

Oct. 5, 1926.

1,602,181

M. STOESSEL

PRINTING PRESS

Filed Oct. 24, 1923

2 Sheets-Sheet 1

Fig. 1

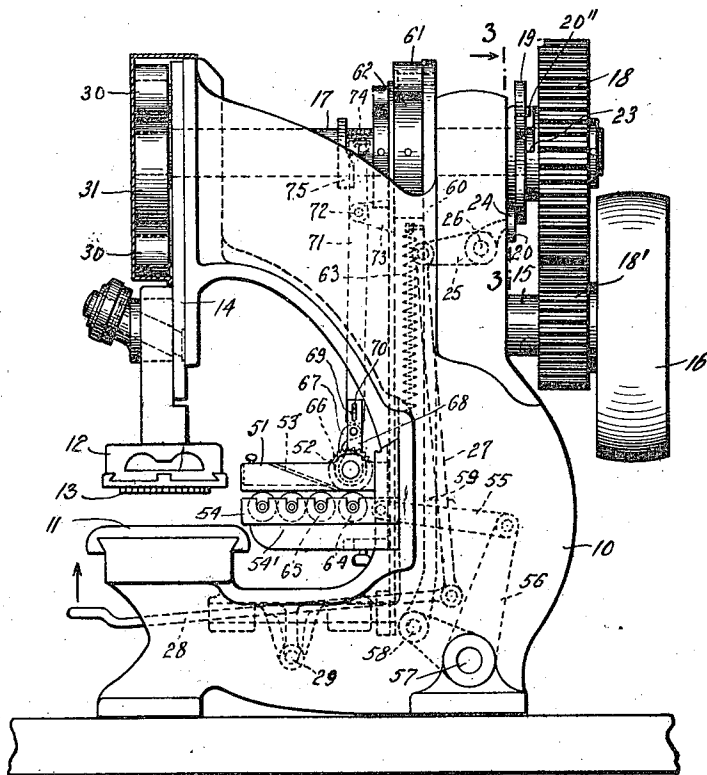


Fig. 6

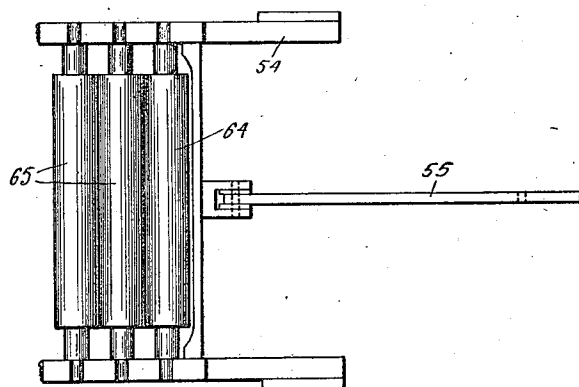
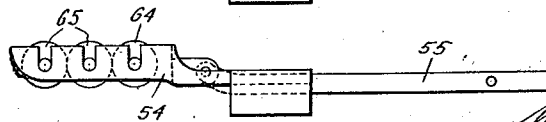


Fig. 7



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Fig. 2

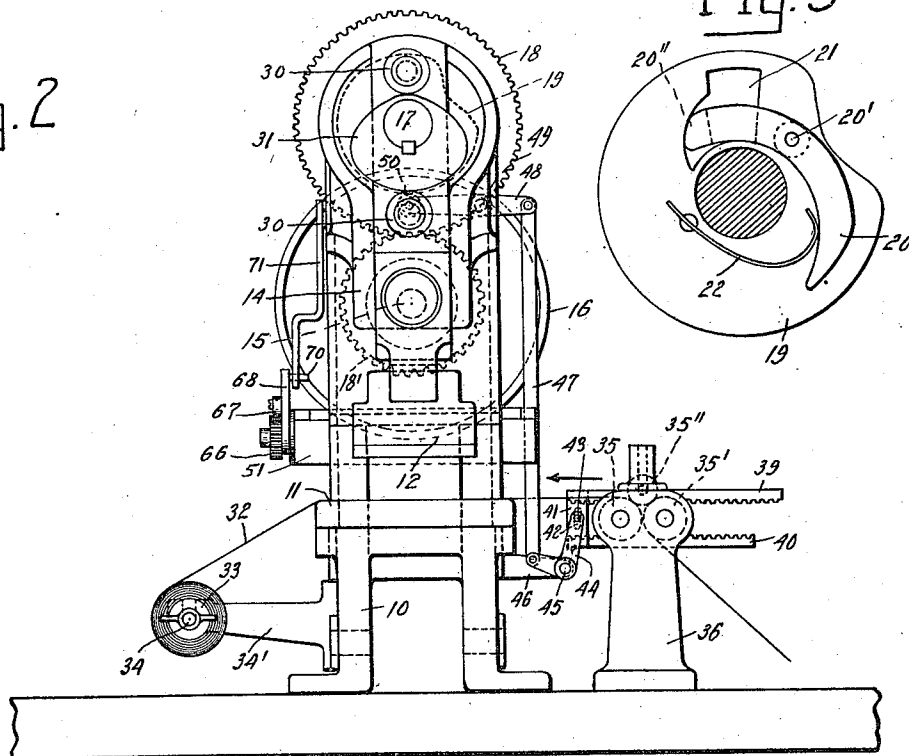


Fig. 3

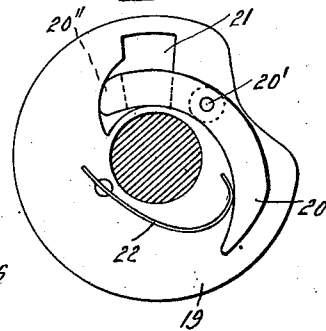


Fig. 4

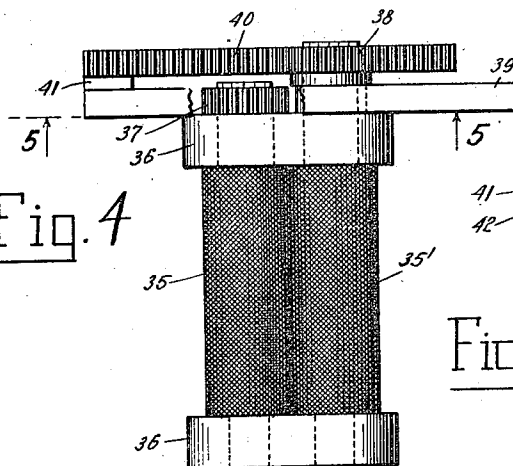
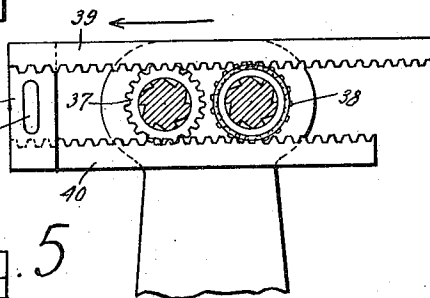


Fig. 5



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UNITED STATES PATENT OFFICE.

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PRINTING PRESS.

Application filed October 24, 1923. Serial No. 670,474.

The present invention relates to improvements in printing presses of the bed-and-platen type, and more particularly to that type in which the printing member moves in a straight path. The invention relates more particularly to those presses which print on continuous strips or webs of indefinite length.

The main object of the invention is to provide a printing press of the type mentioned which is simple in construction, efficient in operation, and which is entirely automatic in its operation, including the feeding of the web.

Another object of the invention is to provide an improved web feeding mechanism which is capable of being mounted upon any printing press of the bed-and-platen type without necessitating material changes in the construction of the latter.

A further object of the invention is to produce a simple inking mechanism, including a plurality of bodily movable rollers, one of which constitutes a distributing means for transferring the ink to a stationary surface, from which it is transferred by the inking rollers to the printing surface.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claim and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claim, without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of a printing press constructed in accordance with the present invention; Fig. 2 is a front elevation thereof; Fig. 3 is a section taken on line 3—3 of Fig. 1, on a larger scale; Fig. 4 is a top elevation of the web feeding mechanism, on a larger scale; Fig. 5 is a section taken on line 5—5 of Fig. 4; Fig. 6 is a top elevation of the distributing and inking rollers, and the frame carrying the same,

on a larger scale; and Fig. 7 is a side elevation of the detail shown in Fig. 6.

Referring now to the drawings, the numeral 10 indicates the frame of the press on which the operative parts are supported, including a platen 11 and a reciprocable bed 12, which carries the form 13. The bed frame extends vertically, moving between guides 14 on the main frame. In the main frame is suitably journaled a driving shaft 15, to which motion may be imparted in any suitable manner, for instance by a belt, not shown, running over a pulley 16, that is fixedly attached to the driving shaft. In parallel relation to the driving shaft there is rotatably journaled in the main frame a countershaft 17, upon which is loosely mounted a gear 18, in mesh with a gear 18', the latter being keyed or otherwise attached to the driving shaft. The gear 18 is adapted to be connected to the countershaft 17 by any suitable clutch mechanism, for instance of the type shown in Fig. 3 of the drawings. This mechanism includes a disk 19 fixed to the shaft 17 and carrying a lever 20, which is fulcrumed at 20' to the said disk. This lever includes a nose 20'', which projects through a slot 21 in the said disk. A spring 22 on the disk 19 bears against the lever 20 and has a tendency to keep the nose 20'' of the said lever in the path of a shoulder 23 on the gear 18, whereby the rotation of the shaft 15 is transmitted to the countershaft 17. With the lever 20 co-operates an anti-friction roller 24, carried by a bell-crank lever 25, that is fulcrumed at 26 to the machine frame and connected by a link 27 with a lever 28 the latter being fulcrumed at 29 to the base of the machine frame. When the last-mentioned lever is in the position shown in Fig. 1 of the drawings the lever 20 on the disk 19 is in the position shown in Figs. 1 and 3 of the drawings, in which the gear 18 is connected to the countershaft 17, so as to cause a rotation of the latter. If it is intended to disconnect the gear 18 from the said countershaft, the lever 28 is shifted around its fulcrum in the direction of the arrow shown adjacent the said lever in Fig. 1 of the drawings, whereby the nose 20'' is disengaged from the shoulder 23 on the gear 18. This gear is thus unclutched from the shaft 17, whereby the latter is caused to come to a full stop.

For the purpose of reciprocating the bed

12, there are mounted upon the frame thereof two rollers 30, for co-operation with a cam 31, which is keyed to the shaft 17. The rollers 30 are disposed upon diametrically opposite portions of the countershaft, so that, as the cam 31 is rotated, the bed is reciprocated in relation to the platen 11.

The continuous web 32 of paper is wound upon a roll or core 33, carried by a shaft 34. This shaft is journaled in brackets 34' on the main frame, the web being carried over the platen 11, where it receives the impressions from the form 13, and thence it passes between feed rollers 35 and 35', by which it is fed, for instance, to a wind-up reel, not shown. There are two feed rollers provided, the same being journaled in standards 36. On the shaft of the roller 35 is mounted a pinion 37 and on the shaft of the roller 35' a pinion 38. These pinions are connected with the said shafts by a suitable clutch mechanism which permits the same to rotate freely on the said shafts in one direction, but causes the pinions to carry the shafts and thus the feeding rollers with them when moving in the opposite direction. With the pinion 37 meshes a rack-bar 39 and with the pinion 38 a rack-bar 40. These bars are connected by a block 41, the bars meshing with the said pinions on diametrically opposite portions of the said pinions, for a purpose hereinafter to be described. The block 41 is provided with a slot 42, in which is seated a pin 43 on the bellcrank lever 44, the latter being fulcrumed at 45 to a bracket 46 on the machine frame. This bellcrank lever is connected by a bar 47 with a lever 48, fulcrumed at 49 to the machine frame and carrying an antifriction roller 50, which bears against the peripheral portion of the disk 19, the said disk being in the form of a cam, as clearly shown in Figs. 2 and 3 of the drawings. A spring, not shown, serves to keep the antifriction roller in continuous contact with the cam disk 19. A pressure roller 35'' co-operates with the feeding roller 35 (Fig. 2). When the rack-bars 39 and 40 move in the direction of the arrow shown adjacent the same in Figs. 2 and 5 of the drawings, the feed rollers 35 and 35' idle, and when the rack-bars move in the opposite direction the feeding rollers advance the web 32 in relation to the platen 11 the desired distance. The movements of the cams 31 and 19 are so timed that the feeding of the web is effected while the bed moves on its upward stroke, the web being kept stationary during the printing operation.

The inking mechanism of the press comprises an ink fountain 51, that is supported in any suitable manner by the machine frame and has rotatably mounted therein a feed roller 52, with which co-operates a mechanism 53 for regulating the amount

of ink that the roller 52 feeds through a slot in the bottom of the ink fountain. Below the ink fountain is reciprocably mounted a frame 54 on guides 54' on the machine frame, the frame 54 being connected by a link 55 with a bellcrank lever 56, that is fulcrumed at 57 to the main frame of the machine and pivotally connected at 58 with a vertically reciprocable frame 59, the latter sliding in guides 60 on the machine frame. The frame 59 carries an antifriction roller 61, co-operating with a cam 62, the latter being fixed to the countershaft 17. This cam causes an upward movement of the frame 59, a downward movement of the latter being effected by a spring 63, which is fixed to the frame 59 and to the main frame 10. The frame 54 carries a plurality of rollers, in the present case four, of which the outermost roller, denoted by the numeral 64, constitutes the distributing roller of the inking mechanism, and the others, denoted by the numeral 65, the inking rollers. The distributing and inking rollers co-operate with the underface of the bottom of the fountain, said underface constituting the inking plate of the inking mechanism.

The feed roller 52 has fixed to it a ratchet wheel 66, which is actuated by a pawl 67, carried by an arm 68, the latter being oscillatably mounted upon the shaft of the feed roller. This arm is provided with a slot 69, in which is seated a pin 70 on a lever 71, the latter being fulcrumed at 72 to a bracket 73 on the frame 10. The lever 71 carries an anti-friction roller 74, co-operating with a face cam 75 on the countershaft 17. During each revolution of the shaft 17 the pawl 67 engages and actuates the ratchet wheel 66 and the feed roller 52, the latter depositing ink along a narrow strip lengthwise on the distributing roller 64. The last-mentioned roller transfers the ink to the inking plate when the frame 54 moves in the direction of the arrow shown adjacent the same in Fig. 1 of the drawings. At the same time the inking rollers 65 transfer the ink that has been distributed over the inking plate on the previous inward stroke of the frame 54 from the said inking plate to the form. It is obvious that the movements of the cams 62 and 31 must be so timed that the frame 54 moves on its inward stroke when the bed 12 is stationary in its upper position, clearing the said bed on its outward stroke before the bed starts its downward movement. The movements of the cams 75 and 62, on the other hand, must be so timed that the feed roller 52 is given a partial rotation either before or while the distributing roller 64 comes or is in contact with the said feed roller.

The operation of the press is as follows: When the elements are in the positions shown in Figs. 1 and 3 of the drawings, the

disk 19 is connected with the countershaft 17. While the bed 12 moves on its upward stroke, the feed rollers 35 and 35' advance the web over the platen 11 the desired distance. As soon as the bed arrives in its uppermost position (Fig. 1), the frame 54 starts its inward movement, whereby the inking rollers 65 transfer the ink from the inking platen to the form and at the same time the rollers 64 distribute ink over the face of the said inking plate. The frame 54 starts then its movement in the opposite direction, the bed moving downwards as soon as the said frame has cleared the bed, the form making an impression on the bed. The bed then moves upwards. The cycle of operation now described is then repeated.

What I claim is:—

A printing press comprising a frame, a bed thereon holding a form, a shaft rotat-

ably mounted on said frame, an ink fountain stationary on said frame, said fountain being provided with a slot in its bottom, a feed roller in said fountain adjacent said slot, means on said shaft for intermittently rotating said feed roller, the outer face of the bottom of said fountain constituting an inking plate, a frame reciprocable in relation to said fountain, and a plurality of rollers carried by said frame, each having an acting face corresponding in length to that of the slot in said ink fountain, one of said rollers coacting with said feed roller for distributing the ink on said inking plate and the other rollers transferring the ink from said inking plate to said form.

Signed at New York, in the county of New York and State of New York, this 17th day of October, A. D. 1923.

MAX STOESSEL.