

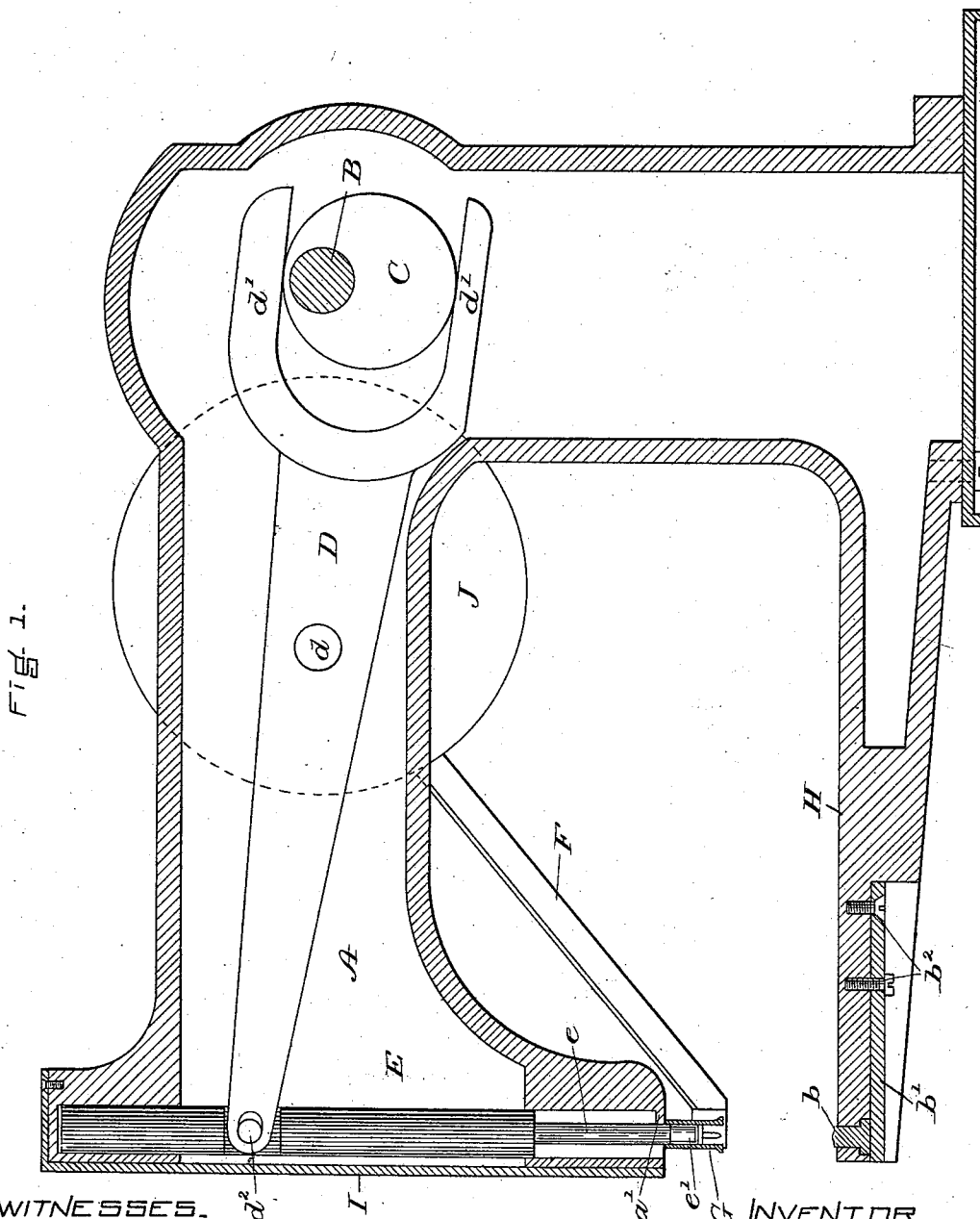
(No Model.)

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H. S. CROMBIE.
RIVET SETTING MACHINE.

No. 552,042.

Patented Dec. 24, 1895.



WITNESSES.

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INVENTOR.
Herbert S. Crombie.

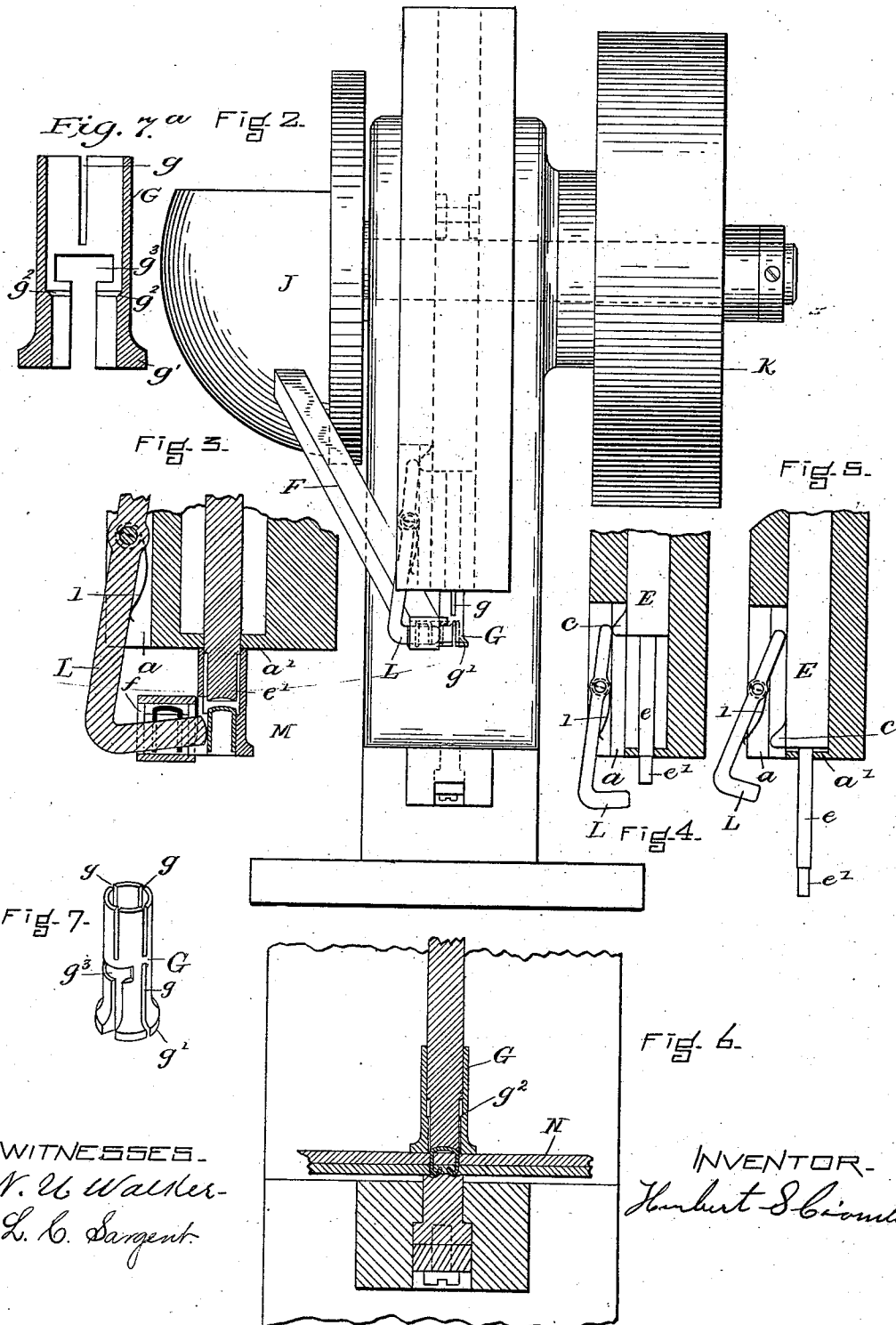
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UNITED STATES PATENT OFFICE.

HERBERT S. CROMBIE, OF WALTHAM, ASSIGNOR OF ONE-HALF TO
THEOPHILUS KING, OF BOSTON, MASSACHUSETTS.

RIVET-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 552,042, dated December 24, 1895.

Application filed March 1, 1895. Serial No. 540,203. (No model.)

To all whom it may concern:

Be it known that I, HERBERT S. CROMBIE, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Rivet-Setting Machines, of which the following is a specification.

My invention relates to improvements in rivet-setting machines in which headed rivets having two (or more, if desired) legs are forced through, and the extremity of the legs turned back upon, the material to be riveted—as, for instance, in manufactures of leather; and the objects of my improvement are to provide an improved riveting-bar and its appurtenances, and an improved combination of the riveting-bar with the other features of the machine, as hereinafter set forth. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a general side view in section of such machine as it appears before the riveting-bar is driven downward to clamp the rivet. Fig. 2 is a front view of the machine. Fig. 3 is a vertical section view through the riveting-bar, the lower extremity of the raceway, and the lever for moving the rivets into position. Figs. 4 and 5 are sectional details showing how the riveting-bar affects the movement of the above-mentioned lever. Fig. 6 is a sectional view showing the riveting-bar, the thimble for said bar, the material to be riveted, and the anvil upon which the compression is accomplished. Fig. 7 is a detail showing the thimble or friction device used in connection with the riveting-bar. Fig. 7^a is a sectional view of the thimble or friction device, twice enlarged, showing its beveled inner shoulder.

Similar letters refer to similar parts throughout the views.

The frame A supports the rocker-arm D, pivoted at *d*, and this rocker-arm is operated by the eccentric C upon the shaft B operating upon the forks *d'* of the rocking arm, which operates the riveting-bar E by means of the pin D². The rocker-arm D is operated in a well-known way by the driving-pulley K. As the shaft is rotated by the pulley, the rocker-

arm D will cause the riveting-bar E to move up and down.

In order that the rivets may be properly supplied for the action of the riveting-bar, they are placed in the hopper J and travel down the raceway F, as is usual in such kind of machines, until they reach the aperture *f* in the raceway, whence they are moved as fast as required directly beneath the riveting-bar by means of the rivet-carrying lever L. This lever L is normally held by the spring *l* in the position shown in Fig. 5, but as the riveting-bar E is elevated its projection or cam *c* will press the upper end of the lever L outward, whereby its lower end will move the rivet into the position shown in Fig. 3 within the thimble, which it enters from the slot *g*³ and directly beneath the riveting-bar, where it is held until the descent of the riveting-bar by the beveled inner shoulder *g*² of the thimble. L is thus an escapement.

The riveting-bar is composed of the part E having the cam *c*, the small end *e*, and the upper riveting-die *e'*. The thimble or friction device G (best shown in Figs. 7 and 7^a) has the slots *g* and enlarged end or flaring portion *g'* to serve as a presser-foot, and the beveled inner shoulder *g*². (Best shown in Fig. 7^a.) This friction device fits about the part *e* of the riveting-bar, and when the machine is in the position shown in Fig. 1 it will be seen that the part or die portion *e'* is above the slot *g*³, but that when the riveting-bar is driven down the die part *e'* will pass nearly to the bottom or presser-foot part *g'* of the thimble. It will be seen clearly by Figs. 3, 5, and 6 that the riveting-die *e'*, being of less size than the small end *e*, necessarily forms a shoulder. It will be further seen, particularly in Figs. 3 and 6, that about midway of the thimble G there is a beveled inner shoulder, *g*² in Fig. 6, and shown in Fig. 3 nearly even with the head of the rivet M. Thus the length of *e'* is such as to enable the shoulder just above it to come down to the inner beveled shoulder *g*² of the thimble G.

H shows the lower arm of the frame constructed with the spring-piece *b'* held by the screws *b*² and supporting the die *b*.

The rivet M is shown just previous to being

compressed in Fig. 3 and just after being compressed in Fig. 6.

Having described the parts of my machine, the operation will be easily understood.

5 Upon the pulley K being made to revolve the shaft B, the rocker-arm D will be operated back and forth by the eccentric C. The pieces of material N to be riveted being placed upon the anvil *b*, the descending riveting-bar E
10 will force its upper die *e'* through and nearly down to the bottom of the thimble G whose presser-foot *g'* rests upon the material, and in so doing will drive the two legs of the rivet through the material and cause their ends to
15 be turned up into the material upon the surface of the anvil *b*, as shown in Fig. 6.

The supplying of the rivets will be readily understood from the foregoing description of the rivet-carrying arm L. As the riveting-bar E ascends, said lever L will come in contact with a rivet just arriving from the hopper at the aperture *f* in the raceway and by said lever-arm the rivet will be carried into the position shown at M, Fig. 3. As the riveting-bar descends to drive the rivet home, the cam *c* will drop below the bar L, which will be returned to its normal position by the spring *l*, as shown in Fig. 5.

Having explained my invention, I do not claim such parts of the mechanism described as are already well known in the arts; but

What I do claim, and seek to protect by Letters Patent, is—

1. In a rivet-setting machine, a thimble or friction device for the riveting bar, constructed with vertical slots to produce the friction, and a horizontal slot and vertical slot adapted to the entering of the rivet, and a shoulder to support the entering rivet; substantially
40 as described and shown.

2. In a rivet-setting machine in combination with a riveting bar having one end con-

structed to operate as a die, a thimble or friction device constructed with slots to produce the friction, and another slot to admit the rivet, and a shoulder to support the entering rivet, substantially as described and shown. 45

3. In a rivet-setting machine, the combination of a riveting bar provided with a riveting die of less diameter and a shoulder so formed above said die, with a thimble or friction device carried by the riveting bar, and slotted to receive the rivet from the raceway and having an inner shoulder to permit the descent of the riveting bar through said thimble sufficiently to compress said rivet in the material, substantially as described and shown. 55

4. In a rivet-setting machine, the combination of the riveting bar E, having the cam *c*, the shank *e*, and die *e'*, with the thimble G having the vertical friction slots *g*, and the horizontal slot *g'*, and the shoulder *g''*, all substantially as described and shown. 60

5. In a rivet-setting machine provided with apparatus for operating a riveting bar, and for supplying rivets to be fixed in position by said bar, the combination of a riveting bar having a die of less diameter at one end, with a thimble or friction clutch of such diameter as to retain its hold upon the bar, and having an enlarged base as a presser-foot upon the material to be riveted, and its lower half expandible to permit the descent of the rivet, and its upper half expandible by the riveting bar, all substantially as described and shown. 75

In witness whereof I hereunto set my hand this 28th day of February, 1895.

HERBERT S. CROMBIE.

Witnesses:

NATHANIEL U. WALKER,
L. C. SARGENT.