movement of the reciprocating member.

With these and other objects in view our invention consists in the construction, arrangement and combination of the various parts of our device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in our claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of a shearing and riveting machine embodying our invention.

Figure 2 is a front elevation of the same, a portion of the lever being broken away.

Figure 3 is a detail vertical section on the line 3—3 of Figure 1.

In the accompanying drawings, we have employed the numeral 10 to designate generally, the main frame of our machine, which frame may be mounted on a suitable support such as a bench 11 and be secured thereto as by screws 12.

At its upper end, the frame 10 is formed with a forwardly extending projection 13 and a lever 14 is fulcrumed on a pin 15 carried by said projection.

Below the projection 13 the frame is formed with a vertical slide bearing 16 in which a sleeve 17 is arranged for reciprocation. A link 18 is pivoted at its upper end to the lever 14 by means of a pin 19 located just forwardly of the fulcrum 15 of the lever and said link is pivotally connected at its lower end to the sleeve 17 by means of a pin 20.

A bushing 21 is mounted in the lower end of the sleeve 17 and is held therein by means of a thumb screw 22 and said bushing carries a suitable tool such as a rivet set 23.

At its lower end the frame 10 is formed with a bearing 24 in vertical alignment with the slide bearing 16 and a work support 25 is carried by and projects upwardly from said bearing 24.

The work support 25 is adapted to cooperate with the rivet set 23 when the sleeve 17 is moved downwardly in a manner clearly set forth in our parent application above referred to, these features forming no part of our present invention.

On one side of the frame 10 a shear body 26 is arranged in horizontal position just rearwardly of the slide bearing 16 and is mounted to the frame by means of cap screws or bolts 27.

A stationary shear blade 28 is mounted on the body 26 by means of screws 29 and just above the position of said blade the frame is formed with a transverse opening 30. The screws 29 are threaded into both the body 26 and the blade 28. Above and to one side of each of the screws 29 are other screws 34 which are threaded into the body casting 26 and bear at their ends against the face of the shear blade 28.

A movable shear blade 31 is pivoted at one end on the frame by means of a cap screw or the like 32 and the opposite end portion of said blade projects beyond the frame and is formed with a longitudinal slot 33 which receives the pin 20.

This machine is particularly designed for use in the operation of relining brake bands and the shear mechanism is employed for cutting the lining material to the desired length, while the riveting mechanism is employed for mounting the lining to the brake bands, as more specifically set out in our parent application above referred to.

It will be noted that the hand lever 14 may be moved forwardly through an arc for the purpose of straightening out the link 18 and

causing a downward movement of the tool-carrying sleeve 17 in its bearing.

This downward movement of the member 17 is effective for moving the tool 23 downwardly to perform its work and is also effective for oscillating the movable shear blade 31.

Forward movement of the lever 14, resulting in a downward movement of the link 18 and pivot 20, will cause an oscillation of the pivoted shear blade 31, the pin 20 sliding in the slot 33 sufficiently to compensate for the movement of the forward end of the blade through an arc.

This action carries the cutting edge of the blade 31 past the cutting edge of the stationary blade 28 and such action is utilized to cut off a strip of brake lining or any other desired object which may be inserted through the transverse opening 30 of the frame.

It is obvious that this machine provides a very handy and rapid means for accomplishing the specific purpose above noted, since the shear is contained in the same machine which embodies the riveting mechanism and is operable by the same hand lever. Because of this, the operator need not move from one machine to another while preparing the brake lining and applying it to the brake band, thus saving time and labor.

For adjusting the position of the shear blade 28, the screws 34 are first screwed into the seats until said blade is in proper relation to the movable blade 31, then the screws 29 are tightened to maintain this adjustment and hold the blade 28 securely in place. Thus means is provided for securing a quick and easy adjustment of the blade which eliminates the costly operation of accurate machining and grinding that would otherwise be necessary. This also makes it possible to resharpen the blades and quickly adjust them to proper position.

While we have shown and described this mechanism in connection with a riveting machine, yet it is obvious that its use may be extended to other combination machines and we do not wish to be understood as limiting ourselves to the precise arrangement shown and described except as defined by the scope of our claims.

We claim as our invention:

1. A machine of the class described, comprising a frame, a lever fulcrumed at its lower end on said frame, a tool-carrying sleeve arranged for vertical sliding movement in said frame, a link pivoted to said lever at a point forwardly of its fulcrum, a pivot pin carried by the upper end of said sleeve and engaging said link, a stationary shear blade carried by said frame, and a movable shear blade pivoted at one end to said frame and adapted to cooperate with the stationary blade, said movable blade having at its opposite end a slot receiving said pivot pin of the link to the sleeve, whereby the tool-carrying sleeve and movable blade are conjunctively operated when the lever is moved through an arc.

2. A machine of the character described, comprising a frame, a tool-carrying sleeve arranged for sliding movement therein, a pin carried by said sleeve, a lever of substantially bell-crank type fulcrumed on said frame substantially in alignment with said sleeve, a link pivoted on said pin and pivotally connected to said lever at a point spaced laterally from its fulcrum, a stationary shear blade on said frame, and a movable shear blade pivoted on the frame and formed with a slot having pivotal and slidable engagement with said pin.

Des Moines, Iowa, June 12, 1928.

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