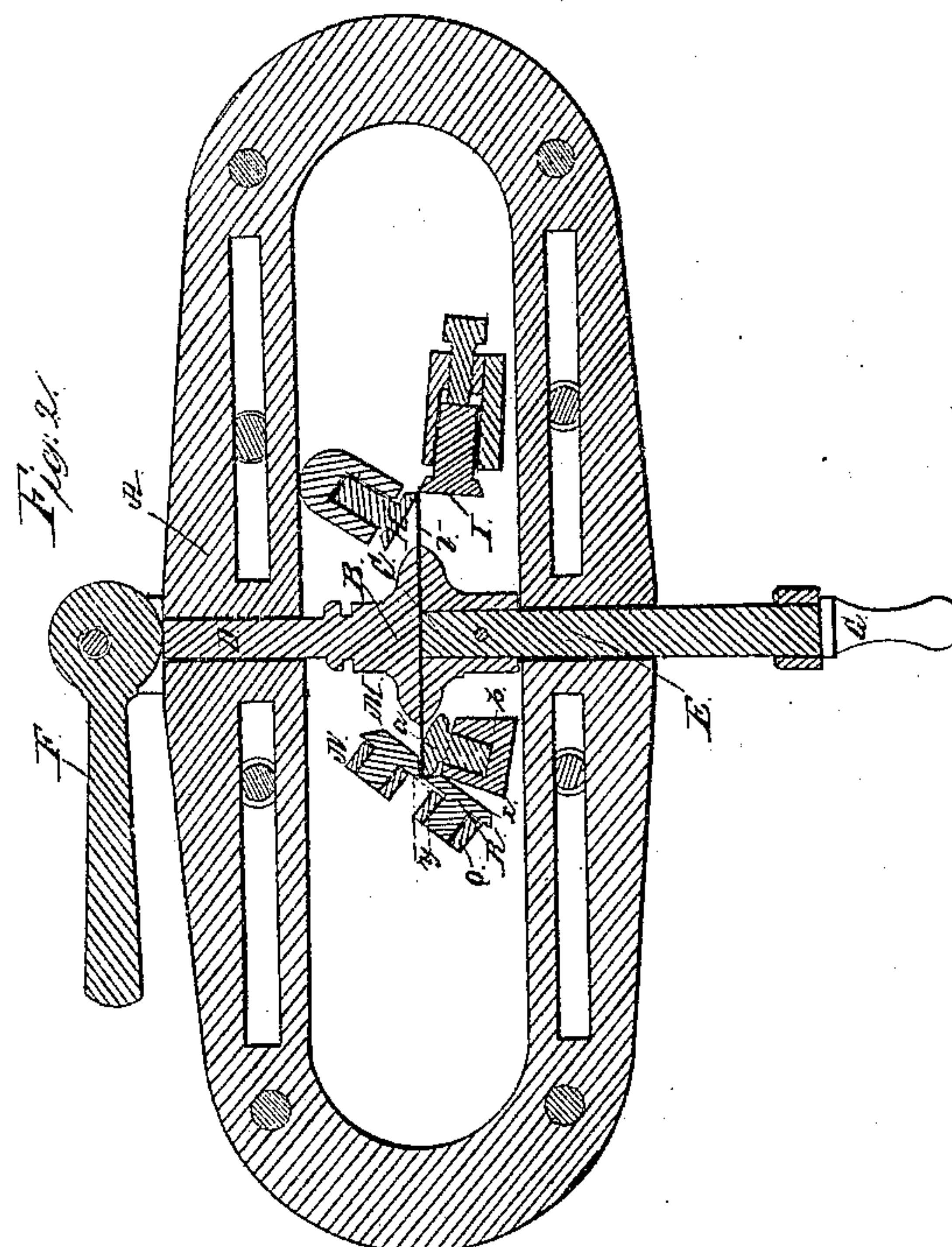
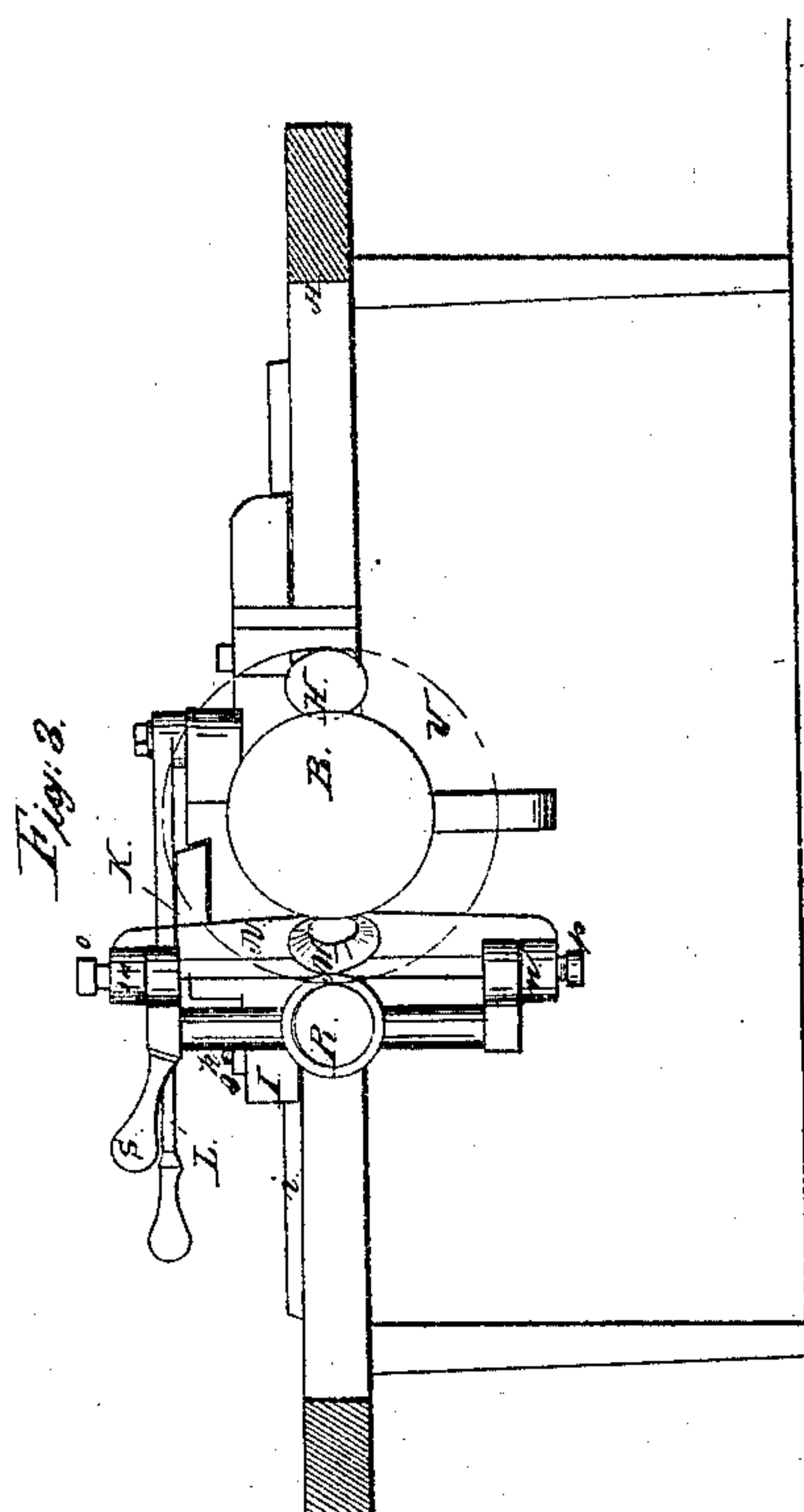
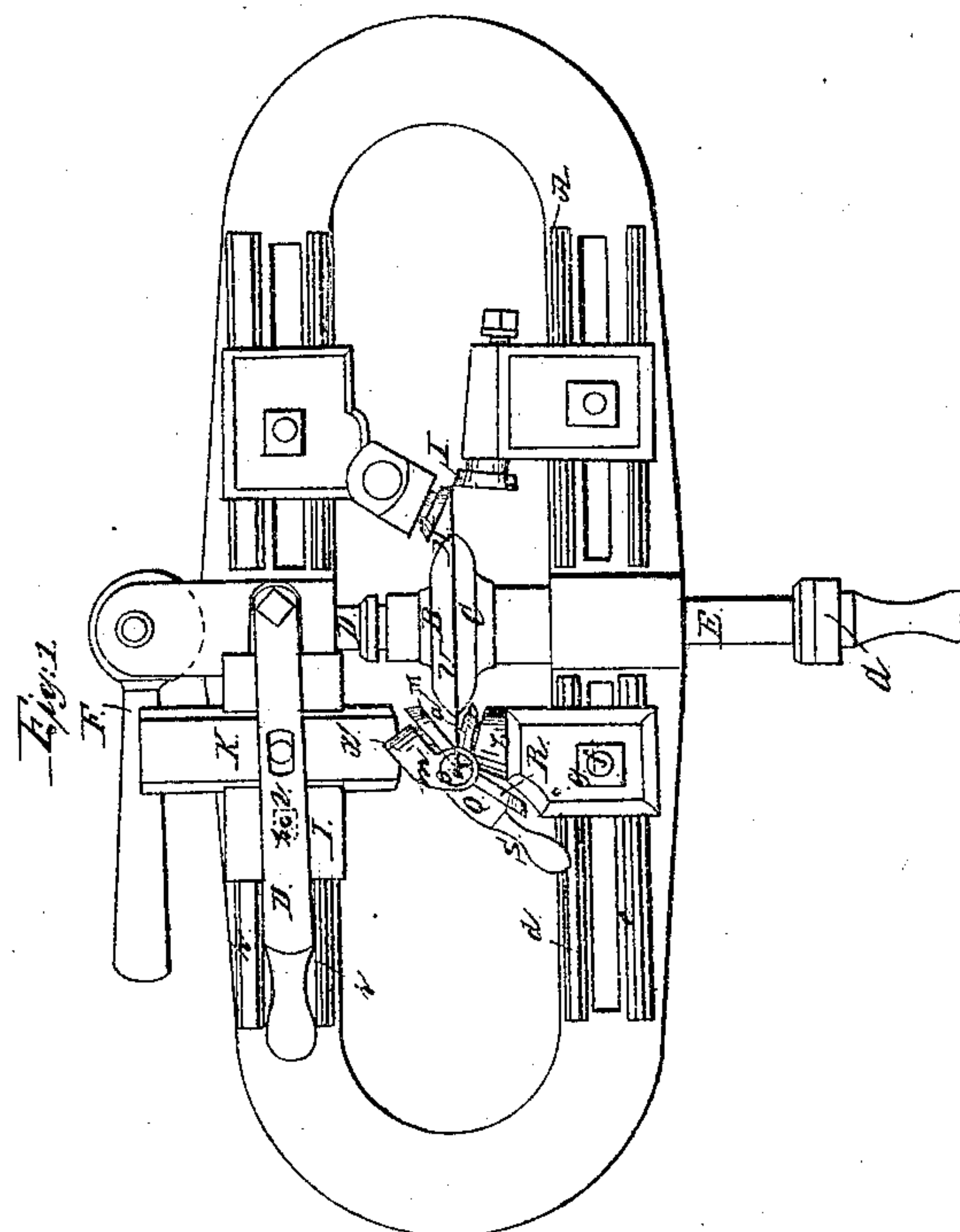
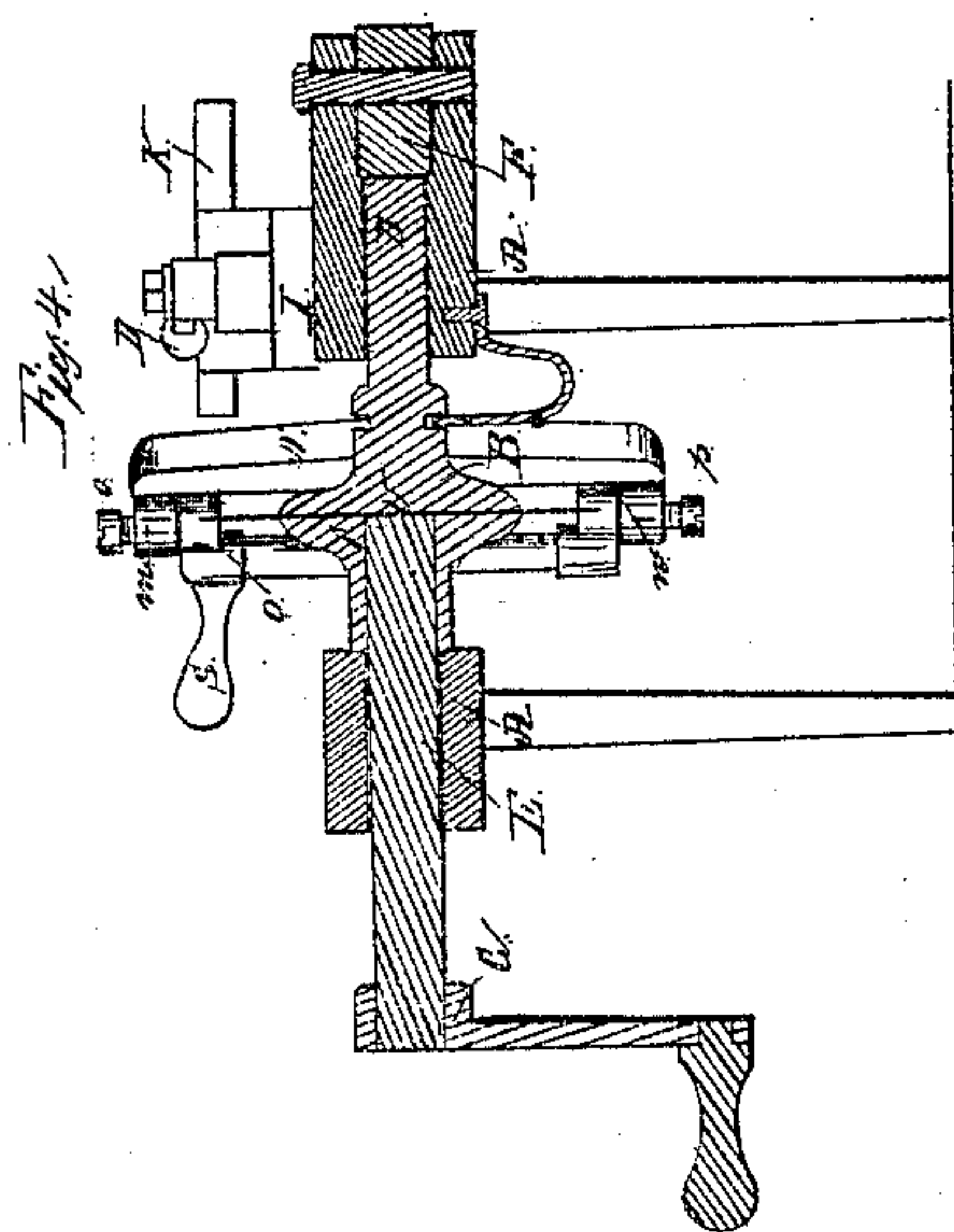


E. SAVAGE.
MACHINERY FOR CUTTING AND BENDING METAL DISKS.
No. 9,982. Patented Aug. 30, 1853.



UNITED STATES PATENT OFFICE.

ELLIOT SAVAGE, OF BERLIN, CONNECTICUT, ASSIGNOR TO ROYS & WILCOX.

IMPROVEMENT IN MACHINERY FOR CUTTING AND BENDING METALLIC DISKS.

Specification forming part of Letters Patent No. 9,982, dated August 30, 1853.

To all whom it may concern:

Be it known that I, ELLIOT SAVAGE, of Berlin, in the county of Hartford and the State of Connecticut, have invented a new and useful Improvement in Machinery for Cutting and Bending Metal Disks; and I do hereby declare that the same is fully described and represented in the following specification, and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 denotes a top view; Fig. 2, a horizontal section; Fig. 3, a vertical central and longitudinal section, and Fig. 4, a central vertical and transverse section of my improved machine.

My invention may be said, in one sense, to be an improvement on a machine ("for turning up the edges of sheet-metal disks") as invented by Joseph F. Flanders, and secured by Letters Patent to his assignees, Franklin Roys and Edward Wilcox, on the 6th day of January, A. D. 1852, for the difficulties attendant on the operation of this latter machine have suggested the improvement which is the essence of my invention, my improvements enabling me to effectually overcome such.

In the drawings, A exhibits the frame for sustaining the operative parts of the machine. B and C are the circular disks or grippers by and between which the plate of metal is held during its rotations. One of the said grippers is affixed on the inner end of the shaft D, while the other is secured on the inner end of another shaft, E, which has its axis in the same straight line with that of the shaft D. Both shafts are supported in proper boxes or bearings, so that they may be rotated, and one is moved longitudinally toward the other by a toggle-lever, F, while the latter is provided with a crank, G, by which it may be revolved. The cutting-rollers are seen at H I, they being applied and used as they are in other machines of like character. *a* is a conic frustum or roller whose axle is supported by a frame, *b*, which is so applied to the frame A as to be capable of being moved toward or away from the shaft E. This frame *b* rests and moves on slidways or rails *d e*, and is provided with a set-screw, *f*, and nut *g*, by which it may be confined in any desirable position on the said ways. There is another frame, I, which moves on parallel ways *h i*, and may be confined

thereon by a set-screw, *k*, and nut *l*. This frame carries a sliding carriage, K, that, by means of a lever, L, may be made to move transversely across the frame I, so as to carry a support—conical roller M—toward or away from the roller *a*. The said roller M is supported by a vertical arm or bar, N, that extends down from the carriage K. The bar N at its two ends, is bent at right angles, and sustains through the ears *m n* or parts of it so bent, center screws, *o p*, that serve to support a frame, Q, shaped as seen in Fig. 3. This frame turns horizontally on the points of the screws and carries a frusto-conic bending-roller, R, which is so arranged that it may be turned around the angle of the two edges of the rollers *a M*, from the position as seen at *x* into that as seen by dotted lines at *y* in Fig. 2, such roller R being placed a distance from the edges of the other two rollers equal to the thickness of the sheet of metal to be turned or bent down at its edges. A handle or lever, S, extends from the frame Q. By means of such handle the bending-roller R may be moved from *x* to *y*, and vice versa.

In the employment of a spherical segmental roller, in connection with a conic frustum roller, and for bending down the edge of the metal disk in the manner described in the specification of the said patent of the said Flanders, it has been found that either one or the other of the rollers is liable to be, and often is, thrown or moved out of place, or that the pressure and peculiar action of them on the metal disk is such as to warp or bend it, so as to materially injure or spoil it. By applying to the two rollers R *a* the support-roller M, the plate is firmly gripped or held at or near its outer edge, and when and while the bending down of it is effected by the action of the bending-roller.

In bending down the circular edge of a circle of tin held between the gripper-plates, it has been customary to make the grippers of a diameter large enough to allow the flange to be bent down upon the periphery of one of them, such requiring a set of grippers of different sizes, in accordance with the various sizes of circles to be cut and bent.

My machine is of the kind where one set of grippers only is employed, as the bending down of the tin is not done on either gripper, but by mechanism independent of it. My im-

provement is applicable to this latter kind of machine, and in the use of the machine the metal plate is held by the grippers or holders, as seen by the red line at U, and projects at its edge beyond the two rollers R a the distance equal to the width of the part to be turned down. While the plate is put in revolution the roller R is moved around against it, and turns down the edge against the conic surface of the roller a.

What, therefore, I claim as my invention is—

The combination and arrangement of the roller M, with the roller a and the bending-roller R, so as to operate together and independently of the clamps B C, substantially as specified.

In testimony whereof I have hereto set my signature this 23d day of April, A. D. 1853.

ELLIOT SAVAGE.

Witnesses:

R. H. EDDY,

BENJAMIN F. DAM.