

Dec. 1, 1959

C. S. CRAFTS

2,915,010

STEREOTYPE PLATE HOLDING MEANS FOR PRINTING CYLINDERS

Filed Dec. 11, 1956

6 Sheets-Sheet 1

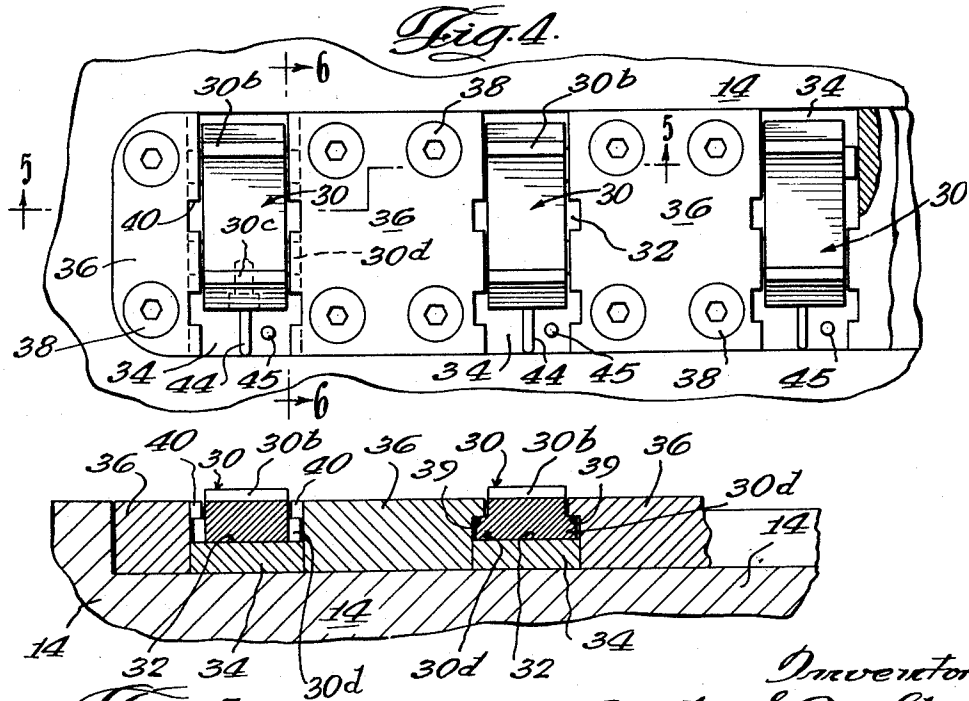
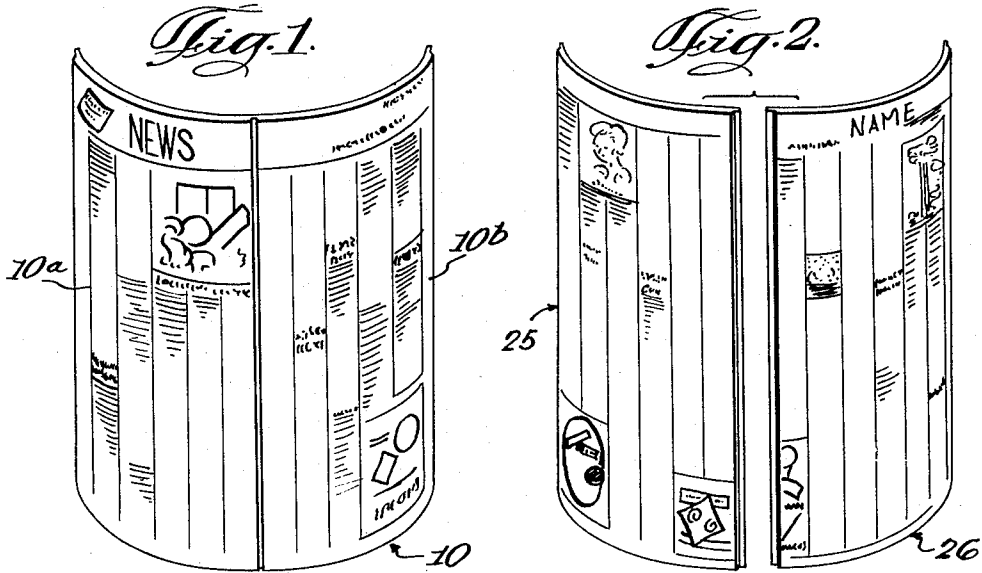


Fig. 5.

Inventor
Curtis S. Crafts

By
Carlson, Putnam, Hubbard & Hoefe
Attorneys

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6 Sheets-Sheet 2

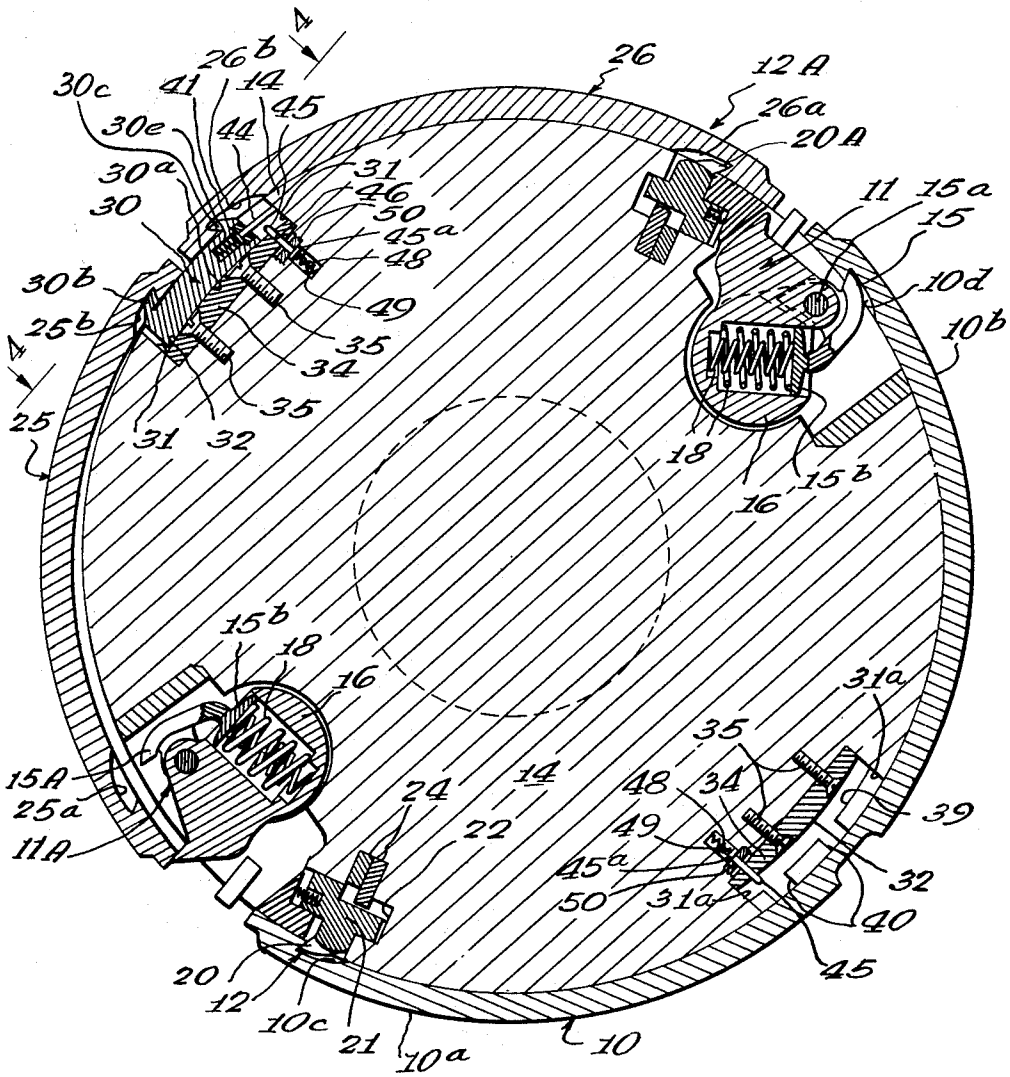


Fig. 3

Inventor
Curtis S. Crafts
By
Carlson, Putnam, Hubbard & Wolfe
Attorneys

Dec. 1, 1959

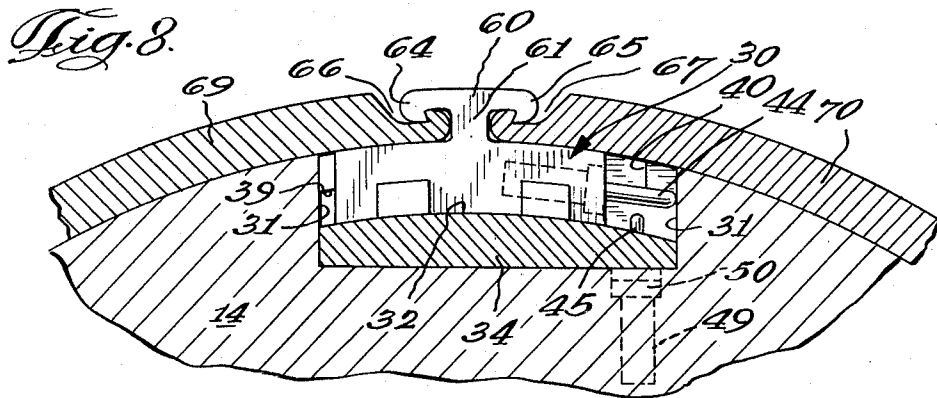
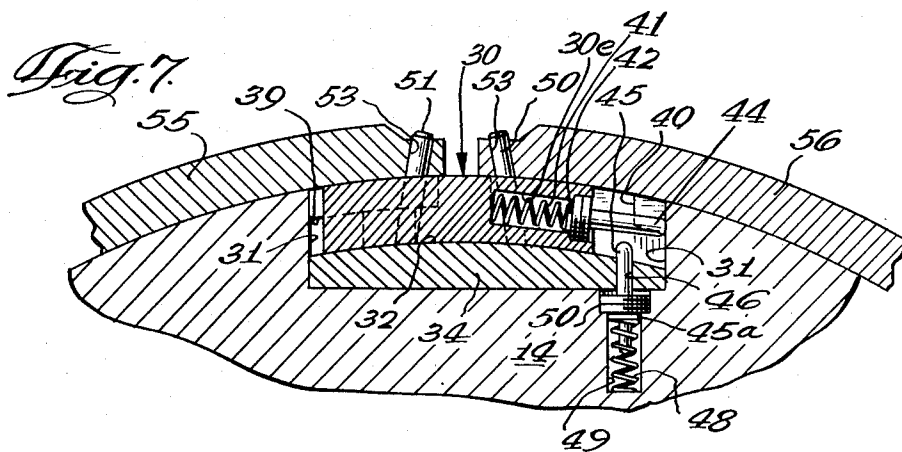
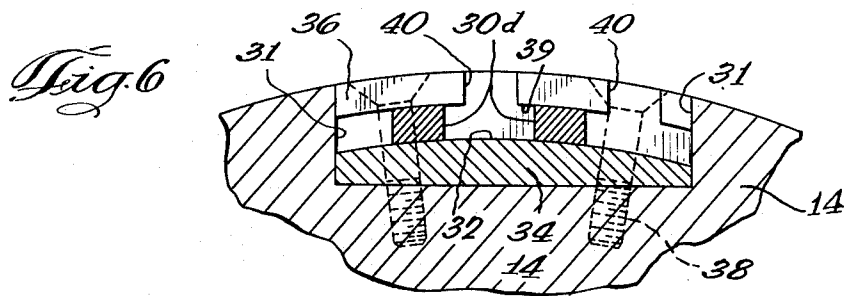
C. S. CRAFTS

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STEREOTYPE PLATE HOLDING MEANS FOR PRINTING CYLINDERS

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6 Sheets-Sheet 3



Inventor
Curtis S. Crafts

By
Carlson, Pitman, Hubbard & Waife
attorneys

Dec. 1, 1959

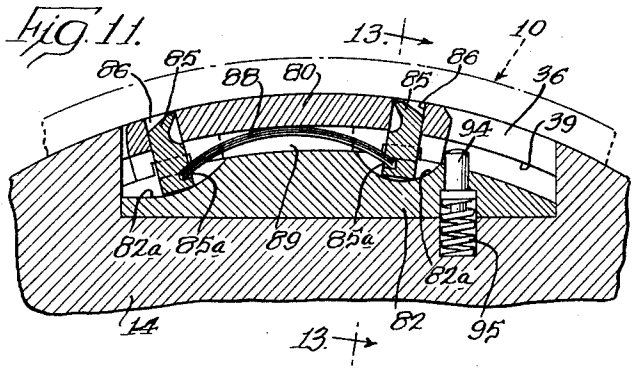
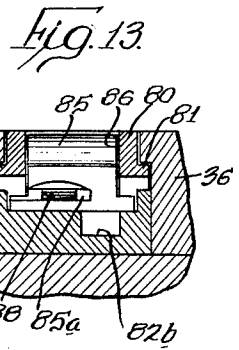
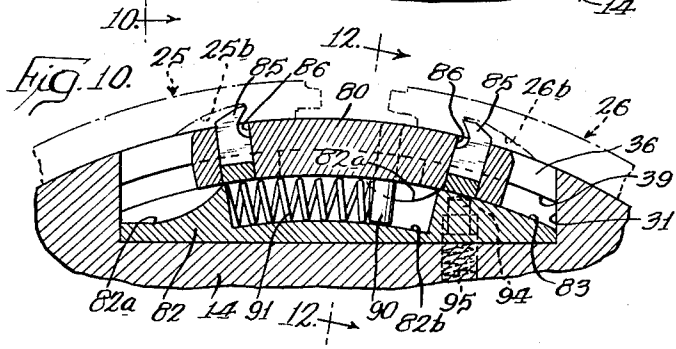
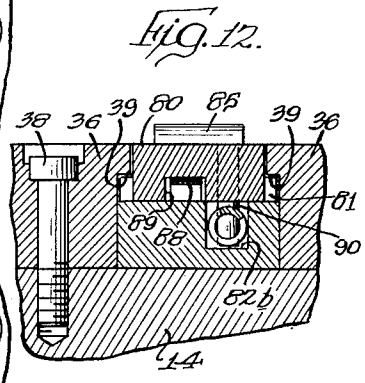
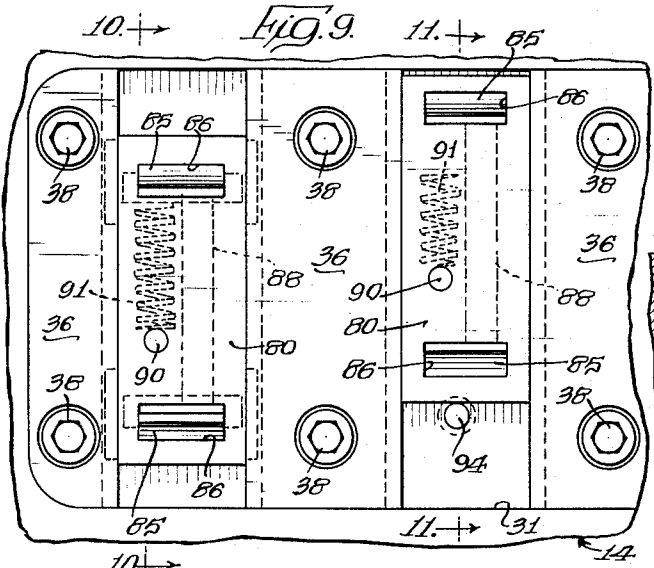
C. S. CRAFTS

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STEREOTYPE PLATE HOLDING MEANS FOR PRINTING CYLINDERS

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6 Sheets-Sheet 4



INVENTOR.
Curtis S. Crafts
BY
Carlson, Pitzner, Hubbard & Wolfe
Attys.

Dec. 1, 1959

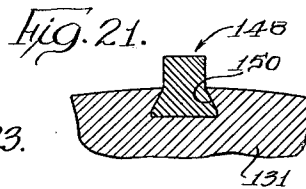
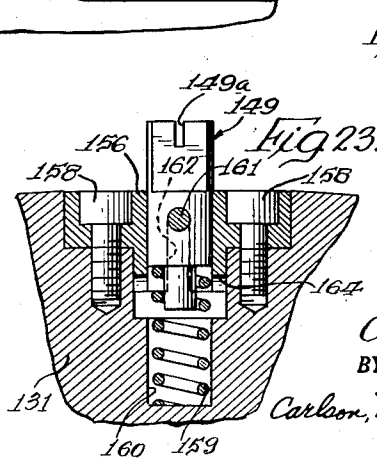
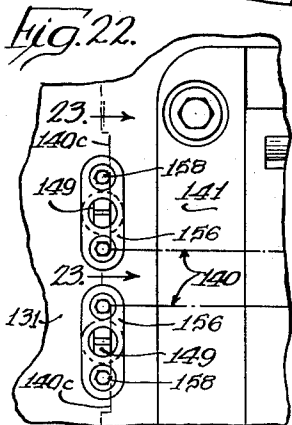
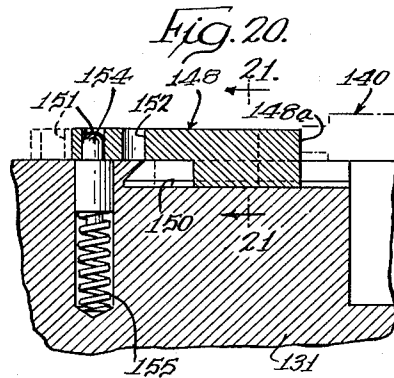
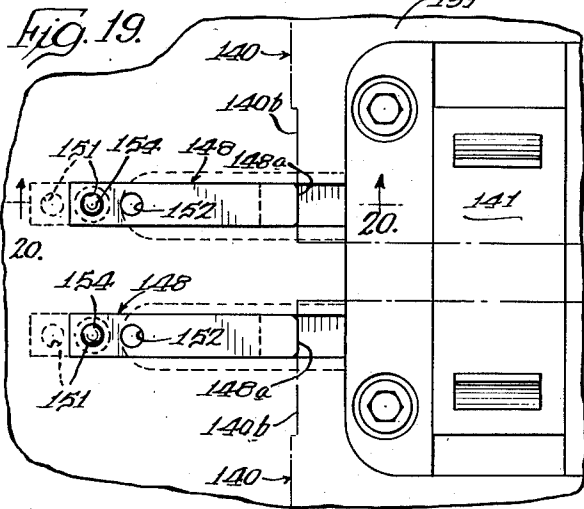
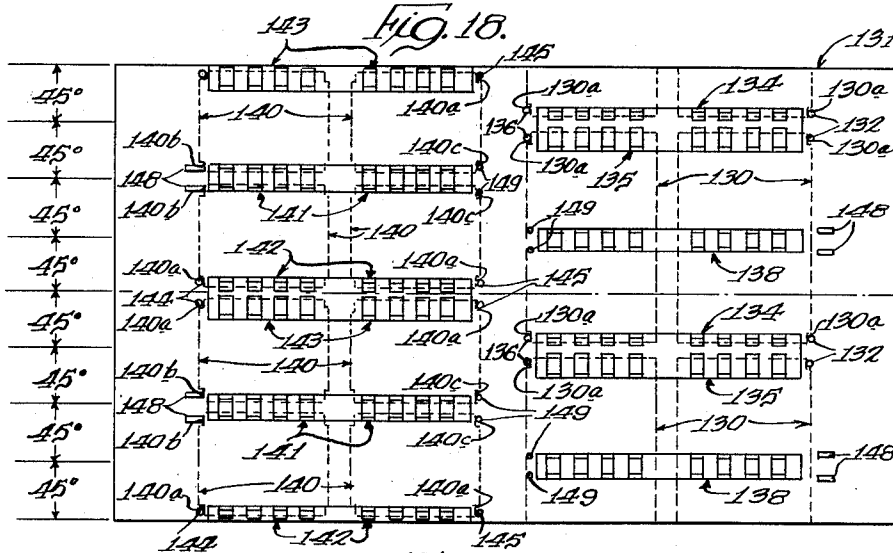
C. S. CRAFTS

2,915,010

STEREOTYPE PLATE HOLDING MEANS FOR PRINTING CYLINDERS

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6 Sheets-Sheet 6



INVENTOR.
Curtis S. Crafts
 BY
Carlson, Fitzer, Hubbard & Wolfe.
 Attys.

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2,915,010

STEREOTYPE PLATE HOLDING MEANS FOR PRINTING CYLINDERS

Curtis S. Crafts, Oak Park, Ill., assignor to Miehle-Goss-Dexter, Incorporated, Wilmington, Del., a corporation of Delaware

Application December 11, 1956, Serial No. 627,582

21 Claims. (Cl. 101—378)

The present invention relates in general to printing cylinders for holding curved stereotype printing plates under tension and with proper registry. As its general aim, the invention seeks to effect tensioned and registered lock-up of tabloid size printing plates on printing cylinders by a structurally simple arrangement which takes full advantage of tensioning and registering means normally employed to lock-up full size printing plates.

Modern newspapers are, generally speaking, given a format in either of two sizes, namely, full or regular page size newspapers and half size newspapers known as tabloids. The full size newspaper is normally printed from semi-cylindrical stereotype plates, each plate containing one full page of the newspaper with the columns running circumferentially of the cylinders on which the plates are mounted. The tabloid newspaper is also normally printed from semi-cylindrical stereotype plates, each plate containing two pages of the tabloid newspaper with the columns running lengthwise of the cylinder.

In color printing processes, the individual colors are printed in separate impressions and by separate plates prepared especially for a particular color. Four colors are commonly used and they are individually printed successively by four respective plates on the moving web in newspaper presses; the last color usually being black. The color plates must be accurately positioned on their respective plate cylinders so that each color will register accurately with previously printed colors in order to produce a satisfactory reproduction. Therefore, plate lock-up mechanism for holding a plate on a cylinder must include means for adjusting the position of a plate relative to the cylinder so that it will register accurately with the previously printed colors.

When semi-cylindrical plates containing two tabloid pages are used, one-half of the plate may print one page in a particular color and the other half of the plate may print news copy, for example, on the front page of the paper. The news content of the latter page often must be changed for different editions during a run so new plates must be prepared, but in most instances the color page will remain the same. When a new full size plate containing later news copy on one half and the same color copy on the other half is prepared, it is likely that the color copy will not be in exactly the same location on the plate with respect to the holding and registering pockets, as it was on the previous plate. Therefore, the new plate will have to be readjusted on the cylinder so that the color will be in register with previously printed colors, before the later edition can be run off. This adjusting is tedious and time-consuming because it has to be done by the "cut and try" method. Changes in position of news copy on the new plate and printed page will not be noticeable and can be disregarded, but the color must be registered within a small fraction of an inch so that colors will not be overprinted.

With the increased use of four-color printing in the newspaper field, it has been proposed to print certain

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pages of tabloid newspapers from smaller individual plates, each of which extends approximately one-quarter of the way around the cylinder and contains one page of the newspaper. The use of such quarter-cylinder plates is relatively simple where the compression type of plate lock-up is used. However, in the case where the plate cylinders are equipped with tension lock-up, designed to hold semi-cylindrical plate on a cylinder under tension by hook means engaging pockets on the undersides near the longitudinal edges of the plate, certain complications arise.

It would be possible to effect mounting of these individual page tabloid size plates by duplicating the relatively complex and expensive full size plate mounting means. This would impair the structural rigidity of the cylinder which is not desirable and this invention is intended to overcome both the unnecessary duplication of parts and the impairment of the rigidity of the cylinder.

It is an important object of this invention to eliminate the foregoing difficulties by providing means for mounting individual, tabloid size printing plates under tension and with proper registry and axial position on a cylinder, thereby permitting the content of any single page to be changed by replacing only an individual tabloid size plate for that page.

Other objects are to make the changing of a printing plate for a tabloid page faster, more convenient, and more economical than has been possible in the past; to permit the lock-up of full size plates on the same cylinder if that is desired; to effect mounting of individual tabloid size plates without duplicating the relatively complex and expensive full size plate mounting means; to afford precise axial location of either full size or tabloid size plates on a cylinder; and to leave the printing cylinder itself substantially unchanged and unimpaired as regards its structural rigidity.

Additional objects and advantages will become apparent as the following description proceeds taken in conjunction with the accompanying drawings in which:

Figure 1 is a perspective view of a full size stereotype printing plate for printing two tabloid size pages;

Fig. 2 is a perspective view of two tabloid size stereotype printing plates;

Fig. 3 is a cross section of an exemplary printing cylinder equipped with tabloid plate holding means embodying the features of the present invention;

Fig. 4 is a fragmentary plan view taken substantially along the line 4—4 in Fig. 3 with printing plates removed and illustrating the details of the improved plate holding means;

Figs. 5 and 6 are fragmentary sections taken substantially along the lines 5—5 and 6—6 respectively in Fig. 4;

Figs. 7 and 8 are fragmentary cross sectional views of printing cylinders, respectively illustrating second and third embodiments of the plate holding means;

Fig. 9 is a fragmentary plan view of a part of a printing cylinder, illustrating a fourth embodiment of the plate holding means;

Figs. 10 and 11 are fragmentary sectional views taken along the lines 10—10 and 11—11 in Fig. 9 and showing the plate holding means in the raised and stowed positions, respectively;

Figs. 12 and 13 are fragmentary detail views taken substantially along the lines 12—12 and 13—13 in Figs. 10 and 11, respectively;

Fig. 14 is in general similar to Fig. 9, except that it illustrates a fifth embodiment of the plate holding means;

Figs. 15 and 16 are fragmentary sectional views taken along the lines 15—15 and 16—16 in Fig. 14 and show-

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ing the plate holding means in raised and stowed positions, respectively;

Fig. 17 is a detail view in section, taken substantially along the line 17—17 in Fig. 15;

Fig. 18 is a diagrammatic developed view of a double-width plate cylinder with full size plates mounted on the right end and tabloid size plates mounted on the left end thereof to illustrate the "stagger" of the plate holding means and the use of improved stop means for axially locating either type of plate;

Fig. 19 is a fragmentary plan view of the printing cylinder, particularly showing outside plate stops;

Figs. 20 and 21 are fragmentary sectional views, taken along the lines 20—20 and 21—21 in Figs. 19 and 20, respectively, and showing details of the outside plate stops;

Fig. 22 is generally similar to Fig. 19, but illustrates inside plate stops; and

Fig. 23 is a fragmentary sectional view taken substantially along the line 23—23 in Fig. 22.

Although the invention has been shown and is described in some detail with reference to particular embodiments thereof, there is no intention that it thus be limited to such detail. On the contrary, it is intended here to cover all modifications, alternative constructions and equivalents falling within the spirit and scope of the invention as defined by the appended claims.

Referring now to the drawings, Fig. 1 illustrates for purposes of background understanding a full size, substantially semi-cylindrical stereotype printing plate 10 molded to have two half portions 10a, 10b with raised type for printing two respective tabloid pages. Printing plates such as here shown at 10 are commonly provided with undercut pockets 10c, 10d near their edges for engagement with tensioning means 11 and registering means 12 on a plate cylinder 14 (Fig. 3). The cylinder 14 and the plate holding means 11, 12 circumferentially spaced thereon may take any of a variety of forms. Preferably, and by way of example, the printing cylinder and the plate holding means may be constructed and arranged as disclosed in Chase et al. Patent 2,639,668 and Chase application Serial No. 340,267, filed March 4, 1953, to which reference may be made for further details.

Briefly, the cylinder 14 itself is made as a unitary metal piece and provided with circumferentially spaced axially extending passages for receiving the tensioning means 11 and registering means 12. The tensioning means 11 may take the form of a plurality of tension hooks 15 spaced axially along the cylinder and engageable in the pockets 10d along the underside of the printing plate 10. As shown in Fig. 3, the hooks 15 are pivoted as at 15a to a shaft 16 journaled in and running longitudinally of the cylinder, the shaft being rocked between locked and unlocked positions by suitable means which need not be described in detail. The tension hooks 15 have integral arms abutting cover plates 15b bearing against compression springs 18 disposed in transverse bores in the shaft 16 so that the hooks are biased counterclockwise about the pivot connection 15a. Prior to mounting the plate 10, the shaft 16 is rocked clockwise to retract the hooks 15 beneath the surface of the cylinder. With the plate in place on the registering hooks, the shaft 16 is again rocked counterclockwise to bring the hooks 15 into firm engagement with the plate pockets 10d, the hooks themselves rocking clockwise about the pivot connection 15a to compress the springs 18 which thus exert a strong tensioning force holding the plate 10 to the surface of the cylinder.

At its opposite end, the plate is anchored by the registering means 12, which, as shown, may take the form of a plurality of register hooks 20 spaced axially along the cylinder and adjustable circumferentially thereof. For purposes of such adjustment, each pair of the register hooks 20 is integral with a bar 21 dis-

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posed with freedom to shift substantially circumferentially of the cylinder in a slot 22 cut into the latter. Each of the bars 21 is adjustable within the slot 22 in response to longitudinal adjustment of respective strips 24. As explained more fully in the above-mentioned co-pending Chase application the strips 24 may be longitudinally positioned by means of a rack and pinion mechanism (not shown) at one end of the cylinder, and may have camming engagement with the respective hook bars 21 so that the latter may be individually adjusted circumferentially of the cylinder. Thus, the hooks 15 engaged with one end of the plate 10 serve to tension it firmly against the cylinder surface, the opposite end of the plate being anchored by the register hooks 20 which, upon adjustment thereof, cause movement of the plate relative to the cylinder in order to bring the type on the plate surface into proper registry.

The printing cylinder illustrated in Fig. 3 is adapted by virtue of two sets of tensioning means 11, 11A and two sets of registering means 12, 12A to lock-up and hold two full size, semi-cylindrical stereotype printing plates. In order to mount four substantially quarter cylinder or tabloid size printing plates, it would be possible to simply duplicate the tensioning and registering means here illustrated. However, that would necessarily involve multiplication of relatively complex parts, incurring substantially increased costs and considerably lessening the strength of the cylinder itself owing to the necessity of cutting additional and rather large axial passages therein. Moreover, it would necessarily limit a printing cylinder so provided with additional tensioning and registering means to use only with individual tabloid size printing plates so that full size plates could not be mounted on the cylinder if it might be desirable to do so.

In accordance with the present invention, provision is made for mounting two tabloid size printing plates on a printing cylinder optionally in lieu of one full size printing plate by connecting the respective remote edges of the two tabloid plates to the existing registering and tensioning means and by linking the adjacent edges of the two plates together through means located on the cylinder circumferentially between the registering and tensioning means, such linking means having freedom to shift in unison circumferentially of the cylinder.

As illustrated in Figs. 2 and 3, two individual tabloid size printing plates 25 and 26 are substantially similar to the full size plate 10, except that they are half size, i.e., approximately quarter cylinders. The two straight edges of the plate 25 are provided with undercut pockets 25a and 25b, while the two straight edges of the plate 26 are similarly provided with anchoring pockets 26a and 26b. The plate 26 may be intended, for example, to print black as the last color on a colored advertisement forming the last page of a tabloid newspaper, while the plate 25 may contain news copy for the front page of the newspaper.

When the plate 25 is replaced to make changes in the front page news with successive editions of a newspaper, it will be possible to leave the plate 26 in place on the printing cylinder. However, it is necessary that the plate 26 be maintained in its previous position of registration in order that the black color which it prints on the last page of the newspaper will match other colors previously printed thereon.

In accomplishing these objectives, the embodiment of the invention as shown by Figs. 3-6 comprises linking pieces 30 which are mounted flush with the surface of the cylinder 14 circumferentially midway between the tensioning means 11A and the registering means 12A, the linking pieces having freedom to shift, at least to a limited degree, circumferentially of the cylinder and being provided with fastening means for engagement

with the adjacent respective edges of the two tabloid size plates 25 and 26.

For the purpose of so mounting the linking pieces 30, the cylinder 14 is formed with an axial slot 31 having a floor or bottom surface 32 which is preferably arcuate and concentric about the axis of the cylinder. For convenience in machining and assembly, the axial slot itself may be cut with a flat floor along a chord of the cylinder, and filler pieces 34 held by suitable countersunk screws 35 within the slot. Each filler piece itself has a curved upper surface defining the arcuate floor 32. Each linking piece 30 is formed to be narrower in a circumferential direction than the slot 31 and to have an arcuate bottom surface 30a which is slidable on the floor 32 circumferentially of the cylinder.

For holding engagement in the pockets 25b and 26b on the undersides of the two tabloid plates 25, 26, the linking piece has integral hook members 30b and 30c projecting above the surface of the cylinder and which are shaped somewhat similarly to the tensioning hooks 15 and registering hooks 20. It will be apparent that a plurality of such linking pieces 30 may be mounted in axially spaced relation along the slot 31 for engagement with the individual pockets of one or more tabloid plates which may be mounted in the side-by-side relation over one-half the length of the printing cylinder.

Means are provided which not only retain the linking piece 30 in the slot 31 but which permit its quick removal. For this purpose, a plurality of cover plates 36, curved on their outer surfaces to match the contour of the cylinder, are alternately spaced between successive linking pieces in the slot 31 and held by suitable means such as countersunk machine screws 38 threaded into the cylinder itself. Each of the cover plates 36 is undercut at its edge to define, with the floor 32, an arcuate groove 39 (Figs. 5 and 6). Notches 40 are cut in the cover plates leading radially into the arcuate grooves 39, and the linking pieces 30 are formed with corresponding integral retaining projections 30d which may be slipped through the notches 40 and thereafter slide circumferentially in the grooves 39. It is but a simple matter, therefore, to mount the linking piece 30 on the cylinder. The retaining projections 30d need only be aligned with the notches 40, slipped therethrough, and the linking piece shifted circumferentially so that the projections slide into the arcuate grooves 39.

In the use of this plate holding arrangement, the two tabloid size printing plates 25 and 26 are placed on the cylinder 14 with the tensioning hooks 15A and the registering hooks 20A engaged in the pockets 25a and 26a near their remote edges. The hooks 30c and 30b are engaged respectively in the pockets 25b and 26b near the adjacent edges of the two plates 25, 26. With the tension hooks 15A exerting a circumferential pull on the plate 25, this tension is transferred from that plate to the linking piece, and through the linking piece to the plate 26 and thus to the register hooks 20A. It is possible, therefore, to tension and register the two tabloid size plates 25 and 26 as a unit in a manner similar to that by which the full size plate 10 is locked to the cylinder. If it is desired to replace the plate 25, it is only necessary to momentarily release the tensioning hooks 15A, substitute a new plate for the plate 25, and then re-engage the tension hooks. The plate 26 is thus left on the cylinder in its previous position of registration because the respective positions of the registering hooks 20A need not be disturbed. In color printing, therefore, the plate 26 would continue to have its original registration with previously printed colors.

To be assured that the plate 26 will be held on the cylinder 14 when the plate 25 is removed, means acting on the linking pieces are provided for maintaining the plate 26 under a certain amount of tension. This is desirable in some instances since tensioning hooks 15A are not effective when plate 25 is removed and the linking piece could

otherwise move toward the registering hooks 20A and release hooks 30c from pockets 26b. Such tensioning is accomplished by forming a transverse bore 30e in each of the linking pieces 30 which receives a compression spring 41 bearing against a head 42 (Fig. 3) on a plunger 44. The latter is thus urged against the side of the slot 31, tending to move the linking piece in a counterclockwise direction (away from the registering hooks) as shown. This creates a certain amount of tension in the plate, holds it in position and maintains previous registration after a new plate is put on the cylinder to replace plate 25. The biasing force of the spring-plunger combination also acts to prevent the linking pieces from moving far enough in a clockwise direction as shown in Fig. 3 when no printing plates are in position, so that the projections 30d line up with notches 40, in which case the linking pieces could come out of the arcuate grooves 39.

When it is desired to remove both plates 25 and 26 for replacement, plate 25 is first removed by rotating shaft 16 to a position in which hooks 15A are withdrawn from undercut pockets 25a and the plate lifted off of the hooks 30b and the cylinder. Next, the linking pieces are moved against the force of the spring and plunger 44, 41. The plate 26 may be removed by shifting it with the linking piece, lifting it first from the register hooks 20A, and then lifting it from the hooks 30c. Alternatively, the plate 26 may be held stationary when the linking piece 30 is shifted against the bias of the spring 44, the plate being first lifted from the hooks 30c and then lifted from the register hooks 20A.

In order to assure that the linking pieces 30 are not shifted against the biasing spring 41 to such an extent that the projections 30d might become aligned with the notches 40, a limiting pin 45 is disposed in yieldable, upwardly projecting relation from the floor of the slot 32. As here illustrated in Fig. 3, the pin 45 slidably projects through a hole 46 in the filler piece 34, and has a collar 45a engaged by a compression spring 48 disposed within a bore 49 machined in the cylinder itself. An exteriorly threaded nut 50 limits the upward movement of the pin 45 under the influence of the compression spring 48.

At the time that the linking piece 30 is inserted into the slot 31, the pin 45 is depressed against the force of the spring 48. As soon as the linking piece is shifted circumferentially away from the pin, it snaps upwardly to limit the return movement of the linking piece. To remove the linking piece it is only necessary to manually depress the pin 45, and pull the linking piece against the force of the biasing spring 41 until the retaining projections 30d are aligned with the notches 40. The linking piece is then simply lifted out of the slot.

It is also important to notice that the present tabloid plate holding means will permit the cylinder 14 to mount full size printing plates when that is desired. It is only necessary to quickly remove the several linking pieces 30, as described above, so that nothing projects above the surface of the cylinder 14 except the tensioning hooks 15 and registering hooks 20 which are thus left free to hold a full size plate 10 as explained above. This has been illustrated in Fig. 3 wherein the linking pieces are left out of the slot 31a in order that the full size plate 10 might be locked on the cylinder. If it were desired to replace the full size plate 10 with two individual tabloid size plates, it would only be necessary to insert linking pieces into the slot 31a, in the manner described, and to connect the adjacent edges of the two tabloid size plates with the hook members on the linking pieces.

Turning now to the modified embodiment shown by Fig. 7, it is possible and within the scope of this invention to connect the tabloid size plates to the circumferentially slidable linking piece in various ways. As illustrated in Fig. 7, the linking piece is equipped with a pair of upstanding, slightly inclined pins 50 and 51 which may be inserted in corresponding holes 52, 53 drilled through the adjacent edges of two tabloid size printing plates 55 and

56. Other than this difference, the function of the linking piece and its advantages are the same.

Fig. 8 shows still another modification, particularly in the manner of connecting the linking piece with adjacent edges of two tabloid size printing plates. As there illustrated, the linking piece may be formed with an integral shoe 60 supported by a central upstanding web 61. The shoe 60 is formed with downwardly and inwardly turned edges forming inverted hook members 64 and 65 which are engageable in mating slots 66, 67 milled in the upper surface of two tabloid size printing plates 69 and 70. With this connection between the linking piece and the tabloid size plates, the function and advantages noted above are substantially the same.

Referring now to Figs. 9-13, a fourth embodiment of the plate holding means is there illustrated, being characterized particularly by a structural arrangement which permits either a full size or a tabloid size plate to be mounted on the cylinder without the necessity for adding or removing any parts such as the linking pieces 30 described above in connection with Figs. 1-8. Insofar as parts for this embodiment are similar to the parts described in connection with the embodiment of Figs. 1-6, the same reference characters have been employed.

Figs. 9-13 fragmentarily illustrate the printing cylinder 14 which has the axial slot therein located circumferentially inbetween registering and tensioning hooks, as previously described. Cover pieces 36 are axially spaced apart in the slot 31 and are undercut at their edges to define the arcuate grooves 39. In this instance, however, the cover pieces do not have notches opening radially into such grooves, because it is not necessary to remove linking pieces, as will be made clear presently.

In this embodiment, linking pieces 80 are formed with retaining projections or ears 81 which are slidably disposed in the arcuate grooves 39, the linking pieces being curved and disposed in the slot 31 with freedom to shift circumferentially of the cylinder 14. The linking pieces 80 are supported by, but slidably relative to, filler pieces 82 disposed within the slot 31 and presenting an upper, arcuate floor 83 which is concentric about the axis of the cylinder.

For engaging the undercut pockets 25b, 26b in the adjacent edge portions of the two tabloid size plates 25, 26, linking hooks 85 are carried at opposite ends of the linking pieces in such manner that they may be optionally raised above or retracted below the surface of the cylinder. For this purpose, each of the linking pieces 80 is formed with a pair of openings 86, which extend radially of the cylinder and slidably receive the shanks of the hooks 85. The linking hooks 85 are formed at their lower ends with notches 85a which receive the opposite ends of a leaf spring 88. The latter serves as a biasing means for urging the hooks radially inward toward the center of the cylinder and thus to a position in which they are retracted beneath the surface of the cylinder 14 (Fig. 11). The leaf spring 88 bears at its center portion against the upper wall of an arcuate passage 89 cut into the linking piece, so that in tending to curl, the leaf spring tends to retract the hooks 85 to the position shown in Fig. 11.

To permit the hooks 85 to be retracted when the linking pieces 80 are shifted to a first circumferential position, the filler pieces 82 are formed with a pair of recesses 82a. These recesses are preferably smoothly curved to define camming surfaces which will urge the hooks 85 outwardly as the linking pieces are shifted circumferentially to the position shown in Fig. 10.

Thus, with the linking pieces 80 shifted to that circumferential position shown at the right in Fig. 9, and shown by Fig. 11, the leaf springs 88 positively urge the hooks 85 to a retracted position beneath the surface of the cylinder 14. However, if the linking pieces 80 are shifted circumferentially to the position shown at the left in Fig. 9, and shown in Fig. 10, the lower edges of the hooks 85 are cammed upwardly by the curved surface of the re-

cesses 82a so that they rest on the floor of the filler pieces 82 and are positively held in a raised position, projecting above the surface of the cylinder 14 so that they may readily engage the undercut pockets in the adjacent edge portions of the two tabloid size plates 25, 26.

In some instances it is desirable to bias the linking pieces circumferentially toward the register hooks 20A, rather than toward the tensioning hooks 15A as shown and described with reference to Figs. 3, 7 and 8. For in certain press installations, the working room available for placing the plates 25 and 26 on or removing them from the cylinder 14 is so limited that it is preferable to completely unlock both plates when the tensioning hooks 15A are released.

Accordingly, in the form illustrated by Figs. 9-13, the linking pieces 80 are biased circumferentially in a clockwise direction (Fig. 10), i.e., toward the register hooks 20A (Fig. 3). This is accomplished in the present instance by the provision of arcuate slots 82b cut into the filler pieces 82. Pins 90 are press-fitted into the linking pieces 80 so that they project into the slots 82b, and coiled compression springs 91 are interposed between those pins and the opposite end walls of the slots. Thus, the linking piece 80 is normally urged to the right as viewed in Fig. 10.

When the tension hooks 20A (Fig. 3) are engaged with the opposite end of plate 25, the spring 91 (Fig. 10) will be compressed and the position of the two plates 25, 26 determined solely by the registering and tensioning means. On the other hand, when the tension hooks 20A (Fig. 3) are released from the plate 25, the linking pieces 80 will shift automatically to the right (Fig. 10), so that the linking hooks 85 move out of the pockets 26b, so that both the plates 25 and 26 may be simply lifted from the cylinder 14.

Means are provided to releasably lock the linking pieces in one of their two circumferential positions, i.e., to hold the linking pieces against the biasing force of the springs 91 in the position illustrated by Fig. 11 which permits the springs 88 to retract the linking hooks 85. As here illustrated, such releasable locking means take the form of detents 94 slidably projecting through the filler pieces 82 and urged radially outwardly of the cylinder by compression springs 95 disposed in aligned bores of the cylinder and filler pieces. Thus, as viewed in Fig. 11, the upwardly projecting detent 94 engages the right edge of the linking pieces 80 and holds the latter in the circumferential position shown. When it is desired to shift the linking pieces to their second circumferential position illustrated by Fig. 10, the detents 94 are simply depressed so that they clear the linking pieces 80 and the spring 91 urges the latter to the right. The detent 94 then is held in the retracted position by engagement with the bottom surface of the linking piece. To retract the hooks 85 it is only necessary to shift the linking pieces against the bias of the springs 91 to the position shown in Fig. 11, after which the detents 94 automatically move upwardly under the influence of the spring 95 to hold the linking pieces in that position.

From the foregoing, it will be seen that the embodiment illustrated by Figs. 9-13 does not require the removal or replacement of any parts in order to permit the mounting of either full size plates or tabloid size plates on the printing cylinder. If full size plates are to be mounted, the linking pieces 80 are simply shifted to that circumferential position shown by Fig. 11, the linking hooks 85 thus being retracted below the surface of the cylinder 14 where they will not interfere with the full size plates. On the other hand, when it is desired to mount tabloid size printing plates, the linking pieces 80 are simply shifted circumferentially to the position shown by Fig. 10, the linking hooks 85 automatically being raised above the surface of the cylinder 15 where they are readily engaged in the undercut pockets of two tabloid size plates. This change, i.e., the adaption of the

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cylinder so equipped with linking pieces to accommodate either full size or tabloid size plates, is rapidly and conveniently carried out; it may be accomplished in a matter of only a few seconds.

A fifth embodiment of the plate holding means is depicted in Figs. 14-17, being generally similar in its function and advantages to the embodiment previously described in connection with Figs. 9-13. Insofar as like parts appear in Figs. 14-17 as in Figs. 1-6, the same reference characters have been used.

In this fifth form of plate holding means, the cylinder 14 is formed with an axial slot 31, and undercut coverpieces 36 are held spaced apart within the slot by machine screws 38, as previously described. The undercut edges of the coverpieces 36 define with the arcuate floors 100 of filler pieces 101 the arcuate grooves 39. Linking pieces 102 are disposed within the groove 31 and intermediate the coverpieces 36, having freedom to shift circumferentially of the cylinder. As here shown, those linking pieces 102 have rollers 104 journaled on pivot pins 105 fixed at their opposite ends. The rollers 104 ride in the arcuate grooves 39, so that the linking pieces 102 are substantially flush with the surface of the cylinder 14 and are retained in such positions, but with freedom to shift circumferentially of the cylinder.

In the present arrangement, means are provided which are optionally movable between first and second positions in which they are respectively raised above or retracted beneath the surface of the cylinder 14, such means being adapted, when raised, to engage the adjacent edge portions of two tabloid size printing plates. As here shown, such means take the form of linking hooks 107 which are received within tapered openings 108 cut into the opposite edges of the linking pieces and which have hub portions 107a journaled on the pins 105. Since the openings 108 are relatively wide at their upper portions, the linking hooks 107 may be rocked or pivoted about the pins 105 between two positions. When in the raised position (shown at the left in Fig. 14 and in Fig. 15), the hooks may be engaged in the pockets 25b, 26b, which as previously described, are undercut in the adjacent edge portions of two tabloid size printing plates 25 and 26. On the other hand, when it is desired to mount a full size printing plate 10 (as shown in dot-dash outline in Fig. 16), the linking hooks 107 may be rocked about the pivot pins 105 until they are retracted beneath the surface of the cylinder 14 so as to present no obstacle to the full size plate.

It is but a simple matter to move the linking hooks 107 either to their raised or retracted position. In order to lock the hooks in either position, pins 110 are slidably disposed within bores drilled into the linking pieces 102, and biased by springs 109 which urge an integral detent 111 into either of two small holes 107b, 107c drilled in the hub portions 107a. Formed integrally or welded to the pins 110 are upstanding fingers 112 which project into the openings 108. Simply by inserting a screw driver or any suitable tool into the openings 108 to engage the fingers 112 and shift pins 110 rearwardly against the bias of the springs 109, the detents 111 may be withdrawn from engagement with the holes in the hubs 107a. Once the detent is withdrawn the associated hook 107 may be rocked to either of its positions and the detent when released snaps into the particular locking hole 107b, 107c which is then aligned therewith.

For exerting a biasing force on the linking pieces 102 to urge them circumferentially of the cylinder, the filler pieces 101 have recesses 114 with a bottom, curved socket portion 115. In the central portions of the linking pieces, a headed nut 116 is screwed into a tapped opening 118, the nut having a curved socket 119. A compressible, telescoping toggle link 120 having curved head portions 120a is disposed between the sockets 115 and 119, and a compression spring 121 interposed between the heads 120a, tending to bias the latter apart.

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As a result, the linking pieces 102 are biased by the springs 121 to the right as viewed in Figs. 15 and 16, although by circumferentially shifting the linking piece to the left, the toggle link 120 may be shifted over dead center, so that the spring 121 then biases the linking pieces in the opposite circumferential direction. As explained previously, the biasing force urging the linking pieces in a circumferential direction toward the tensioning hooks 15A (Fig. 3) permits the plate 25 to be removed while the other plate 26 remains under tension. On the other hand, if the biasing force is in the opposite direction, as shown in Figs. 15 and 16, both plates 25 and 26 are unlocked automatically when the tensioning hooks 15A (Fig. 3) are released.

In the arrangement shown in Figs. 14-17, it is but a simple operation, requiring only a few seconds, to shift the linking hooks 107 between their raised and retracted positions, thus permitting either two tabloid size plates (Fig. 15) or a full size plate (Fig. 16) to be mounted on the printing cylinder 14. No parts have to be inserted into or removed from the printing cylinder, and yet either full size or tabloid size plates may be accommodated thereon without the duplication of the registering and tensioning means and without cutting an appreciable amount of material from the cylinder so as to weaken it.

Thus far there has been described different embodiments of tabloid plate holding means which permit a printing cylinder to mount either full size or tabloid size plates under tension and with proper registry, the holding means being simple and taking full advantage of the registering and tensioning means which are normally provided on a cylinder. A further problem arises, however, in the optional mounting of either tabloid or full size plates on any given cylinder, in that the plates in either instance must have the proper location along, i.e., axially of, the cylinder.

To axially locate full size plates on the plate cylinder, the prior practice has been, particularly for color printing, to trim or cut a notch at the corners of the plates in order to create a definite spacing between the edge of the plate and the type impressions thereon. These corners are then butted against fixed stop pins anchored on and projecting above the surface of the cylinder adjacent the registering and tensioning means. This may be better understood from Fig. 18 where full size printing plates 130 (shown by dashed lines) are mounted on the right half of a double width printing cylinder 131 shown in developed form. It will be seen that the outside row of full size plates 130 (adjacent the right end of the cylinder) have notches 130a cut at their outside corners, the surface of these notches being axially butted against fixed outside stop pins 132 which are adjacent registering means 134 and tensioning means 135. Similarly, those plates 130 in the inside row on the right half of the cylinder 131 have notches 130a cut at their inside corners to axially abut fixed inside stop pins 136. Thus, with the surfaces of the notches 130a trimmed to have a predetermined, desired spacing from the edge of type impressions on the full size plates 130, and with the outside plates butted against the stop pins 132 and the inside plates 130 butted against the inside stops 136 before the plates are locked under tension, the axial position of the plates relative to cylinder and the type impressions on the plates relative to the paper web to be printed are accurately established.

It may be observed here that the cylinder 131 at its right half is equipped with tabloid plate holding means 138 located circumferentially intermediate the tensioning and registering means 135, 134, those tabloid plate holding means being constructed according to any of the embodiments previously described. In order to permit mounting of full size plates 130, the tabloid plate holding means 138 are retracted beneath the surface of the cylinder 131 or removed therefrom in a manner which has previously been made clear.

When it is desired to mount tabloid size plates 140, as shown by dashed lines at the left of the cylinder 131 in Fig. 18, the tabloid plate holding means 141, which are constructed as previously described and located circumferentially intermediate registering means 142 and tensioning means 143, are so positioned that their linking hooks are raised above the surface of the cylinder. Those corners of the tabloid size plates 140 which are engaged with the registering means 142 and tensioning means 143, are notched as at 140a, the surface of the notches in the outside edges of the outside plates 140 abutting fixed outside stop pins 144, and the surface of the notches on the inside edges of the inside plates 140 abutting fixed inside stop pins 145. Thus, one end of each of the tabloid plates may be axially located by engagement with fixed stop pins adjacent the registering and tensioning means which exist on the cylinder. However, it becomes necessary in mounting tabloid size plates to also axially locate the ends of the plates that are engaged with the linking means, and to do that in a manner such that full size plates will, nevertheless, readily fit onto the cylinder.

In accordance with the present invention, means are provided which cooperate with the tabloid plate holding means to locate tabloid size plates axially of the cylinder, yet which do not interfere with the mounting of full size plates, when that is desired. For this purpose, stop members are mounted on the printing cylinder adjacent the tabloid linking means, those stop members being movable between first positions in which they position the notched corners of tabloid plates, and second positions in which they are clear of the wider, un-notched midportion of a full size printing plate.

Referring for the moment to Fig. 18, it will be seen that the tabloid size plates 140 on the extreme left end of the cylinder 131 are also provided with notches 140b along their outside edges at the ends which are engaged with the linking or holding means 141. A series of outside movable stops 148 are located opposite these notches 140b and engage the reference surfaces thereof when in the first positions illustrated at the left end of the cylinder 131 in Fig. 18. Thus, each of the outside plates 140 is axially positioned against a fixed stop pin 144 at one end thereof and against one of the movable stop members 148 (see Figs. 19 and 20) at the other end thereof. When it is desired to mount a full size printing plate on the cylinder (which will of course be wider at its mid-portion or in the region of the tabloid linking means due to the fact that it has not been notched in that region), the stop members 148 are axially retracted to a second position which for purposes of the illustration is shown at the right end of the cylinder 131 in Fig. 18.

In addition, movable inside stop members 149 are provided on the cylinder 131 adjacent the inner end of the plate linking or holding means 141. The inside edge of the inside tabloid size plates 140 also have notches 140c with the reference surfaces thereof axially abutting the inside stop members 149. These latter stop members are also movable to a second position in which they are clear of full size plates when the latter are mounted on the cylinder. As will appear presently, the inside stop members 149 may be radially depressed below the surface of the cylinder so that they will not interfere with proper positioning of a full size printing plate.

Referring now more particularly to Figs. 19-21, the outside movable stop members 148 are there illustrated in more detail. It will be seen that each of the stop members consists of a bar which is formed to have a slidable fit within a dovetailed groove 150 cut into the cylinder. The bar 148 may be moved axially inward until its inner end 148a is at the proper location to position one corner of a tabloid plate 140 which is butted thereagainst (Figs. 19 and 20). Whenever a full size plate is to be mounted on the cylinder, the bar 148 is moved outward axially along the slot 150 until its inner end 148a (see dashed lines, Figs. 19 and 20) is free and clear

of the edge of the full size plate even though the full size plate is wider than a trimmed tabloid plate.

For releasably locking the movable stop members 148 in either of their two positions, they are provided with two holes 151, 152 which are respectively aligned with a detent 154 mounted in the cylinder and biased outwardly by a spring 155. When the stop bars 148 have been moved inwardly to engage and locate tabloid size plates, the detent 154 will enter the hole 151, thus positively holding the stop member at the desired location. When it is desired to retract a stop member 148 in order to mount a full size plate, the detent 154 is pushed downwardly, and the bar 148 slid outwardly until the detent snaps into the second hole 152.

This sliding bar stop is particularly advantageous, since it is possible to accommodate plates of different widths, which may be required if the width of the paper web is changed, simply by substituting for any set of stop bars 148 a second set which are either longer or shorter. In this manner the final location of the end surface 148a when in the first position to position tabloid size plates, may be changed to accommodate changes in the width of the printing plates corresponding to changes in paper width. It is necessary to relocate stops 132 and 144 to accommodate plates of different widths.

Referring next to Figs. 22 and 23, the details of a preferred construction for the movable inside stops 149 are there shown. The stops 149 preferably take the form of pins which at their upper ends are flattened on two sides and which have slots 149a for the reception of a screw driver or similar tool. The pin is slidable radially of the cylinder in an insert 156 which is held within the cylinder by suitable countersunk machine screws 158. For biasing the stop pin 149 to project upwardly above the surface of the cylinder 131, a compression spring 159 is received within a bore 160 in the cylinder and bears against the bottom of the stop pin 149, urging the latter outwardly until a cross pin 161 inserted there-through engages the upper end of a vertical slot 162 cut into the side wall of the insert 156. When it is desired to retract the stop pin 149 beneath the surface of the cylinder 131 and thus permit a full size plate to be mounted without interference therefrom, a screw driver or similar tool is inserted in the slot 149a, the pin pushed inwardly against the bias of the spring 159, and the pin then rotated through 90° so that the locking pin 161 engages in notches 164, thereby holding the stop pin 149 retracted.

It will be seen from Fig. 22 that whenever the stop pin 149 is in its raised position, a flat vertical surface thereof is presented at a predetermined location to abut the reference surface of the notch 140c which is cut into a tabloid size plate 140. Because with changes of the width of the paper web to be printed and corresponding changes in the width of the printing plates, the inner edges of the inner plates always remain at the same axial position relative to the cylinder, it is not necessary to provide for changes in the reference position of the inside stop members 149. For this reason, the very simple radially retractable stop members 149 serve adequately at the inside of the cylinder. The axially retractable stop members 148, which may be changed in their axial length, are best for use at the ends of the cylinder since they will permit convenient accommodation of plates having different widths.

From the foregoing it will be apparent that there is here provided simple, economical and convenient means for permitting the tensioned and register lock-up of either full size or tabloid size plates on a printing cylinder. An ordinary cylinder intended originally for mounting only full size plates may readily be modified, in accordance with the invention, to accommodate either full size or tabloid size plates, the linking or holding means anchoring the adjacent edges of two tabloid size plates so as to permit the registering and tensioning of the two in the same

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manner that a full size plate is locked up. Important also is the fact that one of two linked tabloid size plates may be replaced without destroying the previously established registry of the other plate. Still further, cooperating stop members adjacent the linking means and movable between two positions positively assure that the tabloid size plates will be axially located at the desired positions, while making certain that there will be no interference with full size plates when the latter are to be mounted.

It may be noted with reference to Fig. 18 that on a double width cylinder 131, there are two sets of printing plates mounted at the left end, and two sets of printing plates mounted at the right end. If the tensioning and registering means at opposite ends of the cylinder were staggered by 90° intervals, as is the conventional practice, then the holding or tabloid linking means circumferentially interposed between the tensioning and registering means at one end of the cylinder would line up with the registering and tensioning means at the opposite end of the cylinder. In that case, the inking and impression rollers, which ride against the plates on the cylinder during printing, would bounce or jar each time that a discontinuity between plates across the entire cylinder passed by. It is therefore highly desirable to construct the cylinder 131 as shown in Fig. 18 with the registering and tensioning means at opposite ends of the cylinder staggered 45° apart, thus locating the linking or holding means for tabloid plates also staggered 45° apart. As plates are mounted on the cylinder 131, therefore, there is never a "break" clear across the length of the cylinder and a bouncing or jarring of inking and impression rollers does not occur during printing operations.

While the invention has been described with particular reference to mounting of quarter-cylinder tabloid size printing plates in lieu of full or regular size semi-cylindrical plates, it is to be understood that the invention obviously extends to similar mounting of plates which are other fractional sizes of a full size plate. The term "tabloid" as used in the specification and claims is thus intended to cover as an equivalent all fractional sizes of printing plates.

I claim:

1. In a printing cylinder having circumferentially spaced registering means and tensioning means engageable with the opposite edge portions of a full size stereotype plate, the combination comprising a linking piece having means thereon to engage the adjacent edge portions of two tabloid size plates which are engaged at their remote edge portions by said registering and tensioning means respectively, means for mounting said linking piece circumferentially intermediate the registering means and tensioning means on the cylinder and with freedom to shift circumferentially of the latter, stops mounted on the cylinder substantially in axial alignment with said linking piece to abut and axially locate the tabloid size plates, and means for moving said stops clear of a full size plate when the latter is placed on the cylinder.

2. In a printing cylinder having circumferentially spaced registering hooks and tensioning hooks engageable with undercut pockets in the opposite edge portions of a full size curved stereotype plate, the combination of a linking piece having hooks thereon for engagement with undercut pockets in the adjacent edge portions of two tabloid size plates which are engaged at their remote edge portions by said registering and tensioning hooks, respectively, means mounting said linking piece on the cylinder circumferentially inbetween said registering and tensioning hooks and with freedom to shift circumferentially, means for permitting displacement of said linking piece hooks to permit the mounting of a full size plate on the cylinder, stops on the cylinder near said linking piece to axially abut and locate the adjacent corners of two tabloid size plates, and means mounting said stops on the

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cylinder to afford displacement thereof so they clear a full size plate when the latter is mounted on the cylinder.

3. In a printing cylinder having circumferentially spaced registering hooks and tensioning hooks engageable with the opposite edge portions of a full size stereotype plate, the combination comprising a linking piece mounted on the cylinder circumferentially intermediate said registering and tensioning hooks and with freedom to shift circumferentially relative to the cylinder, linking hooks and means mounting them on said linking piece so that they may be optionally raised above or retracted below the surface of the cylinder, said linking hooks when raised being engageable with the adjacent edge portions of two tabloid size plates which are engaged at their remote edge portions by said registering and tensioning hooks, respectively, stops carried by said cylinder at locations to axially abut and position the adjacent corners of two tabloid size plates, and means mounting said stops on said cylinder so that they may be optionally displaced to clear a full size plate when the said linking hooks are retracted and the full size plate mounted on the cylinder.

4. In a printing cylinder, the combination of an inside set and an outside set of register hooks and tension hooks on each end portion of the cylinder, the register hooks and tension hooks in each set being spaced circumferentially of the cylinder to engage the end portion of a full size printing plate, the sets on each end portion of the cylinder being circumferentially aligned but staggered 45° with respect to the sets on the other end portion of the cylinder, a linking piece associated with each set of register hooks and tension hooks and means mounting it circumferentially inbetween the latter with freedom to shift circumferentially of the cylinder, linking hooks carried by said linking piece and movable between raised and retracted positions, said linking hooks when raised being engageable with the adjacent edge portions of two tabloid size plates which have their remote edge portions engaged with the associated registering and tensioning hooks, fixed stops adjacent the outside and inside edges of the registering hooks and tensioning hooks of the outside and inside sets to axially abut and locate printing plates mounted on the cylinder, and a pair of retractable stops adjacent the outside and inside edges of the linking pieces associated with the outside and inside sets of hooks, respectively, to axially abut and position tabloid plates engaged with said linking pieces, said retractable stops being movable to positions clear of full size plates when the latter are mounted on the cylinder.

5. In a printing cylinder for mounting stereotype printing plates, the combination with registering means and tensioning means spaced circumferentially on the cylinder for engaging opposite edges of a full size printing plate, of a linking piece disposed on the cylinder circumferentially intermediate said registering and tensioning means, said linking piece having freedom for limited shifting movement circumferentially of the cylinder, and means on said linking piece for engaging the edge portions of two tabloid size printing plates, the opposite edge portions of which are engaged by said registering and tensioning means respectively, whereby the two tabloid size plates may be individually replaced and are linked for registration in the same manner as a full size plate.

6. In a printing cylinder having circumferentially spaced registering means and tensioning means for tension lock-up of stereotype printing plates, the improvement comprising a linking piece adapted to engage the adjacent edges of two printing plates disposed on the cylinder, and means mounting said linking piece circumferentially intermediate the registering means and tensioning means on the cylinder and with freedom to shift circumferentially of the cylinder.

7. In a printing cylinder having circumferentially spaced registering means and tensioning means for tension lock-up of stereotype printing plates, the improvement comprising a linking piece, means removably

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mounting said linking piece circumferentially intermediate the registering means and tensioning means and flush with the surface of the cylinder and with freedom to shift circumferentially of the latter, and means on said linking piece projecting above the surface of the cylinder for engaging the adjacent edges of two printing plates disposed on the cylinder and engaged at their opposite edges with the registering and tensioning means, respectively.

8. In a printing cylinder having circumferentially spaced registering means and tensioning means for tension lock-up of stereotype printing plates, the improvement comprising a linking piece adapted to engage the adjacent edge portion of two printing plates disposed on the cylinder, means mounting said linking piece circumferentially intermediate the registering means and tensioning means on the cylinder and with freedom to shift circumferentially of the cylinder, and means for biasing said linking piece toward the tensioning means.

9. In a printing cylinder having circumferentially spaced first and second means for engaging the opposite edge portions of a full size stereotype plate and locking the same under tension on the cylinder, the improvement comprising means for engaging one edge portion of a first tabloid size stereotype plate having its opposite edge portion engaged with the first locking means, means for engaging one edge portion of a second tabloid size stereotype plate having its opposite edge portion engaged with said second locking means, and means for mounting said last two named means on the cylinder to shift in unison circumferentially thereof, so that the two half-size plates are linked together and locked in tension by the first and second means in the same manner as a full size plate.

10. In a printing cylinder having circumferentially spaced registering hooks and tensioning hooks engageable with pockets in the undersides near the opposite edges of a curved, full size stereotype plate to lock the latter under tension on the cylinder, that improvement which comprises the combination of a linking piece having a hook on each of its opposite edges, with means for mounting said linking piece on the cylinder circumferentially intermediate the registering hooks and the tensioning hooks and with freedom to shift circumferentially of the cylinder, said linking piece hooks being engageable with pockets in the undersides near the edges of two tabloid size printing plates which are engaged near their opposite edges respectively with said registering and tensioning hooks, so that the latter may tension and register two tabloid size plates in the same fashion as one full size plate.

11. In a printing cylinder having circumferentially spaced registering means and tensioning means for tension lock-up of full size stereotype printing plates, the improvement comprising a linking piece and means mounting it circumferentially intermediate said registering means and tensioning means and flush with the surface of the cylinder and with freedom to shift circumferentially relative to the latter, linking hooks and means mounting them on either end of said linking piece so that they may be optionally raised above or retracted below the surface of the cylinder, said linking hooks being constructed and arranged when so raised as to be engageable with the adjacent edge portions of two tabloid size printing plates which are engaged at their remote edge portions with said registering and tensioning means, respectively, whereby two fractional size plates may be registered and tensioned in the same fashion as a full size plate, and a full size plate may be mounted on the cylinder when the linking hooks are retracted.

12. In a printing cylinder having circumferentially spaced registering means and tensioning means for tension lock-up of stereotype printing plates, the improvement comprising a linking piece and means for mounting the same circumferentially intermediate said registering and tensioning means on the cylinder and with freedom

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to shift circumferentially relative to the latter, means on opposite ends of said linking piece for engaging and holding the adjacent edge portions of two printing plates disposed on the cylinder, and means for optionally raising or retracting said last-named means above or below the surface of the cylinder.

13. In a printing cylinder having circumferentially spaced printing plate registering hooks and tensioning hooks, the improvement comprising, in combination, a linking piece and means mounting it circumferentially in-between the register and tensioning hooks and with freedom to shift circumferentially relative to the cylinder, said linking piece having a pair of openings therethrough extending radially of the cylinder, a printing plate engaging hook slidable in each of said openings, means for biasing said linking hooks radially inward of the cylinder to retract the same below the surface of the cylinder, and cam means shifting said linking hooks radially outward to project above the surface of the cylinder in response to shifting of said linking piece to a predetermined circumferential position.

14. In a printing cylinder having circumferentially spaced registering hooks and tensioning hooks engageable with undercut pockets in the opposite edge portions of a full size printing plate, the improvement comprising, in combination, a linking piece and means mounting the same flush with the surface of the cylinder, circumferentially between said registering and tensioning hooks, and with freedom to shift circumferentially of the cylinder; said linking piece having a pair of openings therethrough extending radially of the cylinder; a pair of plate engaging hooks slidably disposed in respective ones of said openings; a floor beneath said linking piece having spaced recesses therein; a leaf spring biasing said hooks into said recesses to retract the hooks below the surface of the cylinder when said linking piece is in a first circumferential position; said recesses being shaped to cam said hooks above the surface of the cylinder in response to shifting of said linking piece to a second circumferential position; means biasing said linking piece toward said second position, and means for releasably retaining said linking piece in said first position; whereby two tabloid size plates may be mounted on said cylinder when by engagement with said registering, tensioning and plate engaging hooks said linking piece is in said second position, and one full size plate may be mounted on said cylinder when said linking piece is in said first position.

15. In a printing cylinder having circumferentially spaced registering hooks and tensioning hooks, the improvement comprising a linking piece and means mounting the same flush with the surface of the cylinder, circumferentially in-between the registering and tensioning hooks, and with freedom to shift circumferentially of the cylinder; said linking piece having a pair of spaced apart recesses; a pair of plate engaging hooks and means pivotally mounting the same in respective ones of said openings to rock between first and second positions in which the hooks project above or are retracted below the surface of the cylinder; means for releasably retaining said linking hooks in either their first or second position; and means for biasing said linking piece circumferentially of the cylinder.

16. In a printing cylinder having circumferentially spaced registering hooks and tensioning hooks engageable with pockets in the undersides near the opposite edges of a curved, full size stereotype plate to lock the latter under tension on the cylinder, that improvement which comprises, in combination, a linking piece, means including cover plates fixed in spaced relation within an axial slot defined in the cylinder for removably mounting said linking piece on the cylinder circumferentially intermediate the registering hooks and the tensioning hooks and with freedom to shift circumferentially of the cylinder, said linking piece having rigid, integral hooks on its opposite edges projecting above the surface of the cylinder

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and engageable with pockets in the undersides near the adjacent edges of two tabloid-size printing plates which are engaged near their opposite edges respectively with said registering and tensioning hooks, so that the latter may tension and register two tabloid size plates in the same fashion as one full size plate, and upon removal of said linking piece may tension and register a full size printing plate.

17. In a printing cylinder, the combination comprising register hooks and tension hooks spaced circumferentially on the cylinder and engageable in pockets on the undersides near the edges of a full-size printing plate to register and tension the latter on the cylinder, means defining an axial slot in the cylinder located circumferentially between said register and tension hooks and having an arcuate floor concentric about the cylinder axis, curved cover plates fixed in axially spaced relation in said slot and formed to define with said floor end arcuate grooves and notches opening radially of the cylinder into such grooves, a linking piece having an arcuate bottom surface seated and circumferentially slidable on the arcuate floor of said slot, said linking piece having retaining projections slidably received in said grooves after entry through said notches, biasing means interposed between a wall of said slot and said linking piece to urge the latter toward said tensioning hooks, and releasable limit means for restricting the movement of said linking piece to prevent registry of said projections and notches.

18. In a printing cylinder, the combination comprising register hooks and tension hooks spaced circumferentially on the cylinder and engageable in pockets on the undersides near the edges of a full size printing plate to register and tension the latter on the cylinder, means defining an axial slot in the cylinder located circumferentially between said register and tension hooks and having an arcuate floor concentric about the cylinder axis, curved cover plates fixed in axially spaced relation in said floor and formed to define with said floor end arcuate grooves and notches opening radially of the cylinder into such grooves, a linking piece having an arcuate bottom surface seated and circumferentially slidable on the arcuate floor of said slot, said linking piece having retaining projections slidably received in said grooves after entry through said notches, means including a biasing spring interposed between a wall of said slot and said linking piece to urge the latter toward said registering hooks, a limit pin yieldably projecting upwardly from the floor for limiting the movement of said linking piece

to prevent registry of said projections and notches except when purposely depressed.

19. In a printing cylinder adapted to mount either a full size curved printing plate, or in lieu thereof, two tabloid size curved printing plates disposed in end-to-end relation, by means engageable with the opposite straight end portions of such plates, the tabloid size plates each having notched portions defining reference surfaces on one curved edge near their opposed ends which make such opposed ends of lesser width than the non-indented midportion of said full size plate, the combination comprising a pair of stop members having stop surfaces, means mounting said stop members in first positions on the cylinder with the stop surfaces disposed radially of the cylinder to engage the reference surfaces on respective ones of said tabloid size plates and determine the positions of the latter lengthwise of the cylinder, said mounting means further including means for retracting said stop members to and locking them in second positions clear of a full size printing plate.

20. The combination set forth in claim 19 further characterized in that said stop members each comprise a bar having an end stop surface, and said mounting means comprise means for locking said bars in first or second positions displaced from one another in a direction lengthwise of the cylinder.

21. The combination set forth in claim 19 further characterized in that said stop members each comprise a pin, and said mounting means comprise means disposing each pin radially of the cylinder together with means for holding the pin in first and second positions respectively projecting above and retracted below the cylinder surface.

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