No. 648,883. Patented May 1, 1900.

G. L. REENSTIERNA.

FEEDING MECHANISM FOR RIVETING MACHINES.

(Application filed Nov. 5, 1897.)

(No Model.) 3 Sheets—Sheet 1.

FIG. 1

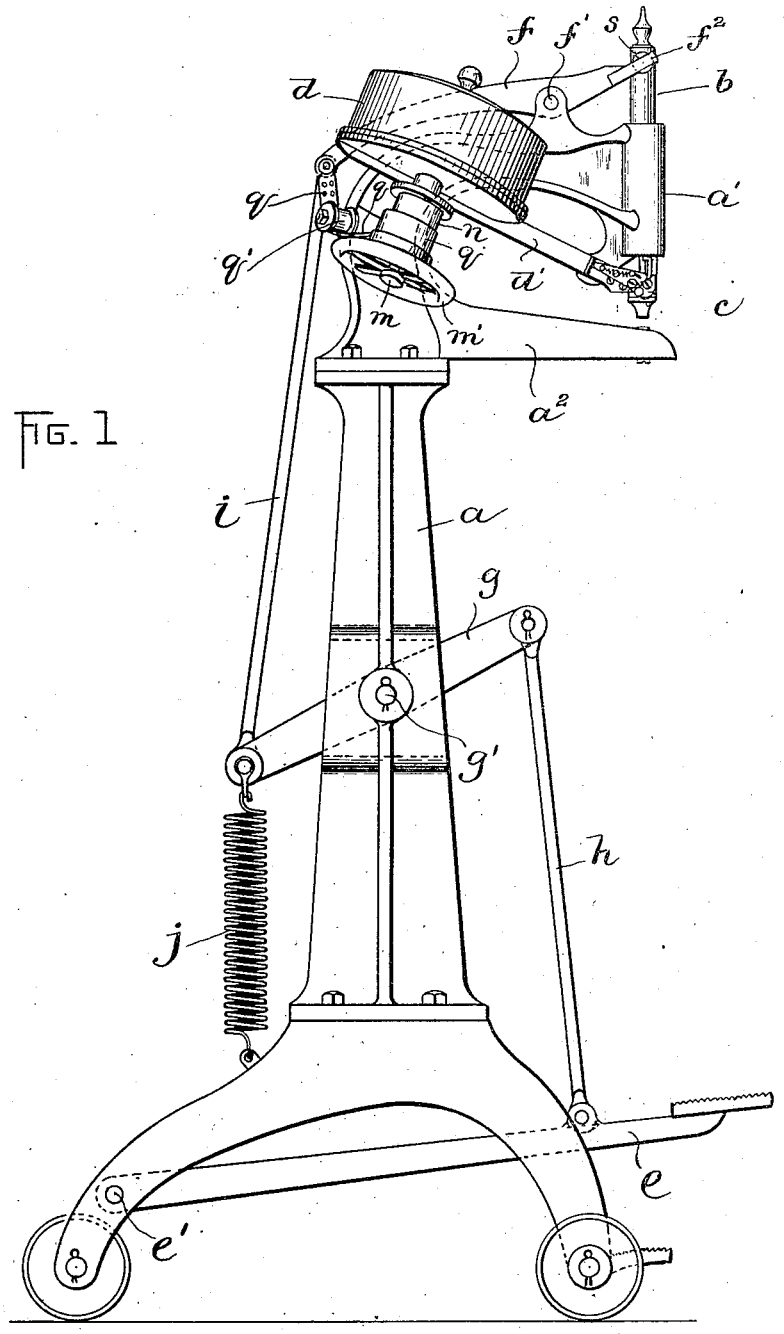

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FIG. 2.

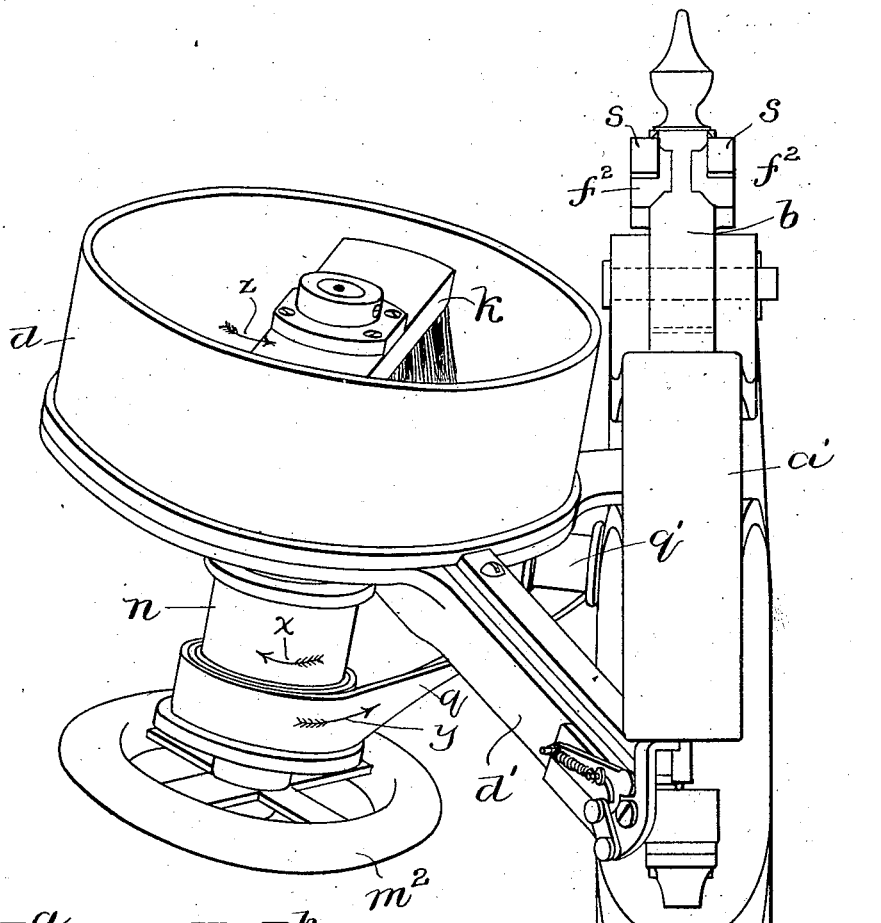


FIG. 2a.

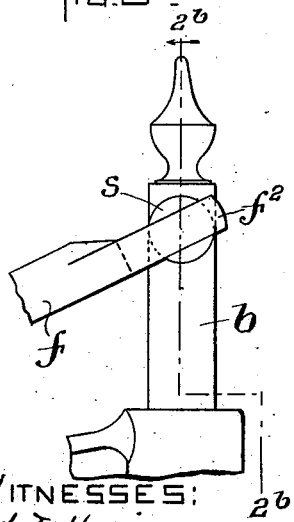
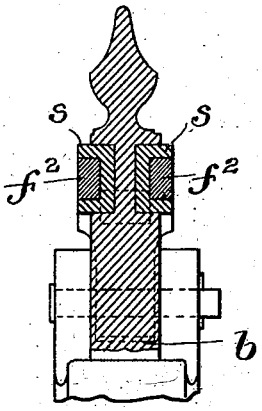
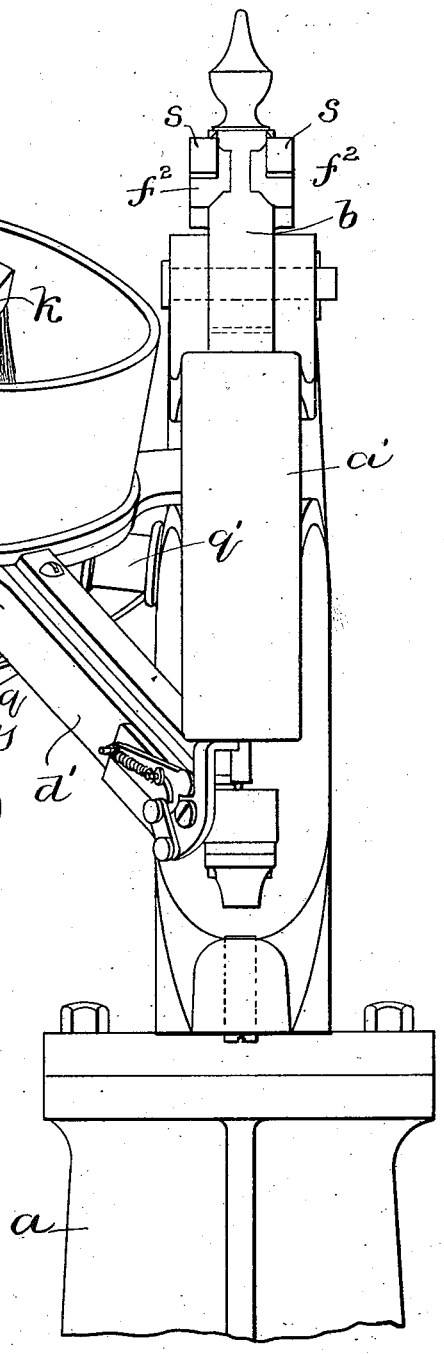


FIG. 2b.





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(No Model.) 3 Sheets—Sheet 3.

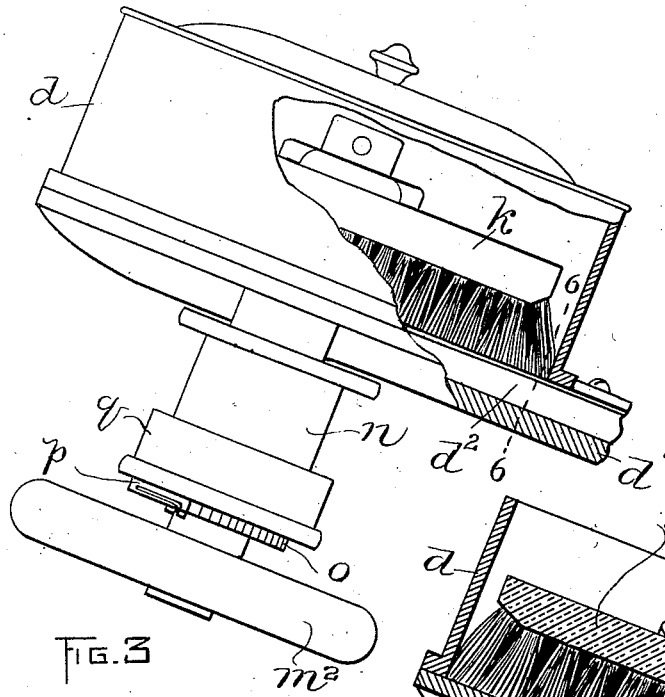


FIG. 3

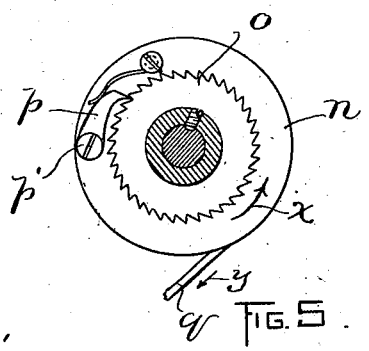


FIG. 5

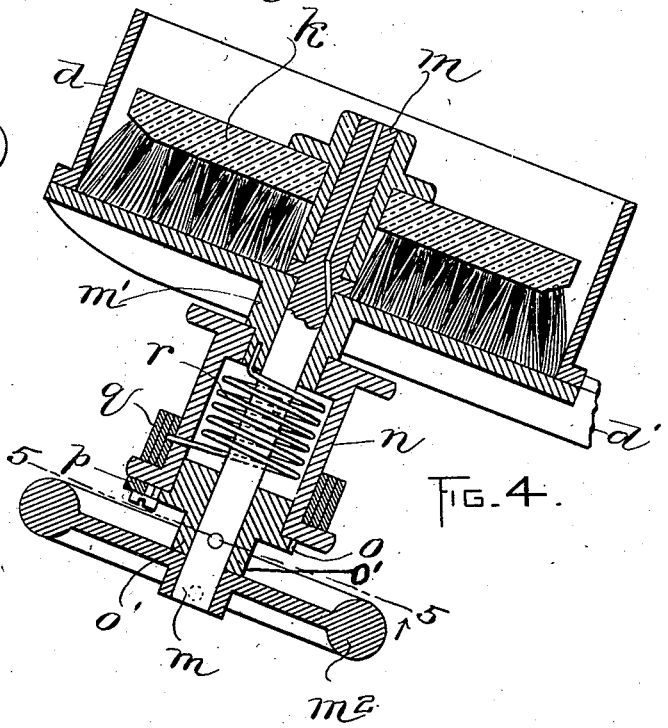
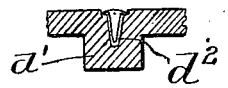


FIG. 4.

FIG. 6.



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UNITED STATES PATENT OFFICE.

GUSTAF L. REENSTIERNA, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE REVERSIBLE RIVET COMPANY, OF SAME PLACE.

FEEDING MECHANISM FOR RIVETING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 648,883, dated May 1, 1900.

Application filed November 5, 1897. Serial No. 657,551. (No model.)

To all whom it may concern:

Be it known that I, GUSTAF L. REENSTIERNA, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Feeding Mechanism for Riveting-Machines, &c., of which the following is a specification.

This invention relates to machines for supplying metallic fastenings—such as rivets, eyelets, &c.—to the articles with which such fastenings are used and for setting or attaching the fastenings in or upon said articles.

The invention relates particularly to machines of this character which are operated by the muscular force of the operator instead of being operated by power; and it has for its object to enable the agitating device in the reservoir which contains the metallic fastenings to be rotated step by step in one direction by the action of the mechanism which operates the plunger or setting device of the machine.

The invention further has for its object to enable the said agitating device to be operated independently of the other parts of the machine when it is desired to simply fill the raceway of the machine with metallic fastenings.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a riveting-machine embodying my invention. Fig. 2 represents a front elevation of the upper portion of the machine. Fig. 2^a represents an enlarged side view of a portion of the mechanism shown in Fig. 1. Fig. 2^b represents a section on line 2^b 2^b, Fig. 2^a. Fig. 3 represents a side view of the reservoir and its agitating device, a portion of the reservoir being broken away and shown in section. Fig. 4 represents a sectional view of the reservoir and its agitating device and of the step-by-step mechanism connecting the agitating device with the setter-operating mechanism. Fig. 5 represents a section on line 5 5 of Fig. 4 looking upwardly. Fig. 6 represents a section on line 6 6 of Fig. 3.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents the supporting-standard of a machine for setting rivets or other metallic fastenings.

b represents a plunger which is adapted to reciprocate in a fixed guide *a'* and is provided at its lower end with suitable devices adapted to coöperate with a fixed anvil *c*, supported by a horn or arm a^2 on the frame of the machine.

d represents the rivet-reservoir, from which an inclined raceway *d'* extends to the setting devices.

As my invention does not relate to the construction of the setting devices, I do not herein describe said devices, but remark that the same may be of any suitable character.

e represents a treadle pivoted at *e'* to the frame of the machine and suitably connected to one end of a lever *f*, which is pivoted at *f'* and is engaged at the other end with the plunger *b*, the connections between the treadle *e* and lever *f* being here shown as comprising a rocking lever *g*, pivoted at *g'*, a rod *h*, connecting one arm of the lever *g* with the treadle *e*, and a rod *i*, connecting the other arm of the lever *g* with the rear end of the lever *f*. A spring *j* normally holds the lever *g* and the parts connected therewith in the position shown in Fig. 1, the plunger *b* being thus held in its raised position. Whenever the operator depresses the treadle *e*, the lever *f* is moved to depress the plunger *b* and set a rivet, the spring *j* raising the plunger when the treadle is released.

k represents a rotary agitating device located in the reservoir *d*, said device being here shown as a brush of elongated form adapted to extend substantially across the reservoir and affixed to a shaft *m*, which is journaled in a fixed bearing *m'* on the bottom of the reservoir and projects below the reservoir, as shown in Fig. 4. The reservoir has a suitable outlet-passage, which forms a continuation of the passage extending through the raceway *d'*. The brush is arranged to move across the passage d^2 and force the rivets toward said passage, the arrangement being such that the brush passes over without disturbing the rivets which have properly entered the passage and sweeps away from over the passage the rivets which are not properly presented. It is desirable that the agitator

have a rotary movement in one direction only instead of an oscillating movement, a continuous movement in one direction being preferable for various reasons known to those familiar with the operation of machines of this character.

In carrying out my invention I provide a step-by-step mechanism connecting the shaft of the agitator with a suitable part, such as the lever *f*, of the plunger-operating mechanism above described, said step-by-step mechanism being adapted to impart from the oscillating lever *f* to the agitating device a step-by-step rotation in one direction, the said step-by-step mechanism also having provisions for permitting the agitator and its shaft to be rotated by hand independently of the other parts of the machine when it is desired to fill the raceway with rivets.

The step-by-step connecting mechanism is here shown as comprising a pulley *n*, loosely mounted on the agitator-shaft *m* and connected with said shaft by a ratchet *o* and a pawl *p*, a flexible strap *q*, attached at one end to the pulley *n* and at its other end to the lever *f*, a portion of the strap being wound upon the pulley *n*, and a spring *r*, engaged at one end with the pulley *n* and at the other end with a fixed support, such as a bearing *m'*, said spring being adapted to rotate the pulley in the direction indicated by the arrow *x* in Figs. 2 and 5, and thus wind upon the pulley a portion of the strap *q*. The strap *q* is guided by an idle pulley *q'*, mounted on bearings affixed to the frame of the machine. The ratchet *o* is formed on a sleeve or collar *o'*, affixed to the shaft *m*, and the pawl *p* is pivoted at *p'* to the lower flange of the pulley *n*.

The upward movement of the rear end of the lever *f*, which takes place when the plunger *b* is being depressed, moves the strap *q* in the direction indicated by the arrow *y* in Figs. 2 and 5, thus causing the pawl *p* to engage the ratchet *o* and impart a partial rotation to the shaft *m* and agitator *k*, the latter being moved in the direction indicated by the arrow *z* in Fig. 2. When the lever *f* moves in the opposite direction to raise the plunger *b*, the spring *r* rotates the pulley *n* in the direction required to take up the slack of the strap *q* and wind a portion of the same upon the pulley, the pawl *p* being thus caused to slip backwardly on the ratchet *o*. It will be seen, therefore, that the agitator is rotated step by step in one direction. It will also be seen that the pawl-and-ratchet connection between the shaft *m* and pulley *n* enables the shaft and agitator to be rotated independently by means of a hand-wheel m^2, affixed to said shaft, so that whenever the operator desires to fill the raceway with rivets he can do so by simply rotating the agitator without operating the setting mechanism. This rotation of the agitator is accomplished without rendering the step-by-step mechanism inoperative and without disconnecting the said step-by-step mechanism with the setter-operating device therefrom.

In Figs. 2^a and 2^b I show the preferred connection between the lever *f* and plunger *b*. The upper end of the plunger is provided with circular sockets, in which are fitted to turn freely two circular pieces *s s*, each of which has a slot extending across its outer face, said pieces projecting from opposite sides of the plunger *b*. The forward end of the lever *f* has two arms or fingers $f^2 f^2$, which are fitted to slide lengthwise in the slots of the pieces *s s*. It will be seen that since the pieces *s s* can oscillate or turn freely in their sockets in the plunger *b* and as the fingers f^2 of the lever *f* can slide freely lengthwise in the slots in the pieces *s s* a simple and durable connection is provided, which converts the oscillating motion of the lever *f* into a rectilinear motion of the plunger *b*. This connection between the lever *f* and plunger *b* is described and claimed in another application for Letters Patent for an improvement in machines for setting metallic fastenings filed by me concurrently herewith, Serial No. 657,551½.

Having thus explained the nature of my invention and described one way of constructing and using the same, although without having attempted to set forth all the forms in which it may be embodied or all the modes of its use, I declare that what I claim is—

In a machine of the character specified, the combination with a reservoir and a setter-operating mechanism, including an oscillatory lever, of a rotary agitating device having a shaft, a pulley mounted loosely on said shaft and connected therewith by a pawl and ratchet, a flexible strap connecting said pulley and lever, a spring which normally winds a portion of the strap upon the pulley, and a supplemental hand-wheel on said shaft for rotating it independently of the strap and lever.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 2d day of November, A. D. 1897.

GUSTAF L. REENSTIERNA.

Witnesses:
C. F. BROWN,
A. D. HARRISON.