

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN RIVETING APPARATUS.

Specification forming part of Letters Patent No. 118,328, dated August 22, 1871.

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 a certain new and Improved Riveting-Machine, of which the following is a specification:

In the accompanying drawing, Figure I is a plan view of my improved machine. Fig. II is a longitudinal section of the same. Fig. III is an enlarged fragmentary cross-section on line *x*. Fig. IV is an enlarged fragmentary cross-section on line *y y*.

Like letters designate like parts in each of the figures.

A is the metallic riveting-table, made large enough to receive a sheet of metal of the size required to be riveted. B is the rivet-inserting device, arranged at one end thereof. It consists of two clamp-jaws, C C', provided with notches *c* to receive and clamp the rivets, an elevating-bar, D, and mechanism E for operating it, all of which are constructed and arranged substantially as described in the specification of my Letters Patent for improved riveting-mandrel, dated November 19, 1870, and numbered 109,575, to which reference is here made. To provide for the clamping of rivets having heads of different sizes, I rigidly secure to the upper side of the jaw C a thin metallic plate, *c*¹, and arrange a similar plate, *c*², on the top of the jaw C'. The plate *c*² has a threaded bearing at each end, fitted into the jaw C' so as to slide laterally therein in clamping the rivets. This is effected by two right-and-left-hand screws, *c*³, which pass through the jaw C and screw into the bearings of the plate *c*², the right-and-left-hand thread causing the jaw C and plate *c*² to both approach and recede from each other. The edges of the plates *c*¹ *c*² overlap the notches formed in the jaws C C', one or both of the edges of said plates being provided with smaller notches of a size to receive and clamp the shank of a rivet, which are of uniform size, while the heads thereof project into the larger recesses in the jaws beneath. The plates may, however, be used or not, as preferred. The block S, which forms the frame for the clamping-jaws, is secured to the edge of the riveting-table A by dovetails *s*, Fig. II, which permits the block S, containing the rivet-inserting device, to slide longitudinally to one side or the other of the frame. As the plates to be riveted frequently project over the

rivet-inserting device, as shown in Fig. II, this movement of the latter becomes necessary in order to remove the device from under the plate to permit the ready arrangement of the rivets between the jaws. *t* are knobs arranged at either end of the block S, for convenience in sliding the latter back and forth. F is the movable clamp-bar, arranged on the riveting-table parallel to the rivet-inserting device B. It is provided with projections or fingers *f* on the side toward the latter, said fingers fitting in the spaces between the rivet-holes. It is guided in its movement on the table by projections G fitting in grooves *g*, and at its end by blocks H running in ways *h*, said grooves and ways being arranged parallel to each other, and at right angles to the longitudinal dimensions of the clamp-bar F. The connection between said guide-blocks and the clamp-bar is effected by two screws, K, allowing of a vertical adjustment of the bar with reference to the riveting-table. A spiral spring, K', Fig. III, is arranged around each of these screws to elevate the clamp-bar when the screws are released. The device for gauging the punching of the rivet-holes is arranged near the other end of the riveting-table, in rear of and parallel to the rivet-inserter. It consists of a thin metal bar, L, provided with conical holes *l* spaced according to the desired distance between the rivets to guide the punch, which is used by hand, and a removable steel die-plate, M, arranged in the table A below the guide-bar L. The bar L is connected to the table by means of screws N N, and acts as a clamp-bar in addition to guiding the punch, and is guided in its movement to and from the table by pins O O, surrounded by spiral springs P P, as shown in Fig. IV. The punchings drop through perforations *p p*, provided in the table A. In order to insure the punching of the rivet-holes at a uniform distance from the edge of the plate a gauge-bar, R, is employed, which is guided by bars *r r r r* and secured by a set-screw, *s*.

The operation of my device is as follows: In the manufacture of gutters for roofs, for which this apparatus is more particularly designed, the several sheets of metal may be first tacked together by solder, so as to form a continuous web of the required length. The first seam is then introduced under the bar L, and the holes are punched, the web lying rolled up in rear of the punching device, the gauge R not being used in

this case. The number of rivets required for one seam being inserted in their sockets in the rivet-holder, the punched plates are drawn toward the latter and slipped over the rivets, and the bar F is brought forward and made to clamp the edges of the plates together down on clamps C C, when the rivets are inserted in the manner described in my Letters Patent above referred to. The plates, with the rivets and clamp-bar holding their edges together, are then moved back on the riveting-table A, the clamp-bar sliding in the ways *h* and grooves *g* provided for this purpose, without releasing its pressure upon the plates. The operation of heading the rivets is now performed upon the table, when the clamp-bar is released and the riveted plates withdrawn from under the same. The next seam is then operated upon in the same manner.

In some instances it may be desirable to dispense with the retrograde movement of the plates for the purpose of bringing the seam upon the table after the rivets are inserted. This end can be attained by extending the table in front of the rivet-inserting device and by arranging the clamp-bar on that side of the latter, when the plates will be enabled to be punched, receive the

rivets, and be riveted together during their movement from one end of the apparatus to the other, the latter operation being in this case performed upon the extension of the riveting-table.

My improved riveting-machine shortens and facilitates the process of riveting plates together considerably, as will appear from the foregoing description.

I claim as my invention—

1. The arrangement of the rivet-inserting device B, table A, and the adjustable clamp F, all constructed as described, for the purpose set forth.

2. The combination of the punching device, consisting essentially of the clamp-gauge L and die-plate M, with the table A and rivet-inserting device B, as and for the purpose set forth.

3. The combination, with a riveting-table A, of the rivet-inserting device B, connected by the dovetail *s* or equivalent means, whereby the rivet-inserting device can be slid longitudinally, for the purpose specified.

JAMES BERRY.

Witnesses:

JOHN J. BONNER,
JAS. McCARTY.