

July 19, 1938.

J. F. JIROUSEK

2,123,997

SHEET HOLDING MEANS FOR CYLINDERS OF PRINTING PRESSES AND THE LIKE

Filed May 1, 1935

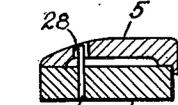
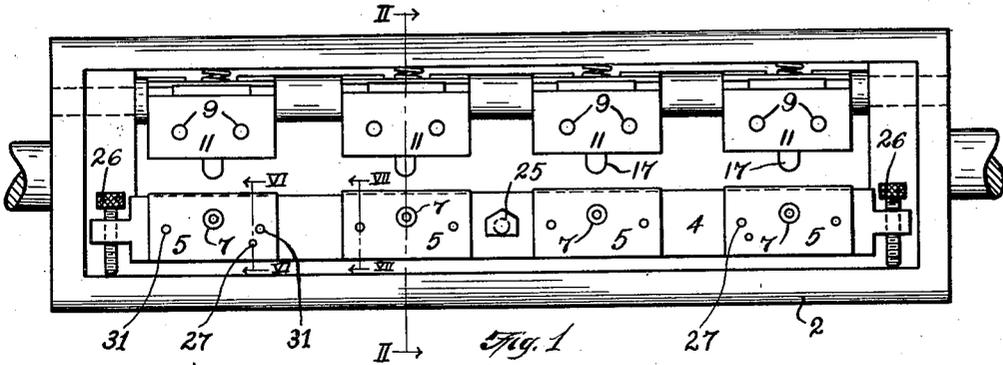


Fig. 6

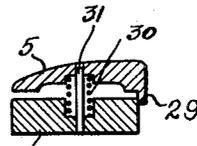


Fig. 7

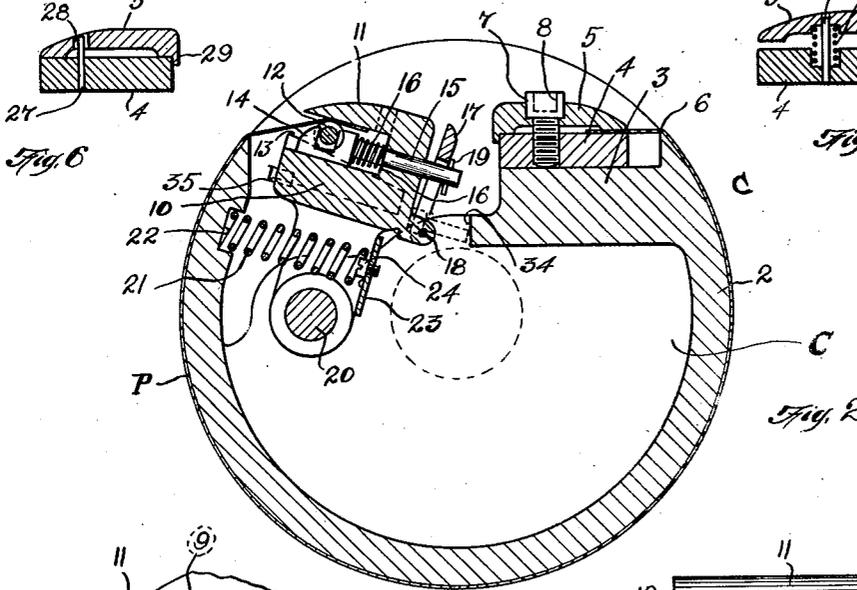


Fig. 2

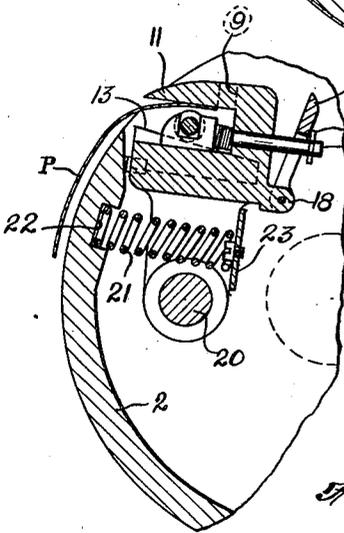


Fig. 3

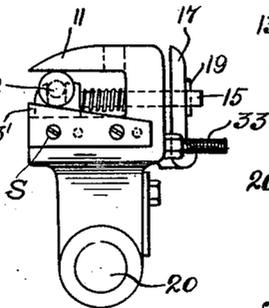


Fig. 4

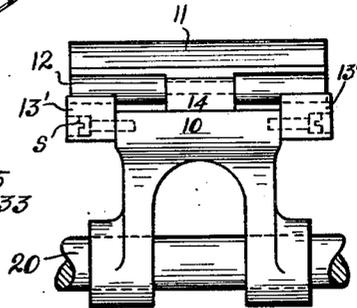


Fig. 5

INVENTOR.  
Joseph F. Jirousek

BY

Ray, Oberlin & Ray  
ATTORNEYS.

# UNITED STATES PATENT OFFICE

2,123,997

## SHEET-HOLDING MEANS FOR CYLINDERS OF PRINTING PRESSES AND THE LIKE

Joseph F. Jirousek, Cleveland, Ohio, assignor to  
The Chandler & Price Company, Cleveland,  
Ohio, a corporation of Ohio

Application May 1, 1935, Serial No. 19,206

7 Claims. (Cl. 101-415.1)

This invention relates to means for holding sheet material on cylinders such as of printing presses, lithographing presses and the like; and it is among the objects of the invention to provide a construction in which the operation of clamping the sheet is simple and reliable. A further object is the provision of structure in which a pull of the sheet itself serves to tighten the holding. A further object is the provision of accuracy of alignment after the sheet is clamped. A still further object is the provision of quick-acting release for removal of the clamped sheet. Other objects and advantages will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described, and particularly pointed out in the claims, the following description and the annexed drawing setting forth in detail certain illustrative embodiments of the invention, these being indicative however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawing:—

Fig. 1 is a plan view of a cylinder embodying the invention; Fig. 2 is a transverse section thereof, on enlarged scale, taken on a plane substantially indicated by line II—II, Fig. 1; Fig. 3 is a fragmentary similar view showing the parts in releasing position; Figs. 4 and 5 are side elevational and front elevational views respectively of a detail of the clamping mechanism; and Figs. 6 and 7 are detail sectional views taken substantially on lines VI—VI and VII—VII, respectively, Fig. 1.

The cylinder body C may be of any usual or preferred construction, and may involve for instance a shell 2 having a ledge 3 upon which are carried means for holding one end of a sheet P, such for instance as a zinc lithographic plate, such means comprising a fixed jaw 4, and a cooperating adjustable jaw 5, the latter being tightened into holding position against the end of the sheet 6 by tightening means, such as screws 7. Desirably, the latter have recessed heads or an internal wrench-hold 8, thereby offering little obstruction externally. With the sheet fastened by the series of end-holding jaws 5, the body of the sheet is drawn around the cylinder to engage in the take-up holding jaws. These comprise relatively fixed jaws 10, including an over-hanging beak portion 11, and a movable jaw member 12 in the form of a roller mounted for limited rolling movement on an inclined plane or wedging plane 13. Desirably, the rollers 12 have gudgeons or re-

duced portions to serve as journals, and these ride respectively in a fork 14 in the form of a slide having a small excursion of movement on the plane of the base of the jaw. The slide 14 has a stem extension 15 which rides through a slide mounting opening in the base jaw, and a compression spring 16 surrounding the stem and located between the slide and the jaw abutments serves to normally urge the slide into its forward position. Rearwardly of the jaw member 10 is a latch 17 pivoted to the jaw member at 18, and having an opening through which the stem 15 extends, the opening being such that the stem passes freely through the latch but when desired the stem may be pulled back by the latch to release the jaw member 12, by reason of the latch coming against an abutment-pin 19 on the stem for such release movement. The inclined plane upon which the roller 12 moves is conveniently provided by end members 13' secured to the base jaw 10 by suitable screws s. With such arrangement, the jaw-roller 12 with its slide 14 may have a range of movement within the space between the jaw member 10 and the jaw member 11, and as the roller moves forwardly it travels up the inclined plane surfaces 13', 13' and thereby binds more tightly against the plate to grip the same against the jaw 11. The latter may be knurled or roughened on its gripping surface. Conversely, with movement of the roller 12 rearwardly, it travels down the inclined plane surfaces and recedes from its gripping position, thereby loosening the sheet, rubber blanket, or plate. The base jaws 10 are set on a rock-shaft 20, and by provision of a spring 21 between the shell 2, in a suitable abutment recess 22 for instance while the other end of the spring seats against an abutment plate 23 carried by the shank of the jaw 10, a uniform rearward thrust on the jaws 10 is had, thus tending to maintain suitable tension and tightening action upon the sheet being held. A screw head 24 may conveniently serve as centering and retaining means for the spring with respect to the abutment plate 23. The jaw body 10, 11, may be swung forward on shaft 20 against the action of the spring if a hand tool be inserted in a convenient hole 9 for this purpose, thus affording a handle and leverage.

By providing the jaw member 4 in the form of a bar in common for the entire set of end-clamps, a nicety of adjustment after the sheet is gripped, may be had. It sometimes occurs that even when properly initially gauged, a sheet or lithographic plate is ultimately found to be

slightly misaligned, and by the present means this may be corrected. By mounting the jaw-bar 4 on a central pivot, as bolt 25, it may be slightly swung in its plane with respect to the cylinder. An adjusting thrust-screw 26 at each end of the bar, abutting against a suitable surface on the cylinder thus serves to advance or retard one end of the bar as compared with the other, as may be necessary in any given instance to skew the sheet or plate sufficiently to effect the desired alignment. The jaws 4, 5, are provided with gauge pins 27, these being fixed in the jaw-bar and projecting into openings 28 in the jaw 5. By provision of a lip-lug 29 on the jaw 5, engagement of the latter relative to the jaw 4 is assured in uniform manner, so that the gauge pins 27 will always properly enter the openings 28 in the cooperating jaw and not interfere. The jaw 5 is normally urged into open position by a spring 30 between the jaws, centered about a retaining pin 31 and seating at each end in appropriate recesses in the jaw surfaces.

The manner of use of the device will be understood from the foregoing. A sheet to be held in position, for instance a zinc lithographic plate is brought into position with one end in the jaws 4, 5, these being initially in open position, the screws 7 being released for that purpose so that the springs 30 maintain them open. With the end of the plate pushed into position against the row of gauge pins 27, the movable jaws are set down into clamping position by wrench-tightening each of the screws 7, and thereby this end of the plate is gripped. The plate is then wrapped around the cylinder and, as the operator swings the jaws 11 forwardly by a hand wrench or tool inserted into one of the holes 9, the farther end of the plate is thrust into the jaws 11, and rides over the jaw-rollers 12, these being displaced backwardly on the give of the springs 13, sufficiently to allow such admission, but immediately on cessation of the thrusting movement of the plate, the jaw-rollers 12 hold the plate. When it is desired to remove the sheet P, the latches 17 are drawn back from the jaws 11 thereby pulling the stems 15 and jaw rollers 12 into release and the sheet may be drawn out of the jaws. Undue movement of the jaw units 10 is guarded against in any positioning by suitable stops. Thus, a stop-projection 33 carried by the jaw at the rear, by engaging against the shoulder 34 on the cylinder prevents the jaw being swung too far back. A stop projection 35 at the front of the jaw serves to abut against the cylinder and prevent the jaw itself from contacting closely.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features set forth in any of the following claims, or the equivalent of such, be employed.

I therefore particularly point out and distinctly claim as my invention:—

65 1. In mechanism of the character described, a cylinder and means for holding sheet material about its periphery, including a plurality of jaw-couples for holding one end of the sheet to the cylinder, said couples having each an interposed spring and a gauge pin, a bar in common mounting said jaw-couples, a central pivot for said bar, a regulating screw at each end of said bar, and self-tightening clamp means for the other end of the sheet, said means having a roller-jaw element and a jaw element for receiving the same,

and an inclined surface upon which said roller element may travel.

2. In mechanism of the character described, a cylinder and means for holding sheet material about its periphery, including a plurality of jaw-couples for holding one end of the sheet to the cylinder, said couples having each an interposed spring and a gauge pin, a bar in common mounting said jaw-couples, a central pivot for said bar, a regulating screw at each end of said bar, and self-tightening clamp means for the other end of the sheet, said means having a roller-jaw element and a jaw element for receiving the same, an inclined surface upon which said roller element may travel, a slide for mounting said roller-jaw element, a stem extending rearwardly from said slide through said other jaw element, and a spring interposed between said slide and said other jaw element.

3. In mechanism of the character described, a cylinder and means for holding sheet material about its periphery, including a plurality of jaw-couples for holding one end of the sheet to the cylinder, said couples having each an interposed spring and a gauge pin, a bar in common mounting said jaw-couples, a central pivot for said bar, a regulating screw at each end of said bar, and self-tightening clamp means for the other end of the sheet, said means having a roller-jaw element and a jaw element for receiving the same, an inclined surface upon which said roller element may travel, a slide for mounting said roller-jaw element, a stem extending rearwardly from said slide through said other jaw element, a spring interposed between said slide and said other jaw element, and a releasing latch for engaging said stem.

4. In mechanism of the character described, a cylinder and means for holding sheet material about its periphery, including a plurality of jaw-couples for holding one end of the sheet, each couple having an interposed spring and a gauge pin, a bar for mounting said couples in common, a pivot centrally of said bar, an adjustable screw at each end of said bar, and self-tightening clamp means for the other end of the sheet, said means having a plurality of roller-jaw elements, cooperating jaw elements receiving the same, a rock-shaft upon which said cooperating jaw elements are carried, a spring normally swinging said cooperating jaw elements rearwardly, and an inclined plane surface upon which each roller-jaw element may travel.

5. In mechanism of the character described, a cylinder and means for holding sheet material about its periphery, including a plurality of jaw-couples for holding one end of the sheet, each couple having an interposed spring and a gauge pin, a bar for mounting said couples in common, a pivot centrally of said bar, an adjustable screw at each end of said bar, and self-tightening clamp means for the other end of the sheet, said means having a plurality of roller-jaw elements, cooperating jaw elements receiving the same, a rock-shaft upon which said cooperating jaw elements are carried, a spring normally swinging said cooperating jaw elements rearwardly, an inclined plane surface upon which each roller-jaw element may travel, a slide carrying each roller-jaw element, a stem extending from said slide, 70 and a releasing latch for engaging said stem.

6. In mechanism of the character described, a cylinder and means for holding sheet material about its periphery, including a jaw member extending substantially the length of said cylinder, 75

means extending through said jaw member for mounting the same pivotally to swing in the plane of the end of the sheet to be gripped, a plurality of jaw elements mounted on said jaw member and cooperating with the latter to grip the sheet material, and adjusting screw means for regulating the amount of swing-position of said jaw member relative to the cylinder.

7. In mechanism of the character described, a cylinder and means for holding sheet material about its periphery, including a jaw member ex-

tending substantially the length of said cylinder, means extending through said jaw member for mounting the same pivotally to swing in the plane of the end of the sheet to be gripped, a plurality of jaw elements mounted on said jaw members and cooperating with the latter to grip the sheet material, adjusting screw means for regulating the amount of swing of said jaw member relative to the cylinder, and springs interposed between said jaw elements and jaw member.

JOSEPH F. JIROUSEK.