May 16, 1939. W. F. HUCK 2,158,237

MAKE-READY AND PROOF MACHINE

Filed Dec. 28, 1936 3 Sheets-Sheet 1

Fig. 1.

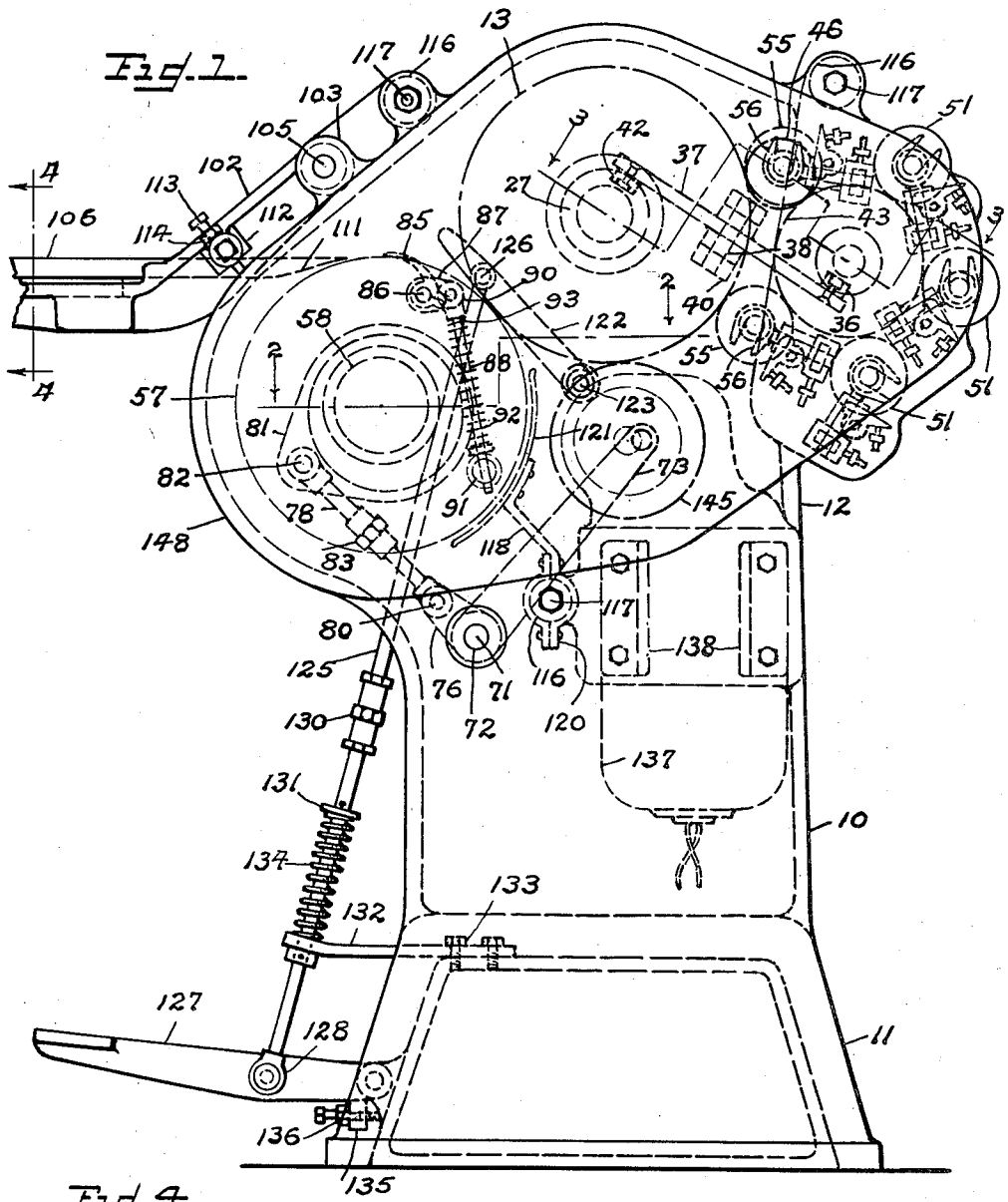
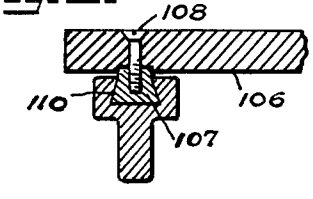


Fig. 4.



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MAKE-READY AND PROOF MACHINE

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Fig. 2.

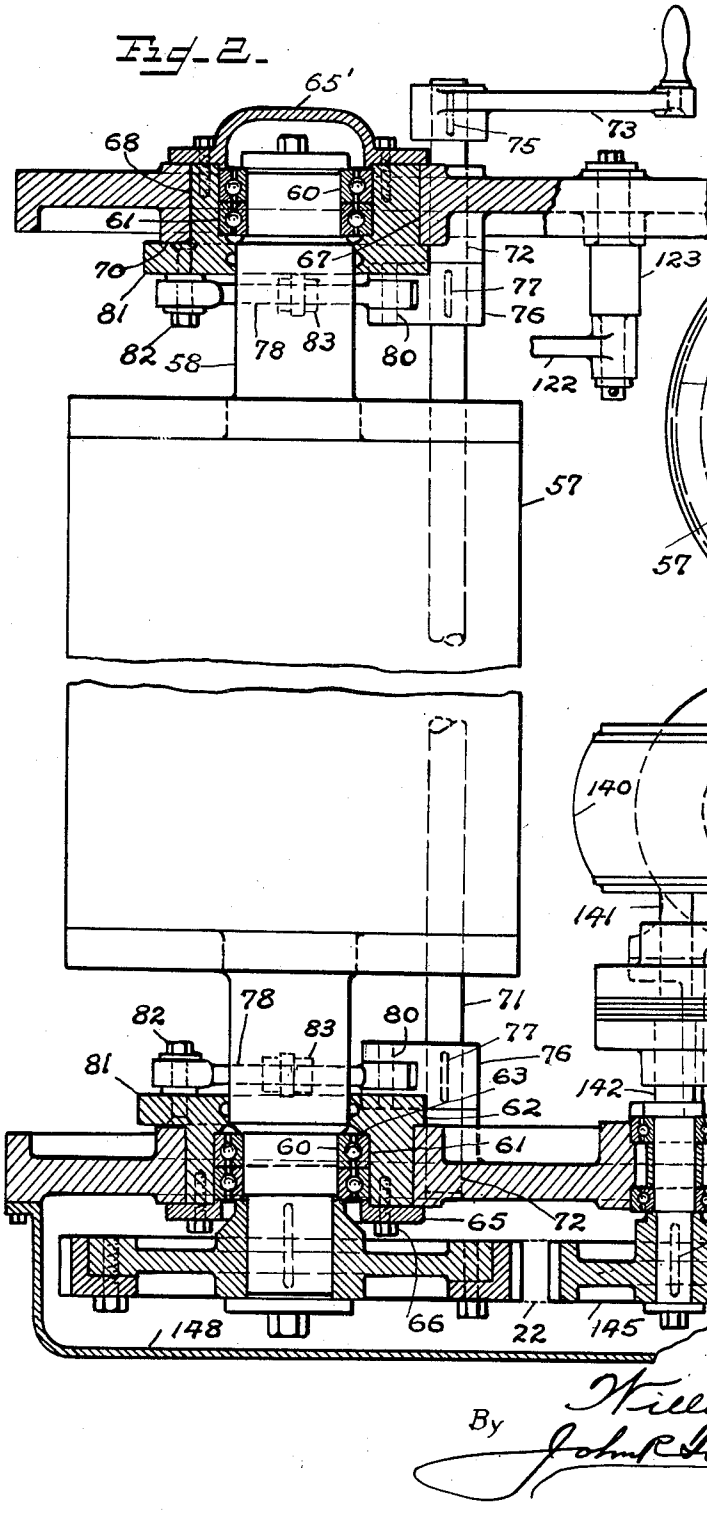
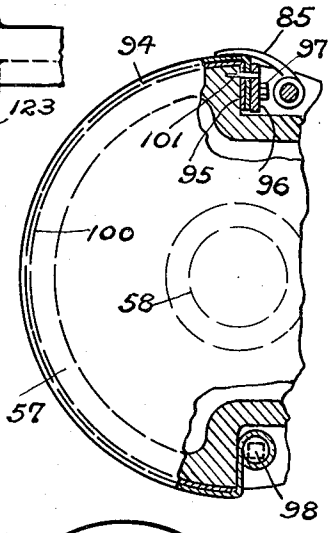


Fig. 5.



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MAKE-READY AND PROOF MACHINE

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Fig. 3.

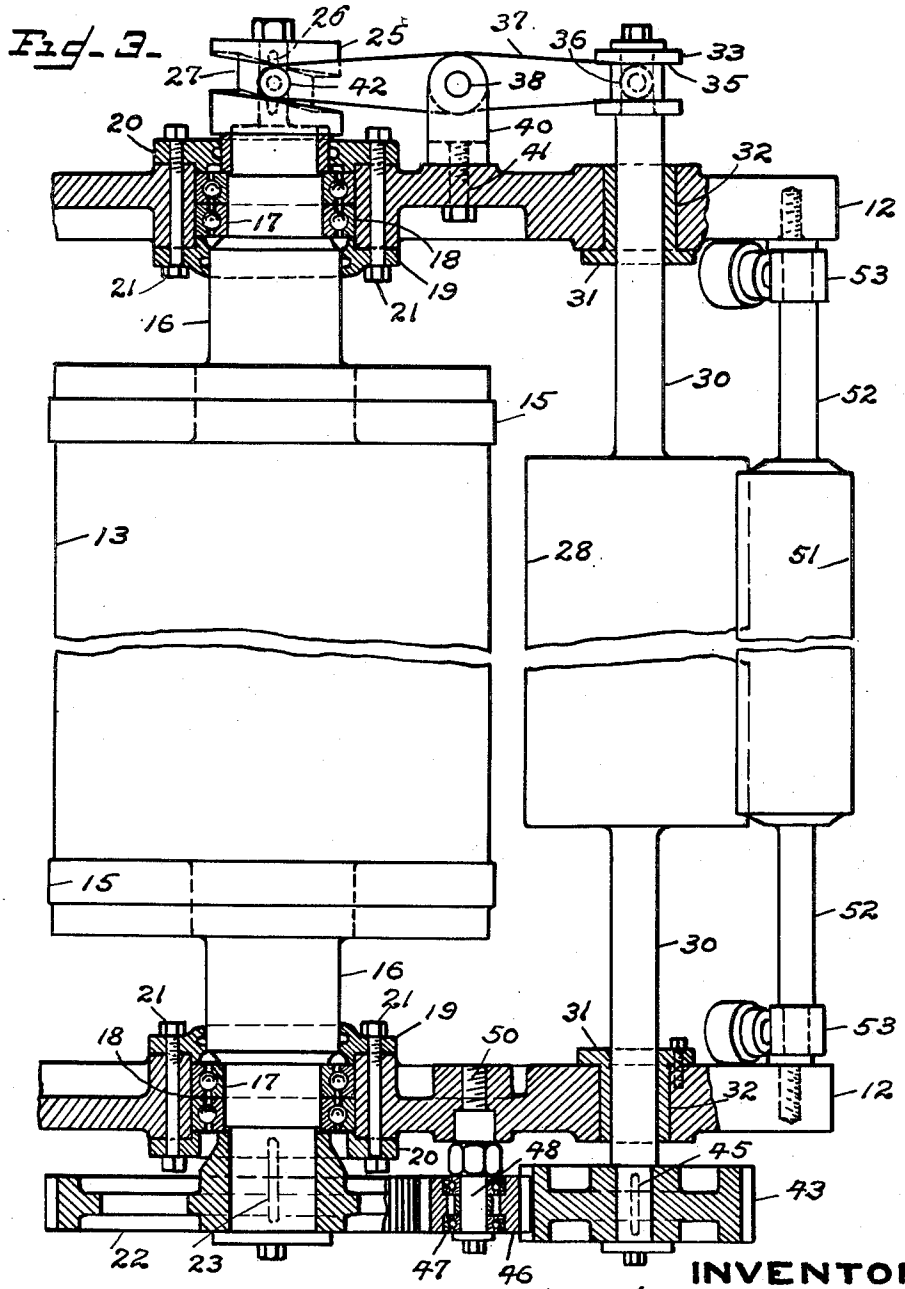
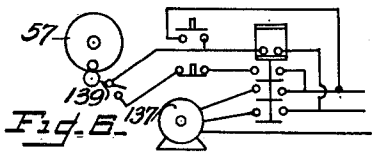


Fig. 5.



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Patented May 16, 1939 2,158,237

UNITED STATES PATENT OFFICE

2,158,237

MAKE-READY AND PROOF MACHINE

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Application December 28, 1936, Serial No. 117,937

13 Claims. (Cl. 101—216)

This invention relates to improved mechanism in the printing art and more particularly to an improved make-ready and proof press with which the make-ready operation may be expeditiously and accurately performed independently of the printing press.

In the operation of rotary magazine printing presses, multicolor presses and other printing presses in which cooperating form and impression cylinders are employed, much valuable time is lost in making ready on the printing machine. The cost of such printing machines is considerable, and, therefore, the time lost in making ready in the machine not only entails the cost of labor time but also necessitates long idle periods of the expensive machine, thereby increasing the maintenance cost and overhead for the operation of these machines.

It is an object, therefore, of my present invention to provide an auxiliary make-ready and proof press in which the entire make-ready operation may be conveniently, expeditiously and accurately conducted outside of the printing machine, thereby liberating the printing press during the usual make-ready period for productive work.

Another object of this invention is to provide a complete make-ready unit independent of the printing machine, which includes cooperating form and impression cylinders of exactly the same diametrical dimensions as those employed in the printing machine, suitable inking mechanism for the form cylinder, and accessory and cooperating instrumentalities for facilitating convenient preparation of proof sheets and for expeditiously and accurately carrying out the make-ready operation under conditions similar to those existing in the printing machines.

A further object of this invention is the provision of a make-ready and proof machine which is independent of the printing machine and which incorporates means for supporting proof sheets and make-ready sheets in position for convenient attachment to and removal from an impression cylinder which cooperates with a plate supported by a cooperating plate cylinder to thereby print the proof sheets, the impression cylinder having a blanket or packing suitably secured in accurate predetermined position on the periphery thereof and extending substantially half way around the cylinder periphery, means for detachably securing the make-ready or underlay sheet on the cylinder periphery with the blanket substantially coextensive therewith, gripping means carried by the impression cylinder for securing an edge of the proof sheet in predetermined position on the impression cylinder, means for automatically operating the cylinders through a complete predetermined cycle of operation and for stopping the cylinders in a predetermined rest position, and means arranged for cooperation with the proof sheet gripping means to release the proof sheet only in the predetermined rest position of the impression cylinder.

It is also an object of this invention to provide a make-ready and proof press of generally improved construction, whereby the device will be simple, durable and inexpensive in construction as well as convenient, practical, serviceable and efficient in its use.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that various changes in form, proportion, and minor details of construction may be made within the scope of the claims without departing from the spirit or sacrificing any advantages of the invention.

For a complete disclosure of the invention, a detailed description of my improved make-ready and proof press will now be given in connection with the accompanying drawings forming a part of the specification, wherein:

Figure 1 is a side elevation of a make-ready and proof press, parts being broken away,

Figure 2 is a horizontal sectional view taken on the line 2—2 of Figure 1, parts appearing in elevation,

Figure 3 is a detailed sectional view taken on the line 3—3 of Figure 1, parts appearing in elevation,

Figure 4 is a vertical detailed sectional view taken on the line 4—4 of Figure 1,

Figure 5 is a fragmental transverse sectional view taken through the impression cylinder showing the blanket and make-ready sheet securing means, and

Figure 6 is a diagrammatic view depicting the machine drive and limit switch for interrupting the power to stop the cylinders in a predetermined angular position.

Referring to the drawings in which similar reference characters designate corresponding parts, there is depicted a frame 10 having a base 11 and upright ends or supporting members 12. A plate or form cylinder 13 is provided and the diametrical dimensions of this cylinder are the

same as the cylinder dimensions of the plate cylinders in the printing machine for which the make-ready operation is being prepared. The cylinder 13 may have any suitable length, but, in the present instance, its length is arranged to accommodate two stereotype or electrotype printing plates to be employed in the printing machine for which the make-ready operations are conducted, and any suitable plate clamp or locking means may be employed, such as sliding clamp rings of usual construction which are indicated diagrammatically at 15, Figure 3.

The shaft 16 of the form cylinder 13 has its opposed ends rotatably mounted in antifriction bearings 17 supported in bearing apertures 18 formed in the end supporting members 12 of the frame. Any preferred means may be employed to secure the antifriction bearings to the supporting members 12, and, in the present instance, there are depicted opposed securing rings 19 and 20 which are secured to each supporting member 12 of the frame and in engagement with an antifriction member 17 by bolts or other suitable securing devices 21. A gear 22 is suitably secured to one end of the shaft 16 and is held against rotation relative to the shaft by a suitable key or locking member 23. The opposed end of the shaft 16 has a cam 25 secured thereto and held against rotation relative to the shaft by a suitable locking member or key 26. A cam groove 27 is formed in the periphery of the cam 25 to cooperate with the instrumentalities to be hereinafter disclosed.

Two electrotype or stereotype printing plates of the usual construction employed in magazine presses and the like are secured in axial alinement on one side of the periphery of the form or plate cylinder 13, and, inasmuch as these plates are of usual construction they are not here depicted. In order to ink the printing plates when supported by the plate cylinder 13, there is provided a suitable inking mechanism which includes an ink cylinder 28 and a shaft 30, which is mounted for both sliding and rotary movement in bearing sleeves or bushings 31 received within alined bearing apertures 32 formed in the supporting end members 12 of the frame 10. At one end of the shaft 30 there is rigidly secured a collar 33 having an annular groove 35 formed in the peripherial portion thereof for the reception of a roller 36 rotatably secured to one end of a rocker arm 37. The rocker arm 37 is pivoted or fulcrumed at 38 intermediate its ends to a bracket 40 which is secured to the end member 12 of the frame, as indicated at 41. Another roller 42 is rotatably secured to the opposed end of the rocker arm 37, and this roller is received within the cam groove 27 of the cam 25 so that as the cam rotates its offset cam groove 27 rocks or reciprocates the arm 37 thereby reciprocating or "vibrating" the inking cylinder 28 and the shaft 30 for the reasons to be hereinafter disclosed.

A gear 43 is suitably secured to the opposed end of the shaft 30 and is held against rotation relative thereto by a key or locking member 45. The gear 43 meshes with a pinion 46 mounted for rotation on antifriction bearings 47 supported by a bearing stud 48 suitably secured to the end member 12 of the machine frame, as indicated at 50. This pinion 46 also meshes with the gear 22, so that as the gear 22 rotates it also rotates the pinion 46, gear 43 and the ink cylinder 28.

A plurality of ink distributing rollers 51 are provided for cooperation with the inking cylinder 28, and each roller 51 has the opposed terminals of its shaft 52 rotatably mounted in roller sockets 53 of usual construction which are secured to the end supporting members 12 of the machine frame. Inasmuch as the roller sockets 53 are of construction well known to those skilled in the art, a detailed description thereof will not be here given. Any preferred number of distributing rollers may be employed, and, in the present instance, three of these rollers have been depicted, although, this number may be increased or decreased as preferred. In order to convey the ink from the ink cylinder 28 to the printing plate supported by the plate cylinder 13, two form rollers 55 are rotatably mounted in suitable roller sockets 56, and these rollers are positioned so that their peripherial surfaces engage both the inking cylinder 28 and the plates or form on the plate cylinder 13. It is understood by those skilled in the art that roller sockets of the type here depicted are constructed to afford adjustment of the rollers which they support, therefore, it is to be understood that the distributing rollers 52 and form rollers 55 may be adjusted relative to the ink cylinder 28 and the form supported by the plate cylinder, to exert any desired pressure on these members.

From the foregoing it is seen that as the plate cylinder 13 rotates the ink cylinder 28 is both rotated and oscillated, thereby operating to distribute the ink supplied to the inking mechanism in a uniform film to the form on the plate cylinder. Inasmuch as a relatively small quantity of ink is required in this machine, the ink is preferably manually applied to the rollers 51, although it is to be understood that an ink fountain may also be provided if preferred, but, inasmuch as ink fountain constructions are well known to those skilled in the art, a fountain has not been here depicted.

An impression cylinder 57 is provided for operable cooperation with the plate cylinder 13, and this cylinder is provided with a shaft 58 having its opposed ends mounted in antifriction bearings 60 received within bearing apertures 61 formed in eccentric rings 62. The antifriction bearing for each end of the shaft 58 being secured in its ring 62 by engaging an inner shoulder 63 and a clamp ring 65 which is secured to the eccentric ring 62 by screws or other suitable securing device 66. The clamp ring 65 which is positioned at one end of the impression cylinder shaft 58 is preferably provided with a crowned cap 65' to seal the bearing against the admission of extraneous matter. Each eccentric ring 62 is provided with an outer annular bearing surface 67 arranged eccentrically to its inner bearing surface 61 and mounted for rotation in a bearing aperture 68 formed in the supporting end member 12 of the machine frame 10. An annular shoulder 70 is formed on each eccentric ring around its outer annular bearing surface 67 and engages a machined surface of the end member 12 of the machine frame at one side thereof, and the clamp ring 65 engages the opposed side of the supporting member 12 thereby permitting rotation of the eccentric ring 62 but holding it against longitudinal or axial movement. The eccentric rings 62 are provided to permit movement of the impression cylinder 57 radially relative to the plate cylinder 13 in order to throw off the impression pressure between the two cylinders. To move the impression cylinder 57 relative to the plate cylinder 13, it is necessary to rotate the eccentric ring 62, and, to this end, there is provided a shaft 71 which extends across the ma-

chine parallel to the impression cylinder and has its opposed terminals mounted for rotation in bearing apertures 72 formed in the supporting members 12 of the machine frame 10, and a manipulating handle 73 is secured to one terminal of the shaft 71 and this handle is locked to the shaft against relative rotary movement by a key or other suitable locking device 75. An arm 76 is keyed adjacent each end of the shaft 71, as indicated at 77, and the outer terminal of each arm 76 is pivotally secured to a link 78, as indicated at 80, and the opposed terminal of each link 78 is pivotally secured to an extension 81 of the eccentric ring, as indicated at 82. A turnbuckle 83 is provided in each link 78 in order to adjust the length of the link to thereby accurately and adjustably position the eccentric ring 62 in predetermined cooperative relation to the impression cylinder shaft 58. By this arrangement the operator, by simply manipulating the handle or lever 73, may rotate the eccentric rings thereby moving the entire impression cylinder radially from the form cylinder to throw off the impression pressure preparatory to manual operations which will be hereinafter set forth. Grippers 85 are secured to a shaft 86 for pivotal or rocking movement about the shaft, and an arm 87 extends radially from the shaft 86 and this arm is pivotally secured to one terminal of a tension rod 88, as indicated at 90. The opposed end of the rod 88 is slidably secured in a stud or supporting member 91, and a helical spring 92 is interposed between the support 91 and a shoulder 93 formed on the pivotal end of the rod 88 to thereby normally bias the grippers towards closed or gripping position. A blanket 94 of any preferred material is secured to the peripheral portion of the impression cylinder 57 so that it extends substantially half way around the cylinder periphery. The leading terminal of the blanket is secured to a clamping surface 95 formed in the impression cylinder by a suitable clamp 96 which may be secured to the cylinder by screws or other suitable securing devices 97. The opposed end of the blanket is secured to a reel rod 98 of usual construction, and it may be rotated to draw the blanket taut around the cylinder periphery to thereby serve as an impression surface for printing cooperation with the printing plate or plates carried by the form cylinder 13. A make-ready or proof sheet 100 is secured to the cylinder periphery with and under the blanket, and in order to insure that the blanket 94 and make-ready sheet 100 are secured in the same relative position on the impression cylinder 57 in the make-ready machine and on the impression cylinder in the printing machine, suitable registering means are provided which include a plurality of registering pins 101 which extend outwardly from the radial surface 95 of the impression cylinder 57. These pins are located in a predetermined position relative to the impression cylinder 57 in the make-ready machine, and similar pins are secured in the same relative position to the impression cylinders in the printing machine. The blanket 94 and make-ready sheet 100 have their leading ends perforated and creased by any suitable mechanism, which forms no part of this invention, so that the apertures in the leading end of the make-ready sheet accurately aline with an fit over the registering pins 96, and the creased portion of the blanket and make-ready sheet accurately engage the intersection of the cylinder periphery and the radial surface 95. Thus it is seen that a blanket and make-ready sheet which has been positioned on the make-ready impression cylinder may be placed in the same relative or similar position on any selected impression cylinder of the printing machine.

In order to provide a convenient feed and work platform, an angular supporting arm 102 is pivotally secured to a lug 103 at each side of the machine, as indicated at 105, as best seen in Figure 1. Inasmuch as the arms 102 are in alinement, as viewed in this figure, only one arm is seen, but, as stated, it is to be understood that there is an arm at each side of the machine, and to these arms there is slidably secured a feed and work platform 106. Any preferred means may be employed for slidably securing the feed and work board or platform 106 to the spaced arms 102, and, to this end, there are provided elongated strips or dovetail rails 107 which are secured to the platform 106 by screws 108 or other suitable securing devices. These rails are slidably received in dovetail grooves 110 formed in the upper edge of the normally horizontal portion of the angular arms 102. The forward edge of the board or platform 106 is beveled, as indicated at 111, in order that this edge may be moved immediately adjacent the peripheral portion of the impression cylinder 57 so that the upper surface of the board or platform 106 is disposed in tangential relation to the cylinder periphery. In order to insure that the forward edge of the board is positioned in correct relation to the periphery of the cylinder 107, an adjustable stop is secured to each arm 102, and includes a lug 112 which extends outwardly from each arm and which is threaded for the reception of an adjustable stop screw 113 which may be locked in selected position by a lock or jamb nut 114. By this arrangement the stop screw 113 may be adjusted to engage the machine frame to limit the downward movement of the arms 102 about their pivots 105 so that the leading or beveled edge of the board 106 may be positioned in correct or desired relation to the periphery of the impression cylinder 57.

The upstanding supporting end members 12 of the machine frame 10 are reenforced by tie or brace rods 116 which extend transversely across the machine and are secured to the end members 12 by machine screws or other suitable securing devices 117. One of the brace or tie rods 116 has supporting arms 118 strapped or secured thereto, as indicated at 120, as best seen in Figure 1, and these supporting arms support an arcuate guard 121 which is positioned adjacent the periphery of the impression cylinder and in concentric relation thereto for reasons to be hereinafter disclosed.

The grippers 85, as hereinbefore disclosed, are normally constrained to their closed or gripping position by the helical spring 92, and in order to release or open the grippers an arm or lever 122 is pivotally supported by a stud 123 which is secured to an upstanding end member 12 of the machine frame, as best seen in Figures 1 and 2, and a link 125 is pivotally secured to the outer portion of the arm 122, as indicated at 126. The lower terminal of the link 125 is pivotally secured to a treadle or lever 127, as indicated at 128, and the length of this link may be adjusted by a turnbuckle 130 which is secured to the link intermediate the terminals thereof. A collar or washer 131 is pinned or otherwise secured to the link 125, and the lower portion of the link extends loosely through an aperture formed in the

outer terminal of a bracket arm 132 secured to the base of the machine frame, as indicated at 133. A helical spring 134 is positioned around the lower portion of the link 125, and it is interposed between the washer 131 and outer terminal of the arm 132 to thereby support the link 125, arm 122 and treadle 127 in their upper position, as depicted in Figure 1 of the drawings, any suitable stop means being provided to limit the upward movement of these components. In order to limit the downward movement of these components, a stop member 135 is adjustably secured to the machine base, as indicated at 136.

In order to drive the cooperating printing cylinders and inking mechanism, a motor 137 is provided, and this motor is secured to an upstanding supporting member 12 of the machine frame by interposed channel brackets 138. Power is imparted from the motor 137 through a reducing gear 140 of any improved construction to a shaft 141, and this shaft is coupled to an alined shaft 142 through a suitable coupling unit 143, and a drive gear 145 is keyed to the outer end of the shaft 142, as indicated at 146. The drive gear meshes with the gear 22 of the plate or form cylinder, and the gear 22 drives the cooperating impression cylinders and also the ink mechanism, as hereinbefore set forth. In order to protect the operator against injury, and to protect the gears from extraneous matter, a housing 148 is secured around the gears to a supporting member 12 of the machine frame, as shown in Figures 1 and 2.

The drive motor 137 is energized from any suitable source of electric power, and, in order to operate the printing cylinders and inking mechanism through a complete predetermined cycle of operation, there is provided any suitable means for interrupting the source of electric power when the impression cylinder 57 has rotated to a predetermined position. The normal stop or rest position of the impression cylinder positions the grippers 85 in their uppermost position, as shown in Figure 1. Therefore, any suitable limit switch 139, as indicated diagrammatically in Figure 6, may be provided to break the electric circuit after the cylinder has rotated one complete revolution in which it starts from the position shown in Figure 1 and completes its cycle of operation when it again reaches the same position.

In operation, printing plates which are to be employed in the printing machine are suitably secured or clamped to the plate cylinder 13 so that the plates extend substantially half way around the cylinder periphery, and the blanket 94 is secured in predetermined position on the impression cylinder 57 so that the blanket, as described, extends substantially half way around the cylinder in position to cooperate with the plates on the plate cylinder. A suitable underlay or make-ready sheet 100 having thereon a proof impression of the matter to be printed is positioned under the blanket, and, inasmuch as the apertures formed in the leading terminal of the make-ready sheet and the blanket have been formed therein in predtermined position for accurate alinement with the registering pin 101, it is manifest that the blanket and make-ready sheet will be secured in a definite predetermined position on the periphery of the impression cylinder. A proof sheet is then placed on the platform 106 and the treadle 127 is depressed so that the arm 122 engages the arm 87 of the gripper mechanism, thereby opening the grippers 85 against the tension of the spring 92. The proof sheet is then moved under the grippers and the treadle is released to cause the grippers to clamp the leading edge of the sheet to the blanket on the impression cylinder. The electric motor is then energized and operates to rotate the plate and impression cylinders through one complete revolution, during which the proof sheet is printed and its trailing end is protected and guided by the guard 121, and when this cycle of operation has been completed the motion of the cylinders is arrested by the limit switch 139 interrupting the electric current. The board or platform 106 is then slid rearwardly away from the impression cylinder, thus giving access to the trailing end of the proof sheet. The trailing end of the proof sheet is then drawn upwardly over the upper surface of the board or platform 106 for observation to determine if further make-ready work is required. If additional make-ready work is required the blanket and make-ready sheet may be released and the make-ready sheet may be positioned on the upper surface of the board or platform 106 in convenient position to permit further make-ready operations, and the desired operations may be repeated until the make-ready operation has reached a satisfactory completion. Inasmuch as the arms 102 which support the board or platform 106 are pivotally secured to the frame at 105, the arms and board may be swung upwardly away from the impression cylinder, thereby giving ready access to the entire cylinder, and, inasmuch as the board 106 is slidably secured to the supporting arms 102, this board may conveniently be slidably moved towards and away from the cylinder to best suit the operator's requirements and convenience, and the surface of the board affords a convenient working surface for the make-ready operations. After the make-ready operation has been completed, the blanket 94 and make-ready sheet 100 are removed from the impression cylinder of the make-ready machine and are secured in exactly the same relative position on an impression cylinder of the printing machine for cooperation with the same printing plate which is also removed from the make-ready machine to the plate cylinder of the printing machine. Thus it is seen that exactly the same conditions exist in the make-ready machine and in the printing machine, so that a make-ready operation which has been correctly performed in the make-ready machine produces perfect printing in a printing machine, thus liberating the printing machine during the entire make-ready operation for productive work.

Having thus described my invention, what I claim is:

1. In a machine for making ready independently of the printing machine, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, means carried by the impression cylinder for operably securing a sheet on the cylinder for printing engagement with the form cylinder, and a slidable platform pivotally supported in predetermined relation to the impression cylinder.

2. In a machine for making ready independently of the printing machine, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, means carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder for printing engagement with the form

cylinder, and a slidable platform supported for tangential sliding movement relative to the impression cylinder.

3. In a machine for making ready independently of the printing machine, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, means carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder for printing engagement with the plate on the form cylinder, and a slidable pivotally supported platform supported for predetermined sliding movement relative to the impression cylinder, the platform being movable about its pivotal supports away from the impression cylinder to give ready access thereto.

4. In a machine for making ready independently of the printing machine, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, the said cylinders being power driven through predetermined similar cycles of operation, and means for interrupting the power at the completion of each cycle to stop the cylinders in predetermined angular position, means carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder for printing engagement with the form cylinder, and means positioned to engage the said sheet securing means to release the proof sheet only when the impression cylinder is at rest in the said predetermined angular position.

5. In a machine for making ready independently of the printing machine, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, said cylinders being power driven through predetermined similar cycles of operation, and means for interrupting the power at the completion of each cycle to stop the cylinders in predetermined angular position, grippers carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder and normally constrained to closed or gripping position, and means external of the impression cylinder and positioned to operably engage the grippers to move them to open position to release the proof sheet when the impression cylinder is at rest in the said predetermined angular position.

6. In a machine for making ready independently of the printing machine, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, the said cylinders being power driven through predetermined similar cycles of operation, and means for interrupting the power at the completion of each cycle to stop the cylinders in predetermined angular position, grippers carried by the impression cylinders for operably securing a proof sheet in predetermined position on the cylinder, yieldable means carried by the impression cylinder for normally biasing the grippers to closed or gripping position to thereby secure the proof sheet to the impression cylinder, and manually operable means external of the impression cylinder positioned to operably engage the grippers to move them to open position against the influence of the said yieldable means to release the proof sheet when the impression cylinder is at rest in the said predetermined angular position.

7. In a machine for making ready outside of the printing machine, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, a platform slidably supported in predetermined tangential relation to the impression cylinder, grippers carried by the impression cylinders for operably securing a proof sheet in predetermined position on the cylinder, yieldable means carried by the impression cylinder for normally biasing the grippers to closed or gripping position to thereby secure the proof sheet to the impression cylinder, and manually operable means external of the impression cylinder and positioned to operably engage the grippers to move them to open position against the influence of the said yieldable means to release the proof sheet when the impression cylinder is in a predetermined angular position.

8. In a machine for making ready independently of the printing machine, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, means carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder for printing engagement with the form cylinder, and a pivotally supported slidable platform constructed and arranged to be supported in tangential relation to the impression cylinder, the platform being capable of swinging movement about its pivotal support away from the impression cylinder to thereby give access to the impression cylinder.

9. In a machine for making ready independently of the printing machine, a frame, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, means carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder for printing engagement with the plate on the form cylinder, a platform pivotally secured to the frame and mounted for sliding movement in tangential relation to the impression cylinder, the platform being capable of swinging movement about its pivotal support away from the impression cylinder to thereby give access to the impression cylinder, and means movable with the platform for adjusting the operable position of the platform relative to the impression cylinder when the platform is supported in tangential relation to the impression cylinder.

10. In a machine for making ready independently of the printing machine, a frame, a form cylinder rotatably supported by the frame, an impression cylinder rotatably supported by the frame and arranged for printing cooperation with the form cylinder, the said cylinders being power driven through predetermined similar cycles of operation, and means for interrupting the power at the completion of each cycle to stop the cylinders in predetermined angular position, grippers carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder and normally constrained to closed or gripping position, and means operably supported by the frame external of the impression cylinder and positioned to operably engage the grippers to move them to open position to release the proof sheet only when the impression cylinder is at rest in the said predetermined angular position.

11. In a machine for making ready independently of the printing machine, a frame, a form

cylinder rotatably supported by the frame, an impression cylinder rotatably supported by the frame and arranged for printing cooperation with the form cylinder, a platform pivotally secured to the frame and arranged to be slidably supported in predetermined tangential relation to the impression cylinder, grippers carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder, yieldable means carried by the impression cylinder for normally biasing the grippers to closed or gripping position to thereby secure the proof sheet to the impression cylinder, and manually operable means pivotally supported by the frame external of the impression cylinder and positioned to operably engage the grippers to move them to open position against the influence of the said yieldable biasing means to release the proof sheet only when the impression cylinder is in a predetermined angular position.

12. In a machine for making ready independently of the printing machine, a frame, a form cylinder rotatably supported by the frame, an impression cylinder rotatably supported by the frame and arranged for printing cooperation with the form cylinder, means carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder for printing engagement with the plate on the form cylinder, arms pivotally supported by the frame, a platform slidably supported by the arms in predetermined relation to the impression cylinder.

13. In a machine for making ready outside of the printing machine, a frame, a form cylinder rotatably supported by the frame, an impression cylinder rotatably supported by the frame and arranged for printing cooperation with the form cylinder, manually operable means operably supported by the frame for moving the impression cylinder towards and away from the form cylinder, means carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder for printing engagement with the form cylinder, means for inking the form cylinder, a slidable platform pivotally supported by the frame in predetermined relation to the impression cylinder, and a motor for operably rotating the form and impression cylinder.

14. In a machine for making ready outside of the printing machine, a frame, a form cylinder rotatably supported by the frame, an impression cylinder rotatably supported by the frame and arranged for printing cooperation with the form cylinder, a gear carried by the form cylinder, a gear carried by the impression cylinder and meshing with the form cylinder gear to rotate said cylinders in synchronism, manually operable means operably supported by the frame for moving the impression cylinder towards and away from the form cylinder, means carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder for printing engagement with the plate on the form cylinder, means for inking the plate on the form cylinder, a slidable platform pivotally supported by the frame in predetermined relation to the impression cylinder, and a motor geared to a cylinder gear to thereby operably rotate the form and impression cylinders.

15. In a machine for making ready independently of the printing machine, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, grippers carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder for printing engagement with the plate on the form cylinder, a platform slidably supported in predetermined tangential relation to the impression cylinder, and means carried by the impression cylinder for securing a blanket and make-ready sheet to the impression cylinder.

16. In a machine for making ready outside of the printing machine, a rotatably supported form cylinder, a rotatably supported impression cylinder arranged for printing cooperation with the form cylinder, grippers carried by the impression cylinder for operably securing a proof sheet in predetermined position on the cylinder for printing engagement with the form cylinder, a slidable platform supported in predetermined tangential relation to the impression cylinder, and means carried by the impression cylinder for securing a blanket and make-ready sheet to a fractional portion of its periphery, intermeshing gears carried by the form and impression cylinders, a drive motor operably connected with the said gears to thereby operably rotate the cylinder, and means for energizing the motor during a predetermined period for automatically rotating the cylinders through a predetermined cycle of operation equivalent to a complete rotation of the form cylinder during each proof printing operation, the cycle of operation terminating when the proof sheet is in a position on the impression cylinder for convenient removal therefrom along the surface of the platform.

17. The method of making ready outside of the printing machine, which consists in providing similar perforations in corresponding portions of the blanket and make ready sheet, providing a plate cylinder and a cooperating impression cylinder outside of the printing machine similar to the cylinders in the printing machine, providing similarly positioned locating pins on both impression cylinders to engage the perforations of the blanket and make ready sheet to thereby locate the blanket and make ready sheet in similar superposed relation on both impression cylinders.

18. Apparatus for making ready outside of the printing machine, including a plate cylinder and a cooperating impression cylinder corresponding in diametrical dimensions to the cylinders in the printing machine, locating pins on the impression cylinder and positioned to correspond with the location of similar pins on the impression cylinder of the printing machine, the locating pins of the impression cylinder and the printing machine impression cylinder engaging apertures located in predetermined positions in a make ready sheet and a blanket to insure the corresponding positioning of the make ready sheet and blanket on both impression cylinders.

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