

July 24, 1928.

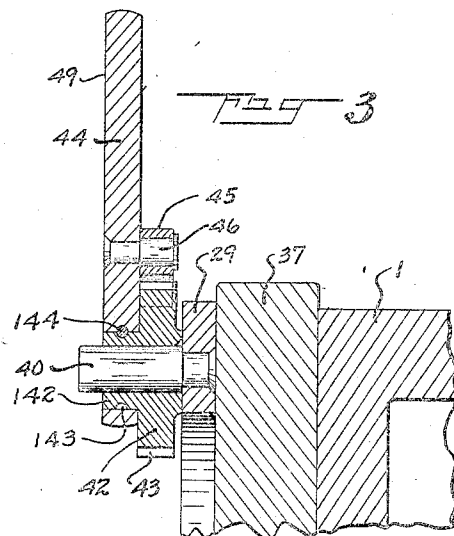
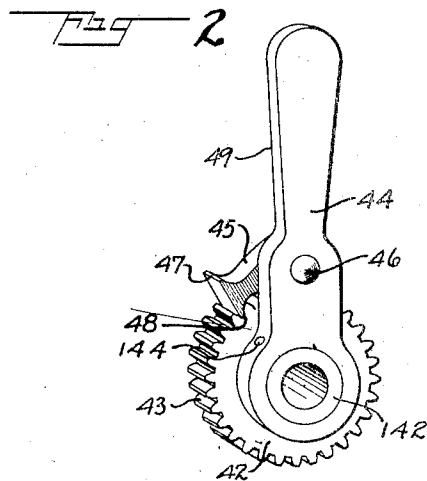
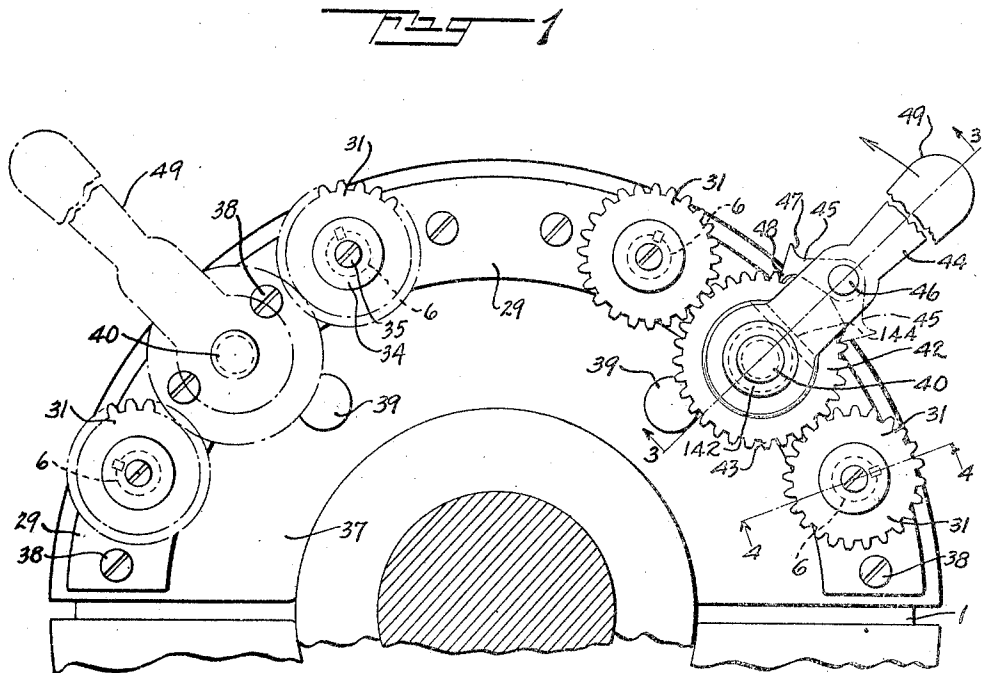
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C. S. CRAFTS

QUICK LOCK-UP FOR PLATE CYLINDERS

Filed May 18, 1926

4 Sheets-Sheet 1



INVENTOR.
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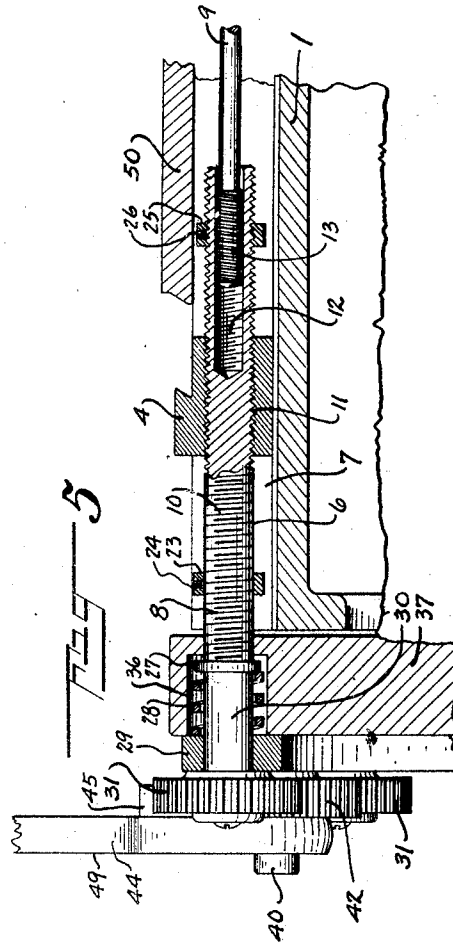
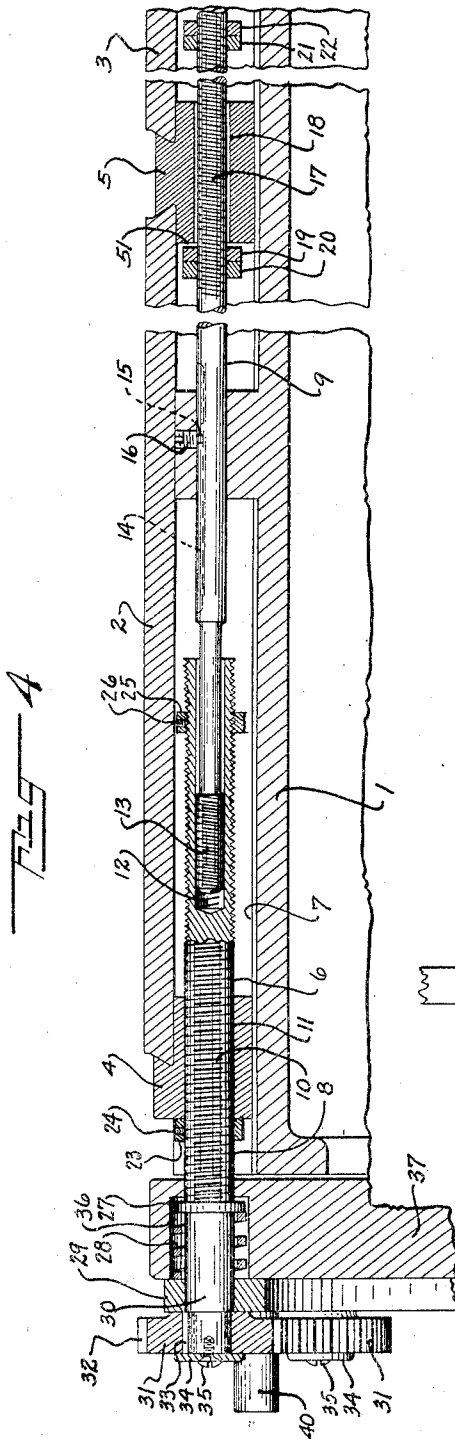
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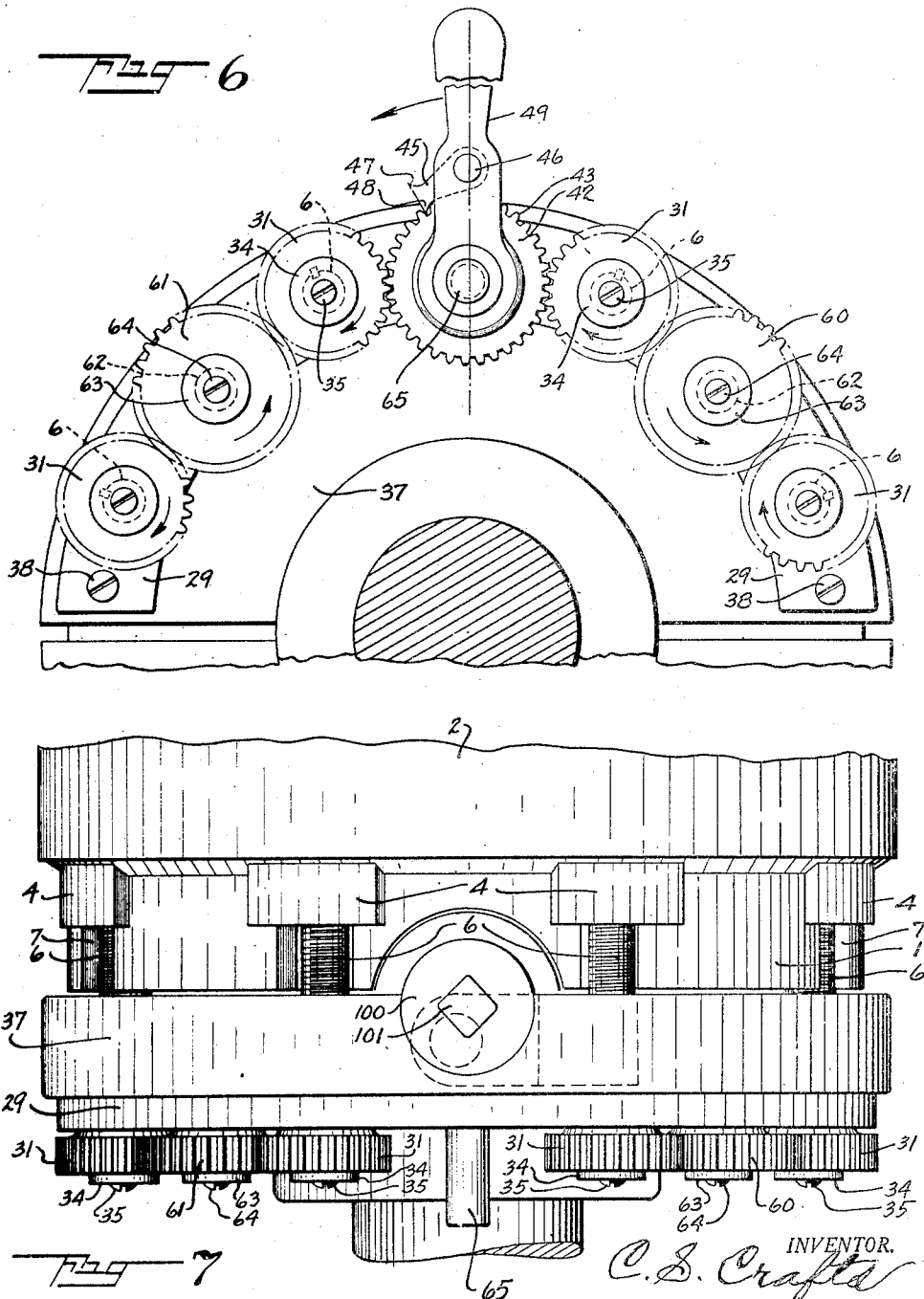
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QUICK LOCK-UP FOR PLATE CYLINDERS

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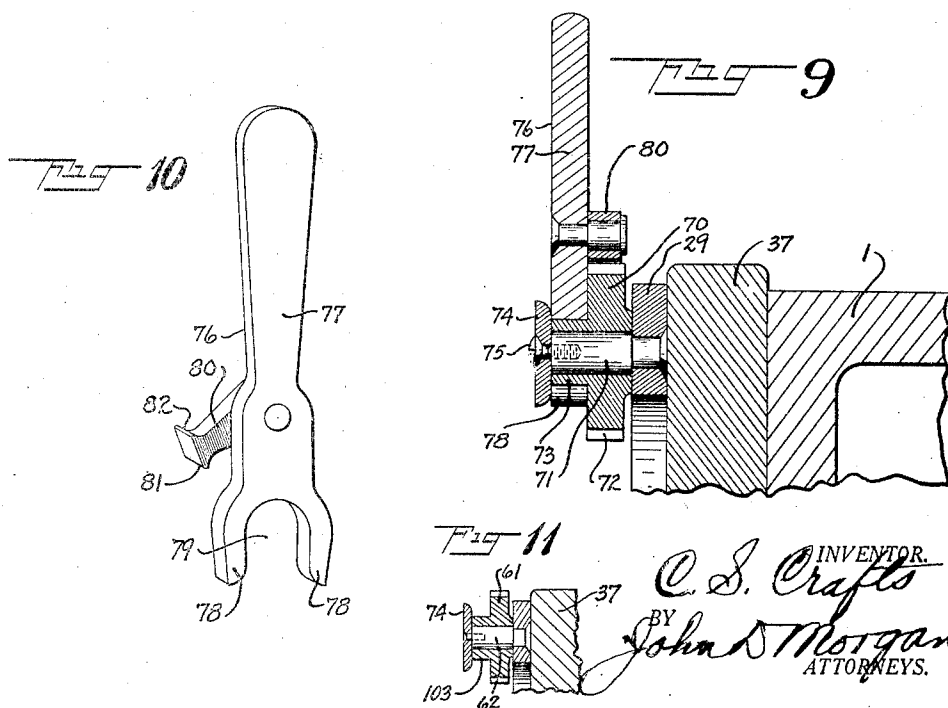
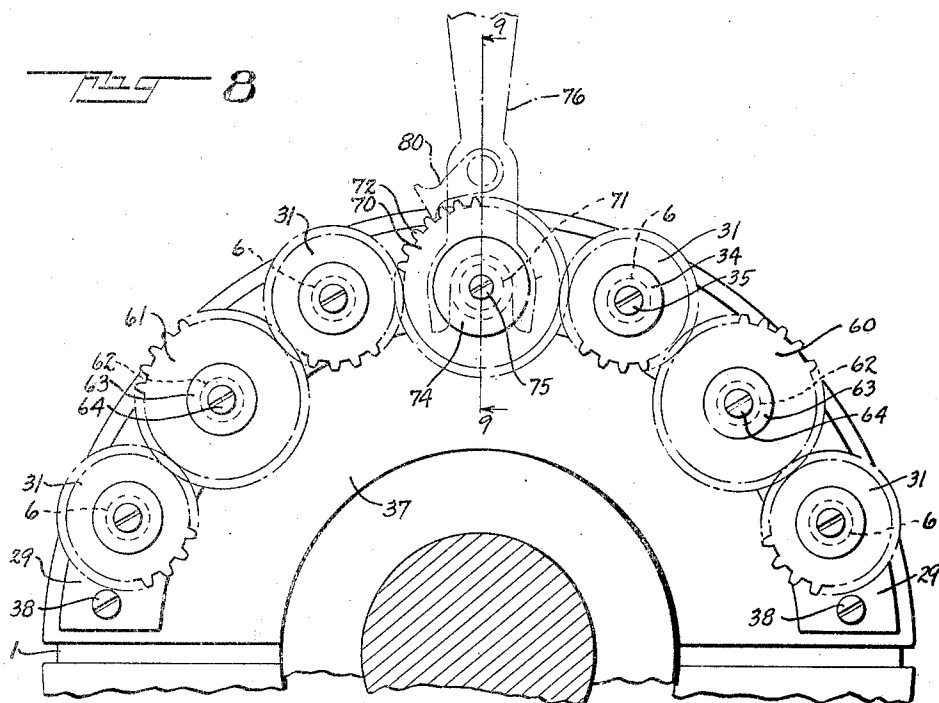
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QUICK LOCK-UP FOR PLATE CYLINDERS

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE.

CURTIS S. CRAFTS, OF OAK PARK, ILLINOIS, ASSIGNOR TO GOSS PRINTING PRESS COMPANY, A CORPORATION OF ILLINOIS.

QUICK LOCKUP FOR PLATE CYLINDERS.

Application filed May 18, 1926. Serial No. 109,816.

My invention relates to printing presses, and more particularly to a quick lock-up for plate cylinders, in which the clips can be quickly changed or adjusted to different positions, to correspond with different number of columns, or sheet widths, which may be desired to be printed on a newspaper, or other printed product.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations, articles of manufacture, and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate several embodiments of the invention, and together with the description, serve to explain the principles of the invention.

Of the drawings:—

Fig. 1 is a fragmentary end elevation of a plate cylinder equipped with one form of my invention;

Fig. 2 is a perspective view of one form of adjusting or operating member;

Fig. 3 is a fragmentary, longitudinal section on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary, longitudinal section on the line 4—4 of Fig. 1;

Fig. 5 is a similar fragmentary, longitudinal section, on an enlarged scale, showing the outer clip being adjusted on the clip rod to cooperate with a narrower printing plate having a different number of columns or sheet width;

Fig. 6 is a fragmentary end elevation of a plate cylinder equipped with a different form of my invention;

Fig. 7 is a fragmentary plan view of the plate cylinder shown in Fig. 6;

Fig. 8 is a fragmentary end elevation of a plate cylinder equipped with another form of my invention;

Fig. 9 is a fragmentary, vertical section, on the line 9—9 of Fig. 8, looking in the direction of the arrows;

Fig. 10 is a perspective view of another form of actuating or adjusting member adapted to be used with the form shown in Figs. 8 and 9;

Fig. 11 is a detail, vertical, section on a small scale of a modification.

In printing a newspaper, or other printed product, it is frequently necessary to change the clips, holding the plates on the cylinder, so that a newspaper, or other printed product, of a different number of columns can be printed. For purposes of illustration, I have shown in Fig. 4 a plate cylinder 1, having an outer printing plate 2 and an inner printing plate 3, to print a newspaper or other printed product of, say, seven columns. It is frequently desirable to quickly change the outer clips 4 and inner clips 5 to print a newspaper, or other printed product, of a different width, say, for example, six columns. While I have referred to printed products of six and seven columns, it is to be understood that these are simply illustrative for my invention is adapted to be employed to make any suitable adjustment for different sheet widths, as, for example, eight, seven or six columns. It is also adapted to make adjustments for different column widths; for example, for a sheet of eight columns 12 ems, to a sheet of eight columns 13 ems, or any other suitable adjustment can be made.

My present invention relates to adjusting simultaneously the outer clips 4 and inner clips 5 upon a plurality of clip rods 6, so as to save time, which is a very material factor in printing newspapers, or similar printed products.

The plate cylinder 1 is provided with longitudinal grooves 7 within which are mounted the clip rods 6. These rods are all alike and, therefore, only one will be described. They are formed in two parts, the outer part 8 and the inner part 9. The outer part 8 of the clip rod is provided on its exterior with male screw-threads 10 to cooperate with female screw-threads 11 in the longitudinal bore of the outer clip 4. The inner end of this section 8 of the clip rod is provided with an axial bore within which are female screw-threads 12 of one-half pitch of the male screw-threads 10 on the exterior of the outer section 8. The inner section 9 of the clip rod 6 is provided with male screw-threads 13 to cooperate with the female screw-threads 12 within the section 8 of the clip rod 6. This section 9 is also provided with a spline 14 cooperating with the end 15 of a set screw 16. The inner end of

this section 9 is provided with male screw-threads 17 which pass freely or loosely through the axial bore 18 of the inner clip 5. On this end 9 is mounted stop 19 with its check nut 20, and a stop 21 with its check nut 22.

I also preferably, but not necessarily, mount a stop 23, by means of the set screw 24, on the exterior of the portion 8 of the clip rod 6, and also another stop 25 on the exterior of the portion 8 by means of a set screw 26. If these stops 23 and 25 are employed (it is to be understood they may be omitted) they are set for the particular columnation desired and act as stops for the outer clip 4; the stops 19 and 21 acting as stops for the inner clip 5.

The portion 8 of the clip rod 6 is also provided with a shoulder 27 to serve as an abutment for the coil spring 28, one end of which bears against the shoulder and the other end bears against the end plate 29. The clip rod 6 has a smooth portion 30 which extends through the pocket 36 in the lock-up plate 37 and beyond the end plate 29. Upon the end of the clip rod 6 is mounted a driven member which, in the forms of my invention illustrated, is a gear wheel 31 having teeth 32, the same being keyed to the clip rod 6 by means of the key 33, and prevented from slipping off the clip rod by means of a washer 34 held to the clip rod by the screw 35.

The lock-up plate 37 is supported on the plate cylinder by the guide studs 39, 39. It is operated by the usual eccentric lock-up 100 (Fig. 7) by a key (not shown) being seated in the seat 101 in the usual manner. This applies to all forms illustrated.

The end plate 29 is secured to the lock-up plate 37 in any suitable manner, such as by the screws 38, 38. In one form of my invention, that illustrated in Figs. 1 to 5, I mount two pins 40, 40, locating each of these pins between a pair of driven members or gear wheels 31, 31. To cooperate with these pins and with the driven members or gear wheels 31, 31, carried by two clip rods 6, 6, I employ any suitable driving or actuating member which will operate a plurality of the clip rods 6, 6 simultaneously, to simultaneously adjust the outer clips 4 and inner clips 5 upon the respective clip rods for different widths of printing plates due to different columnation or width of sheet.

In the form of my invention, shown in Figs. 1 to 5, the adjusting or driving member 49 has a gear wheel 42, provided with teeth 43 and a ratchet lever 44 provided with a pawl 45 pivoted on the pivot 46, the pawl being provided with two teeth 47, 48. The gear wheel 42 is provided with a hub 142 having a peripheral groove 143 to cooperate with the pin 144 carried by the ratchet lever 44. This secures the ratchet lever 44 to the

gear wheel 42 and yet permits relative movement between them. When this driving or adjusting member 49 (Fig. 2) is mounted on one of the pins 40, the teeth 43 of the gear 42 will cooperate with the teeth of two of the driven members or gear wheels 31, 31, mounted upon two of the clip rods 6, 6. To adjust the outer clips 4 and the inner clips 5, it is merely necessary to operate the lever 44 and the ratchet 45, which will cause two of the clip rods 6, 6 to be rotated and operate the outer clips 4 and the inner clips 5; it being understood that the inner clips 5 will be operated at half the speed that the outer clips 4 are moved, due to the difference in pitch of the threads 10 and 12.

If stops 23 and 25 are used to limit the movement of the outer clip 4, it is understood that they have been previously adjusted and locked in position by their respective set screws 24 and 26 for the particular width of printing plates 2 and 3 to be used.

In Fig. 5 the outer clip 4 is shown being moved by the operating or driving member 49 from the outer stop 23 towards the inner stop 25 so as to cooperate with a printing plate 50 of, for example, six columns, or any other suitable width of plate due to different columnation. When the portion 8 of the clip rod 6 is being rotated, it is, of course, understood that the end 15 of the screw 16 cooperating with the spline 14 in the section 9 will prevent that section from rotating.

The stop 19 is positioned on the portion 9 of the clip rod 6 so as to leave the space 51 between it and the inner clip 5 so that when an outer plate 2 is employed, the lock-up plate 37 will transmit pressure through the end plate 29, coil spring 28, shoulder 27, section 8 of the clip rod 6, outer clip 4, outer printing plate 2, direct to the inner clip 5, and thence through the inner printing plate 3 to the center fixed clip (not shown). If no outer printing plate 2 is employed then the lock-up plate 37 operates directly upon the inner clip 5 by the stop 19 engaging with the inner clip, as in the usual manner.

To retract the outer clips 4 so as to bring them into position to cooperate with a wide printing plate 2, or against the outer stops 23, if one is employed, the pawl 45 is reversed from the position shown in full lines in Fig. 1 to the position shown in dotted lines in said figure, bringing the other tooth 47 in engagement with the teeth 43 of the gear wheel 42. The ratchet lever 44 will then be operated and cause the movement of the clips 4 in the opposite direction from that previously described.

It is, of course, understood that there are usually four clip rods 6, four outer clips 4, and four inner clips 5, making eight clips in all. In the form of my invention, shown

in Figs. 1 to 5, after simultaneously adjusting the clips on two of the clip rods 6, the adjusting or operating member 49 is slipped off of one pin 40 and positioned on the other pin 40 as shown in dotted lines in Fig. 1, where the adjustment just described would have to be repeated for the other two clip rods 6.

I have shown another form of my invention in Figs. 6 and 7, wherein the same operating or adjusting member 49, shown in Fig. 2, can be employed to operate all four of the clip rods 6 and all of the outer clips 4 and inner clips 5 simultaneously, without shifting the position of the adjusting or operating member 49.

In this form of my invention, the clip rods 6, 6 are provided with driven or gear wheels 31, 31, the same as in the form shown in Figs. 1 to 5, but in addition thereto I employ two idle gear wheels 60 and 61 between each pair of driven or gear wheels 31, 31 carried by the clip rod 6. These idle gear wheels 60 and 61 are carried by pins 62 mounted on the end plate 29 and are held in position by washers 63 and screws 64. I mount a central pin 65 on the end plate 29 in the position shown in Figs. 6 and 7. It is obvious that by slipping the adjusting or operating member 49 onto the pin 65 (Figs. 6 and 7) that its teeth 43 will cooperate with the teeth of two of the gear or driven members 31, 31 carried by two of the clip rods 6, 6. It is also clear that operating the ratchet lever 44 in the manner indicated by the arrows in Fig. 6 will cause all the gear wheels to rotate as indicated, serving to simultaneously operate all four of the clip rods 6 and with them simultaneously adjust all eight of the outer and inner clips 4 and 5. By reversing the pawl 45 and operating the ratchet lever in the opposite direction from that indicated by the arrow, the clip rods 6, 6 will be given an opposite rotation, resulting in an opposite movement of the outer and inner clips 4 and 5 respectively.

I have shown another modification of my invention in Figs. 8, 9 and 10, which is similar to that shown in Fig. 6 except that a different form of actuating or adjusting member is employed. In this form, the same idle gear wheels 60 and 61 are employed between pairs of gear wheels 31, 31 carried by a pair of clip rods 6, 6, but instead of a removable gear wheel slipping onto a pin, such as 65 shown in Fig. 6, I mount an extra or seventh gear wheel 70 mounted on a pin 71 (Fig. 9), carried by the end plate 29 and provided with teeth 72 and with a reduced portion 73. A washer 74 and a screw 75 are employed to prevent the accidental disengagement of this gear wheel 70 from its bearing pin 71.

In this form of my invention, the adjusting or operating member 76 is a ratchet lever

77, having two jaws 78 and 78, with an interposed crotch 79 which is adapted to fit over and straddle the reduced portion 73 of the gear wheel 70 and be seated thereon. The pawl 80 is provided with double teeth 81 and 82 to cooperate with the teeth 72 of the gear wheel 70. It will be apparent from this form that it is merely necessary to slip the operating or adjusting member 76 over the reduced portion 73 of the gear wheel 70 and bring one of its teeth 81 or 82 into engagement with teeth 72 of the gear wheel and operate the ratchet lever, in one direction or the other as the case may be, to rotate the seven different gear wheels shown in Fig. 8 to form a quick and simultaneous adjustment of all the outer and inner clips 4 and 5 on all four of the different clip rods 6, 6 for different widths of printing plates due to different columnation.

If desired, one or both the idle gear wheels 60 and 61 may be provided with a reduced portion 103 (Fig. 11) similar to the portion 73 of the gear wheel 70. This would permit the actuating or adjusting member 76 to engage at three different locations with the train of gear wheels to actuate them. This would be quite desirable as it would permit the train of gears to be operated without actuating the plate cylinder 1 to make the wheel 70 accessible.

In the specifications and claims, reference has been made to different number of columns or different column widths, as well as to different number of columns or width of sheet to be printed. It is to be understood that these terms are meant to, and do cover different lengths of stereotype plates regardless of the width of sheet, or the width of printed matter, or the number of columns. It is clear that you can print any number of columns with the same length plate and with the same width of printed matter and the same width of sheet by varying the widths of the columns. It is also possible to vary the width of the printed matter without varying the length of the stereotype plates or the width of the printed sheet. In such case the width of the margin would vary, as for example, by casting a blank margin on the end of the stereotype plates. By arranging the printed matter and blank margin on the stereotype castings, it would be possible to print on different widths of sheets without varying the length of the plates. Again stereotype plates are not always cast with the columns transverse to the axis of the printing cylinder. They are often cast with the columns running parallel with the axis of the cylinder. In such cases the width of the printed matter would become the length of the columns, and a shorter or longer column might necessitate a shorter or longer plate. All these uses are and are meant to be, included in the claims.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What I claim is:—

1. In a quick lock-up for plate cylinders including a plurality of outer clips a plurality of inner clips and a plurality of clip rods, each operatively associated with an outer clip and an inner clip, each clip rod being provided with a gear wheel, and a removable gear wheel adapted to operate simultaneously a plurality of said gear wheels to adjust the clips outer and inner on said clip rods for different widths of printing plates to correspond with different columnation.

2. In a quick lock-up for plate cylinders including a plurality of outer clips a plurality of inner clips and a plurality of clip rods, each operatively associated with an outer clip and an inner clip, each clip rod being provided with a gear wheel, idle gear wheels connecting the gear wheels on the clip rods, and a removable gear wheel adapted to operate simultaneously all of said gear wheels to adjust the outer and inner clips on said clip rods for different widths of printing plates to correspond with different columnation.

3. In a quick lock-up for plate cylinders including a plurality of outer clips a plurality of inner clips and a plurality of clip rods, each operatively associated with an outer clip and an inner clip, each clip rod being provided with a gear wheel, and a removable gear wheel provided with a lever and ratchet adapted to operate simultaneously a plurality of said gear wheels to adjust the outer and inner clips on said clip rods for different widths of printing plates to correspond with different columnation.

4. In a quick lock-up for plate cylinders including a plate cylinder, a lock-up plate, clip rods, outer and inner clips mounted on each of said rods, an end plate, the ends of the clip rods extending through the lock-up plate and end plate and provided with gear wheels, a removable gear wheel adapted to simultaneously operate a plurality of said

gear wheels, and means to operate said removable gear wheel to adjust the outer and inner clips on said clip rods for different widths of printing plates to correspond with different columnation.

5. In a quick lock-up for plate cylinders including a plate cylinder, a lock-up plate, clip rods, outer and inner clips mounted on each of said rods, an end plate, the ends of the clip rods extending through the lock-up plate and end plate and provided with gear wheels, a removable gear wheel adapted to simultaneously operate a plurality of said gear wheels, and a lever and ratchet to operate said removable gear wheel to adjust the outer and inner clips on said clip rods for different widths of printing plates to correspond with different columnation.

6. In a quick lock-up for plate cylinders including a plate cylinder, a lock-up plate, clip rods, outer and inner clips mounted on each of said rods, an end plate, the ends of the clip rods extending through the lock-up plate and the end plate and provided with gear wheels, idle gear wheels connecting the gear wheels on the clip rods, and a removable gear wheel, lever and pawl adapted to actuate said gear wheels to adjust all the clips simultaneously on their respective clip rods for different widths of printing plates regardless of any particular position of the plate cylinder.

7. In a quick lock-up for plate cylinders including a plate cylinder, a lock-up plate, clip rods, clips mounted on the rods, an end plate, the ends of the clip rods extending through the lock-up plate and the end plate and provided with gear wheels, a stud mounted on the end plate, and a removable gear wheel adapted to engage and be seated on said stud to actuate a plurality of said gear wheels.

8. A quick lock-up for plate cylinders including in combination a plate cylinder having a plurality of clip rods provided with plate clamping clips, a gear wheel on each clip rod, and a removable gear wheel adapted to mesh with a plurality of said gear wheels to simultaneously operate the corresponding clip rods.

In testimony whereof, I have signed my name to this specification.

CURTIS S. CRAFTS.