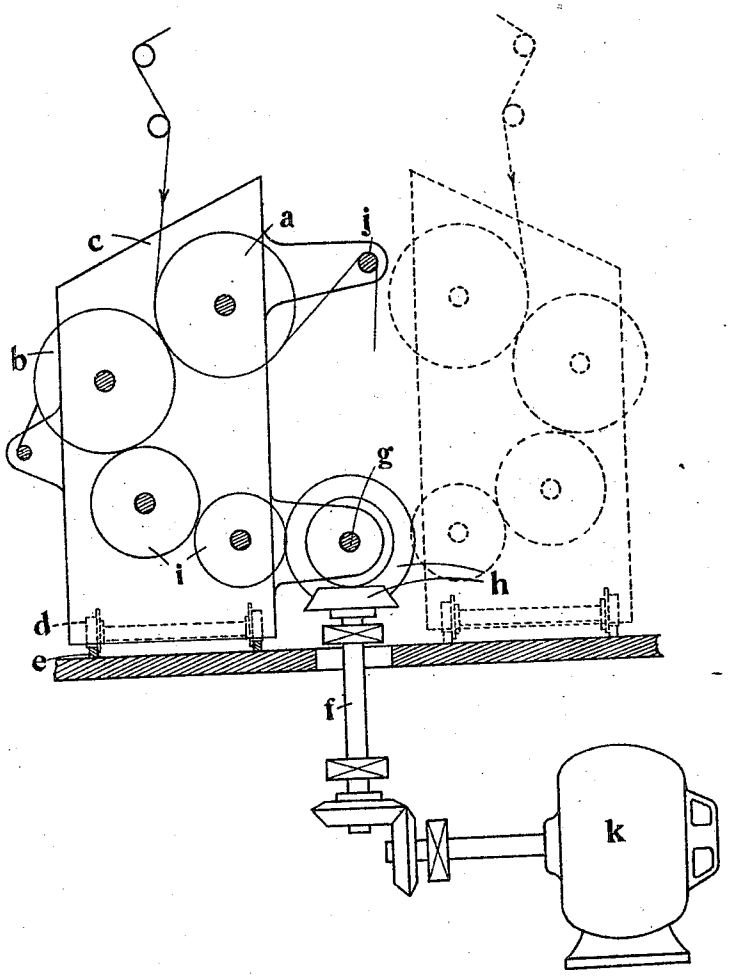
G. W. MASCORD.

ROTARY PRINTING MACHINE.

APPLICATION FILED OCT. 19, 1920.

1,410,826. Patented Mar. 28, 1922.



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ROTARY PRINTING MACHINE.

1,410,826. Specification of Letters Patent. Patented Mar. 28, 1922.

Application filed October 19, 1920. Serial No. 418,081.

(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

To all whom it may concern:

Be it known that I, GEORGE WILLIAM MASCORD, a subject of the King of Great Britain and Ireland, residing at St. Agness, 14 Castelnau, Barnes, London, S. W., England, have invented certain new and useful Improvements Relating to Rotary Printing Machines, (for which I have filed an application in Great Britain, No. 13,674, dated May 29, 1919, Patent No. 153,035,) of which the following is a specification.

This invention relates to rotary printing machines and has for its object to provide simple and effective means by which printing couples used for perfecting the web may alternatively be used for making two successive impressions upon the same side of the web.

The invention is especially applicable to typographic, lithographic, offset and intaglio printing.

According to the invention the printing couple such as that used for the perfecting impression upon one web is mounted within a frame which is capable of being reversed in position, by movement about a vertical axis, so that thus the web having been impressed upon one face, instead of being then passed over the impression cylinder of the second printing couple for impression on the second face may be passed from the opposite side for a second impression upon the same side of the web as the first.

In carrying the invention into effect in its application to intaglio printing couples in which the intaglio printing cylinder is arranged beside or beneath the impression cylinder, the printing couple together with the guide rollers leading the web into and out of the couple are mounted upon a frame capable of rotating on a vertical centre line so that thus the frame may be rotated from the position in which the web is led through the couple for a perfecting impression to a diametrically opposite position where the web may be led through for a second impression upon its already printed face.

For the purpose of reversing the couple in its position in the manner described, it is only necessary for the gearing through which movement is imparted to the couple from the main driving train to be so arranged that the couple may be rotated without great loss of time, for example by arranging a pair of bevel wheels in such a manner that the driving wheel shall be fixed on a centrally disposed vertical driving shaft and the driven wheel for printing couple on a horizontal shaft above the centre of the vertical shaft and in position parallel with the axis of impression and intaglio printing cylinders. The centre of rotation will then be the vertical shaft centre line and the driven wheel may roll round this without withdrawal and without altering its direction of rotation in relation to the horizontal shaft on printing couple.

It will be understood that the inking apparatus or fountain may be carried within the reversible frame as well as the guide rollers, without it being necessary to disconnect any part in reversing the position. The reversible frame may be supported at its respective ends on guide rollers so that thus it may be carried upon runways in turning from one position to the other and be supported in either of the positions in which it is to be set.

The application of the invention is illustrated in the accompanying diagrammatic drawing, representing the printing couple and the corresponding guide rollers in end elevation in the one position, the second position being indicated in dotted lines.

The impression cylinder *a* and intaglio printing cylinder *b*, together with the accompanying inking mechanism, are carried by a frame *c* mounted upon wheels or rollers *d* running upon rails *e* in such manner that the frame may be moved to a diametrically opposite position with respect to a vertical center line. This center line forms the axis of the vertical driving shaft *f*, by which motion is transmitted to a counter-shaft *g* disposed parallel with the axes of the cylinders *a* and *b*. For this purpose bevel gearing *h* may be used and the drive may be transmitted to the cylinders from the countershaft *g* by suitable gear or chain wheels *i* provided on suitably disposed shafts which may be the shafts of other cylinders. Guide rollers, *j* may be mounted in determined positions on the frame or on brackets carried thereon. The driving shaft may receive motion from any suitable source of power such as an electro-motor *k*.

The driving shaft *f* or the vertical center line about which movement of the frame is

effected may be disposed within the frame *c* instead of without as shown in the figure so that the latter rotates about it.

Any suitable means may be provided for locking the reversible frame in its positions.

It will be understood that the reversible frame is preferably supported at the top as well as the bottom in the framing of the machine, being mounted upon trunnions in bearings provided for the purpose, but when not supported at the top, the frame members may be extended on each side for effective support and on adjustment in position may be bolted to the main part of the machine frame or any other means may be employed to ensure the necessary rigidity.

I claim:

1. In rotary printing machines, in combination, the elements of a printing couple, a carrying frame upon which the said elements are mounted, said carrying frame being reversible by rotation into position to permit of an impression on one or other side of the web, and driving gear adapted to drive the said elements in either position of the carrying frame, substantially as described.

2. In rotary printing machines, in combination, the elements of a printing couple, a carrying frame upon which the said elements are mounted, said carrying frame being movable about a vertical axis for reversing its position to effect an impression on one or other side of the web, and driving gear adapted to drive the said elements in either position of the said carrying frame, substantially as described.

3. In rotary printing machines, in combination, the elements of a printing couple, a carrying frame upon which the said elements are mounted, the said carrying frame running on rails and being reversible in position to effect an impression on one or other side of the web, and driving gear adapted to drive the said elements in either position of the said carrying frame, substantially as described.

GEORGE WILLIAM MASCORD.