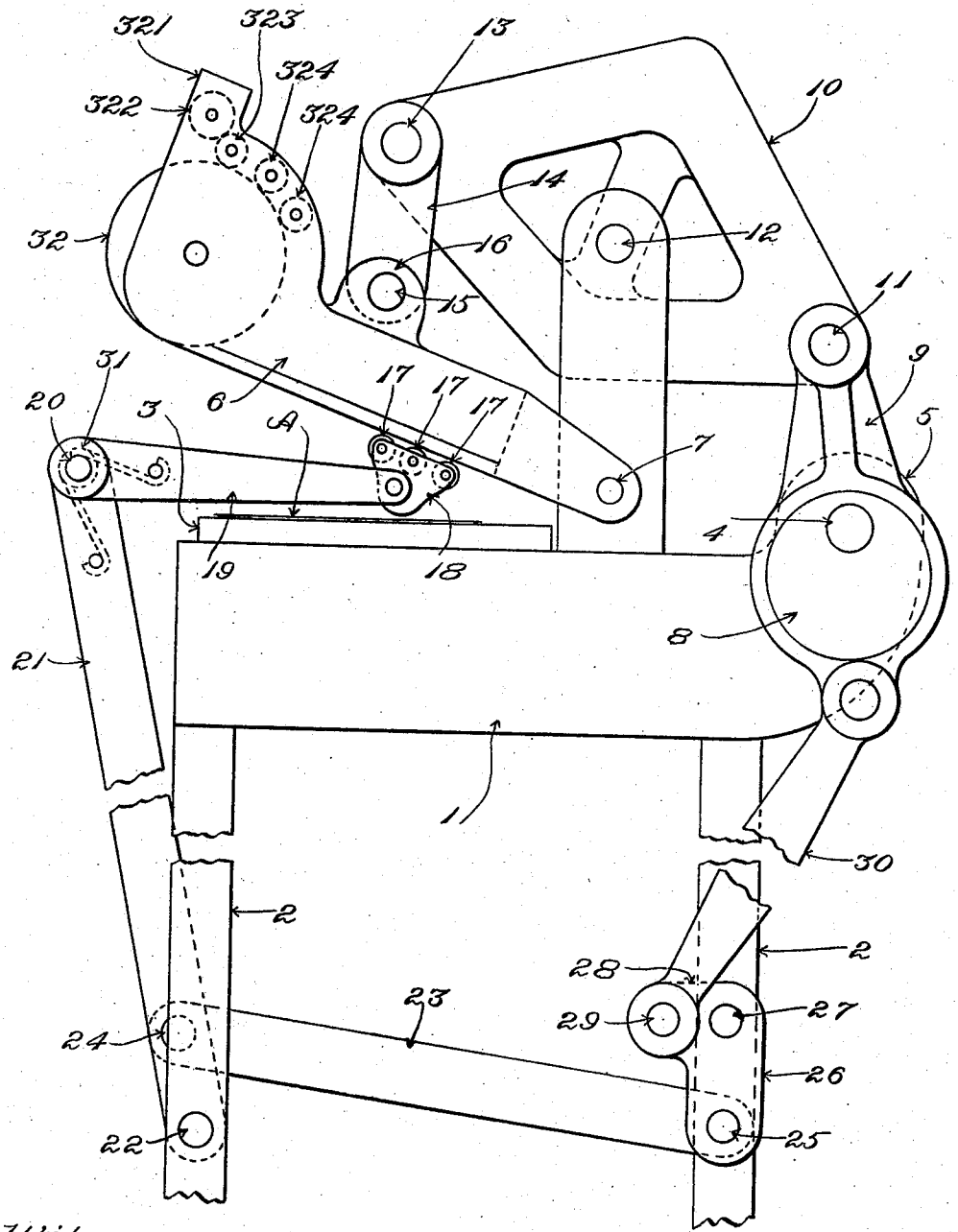
No. 867,897. PATENTED OCT. 8, 1907.

T. A. NEEDHAM.

PRINTING PRESS.

APPLICATION FILED FEB. 14, 1907.




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THE NORRIS PETERS CO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

THOMAS A. NEEDHAM, OF EVERETT, MASSACHUSETTS.

## PRINTING-PRESS.

No. 867,897. Specification of Letters Patent. Patented Oct. 8, 1907.

Application filed February 14, 1907. Serial No. 357,252.

*To all whom it may concern:*

Be it known that I, THOMAS A. NEEDHAM, a citizen of the United States, residing at Everett, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Printing-Presses, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention comprises improvements in flat-bed web printing presses.

It relates, more particularly, to the type-head and the operating means therefor of a press of the said class, and to the inking devices and the means of operating the form-rollers.

The invention is illustrated in the drawing, which latter represents certain parts of a printing press of the class aforesaid, with the invention embodied therein, only such parts being shown as are necessary to make clear the relations and nature of the invention. The said parts are shown in end elevation.

Having reference to the drawings,—at 1 is shown a bed forming a part of the main framework of the printing press, and at 2, 2, are supporting legs on which the said bed is mounted. At 3 is a platen supported in horizontal position on the said bed.

At 4 is a shaft mounted in bearings which are provided in brackets 5, 5, extending transversely from the bed 1 at one side of the path of movement of the web A. This shaft is provided in practice with driving devices (not necessary to be shown) by means of which to rotate the same, and is connected operatively with the type-head 6 and the support for the form-rollers, and from the same motion is transmitted to the said type-head and the said support, as presently will be explained. The type-head is hung upon pivots, one of which is shown at 7, and in operation swings or vibrates vertically upon such pivots, substantially as in presses of the same class heretofore employed, but with this difference, namely, that heretofore the pivots for a swinging type-head on the order of that shown in the drawings have been arranged at opposite sides of the path of the web and the type-head has swung in a plane extending lengthwise of the web, whereas in a press embodying my present invention the pivots are located at one side of the path of the web, and the type-head swings transversely across the web. The devices by which the type-head is operatively combined with the shaft 4, and through which the required motion is transmitted from the said shaft to the type-head, comprise in the present instance an eccentric 8 which is fast upon the said shaft, a strap and connecting-rod 9 applied to the said eccentric, a rocker or walking-beam 10 having the said connecting-rod pivotally joined to one arm thereof at 11 at one side of the pivot 12 of the said rocker or walking-beam and having pivotally joined to its opposite arm at the opposite side of the said pivot 12, as at 13, the upper end of a link 14, the lower end of which is connected by a pivot 15 with an ear 16 forming a part of the type-head. In practice one or more links 14 and rockers or walking-beams 10 will be employed, the number of links and rockers or walking-beams varying with the views of builders and users of the press, and with the size of the latter. Preferably, the motion-transmitting connections will engage with the type-head at or adjacent the opposite sides of the latter, and in the case of a wide type-head at the middle of the width of the type-head also. In such instances a plurality of links usually will be employed, and a corresponding plurality of rockers or walking-beams. As this, however, involves mere duplication in the case of certain of the motion-transmitting parts, illustration of such duplication is unnecessary. In operation, as the shaft 4 rotates, the type-head is caused to swing vertically, as previously stated.

At 17, 17, 17, are shown the form-rollers, and at 18 one of the carriages therefor. The form-roller carriages are carried by a support 19 in the form of a frame which occupies a substantially horizontal position and is hung by means of a shaft or rod 20 to the top of a substantially upright frame 21 swinging at the bottom thereof upon pivots 22 in connection with the lower parts of the supporting legs 2. For the purpose of communicating to the support 19 for the form-rollers the required movements at the proper times in the working of the mechanism, the upright swinging frame 21 is combined operatively with the shaft 4 by connections comprising in this instance the link 23 having one end thereof joined to the said frame 21 by a pivot 24 and the other end thereof joined by a pivot 25 to the downwardly-projecting arm 26 of an elbow-lever or rocker which is pivotally mounted at 27 in connection with one or more of the supporting legs 2, 2, at the driving side of the press, the said elbow or rocker having a substantially horizontal arm, 28, to which is connected pivotally at 29 the lower end of a link 30 having its upper end joined pivotally to the combined strap and connecting rod 9. Through these connections the upright frame 21 is swung so as to move the support 19 and form-roller carriages 18 and the form-rollers 17, 17, 17, with the proper timing to cause the latter parts to enter between the platen and the type-head as the type-head separates or moves away from the platen, and to cause them to withdraw from between the platen and type-head before the latter closes against the former.

For the purpose of causing the form-rollers to make contact with the faces of the type and to roll along the same as support 19 moves in and out again between the separated type-head and platen, the support 19 is acted upon by force yieldingly applied and operating to press such support and the form-roller carriages and form-rollers supported thereby vertically toward the type-head. This force in the present instance is applied by means of one or more coil-springs 31 surrounding the

shaft or rod 20 and having one end thereof engaged with the support 19 and the other end with the upright frame 21, as indicated in the drawings, the spring shown in the latter operating through its tendency to uncoil to press the support 19 upward. Thereby the form-rollers are caused to make contact with the faces of the type, and to roll in contact with such faces as they travel in and out. This mode and means of supporting the form-rollers and causing them to make contact with the faces of the type obviates all necessity for the employment of guides, tracks, or cheek-pieces for the mounting and guidance of the form-rollers. Guides or tracks in fixed connection with the type-head cannot be employed in a swinging type-head working crosswise with respect to the path of the web, as in the illustrated press, because they would encounter the web in the closing movement of the type-head, and either disturb the register of the web, or break or tear the web.

For the purpose of supplying the necessary ink to the form-rollers, I mount suitable ink-supplying, etc., devices upon the type-head. Thus, at 32, is shown a distributing roll which is journaled in suitable bearings at the free end of the type-head. In connection with this distributing roll I contemplate employing in practice a convenient ink-fountain as 321, and means for transferring the ink from the latter to the distributing roll and spreading it uniformly upon the said roll, such means being indicated by the ink-fountain roll 322, the intermediate roll 323, and the vibrators 324, 324. These last devices, however, are not in themselves of the gist of the invention. In the retracted position of the form-rollers, they rest in contact with the under part of the periphery of the distributing roll, and in the movement of the type-head toward the platen are pressed down by the descent of the distributing roll, but as the type-head moves upward the form-rollers are caused by the action of the spring or springs 31 to rise again so as to accompany the distributing roll in its ascent and they continue in contact therewith until in the working of the mechanism they are caused to move over the faces of the type once more.

A characteristic feature of the means for operating the form-rollers is the fact that the actuating connections for the support therefor extend from the actuating shaft which is located at one side of the path of the web around the platen to the other side of the said path, and at such latter side make connection with the said support. It will be obvious that in manner substantially similar to that herein illustrated the said connections may be arranged to extend around the type-head instead. I regard the latter arrangement an equivalent, broadly considered, of that illustrated and described herein.

It will be understood that in some constructions a crank will be the equivalent of the eccentric herein shown and described.

What is claimed as the invention is:—

1. In a printing-press, the combination with the platen, and the type-head movable toward and from the said platen, of the form-rollers, a roll-carrier, a swinging support for the roll-carrier, a moving carrier mounted independently of the type head and on which the said swinging support is pivotally mounted, and means to actuate the said carrier.

2. The combination, in a printing-press with the platen, and the type-head movable toward and from the platen, of the form-rollers, an actuating shaft at one side of the path of the web an eccentric thereon, and operating connections extending from the said eccentric around the platen to the other side of the said path and serving to actuate the form-rollers to distribute the ink upon the faces of the type.

3. In a printing-press, the combination with the platen, and a type-head swinging transversely with respect to the path of the web about pivotal centers located at one side of the said path, of operating means for the said type-head comprising a rotating shaft, a rocker or walking-beam, and operating connections between said shaft and the outer arm of the said rocker or walking-beam and between the inner arm of the latter and the type-head.

4. In a printing-press, the combination with the platen, and a swinging type-head, of a rotating eccentric, a strap and eccentric-rod, a rocker or walking-beam with one arm of which said eccentric-rod is operatively combined, and a link through which motion is transmitted from the other arm of the rocker or walking-beam to the swinging type-head.

5. In a printing-press, the combination with the platen, and the swinging type-head, and the form-rollers, of a shaft at one side of the path of the web, operating connections extending around the platen to the other side and serving to actuate the form-rollers to distribute the ink upon the faces of the type, a rocker or walking-beam, and operating connections between the latter and the swinging type-head.

6. In a printing-press, the combination with the platen, a swinging type-head, and the form-rollers, of a rotating eccentric, a strap and eccentric-rod, a rocker or walking-beam with which said eccentric-rod is operatively combined, operating connections between the rocker or walking-beam and the swinging type-head, and operating connections extending around the platen from the said strap and eccentric-rod and serving to actuate the form-rollers to distribute the ink upon the faces of the type.

7. In a printing-press, the combination with the platen, and type-head, of the form-rollers, a roll-carrier, a swinging support for the roll-carrier, a swinging carrier to which the said support is hinged, means for moving the said swinging carrier to cause the form-rollers to travel across the face of the type, and means acting upon the said support to press the form-rollers toward the face of the type.

8. In a printing-press, the combination with the platen, and type-head, of the form-rollers, a roll-carrier, a swinging support for the roll-carrier, a swinging carrier to which the said support is hinged, a spring acting upon said swinging support to press the form-rollers toward the face of the type, and means for moving the said swinging carrier to cause the form-rollers to travel across the face of the type.

9. In a printing-press, the combination with the platen, and a type-head movable toward and from the said platen, of an ink-fountain and a distributing roll carried by the said type-head, the form-rollers, a roll-carrier, a swinging support for the roll-carrier, a carrier to which the said support is hinged, means acting upon the said swinging support with yielding force to press the form-rollers toward the face of the type, and actuating means for moving the said carrier to cause the form-rollers to travel across the face of the type.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS A. NEEDHAM.

Witnesses:
CHAS. F. RANDALL,
EDITH J. ANDERSON.