

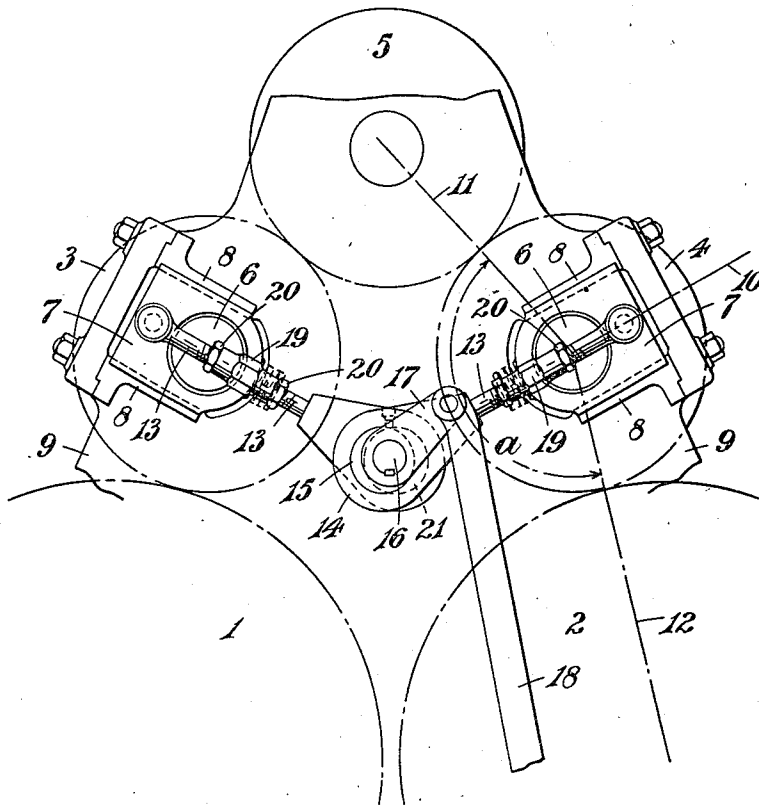
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MEANS FOR TRIPPING THE CYLINDERS OF ROTARY PRINTING PRESSES

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# UNITED STATES PATENT OFFICE.

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MEANS FOR TRIPPING THE CYLINDERS OF ROTARY PRINTING PRESSES.

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*To all whom it may concern:*

Be it known that I, THOMAS ROBERT GILLETT PARKER, a subject of the King of the United Kingdom of Great Britain and Ireland, and resident of Linotype and Machinery Works, Altrincham, in the county of Chester, England, have invented new and useful Improvements in Means for Tripping the Cylinders of Rotary Printing Presses, of which the following is a specification.

This invention relates to means for tripping the cylinders of rotary printing presses, and is particularly applicable for use in connection with the transfer cylinders of offset printing presses, for use in connection with a transfer cylinder of a two-revolution offset printing press wherein the diameter of that cylinder is the same as that of the impression cylinder and a sub-multiple of that of the forme cylinder.

As is well known, in this type of press the transfer cylinder is located between the forme cylinder and the impression cylinder with its axis outside of the plane which contains the axes of the two last-named cylinders, and it is provided with means by which it can be tripped out of contact with both of them when desired. The tripping and the subsequent untripping have not given complete satisfaction because full recognition has not been given to the differences in the circumferential contours of the three co-operating cylinders. It will be readily appreciated that when, as in some already existing presses, the three cylinders are all of the same diameter, even if, as has been heretofore proposed, the tripping and untripping were effected by moving the transfer cylinder rectilinearly in a direction perpendicular to the plane containing the axes of the impression cylinder and forme cylinder, that is to say, in the direction of a line which, in that case, bisects the angle subtended by lines drawn through the centres of the three cylinders, the transfer cylinder, when in printing relationship to the two other cylinders, exerts equal pressure on both of them, and adjustments for varying the pressure between the transfer cylinder and forme cylinder would effect a corresponding variation of pressure between the transfer cylinder and impression cylinder. When, however, as in the present invention, the three cylinders are not all of the same diameter, the tripping

and untripping of the transfer cylinder, if effected rectilinearly in a direction perpendicular to the plane containing the axes of the impression and forme cylinder, would cause said cylinder to bear unequally upon the other two cylinders owing to the differences in their circumferential contours, and moreover, for the same reason, any adjustments made for varying the pressure between the transfer cylinder and the forme cylinder would dissimilarly vary the pressure between the transfer cylinder and the impression cylinder, and this would result in the production of unsatisfactory printing.

The object of the present invention is so to construct the tripping mechanism that any adjustment of the transfer cylinder for varying the pressure or any tripping or untripping of said cylinder shall have an equal effect relatively to both forme cylinder and impression cylinder, this desirable result being, in accordance with the present invention, secured by moving the axis of the transfer cylinder along a line which bisects the angle subtended by lines drawn through the centres of the three cylinders involved in the combination.

This invention will be best understood by reference to the accompanying drawing which shows in side elevation sufficient of a printing press to illustrate an example of the application thereto of the present improvements. In this example the invention is shown as applied to a press in which two forme cylinders 1, 2 and two transfer cylinders 3, 4 co-operate with one and the same impression cylinder 5, and the following description, confined to the unit comprised by the cylinders 2, 4 and 5, is to be understood as applying equally well to the unit comprising the cylinders 1, 3 and 5.

A convenient way of carrying the invention into effect is to journal the trunnions 6 of the transfer cylinder 4 in bearings 7 which are capable of sliding rectilinearly in guides 8 formed in the side frames 9, these guides 8 being so disposed that the sliding motion imparted to the bearings 7 can only be in the direction of the line 10 which bisects the angle  $\alpha$  subtended by the lines 11 and 12 drawn through the centres of the three cylinders 2, 4 and 5. In the example under review, motion is imparted to the bearings 7 by eccentric rods 13 pivotally connected to the sliding bearings 7 and

whose sheaves 14 encircle eccentrics 15 on a rock shaft 16, operated through an arm 17 and link 18 by the ordinary well-known tripping mechanism under the control of the operator.

The eccentric rods 13, of which there is of course one for each of the bearings 7 at respectively opposite ends of the transfer cylinder 4, are shown each formed in two oppositely screw threaded parts connected together by a turn-buckle 19 and preferably having lock nuts 20 for rigidly securing the said parts and the turn-buckle together. By means of this turn-buckle 19 the distance between the axes of the transfer cylinder 4 and rock shaft 16 can be increased and decreased to correspondingly decrease and increase the pressure of such cylinder relatively to the form cylinder 2 and impression cylinder 5.

As already mentioned, the foregoing detailed description applies only to a single offset printing unit, and it will be understood that when the invention is embodied in an arrangement such as is illustrated in the drawing the second transfer cylinder 3 may be operated from the before-mentioned rock shaft 16 through its own eccentric 21 in substantially the same manner as hereinbefore described with reference to the first transfer cylinder 4, the eccentrics 15 and 21 for tripping the two cylinders 3, 4 being so set that these latter may conveniently be tripped or untripped simultaneously.

Having described my invention, I declare that what I claim and desire to secure by Letters Patent is:—

1. In a rotary printing press in which a transversely-movable cylinder of a given diameter is tripped relatively to two other cylinders with which it co-operates, and whose respective diameters are one and the same as, and the other a multiple of that of the first-named cylinder, the combination with the fixed frame in which the said two other cylinders rotate about relatively stationary axes, of a rectilinear guide in the frame in which the shaft of the first-named cylinder is capable of moving with its axis always along a line which bisects the angle subtended by lines drawn through the axes of the said three cylinders.

2. In a rotary printing press in which a transversely-movable cylinder of a given diameter is tripped relatively to two other cylinders with which it co-operates, and whose respective diameters are one the same as, and the other a multiple of that of the first-named cylinder, the combination with the fixed frame in which the said two other cylinders rotate about relatively stationary axes, of a rectilinear guide in the

frame in which the shaft of the first-named cylinder is capable of moving with its axis always along a line which bisects the angle subtended by lines drawn through the axes of the said three cylinders, and means operative to move the transversely-movable cylinder in the direction specified in claim 1.

3. In a rotary printing press in which a transversely-movable cylinder of a given diameter is tripped relatively to two other cylinders with which it co-operates, and whose respective diameters are one the same as, and the other a multiple of that of the first-named cylinder, the combination with the fixed frame in which the said two other cylinders rotate about relatively stationary axes, of a rectilinear guide in the frame in which the shaft of the first-named cylinder is capable of moving with its axis always along a line which bisects the angle subtended by lines drawn through the axes of the said three cylinders, an eccentric operative to move the transversely-movable cylinder in the direction specified in claim 1, and a link operatively connecting the journal box of that cylinder with the said eccentric.

4. In a rotary printing press in which two transversely movable transfer cylinders both of the same diameter are tripped relatively to three other cylinders with which they co-operate and of which three cylinders one is an impression cylinder of a diameter the same as that of each transfer cylinder and the others are forme cylinders each of a diameter which is a multiple of that of the impression cylinder, the combination with the fixed frame in which the impression and forme cylinders rotate about relatively stationary axes, of a rectilinear guide in the frame in which the shaft of each transfer cylinder is capable of moving with its axis always along a line which bisects the angle subtended by lines drawn through its axis and the axes of the impression cylinder and of the respective forme cylinder with which that particular transfer cylinder co-operates.

5. In a rotary printing press, the combination with a forme cylinder, an impression cylinder whose diameter is a sub-multiple of that of the forme cylinder, and a transfer cylinder whose diameter is also a sub-multiple of that of the forme cylinder, of means operative to trip the transfer cylinder relatively to the forme and impression cylinders in the direction of a line which bisects the angle subtended by lines drawn through the centres of the three cylinders.

In testimony whereof I have affixed my signature hereto.

THOMAS ROBERT GILLETT PARKER.