R. R. MYERS.

BLACKLEADING MACHINE.

APPLICATION FILED JULY 31, 1916.

1,296,839.

Patented Mar. 11, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

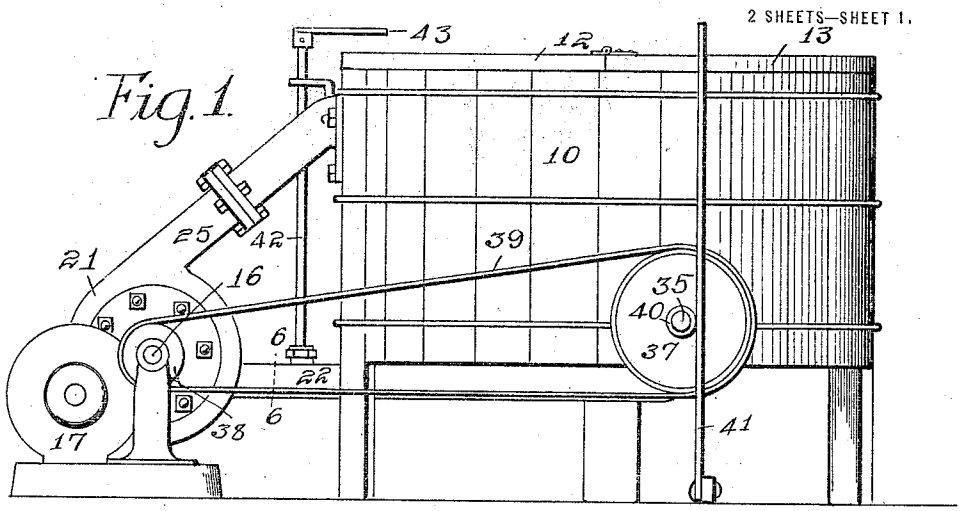
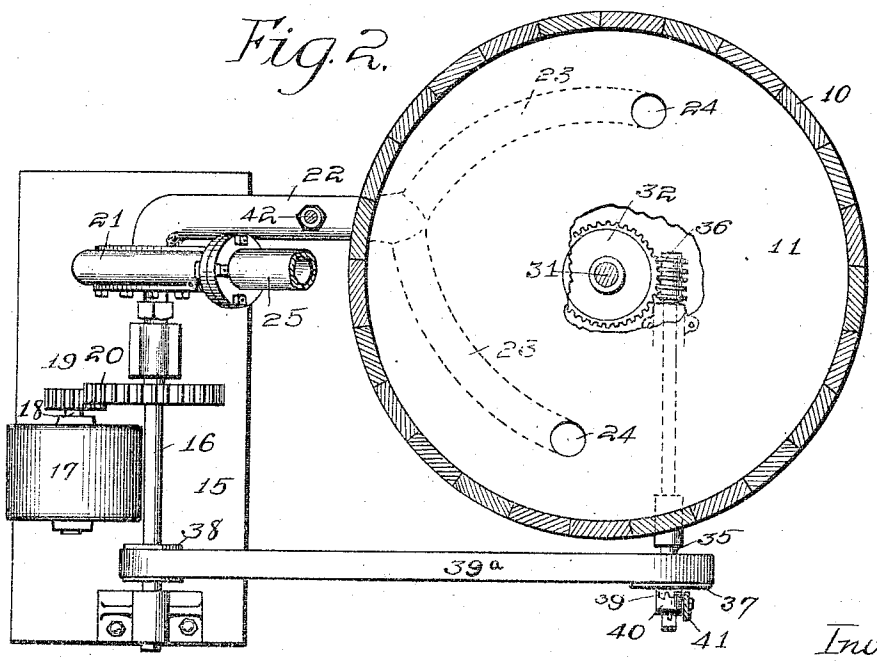


Fig. 2.



Witness

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2 SHEETS—SHEET 2.

Fig. 4.

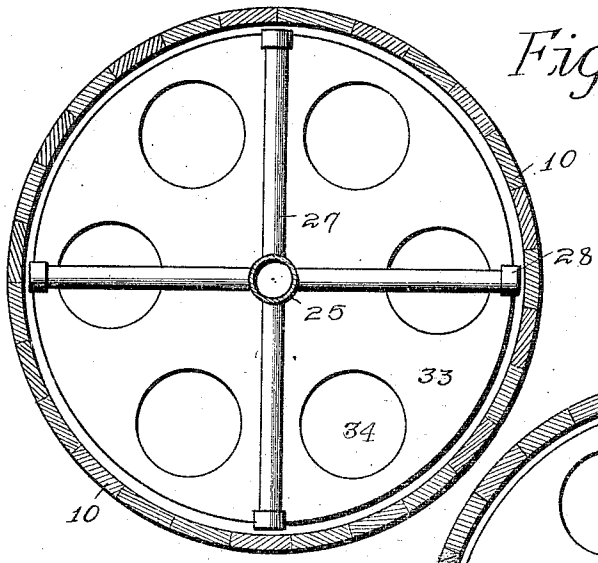


Fig. 5.

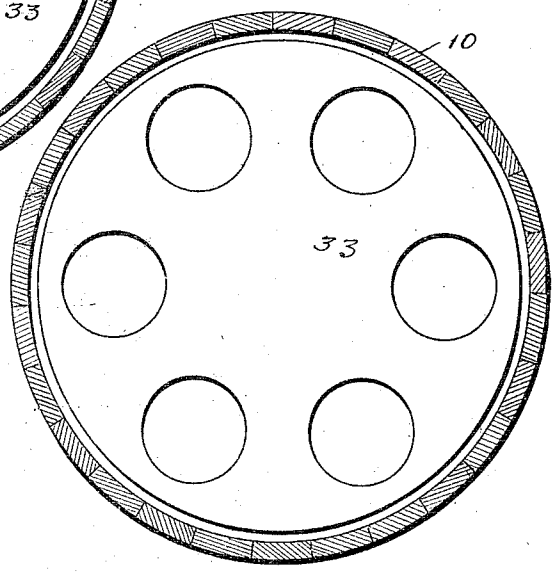


Fig. 6.

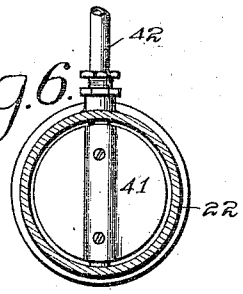
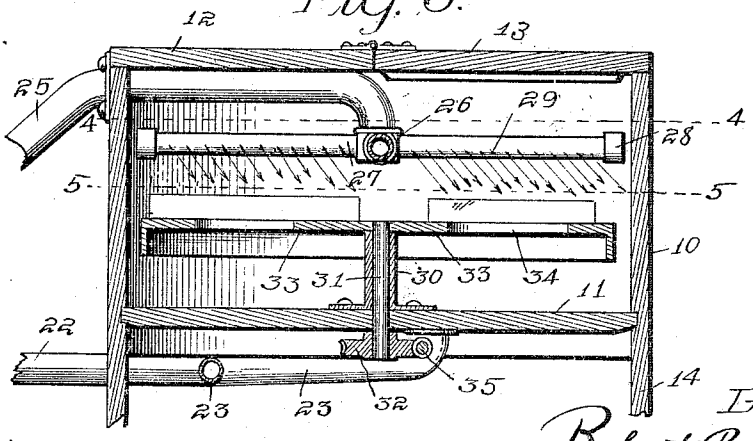


Fig. 3.



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UNITED STATES PATENT OFFICE.

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BLACKLEADING-MACHINE.

1,296,839. Specification of Letters Patent. Patented Mar. 11, 1919.

Application filed July 31, 1916. Serial No. 112,419.

To all whom it may concern:

Be it known that I, ROBERT R. MYERS, a citizen of the United States, and resident of Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Blackleading-Machine, of which the following is a specification.

My invention relates to black leading machines used in making electrotypes.

The object of my invention is to provide a black leading machine for electrotype molds of extremely simple and inexpensive construction.

A further object is to provide a machine of this kind so constructed and arranged and made of such material as to be very durable.

More particularly it is my object to provide a receptacle preferably cylindrical in form and having a rotatable table mounted therein, and having means for imparting rotation to said table in connection with a pump located outside the receptacle, and also to discharge to a plurality of radially arranged pipes in the upper portion of said receptacle above the table therein.

A further object is to provide such a device in which the parts which contact with the black lead are of such material and are so arranged that they will not be injuriously affected thereby.

A further object is to provide in such a device, means for accurately controlling the flow of the solution.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Figure 1 shows a side elevation of a black leading machine embodying my invention.

Fig. 2 shows a top or plan view of the same, the receptacle being shown in horizontal cross section, the parts on the interior thereof being removed, and the bottom being broken away to show the gear.

Fig. 3 shows a vertical, central, sectional view through the receptacle.

Fig. 4 shows a horizontal, sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 shows a horizontal, sectional view taken on the line 5—5 of Fig. 3.

Fig. 6 shows an enlarged, detail view, taken on the line 6—6 of Fig. 1, illustrating the valve control for the fluid.

In the accompanying drawings, I have used the reference numeral 10 to indicate generally a cylindrical tub or the like, preferably built of upright staves, and having a suitable bottom 11, a fixed cover portion 12, and a hinged cover member 13.

The tub 10 forms a receptacle used for black lead molds for electrotypes, and preferably standing on supporting legs 14.

Adjacent to the tub 10 is a suitable base or platform 15 on which in suitable bearing is mounted a shaft 16. On the platform 15 is a motor 17 or other prime mover, having a shaft 18 on which is a pinion 19 in mesh with a pinion 20 on the shaft 16.

Suitably arranged is a pump 21 operatively connected with the shaft 16. The casing of the pump 21 is preferably made of aluminum, and communicating therewith is a pipe 22 of aluminum or other suitable material, which is not injuriously affected by black lead, leading to position below the bottom of the tub 10.

The pipe 22 divides into two branches 23, as shown by dotted lines in Fig. 2, which branches communicate with an opening 24 in the bottom 11 on opposite sides thereof.

Communicating with the interior of the casing of the pump 22 is a pipe 25, inclined upwardly and toward the upper portion of the tub 10, and thence inwardly through the tub wall to position in the central upper portion of the tub.

It will be noted that all of the pipes hereinafter described, are arranged without any sharp grooves, which might retard the flow of the black lead solution and causes the solution to heat. At its inner end, the pipe 25 is curved downwardly and communicated with the fitting 26 in which are screwed the ends of four radially extending pipes 27.

The pipes 27, as shown in Fig. 4, are arranged in opposite pairs and are made of tubes screw-threaded at each end.

One end of each pipe 27 is screwed into the fitting 26 and the cap 28 is screwed on to the upper end of each tube 27.

In the lower part of each tube 27 is a plurality of notches 29 forming discharge apertures for the water containing black lead.

The apertures or openings 29 are preferably cut as shown in Fig. 3.

When the tubes 27 are arranged in opposite pairs, as shown, the apertures in one tube of each pair are inclined from their lower portions upwardly and toward the vertical axes of the machine, and the aperture in the opposite tube of each pair are cut from their lower portions upwardly and away from said vertical axes.

It will be seen that the tubes are reversible end for end, so that the angle of discharge may be varied by reversing the ends of the tubes.

By arranging the apertures, as shown, the black lead is discharged outwardly and downwardly toward the forms from two of the tubes, and inwardly and toward the form from the other two of the tubes.

It will be noted that the slots are arranged in planes inclined at acute angles to the longitudinal axes of the tubes, and do not discharge on radial lines.

Mounted on the bottom 11 of the receptacle 10 is an upwardly extending bearing 30, in which is mounted a shaft 31, which extends downwardly through the bottom and has on its lower end below the bottom 11 a worm gear 32.

Fixed to the upper end of the shaft 31 above the bearing 30, and resting on the bearing 30 is a rotatable platform or table 33 having a plurality of openings 34 to permit the fluid to pass freely through the table.

Supported below the receptacle 10 is a shaft 35, having its inner end adjacent to the worm gear 32, and provided with a worm 36 in mesh with the gear 32.

On the outer end of the shaft 35 is rotatably but non-slidably mounted a pulley 37 in line with the pulley 38 on the shaft 16. A belt 39^a travels on the pulleys 37 and 38^a.

Formed on the pulley 37 is a clutch member 39 slidably but non-rotatably mounted on the shaft 35. Outside the pulley 27 is a clutch member 40 adapted to be controlled by a lever 41, and to be slid into or out of engagement with the clutch member 39 for throwing the table 33 into or out of gear.

In the tube 22 is mounted a throttle valve 41 having a stem 42 extending upwardly through the wall of the tube 22 and having at its upper end a handle 43, whereby the flow of the fluid may be accurately controlled.

In the practical operation of my improved black leading machine, the black lead and water is placed in the receptacle 10, the forms are then placed in the platform or table 33. The table is of such size that it will hold four ordinary sized forms. The motor 17 is started and the clutch members 39 and 40 thrown into gear, whereupon the black lead and water will be drawn from the lower part of the receptacle 10 through the tubes 23 and the tube 22 to the pump, and from thence will be forced upwardly through the tube 25 to the discharge tubes 27 and outwardly through the aperture 29.

The table 33 will be constantly rotated, whereby the forms are moved beneath the streams discharged from the aperture.

The stream will be discharged from part of the tubes downwardly and toward the outer wall of the receptacle, and from the remaining tubes downwardly and away from said outer wall, so that the black lead coating will be thoroughly and evenly discharged over all parts of the surface of the forms.

One of the important features of my device lies in the fact that the tubes 29 are of brass, while the other tubes which carry the black lead solution and also the pump casing are of aluminum, which metals are not seriously affected by the black lead. Iron is very quickly injured by the black lead solution, and I have provided a device having no working parts in the solution made of materials likely to be quickly or seriously injured by the black lead. The bearing 30 is of brass.

The table 35 is of aluminum.

I have used black leading machines for a considerable time and have found that the parts covered by the solution ordinarily wear out very rapidly on account of contact with the black lead and water. It is, therefore, one of my important purposes to make a device so constructed as to have a minimum number of parts operating in the solution. It will be seen that the forms are quickly and easily removed from, or placed on the table 33 when the hinged cover 13 is raised.

It will be understood that some changes will be made in the construction and arrangement of the parts of my black leading machine, without departing from the essential features and purposes thereof, and it is my intention to cover by my present application any use of mechanical equivalents or any modified forms of structure which may be reasonably included within the scope of my claims:

I claim as my invention:

1. In a device of the class described, a receptacle, a rotatable platform mounted in said receptacle, a pump outside said receptacle, a tube for conveying fluid from the bottom of said receptacle to said pump, a tube leading from said pump to the upper central part of said receptacle, spraying devices operatively connected with said last described tube and designed to discharge upon material supported on said platform, a source of power, means for operatively connecting said source of power with said pump and with

said platform, whereby the pump may be operated and the platform simultaneously rotated, said means including provisions whereby the pump may be operated without rotating the platform.

2. In a device of the class described, a receptacle, a bearing mounted on the bottom of said receptacle and extending upwardly, a shaft rotatably mounted in said bearing, and extending downwardly through the bottom of said receptacle, a rotatable platform fixed to said shaft and supported upon said bearing, a worm gear on said shaft below the bottom of said receptacle, a second shaft, a worm thereon in mesh with said worm gear, a third shaft, a pump operatively connected therewith, means for imparting rotation to said third shaft, and a gearing device for connecting said third shaft with said second shaft including clutch, means for conveying fluid from the bottom of said receptacle to said pump, a tube leading from said pump to the upper central part of the interior of the receptacle, a fitting communicating with the inner end of said last tube, a plurality of tubes screwed into said fitting and extending radially away therefrom, in opposite pairs, said last tubes having in their lower portions discharge apertures, the apertures of one member of each pair being arranged to discharge fluid downwardly and outwardly toward the wall of said receptacle, and the apertures of the other member of each pair being arranged to discharge downwardly and away from said wall.

3. In a device of the class described, a receptacle, a bearing mounted on the bottom of said receptacle and extending upwardly, a shaft rotatably mounted in said bearing, and extending downwardly through the bottom of said receptacle, a rotatable platform fixed to said shaft and supported upon said bearing, a worm gear on said shaft below the bottom of said receptacle, a second shaft, a worm thereon in mesh with said worm gear, a third shaft, a pump operatively connected therewith, means for imparting rotation to said third shaft, and a gearing device for connecting said third shaft with said second shaft including a clutch, means for conveying fluid from the bottom of said receptacle to said pump, a tube leading from said pump to the upper central part of the interior of said receptacle, a fitting communicating with the inner end of said last tube, a plurality of tubes screwed into said fitting and extending away therefrom, said last tubes being screw-threaded at each end having caps on their outer ends, said tube being provided in their lower surfaces with apertures arranged to discharge at acute angles to the longitudinal axes of the tubes, said tubes being reversible end for end for varying the angle of position therefrom.

Des Moines, Iowa, June 22, 1916.

ROBERT R. MYERS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."