Feb. 8, 1927. 1,616,556

W. H. SMITH

FORM CLEANING DEVICE

Filed June 29, 1925 2 Sheets-Sheet 1

Fig. 2.

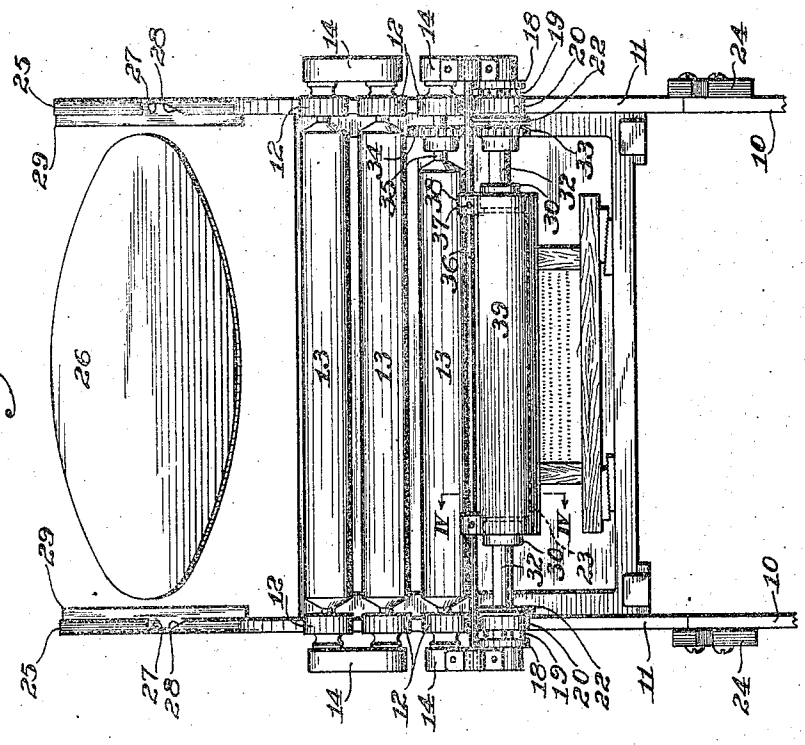
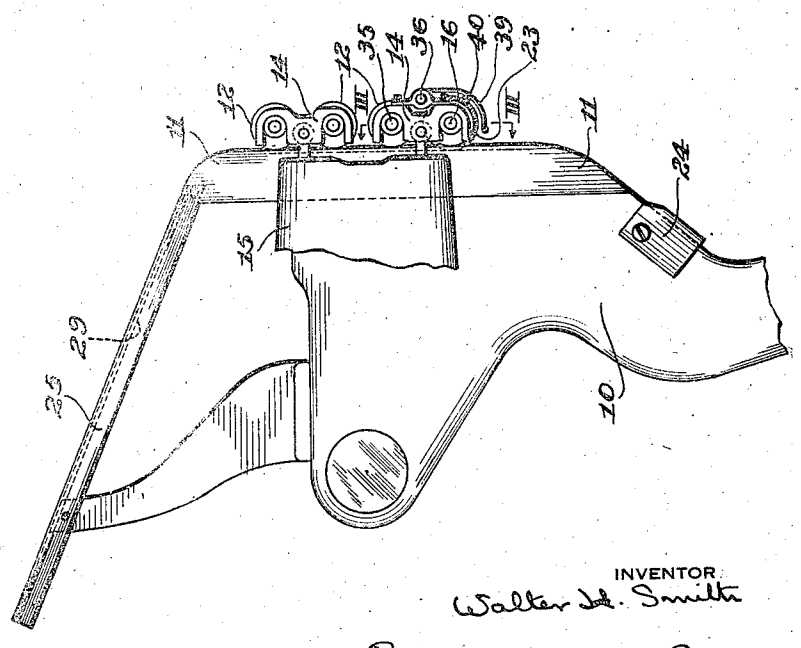


Fig. 1.



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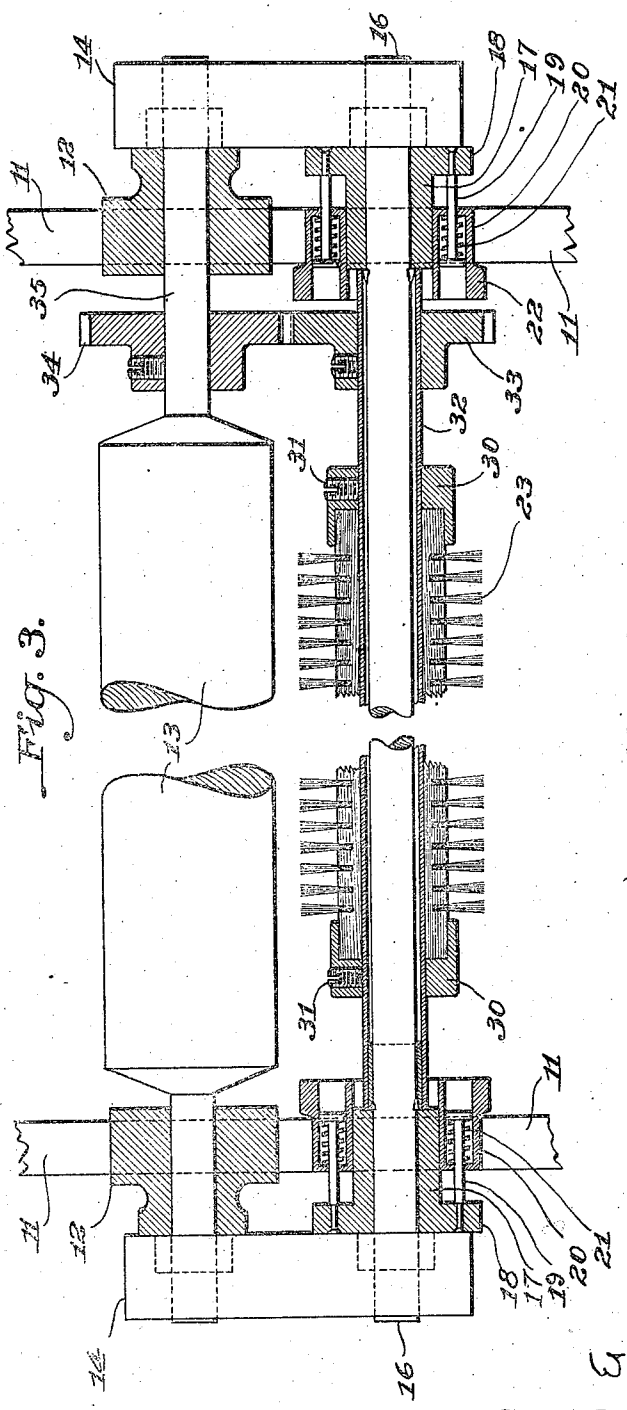


Fig. 3.

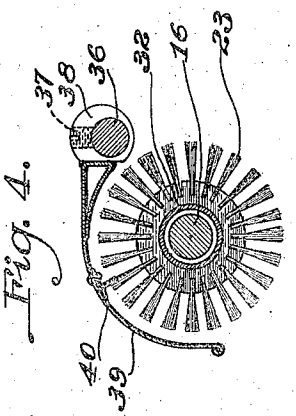


Fig. 4.

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UNITED STATES PATENT OFFICE.

WALTER H. SMITH, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO MILLER SAW-TRIMMER COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

FORM-CLEANING DEVICE.

Application filed June 29, 1925. Serial No. 40,214.

My invention pertains to form cleaning devices for printing presses.

In printing, it is frequently found necessary to stop the press in order that the type or other printing elements of the form may be cleaned of ink which has accumulated between the printing faces. This stopping the press to clean the form has been especially necessary where inks having a metallic base, such as alchemic gold ink, are used; since flakes of the base of these inks are particularly liable to lodge between the type, so that a smudged appearance is given to the work after a relatively few impressions have been made.

It is an object of my invention to provide a device for automatically cleaning the type during the running of the press, in order that stoppage for cleaning, and the consequent waste of time, is avoided. It is a further object to produce an automatic cleaning device of this nature which will be simple and economical of construction, which will not interfere with the proper operation of the press at suitable speed, and which will be adaptable as far as possible to existing press parts.

I have described in the following specification, and shown, by way of example, in the accompanying drawings, a form cleaning device constructed in accordance with my invention and applied to a platen press of the Gordon type. It is to be understood, however, that changes may be made in the form described and shown, that the invention may be embodied in other forms, without exceeding the scope thereof as defined in the appended claims.

In the drawings:

Fig. 1 is a side elevation of the bed portion of a Gordon press showing my invention applied to the inking roller mechanism thereof;

Fig. 2 is a front view of the same;

Fig. 3 is an enlarged section taken on the line 3—3 of Fig. 1, looking in the direction of the arrows; and

Fig. 4 is an enlarged section taken on the line 4—4 of Fig. 2.

Referring to the drawings, 10—10 indicate the side frames of the press bed, these frames being formed at their front edges so as to create the usual roller tracks or bearers 11 upon which run the trucks 12 of the form rolls 13. The press shown is of the character in which four form rolls are employed, the rolls being arranged in pairs, each pair being supported in spring pressed saddles 14, movably associated with the ink roller carriages 15 in the well known manner. In the construction now being described, however, the lowermost of the composition rolls is removed and there is substituted therefor the rotary brush device now to be described.

Supported in the lower part of the lowermost pair of saddles 14, so as to rotate in the latter, is a shaft 16 which carries, at each end, a "tripping truck". These tripping trucks are of well known construction and provide means whereby the shaft 16 may travel in a different plane according to the direction of its reciprocation. Each tripping truck includes an inner member comprising a collar 17 secured to the shaft 16 and having a flange 18 extending from its outer end and carrying pins 19 which enter corresponding sockets in the outer truck member. Each outer truck member comprises a ring 20 longitudinally slidable upon the collar 17 and having sockets for receiving the pins 19, springs 21 being provided on the pins and tending to move the outer truck member upon the inner member in the direction of the adjacent end of the shaft 16. The ring 20 is formed with an annular flange 22, thereby providing a periphery of larger diameter upon which the truck sometimes travels. The trucks reciprocate upon the bearers 11, either traveling upon the peripheries of the rings 20 or upon the periphery of the flanges 22.

The construction in such that the brush 23, while moving upward over the type, travels in a plane high enough to avoid the type, so that it will not disturb the ink just applied to the latter by the form rolls. It continues in this higher plane up to a point close to the upward limit of this movement, so that it will also clear the ink disc. Just at the upward limit of its travel, it is lowered slightly, but not sufficiently to bring it into contact with the ink disc; and in the first part of its downward movement, while it is over the ink disc, it is maintained in slightly lowered position. Just as the brush passes beyond the lower edge of the ink disc

it is allowed to descend further, and thereafter travels such a plane that it will contact with the type, and brush the ink out therefrom, as it passes downwardly past the form. At the downward limit of its travel the brush is raised prior to its return movement in a higher plane, as described above.

The above raising and lowering movements of the brush 23 are the result of corresponding movements of the shaft 16, upon which the brush is mounted. While the brush is moving downwardly across the form, the rings 20 of the outer truck members are rolling upon the tracks 11, so that the shaft 16 is moving in a plane close to the type, and the brush is enabled to operate upon the latter. Fixed cams 24, are provided on each side of the bed 10, and are so placed that they will be engaged by the flanges 18 of the inner truck members when the ink roller carriages 15 come to their extreme lowermost position. This engagement of the flanges 18 with the cams 24 causes the tripping trucks to be forced slightly away from the tracks 11. Prior to such engagement the outer truck members had been prevented from closing upon the inner truck members by reason of the engagement of the edges of the flanges 22 with the inside edges of the tracks 11; but when the tripping trucks are raised by the action of the cams 24, the edges of the flanges 22 are free from those of the roller tracks 11, and the outer truck members are permitted to move, under the action of the springs 21, towards the ends of the shaft 16, thereby causing the outer truck members to engage upon the roller tracks 11 by their flanges 22 instead of by their rings 20. When, therefore, the ink roller carriages 15 make their upward movement the flanges 22 will roll upon the tracks 11, so that the brush 23 will clear the type.

Extension roller tracks 25, forming continuations of the tracks 11, and extending parallel with the ink disc 26, are secured to the bed 10. Formed in these extension tracks are notches 27 so cut as to provide cam edges 28 at their lower parts. These notches are so placed that the tripping trucks will reach them at the extreme limit of their upward movement when the press parts are in their impression condition, but will not reach them when the press parts are not in their impression condition, it being understood, of course, that the extent of the movement of the ink roller carriages 15 is slightly less when the press parts are in a "thrown-out" or non-impression condition. Beneath the extension tracks 25 are mounted track strips 29 which terminate slightly below the level of the lower edge of the ink disc 26.

As has been stated, the tripping trucks of the brush shaft 16 travel upwards over the form with their flanges 22 rolling upon the tracks 11. As the tracks pass further upward, they roll upon the extension tracks 25, until they reach the upward limit of their movement, whereupon they fall into the notches 27 and on to the track strips 29. These track strips are on a level such that the brush will not contact with the ink disc 26. As the trucks start their downward movement, the outer edges of their flanges 22 will engage against the cam edges 28 of the notches 27; so that the outer truck members will be forced inward by such cam edges as the trucks continue to move downward. While the brush is traveling over the ink plate, the flanges 22 of the trucks will roll upon the track strips 29, but when the brush has passed below the edge of the ink plate, the truck flanges 22 will leave the ends of the track strips 29, whereupon the trucks will fall further until their rings 20 engage upon the tracks 11, at which time the brush 23 will be close enough to the form to enable it to exert its cleaning action upon the type therein.

The brush 23 is provided at each end with a collar 30 which is secured by a set screw 31 to a sleeve 32 revolubly mounted on the shaft 16; so that, by loosening the set screw 31, the brush may be adjusted laterally of the press to agree with the position of the type in the chase. At one end, the sleeve 32 has secured thereto a gear 33 which meshes with a corresponding gear 34 mounted upon the shaft 35 of the form roller 13 located immediately above the brush. The effect of this is that the brush 23 is caused to rotate in an opposite direction to the form roll, that is, the form roll will rotate in a clockwise direction (Fig. 1) while the brush will rotate in a contra-clockwise direction, exerting its brushing effect in a downward direction.

Suitably supported between the lower saddles 14 is a transverse rod 36 to which are secured by means of set screws 37 the lugs 38 of a curved guard 39 which covers the top part of the brush 23 and prevents the ink on the brush from being thrown over the work being printed in the press. To the inside of the face of the guard 39 is secured an angle plate 40 the edge of which is engaged by the brush so as to break up the ink on the bristles of the latter and thereby keep the brush in good operating condition.

It will be observed that the brush cleans the type at each downward movement across the form, and does not come in contact either with the type or ink disc at any other time. It is to be noted further that when the press is running in a "thrown-out" or "tripped" condition the brush will travel up and down without touching either the type or ink disc at any time. This is for the reason that with the press in the "thrown-out" condition the tripping trucks will not reach the notches 27,

and consequently the large diameter flanges 22 will never leave tracks 11 or extension tracks 25.

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

1. The combination with a printing press of a brush, means for moving said brush in one direction over and in contact with the type, and in the other direction over and out of contact with the type, during the running of the press.

2. The combination with a printing press of a rotatable brush, means for moving said brush in one direction over and in contact with the type, and in the other direction over and out of contact with the type, during the running of the press, and means for rotating said brush oppositely to its direction of movement, when in contact with the type.

3. The combination with a platen press having carriages for form rollers of a brush rotatably associated with said carriages, connection means between one of the form rollers and said brush whereby the roller rotates the brush in a direction opposite to its own rotation, and means permitting said brush to contact the type in its downward movement and clear the type in its upward movement.

4. The combination with a platen press having a carriage for form rollers, of a brush rotatably associated with said carriages, connection means between one of the form rollers and said brush whereby the roller rotates the brush in a direction opposite to its own rotation, and tripping trucks associated with said brush, and means for actuating said trucks to cause said brush to contact the type in its downward movement and clear the type in its upward movement.

WALTER H. SMITH.