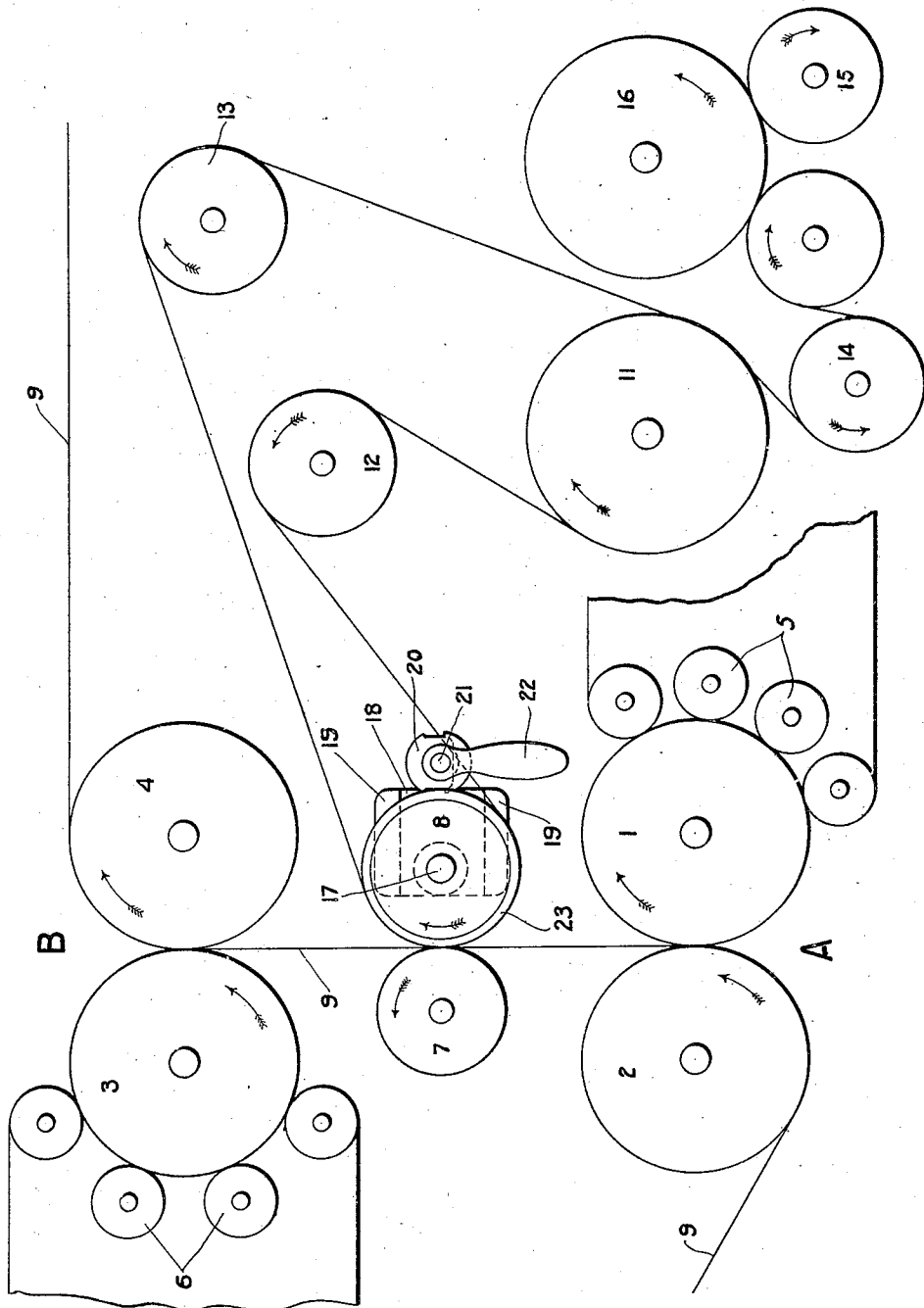


E. W. DEAN.
 PRINTING MECHANISM.
 APPLICATION FILED OCT. 14, 1905.

938,043.

Patented Oct. 26, 1909.



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PRINTING MECHANISM.

938,043.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDMUND W. DEAN, residing at Dover, in the county of Strafford and State of New Hampshire, have invented certain new and useful Improvements in Printing Mechanism, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to printing presses and has for one of its objects the provision of mechanism characterized by increased simplicity and efficiency.

Another object is to provide mechanism in a printing press such that an offset web, while acting upon the sheet delivered by a printing couple, is entirely independent thereof.

Another object is to arrange an offset web in a printing press so that free access to the impression cylinders may be allowed without disturbing or removing said offset web.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the mechanism hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing, I have shown diagrammatically one of the several various possible embodiments of my invention.

Preliminary to a description of the specific features of my invention, and in order to render certain of the objects thereof clearer of understanding, it may here be noted that in prior constructions of printing presses it has been the custom to thread the offset web through the press after running through the "test sheet". This extra thickness of material between the members of the printing couple, unless proper allowance has been made for the same by patching the impression cylinder during the taking of the "try sheet", results in a printing different from that appearing on the "try sheet". It is, moreover, necessary in such constructions to remove a part of the packing from the impression cylinder prior to threading the offset web between the members of the

printing couple, and, if improper allowance has been made in the thickness of such packing, it is necessary to patch the "overlay" in order to make the printing the same as that of the "try sheet". The offset web also often removes or varies the "overlay" or packing upon the impression cylinder by its continual travel thereover.

I minimize the above and other objections and attain many positive advantages by providing an offset web entirely independent of the printing couple and so positioned and arranged with respect thereto that free access is allowed to the impression cylinder should it become necessary at any time to patch or replenish the packing or "overlay" thereon.

Referring now to the drawings, wherein there is shown diagrammatically a portion of a rotary printing press sufficient to disclose my invention, A represents a printing couple comprised by a form cylinder 1 and its mating impression cylinder 2. The members 1 and 2 of printing couple A are suitably driven with equal peripheral velocities by suitable means, not shown herein, the same comprising no essential part of my present invention, and are adapted to deliver the sheet to a second printing couple B comprised by a form cylinder 3 and impression cylinder 4, also suitably driven with equal peripheral velocities. The usual inking rollers 5 and 6 are provided to supply form cylinders 1 and 3.

Arranged intermediate printing couples A and B are cylinders 7 and 8 adapted to receive sheet 9 therebetween. Cylinder 8 is adapted to carry the offset web 10 and maintain the same in contact with the freshly printed surface of sheet 9. A suitable delivery cylinder 11 is provided for the offset web, whence the same passes over idler cylinder 12, around cylinder 8, to be brought in contact with sheet 9 and thence over idler cylinders 13, 14 and 15 to take-up cylinder 16.

In order to regulate the pressure of the offset web against the sheet, I have provided means to allow cylinder 8 to be adjusted with respect to cylinder 7. This adjustment may be accomplished in any desired manner. In the present instance, cylinder 8 is journaled upon shaft 17 extending between blocks 18 slidably mounted in guides 19. Cam 20, pivotally mounted at 21 and

operated by handle 22, engages block 18 and is adapted to force cylinder 8 toward cylinder 7 to vary thereby the pressure of the offset web upon the sheet. It will be understood, of course, that at each end of cylinders 7 and 8 an arrangement similar to that shown herein is employed to determine the pressure of the offset web upon the sheet, the present illustration being sufficient for a proper disclosure of my invention.

Although cylinders 7 and 8 may be operated successfully without coverings, in practice, I have found it advantageous to provide a layer of relatively resilient material, such as rubber or felt, for one or both of said cylinders. As herein shown, there is provided at 23 a layer of such covering upon cylinder 8. It will be understood, however, that covering 23 may be upon either cylinder or both as desired.

Having thus described my invention, the operation thereof, which should be largely obvious, is substantially as follows: The sheet 9 being delivered from a suitable source of supply passes through printing couple A and the characters carried by form cylinder 1 are imprinted thereon. The printed side of sheet 9 is then brought into contact with offset web 10 as it passes between cylinders 7 and 8 to printing couple B, where the characters carried by form cylinder 3 are imprinted upon the opposite side of said sheet.

In order to render clear the meaning of certain terms used in this specification and in the following claims, it may here be noted that by the term "printing couple" is meant a pair of members comprising a form cylinder and an impression cylinder, or equivalents thereof, adapted to receive a sheet therebetween and imprint characters thereon, using the terms "form cylinder" and "impression cylinder" in their commonly accepted meaning in the art to which this invention pertains; by the term "sheet" is meant the strip or strips of material upon which the printing is to be effected; the terms "try sheet" or "test sheet" are used synonymously to denote the material first acted upon in the printing couple to test the printing; by the term "overlay", is meant the strip or strips of relatively resilient material positioned upon the impression cylinders during the operation of printing evenly to maintain the sheet in constant contact with the form cylinder.

It will thus be seen that I have provided simple and effective means for accomplishing the objects of my invention, as the provision of the independent means for carrying the offset web allows a ready access to the printing couple and secures many other advantages, some of which are hereinbefore mentioned.

While the mechanism shown and described

herein embodies my preferred construction and is well adapted to accomplish the advantageous results herein secured, I desire it to be understood that I do not intend to limit the employment of my invention to this precise mechanism, as many of its features are capable of use in a variety of relations in other types of printing machinery. Nor do I intend to limit its employment intermediate the pair of printing couples, as it may be used to advantage in mechanism wherein but one printing couple is employed, the independent means for carrying the offset web being interposed between the printing couple and the rewinding mechanism. I desire it also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein-described and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

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

1. In mechanism of the class described, in combination, a printing couple adapted to receive a continuous sheet therebetween, a second printing couple adapted to receive the sheet upon its delivery from said first-mentioned printing couple whereby said sheet will be engaged simultaneously by both of said printing couples, an offset web independent of either of said printing couples and out of contact therewith adapted to contact with said sheet after its delivery from said first-mentioned printing couple but before the same is received by said second-mentioned printing couple, and means adapted to regulate the pressure of said offset web upon said sheet.

2. In mechanism of the class described, in combination, a printing couple adapted to receive a continuous sheet therebetween, a second printing couple adapted to receive the sheet from said first-mentioned printing couple whereby said sheet will be engaged simultaneously by both of said printing couples, means arranged intermediate said printing couples and out of contact therewith adapted to maintain an offset web in contact with said sheet, and means for regulating the amount of pressure applied by said offset web to said sheet.

3. In mechanism of the class described, in combination, a printing couple adapted to receive a continuous sheet therebetween, a second printing couple adapted to receive the sheet upon its delivery from said first-mentioned printing couple whereby said sheet will be engaged simultaneously by both of said printing couples, rotary means arranged intermediate said printing couples and out of contact therewith adapted to maintain an offset web in contact with said

sheet, and means adapted to regulate the amount of pressure applied by said offset web upon said sheet.

4. In mechanism of the class described, in combination, a printing couple, a second printing couple adapted to receive the sheet upon its delivery from said first-mentioned printing couple, and a pair of rotatably mounted cylinders arranged intermediate said printing couples and out of engagement therewith adapted to receive the sheet therebetween and to maintain the same in contact with an offset web, said cylinders being bodily movable relative to each other in order that the pressure of said offset web upon said sheet may be regulated.

5. In mechanism of the class described, in combination, a printing couple, a second printing couple adapted to receive the sheet upon its delivery from said first-mentioned printing couple, a pair of rotatably mounted cylinders arranged intermediate said printing couples and out of engagement therewith adapted to receive the sheet therebetween and to maintain an offset web in contact therewith, and means for relatively adjusting said cylinders with respect to each other to regulate the amount of pressure to be applied to said sheet by said offset web.

6. In mechanism of the class described, in combination, a printing couple, a second printing couple adapted to receive the sheet upon its delivery from said first-mentioned printing couple, a pair of rotatably mounted cylinders arranged intermediate said printing couples and out of engagement therewith adapted to carry an offset web and to maintain the same in contact with said sheet, and a cam adapted to cause a bodily movement of one of said cylinders to vary the pressure of said offset web upon said sheet.

7. In mechanism of the class described, in combination, a form cylinder and its co-acting impression cylinder comprising a printing couple, a second form cylinder and its co-acting impression cylinder comprising a second printing couple, a pair of cylinders rotatably mounted intermediate said printing couples and out of contact therewith, one of which is adapted to carry an offset web and to maintain the same with a varying pressure against the sheet traveling from said first-mentioned printing couple to said second-mentioned printing couple, means for drawing said offset web between said cylinders, and means for delivering a quantity of the same thereto.

8. In mechanism of the class described, in combination, a printing couple, a second printing couple adapted to receive the sheet

upon its delivery, from said first-mentioned printing couple, a pair of cylinders arranged intermediate and spaced from said printing couples adapted to receive the sheet therebetween and to maintain the same in contact with the offset web, and a covering of relatively resilient material upon one of said cylinders.

9. In mechanism of the class described, in combination, a printing couple adapted to receive a continuous sheet therebetween, a second printing couple adapted to receive the sheet upon its delivery from said first-mentioned printing couple whereby said sheet will be engaged simultaneously by both of said printing couples, a pair of rotatably mounted cylinders arranged intermediate said printing couples adapted to receive the sheet therebetween and to maintain the same in contact with the offset web, said cylinders being bodily movable relative to each other in order that the pressure of said offset web upon said sheet may be regulated, and a covering of relatively resilient material upon one or both of said cylinders.

10. In mechanism of the class described, in combination, a printing couple adapted to receive a continuous sheet therebetween, a second printing couple adapted to receive the sheet upon its delivery from said first-mentioned printing couple whereby said sheet will be engaged simultaneously by both of said printing couples, a pair of rotatably mounted cylinders arranged intermediate said printing couples adapted to receive the sheet therebetween and to maintain the offset web in contact therewith, means for relatively adjusting said cylinders with respect to each other to regulate the amount of pressure to be applied by said offset web to said sheet, and a covering of relatively resilient material upon either or both of said cylinders.

11. In mechanism of the class described, in combination, a printing couple adapted to receive a continuous sheet therebetween, means independent of said printing couple adapted to maintain an offset web in contact with the sheet upon its delivery, from said printing couple, and cushioning means interposed between said last-mentioned means and said offset web, said printing couple and said independent means simultaneously engaging said sheet.

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

EDMUND W. DEAN.

Witnesses:

EDWARD L. YOUNG,
FRANK R. BLISS.