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Patented June 25, 1901.

R. MIEHLE.

MEANS FOR PREVENTING OFFSET IN PRINTING MACHINES.

(No Model.)

(Application filed Jan. 20, 1898. Renewed May 13, 1901.)

2 Sheets—Sheet 2.

Fig. 3.

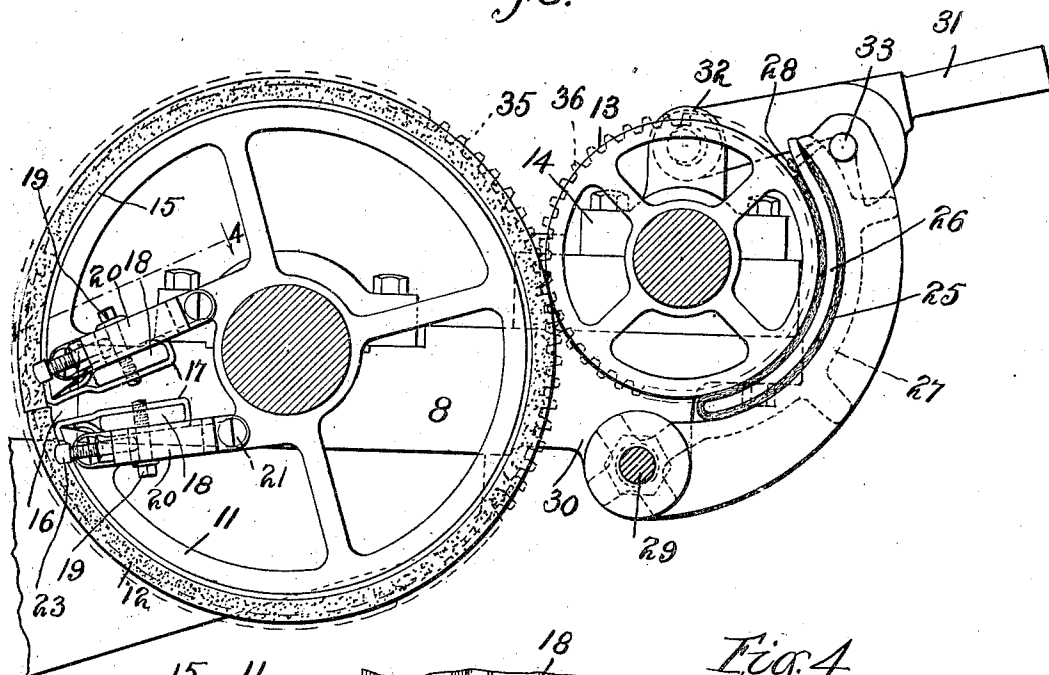
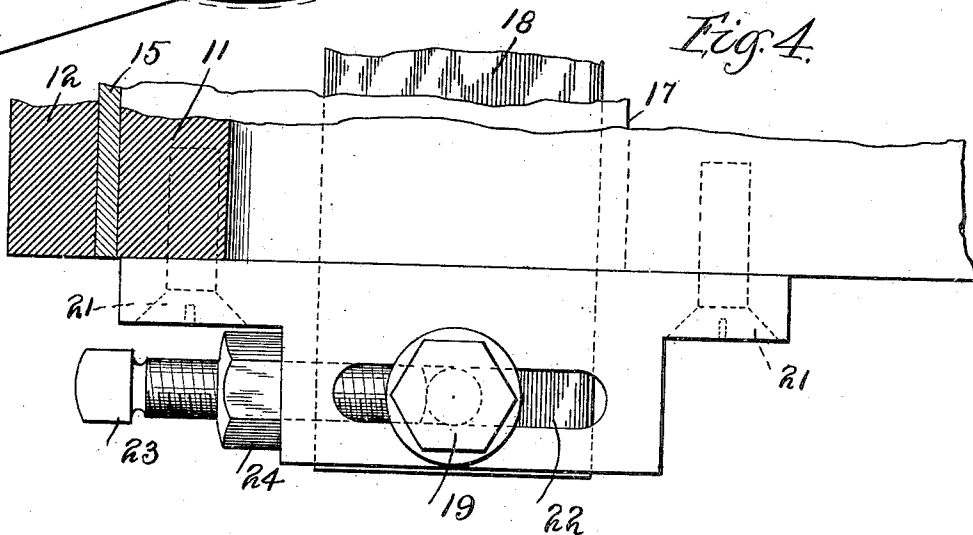


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MEANS FOR PREVENTING OFFSET IN PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 676,904, dated June 25, 1901.

Application filed January 20, 1898. Renewed May 13, 1901. Serial No. 60,076. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MIEHLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Means for Preventing Offset in Printing-Machines, of which the following is a full, clear, and exact specification.

My invention relates to an apparatus for preventing offset of the ink from the freshly-printed sides of the sheets upon the second or succeeding impression tympan or cylinder of perfecting printing machines or presses which usually print from a plurality of flat forms, against which the sheet is successively impressed by a corresponding number of impression-cylinders, which descend into contact with the forms when making one revolution and rise out of contact therewith so as to clear the forms when making another.

The primary object of my invention is to provide improved means for taking up the ink left on one tympan by the freshly-printed sheet without causing the ink thus taken up from one point on the tympan to be again deposited at another point thereon.

A further object is to cause the usual rising-and-falling movement of one of the tympan-cylinders to automatically bring the tympan into and out of operative contact with the offset mechanism.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a side elevation of a perfecting printing-machine, partly in section, on the line 3 3, Fig. 2, illustrating my improvements. Fig. 2 is a detail plan view thereof. Fig. 3 is an enlarged detail section taken on the line 3 3, Fig. 2, the parts of the printing-press being omitted. Fig. 4 is an enlarged detail sectional view taken on the line 4 4, Fig. 3.

1 represents a part of the printing-machine frame, in which are mounted the usual impression-cylinders, 2 being the first and 3 the

second, which are provided with the usual or any suitable means (not shown) for imparting the ordinary rising-and-falling movement thereto. 4 is the feed-roller, which delivers the sheet to the first impression-cylinder, and 5 represents the strippers, which strip the sheet from the second impression-cylinder and guide the same onto the fly-finger 6. All of these parts may be of the usual or any suitable construction.

Projecting from each side of the frame 1 is a bracket-arm 7, and mounted upon these arms are pillow-blocks 8 in boxes 9, in which are journaled the ends of a shaft 10, carrying a cylinder or roller 11. This roller or cylinder 11 is arranged in close proximity to the outer side of the second impression-cylinder 3, and secured on the periphery of such roller 11 is an ink-take-up pad or surface 12, with which the cylinder 3 engages and disengages as it makes its usual rising-and-falling movement. This surface or pad 12 is preferably composed of printers' composition or any other like substance which possesses the property of adhering to and taking up the ink left on the tympan of the impression-cylinder 3, which comes into contact with the surface 12 when the cylinder 3 rises to clear the second printing-form and in thus contacting with the surface 12 imparts its ink thereto, and the surface 12 in turn revolves in contact with a roller or cylinder 13, also journaled in suitable boxes 14 on the pillow-blocks 8 and bearing normally against the surface 12. As the roller 11 and cylinder 3 revolve in contact with each other the ink deposited upon the tympan of the cylinder 3 is taken up by the surface or pad 12, which in turn deposits the ink upon the surface of the cylinder or roller 13, which is preferably metallic or some other comparatively hard material capable of taking the ink from the pad 12 without materially absorbing it, so that its own surface may be readily cleaned of such ink and always presented afresh to the surface of the pad 12. This cleansing of the roller or cylinder 13 may be accomplished by any suitable wiper arranged normally thereagainst or by any other means. The ink-take-up pad 12 is also separable from its roller 11 in order that it may be backed up by the insertion of one or more

sheets of paper or thin strips between it and the roller 11 to compensate for decrease in thickness due to shrinkage to level up depressions, so that the surface of the pad 12 and its pressure against the cylinder 3 will be uniform throughout the life of the composition, enabling the pad to be utilized as long as it possesses the property of taking up or adhering to the ink.

10 In order that the pad 12 may be readily applied to the periphery of the roller or cylinder 11 and as readily removed for backing it up or replaced by a new pad when the old one is worn out, it is made in the form of a sheet or deposited on or otherwise secured to some suitable medium or reinforce having sufficient strength to make it capable of being firmly attached to the surface of the cylinder 11. This medium preferably consists of a piece of fabric or other like material 15, and in order that it may be attached to the cylinder 11 the side of the cylinder throughout its length is provided with a longitudinal slot at 16, so that the edges of the fabric reinforce 15 may be carried through the slot 16, and provided with loops 17, passing around a pair of bars 18, adjustably secured inside the cylinder 11, so that the fabric 15 may be drawn taut and the edges of the pad 12 caused to abut together and form a continuous cylindrical surface in the manner more clearly illustrated in Fig. 3. The circumference of the pad 12 when stretched upon the cylinder 11 in the described manner is preferably equal to the circumference of the tympan of the impression-cylinder 3, and the intersection of the edges of the pad 12 are preferably located normally at the edge of such tympan of cylinder 3, as clearly illustrated in Fig. 1, so that said tympan in rolling against the pad 12 will make a complete revolution of the cylinder 11 and always bring such intersection of the edges of the pad 12 even with the edge of the tympan without causing such intersection to roll against the tympan at any point intermediate of its edges, thus preventing the pad from depositing on the tympan at one point the ink which was taken up at another and also avoiding the possibility of ink remaining on the tympan by reason of the irregularity in the take-up surface of the pad 12 occurring at said intersection of its edges.

The holding-bars 18 are passed through the opening 16 of the cylinder 11 and located between its webs or spokes and secured in place thereon at each end by a bolt 19, each of which passes through a bracket 20, secured by screws 21 to the outer edges of said spokes of the cylinder 11 and each having a slot 22 to permit of the adjustment of the bars 18. This adjustment may be conveniently effected by a set-screw 23 passing through the outer end of each of the brackets 20 and impinging against each of the bolts 19, the screws 23 being provided with jam-nuts 24 for locking them against retrograde movement. By loos-

ening the bolts 19 and the jam-nut 24 the bars 18 may be forced farther inward by the screws 23 and firmly held at their adjusted position by again tightening up the screws, as will be understood.

In order that the ink taken up by the pad 12 and deposited on the surface of the roller or cylinder 13 may be removed from such surface before it again contacts with the pad, I arrange on the offside of the cylinder 13 a wiper 25, which is preferably composed of a fabric of an open-mesh character, such as mosquito-bar or any other material which by its contact with the cylinder 13 will remove the ink therefrom, but preferably mosquito-bar, because of the fact that its open mesh readily receives the ink scraped from the cylinder and permits the same to work inwardly to the inner strata of the wiper, and it is also found that the threads of an open fabric of this character will twist more or less under the frictional contact of the cylinder and in so doing deposit the ink adhering thereto upon the threads of the strata farther inward, thus increasing the capacity of the material for catching and disposing of the ink. This fabric 25 is preferably in the form of a number of layers doubled around both sides of a holding-strip or backing 26 and arranged between a curved plate 27 and the periphery of the cylinder 13, the backing 26 being provided with one or more perforations or buttonholes, through which are passed one or more headed pins 28, projecting from the inner face of the plate 27, the edges of the fabric 25 being stitched or otherwise secured to the upper edge of the backing 26 and the latter being composed of leather or similar material.

The curved plate 27 is journaled upon a trunnion 29 between hangers 30, formed on the lower side of the pillow-blocks 8, and the upper edge of such plate 27 is removably held in place by one or more pivoted hooks or locking-dogs 31, pivoted in standards 32, projecting from the top of boxes 14, the hooks of the dogs being engaged over lugs 33, projecting from the side webs of the curved plate 27.

The rollers 11 and 13 may be driven in unison with each other and also with the impression-cylinders, so as to make the pad 12 revolve at the same surface speed as the cylinder 3 in any suitable way. For thus timing the rotation of the roller 11 with reference to the cylinder 3 I have shown and prefer to employ ordinary gear-wheels, which, though cut off in Figs. 1 and 3 of the drawings by the section-line 3-3, are indicated in these figures by dotted lines, 34 being the large gear of the cylinder 3, 35 the gear of the roller 11 meshing therewith, and 36 the gear of the roller 13 meshing with the gear 36. It is of course understood that the circumference of the pad 12 is equal to the length of the second printing-form, so that it will completely cover the entire area of ink left on the second tympan without repeating or mak-

ing more than a single revolution in traversing the tympan a single time.

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

1. In an offset mechanism for printing-machines, the combination of the rising-and-falling impression-cylinder, and a revoluble cylindrical pad adhesive to printing-ink arranged to be impinged by said impression-cylinder, substantially as set forth.

2. In an offset mechanism for printing-machines, the combination of the impression-cylinder, a roller having a peripheral opening, an ink-take-up pad secured around said roller and adapted to contact with said cylinder and provided with a reinforce having its ends looped and passed through said opening, a bar passing through each of said loops, slotted brackets secured to the ends of said roller, screws passing through the slots of said brackets and binding said bars thereto and adjusting-screws passing through said brackets for adjusting said bars, substantially as set forth.

3. In an offset mechanism for printing-machines, the combination of the impression-cylinder, a revoluble cylindrical pad adhesive to printing-ink arranged to be impinged by said impression-cylinder, a roller for taking the ink from said pad, a curved hinged plate detachably held at one end contiguous to said roller and a wiper located between said plate and roller, substantially as set forth.

4. In an offset mechanism for printing-machines, the combination of the impression-cylinder, a device for taking the offset im-

pression or ink therefrom, a roller contacting with said device for removing the ink therefrom, a curved plate provided with a wiper for removing the ink from said roller, said plate being hinged at one end and having a lug at the other, and a pivoted hook or dog engaging with said lug for holding said plate in close proximity to said roller, substantially as set forth.

5. In an offset mechanism for perfecting printing-machines having a plurality of printing-forms and impression-tympans, the combination of a revolving ink-take-up pad adapted to contact with the second tympan and having a circumference equal to the length of the second printing-form so as to completely cover the area of ink deposited on the second tympan at every revolution of said pad, and means for imparting a plurality of revolutions to said pad for each impression made by the second tympan, substantially as set forth.

6. In an offset mechanism for printing-machines, the combination of the impression-cylinder having a tympan, a revolving ink-take-up pad adapted to contact with said tympan and being equal in circumference to the length of said tympan and intermeshing gears connecting said cylinder and pad and being in the proportion of two to one whereby the pad will make two revolutions to each revolution of the cylinder, substantially as set forth.

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