No. 707,744. Patented Aug. 26, 1902.

J. WELTY.

MACHINE FOR CUTTING AND BENDING RULES.

(Application filed May 31, 1901.)

(No Model.)

Fig. 1.

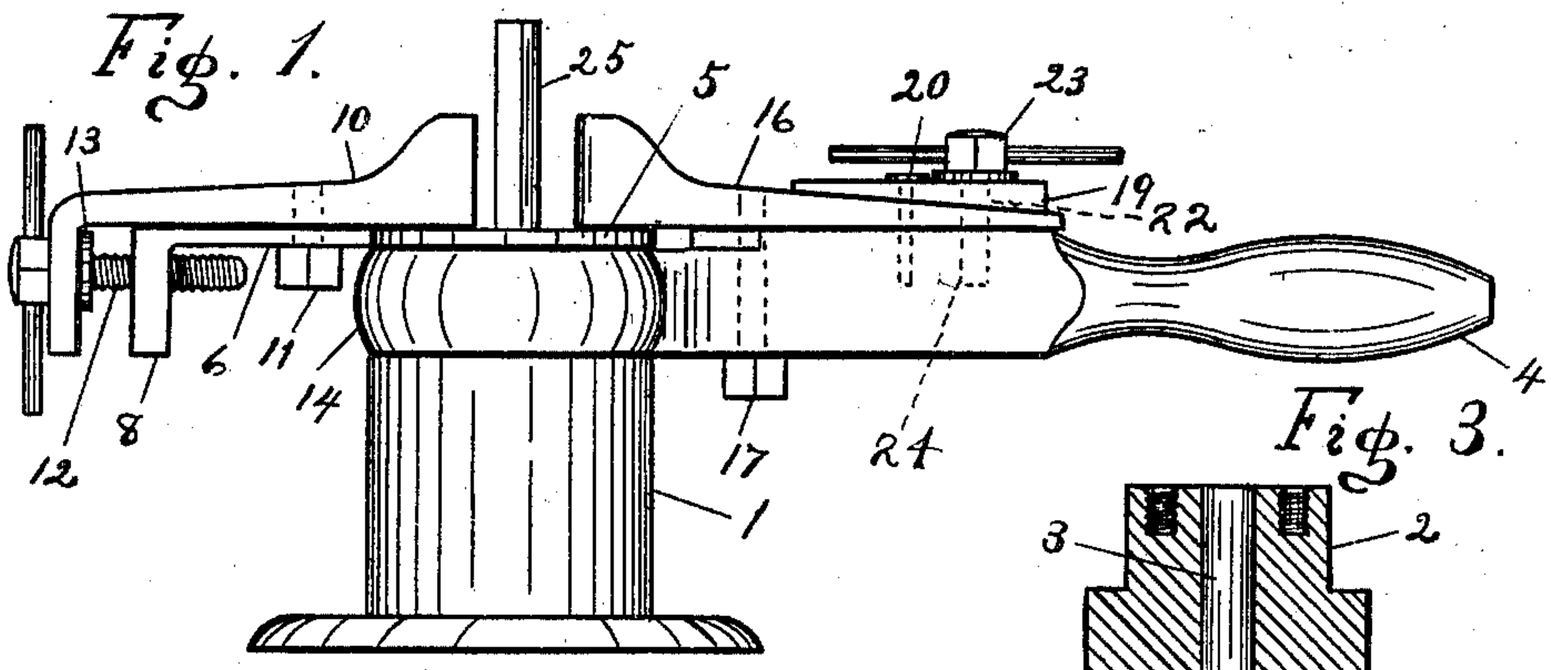


Fig. 3.

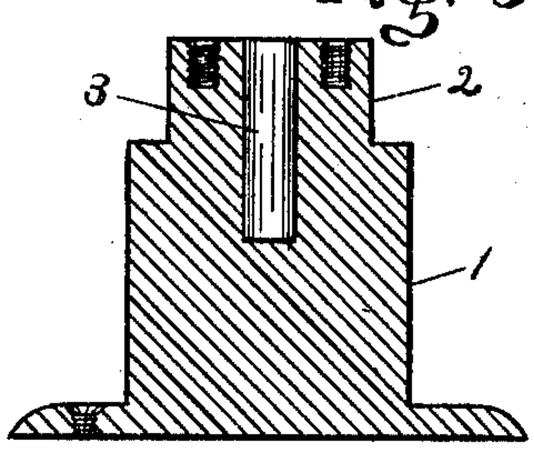


Fig. 2.

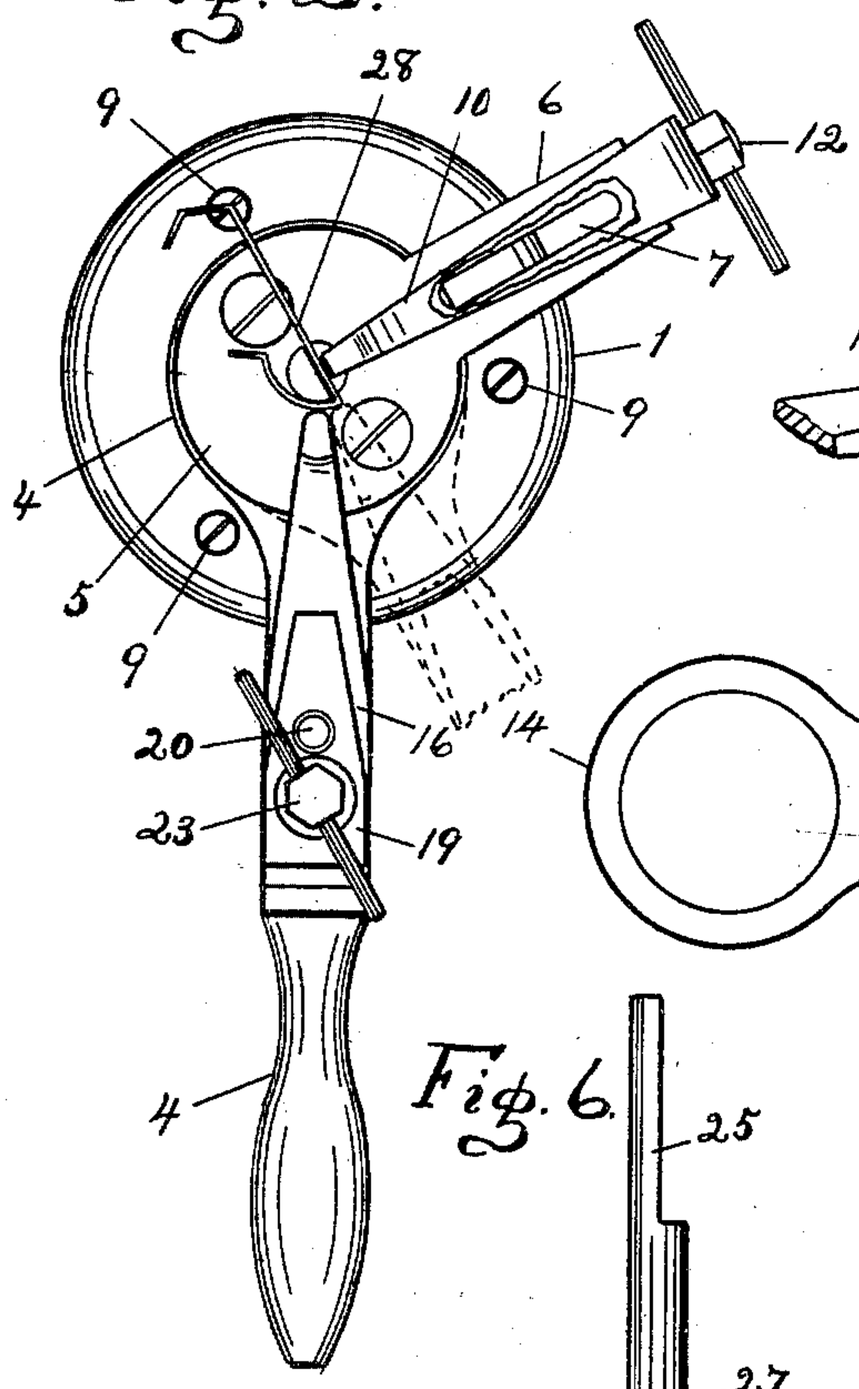


Fig. 4.

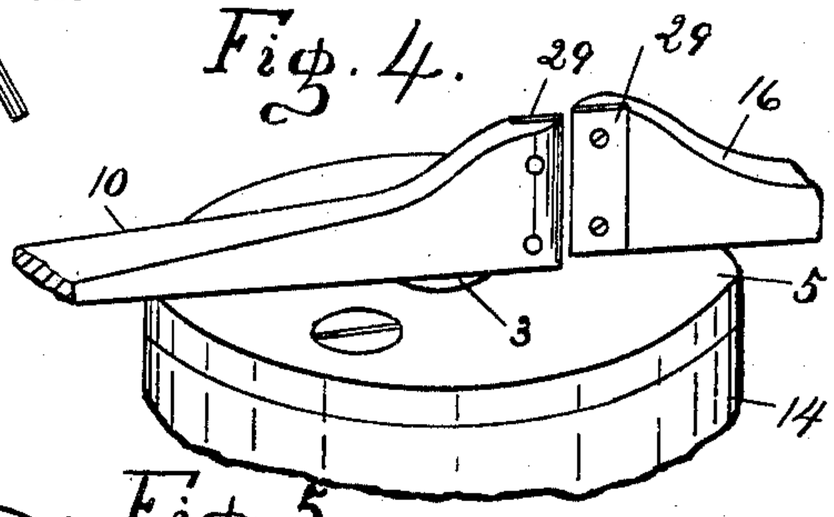


Fig. 9.

Fig. 5.

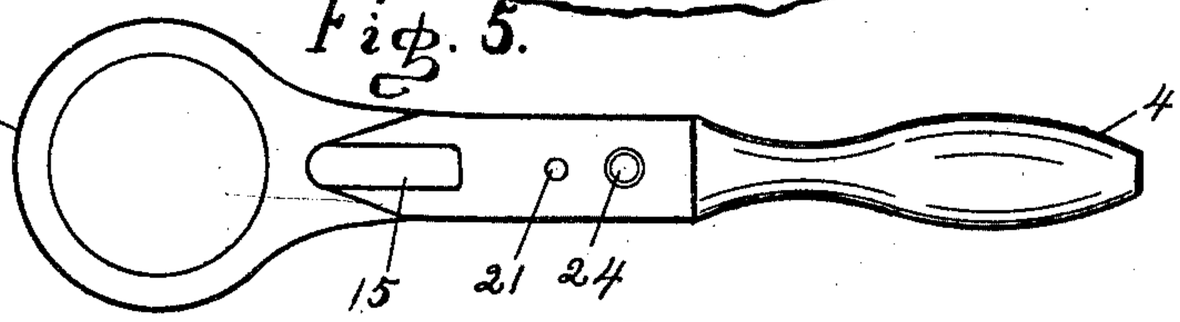


Fig. 6.

Fig. 7.

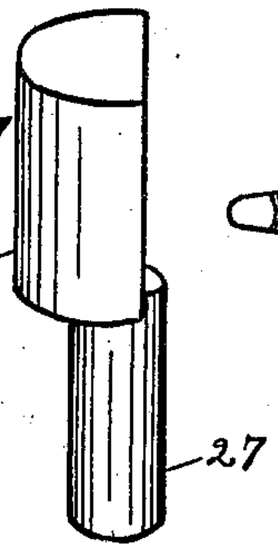
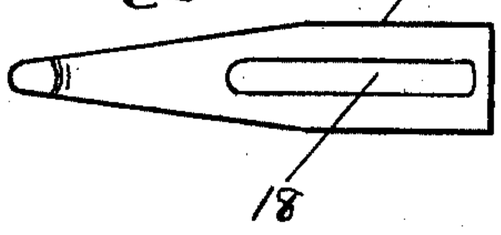


Fig. 8.



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JOEL WELTY, OF FORT WAYNE, INDIANA.

MACHINE FOR CUTTING AND BENDING RULES.

SPECIFICATION forming part of Letters Patent No. 707,744, dated August 26, 1902.

Application filed May 31, 1901. Serial No. 62,493. (No model.)

To all whom it may concern:

Be it known that I, JOEL WELTY, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Machines for Cutting and Bending Rules; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in a mechanism for cutting and bending printers' rules; and the object of my improvement is to provide a cheap, convenient, and durable machine in which printers' rules can be cut and bent in any desired form. While this is the primary object of the invention, yet it is equally useful in cutting and bending steel, cutting and creasing rules used in the manufacture of folding boxes and various other articles. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the machine for use in bending rules. Fig. 2 is a plan view showing the mode of operating the machine. Fig. 3 is a sectional view of the bed-plate upon which the apparatus is mounted. Fig. 4 is a detail perspective of the relative position of the adjacent faces of the former and gripper when adjusted for cutting the rules. Fig. 5 is a plan view of the operating-handle. Fig. 6 is a side view of one of the dies. Fig. 7 is a perspective view of one of the dies. Fig. 8 is a top plan view of the former, and Fig. 9 a front view of the face of a former provided with a cutting edge for severing rules into desired lengths.

Similar numerals refer to similar parts throughout the several views.

The bed-plate standard 1 is secured to a stationary block or frame by any suitable means. The upper end of the bed-plate is a cylindrical shaft or neck 2, adapted for receiving thereon the collar 14 of an operating-handle 4. In diametric center of the upper end of the bed-plate is a cylindrical orifice 3, adapted to receive the lower end of a die. A plate 5 has a central perforation concentric with the tubular orifice 3, and it has also a lateral integral arm 6, having a longitudinal slot 7 and its outer end 8 bent vertically downward. The plate 5 is secured to the upper end of the bed-plate 1 by suitable screws 9.

Upon the arm 6 is slidably mounted a gripper 10 by means of a screw-threaded bolt 11, having a suitable head, and which bolt is inserted in the slot 7 and screws into the under side of the gripper, as shown by the dotted lines in Fig. 1. The outer end of the gripper 10 is bent vertically downward, and through this bent end a screw-threaded bolt 12, having a suitable head upon its outer end and a washer 13 upon the inner side of the said bent end, secures it in the same, while the inner end of the bolt 12 engages in a screw-threaded orifice in the bent end 8 in the arm 6. It is obvious that by turning the bolt 12 the gripper will slide forward or backward on the arm 6, according to which way the bolt is turned. The handle 4 terminates at its inner end in a cylindrical collar 14, adapted to be rotated upon the shaft 2 and secured thereon by the plate 5.

The body part of the handle between the collar and the free end has its upper face flush with the upper side of the plate 5, as shown in Fig. 1. In the part of the handle adjacent to the collar is a longitudinal slot 15. Upon the upper surface of the handle is mounted a former 16, slidably secured to the handle by a screw-threaded bolt 17, having a suitable head, and which bolt enters the slot 15 on the under side of the handle-bar and engages in a screw-threaded orifice in the former 16, as shown by the dotted lines in Fig. 1. The outer end of the said former has a vertical slot 18, and upon the upper side is a plate 19, having a lug 20, which enters into a perforation 21 in the handle, as indicated by the dotted lines in Fig. 1.

Near the outer end of the plate 19 is a vertical perforation 22, through which passes a screw-threaded bolt 23, provided with a suitable head and at its lower end engaging in a screw-threaded perforation 24 in the handle, (shown by dotted lines in Fig. 1,) and thereby securing the plate 19 and the former to the handle 4. Former-dies 25 and 26 each has a cylindrical stem 27 upon the lower end, adapted to freely enter the orifice 3. The parts of

these dies above the plate 5 are plano-convex, as shown in the views; but they may be of different forms, so as to adapt them for bending the rules acted upon at any desired angle or curvature. The jaws on the inner ends of the gripper 10 and the former 16 terminate in narrow vertical parallel faces at their inner ends. The face of the former 16 is preferably curved, as shown in Fig. 2. It is obvious that the faces of the inner ends of the gripper and the former may be adjusted by means of the bolts at any distance from the bending-die, and the dies 25 and 26 may be used interchangeably, as desired. In cutting rules the former 16 may have its face brought to a shear-cutting edge 29. The cutting edge inclines from the vertical to bring its upper edge first in contact with the rule, so as to cut from the upper edge downward. A like cutter edge is made upon the gripper 10, having its cutting edge inclined in an opposite direction, so that the edges of the jaws when operated cut like a pair of shears. The cutting edges 29 may be knives secured to the jaws, as shown in Fig. 4.

I do not claim in the application in this case the construction of the cutting edges of the former and gripper, as above described, but reserve the right to make a separate application therefor without prejudice.

The method of operating my device is as follows: When cutting rules into lengths, the central die is removed and the jaws of the gripper and the former are adjusted in proximity to each other, as shown in detail, Fig. 4, and the rule is inserted between them, and by rotating the handle 4 the cutting edges are forced against and sever the rule. To bend rules, gripper 10 and former 16 are used, and one of the dies 25 or 26 is inserted in the orifice 3, and the handle 4 is rotated in proximity to the gripper 10, as shown by the dotted lines in Fig. 2. A rule 28, as illustration, is inserted and secured to the plane face of the die by clamping the jaw against it and securing it by means of the set-screw 12. The former 16 is also adjusted and secured against the rule in the position shown by the dotted lines in Fig. 2 by means of the set-screw 23, and then by rotating the handle to the left, as shown in the view Fig. 2, the rule is bent on the convex side of the die.

It will be readily understood that by only slightly rotating the handle the rule may be bent on the edge of the die at such angle as may be desired and that by changing the ends of the rule it may be bent into almost any form, as shown in the rule indicated by the numeral 28.

By using dies of different sizes the curvature may be made greater or less.

Having thus described my invention, what I claim as new, and for which I desire to secure Letters Patent, is—

1. In a device for cutting and bending rules, the combination with a standard provided at its upper end with a neck, of an operating-handle having at one of its ends a collar mounted upon said neck, a plate secured to said standard and overlapping the collar of said handle for securing the collar upon said neck, said plate being provided with an outwardly-extending arm having its outer end bent downwardly, a removable die fitted in said standard, a gripper adjustably mounted upon said plate, an adjusting-screw mounted in the outer end of said gripper and engaging the downwardly-bent end of said plate, and a former adjustably mounted upon said operating-handle, the faces of said gripper and former being arranged in parallel relation and maintaining such relation during the adjustments thereof.

2. In a device for cutting and bending rules, the combination with a standard provided at its upper end with a neck, of an operating-handle having at one of its ends a collar mounted upon said neck, a plate secured to said standard and overlapping the collar of said handle for securing the collar upon said neck, said plate being provided with an outwardly-extending arm having its outer end bent downwardly, a removable die fitted in said standard, a gripper adjustably mounted upon said plate, an adjusting-screw mounted in the outer end of said gripper and engaging the downwardly-bent end of said plate, a former adjustably mounted upon said operating-handle and provided with a longitudinal slot, a plate mounted on said former and provided with a lug engaging the operating-handle, and a screw passing through said plate and the former and engaging the operating-handle for securing the plate and former on the handle.

Signed by me at Fort Wayne, Allen county, State of Indiana, this 18th day of May, A. D. 1901.

JOEL WELTY.

Witnesses:
ADELAIDE KEARNS,
AUGUSTA VIBERG.