S. CRUMP.

MACHINE FOR THE MANUFACTURE OF PRINTERS' ROLLERS.

APPLICATION FILED NOV. 28, 1913.

1,182,982.

Patented May 16, 1916.

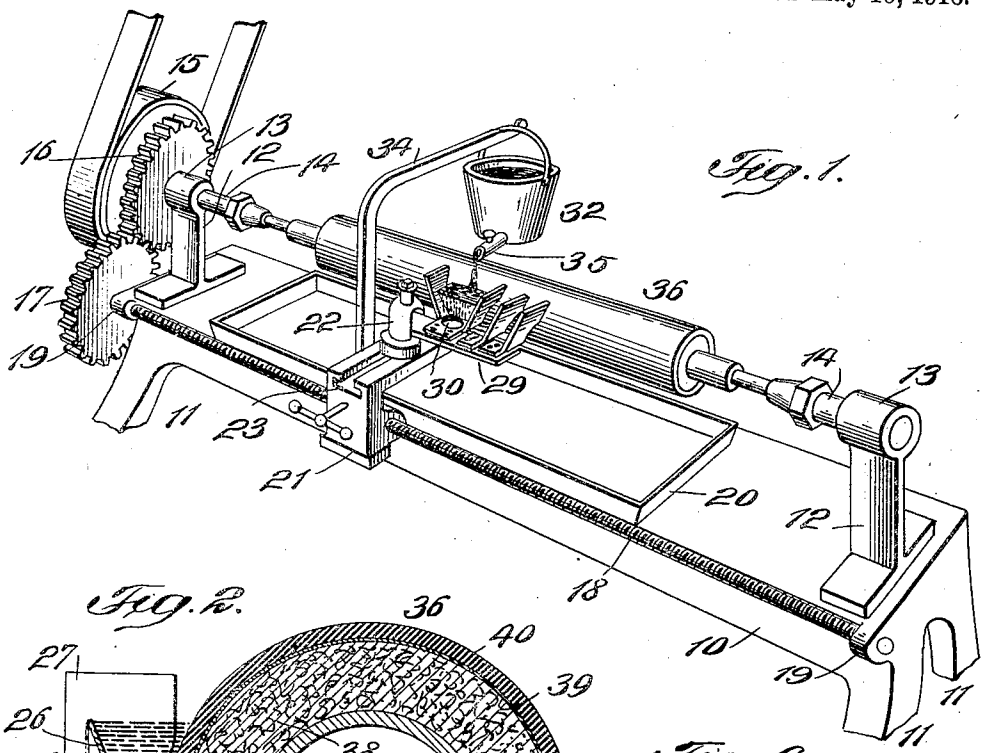


Fig. 1.

Fig. 2.

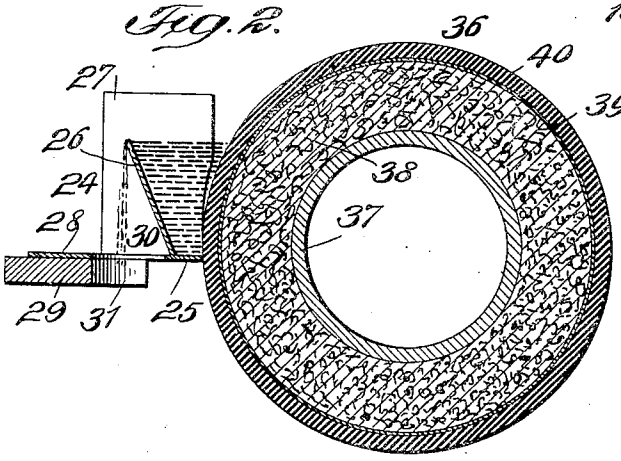


Fig. 4.

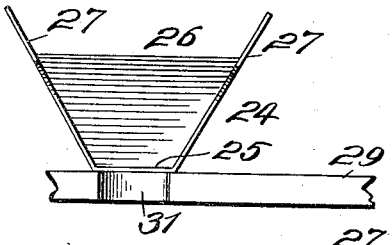
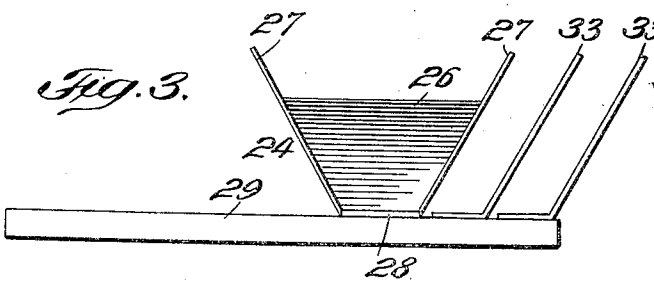


Fig. 3.



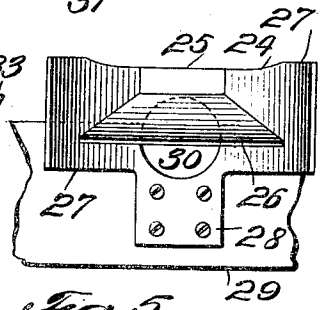


Fig. 5.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR THE MANUFACTURE OF PRINTERS' ROLLERS.

1,182,982. Specification of Letters Patent. Patented May 16, 1916.

Application filed November 28, 1913. Serial No. 803,436.

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 Machines for the Manufacture of Printers' Rollers, of which the following is a specification.

The invention pertains more particularly to means for applying in a uniform and efficient manner a coating of glue-glycerin or other suitable composition upon the exterior surface of a printers' roller, either in the original manufacture of the roller or in recoating the same. The invention is not confined to the interior formation or construction of the printers' roller to which the coating may be applied, but said roller may comprise a body of sponge rubber applied upon a core or shaft and a skin of linen or the like closely inclosing said body and upon which the coating composition or material will be applied. One of the main difficulties in applying a coating of composition upon a printers' roller resides in the necessity of having the roller of uniform diameter and surface and to afford means for coating a roller and leave it of uniform diameter and surface is the object of the present invention, which, in use, has proved to be both efficient and successful.

In accordance with my invention I mount the printers' roller between two spindles of lathe character and cause the same to rotate and during such rotation I apply to the roller the melted composition, the said material being carried by a specially constructed receptacle which is caused to travel along the line of the roller with its open side in close relation thereto so as to apply the material to the roller or permit the roller during its rotation to take the material therefrom. The receptacle carrying the material for the coating is mounted on a frame which will preferably be operated to travel from a screw and carry a kettle or other container having a discharge leading to the receptacle which feeds the coating solution to the roller, so that said receptacle may always remain in substantially filled condition.

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 perspective view, partly broken away, of a machine embodying my invention and shown as in the operation of applying a coating to a printers' roller; Fig. 2 is an enlarged vertical transverse section through the roller and the material holding receptacle; Fig. 3 is an enlarged front elevation of the receptacle detached from the machine; Fig. 4 is a detached view, partly broken away, of said receptacle, said view being the reverse of that shown in Fig. 3 and representing the receptacle as having its rear side turned around to the front, and Fig. 5 is a top view of a portion of the receptacle and its support.

In the drawings 10 designates a suitable bed-plate or table mounted upon legs 11 and provided at its opposite ends with standards 12 having bearings 13 for spindles or shafts 14 of customary character in lathe work and therefore requiring no special description. One of the spindles 14, commonly known as the live spindle, has mounted on it a drive-wheel 15 and gear wheel 16, the latter being in mesh with a gear-wheel 17 secured upon the end of a horizontal screw 18 extending from one end to the other of the bed-plate 10 mounted at its ends in bearings 19. Upon the table or bed-plate 10 is located a drip-pan 20 which is somewhat greater than the length of the printers' rollers to be coated with the use of the machine. Upon the screw 18 is mounted a frame 21 having a post 22 adjustably secured thereto, said frame 21 having an undercut groove 23 in its upper surface to receive the lower end of said post in a manner customary in lathe construction wherein tool posts are held upon their rests in a manner permitting them to be moved toward and retracted from the work. My invention does not reside in the frame 21 or post 22 *per se*, but comprises any suitable frame and post mounted upon the screw 18 by which the frame and everything connected with it may be caused to travel along the length of the printers' roller to be coated.

Secured to the post 22 is a receptacle, numbered as a whole 24, embodying some of the principal features of my invention. The receptacle 24 is open at its rear side, as shown in Fig. 2, and comprises a bottom 25, a front end 26, and corresponding sides 27, the latter converging downwardly to the bottom 25 and extending upwardly and

frontwardly beyond the front end 26, as clearly shown in Figs. 2 and 3. The rear edges of the sides 27 of the receptacle are concaved in their lower portions, as shown in Fig. 2, and the bottom 25 of the receptacle is formed with a frontwardly extending section 28 by means of which the receptacle may be secured to a supporting plate 29, said plate being extended at one end and adapted to be detachably secured to the post 22. The extension 28 of the bottom of the receptacle is formed just in front of the front end 26 with a hole 30, and the plate 29 is below said hole cut out, as at 31. The front end 26 of the receptacle inclines downwardly and rearwardly and its upper edge is over the hole 30, and the frontwardly extending portions of the sides 27 converge downwardly to said hole 30 and the purpose of the hole is to permit any overflow of the solution from the receptacle to pass downwardly through the hole 30 and cut away portion 31 in the plate 29 and fall into the drip pan 20. It is my purpose that the receptacle 24 shall, when in use, receive a substantially constant feed of the solution from the container or kettle 32 and that the overflow from said receptacle shall be directed to and permitted to escape through the hole 30. I shall preferably secure upon the plate 29 one or more metal blades or wings 33, which will correspond exactly with the adjacent side of the receptacle 24, being inclined and concaved at their rear lower edges correspondingly with the said side. The frame 21 not only supports the plate 29 and receptacle 24, but has secured to it a crane or arm 34 from which the bucket or container 32 is suspended, it being the purpose that the bucket or container 32 shall travel with the frame 21 and receptacle 24 and have a substantially constant discharge through its outlet 35 into said receptacle.

I illustrate a printers' roller 36 on the machine, said roller being held between the spindles 14 and rotatable. The roller 36 shown comprises a stock 37, a body 38 which may be of sponge rubber, a skin of linen or the like 39 tightly inclosing said body and an outer coating 40, the application of said coating to the roller being the purpose of the present invention. The interior and body of the roller 36 may be of any suitable character, since the invention comprises a machine for applying a coating to a printers' roller regardless of the character of the body-portion of the same. I illustrate one construction of printers' roller, but will apply the coating 40 with the use of my invention on printers' rollers generally whether new rollers in the course of construction or old or damaged rollers requiring resurfacing.

In the employment of the machine of my invention the frame 21 carrying the receptacle 24 and container 32 will be moved to the right hand portion of the table or bedplate 10, and the roller 36 to be treated will be secured between the spindles 14, and thereupon, after the adjustment of the receptacle 24 to said roller, the discharge from the bucket or container 32 will be opened to permit the flow of the coating-composition into the said receptacle, filling such receptacle to the top of the front end 26 thereof, and power will then be applied to the wheel 15 for the purpose of rotating the printers' roller and through the gear wheels 16, 17 the screw-shaft 18, the result being that during the rotation of the roller 36 the frame 21 will be caused to travel along the roller and toward, in the construction illustrated, the left hand end thereof. The receptacle 24 will be adjusted rather close against the body of the roller to be coated, so that during the travel of said receptacle said body may receive therefrom a thin coating of the solution-composition. After the receptacle 24 has traveled toward the left the full length of the roller 36, it will be returned to the right hand end of the roller and readjusted against the same and then caused to travel toward the left, leaving another thin coating of the composition material on the roller. This will be repeated as often as may be required for obtaining a coating 40 of the desired or requisite thickness.

The composition-material in the bucket or container 32 is kept hot, and hence the composition is kept liquefied and in a condition to flow into and overflow the receptacle 24. The overflow from the receptacle 24 passes to the drip-pan 20 as hereinbefore described. The sides 27 of the receptacle, owing to their inclination and being cut at their rear edges to partly fit the body of the roller, are important, in that the coating by reason of said construction becomes evenly applied to the roller and without streaking or leaving a spiral line on the roller. The relative proportions and formation of the front end 26 and sides 27 of the receptacle 24 are also important in that all overflow is kept under control and directed to the discharge opening 30, whence the overflow passes to the drip-pan 20. The presence of the blades or wings 33 to engage the surface of the roller as a trail after the receptacle 24, is important in that they aid in the production of a smooth uniform coating on the roller and without streaking or leaving lead lines in said coating.

I do not wish to limit my invention to the blades or wings 33, but said blades or wings are of advantage and add to the efficiency of the machine.

I prefer that the receptacle 24 be kept filled during the time the machine is in use

so that at all times the roller 36 may throughout its length receive a substantially uniform layer of the material from said receptacle.

I have hereinbefore described the invention as employed for applying a coating to a printers' roller whether said roller was in the course of manufacture or an old roller requiring to be resurfaced. It is to be understood, however, that my invention is not limited to merely applying the exterior coating on a printers' roller, but may be employed for forming the entire roller of printers' roller or other suitable composition, and in that use of the invention the stock for the roller would be applied to the machine described and the receptacle carrying the melted composition caused to travel along the same a sufficient number of times to create a printers' roller of the requisite diameter.

Cross reference is hereby made to Letters Patent No. 1,141,320 granted June 1, 1915, to my assignee, The Crump Company, showing the apparatus herein described and claimed but limited to the methods of manufacture carried out with the use of such apparatus.

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

1. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted printers' roller composition in a uniform layer or successive uniform layers in the formation or completion of the roller thereon comprising a frame, a container for the melted composition to move therewith, a receptacle carried by said frame and arranged to receive said composition from said container and means for effecting the travel of said frame as many times as may be required on a line parallel with said stock, said receptacle being open at its end close to the roller to expose the composition thereto during the rotation of the roller and the travel of the receptacle along the same and said container having means arranged to direct said composition therefrom into said receptacle and being adapted to supply the same thereto in such quantity as to maintain a substantially constant level of the composition therein, combined with means for adjusting said receptacle with relation to the surface of said roller.

2. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted printers' roller composition in a uniform layer or successive uniform layers in the formation or completion of the roller thereon comprising a frame, a container for the melted composition to move therewith, a receptacle carried by said frame and arranged to receive said composition from said container and means for effecting the travel of said frame as many times as may be required on a line parallel with said stock, said receptacle being open at its end close to the roller to expose the composition thereto during the rotation of the roller and the travel of the receptacle along the same and having an overflow for the melted composition, and said container having means arranged to direct said composition therefrom into said receptacle and being adapted to supply the same thereto in such quantity as to maintain a substantially constant level of the composition therein, whereby a substantially constant level of composition in the receptacle is maintained, combined with means for adjusting said receptacle with relation to the surface of said roller.

3. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted composition in successive layers in the formation or completion of the roller thereon comprising a frame, a container for the melted composition to move therewith, a receptacle carried by said frame and arranged to receive said composition from said container and means for effecting the travel of said frame successively on a line parallel with said stock, said receptacle being open at its end close to the roller to expose the composition thereto during the rotation of the roller and the travel of the receptacle along the same and having a front end of less height than its sides to create a point of overflow for the composition, and said sides being extended frontwardly beyond said end and converged downwardly to direct the overflow to a discharge therefor.

4. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted composition in successive layers in the formation or completion of the roller thereon comprising a frame, a container for the melted composition to move therewith, a receptacle carried by said frame and arranged to receive said composition from said container and means for effecting the travel of said frame successively on a line parallel with said stock, said receptacle being open at its end close to the roller to expose the composition thereto during the rotation of the roller and the travel of the receptacle along the same and having a bottom, a downwardly and inwardly inclined front end and sides which converge downwardly and have concavely curved rear edges at the roller.

5. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted composition in successive layers in the formation or completion

of the roller thereon comprising a frame, a container for the melted composition to move therewith, a receptacle carried by said frame and arranged to receive said composition from said container and means for effecting the travel of said frame successively on a line parallel with said stock, said receptacle being open at its end close to the roller to expose the composition thereto during the rotation of the roller and the travel of the receptacle along the same, combined with an inclined blade connected to travel with said receptacle and concavely curved on its rear edge to engage and trail along the roller for avoiding a spiral lead being left thereon.

6. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted printers' roller composition in successive layers in the formation or completion of the roller thereon comprising a frame, a container for the melted composition to move therewith, a receptacle carried by said frame and arranged to receive said composition from said container and means for effecting the travel of said frame successively on a line parallel with said stock, said receptacle being open at its end close to the roller to expose the composition thereto during the rotation of the roller and the travel of the receptacle along the same, and said container having means arranged to direct said composition therefrom into said receptacle and being adapted to supply the same thereto in such quantity as to maintain a substantially constant level of the composition therein, combined with means for adjusting said receptacle with relation to the roller as the successive layers of composition are taken by the roller therefrom.

7. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted composition in successive layers in the formation or completion of the roller thereon comprising a frame, a container for the melted composition to move therewith, a receptacle carried by said frame and arranged to receive said composition from said container and means for effecting the travel of said frame successively on a line parallel with said stock, said receptacle being open at its end close to the roller to expose the composition thereto during the rotation of the roller and the travel of the receptacle along the same, and having an inclined following side concaved at its edge to substantially conform to the roller, combined with a plurality of inclined blades connected to travel with the receptacle and concavely curved on their edges to engage and trail along the roller for avoiding a spiral lead being left thereon.

8. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted printers' roller composition in successive layers in the formation or completion of the roller thereon comprising a receptacle which is open against the roller, means for effecting the travel of the receptacle successively along the roller during the rotation of the latter, means for constantly supplying the receptacle during its travel with the melted composition to be taken by the roller, means maintaining a substantially constant level of the composition therein, and means for adjusting the receptacle with relation to the roller.

9. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted composition in successive layers in the formation or completion of the roller thereon comprising a receptacle which is open against the roller, means for effecting the travel of the receptacle successively along the roller during the rotation of the latter, means for supplying the receptacle during its travel with the melted composition to be taken by the roller, and means for adjusting the receptacle with relation to the roller, combined with an inclined blade connected to travel with said receptacle and concavely curved on its rear edge to engage and trail along the roller for avoiding a spiral lead being left thereon.

10. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted composition in successive layers in the formation or completion of the roller thereon comprising a receptacle which is open against the roller, means for effecting the travel of the receptacle successively along the roller during the rotation of the latter, means for supplying the receptacle during its travel with the melted composition to be taken by the roller, and means for adjusting the receptacle with relation to the roller, said receptacle having an inclined following side concaved at its edge to substantially conform to the roller, combined with a plurality of inclined blades connected to travel with the receptacle and concavely curved on their edges to engage and trail along the roller for avoiding a spiral lead being left thereon.

11. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted composition in successive layers in the formation or completion of the roller thereon comprising a receptacle which is open against the roller, means for effecting the travel of the receptacle successively along the roller during

the rotation of the latter, means for supplying the receptacle during its travel with the melted composition to be taken by the roller, and means for adjusting the receptacle with relation to the roller, said receptacle having a front end of less height than its sides to create a point of overflow for the composition, and said sides being extended frontwardly beyond said end and converged downwardly to direct the overflow to a discharge therefor.

12. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted composition in successive layers in the formation or completion of the roller thereon comprising a receptacle which is open against the roller, means for effecting the travel of the receptacle successively along the roller during the rotation of the latter, means for supplying the receptacle during its travel with the melted composition to be taken by the roller, and means for adjusting the receptacle with relation to the roller, said receptacle having a bottom, a downwardly and inwardly inclined front end and sides which converge downwardly and have concavely curved rear edges at the roller.

13. In a machine of the character described, rotatory means for holding and rotating the stock of a printers' roller, and means for applying melted printers' roller composition in a unifrom layer or successive uniform layers in the formation or completion of the roller thereon comprising a frame, a container for the melted composition to move therewith, a receptacle carried by said frame and arranged to receive said composition from said container and means for effecting the travel of said frame as many times as may be required on a line parallel with said stock, said receptacle being open at its end close to the roller to expose the composition thereto during the rotation of the roller and the travel of the receptacle along the same, combined with means for adjusting said receptacle with relation to the surface of said roller, said receptacle having its following side inclined downwardly and inwardly to prevent the formation of a spiral lead line on the roller.

Signed at New York city, in the county of New York and State of New York, this 17th day of November, A. D. 1913.

SAMUEL CRUMP.

Witnesses:
ARTHUR MARION,
CHAS. C. GILL.