Sept. 25, 1934. A. ROBERTS 1,974,469

ATTACHMENT FOR PRINTING PRESSES

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Fig. 1.

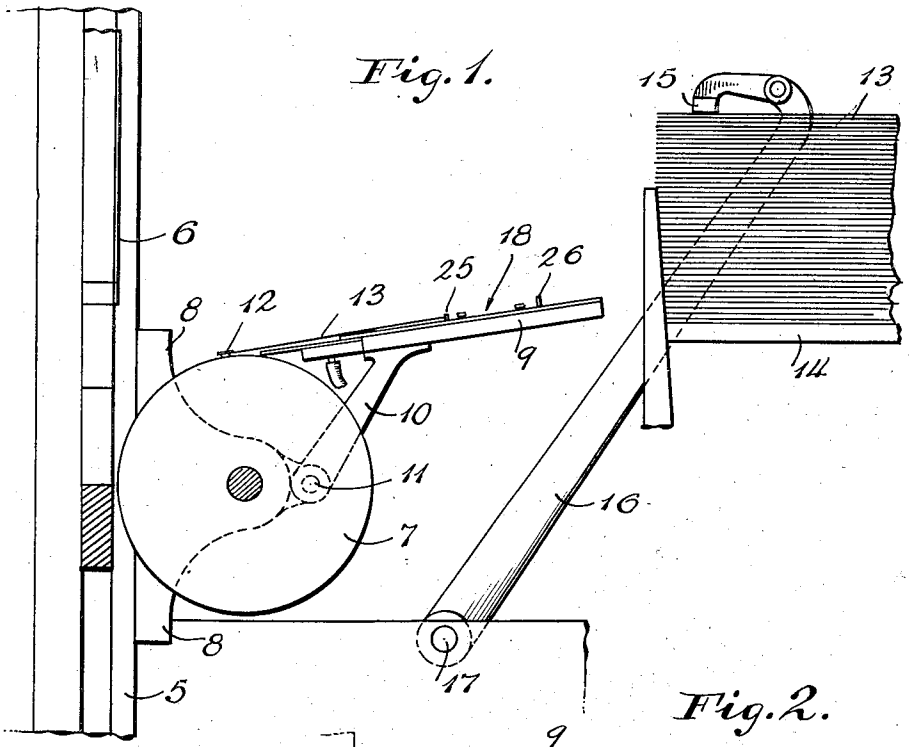


Fig. 2.

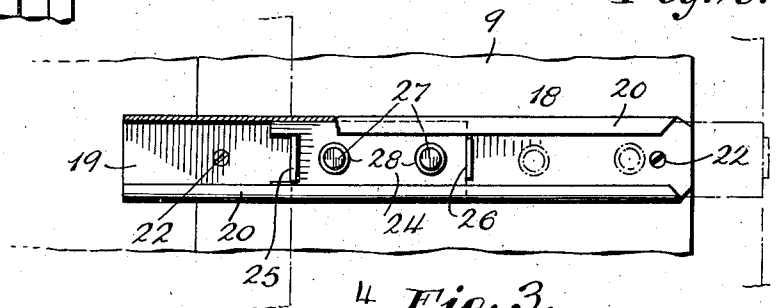


Fig. 3.

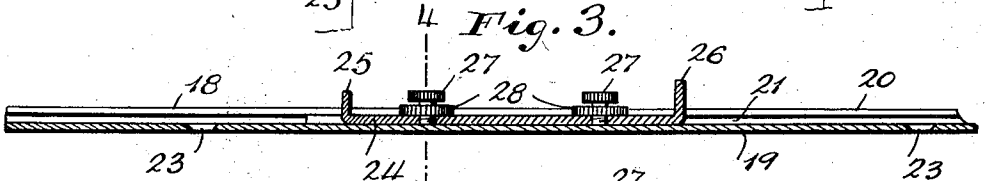


Fig. 4.

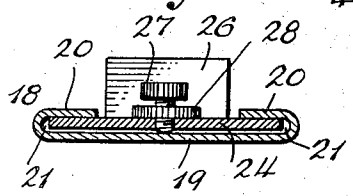
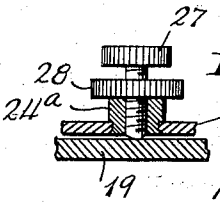


Fig. 5.



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ATTACHMENT FOR PRINTING PRESSES

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Application March 1, 1933, Serial No. 659,065

5 Claims. (Cl. 271—61)

The invention relates to printing presses and more particularly to attachments therefor. In many printing presses, and more particularly those designed for multi-colored printing, it is necessary to accurately position the sheets of paper in the press in order to secure the desired results, and to provide for accurate registration of the different colors in the case of multi-colored printing. In such printing presses the sheets of paper, during the operation of the press are subjected to forces, as exemplified for instance by a rebound, which renders the imprint receiving position of such sheets unreliable and accordingly ofttimes results in defective printing and inaccurate registration of colors. The object of the invention is to overcome the aforesaid objections by providing an attachment of simple construction which may be readily incorporated in the printing press and whereby the paper sheets are accurately and uniformly maintained in a predetermined and constant printing position. The invention contemplates further an attachment of the indicated type which may be readily adjusted for co-operation with sheets of different dimensions without requiring any particular skill on the part of the operator. Other objects will appear from the description hereinafter and the features of novelty will be pointed out in the claims.

In the accompanying drawing, which shows an example of the invention and its application without defining the limits, Fig. 1 is a fragmentary sectional elevation of a printing press with the novel attachment embodied therein; Fig. 2 is a plan view of the attachment on an enlarged scale; Fig. 3 is a longitudinal section of the attachment on a still larger scale; Fig. 4 is a cross-section on the line 4—4 of Fig. 3, and Fig. 5 is a fragmentary detail section showing a modification of the invention.

For the purpose of illustration and description the attachment is shown in the drawing as embodied in a so-called vertical printing press for which it is particularly adapted, it being understood however that this is only an example of the utility of the invention which does not and is not intended to define the limits thereof.

The illustration in Fig. 1 includes a portion of the frame 5 of the press in which provision is made, in the customary manner, for removably supporting the chase 6 containing the type or other matter to be printed; the illustration further discloses a roller 7 journalled on vertically movable carriers 8 whereby the roller 7 is caused to travel across the face of the type or other matter contained in the chase 6 to produce imprints thereof upon the sheets of paper in the well known way. A paper table 9 is supported by arms 10 pivotally mounted at 11 upon the carriers 8, said table 9, in the illustrated example, being located in tangent relation to the roller 7 which is provided in the conventional manner with clips 12 adjustable to and from operative positions for receiving the paper sheets 13 from the table 9 and clamping them on the roller 7 and for releasing said sheets in proper synchronism with the operation of the press.

The sheets of paper 13 to be printed are stacked upon a feed table 14 vertically movable in the customary manner in the illustrated type of press, said sheets 13 being successively removed from the top of the stack and delivered to the paper table 9 by means of a suction device 15 in the well known way; the suction device 15 is carried by levers 16 pivoted at 17 upon suitable portions of the press as indicated in Fig. 1. Suitable provision is made in any usual manner for operating the various portions of the press in predetermined operative sequence.

In presses of the illustrated class the paper sheets 13 are successively picked up by the suction device 15 and delivered to the paper table 9 from which said sheets 13 are individually transferred to the roller 7, the clips 12 of which serve to clamp each sheet in position on said roller 7. In the operation of the press the roller 7 is rotated on its axis to withdraw the sheets 13 from the paper table 9, and coincidentally travels upwardly to cause said sheets 13 to pass over the type or other matter contained in the chase 6, in imprint receiving relation thereto; after the impressions have been made the sheets 13 are removed from the press in the conventional manner. From the above it is clear that the imprint receiving position of the sheets of paper 13 is determined by the relation of said sheets 13 to the clips 12 when the latter are operated to clamp said sheets on the roller 7. Because of the fact however that during the aforesaid operations of the illustrated type of press, the sheets of paper 13 are subjected to forces which cause said sheets for instance to rebound from the clips 12 before the latter have developed a gripping action thereon, the positions in which said paper sheets 13 are clamped on the roller 7 are subject to variations; the latter tend to produce defective printing, this being particularly true in the case of multi-colored printing in which the slightest variation in the position of the sheets 13 on the

roller 7 interferes with the accurate registration of successive colors necessary to the production of the desired color effects.

To overcome these difficulties and to secure absolute accuracy and uniformity in positioning the sheets 13 for printing, I have provided the attachment or device shown in detail in Figs. 2, 3, 4 and 5. In its illustrated form the attachment or device comprises a guide member 18 preferably made of metal and consisting of a bottom 19 turned upwardly and inwardly along its opposite edges to form side flanges 20 spaced from the bottom 19 to define two parallel guide grooves 21 as shown in Fig. 4; the attachment or device may be secured in operative position, for instance upon the paper table 9 of the press shown in Fig. 1, in any convenient manner, as by means of screws 22 which are accommodated in screw-holes 23 provided in the bottom 19 as illustrated in Fig. 3. The attachment or device, as shown in Figs. 2, 3, 4 and 5, further includes a slide 24 slidably accommodated in the guide grooves 21 so as to be adjustable lengthwise of the guide member 18 to different positions thereon. The slide 24 is provided, for instance at its opposite ends with upright stops 25 and 26 which project upwardly beyond the side flanges 20, preferably in perpendicular relation to the slide 24, the arrangement being such that the one stop, for instance the stop 26 projects somewhat higher than the other stop, as illustrated in Fig. 3; in the preferred construction the slide 24 and stops 25 and 26 are struck or stamped from a single piece of metal so as to constitute integral parts of the same unit, as shown in Figs. 2 and 3, although this is not absolutely essential and merely represents an economical and simple form of manufacture. Any suitable means may be provided for fixing the slide 24 and stops 25 and 26 in an adjusted position on the guide member 18. In the drawing this means comprises a pair of set screws 27 screwed into threaded openings located directly in the slide 24 and passing through said openings into contact with the bottom 19 as shown in Figs. 3 and 4; to prevent unintentional loosening of the set screws 27, lock nuts 28 may be provided thereon. In constructions in which the slide 24 is not of sufficient thickness to provide efficient mountings for the set screws 27, said slide 24 may be provided with internally threaded bushings 24^a for accommodating said screws 24; these bushings 24^a may be secured upon the slide 24 in any suitable manner as by being riveted in place thereon as shown in Fig. 5. With the above arrangements the set screws 27 by bearing against the bottom 19 force the slide 24 into engagement with the lower surfaces of the flanges 20 as illustrated in Fig. 4, and thereby lock said slide 24 in an adjusted position against unintentional movement lengthwise of the grooves 21; as previously stated the lock nuts 28 fix the screws 27 against unintentional loosening.

In practice the attachment or device is secured to a suitable part of the printing press for proper co-operation with the sheets of paper 13, as for instance by being screwed upon the upper surface of the paper table 9 as shown in Fig. 1. For utilizing the device or attachment for its intended purposes, the slide 24 is adjusted lengthwise of the grooves 21 to a position in which the distance between the clips 12 and the stop 25 corresponds to the dimension of the paper sheets 13 in the direction of feed thereof; if this dimension is beyond the range of adjustability of the stop 25, or for other reasons it may be desirable to do so, the slide 24 is adjusted to space the stop 26 from the clips 12 in accordance with said dimension of the sheets 13 for example as indicated by dotted lines at the right in Fig. 2. In either case, after the desired adjustment has been effected, the lock nuts 28 are screwed down to lock the screws 27 against rotation and to thereby fix the slide 24 and with it the stops 25 and 26 in the adjusted position.

As the sheets 13 are now transferred to the roller 7, the rear edges of said sheets will drop in front of the projection 25 or 26 as the case may be, when the forward edges of said sheets 13 engage the clips 12 on the roller 7 as indicated in Fig. 1; if, because of the size of the sheets 13 or for some other reason, the stop 26 is being used, said sheets 13, when in the position shown in Fig. 1, will pass over the stop 25 which is somewhat shorter than the stop 26 in order to make this possible. In any event, regardless as to whether the stop 25 or 26 is being utilized, the successive sheets 13 will be prevented from shifting as the result of a rebound or any other disturbing force which may be developed in the operation of the press; consequently the sheets 13 will be positively transferred to the roller 7 and will, at all times and under all operative conditions, occupy constant printing positions which are in accurate and in uniform accord with each other and with the type or other matter contained in the chase 6. Successive printings of the same sheets 13, as is required for instance in certain type of multi-colored printing thus positively assures an accurate and uniform registration throughout such successive printings whereby the desired color effects are secured in an absolutely reliable and efficient manner and without variation. The resulting printed matter is therefore of maximum quality and free from defects due for instance to shifting of the sheets and consequent non-registration of initially printed matter with matter subsequently produced on the same sheets, the device also properly predetermines the position of the impressions upon successive sheets. The attachment or device is extremely simple in construction and operation and requires no particular skill in its manipulation; at the same time the attachment is of such a character that it may be incorporated in existing printing presses without difficulty and be just as easily removed therefrom if this should become necessary or desirable for any reason.

The attachment or device avoids the necessity for the extreme care and time consuming effort which are at present required to secure even a measure of uniformity in the class of printing under discussion, and overcomes the objections heretofore existing therein; at the same time waste and consequent economic loss incidental to defective printing now existing is completely done away with.

It will of course be understood that the location of the attachment in the printing press is dependent upon the character and type of the particular press in which said attachment is to be installed and the work performed thereby; it is further obvious that the device, while it is primarily designed for the purposes set forth hereinbefore, may be used for other positioning or equivalent functions in connection with printing presses or with machines of other types in which accurate positioning of sheets of material is an important factor.

Various changes in the specific forms shown and described may be made within the scope of

the claims without departing from the spirit of the invention.

I claim:

1. In a printing press including means for producing impressions, conveying means for moving the sheets to be printed into impression receiving relation to said impression producing means, and feeding means for transferring said sheets to said conveying means, that improvement which comprises an attachment adapted to provide a predetermined constant and invariable printing position for said sheets, said attachment consisting of a grooved guide member, a slide adjustable relatively to said grooved guide member to different positions therein, a pair of spaced stops on said slide arranged to independently co-operate with sheets of different dimensions, set screws for fixing said slide in said grooved guide member, and lock nuts for locking said set screws in operative positions.

2. In a printing press including means for producing impressions, conveying means for moving the sheets to be printed into impression receiving relation to said impression producing means, and feeding means for transferring said sheets to said conveying means, that improvement which comprises an attachment adapted to provide a predetermined constant and invariable printing position for said sheets, said attachment consisting of a grooved guide member, a slide adjustable relatively to said grooved guide member to different positions therein, a pair of spaced stops on said slide arranged to independently co-operate with sheets of different dimensions, and manually controlled means for fixing said slide in said grooved slide member.

3. An attachment of the kind described comprising a bottom member, side flanges extending lengthwise of said bottom member to define guide grooves along opposite edges thereof, a slide slidably mounted in said grooves, stops of different height located at opposite ends of said slide in perpendicular relation thereto, said stops comprising integral parts of said slide, a pair of set screws threaded into and through said slide into engagement with said bottom member whereby said slide is clamped beneath and in contact with said slide flanges for fixing said slide in an adjusted position, and lock nuts for locking said set screws against operation.

4. An attachment of the kind described comprising a bottom member, side flanges extending lengthwise of said bottom member to define guide grooves along opposite edges thereof, a slide slidably mounted in said grooves, independent stops carried by said slide in perpendicular relation thereto and spaced apart in the direction of the length of said slide, and means carried by said slide and co-operating with said bottom member and side flanges for fixing said slide in said grooves.

5. An attachment of the kind described comprising a bottom member, side flanges extending lengthwise of said bottom member to define guide grooves along opposite edges thereof, a slide slidably mounted in said grooves, stops of different height located at opposite ends of said slide in perpendicular relation thereto, said stops comprising integral parts of said slide, and means carried by said slide and co-operating with said bottom member to force said slide into engagement with said flanges whereby the slide is fixed in an adjusted position.

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