No. 844,475. PATENTED FEB. 19, 1907.

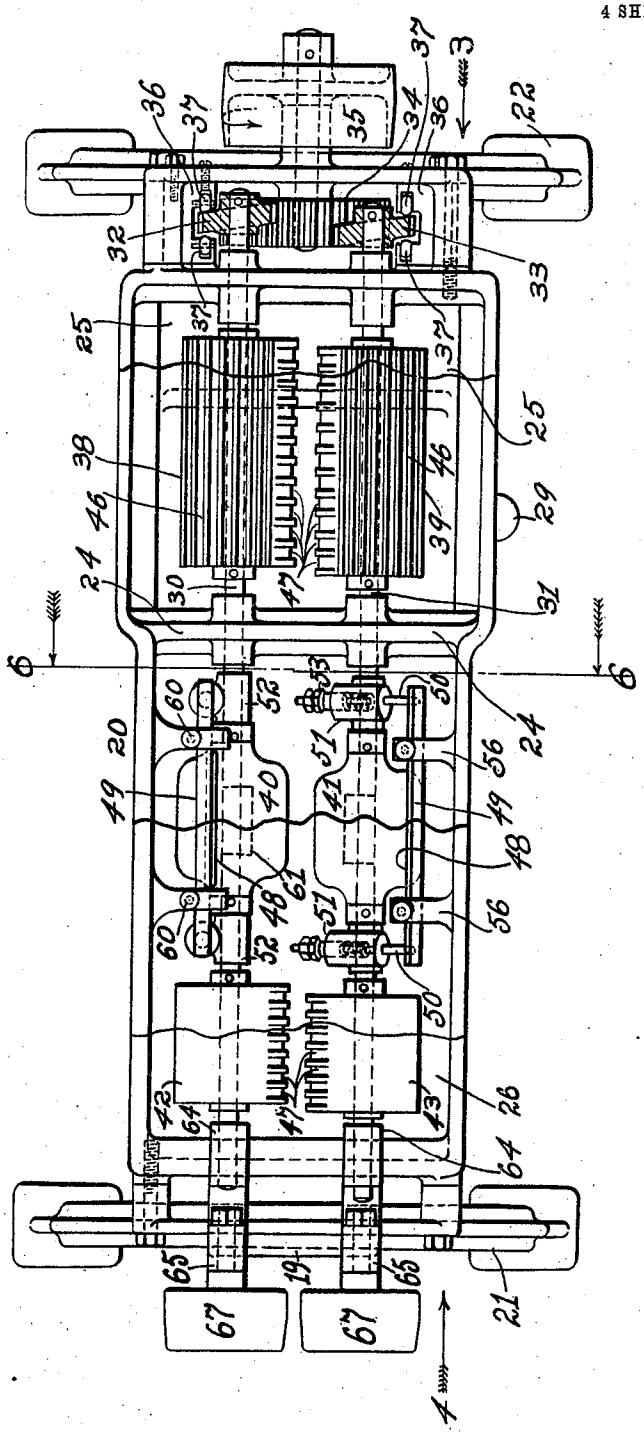
G. SAGUE.

MACHINE FOR CLEANING OR TREATING PRINTERS' ROLLERS.

APPLICATION FILED JULY 20, 1906.

4 SHEETS—SHEET 1.

Fig. 1



Witnesses
B. Marcus
L. R. Compton

Inventor
George Sague
By his Attorney Chas. C. Gill

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4 SHEETS—SHEET 2.

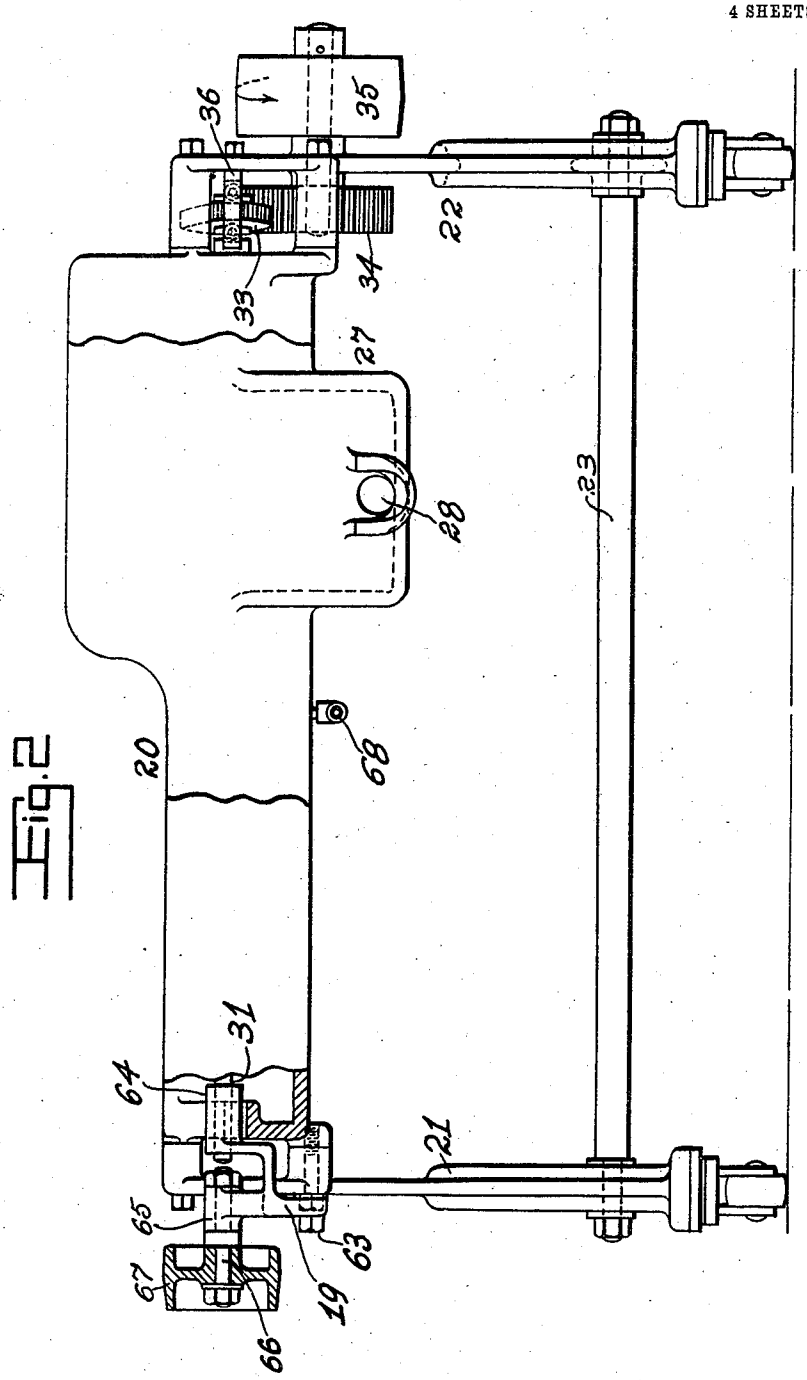


Fig. 2

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4 SHEETS—SHEET 3.

Fig. 4

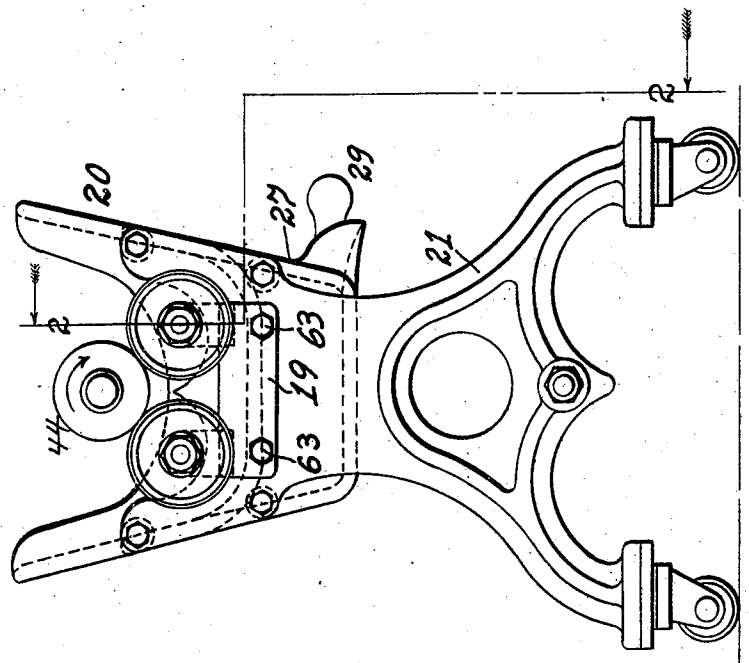
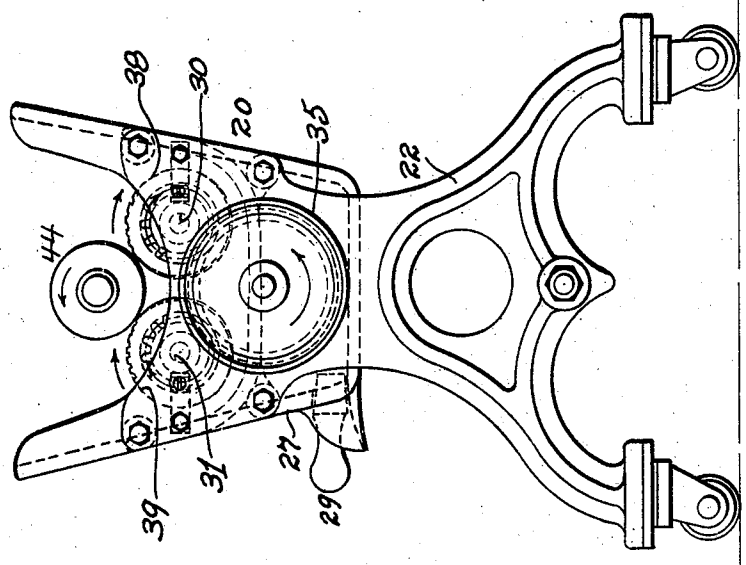


Fig. 3



Witnesses
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L. R. Compton

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By his Attorney Chas. C. Gill

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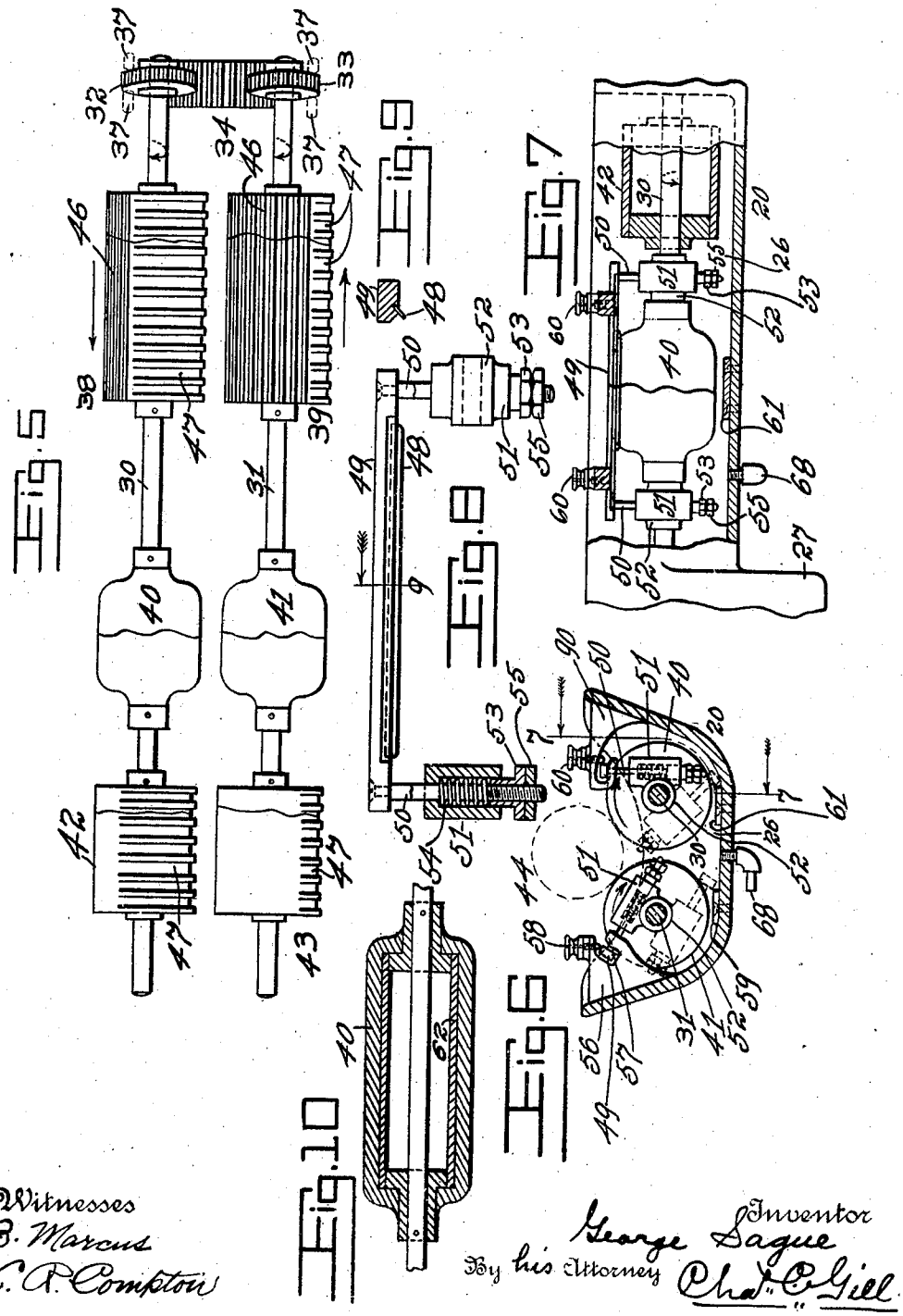
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4 SHEETS—SHEET 4.



Witnesses
B. Marcus
L. R. Compton

Inventor
George Sague
By his Attorney Chas. C. Gill

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE SAGUE, OF POUGHKEEPSIE, NEW YORK, ASSIGNOR OF ONE-HALF TO EDWARD G. ACKERMANN, OF BROOKLYN, NEW YORK.

MACHINE FOR CLEANING OR TREATING PRINTERS' ROLLERS.

No. 844,475. Specification of Letters Patent. Patented Feb. 19, 1907.

Application filed July 20, 1906. Serial No. 326,990.

To all whom it may concern:

Be it known that I, GEORGE SAGUE, a citizen of the United States, and a resident of Poughkeepsie, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Machines for Cleaning or Treating Printers' Rollers, of which the following is a specification.

The invention relates to improvements in machines for cleaning or treating printers' rollers, such as the inking and distributing rollers of typographic and lithographic presses; and it consists in the novel features and combinations of parts hereinafter described, and particularly pointed out in the claims.

The present invention embodies certain improvements upon the machine for cleaning or treating printers' rollers made the subject of my application for Letters Patent of the United States filed August 16, 1905, Serial No. 274,425, and allowed April 24, 1906.

The machine of the aforesaid application and of this application is characterized by a pair of adjacent parallel rollers upon and between which the printer's roller is placed lengthwise and which are rapidly rotated in the same direction and also have alternate reverse reciprocatory motions, said rollers having surfaces adapted on their forward movement to propel the printer's roller forwardly, whereby the printer's roller is rapidly rotated in the presence of the solvent and is step by step moved onwardly, the ink in the meantime being softened and detached, due to the scrubbing action of the reciprocatory rollers against the rotating printer's roller. In connection with the features just above referred to the machine of my invention embraces means for drying the printer's roller thus cleaned of the ink and of treating the surface of the same, whereby the printer's roller after leaving the machine is in condition for immediate use, its surface having been massaged and perfectly relieved of the solvent before it leaves the machine.

The means provided by me for drying the printer's roller comprise a pair of transfer-rollers mounted upon the same shafts with the reverse reciprocatory scrubbing-rollers and over which the printer's roller is compelled to travel on its passage through the machine, the said transfer-rollers removing the solvent from the printer's roller and having the same removed from them by reciprocatory drying-blades which engage their surfaces. The transfer-rollers also perform a scrubbing action on the printer's roller, and thus aid in imparting a desirable surface to said roller in addition to removing the solvent or other moisture therefrom. After the printer's roller leaves the transfer-rollers it is acted upon by finishing reverse reciprocatory rollers mounted upon the same shafts with the scrubbing-rollers and transfer-rollers, these finishing-rollers being substantially the same as the rollers described in my aforesaid application, Serial No. 274,425.

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

Figure 1 is a top view, partly broken away and partly in section, of a machine constructed in accordance with and embodying the invention. Fig. 2 is a side elevation, partly broken away and partly in section, on the dotted line 2 2 of Fig. 4 of same. Fig. 3 is an end view of same, taken from the right-hand end of Fig. 1. Fig. 4 is an end view of same, taken from the left-hand end of Fig. 1. Fig. 5 is a detached top view of the several pairs of reverse reciprocatory rollers and their shafts, partly broken away, removed from the machine. Fig. 6 is a transverse section through the body of the machine on the dotted line 6 6 of Fig. 1. Fig. 7 is a detached side elevation, partly in section and partly broken away, of a portion of the body of the machine, the section being on the dotted line 7 7 of Fig. 6. Fig. 8 is an enlarged detached side elevation, partly in section, of one of the frames for carrying the blades used for removing the solvent from the transfer-rollers. Fig. 9 is a transverse section through the blade-supporting bar on the dotted line 9 of Fig. 8, and Fig. 10 is a detached longitudinal section of one of the transfer-rollers.

The general frame of the machine comprises an elongated receptacle 20, supported at its ends by suitable end frames 21 22, which are below the receptacle 20 connected by a rod 23.

The receptacle 20 is divided by a transverse partition 24 into two compartments 25 26, the former of which constitutes a tank to receive the kerosene or other solvent

which may be used to soften the foreign matter on the printer's roller. At its inner end the compartment 25 has a deep section 27, Fig. 2, into which the foreign matter detached from the printers' rollers together with the solvent employed may drain and be withdrawn through a discharge-orifice 28, Fig. 2, which is adapted to be closed by a plug 29, Figs. 3 and 4.

Mounted in suitable bearings in the upper edge of the partition 24, the right-hand end of the receptacle 20, and the upper inner portions of a bracket 19 at the left-hand end of said receptacle are the parallel longitudinal shafts 30 31, which project outwardly beyond the right-hand end of said receptacle looking at Fig. 1 and have secured upon them the oblique or wabble gear-wheels 32 33 in mesh with a driving gear-wheel 34, which is driven by power from the belt-wheel 35. The gear-wheels 32 33 are each at one edge confined between a pair of fixed jaws 36, provided with rollers or trundle-wheels 37 to engage the side surfaces of said gear-wheels, whereby during the rotation of said wheels to rotate the shafts 30 31 they are compelled to have a movement forwardly and backwardly on the broad gear-wheel 34, and this movement I utilize for the purpose of securing reverse forwardly and backwardly sliding movements of the shafts 30 31 in their bearings, one shaft moving forwardly while the other shaft moves backwardly, and this reverse alternating sliding movement of said shafts being continuous while the driving gear-wheel 34 is in motion.

Upon the shafts 30 31 are respectively secured the rollers in pairs 38 39, 40 41, 42 43, which are the rollers for imparting both a rotary and a traveling movement to the printer's roller 44, placed upon them, and for cleaning and drying the said roller during its passage through the machine. The rollers 38 39 constitute a pair of receiving and scrubbing or cleaning rollers at the front or right-hand end of the machine, and the rollers 40 41 receive the printer's roller from the rollers 38 39 and operate to dry the same, while the rollers 42 43 receive the printers' roller from the rollers 40 41 and impart a finishing condition to and deliver the same from the machine. The rollers 38 39, 42 43 are preferably hollow and made of brass, and they are rigidly fastened to the shafts 30 31. The rollers 40 41 may be of any suitable material which will operate to transfer the solvent from the printer's roller in the manner hereinafter described, and I have constructed said rollers 40 41 of printer's-roller composition.

The rollers 38 39 correspond exactly with the rollers described in my aforesaid application, and they are each formed in about one longitudinal half of its surface with the series of parallel longitudinal grooves 46 and in the other longitudinal half of its surface with the series of parallel transverse or circumferential grooves 47, which preferably are eccentric in outline, being deeper at their center and thence diminishing toward their ends, which merge into the general surface of the rollers adjacent to the outer longitudinal grooves 46. The rollers 38 39 are so set on their shafts that the transverse grooves 47 of the forwardly-moving roller and the longitudinal grooves 46 of the backwardly-moving roller will always in that relation engage the printer's roller, said transverse grooves propelling the printer's roller forwardly, and said longitudinal grooves slipping backwardly against the forwardly-moving printer's roller without injury to the same. The shafts 30 31 rotate in the same direction while performing their alternate reverse reciprocating movements, and hence when the roller 39 reaches the end of its forward stroke its transverse grooves 47 will leave the printer's roller and its longitudinal grooves 46 will pass into engagement with said roller, whereby the roller 39 may slip backwardly without injury to the printer's roller, and when the roller 38 reaches the end of its back stroke its longitudinal grooves 46 will leave the printer's roller, and its transverse grooves 47 will pass into engagement with said roller, whereby on the succeeding forward stroke of said roller 38 it, with its transverse grooves 47, will be enabled to engage and move the printer's roller forwardly. Thus when the roller 39 moves forwardly its transverse grooves 47 will engage the printer's roller and move it forwardly, while at the same time the roller 38 is moving backwardly, and when the roller 38 moves forwardly its transverse grooves will engage and convey the printer's roller forwardly, while the roller 39 moves backwardly.

The transverse grooves 47 at their edges form walls which engage the yielding surface of the printer's roller, and hence with each forward thrust of the rollers 38 39, which only takes place when said grooves are up and in engagement with the printer's roller, the latter roller is moved forwardly or carried bodily forward with the conveying or scrubbing roller then moving forwardly.

The longitudinal grooves 46 also at their edges form walls which engage the yielding surface of the printer's roller, and since this engagement is along longitudinal lines said walls may slide longitudinally along the printer's roller; but due to the fact that at the same time the backwardly-moving roller carrying said walls is rotating said walls by their engagement with the printer's roller assure the due and proper rotation of the same while said roller is being propelled forwardly by the transverse grooves 47 of the forwardly-moving conveying-roller.

The rollers 42 43 are identical in construc-

tion with the rollers 38 39, with the exception that I omit therefrom the longitudinal grooves 46, said grooves not being necessary to said rollers 42 43, which therefore possess the transverse grooves 47 over about one longitudinal half of their respective surfaces, while the other half of their respective surfaces is left entirely plain and smooth.

The rollers 40 41 are rigidly secured upon the shafts 30 31 intermediate the rollers 38 39 and 42 43, and these rollers may for present purposes of description be regarded as made of printer's-roller composition. The rollers 40 41, which I designate as "transfer-rollers," because of the function they perform, are employed in connection with drying-blades 48, which may be of rubber, ribbon-steel, or other suitable material, and during the employment of the machine engage the surfaces of the rollers 40 41 and remove therefrom the solvent or other moisture which said rollers may take from the printer's roller passing over them. Each roller 40 41 is equipped with a blade 48, and said blade is carried by a longitudinal bar 49, secured upon the ends of rods 50, Fig. 8, which extend through cylinders 51, cast integrally with bearing-sleeves 52, Fig. 1, which are slipped upon the shafts 30 31 and are free on said shafts.

The ends of the rods 50 opposite to the bar 49 are threaded and receive internally-threaded nuts 53, between which and the inner ends of the cylinders 51 are confined springs 54, Fig. 8. Upon the outer threaded ends of the rods 50 are provided jam-nuts 55.

The blades 48 for drying the transfer-rollers 40 41 have two positions, one being their inoperative position and the other their operative position, it being better that said blades be not left pressing against the rollers 40 41 when the latter are out of operation or while the machine is not in use. I therefore provide means for holding the blades 48 out of operative position when the machine is not in use, and this position of said blades with the bar 49, rods 50, and cylinders 51 is shown by solid lines in Figs. 1, 6, and 7.

The operative position of the blades 48 and the frames supporting or carrying them is illustrated by dotted lines in Fig 6. At the front side of the main receptacle 20 looking at Fig. 1 I provide a pair of bracket-arms 56, which are recessed, as at 57, Fig. 6, to receive the end portions of the bar 49. The attendant by grasping the bar 49 and drawing outwardly upon the same, compressing the springs 54, is enabled to place said bar in said recesses 57, which are so disposed that when the bar 49 is in them they hold the drying-blade 48 free from the surface of the roller 41. The brackets 56 are provided with spring latch-pins 58 of ordinary construction for retaining the bar in the recesses 57 of the brackets 56.

When it is desired that the drying-blade 48 for the roller 41 be placed in operation or take an operative position, the attendant, the machine having been set in motion, will simply draw upwardly upon the latch-pins 58, and thereupon the friction of the shaft 31 in the bearing-sleeves 52 of the frame of said blade will cause said frame to be carried from the position in which it is shown by full lines at the left-hand portion of Fig. 6 to the position in which it is shown by dotted lines, upon arriving at which the bar 49 will strike a stop 59 on the bottom of the receptacle 20 and become arrested thereby, with the blade 48 engaging the surface of the roller 41, being held in such engagement by means of the springs 54.

After the machine has ceased its operation the attendant will manually return the blade 48 and its frame for the roller 41 back to the position in which said frame is shown by full lines in Fig. 6, inserting the bar 49 into the recesses 57 of the brackets 56 and there latching it by means of the spring latch-pins 58.

The drying-blade 48 for the roller 40 is held when not in operation in the position indicated at the right-hand side of Fig. 6 and also in Fig. 7, the frame of the blade being vertical, with the bar 49 thereof held in recesses in the brackets 90 by ordinary latch-pins 60. When the machine is set into operation, the attendant will draw upwardly on the pins 60 and permit the shaft 30 of the roller 40 to turn the said frame of the plate 48 for said roller 40 into the position in which said frame is shown by dotted lines in Fig. 6, upon arriving at which position the bar 49 of said frame will strike the stop 61, provided on the bottom of the receptacle 20 therefor, and become arrested, with the blade 48 engaging the roller 40. After the machine has ceased its operation the attendant will reverse the movement of the frame of the blade 48 for the roller 40, turning it back to the position in which said frame is shown by solid lines in Figs. 1 and 7 and inserting its bar 49 into the recesses of the brackets 90. in which position said blade will be held free of the roller 40.

The tubular bearing-sleeves 52 on the frames carrying the blades 48 for the rollers 40 41 are close against the ends of said rollers, as shown in Fig. 1, so that during the reciprocating movements of the shafts 30 31 said frames and the blades may reciprocate with said rollers, this being desirable when the rollers 40 41 are made of printer's-roller composition, so that the blades 48 may not cut into or groove the same.

When the rollers 40 41 are made of printers' roller composition, I prefer to form the said rollers in the manner shown in Fig. 10, in which it will be seen that the composition is molded upon an interior cylinder 62, it not being necessary to form the entire roller

solidly of the composition. The rollers formed in the manner shown in Fig. 10 will be slipped upon the left-hand ends of the shafts 30 31 prior to the application of the rollers 42 43 thereto and then pinned to the shafts in proper position, as indicated in Fig. 5. I do not limit the invention, however, to the employment of printers' roller composition in the manufacture of the rollers 40 41, since said rollers may be of metal or other material. I have, however, successfully employed the rollers 40 41 of printers' roller composition and have made them about one sixty-fourth of an inch greater in diameter than the diameter of the rollers 38 39 42 43, (due to the yielding nature of the composition,) so as to insure the proper contact of all of the rollers with the printer's roller passing over them.

I prefer to form the scraper-blades 48 of ribbon-steel when the rollers 40 41 are of printers' roller composition, and when the rollers 40 41 are formed of metal or other rigid substance the drying-blades 48 may be of rubber, leather, or other suitable material. The blades 48 simply prevent the solvent or other liquid from being carried around upon the rollers 40 41, said blades serving to arrest and thereby wipe from the rollers 40 41 the solvent or other moisture as said rollers rotate against said blades.

The bracket 19 is secured to the rear or delivery end of the machine by means of bolts 63 and, as shown in Figs. 1 and 2, carries bearings 64 for the left-hand end or rear ends of the shafts 30 31 and bearings 65 for the bolts or shafts 66, upon which I mount a pair of smooth-surfaced wheels 67 to receive the advancing portion of the printers' rollers as the same are propelled onwardly from the machine.

In the bottom of the compartment 26 of the receptacle 20 I provide a drainage-outlet 68 for such solvent as may settle in said compartment.

In the employment of the machine kerosene or other suitable solvent will be poured into the compartment 25 until it covers about one-third of the rollers 38 39. Upon power being applied to the belt-wheel 35 the shafts 30 31 and pairs of rollers 38 39 40 41 42 43 will be given their rotary and alternate reverse reciprocatory movements. The attendant will then free the frames of the drying-blades 48, so that said blades may assume the position shown by dotted lines in Fig. 6, and thereupon the printer's roller will be placed lengthwise upon and between the rollers 38 39, which due to their movements and surfaces will both rotate and propel the printer's roller and flood the same with the solvent. The surfaces of the rollers 38 39 will thoroughly scrub the ink and other foreign matter from the printer's roller during its passage over the same, and this ink and foreign matter will be carried away in the solvent and settle in the bottom of the compartment 25, finally finding its way into the deeper portion 27 of said compartment. The movement of the rollers 38 39 will propel the printer's roller endwise across the rollers 40 41 and finally upon the rollers 42 43. The rollers 40 41 are drying-rollers and take the solvent or other liquid from the printer's roller, this solvent or other liquid being removed from the rollers 40 41 by the blades 48 and settling into the compartment 26. The rollers 42 43 also aid in propelling the printer's roller through the machine and they aid in drying the printer's roller and massaging its surface and finishing the treatment of the same, the said rollers 42 43 causing the printer's roller to have a step-by-step movement outwardly upon the delivery-wheels 67, from which the attendant will remove said roller. All of the rollers operate by attrition against the printer's roller and effectually clean and dry the same.

The invention is not limited to any special dimensions which may be given to the cleaning and drying rollers, but, as heretofore constructed for general use, I have made the rollers 38 39 thirty inches long and four inches in diameter, the finishing-rollers 42 43 ten inches long and four inches in diameter, and the transfer-rollers 40 41 ten inches long and when made of printer's roller composition four inches and one sixty-fourth of an inch in diameter. If the rollers 40 41 were made of brass or other rigid material, they should have the same diameter as the other rollers.

A machine constructed with the rollers of the dimensions above mentioned is adapted for the cleaning of printers' rollers from one and one-half inches to nine inches in diameter and from fifteen inches to one hundred and ten inches long. I prefer to give the shafts 30 31 an one-half inch throw and to impart to them about three hundred and twenty throws per minute. The machine has also been constructed on a smaller scale for smaller printers' rollers.

The novel features of the present invention reside more especially in the provision of the transfer-rollers 40 41 and the parts coacting with them. I provide the bracket 19, carrying the bearings 64 for the shafts 30 31, so that should occasion require the rollers 42 43 and 40 41 may be slipped from said shafts without disturbing the rollers 38 39.

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

1. In a machine for treating printers' rollers, a pair of rollers upon which the printer's roller is placed lengthwise, and means for rotating and reversely reciprocating said rollers, said rollers having surfaces adapted to rotate, scrub and propel the printer's roller, combined with a pair of rotary reverse reciprocatory transfer drying-rollers in the path

of and to receive said printer's roller, and wipers to remove the moisture from said drying-rollers; substantially as set forth.

2. In a machine for treating printers' rollers, a pair of rollers upon which the printer's roller is placed lengthwise, and means for rotating and reversely reciprocating said rollers, said rollers having surfaces adapted to rotate, scrub and propel the printer's roller, combined with a pair of rotary reverse reciprocatory transfer drying-rollers in the path of and to receive said printer's roller, wipers to remove the moisture from said drying-rollers and a pair of rotary reverse reciprocatory finishing-rollers, having grooved surfaces, to receive the printer's roller from said drying-rollers and propel the same from the machine; substantially as set forth.

3. In a machine for treating printers' rollers, a pair of rollers upon which the printer's roller is placed lengthwise, and means for rotating and reversely reciprocating said rollers, said rollers having surfaces adapted to rotate, scrub and propel the printer's roller, combined with a pair of rotary reverse reciprocatory transfer drying-rollers in the path of and to receive said printer's roller, wipers to remove the moisture from said drying-rollers, and means for reciprocating said wipers with said drying-rollers; substantially as set forth.

4. In a machine for treating printers' rollers, a pair of rollers upon which the printer's roller is placed lengthwise, and means for rotating and reversely reciprocating said rollers, said rollers having surfaces adapted to rotate, scrub and propel the printer's roller, combined with a pair of rotary reverse reciprocatory transfer drying-rollers in the path of and to receive said printer's roller, wipers to remove the moisture from said drying-rollers, and means for locking said wipers out of engagement with said drying-rollers; substantially as set forth.

5. In a machine for treating printers' rollers, a pair of rollers upon which the printer's roller is placed lengthwise, and means for rotating and reversely reciprocating said rollers, said rollers having surfaces adapted to rotate, scrub and propel the printer's roller, combined with a pair of rotary reverse reciprocatory transfer drying-rollers of printer's-roller composition in the path of and to receive said printer's roller, and wipers to remove the moisture from said drying-rollers; substantially as set forth.

6. In a machine for treating printers' rollers, a pair of rollers upon which the printer's roller is placed lengthwise, and means for rotating and reversely reciprocating said rollers, said rollers having surfaces adapted to rotate, scrub and propel the printer's roller, combined with a pair of rotary reverse reciprocatory transfer drying-rollers having surfaces of yielding material in the path of and to receive said printer's roller, wipers to remove the moisture from said drying-rollers, and means for yieldingly pressing said wipers against said rollers; substantially as set forth.

7. In a machine for treating printers' rollers, a pair of parallel horizontal shafts, means for rotating and reversely reciprocating said shafts, and a pair of parallel rollers secured upon said shafts and upon which the printer's roller is placed lengthwise, said rollers having surfaces adapted to rotate, scrub and propel the printer's roller, combined with a pair of transfer drying-rollers secured on said shafts in the path of and to receive said printer's roller, and wipers to remove the moisture from said drying-rollers; substantially as set forth.

8. In a machine for treating printers' rollers, a pair of parallel horizontal shafts, means for rotating and reversely reciprocating said shafts, and a pair of parallel rollers secured upon said shafts and upon which the printer's roller is placed lengthwise, said rollers having surfaces adapted to rotate, scrub and propel the printer's roller, combined with a pair of transfer drying-rollers secured on said shafts in the path of and to receive said printer's roller, wipers to remove the moisture from said drying-rollers, and a pair of finishing-rollers, having grooved surfaces, to receive the printer's roller from said drying-rollers and propel the same from the machine; substantially as set forth.

9. In a machine for treating printers' rollers, a pair of parallel horizontal shafts, means for rotating and reversely reciprocating said shafts, and a pair of parallel rollers secured upon said shafts and upon which the printer's roller is placed lengthwise, said rollers having surfaces adapted to rotate, scrub and propel the printer's roller, combined with a pair of transfer drying-rollers secured on said shafts in the path of and to receive said printer's roller, wiper-frames hung upon said shafts and straddling said drying-rollers and carrying wipers to engage said rollers, means for yieldingly pressing the wipers against said rollers, means for locking said frames with their wipers out of engagement with said rollers, and means for positioning said frames with their wipers in engagement with said rollers; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 18th day of July, A. D. 1906.

GEORGE SAGUE.

Witnesses:
CHAS. C. GILL,
ARTHUR MARION.