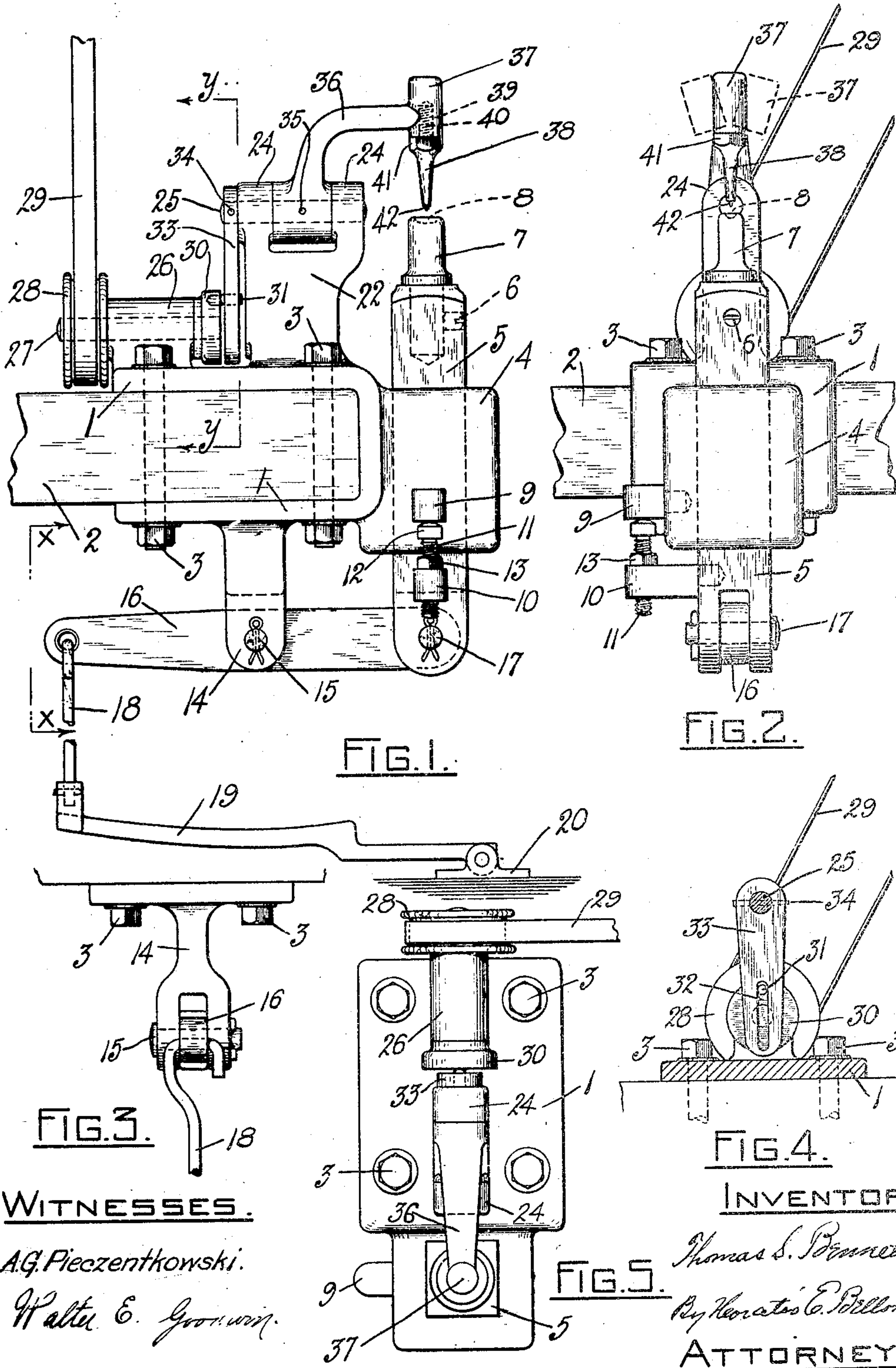


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PATENTED FEB. 4, 1908.

T. S. BENNETT.  
RIVETING MACHINE.  
APPLICATION FILED JUNE 24, 1907.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

THOMAS S. BENNETT, OF ATTLEBORO, MASSACHUSETTS.

## RIVETING-MACHINE.

No. 877,982.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed June 24, 1907. Serial No. 380,440.

*To all whom it may concern:*

Be it known that I, THOMAS S. BENNETT, a citizen of the United States, residing at Attleboro, in the county of Bristol and State of Massachusetts, 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.

My invention relates to rivet setting machines and has for its objects the ends commonly sought in this class of structure, but more particularly to increase the speed and efficiency of the riveting operation, and attain these ends by a simple and inexpensive mechanism.

To the above ends my invention consists in imparting to the riveting tool a laterally reciprocating or vibratory motion, and in the novel construction and combination of the parts of the mechanism.

In the drawings which constitute a part of this specification, Figure 1 is a side elevation of a machine embodying my invention. Fig. 2, a front elevation of the same. Fig. 3, a rear view of a portion of the same on line *x x* of Fig. 1. Fig. 4, a section on *y y* of Fig. 1, and Fig. 5, a plan elevation of the machine.

Like reference characters indicate like parts throughout the views.

The frame work may be of any form of construction suitable for carrying the several details of mechanism. In the form thereof herein shown, it consists essentially of a hollow base, 1, adapted to be applied to a bench, 2, with bolts, 3, and has a forwardly extending portion, 4, in which is slidably mounted a plunger, 5. In the upper end of the plunger is fixed by a set screw, 6, the shank of a holding die, 7, preferably provided with a recess, 8. Upon the extension, 4, and plunger, 5, are lugs, 9, and 10, respectively in vertical alinement with each other. The lug, 10, carries a screw, 11, whose head, 12, rests against the lug, 9, and is vertically adjustable by a nut, 13. Upon the base, 1, is a downwardly directed bracket, 14, provided with a pin, 15, upon which is pivoted a lever, 16, whose forward end is connected by a pivot pin, 17, with the plunger, 5, and whose other end is loosely connected with a vertical rod, 18. The lower end of this rod is connected to a treadle, 19, pivoted to a plate, 20, fixed to the floor.

Upon the upper face of the base is an up-

right head, 22, provided with bearings, 24, for a rock shaft, 25. Revolvably mounted in an upright bearing, 26, formed preferably integral with the base, 1, in the rear of the head is a rotating shaft, 27, on whose outer end is a wheel, 28, driven by belt, 29, and upon whose inner end is a crank disk, 30, provided upon its face with a crank pin, 31, which travels in a vertical slot, 32, in an arm, 33, fixed to the rock shaft, 25, by a pin, 34. Fixed by a pin, 35, to the shaft, 25, intermediate the bearings 24, is a curved overhanging arm, 36, substantially parallel with the shaft 25, and provided with a cylindrical head, 37, in alinement with the holding die, 7. The head, 37, carries a vertically disposed riveting tool, 38. The latter may be mounted in any desired manner, but the preferred construction consists in providing a vertically disposed screw threaded opening, 39, in the head, and forming a threaded shank, 40, upon the upper end of the riveting tool adapted to engage the threads of the opening, 39. Adjacent its threaded portion the tool, 38, has a shoulder, 41, adapted to abut against the head, or against an interposed distance piece, if such piece is desired. The riveting end of the tool, 37, has a point, 42, preferably cone shaped and in substantial alinement with the axis of the rock shaft.

The riveting operation is performed as follows: The work is in the cavity, 8, of the holding die, and the treadle, 19, is depressed by the operator to elevate the holding die, 7, to the desired height. The limit of the upward travel of the plunger, 5, is regulated by turning the nut, 13. The wheel, 28, rotates the disk, 30, whose pin, 31, swings the arm, 33, thereby rocking the shaft, 25, arm 36, head 37, and tool 38, whose point, 42, presses upon the center of the rivet held by the die, 7. The conical pointed riveting tool thus reciprocates laterally in a vertical plane spreading the material of the rivet in two directions but by changing the form of the point of the tool the material of the rivet can be spread in any or all directions, over and upon the article to be riveted. In Fig. 2, the broken lines indicated the limits of travel of the reciprocating parts.

While this machine is primarily intended for setting rivets, it may be advantageously used to crimp or roll the edges of metallic shells.

What I claim is,

1. In a riveting machine, the combination



with the frame, of a rock shaft mounted in the frame, an arm fixed to the shaft, and substantially parallel with said shaft, a tool holder upon the arm, a riveting tool in the tool holder, and means for rocking the rock-shaft.

2. In a riveting machine, the combination with the frame, of a rock shaft mounted in the frame, a supporting arm fixed upon the shaft, a tool holder upon the supporting arm, a driving shaft also mounted in the frame, a vibrating arm fixed to the rock shaft, and means upon the driving shaft for actuating the vibrating arm.

3. In a riveting machine, the combination with the frame, of a rock shaft mounted in the frame, a supporting arm upon the shaft, a tool holder upon the supporting arm, a driving shaft also mounted in the frame, a vibrating arm fixed to the rock shaft, and means upon the driving shaft engaging the vibrating arm for actuating the vibrating arm.

4. In a riveting machine, the combination with the frame, of a rock shaft mounted in the frame, means fixed to the rock shaft for holding a riveting tool, an arm fixed to the rock shaft, a driving shaft also mounted in the frame, and means upon the driving shaft and engaging the arm for reciprocating the arm.

5. In a riveting machine, the combination with the frame, of a rock shaft mounted in the frame, means fixed to the rock shaft for holding a riveting tool, a vibrating arm fixed to the rock shaft, a driving shaft also mounted in the frame, and a crank connection between the driving shaft and vibrating arm.

6. In a riveting machine, the combination with the frame, of a rock shaft mounted in the frame, means fixed to the rock shaft for holding a riveting tool, an arm fixed to the rock shaft and provided with a slot, a driving shaft also mounted in the frame, a disk upon the driving shaft, and a pin upon the disk registering in the slot of the arm.

7. In a riveting machine, the combination with the frame, the riveting tool and means for rocking the riveting tool, of a plunger mounted in the frame in axial alinement with the riveting tool, a holding die in the plunger adjacent the riveting tool, and means upon the frame for reciprocating the holding tool towards and away from the riveting tool.

8. In a riveting machine, the combination

with the frame and riveting tool, of a plunger mounted in the frame, a holding tool upon the plunger in alinement with the riveting tool, means for advancing the plunger towards the riveting tool, and means upon the plunger adapted to contact with the frame for limiting the advance of the plunger.

9. In a riveting machine the combination with the frame and riveting tool, of a plunger mounted in the frame, a holding tool upon the plunger in alinement with the riveting tool, means for advancing the plunger towards the riveting tool, a lug upon the plunger, an adjustable screw in the lug adapted to contact with the frame when the plunger is advanced, and an adjusting nut on the screw.

10. In a riveting machine, the combination with the frame, the riveting tool, and means for transversely reciprocating the riveting tool in a single plane, of a plunger mounted in the frame, a holding die on the plunger in alinement with the riveting tool and adapted to cooperate therewith, and means for advancing the plunger towards the riveting tool.

11. In a riveting machine, the combination with the frame, the riveting tool, and means for transversely reciprocating the riveting tool in a single plane, of a plunger mounted in the frame, a holding die on the plunger provided with a recess in alinement with the riveting tool, and means for advancing the plunger towards the riveting tool.

12. In a riveting machine, the combination with the frame, of a shaft mounted in the frame, an arm fixed to the shaft and substantially parallel with said shaft, a tool holder upon the arm, a riveting tool rigidly mounted in the tool holder and disposed at right angles to the shaft, and means for rocking the shaft.

13. In a riveting machine, the combination with the frame, of a rock shaft mounted in the frame, an overhanging arm upon the rock shaft, a tool holder upon the arm, a vertically disposed riveting tool in the holder and provided with a point in alinement with the axis of the rock-shaft, and means for actuating the rock shaft.

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

THOMAS S. BENNETT.

Witnesses:

WILLIAM E. TEFFT,

WALTER E. GOODWIN.