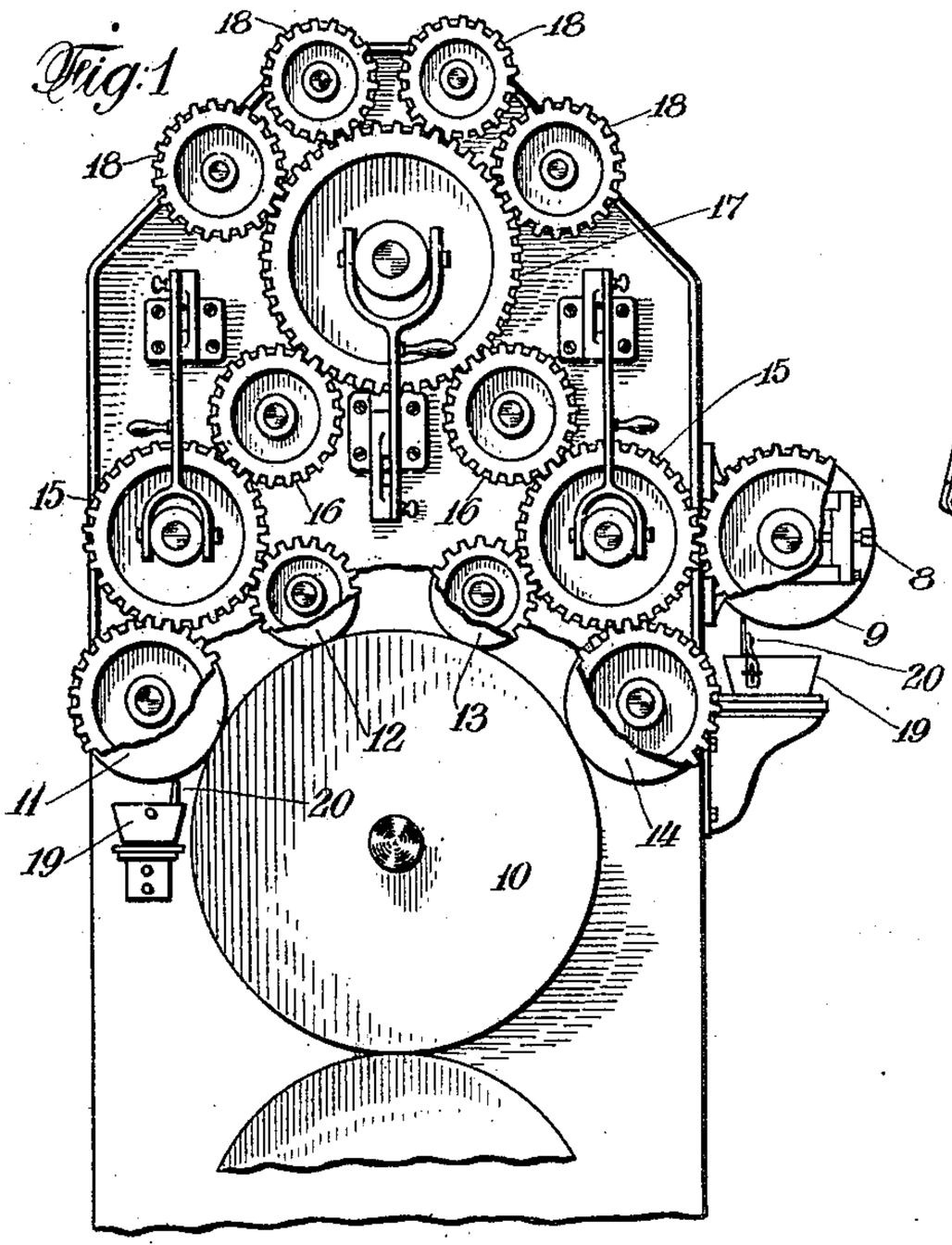
S. CRUMP.

PRINTING PRESS.

APPLICATION FILED MAR. 29, 1909.

976,155. Patented Nov. 22, 1910.

Fig: 1



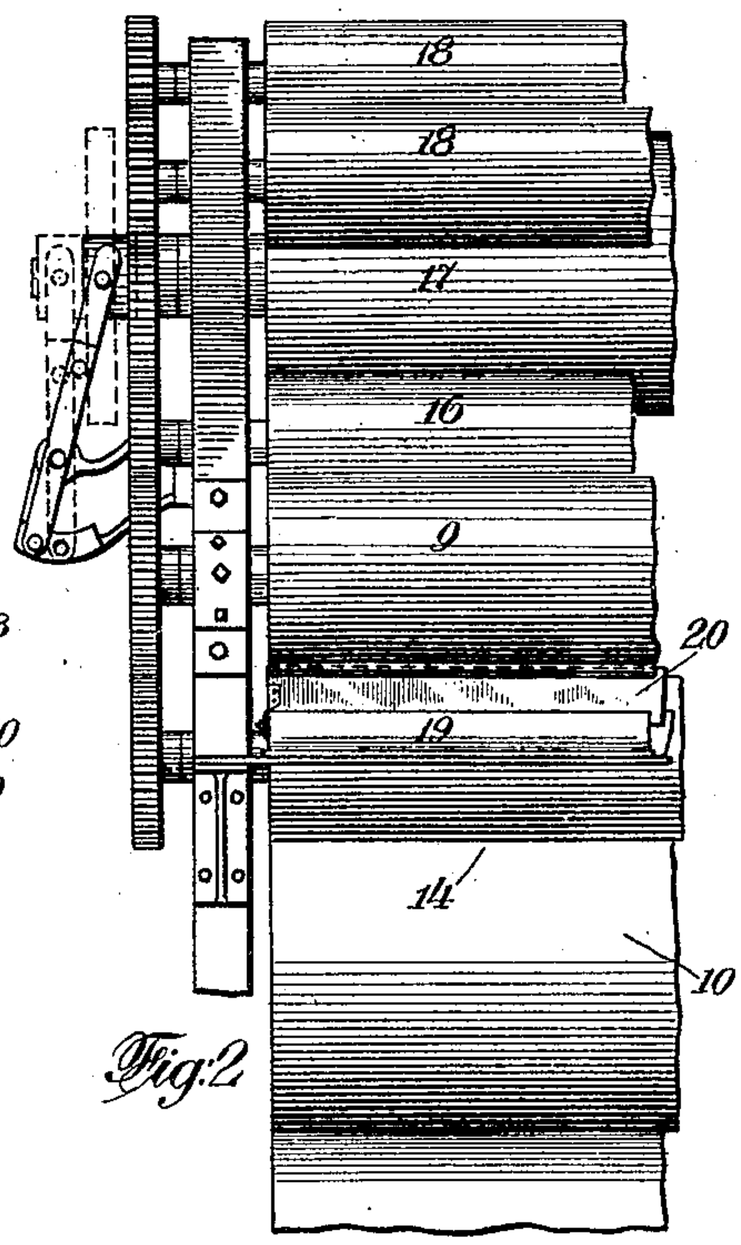


Fig: 2

Fig: 3

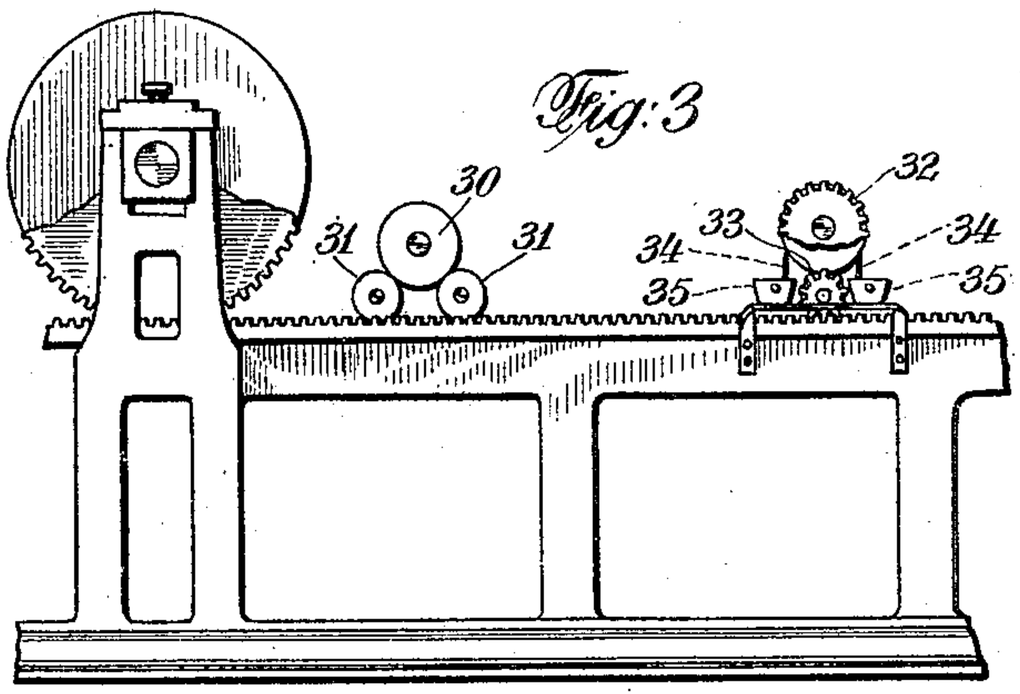
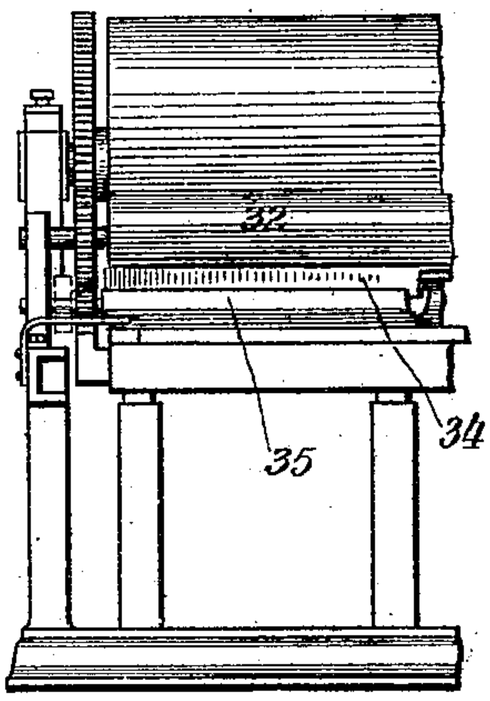


Fig: 4



Witnesses:
Arthur Marion.
A. V. Brodrick.

Inventor
Samuel Crump,
By his Attorney Chas. C. Gill

UNITED STATES PATENT OFFICE.

SAMUEL CRUMP, OF NEW YORK, N. Y., ASSIGNOR TO THE CRUMP ROLLER WASHING ATTACHMENT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PRINTING-PRESS.

976,155. Specification of Letters Patent. **Patented Nov. 22, 1910.**

Application filed March 29, 1909. Serial No. 486,512.

To all whom it may concern:

Be it known that I, SAMUEL CRUMP, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

The invention relates to improvements in printing presses, and consists in the novel features and structure hereinafter described and particularly pointed out in the claims.

The object of this invention is to construct a press and suitable attachments thereto for enabling the effectual automatic cleaning or washing of the ink distributing and form rollers, as well as the form, but more especially the rollers, while the same are on the press and driven by the press driving means.

Several machines have heretofore been produced for cleaning or washing printers' rollers in the use of which the rollers are removed from the press and delivered to the machine and subjected while rotating or while rotating and traveling longitudinally to the action of one or more scrapers and finally to one or more driers. These roller washing machines have not generally, if at all, proven acceptable to the trade for several reasons, among which may be mentioned their expense, the space they occupy, the care they require, their liability to injure the rollers, the time they consume in cleaning the rollers and the necessity they involve of removing the rollers from the press and carrying them to the machines.

My invention is based on the conception of cleaning all of a train of rollers of a press while they are on the press and whether they be many or few, simultaneously, quickly, effectually and with the least possible added expense to the cost of manufacturing the press.

The operation or method of utilizing my invention is based on the principle of transferring the color or ink from one roller to another in series through the chain of rollers to a final composition roller, preferably a composition form roller and one of the train, from which it is removed by a scraper held against the same and delivered into a suitable receptacle. I have found that the roller to which the scraper is applied being constantly deprived of its ink will become the point of delivery for the ink from all the other rollers in the train and that gradually and in an almost incredibly short time all the ink on the rollers will transfer to said final roller and be removed, all of the rollers on the press becoming thoroughly cleansed and also dried of the kerosene or other solvent which I will pour on the rollers during the cleansing operation for softening the ink. When the form rollers are left in contact with the form during the cleansing operation, the latter then being a part of the train of transfer surfaces, will also become effectually cleaned, the ink therefrom transferring to the rollers which are constantly drawn from by the roller to which the scraper is applied. In carrying out my invention I thus preferably apply to one or more of the form rollers of a press a scraper which, in a transfer process, removes all of the ink or color, as well as the solvent employed, from all the rollers and form of a press.

It is usual in cylinder presses to effect the rotation of the ink, distributer and form rollers from power applied to one of the rollers, since said rollers are in contact with one another and there is sufficient tackiness between the rollers, especially when ink is on them, to effect by power applied to one of them the rotation of all the rollers. In carrying out my invention, however, it is preferable to gear all the rollers in a train together, since the solvent applied to the rollers, in connection with the scraper, cleans them so thoroughly and removes the tackiness to such an extent that the rollers should be driven positively in series rather than by the friction due to a surface contact of the rollers with one another in series.

The method of cleaning the rollers in accordance with my invention is not only more rapid and less expensive than by any other method known to me but the rollers remaining on the press while being cleaned, their injury by accidents or carelessness in carrying them about in a press room and applying and removing them from a roller washing machine is entirely avoided.

The invention is represented in the accompanying drawings, in which:

Figure 1 is a side elevation of a portion of a cylinder press embodying my invention, two composition rollers being shown as equipped with scrapers and receptacles

for receiving the removed ink and solvent; Fig. 2 is an end elevation, partly broken away, of the same; Fig. 3 is a side elevation of a portion of a flat bed press embodying my invention, and Fig. 4 is an end elevation of a portion of the same.

In the drawings, referring to Figs. 1 and 2, 10 designates the form cylinder; 11, 12, 13, 14 denote the form-rollers, of printers' roller composition, for supplying ink to the form; 15 indicates iron distributer rollers, 16 composition rollers in contact with said distributer rollers, 17 an iron distributer roller in contact with said rollers 16 of composition, 18 composition distributer rollers in contact with the roller 17, and 9 a transfer or cleaning roller which I may add to the press when desirable.

All of the rollers shown in Figs. 1 and 2 are, excluding the roller 9, of usual character and arrangement in a cylinder press, except that, as shown in Fig. 1, the rollers are geared together, so as to compel their proper simultaneous rotation during the cleaning operation. Ordinarily, or except for my invention, the gear wheels on the shafts of the rollers would be omitted, since the tackiness of the rollers when ink is thereon would be sufficient in the usual operation of the press to effect an adequate rotation of the rollers.

In Fig. 1 I show two sets of the form rollers and rollers 15, 16, 18, one set being at the left and the other at the right of the roller 17 and form cylinder 10, and in practice both sets of said rollers or either thereof may be employed, as usual.

In embodying my invention in the press shown in Figs. 1 and 2, I apply thereto the driving gears on the ends of the shafts of the rollers and equip the press with the roller 9, receptacles 19 and scraper-blades 20, the blades being connected with the receptacles and the latter being removable so that after a cleaning operation they may be removed and emptied. When the receptacles 19 are in position on the press for cleaning purposes, the blades 20, which will preferably be of thin flexible steel or equivalent somewhat yielding material, will respectively engage the form roller 11 and the roller 9 throughout the length of the same. If only one set of the rollers shown in Fig. 1 were employed, I would, of course, only equip the press with one receptacle 19 having a scraper blade 20. When all the rollers shown in Fig. 1 are employed one scraper blade will successfully clean all of the rollers but when such a large train of rollers is used the work of cleaning them may be much more quickly performed if two scraper-blades are employed. I have shown the added roller 9, which will preferably be of printers' roller composition, merely to indicate that my invention may be practiced by applying the scraper blade to a roller added to the train of rollers of a press as well as to one or more of the regular rollers customarily on the press. I show one scraper blade in engagement with the form roller 11 and this is a very desirable location for the blade, especially when the form 10 is also to be cleaned, and obviously the other scraper blade, in the construction of press shown, could be very well applied to the form roller 14 and the added roller 9 omitted. It is desirable, however, in some instances to add the roller 9 to the train, and when this is done the roller 9 will be used exclusively as a cleaning or draw-off roller and have the scraper blade applied to it. The shaft of the roller 9 is supported in brackets and geared to a roller 15, and said shaft is connected with screws 8 of usual character by which the roller may be drawn outwardly from the roller 15 when it is not desired to use the same and moved into gear with said roller 15 when it is intended to clean the rollers or the rollers and form.

The press being in the condition shown in Fig. 1, the cleaning operation may be readily understood. The rollers being in rotation the attendant will apply kerosene to almost any of the series of rollers but preferably to the rollers 18. This kerosene will be transferred from one to the other of the rollers in series and act as a solvent to the ink thereon, and the scrapers 20 will remove the ink and solvent from the rollers 11, 9 and thereby create at said rollers sources of discharge for the ink and solvent from all the rollers and form 10 as well, since the said ink and solvent seeking a uniform distribution on all the contacting surfaces will constantly move to supply the rollers 11, 9 which are as constantly robbed by the scrapers of the supply given to them, the result being that the rollers 11, 9 will draw from all the other contacting surfaces and the scrapers will be enabled to remove all the ink and solvent from all the rollers and the form. Since all of the rollers and the form are in contact with one another, one scraper blade would effectually clean all the rollers and form by the transfer process above described, but when the rollers are numerous, as in Fig. 1, the time required for cleaning the press may be very much shortened if more than one scraper blade is employed.

In the flat bed press shown in Figs. 3 and 4, 30 denotes an iron distributer roller, 31 form rollers, 32 a composition roller, 33 a composition roller geared to the roller 32, and 34 scraper-blades shown as in engagement with the roller 32 and arranged to deliver the ink and solvent removed by them to receptacles 35. The blades 34 and receptacles 35 shown in Figs. 3 and 4 are the equivalents for the blades 20 and receptacles

19 shown in Figs. 1 and 2 and employed for like purposes. I employ two blades 34 for one roller in the press shown in Fig. 3 because during the reciprocation of the bed the roller 32 first rotates in one direction and then in a reverse direction.

When it is desired to clean the rollers and form of the press shown in Figs. 3 and 4, the scrapers will be applied to the roller 32 and solvent to the form or elsewhere in the train of connected surfaces and the press set in motion, and as a result the scrapers will by their constant removal of ink and solvent from the roller 32 enable said roller to draw off the ink and solvent from the train of surfaces until finally all of the ink and solvent will become removed and delivered to the receptacles 35.

In the employment of my invention I prefer to use kerosene as the main solvent because of its great efficiency in attacking the ink, and near the conclusion of the cleaning operation I preferably apply to the rollers or form or both a limited quantity of benzin as a finish to the operation. The quantity of solvent employed will depend on the character of the ink used on the press, an ink of strong quality requiring more solvent than a very soft or a very cheap ink, such for example as is used for printing news-papers on modern presses, and there may be some thin inks used which would not require the use of any, or at most only a very small quantity, of solvent during the cleaning operation.

My invention does not add materially to the cost of a press and it enables the rapid automatic cleaning of the rollers or train of inked surfaces on the press; it also dispenses with the use of roller washing machines and the difficulties, expense and annoyance arising from their employment.

I am aware that it has heretofore been proposed to partly clean the form or forms of a cylinder after each impression by a transfer process involving the application of a scraper-blade to an iron roller, as in Patent dated January 2, 1894 to Cottrell, but this is not what I claim as my invention. My invention embodies the complete cleaning of all the inked surfaces of a press and the specific use of a scraper against one of the composition rollers. My invention could not be carried out if the scraper were applied to a metal roller as distinguished from a composition roller. I am also aware that it has been proposed to clean a press by the application to a reciprocating transfer plate of a scraper, the latter being moved to engage the plate during one movement of the same and to stand free of said plate during its other movement. This arrangement can only be used on a press having a transfer plate and during the cleaning operation it is free of the plate and idle during one half of the time, which is a very objectionable feature not incident to my invention. It is of prime importance that a press be cleaned thoroughly and quickly, otherwise the means provided for the cleaning will not be accepted at all.

What I claim as my invention and desire to secure by Letters Patent, is:

1. In combination with a printing press having a form, and rollers for the ink to be applied to the form, a scraper-blade for effecting the cleaning of said rollers while they are on the press, said scraper-blade being applied to a composition roller connected in the train so as to remove the ink and solvent therefrom and thus cause a transferring of the ink and applied solvent through the train to said roller, whence they are removed; substantially as set forth.

2. In combination in a printing press having composition inking rollers and a composition draw-off roller engaging a composition inking roller, a scraper-blade engaging said draw-off roller for cleaning ink from all the rollers by a transfer process, and a receptacle to receive the matter removed by the blade; substantially as set forth.

3. In combination in a printing press having composition inking rollers and a composition draw-off roller engaging one of the train of inked surfaces of the press, a scraper-blade engaging said draw-off roller for cleaning ink from all the rollers by a transfer process; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 27th day of March, A. D. 1909.

SAMUEL CRUMP.

Witnesses:

ARTHUR MARION,

CHAS. C. GILL.