Jan. 16, 1923.

1,442,098.

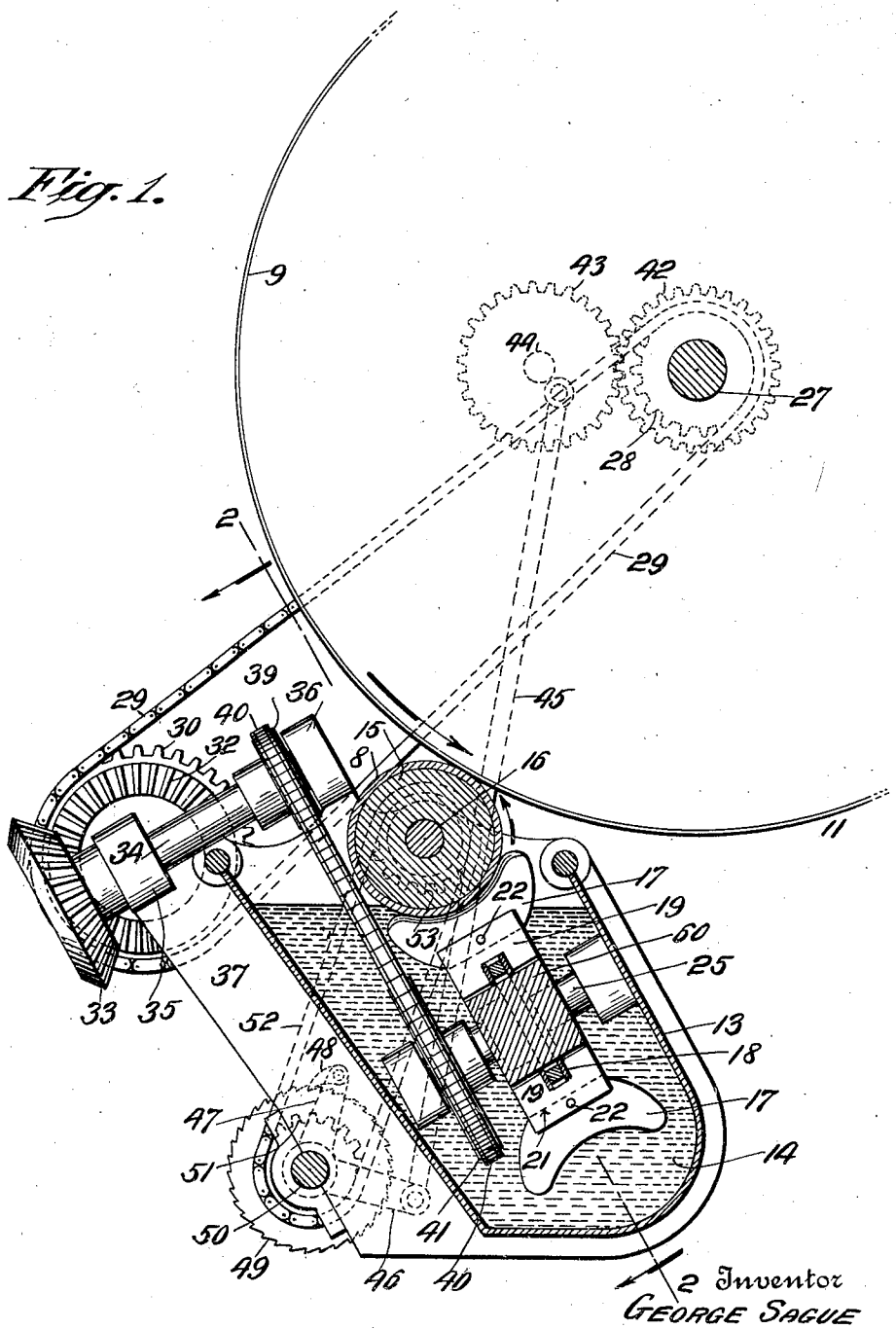
G. SAGUE.

PRINTING PRESS.

FILED OCT. 20, 1921.

2 SHEETS—SHEET 1.

Fig. 1.



By his Attorney

Chas. C. Gill

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2 SHEETS—SHEET 2.

Fig. 2.

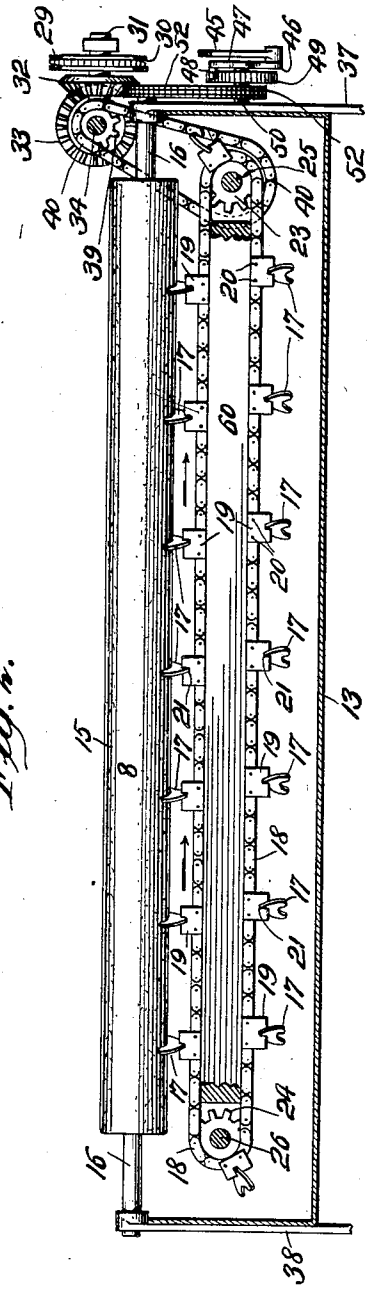


Fig. 4.

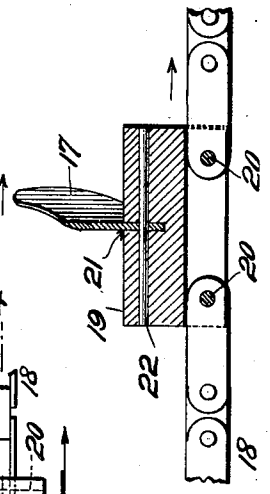


Fig. 3.

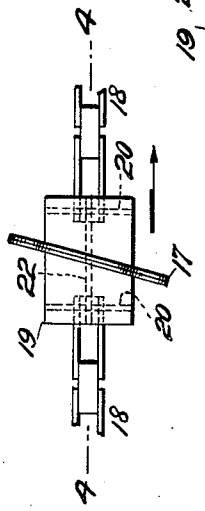
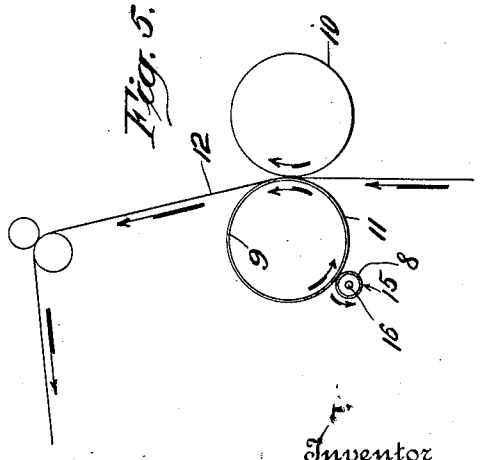


Fig. 5.



Inventor
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By his Attorney
Chas. C. Gill

Patented Jan. 16, 1923. 1,442,098

UNITED STATES PATENT OFFICE.

GEORGE SAGUE, OF OAKES, NEW YORK.

PRINTING PRESS.

Application filed October 20, 1921. Serial No. 509,082.

To all whom it may concern:

Be it known that I, GEORGE SAGUE, a citizen of the United States, and a resident of Oakes, Highland P. O., in the county of Ulster and State of New York, have invented certain new and useful Improvements in Printing Presses, of which the following is a specification.

The invention pertains more particularly to means constituting a part of a cylinder printing press, whereby the offset which, unless prevented from so doing, passes to the impression cylinder from one side of a traveling printed web, or sheet, while the other side of the web is being printed upon, may be constantly removed from said cylinder while the press is in regular operation, thereby avoiding the employment of the usual offset sheet or web traveling with the sheet printed upon to take the offset and which is finally thrown away.

One object of my invention is, therefore, to dispense with the usual traveling offset web which ordinarily takes the impression from the printed side of a traveling sheet or web after one side of said sheet or web has been printed upon and the other side of the sheet or web is, during the traveling of the sheet or web, subjected to pressure between the form cylinder and the impression cylinder.

My invention comprises certain mechanism embodied in the construction of the press and preferably actuated from the shaft of the impression cylinder, whereby any offset from the printed sheet onto said cylinder, is constantly removed therefrom so that said offset may not transfer back to the sheet or web being printed upon.

The mechanism of my invention comprises a tank or receptacle containing a solvent of printer's ink supported within the press, a cleaning roller mounted in said receptacle and engaging the surface of the impression cylinder, traveling scrapers within said receptacle and engaging the surface of said cleaning roller both below and above the surface of the liquid solvent and which remove the offset or foreign matter from said cleaning roller and also dry the same to a sufficient extent for the engagement of the roller with the impression cylinder, and means connected with or operable from the shaft of the impression cylinder for imparting constant traveling motion to said scrapers and an intermittent motion to said cleaning roller. The cleaning roller will preferably be covered with leather and it rotates reversely to the rotation of the impression cylinder and has a step by step or intermittent rotary motion imparted to it during the constant rotation of the impression cylinder. The scrapers which engage the cleaning roller are of special shape and connected with an endless chain traveling through the receptacle for solvent and said scrapers have constant traveling motion imparted to them during the operation of the press.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Fig. 1 is a side elevation of a portion of a printing press, with the mechanism of my invention shown applied to the impression cylinder and illustrated in vertical section;

Fig. 2 is a sectional view through the mechanism of my invention, taken on the dotted line 2—2 of Fig. 1;

Fig. 3 is a detached top view of one of the scrapers and the means for connecting it with the endless conveying chain, a portion only of said chain being illustrated;

Fig. 4 is a sectional view on a larger scale of the same, taken on the dotted line 4—4 of Fig. 3, and

Fig. 5 diagrammatically illustrates in side elevation a portion of a printing press with the traveling web in position between the form or printing cylinder and the impression cylinder, the cleaning roller of my invention being indicated in position against the impression cylinder.

In the drawings, 10 designates the usual form or printing cylinder, 11 the impression cylinder, and 12 the traveling web or sheet moving between said cylinders 10, 11 and being printed upon in the usual way. My invention does not modify the cylinders 10, 11 or the ordinary manipulation of the sheet or web 12, except that I apply an impervious sheet 9 to the surface of the cylinder 11. The sheet 9 may be of polished celluloid or the like.

With reference to my invention, 13 designates a metal tank which will contain a solvent 14, as kerosene, of printing ink, 15 a cleaning roller secured on a shaft 16 mounted in the ends of said receptacle and which roller is parallel with and engages the surface of the impression cylinder, 17 a series

of scrapers secured upon an endless traveling chain 18 and adapted to engage the lower surface of the roller 15 where said roller is immersed in the solvent 14 and also above said surface, as shown in Fig. 1, so that each scraper 17 may not only remove the offset from the roller 15, but serve to dry said roller as its surface arises from the solvent 14 on its path to the impression cylinder 11.

The roller 15 will be a solid roller of wood or other suitable material and has a covering layer 8 of good leather, said covering 8 being adapted to transfer to itself whatever offset may be left on the impression cylinder 11 by the printed sheet or web traveling against the same. The receptacle 13 for solvent extends transversely of the printing press, and below the impression cylinder 11, and the cleaning roller 15 is mounted between the ends and sides of said receptacle and near the open upper end thereof, as shown in Fig. 1.

The scrapers 17 are set at an oblique angle to the longitudinal axis of the roller 15 and said scrapers have arc recesses in their upper edges to closely engage the lower surface of the roller 15. The scrapers 17 are of metal and secured to blocks 19 which are hingedly connected by pins 20 with the links or sections of the chain 18. The blocks 19 are slotted in their upper ends to correspond with the oblique setting of the scrapers 17, and said scrapers at their inner portions are set within said slots, numbered 21, and are therein secured by pins 22 which are driven through the blocks 19 and holes provided therefor in the scrapers 17, as will be understood on reference to Figs. 3 and 4. The chain 18 is a sprocket chain and mounted on sprocket wheels 23, 24, respectively, secured on shafts 25, 26, respectively, which extend transversely of the receptacle 13, near the ends thereof, and are at an oblique angle.

The chain 18 receives its motion from the sprocket-wheels 23, 24 and the sprocket-wheel 24, which is the driving element, receives its motion from the shaft 27 of the impression cylinder 11 through the intermediate mechanism presently to be described, and likewise the cleaning roller 15 receives its motion, which is intermittent, by preference, from the said shaft 27. Upon the shaft 27 of the impression cylinder is secured a sprocket-wheel 28 which is connected by a chain 29 with a sprocket-wheel 30 secured on a shaft 31 (Fig. 2) carrying a beveled gear-wheel 32 which is in mesh with a beveled gear-wheel 33 secured on a transverse inclined shaft 34 mounted in bearings 35, 36 formed on a plate 37 secured to the receptacle 13. The plate 37 corresponds with a similar plate 38 at the other end of the receptacle 13 and connected therewith, the plates 37, 38 affording means for securing the receptacle 13 in the printing press as well as affording bearings for the shaft 34 and shaft 16. The shaft 34 has secured upon it a sprocket wheel 39, and this sprocket-wheel is connected by a chain 40 with a sprocket-wheel 41 secured on the shaft 25 and whereby said shaft 25 is driven and caused to impart constant traveling motion to the chain 18 and scrapers 17 carried thereby. The chain 18 is thus driven from the shaft 27 of the impression cylinder with a constant rate of motion through the transmission mechanism just described comprising the sprocket-wheel 28, chain 29, sprocket-wheel 30, shaft 31, bevel-gear wheels 32, 33, shaft 34, sprocket-wheel 39, chain 40, sprocket-wheel 41, shaft 25 and sprocket wheel 23.

The cleaning roller 15 should rotate at a less rate of speed than the impression cylinder 11 so that said roller may, in effect, drag against the surface of said cylinder during the operation of the press, and I have found it convenient to impart a relatively slow and intermittent motion to the roller 15 from the shaft 27 of the impression cylinder by providing on the shaft 27 of the impression cylinder a gear-wheel 42 to mesh with a gear-wheel 43 mounted on a shaft 44 and connected by an eccentric rod 45 with one arm 46 of a bell-crank lever whose other arm 47 carries a pawl 48 in engagement with a ratchet wheel 49 secured on a shaft 50, which shaft has secured on it a sprocket-wheel 51 which is connected by a chain 52 with a sprocket-wheel 53 secured on the shaft 16 of the roller 15. During the rotation of the impression cylinder 11, the gear-wheel 43 will have constant rotary motion and will, through the rod 45, levers 46, 47, pawl 48 and ratchet-wheel 49 impart intermittent rotary motion to the shaft 50, and this intermittent rotary motion of said shaft 50 will be imparted through the sprocket-wheel 51, chain 52 and sprocket-wheel 53 to the shaft 16 and roller 15.

Between the upper and lower stretches of the chain 18 I provide a filler block 60 which prevents sagging of the upper stretch of the chain and therefore causes the scrapers 17 to uniformly engage the cleaning roller 15 throughout the length thereof.

During the use of the printing press and the traveling of the web 12, which is the paper printed upon, my invention effects the constant removal of the offset from the impression cylinder 11 transferred thereto from the printed side of said web. It is universally the case that in the use of printing presses of the class referred to herein, an offset web, corresponding in dimensions to the web 12, is caused to travel against the impression cylinder for the purpose of receiving the offset from the web 12 instead

of allowing said offset to transfer to said cylinder. My invention dispenses with the use of the said offset web and permits the offset from the web 12 to be taken by the impression cylinder 11, from which the offset is constantly removed with the use of my invention. In practice therefore the web 12 travels between the cylinders 10, 11 and during the use of the press for printing, the offset received by the cylinder 11 is removed therefrom by the cleaning roller 15. The cleaning roller 15 rotates reversely to the direction of rotation of the cylinder 11 and, as aforesaid, the cleaning roller 15 rotates at a reduced speed so that its surface may have a dragging action against the surface, or coating 9, of the cylinder 11, this being for the purpose of enabling the roller 15 to effectually wipe off the offset from the surface of the cylinder 11 at a location at which said surface is approaching the form cylinder 10. During the rotation of the roller 15, said roller in its lower portion is immersed in the solvent 14, which softens on the surface of the roller 15 the foreign matter or offset ink wiped from the cylinder 11 and retained upon the surface of the roller 15. The roller 15 serves to clean the impression cylinder 11, but in order to continue to do so, said roller 15 must itself be constantly cleaned so as to present clean surfaces to the cylinder 11. I therefore provide the series of crescent shaped scrapers 17 and means to cause said scrapers to travel along the length of the roller 15 and in firm engagement therewith. The scrapers 17 engage the roller 15 both within and above the solvent 14, as shown in Fig. 1, and hence said scrapers serve two purposes, one being to scrape the ink from the roller 15 as said roller is traveling through the solvent 14 and the ink is softened thereby, and the other being, by means of the upper portion of the scrapers 17, to sufficiently dry that surface of the roller 15 approaching the cylinder 11, whereby the roller 15 is prevented from freely carrying up the solvent to the cylinder 11 and is enabled to present clean surfaces to said cylinder. One of the purposes of imparting a reduced speed or an intermittent motion to the roller 15 is to afford the scrapers 17 an opportunity for effectually cleaning said roller, said scrapers 17 having a continuous traveling motion, while the roller 15 rotates with an intermittent motion. The scrapers 17 are of oblique position and I have found that this position of the scrapers 17 renders their action more effectual in cleaning the roller 15.

I believe that the nature and operation of the invention will be fully understood from the foregoing explanations without further detailed description of the gearing and cooperative mechanism for actuating the cleaning roller and scrapers from the mechanism of the press. I do not limit my invention to the details of the transmission mechanism shown and described since I am aware that these may be modified without departure from the spirit of my invention.

The covering 8 on the cleaning roller 15 absorbs and carries sufficient of the solvent to attack the offset ink deposited on the impression cylinder by the traveling web 12 and this ink taken from said cylinder by said roller during the wiping action of the roller against the cylinder and the cylinder against the roller, is carried by the roller into the body of the solvent 14 wherein it is attacked by the solvent and removed from the roller by the scrapers 17, which act to clean the roller of the softened ink and remove surplus solvent from that surface of the roller immediately approaching the impression cylinder.

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

1. In a printing press having a form cylinder and an impression cylinder, in combination, means for removing offset from the impression cylinder during the operation of the press comprising a receptacle containing a solvent of printer's ink, a cleaning roller engaging the surface of the impression cylinder and automatically supplied with said solvent, means for rotating said roller reversely to the direction of rotation of said cylinder, and means for cleaning and partly drying the surface of said cleaning roller directly approaching said cylinder.

2. In a printing press having a form cylinder and an impression cylinder, in combination, means for removing offset from the impression cylinder during the operation of the press comprising a receptacle containing a solvent of printer's ink, a cleaning roller engaging the surface of the impression cylinder and automatically supplied with said solvent, means for rotating said roller reversely to the direction of rotation of said cylinder, and means for cleaning and partly drying the surface of said cleaning roller directly approaching said cylinder comprising a series of scrapers engaging said cleaning roller and means for effecting the travel of said scrapers along said roller.

3. In a printing press having a form cylinder and an impression cylinder, in combination, means for removing offset from the impression cylinder during the operation of the press comprising a receptacle containing a solvent of printer's ink, a cleaning roller engaging the surface of the impression cylinder and automatically supplied with said solvent, means for rotating said roller reversely to the direction of rotation of said cylinder, and means for cleaning and partly drying the surface of said cleaning roller directly approaching said cylinder comprising a series of obliquely set crescent

shaped scrapers engaging and partly encompassing said roller, an endless chain carrying said scrapers and means for effecting the travel of said chain to propel said scrapers along the roller.

4. In a printing press having a form cylinder and an impression cylinder, in combination, means for removing offset from the impression cylinder during the operation of the press comprising a receptacle containing a solvent of printer's ink, a cleaning roller having an absorbent surface engaging the surface of said cylinder and automatically supplied with said solvent, means for rotating said roller reversely to the direction of rotation of said cylinder, and scraper means engaging the said roller at the surface thereof immediately approaching said cylinder for cleaning the same and removing surplus solvent therefrom.

5. In a printing press having a form cylinder and an impression cylinder, in combination, means for removing offset from the impression cylinder during the operation of the press comprising a receptacle containing a solvent of printer's ink, a cleaning roller having an absorbent surface engaging the surface of said cylinder and automatically supplied with said solvent, means for imparting an intermittent rotary motion to said roller in a direction reverse to that of said cylinder, and a series of traveling scrapers engaging said cleaning roller at the surface thereof immediately approaching said cylinder for cleaning the same and removing surplus solvent therefrom.

6. In a printing press having a form cylinder and an impression cylinder, in combination, means for removing offset from the impression cylinder during the operation of the press comprising a receptacle containing a solvent of printer's ink, a cleaning roller mounted thereover and at its lower portion being in said solvent and at an upper portion being in engagement with said impression cylinder, means for rotating said roller reversely to the direction of rotation of said cylinder, and scraper means engaging said roller at the surface thereof immediately approaching said cylinder for cleaning the roller and removing surplus solvent therefrom.

7. In a printing press having a form cylinder and an impression cylinder, in combination, means for removing offset from the impression cylinder during the operation of the press comprising a receptacle containing a solvent of printer's ink, a cleaning roller mounted thereover and at its lower portion being in said solvent and at an upper portion being in engagement with said impression cylinder, means for rotating said roller reversely to the direction of rotation of said cylinder, and scraper means engaging said roller at the surface thereof within said solvent and that above the same and immediately approaching said cylinder for cleaning the same and removing surplus solvent therefrom.

8. In a printing press having a form cylinder and an impression cylinder, in combination, means for removing offset from the impression cylinder during the operation of the press comprising a receptacle containing a solvent of printer's ink, a cleaning roller mounted thereover and at its lower portion being in said solvent and at an upper portion being in engagement with said impression cylinder, means for rotating said roller reversely to the direction of rotation of said cylinder, a series of obliquely set crescent shaped scrapers engaging said roller at the surface thereof within said solvent and that above the same and immediately approaching said cylinder for cleaning the roller and removing surplus solvent therefrom, an endless chain carrying said scrapers and means for effecting the travel of said chain to propel said scrapers along the roller.

9. In a printing press having a form cylinder and an impression cylinder, in combination, means for removing offset from the impression cylinder during the operation of the press comprising a receptacle containing a solvent of printer's ink, a cleaning roller having an absorbent surface mounted thereover and at its lower portion being in said solvent and at an upper portion being in engagement with said impression cylinder, means for imparting an intermittent rotary motion to said roller reversely to that of said cylinder, a series of obliquely set crescent shaped scrapers engaging said roller at the surface thereof within said solvent and that above the same and immediately approaching said cylinder for cleaning the roller and removing surplus solvent therefrom, an endless chain carrying said scrapers and means for effecting the travel of said chain to propel said scrapers along the roller.

Signed at New York city, in the county of New York and State of New York, this 19th day of October, A. D. 1921.

GEORGE SAGUE.