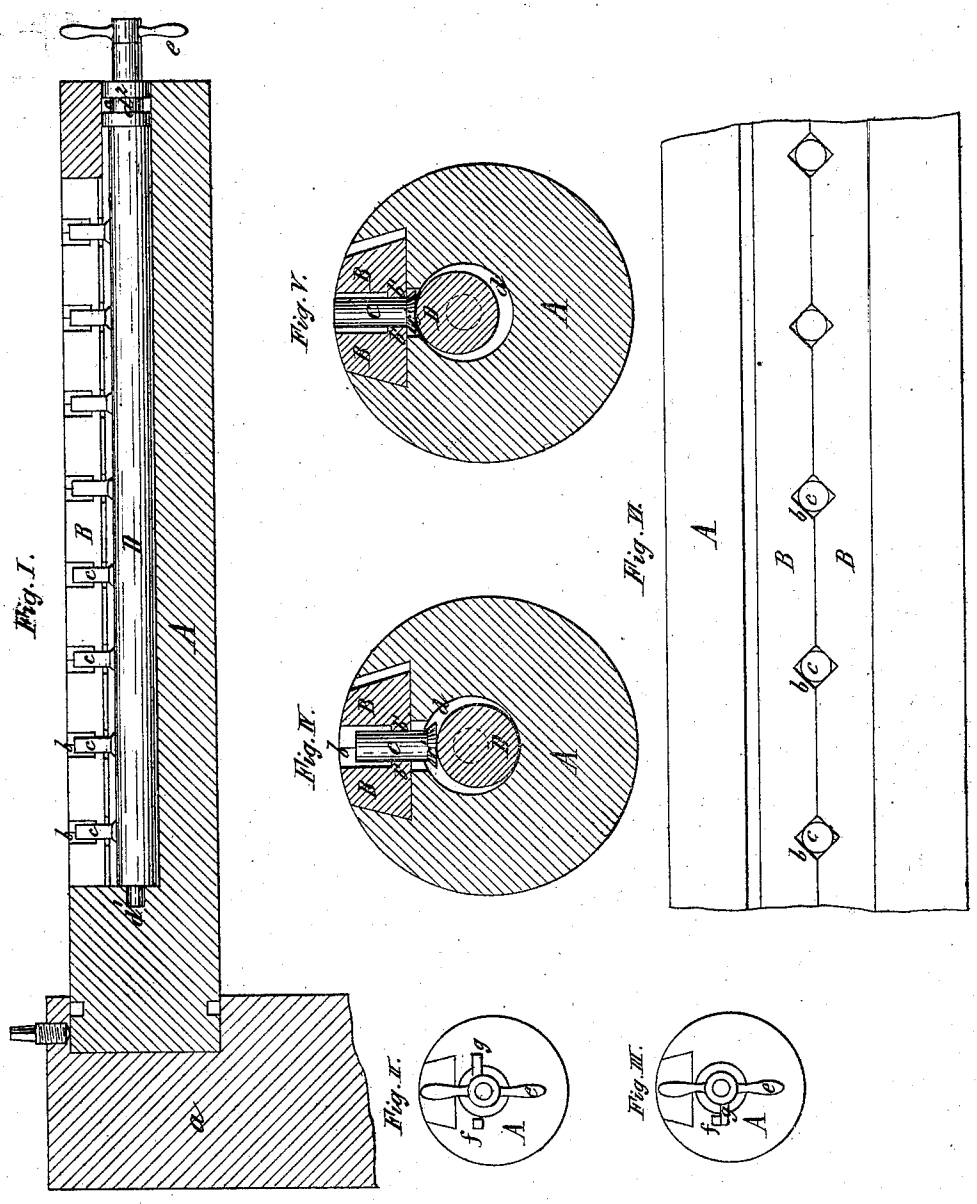
J. BERRY.

Riveting-Machines.

No. 133,294. Patented Nov. 26, 1872.



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UNITED STATES PATENT OFFICE.

JAMES BERRY, OF BUFFALO, NEW YORK, ASSIGNOR TO HIMSELF AND HENRY BERRY, OF SAME PLACE.

IMPROVEMENT IN RIVETING-MACHINES.

Specification forming part of Letters Patent No. **133,294**, dated November 26, 1872; antedated November 23, 1872.

To all whom it may concern:

Be it known that I, JAMES BERRY, of the city of Buffalo, in the county of Erie and State of New York, have invented certain Improvements in Riveting-Machines, of which the following is a specification:

My invention relates to that class of riveting-machines for improvements in which Letters Patent of the United States were granted to me, and dated, respectively, November 29, 1870, and August 22, 1871, to which patents reference is here made for a full description of said machines.

These machines are adapted to receive and hold a number of rivets at a relative distance apart, to correspond with the holes in the parts to be riveted together, in which the rivets are inserted simultaneously by an elevating device, when all of the rivets are headed by a single continued operation. These machines consist generally of a table or mandrel provided with a groove in which are arranged two socketed clamping-jaws for holding the rivets before they are inserted in the parts to be riveted, and mechanism for elevating the rivets, composed of a series of pins secured to a rod or bar and projecting upward into the sockets of the clamping-jaws, the said bar and pins being elevated by wedges at each end.

My invention consists, first, in the combination, with a riveting table or mandrel, socketed clamping-jaws, and detached rivet-elevating pins, of an eccentric shaft for elevating said pins, as hereafter more fully explained; second, in the combination with a revolving riveting-mandrel, provided with socketed clamp-bars, a series of detached pins, and an eccentric shaft for elevating the latter, of suitable stops by which the revolving movement of the eccentric shaft in the mandrel is arrested, after the rivets are elevated and transmitted to the mandrel, whereby the latter is revolved in its bearings in order to bring a solid portion of the mandrel under the rivets preparatory to heading the same, by a continuation of the same movement of the hand-lever or other device by which the shaft is rotated.

In the accompanying drawing, Figure I is a longitudinal elevation of a riveting-mandrel provided with my improvements. Fig. II is an end view thereof, showing the position of the stop when the detached pins are lowered. Fig. III is a similar view with the pins raised. Fig. IV is a cross-section of the mandrel, showing the pins lowered. Fig. V is a similar view, showing the pins raised. Fig. VI is a fragmentary plan view of the mandrel.

Like letters designate like parts in each of the figures.

A is the cylindrical mandrel supported in the standard *a* or other suitable bearing in which it turns. B represents the clamping-jaws provided with sockets *b* for the reception of the rivets, and operated by set-screws or other suitable mechanism, as described in my aforesaid patents. *c c* are the detached push-pins fitting loosely in the base of the sockets *b* in which the rivets are placed. When the sockets *b* are made V-shaped to better clamp rivets of unequal size, as shown in the drawing, the lower portion of said sockets are preferably made cylindrical, as shown at *b'*, to form bearings or guides for the pins *c*. The latter are provided with an enlargement or head, *c'*, at their lower end, to prevent their falling out of the sockets when the mandrel is turned half around. D is the eccentric shaft by which the pins *c* are raised. It is arranged centrally below the jaws B in a longitudinal bore, *d*, of the mandrel. It is constructed at the inner end with a journal, *d'*, arranged eccentrically, as clearly shown by dotted lines in Figs. IV and V, and at the outer end with a cylindrical enlargement, d^2, concentric with the journal d^1, and fitting in the bore *d* of the mandrel. The shaft D is retained in the mandrel against longitudinal displacement by a pin engaging in an annular groove, *o*, formed in the portion d^2 of the shaft, or by any other suitable device. The shaft is turned by any suitable lever or other device at its outer end. By giving the shaft D a half revolution it operates as a wedge forced laterally under the pins and raises them from their lower positions, (shown in Fig. IV,) to the surface of the mandrel, as shown in Fig. V, so as to free the rivets from the sockets

and permit the mandrel to be turned. The rivets being elevated as just described, the further rotation of the shaft in the mandrel is prevented by any suitable stop device. In the drawing a stop, *f*, is shown projecting from the outer end of the mandrel, so as to engage, when the shaft has reached the required position, with a corresponding lip, *g*, projecting from the shaft, which locks the shaft and mandrel together. By continuing the movement of the actuating-lever *e* the mandrel is turned in its bearings with the shaft so as to bring a solid portion of the same under the rivets, which are then headed in the usual manner. After the rivets are headed the mandrel is rotated in the same direction until brought to its former position, when, by a reverse movement of the handle *e*, the pins are allowed to descend, which they readily do by gravity, to their original position, ready for a second operation. Instead of the eccentric shaft for elevating the pins, a simple wedge arranged under the base of the pins, so as to be moved laterally, may be used instead, especially with a stationary riveting-table. Also, a series of levers, arranged under each pin, and connected together so as to be simultaneously operated, may be used, although I prefer the arrangement of the eccentric shaft, as shown in the drawing.

I claim as my invention—

1. The combination, with a riveting table or mandrel, socketed clamping-jaws, and detached rivet-elevating pins, of the eccentric shaft D, as hereinbefore set forth.

2. The combination, with the riveting-mandrel A, clamping-jaws B, detached pins *c*, and eccentric shaft D, of a suitable stop device, *f g*, for arresting the rotation of the shaft in the mandrel, substantially as hereinbefore set forth.

JAMES BERRY.

Witnesses:
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