No. 826,834. PATENTED JULY 24, 1906.

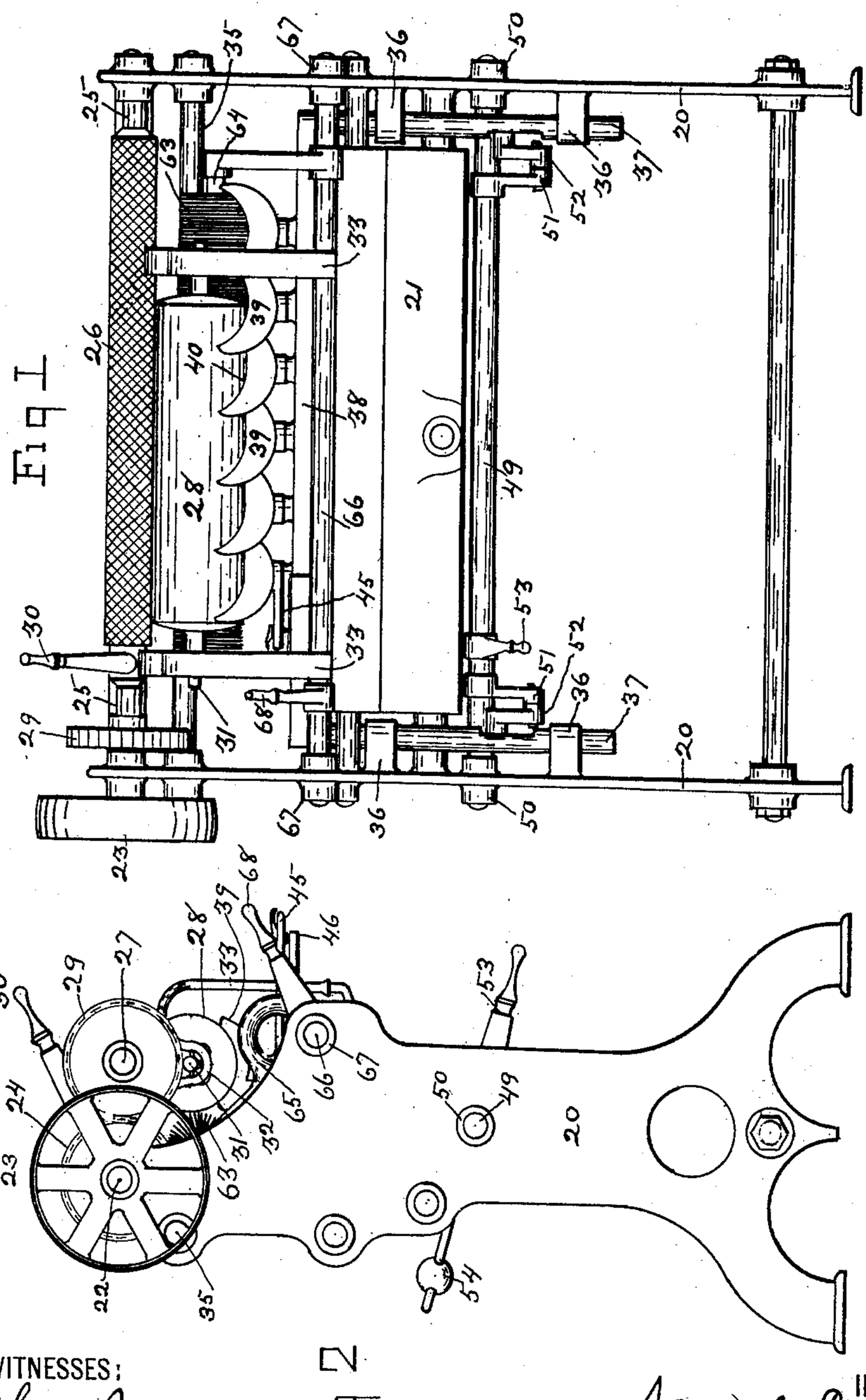
S. CRUMP & G. SAGUE.

MACHINE FOR CLEANING OR TREATING PRINTERS' ROLLERS.

APPLICATION FILED JULY 9, 1904. RENEWED JUNE 26, 1905.

3 SHEETS—SHEET 1.

Fig 1



WITNESSES:
Arthur Marion.
Herman Gustors.

INVENTORS
Samuel Crump and
George Sague
BY
Chas. C. Gill
ATTORNEY

No. 826,834. PATENTED JULY 24, 1906.

S. CRUMP & G. SAGUE.

MACHINE FOR CLEANING OR TREATING PRINTERS' ROLLERS.

APPLICATION FILED JULY 9, 1904. RENEWED JUNE 26, 1905.

3 SHEETS—SHEET 2.

Fig 3

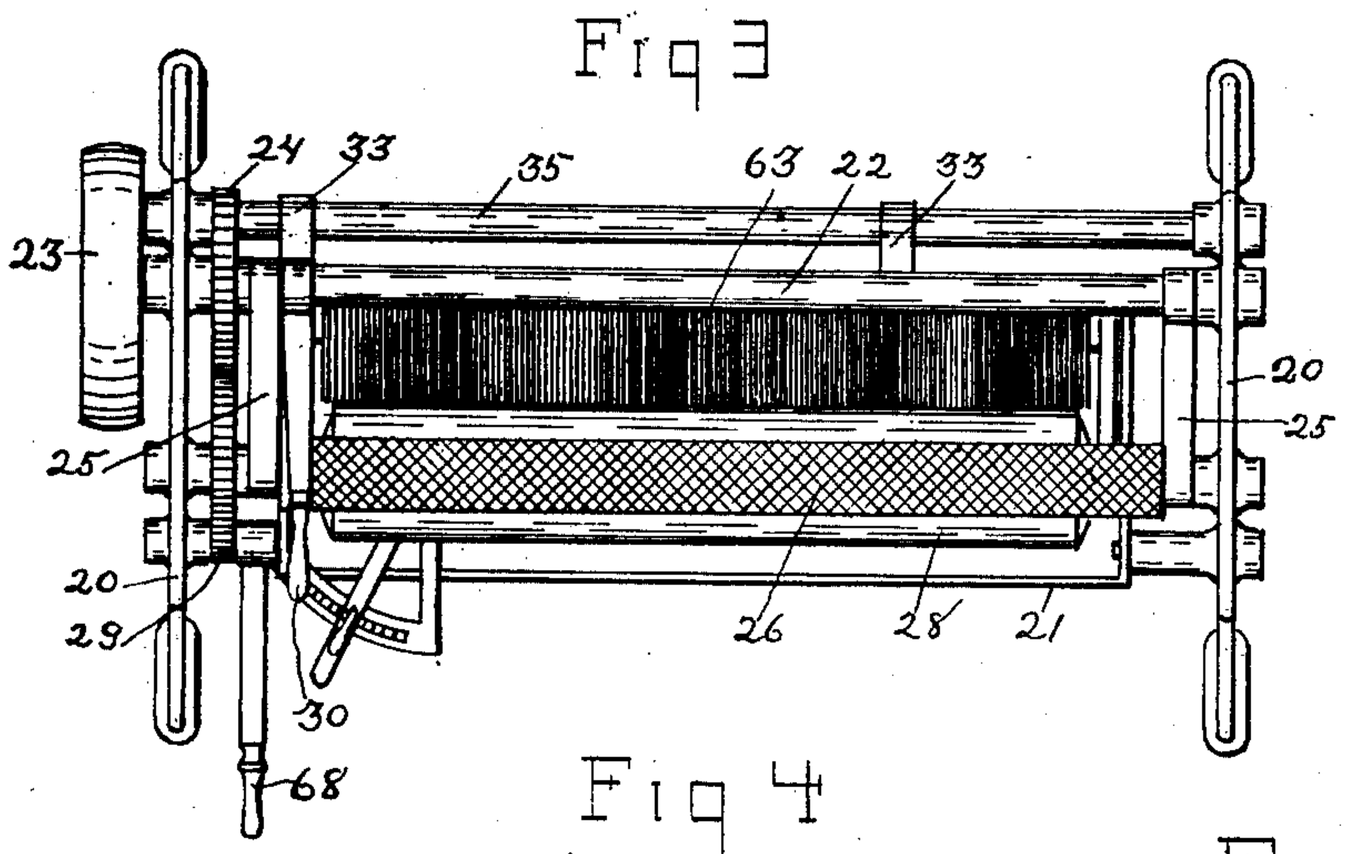


Fig 4

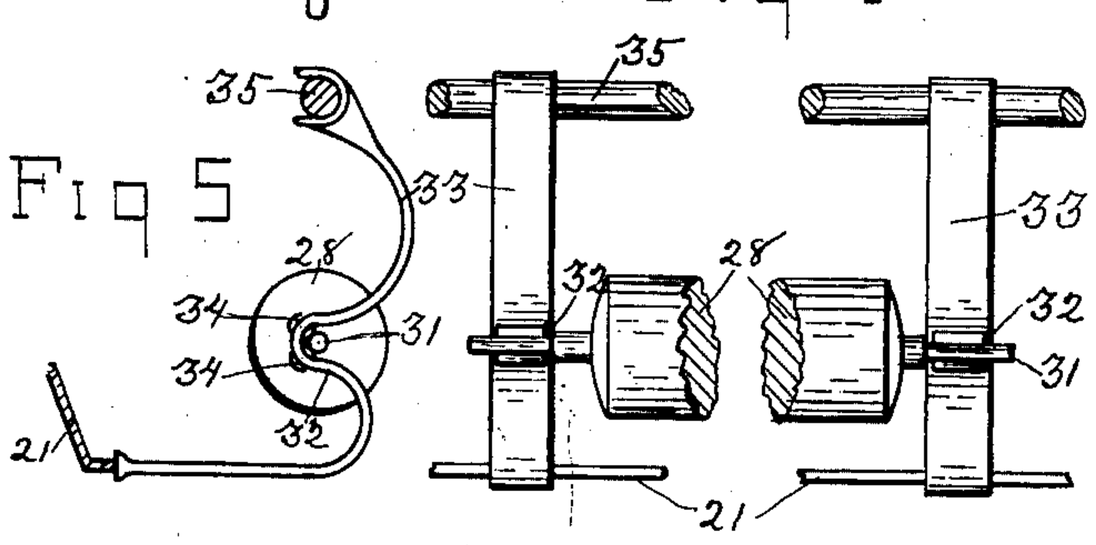


Fig 5

Fig 6

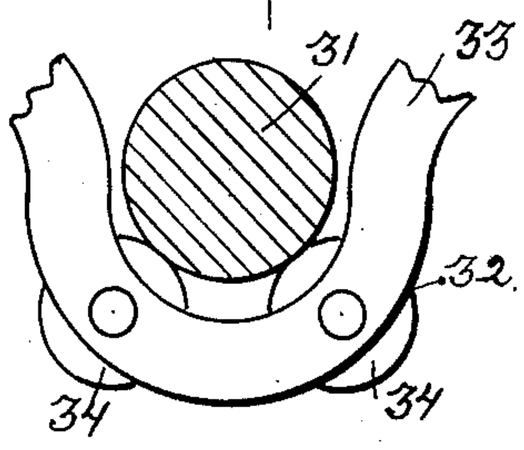


Fig 8.

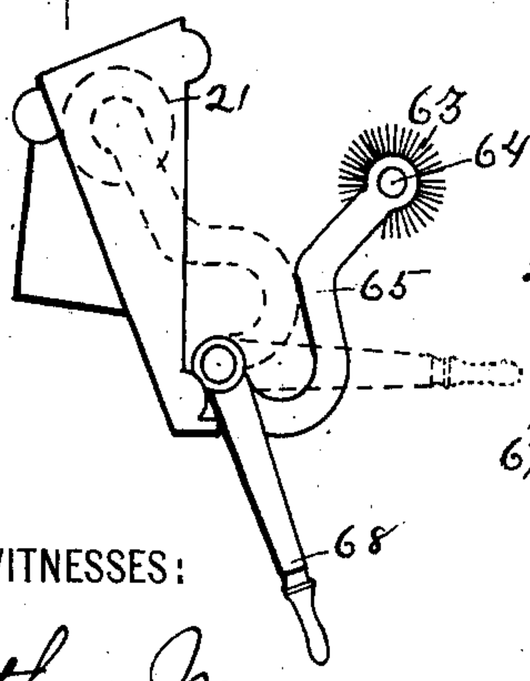
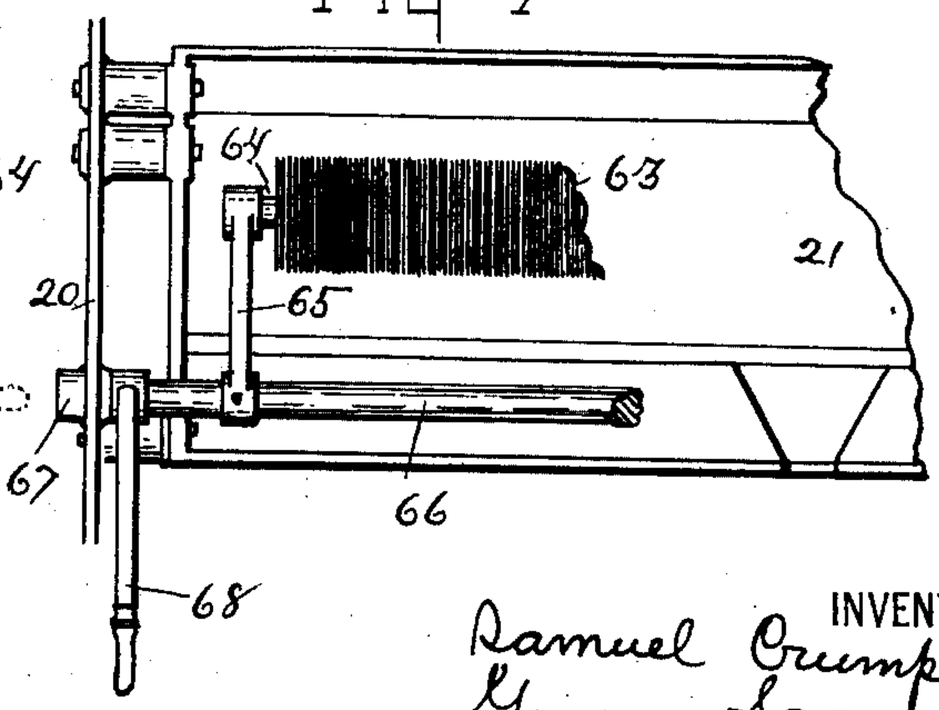


Fig 7



WITNESSES:

Arthur Marion.

Herman Gustoes.

INVENTORS

Samuel Crump and George Sague.

BY

Chas. C. Gill

ATTORNEY

No. 826,834. PATENTED JULY 24, 1906.

S. CRUMP & G. SAGUE.

MACHINE FOR CLEANING OR TREATING PRINTERS' ROLLERS.

APPLICATION FILED JULY 9, 1904. RENEWED JUNE 26, 1905.

3 SHEETS—SHEET 3.

Fig 9

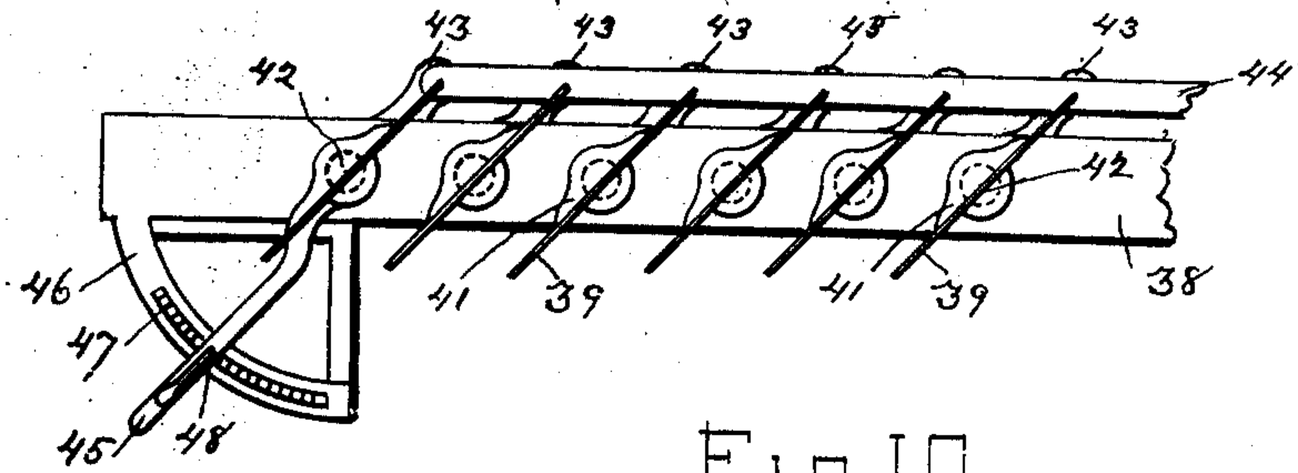


Fig 10

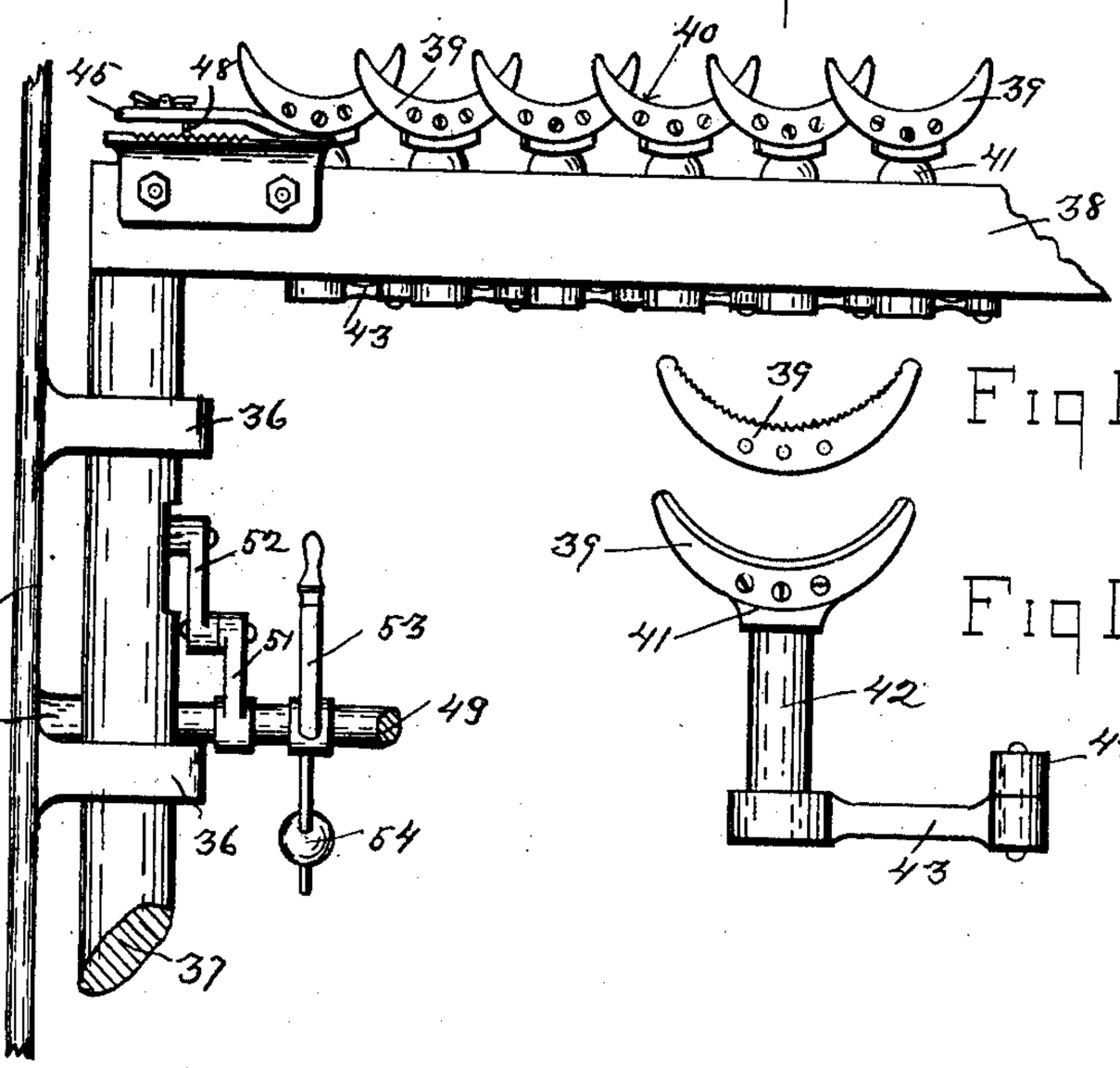


Fig 12

Fig 11

WITNESSES:

Arthur Marion.

Herman Gustoco.

INVENTORS.

Samuel Crump and
George Sague.

BY

Chas. C. Gill

" ATTORNEY

UNITED STATES PATENT OFFICE.

SAMUEL CRUMP AND GEORGE SAGUE, OF POUGHKEEPSIE, NEW YORK, ASSIGNORS, BY MESNE ASSIGNMENTS, TO SAID SAGUE.

MACHINE FOR CLEANING OR TREATING PRINTERS' ROLLERS.

No. 826,834. Specification of Letters Patent. Patented July 24, 1906.

Application filed July 9, 1904. Renewed June 26, 1905. Serial No. 267,105.

To all whom it may concern:

Be it known that we, SAMUEL CRUMP and GEORGE SAGUE, citizens of the United States, and residents 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 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 object of the invention is to provide a machine which will with certainty and rapidity efficiently remove the accumulations of ink, paper fiber, and other matter from pinters' rollers without injury to the surfaces of the latter.

In its preferred construction the machine of our invention comprises suitable bearings to receive and permit the rotation of the roller to be treated, a tank below the same to contain any proper solvent solutions—such as kerosene, naphtha, or benzin for typographic rollers, and turpentine for lithographic rollers—a rough-surfaced roller to engage the surface of the printers' rollers and impart rotary motion to the same, a brush for applying the solvent to the printer's roller, and a series of novel scraper-blades against the edges of which the printer's roller will be rotated and which will effectively remove the ink and foreign matter therefrom, leaving the surfaces of the said roller clean and dry and ready for renewed use in a press. The scraper-blades of our invention are of special importance in that they are obliquely arranged with respect to the printer's roller and present concave edges to the surface of same, which edges are on a concave or segmental line or arc of a circle greater in diameter than the diameter of said roller, whereby said edges are enabled to pass on oblique lines partly around the roller and, due to the relative relation of the blades to one another, clean the entire surfaces of the roller during the rotation of the latter. We prefer to arrange the scraper-blades in series and pivotally mount them so that they may be correspondingly adjusted as to their obliqueness to the roller, whereby the blades may by simply turning them on or with their pivotal supports be adapted to the special conditions of the rollers to be cleaned and especially to the varying diameters of the rollers, one set of the blades being adapted without change other than adjustment obliquely for cleaning rollers materially varying in diameter.

The nature of the invention and satisfactory means for carrying the same into effect will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of a machine constructed in accordance with and embodying our invention, a printer's roller to be cleaned being shown in position on the machine. Fig. 2 is an end elevation of same. Fig. 3 is a top view of same. Fig. 4 is a top view, partly broken away, of that portion of the machine affording bearings for the ends of the printer's roller, which is also represented in Fig. 4. Fig. 5 is an end projection, partly in section, of same. Fig. 6 is an enlarged end elevation of a portion of one of the bearings for the printer's roller, the shaft of the latter being shown in section. Fig. 7 is a top view of a portion of the machine and is presented to represent more particularly the brush and the mechanism for moving the same from the solution-tank into contact with the printer's roller. Fig. 8 is an end projection of same. Fig. 9 is a top view of a portion of the machine and illustrates more especially the series of pivotally-mounted scraper-blades and the means for adjusting them to the desired or necessary oblique position with respect to the roller to be treated. Fig. 10 is a front elevation of same. Fg. 11 is an end elevation of a portion of same, and Fig. 12 is a detached view of one of the scraper-blades provided with a serrated edge.

In the drawings, 20 designates the side frames of the machine, which frames are suitably connected together by rods in a familiar manner and support between them an elongated receptacle or tank 21 for holding the solvent or solution to be applied to the printers' rollers for softening the matter thereon.

In the upper ends of the side frames 20 is mounted a rod or shaft 22, upon one end of which is mounted to rotate thereon the driving-belt wheel 23 and driving gear-wheel 24, these wheels being connected together by a sleeve in a familiar manner.

Upon the rod 22 is secured a pair of forwardly-projecting arms 25, Figs. 1 and 3, in the front ends of which are loosely mounted so as to rotate therein the reduced ends or shaft 27, Fig. 2, of the roller 26, the latter having a roughened surface and being thereby adapted by its surface contact with the printer's roller 28 to rotate the latter. On the left-hand end of the shaft 27 is secured a gear-wheel 29, which is in constant mesh with the gear-wheel 24 and receives motion from the latter and communicates the same to the roller 26.

Upon the rod 22 is also secured a lever-arm 30, which may be utilized through the rod 22 and arms 25 in elevating the roller 26 from the printer's roller 28 and moving the said roller 26 to the back of the machine, the gear-wheel 29 during such action rolling upon the gear-wheel 24.

The shaft 31 of the printer's roller 28 has its ends cradled in the bearing-loops 32 of the frames 33, Figs. 1, 2, 4, 5, and 6, wherein are provided rollers 34, upon which the ends of said shaft 31 have a bearing. The frames 33 are bifurcated at their rear ends, Figs. 4 and 5, to straddle and rest upon the rod 35, connecting the side frames 20, while at their front ends the said frames 33 rest upon the front edge of the tank 21. The frames 33 may be slid toward and from each other, and thereby become readily adapted for the varying lengths of printers' rollers. We regard the bearing-loops 32, having the bearing-rollers 34, as of importance in view of the readiness with which the printers' rollers may be introduced into and removed therefrom and the ease and trueness with which said rollers may be rotated therein.

Upon the inner or facing sides of the side frames 20 are provided vertical guide-lugs 36, in vertical apertures in which are mounted the sliding rods 37, which are connected at their upper ends by a cross-bar or frame 38, Figs. 1, 9, 10, disposed above the tank 21 and carrying the longitudinal series of pivotally-mounted overlapping scraper-blades 39. The scraper-blades 39 have concave scraping edges 40, and these edges are on the arc of a circle greater in diameter than the diameter of the roller to be treated, and this is an important feature of the invention in that thereby the said blades become adapted for the cleaning of rollers varying materially in diameter and may be arranged on oblique angles to the longitudinal axis of said rollers, as illustrated in the drawings. The blades 39 are in the present instance formed of sheet metal and are fastened by screws, Figs. 9, 10, and 11, to suitable heads 41, fashioned upon the upper ends of the pins or pivots 42, which extend downwardly through apertures in the bar 38 and have secured upon their lower ends the crank-arms 43, which project rearwardly and are connected in a pivotal manner at their outer ends with the rod 44, by which simultaneous movement may be imparted to the crank-arms 43 and through said arms and the pins or pivots 42 to the scraper-blades 39. The left-hand head 41 has formed on or connected with it a lever-arm for manual manipulation, and upon reference to Fig. 9 it will be understood that when the lever-arm 45 is moved to the left or right its movement will be communicated through the left-hand pin or pivot 42 to the left-hand crank-arm 43, and thence through the connecting-rod 44 to all of the remaining crank-arms 43, with the result of correspondingly moving or adjusting all of the scraper-blades 39 with respect to the angle at which they shall stand. Below the lever-arm 45 we provide a segment 46, having a series of serrations 47 to enter into locking engagement with a spring-detent 48, carried by the lever-arm 45, the purpose of the serrations 47 and detent 48 being to lock the lever-arm 45 in any of its adjusted positions, and thereby lock the scraper-blades 39 in such position as may be given to them.

The guide-rods 37 and connecting cross-bar 38 constitute a frame which carries all of the scraper-blades 39, and this frame is movable vertically so that the blades 39 may be conveniently moved toward and from the printer's roller 28 and be adjusted to suit the special condition of the roller to be treated and the varying diameters of rollers which may be applied to the machine for treatment. The frame carrying the scraper-blades is therefore vertically movable and it may yield to the printer's roller to be treated. The mechanism by which the frame carrying the scraper-blades 39 may be manually raised and lowered comprises a rock-shaft 49, mounted in bearings 50, formed in the side frames 20, crank-arms 51, secured on said rock-shaft, Figs. 1 and 10, links 52, pivotally connected to said crank-arms 51 and the guide-rods 37, a lever 53, secured to said rock-shaft 49 for turning the latter, and a counterbalance 54, also secured to said rock-shaft 49. When the lever 53 is pushed downwardly, it will turn the rock-shaft 49 toward the front and cause the crank-arms 51 thereon to turn downwardly and through the links 52 pull the guide-rods 37 downwardly, thus lowering the cross-bar 38 and series of scraper-blades 39. When the lever 53 is pressed upwardly, it will reverse the motion of the rock-shaft 49 and crank-arms 51 and effect the upward movement of the guide-rods 37, bar 38, and scraper-blades 39. The tendency of the counterbalance 54 is to move the rods 37 and bar 38 upwardly with a yielding pressure, and the said counterbalance 54 is of such weight as to practically balance the weight of the scraper-blade frame, whereby said frame becomes sensitive and easily moved and capable of ready manipulation.

In the operation of the machine we prefer-

ably apply the solvent solution to the rollers to be treated by means of a rotary brush, and in the drawings this brush is designated by the numeral 63, Figs. 7 and 8. The ends of the shaft 64 of the brush 63 are loosely journaled in the rear ends of crank-arms 65, fastened upon a rock-shaft 66, whose ends are journaled in bearings 67, formed in the side frames 20. Upon the rock-shaft 66 is secured a lever-arm 68, by which said shaft is given its rocking movement for the purpose through the crank-arms 65 of moving the brush 63 upwardly from the tank 21 into contact with the printer's roller 28 when the latter is in position and it is desired to apply the solvent thereto. When the lever-arm 68 is pressed downwardly, it will cause the rock-shaft 66 to be turned toward the front and the brush 63 to be elevated against the roller 28, and when the lever 68 is allowed to move upwardly the rock-shaft 66 will have a reverse motion and the brush 63 will descend into the tank 21. The brush 63 is caused to rotate when in contact with the printer's roller 28 simply by its engagement with said roller, which is rotated by its contact with the rough-surfaced driving-roller 26. We do not of course limit our invention to the rotary brush 63 nor to any special means for applying the solvent or other solution to the printers' rollers to be treated.

In the operation of the machine hereinbefore described we will first adjust the bearing-frames 33 to suit the particular length of printers' rollers 28 to be treated, and in this operation either one or both of the frames 33 may be adjusted in accordance with the particular conditions to be met. Prior to introducing the roller 28 to the bearing-frames 33 the scraper-blades 39 will be moved downwardly and the roughened roller 26, if then at the front of the machine, will be turned rearwardly by means of the lever-arm 30, so that it will be at the rear of the machine. At this time also the brush 63 will be in its lower position. After the printer's roller 28 has been introduced to the bearing-frames 33 the roughened roller 26 will, by means of the lever 30, be turned to the front of the machine and allowed to rest upon the printer's roller 28, as shown in Fig. 1, the scraper-blades 39 still being in their lower position. Power being applied to the band-wheel 23, the rough-surfaced roller 26 will be set in motion by means of the gear-wheels 24 29 and will impart rotary motion to the printer's roller 28. After the roller 28 has been set in motion the solvent should be applied to the same, and therefore the attendant will press downwardly on the lever 68 and cause the brush 63 to ascend into contact with the roller 28, which then rotating will rotate the brush 63, with the result that the entire surface of the printer's roller 28 will become covered with the solvent, which will loosen the accumulated matter upon said roller. The brush 63 may be raised and lowered as frequently as may be required in accordance with the amount of solvent it may be found necessary to apply to the printer's roller. The series of scraper-blades 39 may now be elevated into contact with the printer's roller 28 and given any desired adjustment on their axes in accordance with the diameter and condition of said roller, it being understood that said scraper-blades must always have an oblique position and that they must overlap, as shown in Figs. 9 and 10, so that the entire surface of the roller 28 may be subjected to their action. The rotation of the roller 28 against the scraper-blades 29 will be continued until said blades have efficiently removed all of the foreign matter from said roller and said roller is left clean and dry and ready for further use in a press. The concave edges 40 of the scraper-blades 39 are beveled, as shown in Fig. 11, to approximately a knife-edge, and hence, notwithstanding the oblique angle at which the scraper-blades are placed, said blades are enabled to efficiently engage a rather extended surface of the printer's roller 28 and rapidly and efficiently clean and dry the same. In Fig. 12 we show one of the scraper-blades 39 as being formed along its beveled concave edge with serrations, and this form of blade may be used in the treatment of lithographic rollers for napping or graining the same. For the customary work of cleaning rollers for typographic presses we shall employ the smooth-edged blade shown in Fig. 11.

What we claim by our invention, and desire to secure by Letters Patent, is—

1. In a machine for treating printers' rollers, means for rotating the roller, and a series of stationary overlapping scraper-blades having concave edges to engage the surface of the roller, said blades being obliquely arranged; substantially as set forth.

2. In a machine for treating printers' rollers, means for rotating the roller, a series of pivotally-mounted obliquely-arranged scraper-blades having concave edges to engage the surface of the roller, and means for correspondingly adjusting said blades on their axes; substantially as set forth.

3. In a machine for treating printers' rollers, means for rotating the roller, a series of scraper-blades having concave edges to engage the surface of the roller, and means for adjusting and locking said blades as to their angular relation to the roller; substantially as set forth.

4. In a machine for treating printers' rollers, means for rotating the roller, and a series of stationary overlapping oblique scraper-blades having concave edges to engage the surface of the roller, said edges being reduced to approximately knife-edges; substantially as set forth.

5. In a machine for treating printers' rollers, means for rotating the roller, and a series of oblique scraper-blades having concave narrow edges to engage the surface of the roller, said edges being serrated; substantially as set forth.

6. In a machine for treating printers' rollers, bearings to receive the roller, a rough-surfaced driving-roller to engage and drive the printer's roller, and a series of oblique scraper-blades having edges to engage the surface of the printer's roller; substantially as set forth.

7. In a machine for treating printers' rollers, bearings to receive the rollers, means for rotating the roller, a tank for containing a solvent for the foreign matter on the roller, a brush movable from said tank to said roller, and a series of oblique scraper-blades having concave edges to engage the surface of said roller; substantially as set forth.

8. In a machine for treating printers' rollers, bearings to receive the printer's roller, a rough-surfaced driving-roller to engage the surface of and drive the printer's roller, a longitudinal series of oblique pivotally-mounted scraper-blades having edges to engage the surface of the printer's roller, and means for adjusting said blades on their axes as to their angular relation to the printer's roller; substantially as set forth.

9. In a machine for treating printers' rollers, means for rotating the roller and a longitudinal series of stationary overlapping oblique scraper-blades having edges to engage the surface of the roller; substantially as set forth.

10. In a machine for treating printers' rollers, means for rotating the roller, a series of oblique scraper-blades having concave edges to engage the surface of the roller, means for adjusting said blades toward and from the roller in accordance with the diameter of the latter, and means for varying the angular position of said blades in accordance with the diameter of the roller; substantially as set forth.

11. In a machine for treating a cylindrical body, means for rotating said body, an oblique scraper-blade having a concave edge to engage the surface of said body, and means for adjusting the angular position of said blade in accordance with the diameter of said body, the concavity of said edge being on an arc of a circle greater in diameter than the diameter of said body; substantially as set forth.

12. In a machine for treating printers' rollers, means for rotating the roller, a series of scraper-blades having concave edges to engage the surface of the roller, a series of pivot-pins carrying said blades, crank-arms connected with said pins, a rod connecting said arms, and means for moving said rod to adjust the angular relation of said blades to said roller; substantially as set forth.

13. In a machine for treating printers' rollers, means for rotating the roller, a series of obliquely-arranged scraper-blades having concave edges to engage the surface of the roller, a tank for holding a solvent solution, a brush movable from within said tank to said roller, crank-arms supporting said brush, and a lever for elevating said brush and holding it against said roller; substantially as set forth.

14. In a machine for treating printers' rollers, means for rotating the roller, a series of centrally-pivoted scraper-blades having concave edges to engage the surface of the roller, and means for turning said blades on their central pivotal axes, said axes being substantially in line with the center of said roller; substantially as set forth.

15. In a machine for treating printers' rollers, the bearing-frames having the open loops containing rollers to receive the printers' rollers, means for engaging and rotating the printers' rollers, and a series of oblique scraper-blades having concave edges to engage the surface of said printers' rollers; substantially as set forth.

16. In a machine for treating printers' rollers, the bearing-frames having the open loops containing rollers to receive the printers' rollers, means for engaging and rotating the printers' rollers, and a series of oblique scraper-blades having concave edges to engage the surface of said printers' rollers, one of said bearing-frames being adjustable toward and from the other bearing-frame; substantially as set forth.

17. In a machine for treating printers' rollers, the bearing-frames having the open loops containing rollers to receive the printers' rollers, means for rotating the printers' rollers, and a longitudinal series of oblique overlapping scraper-blades to engage the surface of said printers' rollers; substantially as set forth.

18. In a machine for treating printers' rollers, the bearing-frames having the open loops containing rollers to receive the printers' rollers, means for rotating the printers' rollers, and a longitudinal series of oblique overlapping scraper-blades to engage the surface of said printers' rollers, one of said bearing-frames being adjustable toward and from the other bearing-frame; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 8th day of July, A. D. 1904.

SAMUEL CRUMP.
GEORGE SAGUE.

Witnesses:
CHAS. C. GILL,
ARTHUR MARION.