E. F. SHUSTER.

RIVETING MACHINE.

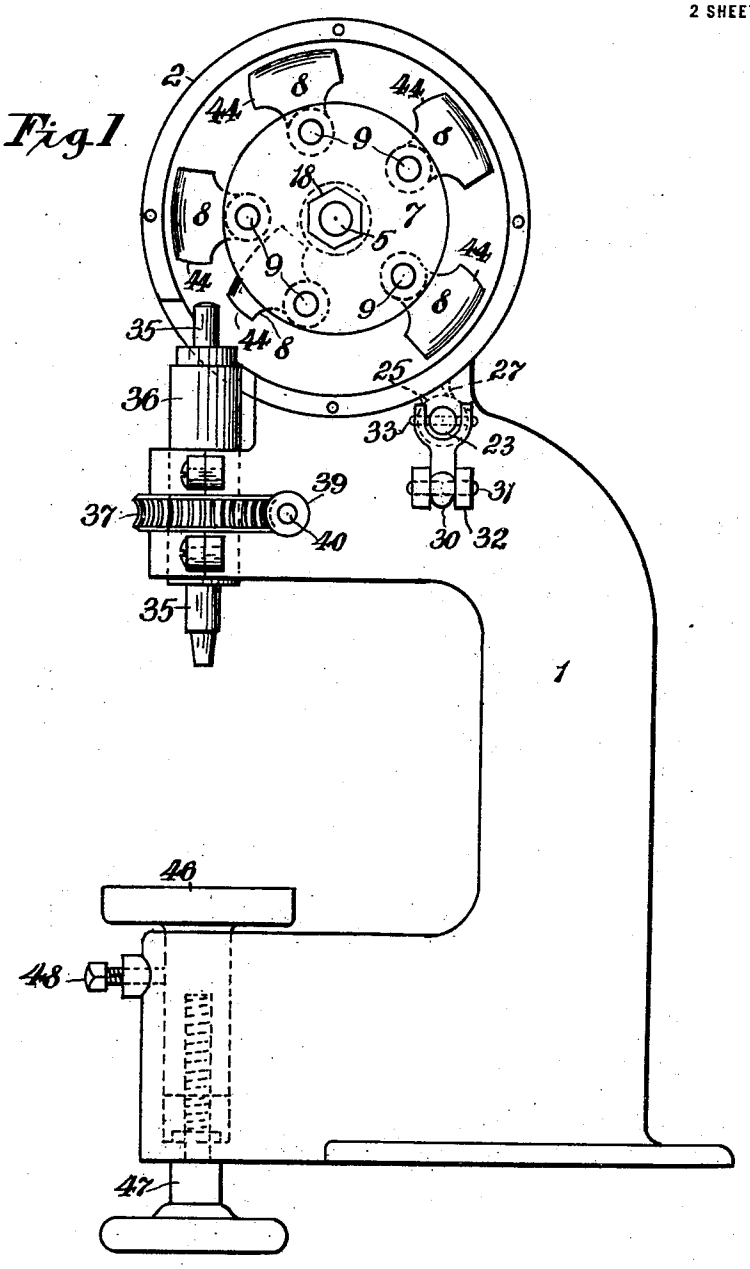
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1,246,170.

Patented Nov. 13, 1917.

2 SHEETS—SHEET 1.

Fig. 1



WITNESSES:

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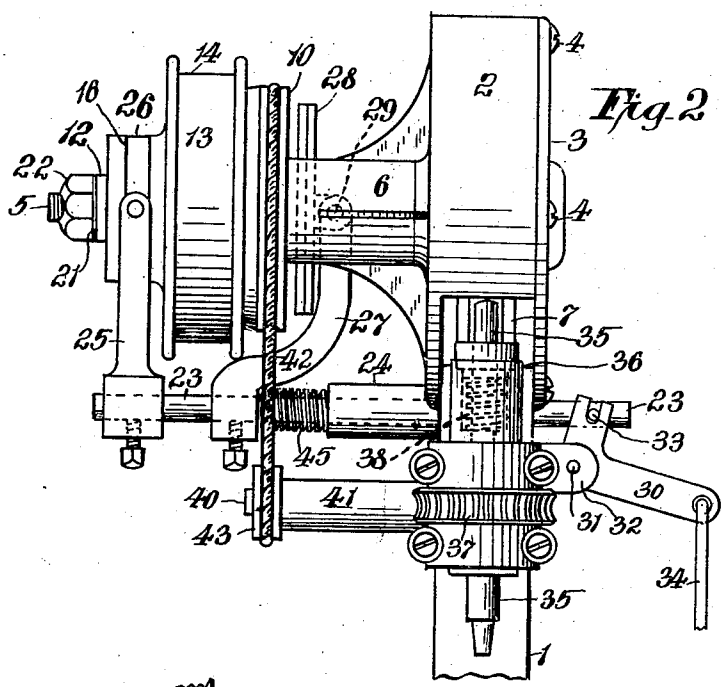


Fig. 2

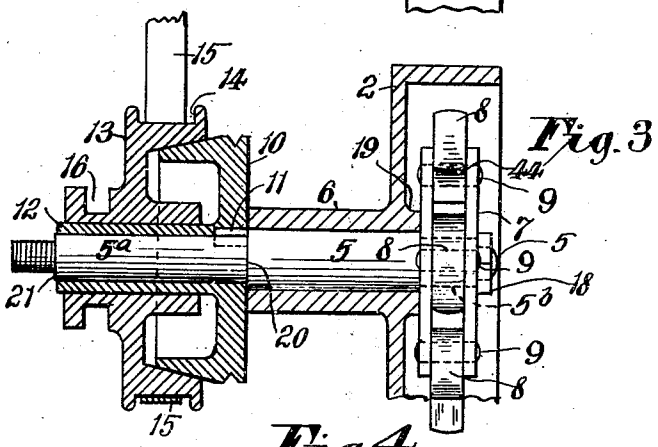


Fig. 3

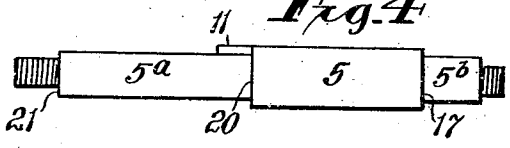


Fig. 4

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UNITED STATES PATENT OFFICE.

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RIVETING-MACHINE.

1,246,170. Specification of Letters Patent. Patented Nov. 13, 1917.

Application filed November 22, 1916. Serial No. 132,734.

To all whom it may concern:

Be it known that I, ELMORE F. SHUSTER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Riveting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved riveting machine of simple and compact construction and increased efficiency of operation.

Referring to the accompanying drawings:

Figure 1 represents a side elevation of the machine with the cover of the housing for the hammers removed;

Fig. 2 is a front elevation of the machine and broken view of the standard and treadle rod;

Fig. 3 is a broken sectional view of the hammer head housing with its cover removed, full front view of the hammer head and its shaft, and sectional view of the driving pulleys, and broken sectional view of the driving belt; and

Fig. 4 is a detail view of the driving shaft.

1 represents the standard or frame, and 2 the housing integral therewith. 3 is the removable cover secured to the housing by the screws 4. The driving shaft 5, Figs. 3 and 4, is journaled in the hub 6 of the housing and it carries at one end and within the housing the grooved head 7 carrying the hammers 8 freely mounted on the pins 9. 10 is a cone pulley secured to the reduced portion 5^a of the shaft by the key 11. On the long hub 12 of this pulley is rotatably mounted the clutch pulley 13 provided with the peripheral groove 14 for the belt 15 and the clutch groove 16, presently to be more fully explained.

The head 7 is securely mounted on the reduced portion 5^b of the driving shaft and is firmly held against the shoulder 17 by the nut 18. The head 7 also abuts against the face of the inner hub 19 of the housing and the cone pulley 10 abuts against the face of the hub 6 of the housing and the shoulder 20 of the shaft. The hub 12 of the cone pulley 10 is a trifle short of the rear shoulder 21 of the shaft so that, when the nut 22, Fig. 2, is brought firmly against said shoulder, the shaft will rotate freely in its bearing.

The operating rod 23 is slidably mounted in the frame and boss 24 projecting therefrom. 25 is a clutch lever adjustably mounted on this rod operatively connected with the clutch pulley 13 through the medium of the ring 26 engaging the before mentioned groove 16 in the hub of said pulley. 27 is a brake lever adjustably mounted on the rod 23 and carries at its upper free end the pad 28 pivoted to said lever by the pin 29. 30 is a fork lever pivotally supported on the pin 31 of the ears 32 projecting from the machine frame. This lever embraces the pin 33 secured to rod 23. 34 is the treadle rod adapted to connect with a foot treadle—not shown.

35 is hammer rod passing through the bushing 36 mounted in the frame and has the usual vertical and rotatable movement common to machines of this character. This rod is rotatably connected to the worm gear 37 and is normally elevated by the spring 38, Fig. 2. The worm gear is rotated by means of the worm 39, Fig. 1, mounted on the shaft 40 journaled in the hub portion 41 of the frame 1. Motion is transmitted to this shaft through the medium of the belt 42 connecting the cone pulley 10 with the small pulley 43 on shaft 40.

In Figs. 1, 2 and 3 the machine is in operative position, viz.: the treadle rod has been actuated to withdraw the rod 23 and bring the clutch pulley 13 into engagement with the cone pulley 10 through the medium of the before mentioned clutch lever 25, and at the same time withdraw the pad lever 27. This movement of the rod 23 will cause the hammer head and its shaft to rotate, and as the hammers are freely mounted on their supports, they are held in operative position with respect to the hammer rod 35 by centrifugal force, and as each hammer strikes the end of the hammer rod it is thrown back by the force of the contact a distance sufficient to clear the rod, when it will resume its outward position by said centrifugal force. The face 44 of each hammer is tapered so as to impart a glancing blow to the hammer rod rather than a direct blow which would cause the hammers to rebound with such force as to require the use of springs to absorb this rebounding force. The use of springs for this purpose is objectionable on account of their tendency to

crystallize in a short time. The instant the treadle is released, the spring 45 will return the rod 23 and break the engagement of the cone pulleys and also bring the pad 28 against the vertical face of the cone pulley 10 to stop the machine.

The anvil 46 is adapted to support the work and is adjustably mounted in the frame by the screw 47, and held firmly in any of its adjusted positions by the set screw 48.

Having thus described my invention, what I claim is:

1. A riveting machine comprising a frame surmounted by a housing having a hub, a driving shaft journaled in said hub, a cone pulley having a hub mounted on the shaft and secured thereto, a clutch-pulley journaled on the hub of the cone-pulley, a vertically operated hammer rod, means for rotating the same from the cone-pulley, a head mounted on the shaft and within the housing, a series of hammers pivotally mounted in the head, the striking face of the hammers tapered so as to deliver a drawing blow to the hammer rod.

2. A riveting machine comprising a frame surmounted by a housing having a hub, a driving shaft journaled in said hub, a centrifugal hammer mounted on the shaft and within the housing, a cone-pulley secured to the driving shaft and having an extended hub, a clutch pulley rotatably mounted on said hub, an operating rod, a clutch lever mounted thereon engaging the clutch-pulley, a brake-lever adjustably mounted on said rod, a spring to actuate said rod to automatically disengage the pulleys and stop the machine through the medium of said brake, a vertically operated hammer rod, and means for rotating the same from the cone pulley.

In testimony whereof I affix my signature.

ELMORE F. SHUSTER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."