No. 640,271. Patented Jan. 2, 1900.

J. H. CASSIDY.

RIVETING MACHINE.

(Application filed June 29, 1899.)

(No Model.)

Fig. 3.

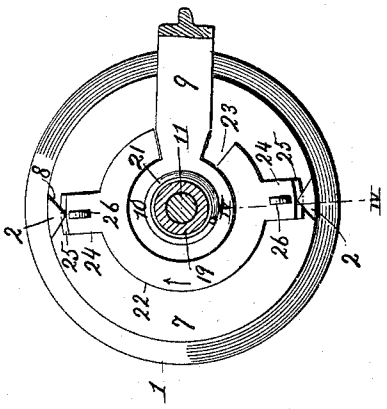


Fig. 4.

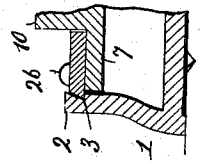


Fig. 2.

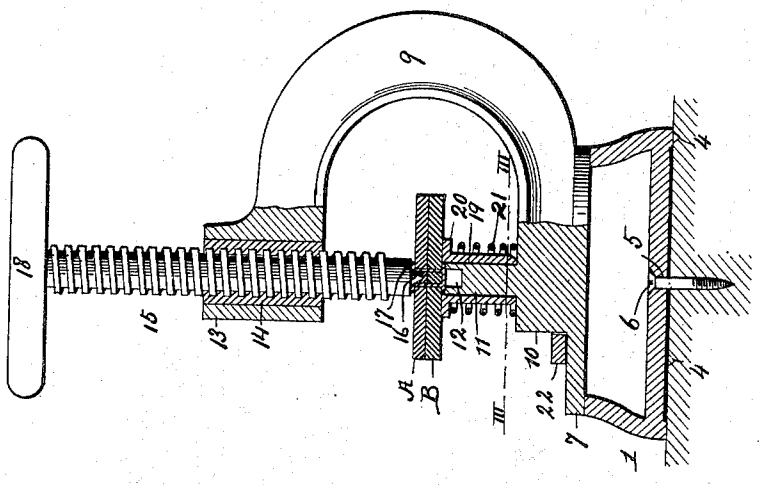
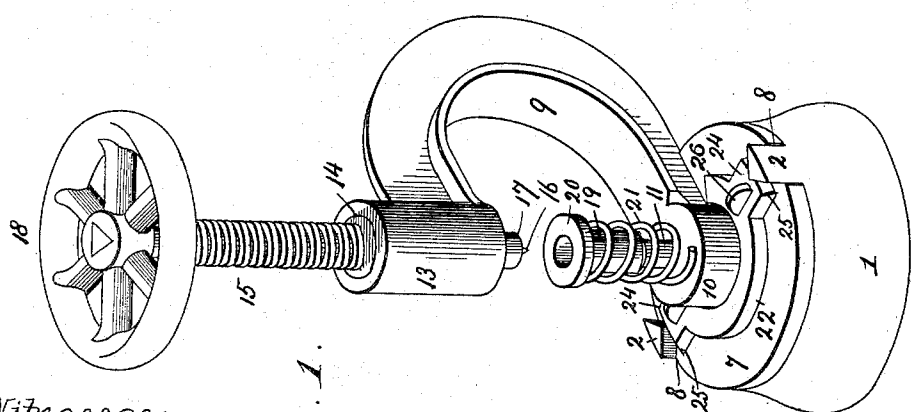


Fig. 1.



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UNITED STATES PATENT OFFICE.

JACOB H. CASSIDY, OF LEAVENWORTH, KANSAS.

RIVETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 640,271, dated January 2, 1900.

Application filed June 29, 1899. Serial No. 722,289. (No model.)

To all whom it may concern:

Be it known that I, JACOB H. CASSIDY, of Leavenworth, Leavenworth county, Kansas, have invented new and useful Improvements in Machines for Setting Tubular Rivets, of which the following is a specification.

My invention relates to machines for "setting" tubular rivets; and my object is to produce a machine of this character which is efficient and unfailing in action, conveniently portable, and of simple, compact, strong, and durable construction.

To this end the invention consists in certain novel and peculiar features of construction and organization hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 represents a perspective view of a riveting-machine embodying my invention. Fig. 2 is a vertical central section of the same. Fig. 3 is a horizontal section taken on the line III III of Fig. 2. Fig. 4 is a vertical section taken on the line IV IV of Fig. 3.

Referring to the drawings, where like reference numerals and letters designate corresponding parts, 1 designates the base of the machine, said base being hollow, so as to form a magazine to contain rivets, and by preference of circular form. At diametrically opposite points it is provided with the upwardly-projecting lugs 2, formed with notches 3 in their inner sides, and with securing-points 4, depending from its bottom and adapted to be embedded in the bench or table forming a support for the machine in order to hold the latter steady when operating upon a rivet. The bottom of the magazine is centrally perforated, as at 5, to receive a screw 6, whereby the connection of the machine with the table may be made rigid in case of necessity.

The cover 7 of the magazine is of disk form and provided with marginal notches 8 to receive the lugs 2 in fitting the cover down upon the magazine, and formed integral with said cover is a yoke 9, terminating at its lower end in an enlargement 10, centrally of the cover, and projecting vertically upward from the center of said enlargement is the preferably cylindrical rivet-stand or anvil 11, said rivet-stand being provided in the center of its upper end with a cavity 12. The yoke terminates at its opposite or upper end in a vertical sleeve 13, provided with an internally-threaded bearing 14, of Babbitt metal or its equivalent, the axis of the threaded passage extending in vertical alinement with the center of the rivet-stand.

15 designates a vertical screw-plunger engaging the threaded bearing 14 and provided centrally at its lower end with an inverted conical swaging or riveting point 16, the base being diametrically smaller than the lower end of the plunger, so as to form an annular shoulder 17. The upper end of the plunger is provided with a handle, preferably in the form of a small hand-wheel 18.

19 designates a tubular rivet-guide fitting telescopically upon the rivet-stand and preferably enlarged or flanged outward at its upper end, as at 20, to form a more extended support for the objects about to be riveted together and also to form a shoulder to rest upon the encircling spiral spring 21, the latter being supported upon the enlargement 10 of the yoke. This spring supports the sliding rivet-guide with its flanged end above the plane of the rivet-stand, as shown in Fig. 1, the spring yielding to permit said guide to descend under the pressure of the plunger as the latter is actuated to upset the end of the rivet, and thus secure two or more objects together. Before the riveting operation takes place, however, the cover should be secured reliably to the magazine-base, and in order to accomplish this object I provide a rotatable locking plate or clutch, said plate 22 being of segmental form, with its ends a sufficient distance apart to easily pass down on opposite sides of the lower part of the yoke 9 as the plate is fitted down over the enlargement 10 of the same, but not far enough apart to permit the plate to be removed unless it is arranged substantially as shown in Fig. 3, and then slipped vertically upward until disengaged from said enlargement. At diametrically opposite points the locking-plate is provided with the outwardly-projecting ears 24, having their outer ends beveled and extending eccentrically of the plate's axis of movement, as at 25, so that when the plate is operated by applying pressure in an obvious manner upon the hand-lugs 26, projecting from ears 24, the eccentric ends of

said ears engage the notches of lugs 2 with a wedge-like action, the movement of the locking-plate in this direction being terminated by the abutment of one of the ends against the yoke 9, as shown in Fig. 3. To disengage the locking-plate, this rotary action is reversed, as will be readily understood, the plate turning in both instances upon the enlargement 10 of the yoke as a pivot.

To "set" a rivet, it is first dropped head downward into the tubular rivet-guide 19, where it will be maintained upon the rivet-stand 11 (see Fig. 2) in axial alinement with the center of the swaging-point, because the passage through the guide is just large enough to snugly embrace the head of the rivet. The parts to be secured together, as indicated in Fig. 2 by the letters A B, are now placed upon the upper end or flange 20 of the rivet-guide and positioned to receive the rivet at the proper point. The handle 18 is then grasped and turned to cause the descent of the plunger and the swaging-point of the latter to bear upon and embed itself in the topmost part, as A, of the material to be secured. The pressure of the descending plunger causes the spring 21 to yield as the swaging-point embeds itself in the part A and the guide to move downward until its flanged end assumes a position below the upper end of the rivet, which, the pressure of the plunger continuing, successively perforates with its sharp circular edge the parts B and A until the plane of the flanged end of the rivet-guide about coincides with the plane of the top of the rivet-stand or anvil and the upper end of the rivet protrudes through the part A and has received and been upset by the thrust of the swaging-point, and clamped back upon the top of part A by the shoulder 17, so as to secure or rivet the parts A and B firmly and reliably together. The hand-wheel 18 is now turned in the reverse direction to withdraw the plunger, and as the latter rises the spring 21 reëlevates the riveted parts A and B to their original position. The withdrawal of the plunger continues until the swaging-point is withdrawn from the rivet in order to permit the riveted parts to be more easily positioned to receive an additional rivet or withdrawn from the machine.

In the above action it will be noticed that the rivet-guide by snugly embracing the head of the rivet prevents the slightest lateral movement of the latter in order that the swaging-point may positively enter it and the rivet be properly set, and it will also be noticed that the flanged upper end of the spring-elevated guide affords an extended bearing or table for the parts being riveted.

It will be apparent also that a plunger having a rotary action will more efficiently upset the rivets than a plunger having only a reciprocatory movement, and though it is to be understood that I do not restrict myself to the use of a rotating or screw plunger I have illustrated the same as the preferred embodiment of my invention.

The special object of the cavity 12 in the top of the rivet-stand is to accommodate the swaging-point 16 and prevent blunting it in case the plunger is screwed down with no rivet or material intervening, in which case the circular face of the rivet-stand receives the thrust of the shoulder 17 of the plunger and checks its further movement.

The machine described can be used for setting rivets in belts of the hardest leather, rubber, canvas, or any other material, as by utilizing the principle of the screw an immense leverage can be obtained with a machine that can be conveniently placed in a coat-pocket. For shipment the plunger can be removed from the yoke and the latter from the magazine-base in order that the machine may be packed in as small and compact a package as possible.

It is to be understood that while I have shown throughout the preferred embodiment of my invention I do not wish to be restricted to the precise form, proportion, detail construction, or arrangement of parts, as various changes may be made without departing from the spirit and scope or sacrificing any of the advantages of the invention.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

In a machine for setting tubular rivets, a hollow base, a cover thereon, an eccentric rotatable locking-plate mounted above said cover and engaging lugs on said base, a yoke integral with said cover and provided at its upper end with a threaded sleeve carrying a vertically-acting plunger, in combination with a cylindrical rivet-stand integral with said yoke and cover and in axial alinement with said plunger, a tubular flanged rivet-guide telescopically mounted on said stand, and a spiral supporting-spring between the flange of said guide and the base of said yoke, and inclosing said stand and guide, substantially as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JACOB H. CASSIDY.

Witnesses:
M. R. REMLEY,
H. C. RODGERS.