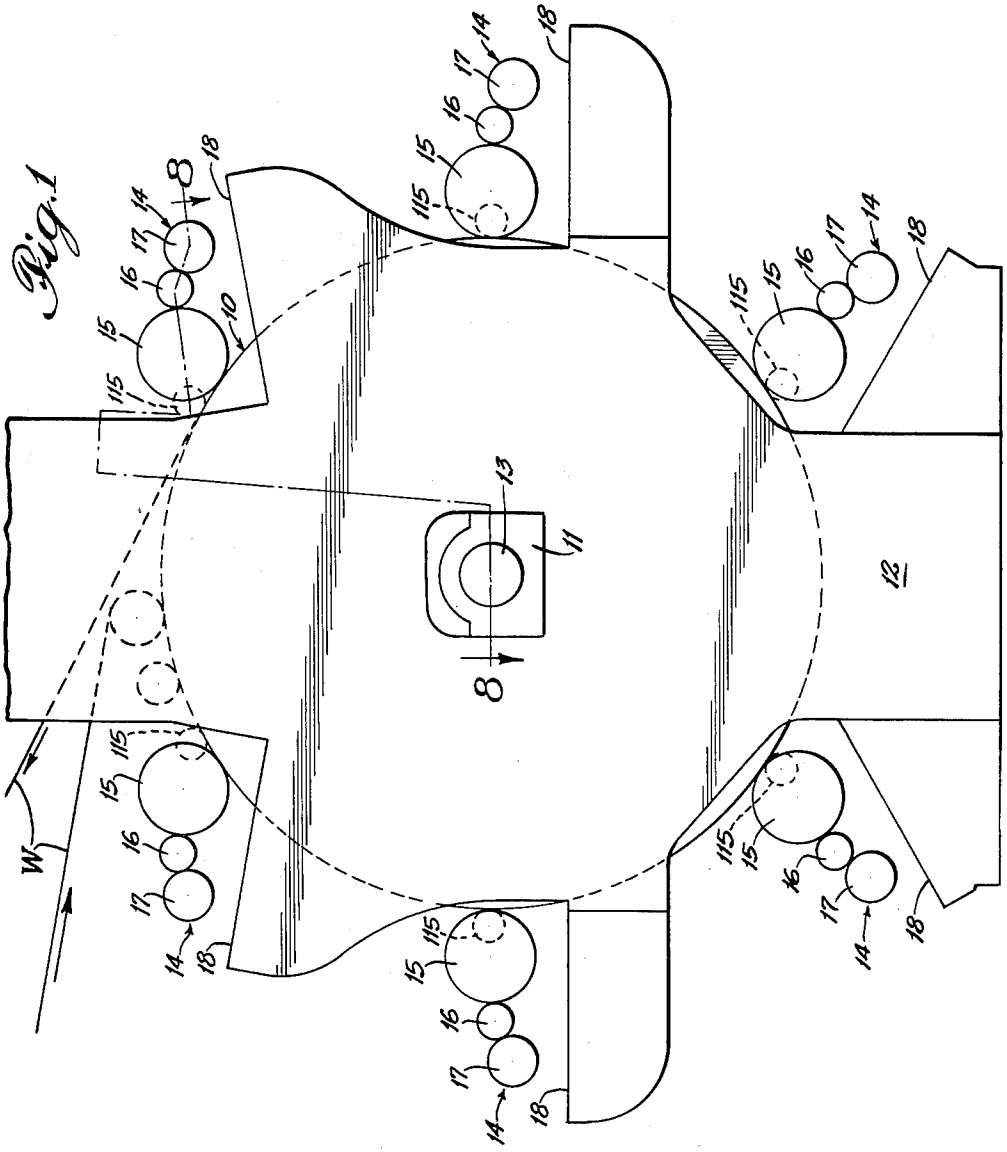
July 3, 1962 E. D. NYSTRAND 3,041,967

CYLINDER SUPPORT AND MOVING MEANS FOR PRINTING MECHANISM

Filed May 14, 1959 6 Sheets-Sheet 1

Fig. 1



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CYLINDER SUPPORT AND MOVING MEANS FOR PRINTING MECHANISM

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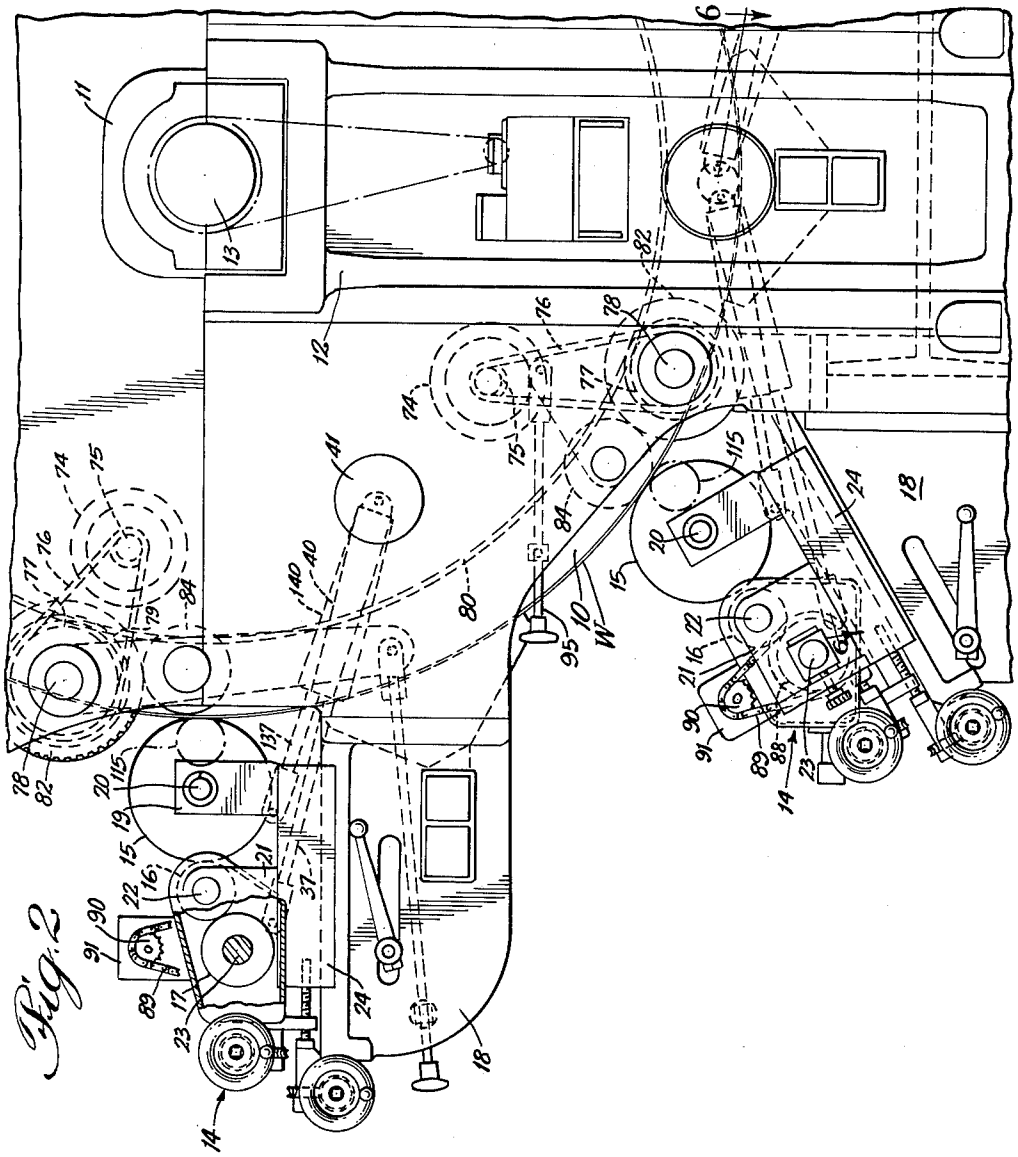


Fig. 2

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CYLINDER SUPPORT AND MOVING MEANS FOR PRINTING MECHANISM

Filed May 14, 1959 6 Sheets-Sheet 3

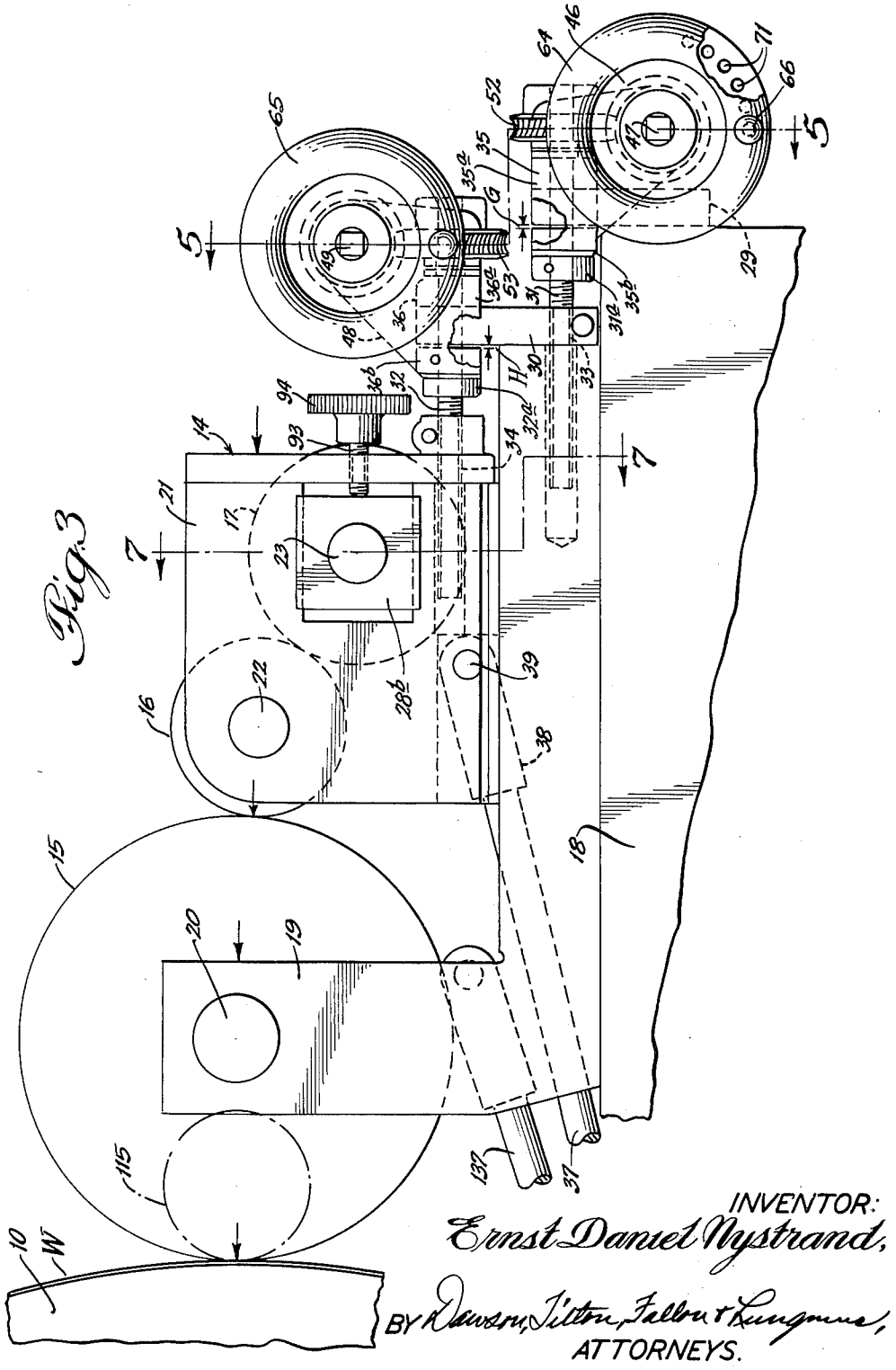


Fig. 3

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CYLINDER SUPPORT AND MOVING MEANS FOR PRINTING MECHANISM

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Fig. 4

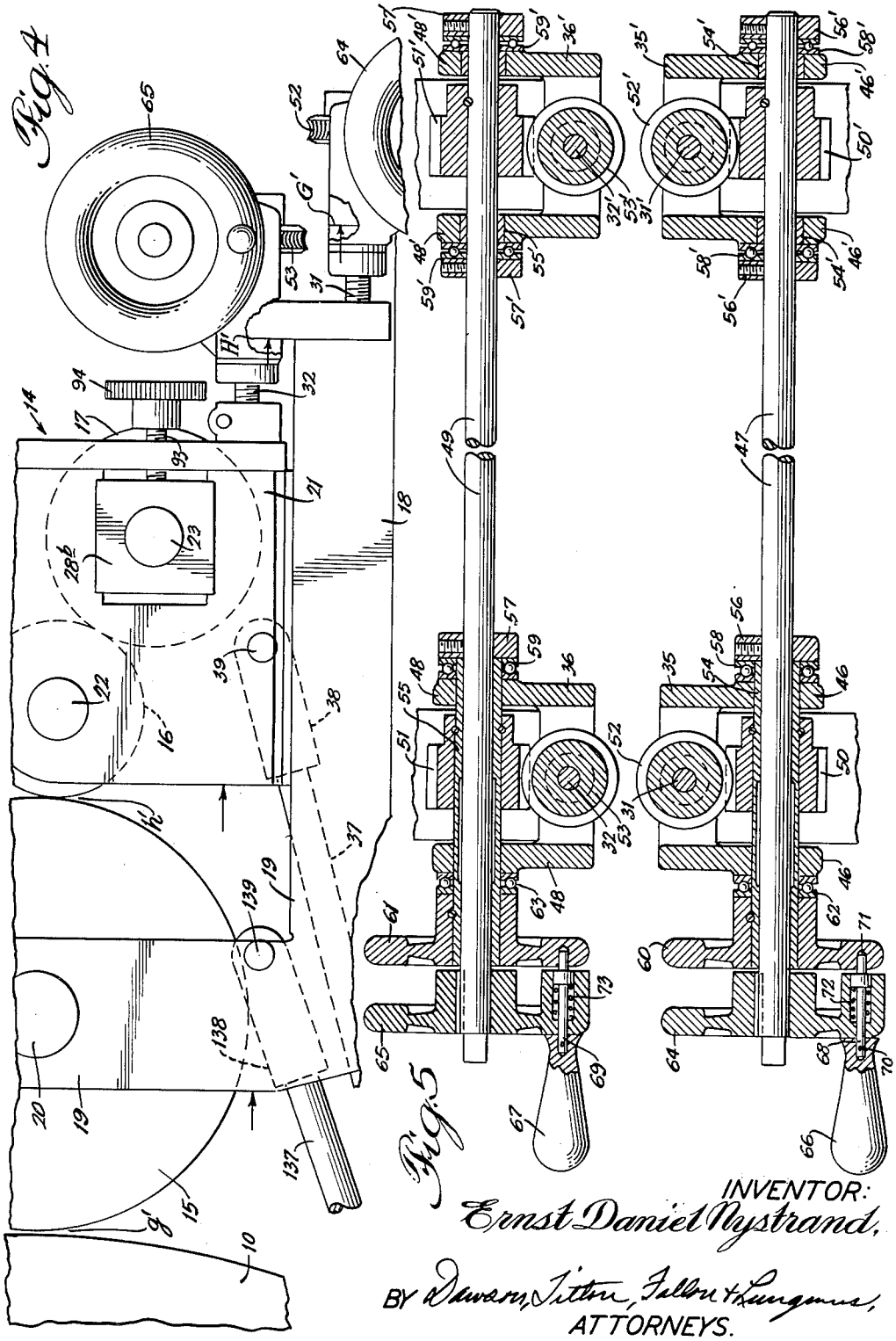


Fig. 5

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CYLINDER SUPPORT AND MOVING MEANS FOR PRINTING MECHANISM

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Fig. 6

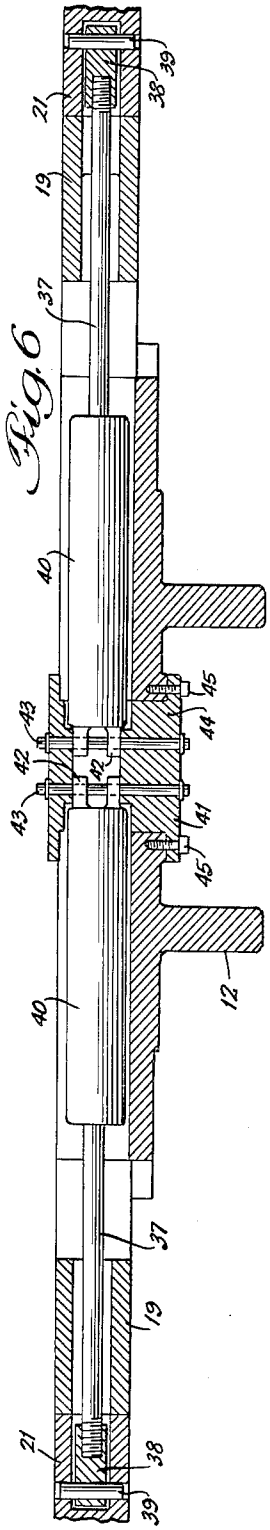
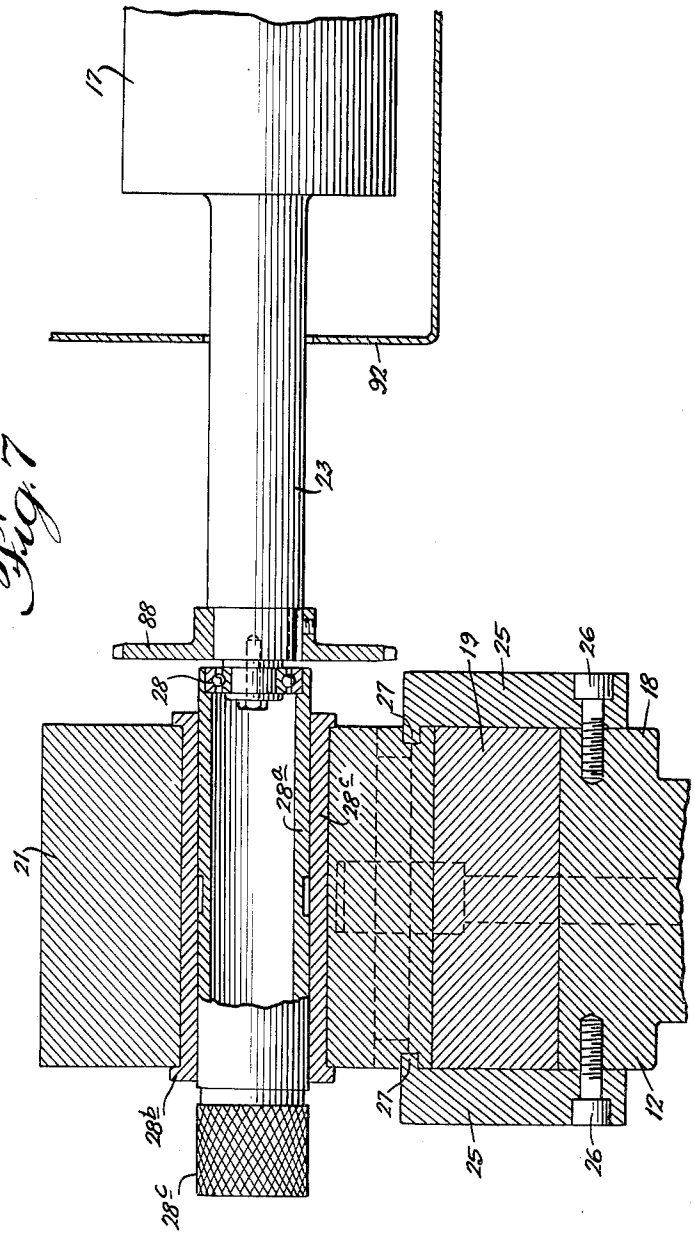


Fig. 7



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CYLINDER SUPPORT AND MOVING MEANS FOR PRINTING MECHANISM

Filed May 14, 1959 6 Sheets-Sheet 6

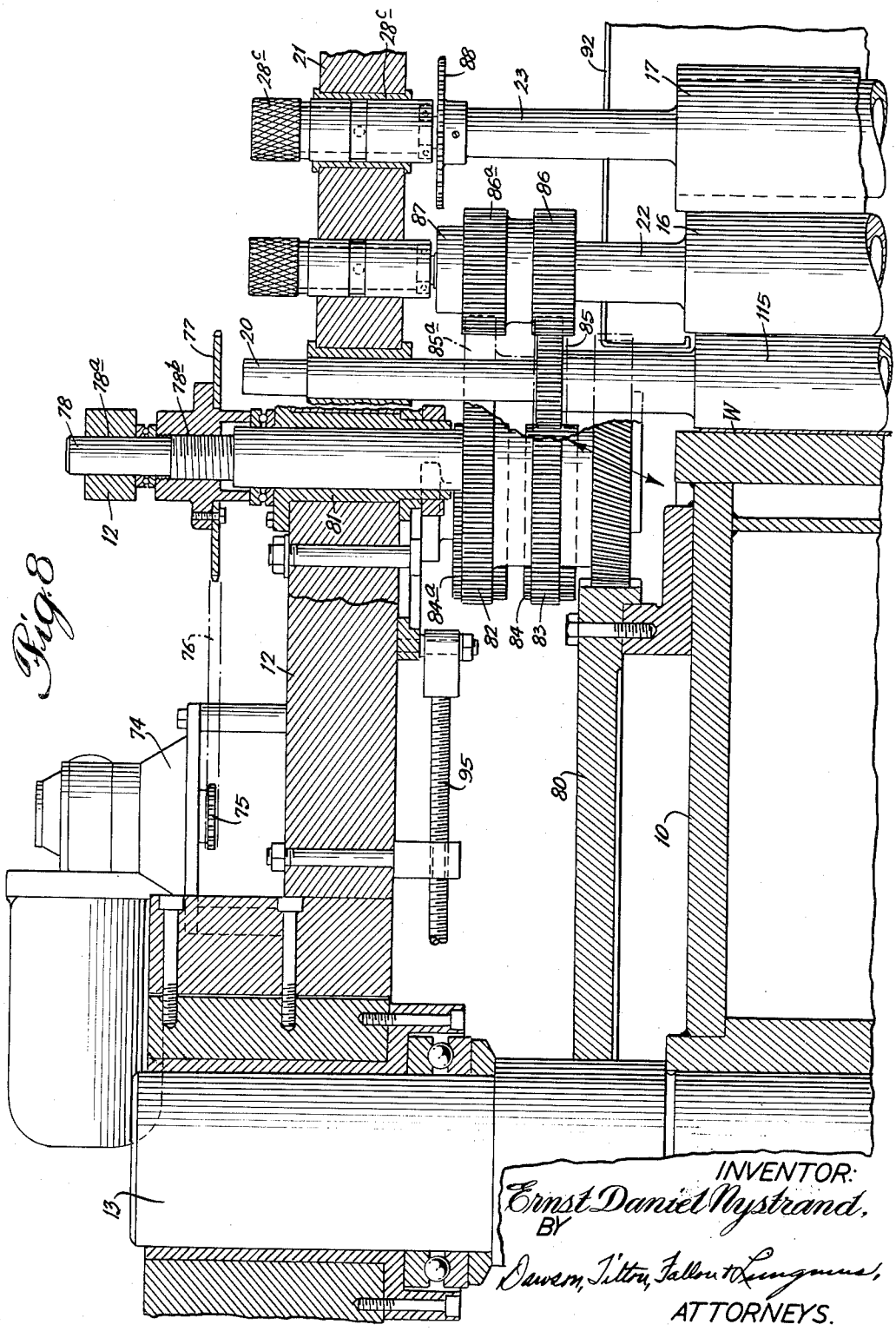


Fig. 8

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United States Patent Office

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CYLINDER SUPPORT AND MOVING MEANS FOR PRINTING MECHANISM

Ernst Daniel Nystrand, Green Bay, Wis., assignor to Paper Converting Machine Co., Inc., Green Bay, Wis., a corporation of Wisconsin

Filed May 14, 1959, Ser. No. 813,204
10 Claims. (Cl. 101—182)

This invention relates to a printing mechanism, and more particularly, to a break-away mechanism for the ink applicator portion thereof.

In high speed printing, it is essential from time to time to be able to quickly take the ink applicator roll out of contact with the web being printed and while the web is positioned on a supporting cylinder. Without this, the ink dries on the roll and the web. Where a second roll is employed to transfer ink first to the applicator roll, it is still more desirable to bring about a separation between the ink applicator roll and both the cylinder and the second or transfer roll. The desirability of this has long been recognized. However, the expedients employed to bring this about have been done so only at the expense of vibrationless machine operation. Or, if the devices have preserved the vital vibrationless operation, they sacrifice speed in quickly disengaging the various rolls.

A further drawback of existing break-away devices is that they do not permit the delicate adjustments of roll pressures necessary during machine operation to develop good printing. For example, in some instances it is necessary to break the printing mechanism apart, adjust the positions of the various rolls to compensate for pressure changes developed during start up, and then bring the mechanism together to see whether the adjustment was proper. This is necessarily a hit-or-miss proposition and generally requires a number of adjustments before any semblance of good printing at high speed can be achieved.

Yet another drawback of existing ink applicator mechanisms lies in their failure to satisfactorily contain the ink in its reservoir or fountain both during actual printing and when the mechanism is broken away—with the result that ink splashes about in an undesirable fashion.

It is a general object of this invention to provide a novel printing mechanism, and, more specifically, one equipped with a novel ink applicator mechanism productive of new and desirable results. Among the new results produced are those overcoming the drawbacks and disadvantages set forth above. These new results include the quick and accurate positioning of the ink applicator roll against the web-supporting cylinder while urging the roll-supporting pedestal into a substantially immobile relationship with the machine frame, whereby undesirable vibration is avoided.

Another object of this invention is to provide a novel printing mechanism in which the frame carrying the web-supporting cylinder also carries in a movable fashion thereon a subframe which in turn provides means for applying ink to the web, the frame and subframe being coupled together by means for moving the subframe relative to the frame—such as a fluid-actuated cylinder.

Still another object is to provide a novel printing mechanism in which an ink applicator-supporting pedestal is movable relative to the web-supporting frame in such a fashion as to both bring the ink applicator into printing contact with the web and stabilize the pedestal with respect to the frame. Yet another object is to provide a mechanism of the character just described in which the pressure of the ink applicator against the web can be varied to achieve optimum printing all while the pedestal is stabilized.

A further object is to provide a novel printing mechanism including a web-supporting cylinder such as an impression cylinder, rotatably carried by a frame, the frame also carrying an ink applicator unit including a plurality of rotatably supported rolls which transfer ink sequentially from a fountain to the web and which are equally quickly broken apart or brought together.

A still further object is to provide a mechanism for printing a web wrapped on an impression cylinder in which the ink applicator portion includes a roll quickly separable from the roll from which it receives ink and the web to which it applies ink and, when this takes place, the ink-providing roll cooperates with the ink source to restrain undesirable ink splashing. Other objects and advantages, both general and specific, can be seen as this specification proceeds.

This invention will be explained in conjunction with an illustrated embodiment seen in the accompanying drawing, in which—

FIG. 1 is an elevational view of a portion of a printing mechanism, seen mainly in outline form, which embodies teachings of this invention;

FIG. 2 is a fragmentary enlarged elevational view of the apparatus seen generally in FIG. 1;

FIG. 3 is an enlarged fragmentary elevational view of the apparatus seen in FIG. 1, and features an ink applicator mechanism of the character seen in FIG. 2 but differently located on the mechanism;

FIG. 4 is a view similar to FIG. 3, but with the elements therein in a different operative position;

FIG. 5 is a cross-sectional view taken along the line 5—5 of FIG. 3;

FIG. 6 is a cross-sectional view taken along the line 6—6 of FIG. 2;

FIG. 7 is a cross-sectional view taken along the line 7—7 of FIG. 3; and

FIG. 8 is a fragmentary cross-sectional view taken along the line 8—8 of FIG. 1.

In the illustration given, and with particular reference to FIG. 1 of the drawing, the printing mechanism is seen to include a large diameter impression cylinder which is generally designated by the numeral **10**. The cylinder **10** is rotatably carried on bearings **11** (only one of which is shown) provided as part of frame **12**. For the purpose of rotatably supporting the impression cylinder **10** in the bearings **11**, the cylinder **10** is equipped with an axially-extending shaft **13**.

The cylinder **10** is arranged to carry on its periphery a web W, with the web W being wrapped over a major portion of the periphery of the impression cylinder **10**.

Also disposed about the periphery of the impression cylinder, are a plurality of ink applicator units, each of which is designated generally by the numeral **14**. Each applicator unit **14** includes a plate roll **15**, a transfer roll **16**, and a fountain roll **17**. The fountain roll **17** receives ink from an ink fountain or other source and transfers it to the transfer roll **16**. From the transfer roll **16**, the ink is transferred to the plate roll **15**, the plate roll usually being constructed with a rubber cylindrical surface and having the printing pattern provided thereon. The plate roll **15** is in contact with the web W traveling with and on the impression cylinder **10**.

In FIG. 1, it is seen that each ink applicator unit **14** has associated with it a smaller roll, designated by the numeral **115**. This indicates a smaller plate roll that can be used in the mechanism in place of the larger plate roll **15** previously mentioned. Where the printing pattern is varied from run to run, it is often necessary to substitute different rolls in order to achieve the proper pattern on the web W. Thus, it is necessary that the various rolls be movable inwardly and outwardly of the impression cylinder—this in addition to the minor separation be-

tween the rolls and the cylinder previously mentioned—and for this purpose, the frame is provided with a plurality of guides or supports 18 for the ink applicator units 14.

As can be most clearly seen in FIG. 3, the support or guide 18 supports a subframe 19 in which the shaft 20 of plate roll 15 is rotatably carried. The subframe 19 is essentially L-shaped in elevation, and it carries a second subframe 21 in which the axial shafts 22 and 23 of the transfer roll 16 and the fountain roll 17, respectively, are journalled for rotation.

The structure just described can also be seen in FIG. 2 but in somewhat smaller scale. The first subframe 19, i.e., the subframe which carries the plate roll 15, is seen to overlap a portion of the guide 18 as at 24 in FIG. 2, which results in the subframe 19 being guidedly movable on the guide 18 of frame 12. Thus, the subframe 19 and, therefore, the plate roll 15, may be moved inwardly and outwardly relative to the periphery of impression cylinder 10. This structure can also be seen in FIG. 7, where the numeral 12 designates a portion of the frame constituting a part of the support or guide 18. Secured to the guide 18 are upwardly-extending walls 25 which confine the subframe 19 against lateral displacement. The walls 25 are seen to be secured to the frame 12 by means of bolts 26, and the upwardly-extending walls 25 are each equipped with an inwardly-extending flange 27. Also mounted between the walls 25 and engageable with the flanges 27 thereof, is the second subframe 21—subframe 21 rotatably carrying the transfer roll 16 and the fountain roll 17. The shaft 23 of the fountain roll 17 is seen in FIG. 7, and is carried by a ball bearing 28 provided in subframe 21. The bearing 28 is carried by a sleeve 28*a* which is secured within a box 28*b* by a setscrew (not shown) engaging the relieved portion 28*c*. When the setscrew is loosened, the sleeve 28*a* may be removed by grasping the knurled end 28*d*. This permits removal of the fountain roll. From a comparison of FIGS. 3 and 7, it will be appreciated that subframe 21 is movable within the upstanding walls 25 and relative to both the frame 12 and the first subframe 19. Subframe 19 also is mounted for movement relative to frame 12 and the second subframe 21.

Referring still to FIG. 3, it is seen that the guide 18 is equipped with an upstanding member 29 at the outer end thereof. The member 29 acts as a positive stop for the outward movement of subframe 19, and also provides a mounting for the structure employed to move the subframe inwardly and outwardly relative to the impression cylinder 10. A similar stop member 30 is provided on subframe 19 which operates to limit the outward movement of subframe 21. The members 29 and 30 may be rigidly secured to the guide 18 and the subframe 19, respectively, by bolting, welding, etc. Each of the members 29 and 30 is apertured for the receipt of a threaded rod 31 and 32, respectively. Rod 31 at one end is threadedly received within stop member 30 of subframe 19, as at 33, while rod 32 is received within subframe 21, as at 34. It can thus be seen that the turning of rods 31 and 32 will produce a longitudinal movement of subframes 19 and 21, respectively, upon the ways provided therefor by guide 18.

The rods 31 and 32 are journaled in brackets 35 and 36, respectively. The bracket 35 is equipped with spaced-apart portions 35*a* and 35*b*, which are positioned on opposite sides of member 29. The corresponding structure is found in bracket 36, with the spacing between the portions 35*a* and 35*b*, or 36*a* and 36*b*, being slightly greater than the width of the members 29 and 30. This difference (the spacing within the brackets 35 and 36 as contrasted to the width of members 29 and 30) is represented in FIG. 3 by gaps G and H. In FIG. 4, a view essentially similar to FIG. 3, it is to be seen that the gap is closed. This is indicated in FIG. 4 by the letters G′ and H′. Also in FIG. 4, it will be seen that there is a space g′ between roll 15 and cylinder 10, and a space h′ between rolls 15 and 16. No such spacing is seen in FIG. 3. The rod 31 as seen in FIG. 3 is equipped with a locking collar 31*a*, the rod 32 being equipped with a similar collar 32*a*. The worm gears 52 and 53 (to be described later) are fixed to the rods 31 and 32 a spaced distance from the point at which the collars 31*a* and 32*a* are fixed to these rods, the collars and gears confining the brackets 35 and 36.

The means for creating the spaces *g′* and *h′* can be seen best in FIGS. 2 and 3. In FIG. 3, the end of a piston rod 37 is equipped with a clevis 38 (see also FIG. 6) which is pivotally connected to a pin 39 mounted within the subframe 21. As is best seen in FIG. 2, the piston rod 37 is part of the cylinder 40 which is pivotally connected as a 41 to frame 12. In FIGS. 2, 3 and 4, alternate positions of the cylinder 40 and piston rod 37 are shown and designated by the numerals 140 and 137, respectively, which correspond to the positions of these elements when the plate roll 15 is replaced with the smaller sized plate roll 115. When the cylinder 40 is actuated by air or other suitable fluid, it moves the subframe 21 in or out, as the case may be.

As is best seen in FIG. 6, the pivotal mounting 41 of the cylinders 40 on frame 12 is achieved through apertured lugs 42 provided on the butt ends of the cylinders 40 which are pivotally engaged with pins 43 secured within a fitting 44 bolted to the frame 12 by bolts 45. As the piston rod 37 is retracted into cylinder 40, the subframe 21 in FIG. 4 is drawn to the left, bringing roll 16 into contact with roll 15 and eliminating space *h′*. This in turn creates the space H in FIG. 3. Further retraction of the piston rod 37 moves the subframe 19 in FIG. 4 to the left to eliminate the space *g′* and create the space G in FIG. 3. When this occurs, roll 16 is in contact with roll 15 and roll 15 in turn is in contact with cylinder 10. The fluid-actuated cylinder 40 not only establishes the roll and cylinder contact just mentioned but at the same time exerts a downward force on the two subframes 19 and 21 to immobilize them relative to the guide 18 and therefore the frame 12. In the illustration given, this action can be appreciated from a consideration of FIG. 2 in which the cylinders 40 are seen disposed at an angle to the plane of the guide 18, i.e., the path of movement of the ink applicator units 14. Also as seen in FIG. 2, the angular relationship of the length of the cylinder 40 relative to the path of movement of the ink applicator units 14 is inwartly and downward, and at an angle of about 10–15°. Satisfactory results are obtained when this angle is of the order just given and upwards to about 30°.

Positioning of the rolls to accommodate different sizes thereof is achieved through the rotation of the threaded rods 31 and 32 which can be seen in FIG. 5, as well as FIGS. 3 and 4. Corresponding rods 31′ and 32′ are provided on the opposite side of the machine, which cooperate with corresponding brackets 35′ and 36′ in maintaining the rolls 15—17 in proper alignment, i.e., parallel alignment with the axis of the impression cylinder 10. The brackets 35 and 35′ are equipped with depending flanges 46 and 46′ which rotatably support a cross-shaft 47 (best seen in FIG. 5). The brackets 36 and 36′ associated with the upper subframe 21 are equipped with flanges 48 and 48′ which carry a second cross-shaft 49 (see FIG. 5). The cross-shaft 47 is equipped with a pair of worms 50 and 50′, while the cross-shaft 49 is equipped with worms 51 and 51′. The worms 50 and 51′ engage worm gears 52 and 52′, respectively, which are fixed to rods 31 and 31′. In a similar fashion, the worms 51 and 51′ engage worm gears 53 and 53′, which are fixed to rods 32 and 32′, all of which can be best seen in FIG. 5. Each shaft is equipped with a pair of wheels on the front or operating side (to be described later), which selectively actuate the various worm gears to position the rods individually or jointly.

The cross-rod 47 is journaled in bushings 54' in bracket 35' on the rear side of the machine, and on the front side of the machine is journaled in bracket 35. Interposed between the rod 47 and bracket 35 is a sleeve 54 rotatable relative to both of those elements. The corresponding bushings and sleeve for the cross-shaft 49 are designated by the numerals 55' and 55, respectively. The sleeves 54 and 55 are journaled on the shafts 47 and 49, respectively, and movement of the shafts 47 and 49 transversely of the machine is limited by set collars 56' and 57' on the rear side of the machine. Collars 56' are secured to shaft 47, while collars 57' are secured to shaft 49. For the front side of the machine, the shaft 47 is provided with a set collar 56, while the shaft 49 is provided with a set collar 57. Interposed between the set collars 56' and the bracket 35' are thrust bearings 58', while thrust bearings 59' are interposed between the two collars 57' and the bracket 36'. Interposed between collar 56 and bracket 35 is a thrust bearing 58, while thrust bearing 59 is interposed between collar 57 and bracket 36. Fixed to the sleeve 54 on the extreme forward side of the machine is a hand wheel 60, while the corresponding hand wheel fixed to sleeve 55 is designated by the numeral 61. Interposed between the hand wheel 60 and the bracket 35 is another thrust bearing which is designated by the numeral 62, while the thrust bearing between the hand wheel 61 and the bracket 35 is designated by the numeral 63.

Fixed to shaft 47 is a second hand wheel 64 and a second hand wheel 65 is fixed to shaft 49. Each hand wheel 64 and 65 is equipped with a handle, the handle for wheel 64 being designated by the numeral 66, while the handle for the wheel 65 is designated by the numeral 67. Each handle 66 and 67 is retractably mounted on its associated hand wheel by means of a shaft, the shaft for the handle 66 being designated by the numeral 68, while that for the hand wheel 65 is designated by the numeral 69. The shaft 68 is pinned to handle 66, as at 70, and extends out of the inner end of the hand wheel 64 into any one of a number of openings 71 in hand wheel 60 (see FIG. 3). The shaft 68 is equipped with a spring 72, while the shaft 69 is equipped with a corresponding spring 73. Thus, the hand wheel 64 can be coupled to the hand wheel 60 for rapid turning of the shaft 47 and, in a similar fashion, the hand wheel 65 can be ganged with the hand wheel 61 for the same purpose relative to subframe 21.

When the hand wheels 64 and 60 of rod 47 are pinned together as shown in FIG. 5, both worms 50 and 50' are turned. Disengagement of the hand wheels 64 and 60 permits selective turning of either worm 50 or 50' as desired to provide for proper cross alignment of the subframe 19. In a similar fashion, the alignment and position of the subframe 21 can be adjusted through turning of hand wheels 61 and 65.

The means for driving each ink applicator unit 14 can be seen in FIGS. 2 and 8. In those figures, it will be noted that the impression cylinder 10 is equipped with a bull gear 80 fixed to the cylinder 10. The bull gear 80 is rotated with the impression cylinder 10 by the main drive (not shown). Rotary motion from bull gear 80 is transmitted to a gear 79, both gears 80 and 79 being equipped with spiral or helical teeth. The gear 79 is journaled in a shaft 78 slidably, but non-rotatingly, mounted in frame 12. For this purpose, the shaft 78 is equipped with a key 78*a* cooperating with frame 12. The shaft 78 is threaded as at 78*b* and threadedly carries a sprocket 77. A chain 76 couples sprocket 77 to a motor sprocket 75 on the shaft of motor 74. The motor 74 is employed for adjusting the registry of the plate roll 15 relative to the impression cylinder 10 by turning sprocket 77, which acts as a nut on shaft 78, causing shaft 78 to move laterally of the frame 12. This necessarily results in moving helical gear 79 to a different position relative to bull gear 80, the direction of movement being indicated

by an arrow in FIG. 8. Each shaft 78, as can be seen in FIG. 8, is slidably mounted in frame 12 by means of a bearing 81. Attached to the helical gear 79 and rotatably mounted on shaft 78 are gears 82 and 83. So, as bull gear 80 rotates gear 79, gears 82 and 83 are also rotated. These gears 82 and 83 are of different pitches, as may be required by the character of the printing to be performed by the mechanism.

As can be seen best in FIG. 2, the gear 83 transmits rotational power through a quadrant gear 84 to a gear 85 fixed to the shaft 20 of the plate cylinder 15 or 115, as the case may be. Gear 82 transmits power through a quadrant gear 84*a* (seen only in FIG. 8) to a gear 85*a* shown in dotted line. Only one of the gears 85 and 85*a* is used at any one time. Engaging gear 85 is a gear 86 which is mounted on shaft 22 which also carries the transfer roll 16. Gear 86 has attached to it gear 86*a* which is operative to receive rotary motion from gear 85*a* when that gear is employed in place of gear 85. Interposed between the gear 86 and the shaft 22 is an overrunning clutch 87 which disengages the shaft 22 from the gear 86 or 86*a* whenever the impression cylinder 10 and bull gear 80 are stopped. When this occurs, the roll 16 is frictionally driven by the fountain roll 17, the shaft 23 of which is equipped with a sprocket 88. The sprocket 88, as can be seen in FIG. 2, is engaged by a chain 89 which in turn is entrained over a sprocket 90, the sprocket 90 being carried by a fluid motor 91. The motor 91 operates to turn the fountain roll 17 at a much lower speed than would the gear train terminating in gear 86 when the bull gear 80 is rotating. Thus, when the fountain roll 17 is driven by the transfer roll 16, the fluid motor 91 acts as a brake or pump to limit the speed of the fountain roll to about the same speed as that at which the fountain roll would be driven by the fluid motor when the clutch is disengaged. The roll 17 and a portion of roll 16 are confined in a well 92 (see FIG. 8). The frictional engagement between fountain roll 17 and transfer roll 16 is adjusted by means of a pair of positionable boxes 28*b* (see FIG. 3) in which the shaft 23 of fountain roll 17 is carried. These boxes are movable parallel to the path of travel of the ink applicator unit and the position thereof is regulated by means of a threaded member 93 equipped with a handle 94. Knob-equipped shaft 95 (see FIG. 2) is employed to position the quadrant gear 84 for proper mesh with the plate cylinder gear 85 or 85*a*.

In operation, whenever the impression cylinder has to be stopped, it is only necessary to actuate the cylinders 40 to disengage the transfer rolls from the plate roll and the plate rolls from the impression cylinder. Conveniently, this can be done through using air cylinders, although other types of operators can be satisfactorily employed. Hydraulic cylinders may be preferred in some instances where higher pressures are deemed advisable. When the cylinders 40 are actuated to extend the piston rods 37 therefrom, the subframe 21 is moved outwardly in the guide 18 until it engages the stop member 30 provided as part of the subframe 19. Further extension of the rod 37 operates through the subframe 21 to move the subframe 19 against the stop member 29 which is part of the frame 12. This activity creates the gaps *g'* and *h'* seen in FIG. 4. In this condition, the plate roll is no longer in contact with the web W on the impression cylinder 10 and further, the transfer roll 16 is no longer in contact with the plate roll 15.

When this occurs, the plate roll 15 is rotating at a slower rate of speed than the fountain roll 17, the clutch 87 disengages the gear 86 from the shaft 22 of the transfer roll 16, and the transfer roll 16 is driven at a much slower speed through the frictional engagement with fountain roll 17. With the mechanism operating, it is possible to make minor adjustments in pressure through the use of the hand wheels 60 and 61 and the handle 94 to bring about superior printing.

While, in the foregoing specification, I have set forth a detailed description of an embodiment of the invention for the purpose of explanation, many variations in the details given will be seen by those skilled in the art without departing from the spirit and scope of the invention.

I claim:

1. In a printing mechanism, a frame, an impression cylinder rotatably carried on said frame, elongated guide means on said frame oriented generally in a direction outward of said cylinder, pedestal means for a plate cylinder slidably mounted in said guide means, pedestal means for a transfer cylinder also mounted in said guide means and above the plate cylinder pedestal means, a plate cylinder rotatably mounted on said plate cylinder pedestal means, a transfer cylinder rotatably mounted on said transfer cylinder pedestal means, a fluid pressure cylinder unit connected between said frame and the transfer cylinder pedestal means, said cylinder unit being so oriented with respect to the longitudinal direction of said guide means as to bring said transfer cylinder into contact with said plate cylinder and said plate cylinder into contact with said impression cylinder while urging said transfer cylinder pedestal means downward against said guide means, means on said plate cylinder pedestal means limiting the movement of said transfer cylinder pedestal means relative to said plate cylinder pedestal means, and means on said frame limiting the movement of said plate cylinder pedestal means relative to said frame, said cylinder unit being reversely operative to separate said cylinders only sufficiently to avoid ink transfer therebetween.

2. In a printing mechanism, a frame, an impression cylinder rotatably carried on said frame, elongated guide means on said frame oriented generally in a direction outward of said cylinder, pedestal means for a plate cylinder slidably mounted on said guide means, pedestal means for a transfer cylinder also mounted in said guide means and above the plate cylinder pedestal means, a plate cylinder rotatably mounted on said plate cylinder pedestal means, a transfer cylinder rotatably mounted on said transfer cylinder pedestal means, a fluid pressure cylinder unit connected between said frame and the transfer cylinder pedestal means, said cylinder unit being so oriented with respect to the longitudinal direction of said guide means as to bring said transfer cylinder into contact with said plate cylinder and said plate cylinder into contact with said impression cylinder while urging said transfer cylinder pedestal means downward against said guide means, a pair of upstanding bearings on opposite sides of said plate cylinder pedestal means and at the end thereof remote from said impression cylinder, a rod slidably mounted for limited longitudinal movement in each of said bearings and threadedly received at one end in said transfer cylinder pedestal means, whereby only limited movement is permitted between said plate and transfer cylinders, means for rotating each of said rods, a pair of upstanding bearings on said frame spaced from the said end of said plate cylinder pedestal means, a rod slidably mounted for limited longitudinal movement in each of the last-mentioned bearings and threadedly received at one end in said plate cylinder and frame, and means for rotating each of the last-mentioned rods.

3. In a printing mechanism, a frame, an impression cylinder rotatably carried on said frame, elongated guide means on said frame oriented generally in a direction outward of said cylinder, pedestal means for a plate cylinder slidably mounted on said guide means, pedestal means for a transfer cylinder also slidably mounted in said guide means and above the plate cylinder pedestal means, a plate cylinder rotatably mounted on said plate cylinder pedestal means, a transfer cylinder rotatably mounted on said transfer cylinder pedestal means, a fluid pressure cylinder unit interconnecting between said frame and the transfer cylinder pedestal means, said cylinder unit being so oriented and with respect to the longitudinal direction of said guide means as to bring said transfer cylinder into contact with said plate cylinder and said plate cylinder into contact with said impression cylinder while urging said transfer cylinder pedestal means downward against said guide means, means on said plate cylinder pedestal means limiting the movement of said transfer cylinder pedestal means relative to said plate cylinder pedestal means, means on said frame limiting the movement of said plate cylinder pedestal means relative to said frame, said cylinder unit being reversely operative to separate said cylinder only sufficiently to avoid ink transfer therebetween, a fountain cylinder rotatably and adjustably positioned on said transfer cylinder pedestal means and operative to apply ink from a fountain source to said transfer cylinder, means on said frame for rotating said impression, cylinder, plate cylinder and transfer cylinder to serially transfer ink from said cylinder to said plate cylinder and then to a web positioned on said impression cylinder, and means for rotating said fountain cylinder independently of the other cylinders.

4. In a printing mechanism, a frame, an impression cylinder rotatably mounted on said frame, elongated guide means on said frame oriented generally in a direction outward of said cylinder, a subframe slidably mounted on said guide means, an ink-applying cylinder rotatably mounted on said subframe, means on said frame limiting the movement of said subframe relative to said frame, and a fluid pressure cylinder unit connected between said frame and subframe, said cylinder unit being so oriented with respect to the longitudinal direction of said guide means as to bring said ink-applying cylinder into contact with said impression cylinder while urging said subframe against said guide means, said cylinder unit being reversely operative to separate said cylinders only sufficiently to avoid ink transfer therebetween.

5. In a printing mechanism, a frame, an impression cylinder rotatably mounted on said frame, elongated guide means on said frame oriented generally in a direction outward of said cylinder, a subframe slidably mounted on said guide means, an ink-applying cylinder rotatably mounted on said subframe, extensible means connected between said frame and subframe, said extensible means being so oriented with respect to the longitudinal direction of said guide means as to bring said ink-applying cylinder into contact with said impression cylinder while urging said subframe against said guide means, and means on said frame limiting the movement of said subframe relative to said frame, whereby said extensible means is selectively operative to separate said cylinders only sufficiently to avoid ink transfer therebetween.

6. In a printing mechanism, a frame, an impression cylinder rotatably mounted on said frame, elongated guide means on said frame oriented generally in a direction outward of said cylinder, a subframe slidably mounted on said guide means, an ink-applying cylinder rotatably mounted on said subframe, extensible means connected between said frame and subframe, said extensible means being so oriented with respect to the longitudinal direction of said guide means as to bring said ink-applying cylinder into contact with said impression cylinder while urging said subframe against said guide means, and means on said frame limiting the movement of said subframe relative to said frame whereby said extensible means is selectively operative to separate said cylinders only sufficiently to avoid ink transfer therebetween, said limiting means including means for repositioning said subframe in said guide means.

7. In a printing mechanism, a frame, an impression cylinder rotatably mounted on said frame, elongated guide means on said frame oriented generally in a direction outward of said cylinder defining a planar path, a subframe slidably mounted in said guide means for movement in said path, an ink-applying cylinder rotatably mounted on said subframe, a fluid pressure cylinder unit connected

between said frame and subframe, said cylinder unit being oriented at a minor acute angle with respect to said path so as to bring said ink-applying cylinder into contact with said impression cylinder while simultaneously urging said subframe against said guide means, and means on said frame limiting the movement of said subframe relative to said frame whereby said cylinder unit is selectively operative to separate said cylinders only sufficiently to avoid ink transfer therebetween.

8. In a printing mechanism, a frame, an impression cylinder rotatably mounted on said frame, a plurality of guide means on said frame and disposed about the periphery of said impression cylinder, an ink applicator cylinder-equipped unit movably mounted in each of said guide means, extensible means connecting each unit with said frame, each extensible means being oriented relative to the unit to which it is attached so as to simultaneously move said unit cylinder toward and into contact with said impression cylinder and toward the gude means in which it is mounted to substantially immobilize the unit in said guide means, and means on said frame limiting the movement of said unit relative to said frame whereby said extensible means is adapted to separate said unit cylinder and impression cylinder only sufficiently to avoid ink transfer therebetween.

9. In a printing mechanism, a frame, an impression cylinder rotatably mounted on said frame, a plurality of guide means on said frame and disposed about the periphery of said cylinder, an ink applicator cylinder-equipped unit movably mounted in each of said guide means, a fluid-actuated cylinder and piston rod element connecting each unit with said frame, each element being oriented relative to the unit to which it is attached so as to simultaneously move said unit cylinder into contacting relation with said impression cylinder and toward the guide means in which it is associated to substantially immoblize the unit in said guide means, and means on said frame limiting the movement of said unit relative to said frame whereby said element is adapted to separate said unit and impression cylinders only sufficiently to avoid ink transfer therebetween.

10. The mechanism of claim 9 in which said limiting means includes threaded rod means extending between said frame and said unit, said rod means being mounted for limited longitudinal movement in said frame.

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