G. W. BENNETT.

CLAMP FOR PRINTING PRESSES.

APPLICATION FILED OCT. 7, 1913.

1,103,862.

Patented July 14, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

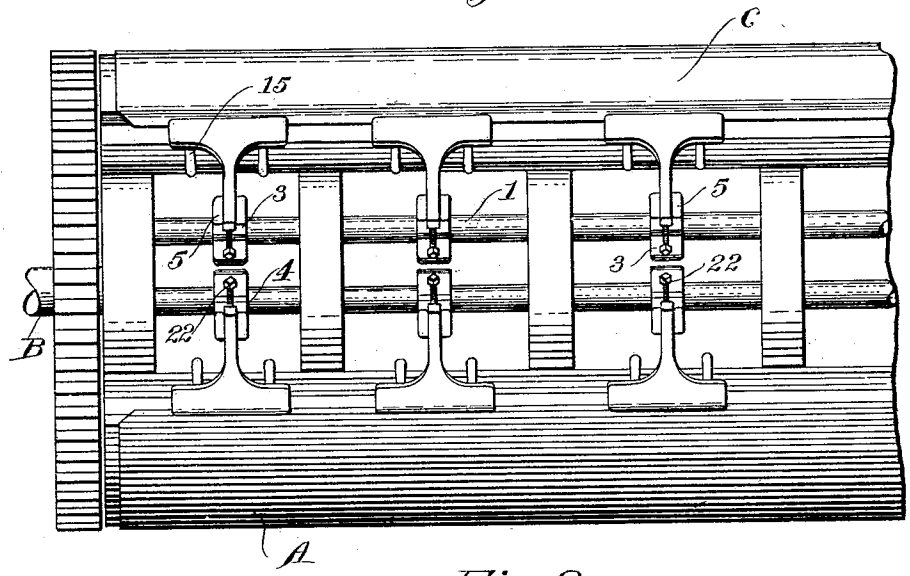
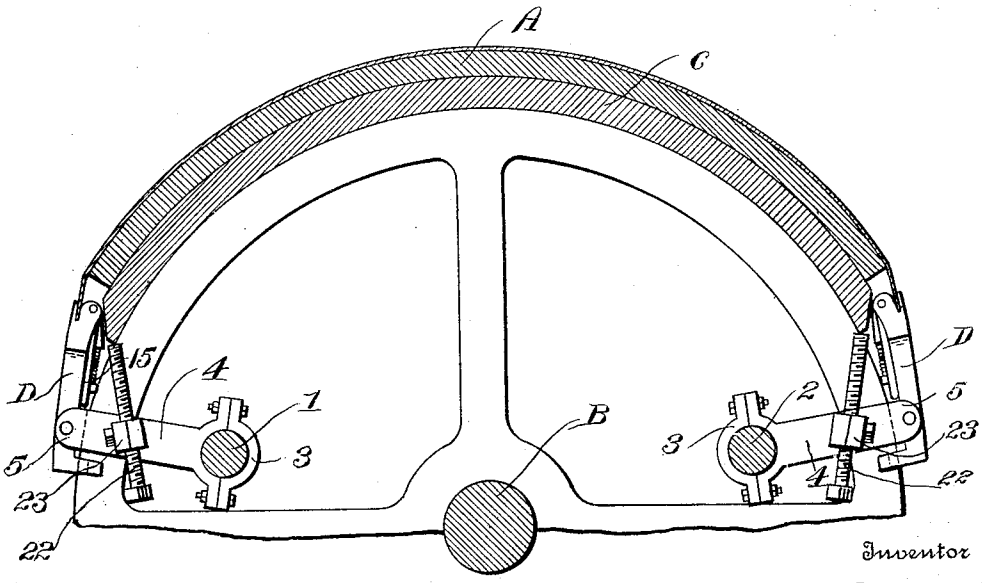


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

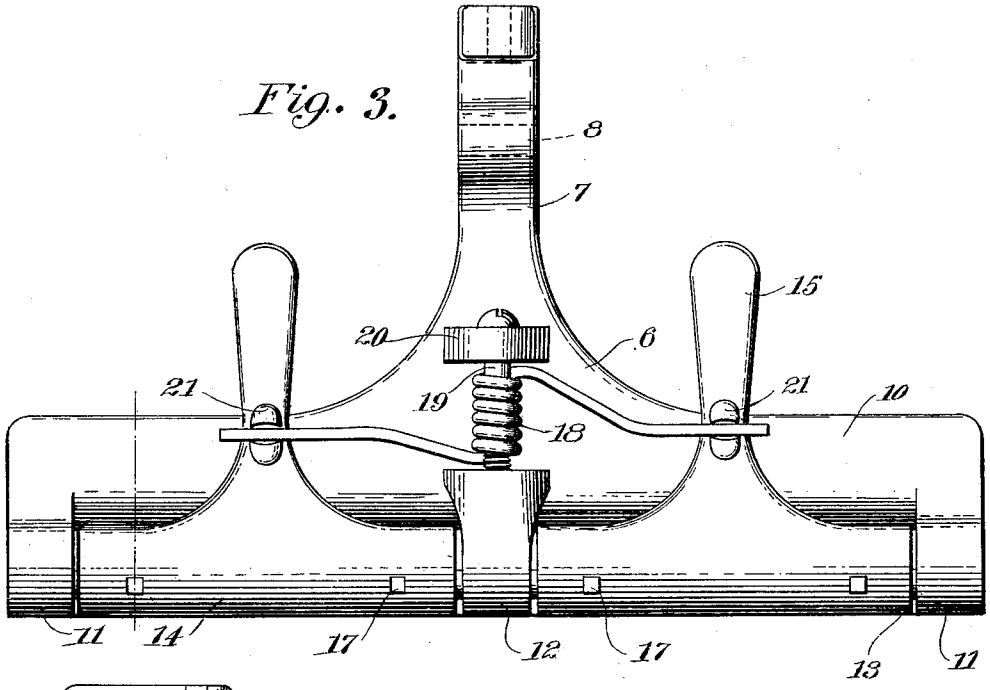


Fig. 4.

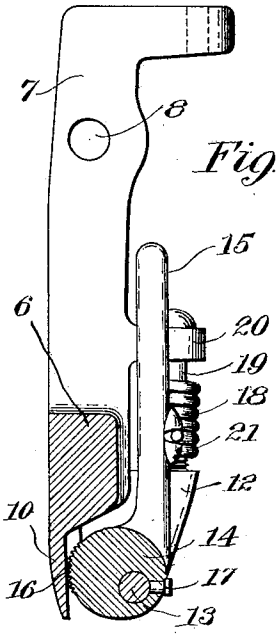
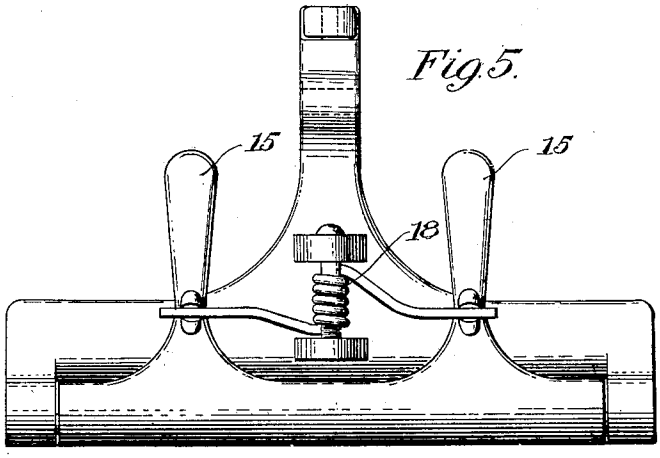


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE W. BENNETT, OF MASSILLON, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO SAMUEL MOLLET.

CLAMP FOR PRINTING-PRESSES.

1,103,862. Specification of Letters Patent. Patented July 14, 1914.

Application filed October 7, 1913. Serial No. 793,954.

To all whom it may concern:

Be it known that I, GEORGE W. BENNETT, a citizen of the United States, residing at Massillon, in the county of Stark and State of Ohio, have invented new and useful Improvements in Clamps for Printing-Presses, of which the following is a specification.

This invention relates to improvements in clamping devices for use in conjunction with printing presses and has particular application to a device of this class for seating and holding in position sheets of aluminum, zinc and the like which are used as or in conjunction with printing surfaces.

In carrying out the present invention, it is my purpose to provide a clamping device wherein the clamping jaws will be entirely devoid of screws, bolts and the like for holding the same in clamping engagement with the sheet and wherein the movable jaw will be mounted eccentrically and movable about its eccentric axis toward and away from the fixed or stationary jaw so that when the movable jaw is moved toward the stationary jaw the edge of the sheet between such jaws will be firmly and effectively gripped, while when the movable jaw is moved away from the stationary jaw the edge of such sheet will be released.

It is also my purpose to provide a clamping device for printing sheets whereby the sheets may be clamped in position and released in the minimum time and with a relatively small expenditure of energy and wherein the component parts of the clamp will be so arranged and correlated as to reduce the possibility of derangement or mutilation to a minimum.

Furthermore, I aim to provide a clamping device whereby the respective edge of the sheet will be firmly grasped without mutilating the same and which will be capable of bodily movement succeeding the clamping of the sheet so that after the sheet has been clamped in position, such sheet will be placed under tension or stretched taut.

A further object of the invention is the provision of a clamping device of the type set forth which will embrace the desired features of simplicity, efficiency and durability and one which may be manufactured, marketed and installed at a minimum expense.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts hereinafter set forth in and falling within the scope of the claims.

In the acompanying drawings: Figure 1 is a fragmentary plan view of a cylinder showing my invention applied thereto. Fig. 2 is a vertical sectional view through a portion of the cylinder, the clamping devices being shown in elevation. Fig. 3 is a bottom plan view of one of the clamping devices removed from the cylinder. Fig. 4 is a cross sectional view through the same. Fig. 5 is a bottom plan view of a modified form of clamping device.

Referring now to the accompanying drawings in detail, A designates a sheet carrier or plate support which, in the present instance, is in the form of a cylinder designed to form the printing member of a printing-couple. As usual this cylinder is mounted on the cylinder shaft B and is provided with a segmental plate supporting surface C. Of course, it will be understood, that the cylinder, as usual, is provided with a plurality of these segmental plate supporting surfaces; but one is deemed sufficient to illustrate the application of the present invention.

The form of plate carrying cylinder A is equipped with two rods 1, 2 which extend through the cylinder from side to side and are disposed in proximity to and inwardly of the longitudinal edges of the segmental plate supporting surface C. Mounted on each rod and suitably fixed thereto are collars 3 spaced appropriate distances apart along the shaft and each provided with an outwardly extending arm 4 terminating in a plane inwardly of the plane of the printing surface in a yoke 5. The yoke 5 on the outer end of each arm 4 carries one of my improved clamping devices. Each device is indicated as an entirety at D and comprises, in the present instance, a metallic base 6 of substantially rectangular contour having an arm 7 formed integral with one longitudinal edge thereof at a point approximately centrally of such edge and formed with a transverse pivot opening 8 adapted to register with similar openings formed in the limbs of the respective yoke 5. The upper surface of the base 6 of each clamping device and the contiguous surface of the arm 7 is preferably flat and smooth and disposed in a plane flush with the outer face of the plate supporting surface, while

the longitudinal edge of the base opposite that carrying the arm 7 confronts the adjacent longitudinal edge of the plate supporting surface and is equipped with a fixed jaw 10. Formed integral with the under surface of the base and disposed below the fixed jaw are end bearings 11, 11 and a center bearing 12 alining with one another and through which is passed a shaft 13 disposed in a plane immediately below the under surface of the fixed jaw. Surrounding the shaft 13 eccentrically thereof are elongated cylindrical blocks 14 equipped with rearwardly extending handles 15 and each disposed between one of the end bearings and the center bearing. These cylindrical blocks constituting the movable jaws of the clamp and the active portion of each block, that is the portion coöperating with the fixed jaw to produce a clamping action, is serrated as at 16. The movable jaws are preferaby adjustable about the shaft 13 independently of each other and, in the present instance, set screws 17, 17 are carried by each block 14 and designed to bind against the shaft 13 so as to hold the respective jaw in the desired adjusted position.

Any suitable means may be employed to maintain the movable jaws in clamping position and in this embodiment of my invention I employ a coiled spring 18 surrounding the stud 19 carried by alining lugs 20, 20 disposed at the center of the under side of the base, the opposite extremities of the spring being extended laterally of the stud and resting upon the handles 15, 15 between lugs 21 formed thereon.

In practice, the jaws of the various clamping devices at each side of the plate supporting surface are opened and the respective edge of the printing plate inserted between the jaws of such clamping device, as clearly illustrated in Fig. 2 of the drawings. The handle 15 of each movable jaw is now actuated to swing the respective jaw about its eccentric axis whereby the active serrated surface of the jaw will coöperate with the stationary jaw to effectively clamp or grip the adjacent edge of the printing plate or sheet, the spring acting to maintain the movable jaws in closed position. The movable jaws, being adjustable about the shaft independently of one another, permit the clamping action upon the various portions of the plate to be varied so that should the respective edge of the printing plate be irregular, that is to say, of different thicknesses, the jaws may be adjusted to compensate therefor. After the jaws have been actuated to grip the plate as previously described, it is necessary that the clamping device be drawn away from the edge of the plate supporting surface so as to strain the plate to its seat, that is to say, place the same under tension, so that the plate will lie evenly and smoothly on the surface of the cylinder. To effect this result, I employ, in the present instance, a set screw 22 threaded through an aperture formed in a lug 23 pivoted upon one side of the arm 4, the free end of the set screw bearing against the adjacent edge of the plate supporting surface. Thus, when the set screw 22 is moved inwardly of the lug 23, the free end thereof bearing upon the edge of the plate supporting surface, causes the clamping device, as an entirety, to swing about the rod 1 thereby moving the jaw end of such device downwardly so as to place the printing plate under tension.

In the modified form of clamping device illustrated in Fig. 5 of the drawings, a single movable jaw is employed in contradistinction to the double jaw arrangement shown in the preferred form of the invention. This single movable jaw is equipped with two manipulating handles 15 disposed adjacent to the opposite ends thereof and acted upon by the opposite ends of the spring 18 to maintain the movable jaw in closed position. This construction will be found particularly advantageous on small presses, while the form of the device illustrated in Figs. 1 to 4 inclusive is adapted for use on comparatively large presses.

From the foregoing description taken in connection with the accompanying drawings, the construction, mode of operation and manner of employing my invention will be readily apparent.

It will be seen that the devices, being capable of swinging movement independently of one another may be adjusted relatively to one another whereby certain portions of the printing plate may be placed under more tension than the remaining portions, if such is found necessary.

Although the plate is shown as held at each end by sets of clamping devices constructed in accordance with my present invention, it is obvious that only one set of such devices may be used, the plate being held at the opposite end in any desired manner.

While the construction described is particularly effective as a plate holding device, it will be understood that it is capable of use in other relations and for other purposes, such, for instance, as holding the blankets or packing of impression cylinders in position. Therefore, the invention in its useful application is not limited to the particular purpose herein described and delineated.

While I have herein shown and described certain preferred forms of my invention by way of illustration, I wish it to be understood that I do not limit or confine myself to the precise details of construction herein described and delineated, as modification

and variation may be made within the scope of the claims without departing from the spirit of the invention.

I claim:

1. A clamping device for printing sheets comprising a base, a fixed jaw on one end of said base, bearings carried by said base below said jaw, a shaft journaled in said bearings, a movable jaw mounted eccentrically upon said shaft and movable about the axis thereof toward and away from said first jaw, tension means carried by said base and acting upon said movable jaw to hold the latter in clamping position, an arm on said base, a pivot support for said arm, and means for swinging said arm about said support whereby the jaws will be moved simultaneously to place the printing sheet under tension.

2. A clamping device for printing sheets comprising a base, a fixed jaw on one end of said base, bearings carried by said base below said jaw, a shaft journaled in said bearings, a movable jaw mounted eccentrically on said shaft and movable toward and away from said first jaw, tension means carried by said base and acting upon said movable jaw to hold the latter in normal position, an arm on said base, a second arm pivotally connected with said first arm and supporting the same, and means carried by said second arm for swinging said first arm about the support whereby the jaws will be moved simultaneously to place the printing sheet under tension.

3. A clamping device for printing sheets comprising a base, a fixed jaw on one end of said base, bearings carried by said base below said jaw, a shaft journaled in said bearings, a movable jaw mounted eccentrically on said shaft and movable toward and away from said first jaw, tension means carried by said base and acting upon said movable jaw to hold the latter in normal position, an arm on said base, a second arm pivotally connected with said first arm and supporting the same, a block pivoted upon said second arm, and a set screw carried by said block and movable therethrough and engaging the adjacent edge of the printing sheet supporting surface whereby the jaws may be moved simultaneously to place the printing sheet under tension.

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

GEORGE W. BENNETT.

Witnesses:
CHALMER R. HEGGEM,
H. A. DALSKY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."