(No Model.) 2 Sheets—Sheet 1.

C. A. SVENSSON.

MACHINE FOR BENDING RINGS.

No. 263,991. Patented Sept. 5, 1882.

Fig. 1.

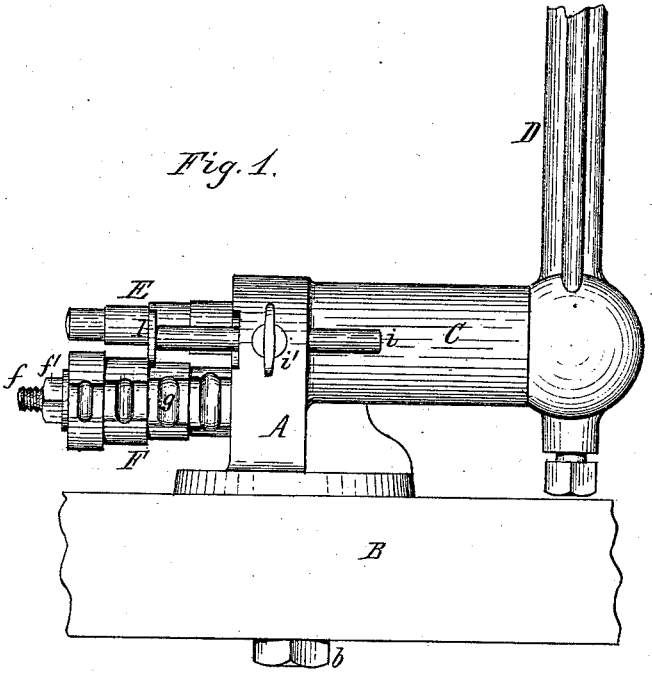


Fig. 2.

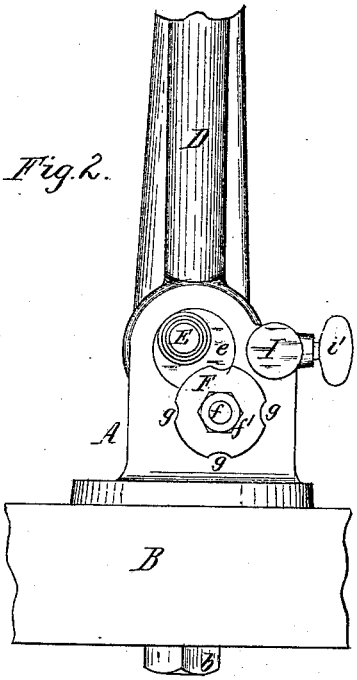


Fig. 3.

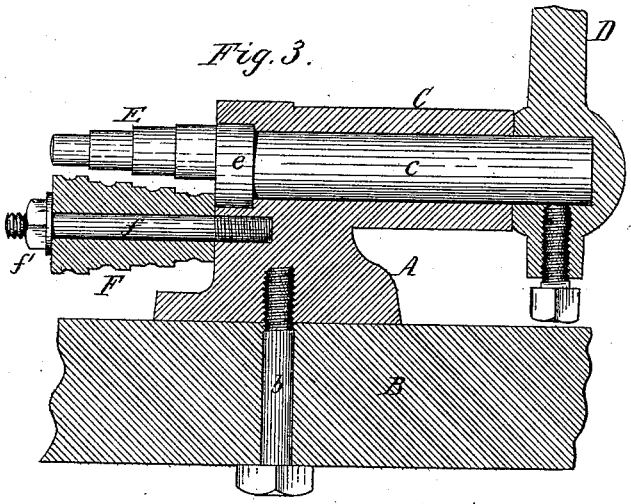


Fig. 4.

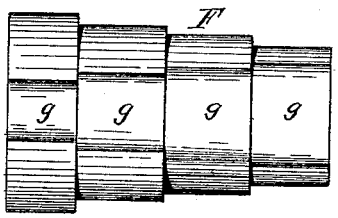
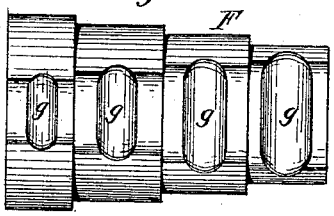


Fig. 5.



Witnesses.
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(No Model.) 2 Sheets—Sheet 2.

C. A. SVENSSON.

MACHINE FOR BENDING RINGS.

No. 263,991. Patented Sept. 5, 1882.

Fig. 6.

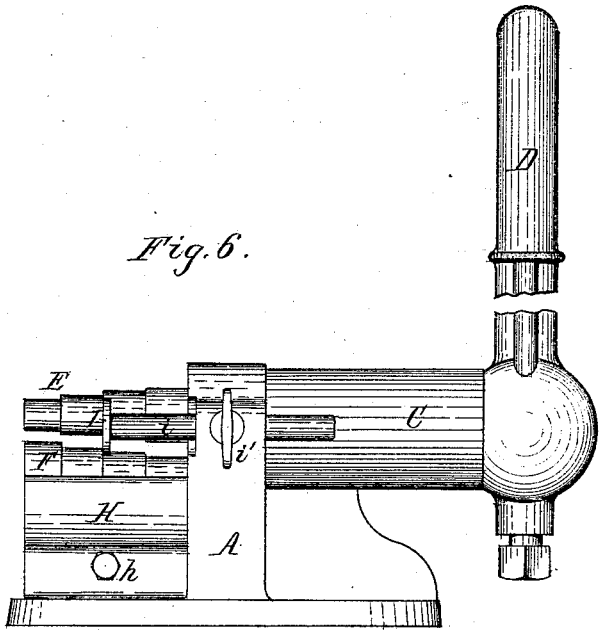


Fig. 7.

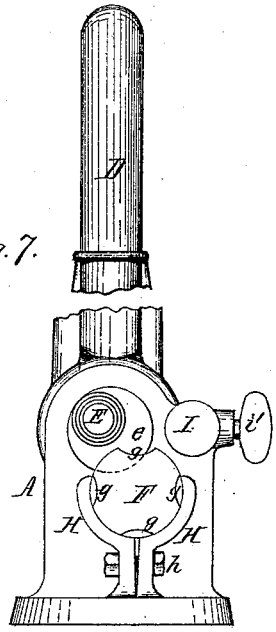
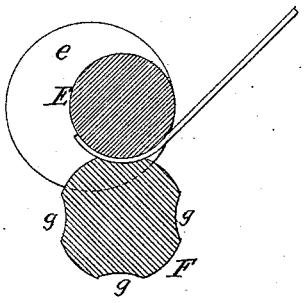


Fig. 8.



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UNITED STATES PATENT OFFICE.

CLAES A. SVENSSON, OF BUFFALO, NEW YORK, ASSIGNOR TO WILLIAM W. OLIVER, OF SAME PLACE.

MACHINE FOR BENDING RINGS.

SPECIFICATION forming part of Letters Patent No. 263,991, dated September 5, 1882.

Application filed March 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, CLAES A. SVENSSON, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Machines for Bending Rings from Bars, of which the following is a specification.

This invention relates to improvements in that class of machines which are employed by jewelers for bending finger and other rings from rolled bars.

The object of this invention is to produce a machine which is simple and durable in construction, and which can be easily operated by hand.

My invention consists of the peculiar construction of the machine, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of my improved machine. Fig. 2 is a front elevation thereof. Fig. 3 is a longitudinal vertical section. Figs. 4 and 5 are elevations of different sides of the former. Fig. 6 is a side elevation of my improved machine, showing a modified construction of the means whereby the former is held in place. Fig. 7 is a front elevation thereof. Fig. 8 is a cross-section of the bender and former on an enlarged scale.

Like letters of reference refer to like parts in the several figures.

A represents the frame of the machine, which is secured to a work-bench or table, B, by a screw-bolt, *b*, or other suitable means.

C is a horizontal bearing cast with the frame A, and *c* is a horizontal shaft supported in said bearing, and provided at one end with a hand-lever, D, by which the shaft can be turned in its bearing.

e is a collar or enlargement, which is formed at the opposite end of the shaft *c*, and seated in a suitable recess in the bearing C. The collar at one end of the shaft and the hand-lever at its opposite end prevent the shaft from moving lengthwise in the bearing.

E represents the bender projecting horizontally from the end of the shaft *c*, and arranged eccentrically on the same, so that by turning the shaft *c* the bender E will move in the arc of a circle about the axis of the shaft *c*. The bender E is made cylindrical, and is preferably provided with several short cylindrical faces decreasing in diameter from the shaft toward the end of the bender, as shown.

F represents the former, secured to the frame A of the machine below the bender E in such a position that the bender E will close upon the upper side of the former by turning the shaft *c* and hand-lever D toward the former. The former F is provided with several cylindrical faces increasing in diameter from the frame of the machine toward the end of the former, and corresponding in number and arrangement with the faces of the bender. As represented in Figs. 1 and 3, the former F is mounted on a horizontal bolt, *f*, which is secured to the frame A, and upon which the former is held by a screw-nut, *f'*. Upon releasing the latter the former can be turned on the bolt *f*, and by tightening the nut the former is secured in the desired position. Each cylindrical face of the former is preferably provided with a number of concave working-faces, *g*, each of which can be brought in the proper position to operate in connection with the corresponding cylindrical faces of the bender by turning the former. The several working-faces *g* on the same peripheral face of the former are curved lengthwise, concentric with the curvature of the corresponding cylindrical face of the bender; but each face *g* is made of different shape in cross-section to enable bars of corresponding cross-sections to be bent between the contiguous faces of the bender and former. The faces *g* represented in Fig. 4 are plain and adapted for bending bars of rectangular cross-section, while the faces *g* represented in Fig. 5 are curved crosswise and adapted to bend bars having a convex or rounded cross-section. Working-faces of angular or other cross-sections may be employed, in accordance with the form of the bars to be bent. As represented in Figs. 6 and 7, the former F is seated between two concave jaws, H, which are attached to the frame A, and which are sufficiently elastic to permit the former to be clamped between the jaws by tightening a bolt, *h*, and to enable the former

to be released, so that it can be turned in its seat by loosening the bolt *h*.

I is a vertical gage-plate, which is secured to the end of a horizontal bolt, *i*. The latter slides in an opening in the frame A, in which it is secured by a set-screw, *i'*. The gage-plate is adjusted to be in line with or near the inner or rear edges of those faces of the bender and former between which it is desired to bend a bar, as represented in Fig. 1, and it forms a rest against which the bar is placed and by which the bar is retained in a position at right angles to the axes of the bender and former, thereby preventing the bar from being bent spirally. The gage-plate being properly adjusted, the end of the bar to be bent into a ring is placed on that peripheral face of the former which will produce a ring of the desired diameter, and on the concave working-face *g* of this face, which corresponds with the form of the bar to be bent. The bender is now swung down upon the bar by means of the hand-lever, as illustrated in Fig. 8, with the proper pressure to bend that portion of the bar which is clamped between the bender and former to the curvature of their contiguous faces. The bender is then raised and the bar pushed forward, so as to bring the next adjacent unbent portion of the bar between the bender and former, when the bender is again lowered and this portion of the bar bent. This operation is repeated until the bar has assumed the form of a true ring which surrounds the bender. The latter is then raised and the ring removed therefrom. The eccentricity of the bender on its shaft is very small, and the leverage with which the power is exerted upon the bar to be bent is consequently comparatively large, thus enabling the operator to apply the requisite pressure with very little effort.

I claim as my invention—

1. In a machine for bending bars into rings, the combination of a stationary former, F, having one or more concave working-faces, and a movable cylindrical bender, E, secured eccentrically to the actuating-shaft *c*, substantially as set forth.

2. In a machine for bending rings from bars, the combination of a bender, E, and former F, each provided with several faces decreasing in diameter on the bender and increasing in diameter on the former in the same direction, substantially as set forth.

3. The combination, with the frame A, provided with the bearing C, of the shaft *c*, actuating-lever D, eccentric bender E, and stationary former F, substantially as set forth.

4. The combination, with a movable bender, E, secured eccentrically to the actuating-shaft *c*, of a stationary former, F, and means whereby the same can be turned on its axis to present different portions of its surface to the movable bender, substantially as set forth.

5. The combination, with the bender E and former F, of the gage-plate I, arranged at right angles to the axes of the bender and former, substantially as set forth.

6. The combination, with the bender E and former F, of the gage-plate I, arranged at right angles to the axes of the bender and former, and means whereby said gage-plate can be secured opposite different portions of the bender, substantially as set forth.

7. The combination, with the frame A, provided with recessed jaws H, of a stationary former F, clamped between the jaws H, and a movable bender, E, secured eccentrically to the actuating-shaft *c*, substantially as set forth.

C. A. SVENSSON.

Witnesses:
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