Fig. 9

Fig. 1

INVENTOR.

Henry A. Dodge
To all whom it may concern:

Be it known that I, HENRY A. DOGDE, a citizen of the United States, residing in Newton, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Shoe Cleaning and Polishing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for cleaning and polishing shoes, and has particular reference to machines of such character which are adapted to be operated by power for such length of time as is preferred or is desirable, to enable a person to secure cleaned and polished shoes without the services of an attendant.

A general object of the invention is to provide improved mechanism which will enable a person first to clean his shoes while the latter are on his feet, then to apply a requisite amount of suitable dressing, blacking or polishing material, for convenience, referred to herein generically as blacking, and then to polish the surfaces to which said material has been applied.

In the illustrated preferred embodiment of the invention a machine is provided with brushes and adjacent foot rests, and manually controlled means for effecting the application of shoe polishing material to the brushes. In accordance with this embodiment of the invention the machine comprises a plurality of rotary brushes, a foot rest adjacent to each brush, and manually controlled means for applying predetermined amounts of shoe polish to certain of said brushes.

In accordance with a further feature of the invention the machine is constructed with a plurality of rotary brushes; one above another, with a foot rest for each of the brushes, means for driving all of the brushes, and means under the control of the patron for applying blacking in predetermined amounts first to one and then to another of said brushes.

Another object of the invention is to provide means whereby several successive applications of blacking to the brushes may be satisfactorily effected in case a single application proves insufficient. In accordance with this feature the illustrated machine has a novel organization of a reservoir and a roll between the reservoir and the brush with means whereby the patron may effect a single transfer of material from the reservoir to the brush, or a succession of such transfers.

Other objects and features of the invention will be disclosed in the following description and pointed out in the appended claims.

Of the accompanying drawings,

Fig. 1 is a broken out and part sectional elevation of a complete machine constructed according to the invention in one of its embodiments;

Fig. 2 is a detail sectional view of the mechanism for supplying blacking to the upper brush;

Fig. 3 represents an elevation, partly in section, of the blacking applying mechanism, looking from the left of Fig. 2 and omitting the brush;

Fig. 4 is a plan view of the mechanism for applying blacking to the intermediate brush;

Fig. 5 represents a section on line 5–5 of Fig. 4;

Fig. 6 represents a section on line 6–6 of Fig. 4, including also a portion of the adjacent brush;

Figs. 7 and 8 are respectively detailed sectional views, enlarged, on lines 7–7 and 8–8 of Fig. 1; and

Fig. 9 is a detail plan view of a portion of the machine shown at the left of Fig. 1.

The frame of the machine comprises a base member 12, an intermediate member 13 and an upper member 14, said members being connected and held in proper relative positions by suitable spacing struts such as indicated at 15. As will be understood hereinafter, end portions of the members 12, 13 and 14 serve also as foot rests.

A vertical shaft 16 extends through the frame members 13, 14 and preferably is tubular in form and mounted to rotate on a fixed spindle 17 rising from the base.

Carried by the tubular shaft 16 is a lower brush 18 preferably made of yarn to serve as the polishing brush, said brush 18 being
located immediately below the frame or foot rest member 13 with a space between the lower portion of the brush and the upper surface of the base or foot rest 12.

Between the members 13, 14 is a brush 19 which is also secured to the tubular shaft, said brush having an exposed lower face. In the present embodiment of the invention this brush comprises a disk having bristles projecting downwardly therefrom.

Carried by the upper portion of the shaft 16, above the platform member 14, is a brush 20 which is preferably so formed that its bristles point downwardly from the hub of the brush at an angle of about 45° so that, when the user presents his shoe in about the position indicated by dotted lines a in Fig. 1, the ends of the bristles will reach fully into the rand crease of the shoe to remove dust or caked mud.

Secured to the upper end of the shaft is a cone-shaped guard member 21 externally smooth so that when the user is starting to present his shoe to the machine, no portion of the shoe will strike any part of the machine that would be liable to scratch or otherwise injure the leather.

A worm wheel 22 secured to the shaft 16 is engaged with a worm 23 carried by a shaft 24 suitably driven as by means of an electric motor indicated at 25.

A post 26, the lower end of which is mounted in a foot bracket 27 on the base member 12, extends upwardly through the entire machine to a height suitable for use as hereinafter described. Secured to the upper end of the post is a collar 28 having a lateral arm 29 provided with a handle 30 adapted to be grasped by the user to steady himself when he is standing on one foot and presenting the other foot with the shoe thereon in operative connection with either of the brushes.

The arm 29 is of such length that the handle 30 is substantially in line with the axis of the upright shaft 16 for a purpose to be described.

Rotatably mounted on the post 26 is an inner tubular sleeve or shaft 31 to the upper end of which is secured a collar 32 having a handle 33 whereby said sleeve or shaft may be partially rotated as hereinafter described. Near the lower end of the said shaft 31 is a bevel gear 34 by means of which the user can, by operating the handle 33, actuate means hereinafter described for applying a predetermined limited amount of blacking to the brush 19.

The post 26 serves as a bearing for the tubular shaft 31 and the latter serves as a bearing for an outer tubular shaft 35 having a collar 36 secured to its upper end, said collar having a handle 37. Secured to the shaft 35 near its lower end is a bevel gear 38 by means of which and other mechanism presently described the user can, by operating the handle 37, apply a predetermined limited amount of blacking to the upper brush 20.

As illustrated in Figs. 1, 2 and 3, a reservoir 39 for the blacking to be applied to brush 20 is provided with a cover 40, said cover and a flanged portion of the reservoir bearing upon and being adjustably secured to the platform or foot rest member 14 which latter has an opening for the reservoir itself. Secured to the cover 40 is an angle plate 41, to the upper inclined portion of which is secured the flange 42 of a sleeve bearing 43. Secured to the under surface of the inclined portion of the angle plate 41, and extending down into the reservoir, is a disk 44 the upper portion of which practically constitutes a portion of the cover. An inclined lower plate 45 is suitably secured to the margin of the reservoir. Between the plate 45 and the disk 44 is rotatably confined a roll 46 in the form of an inverted, inclined, truncated cone, the stem or shaft 47 of which is mounted in the bearing 43 and has a bevel pinion 48 at its upper end in mesh with the bevel gear 34.

Side plates 49 are provided to enclose the sides of the chamber within which the upper portion of the roll 46 is located, the faces of said side plates 49 which are adjacent to the brush 20 having plates 50 adjustably secured thereto as by means of the slots and screws shown in Fig. 2. The margins of the plates 50 which are adjacent to the roll 46 are beveled at 51, the plates being so shaped that the extreme edges of the beveled portions 51 can be set more or less close to the periphery of the roll to determine or regulate the thickness of a film of blacking which may be taken up by the roll when the latter is partially revolved for the purpose of transferring blacking from the reservoir 39 to the brush 20. The necessary partial rotation of the transferrer roll 46 is effected by means of the handle 37 which is to be grasped by the user of the machine and shifted so that, through the tubular shaft 35 and the gears 38, 48 the roll may be partially revolved within limits provided for as presently described, to shift that portion which has been resting in the blacking up to a point where that portion will extend more or less across the space between the inner edges of the two plates 50. The screws which hold the plate 40 may pass through slots therein to enable the reservoir and roll 46 to be adjusted toward the brush 20 to compensate for wear of the latter, such provision for adjustment being a common mechanical expedient.

The amount of rotation which can be given to the roll 46, and consequently the length of the film presented to the brush
is adjustably determined by suitable mechanism such as a collar 52 (Figs. 1 and 7) clamped to the lower end of the sleeve shaft 35 and having two pins 53, 54. A spring 55 connected to the pin 54 and a post 56 serves normally to hold the shaft and roll in a position determined by the contact of the pin 55 with an adjustable stop 57, said stop being, in the present instance, a pin which may be mounted in any one of a series of holes 58 in a segmental plate 59 mounted on the upper platform 14. After the roll 46 has been turned to carry a film of blacking to the brush, the spring 55 automatically returns it to normal position, such movement applying a second film of blacking to the brush.

As shown by comparing Figs. 1, 4, 5 and 6, a reservoir 60 for blacking is secured in the form 20 depending position to a plate 61, a portion of the upper face of which is cut away to form ways for two slidable mounted plates 62, the outer portions of which are provided with screw studs 63 passing through slots 64 in the plate 61 and having wing nuts 65 thereon by means of which the plates 62 can be secured relatively near or apart for a purpose presently explained. The plate 61 is formed or provided with ears 66 having hubs or sleeves 67 which are adjustably mounted on two of the struts 15 and secured by suitable means such as set screws 68. The mounting just described enables the reservoir and the roll 69, which projects through an opening in plate 61, to be set more or less close to the lower ends of the bristles of the intermediate brush 19. By this adjustment wear of the ends of the bristles of brush 19 can be compensated for.

The roll 69 is carried by a shaft 70 mounted in a suitable bearing in one wall of the reservoir, said shaft having a bevel pinion 71 in mesh with the bevel gear 34 which is carried by the lower portion of the inner tubular shaft 31 so that when said tubular shaft is shifted rotatably by means of the handle 33, a definite amount of partial rotation of the roll 69 will raise a film of blacking from the reservoir 60 to position to be swept from the roll by the brush 19, all in a manner similar to the control of blacking applied to the upper brush 20. By adjusting the plates 65 relatively to the roll 69 the thickness of the film carried by the roll to the brush can be readily controlled.

To variably determine the amount of movement which may be imparted to the roll 69, and consequently the length of the film presented to brush 19, the lower end of the shaft 31 has a collar 72 clamped thereon (Figs. 1 and 8). Said collar is provided with radial pins 73, 74, a spring 75 connecting the pin 74 with a suitable pin or post 76 so as to normally hold the other pin 73 in contact with a stop pin 77 which may be set in any one of a series of holes 78 in a segmental plate 79 secured to the platform 13. The plate 79 has another stop pin 80 to limit the amount of movement which may be imparted to the inner shaft 31 by means of its handle 33, and a similar stop pin 81 (Fig. 7) which may be set in any one of the holes 85 of plate 81 determines the amount of movement which may be imparted to the outer shaft 35 by means of its handle 37.

Any suitable cover for the operating mechanism of the machine may be provided such as that indicated at 82 in Fig. 1.

To prevent undue scattering of particles of blacking from the brushes 19 and 20, in case an excessive amount of blacking is applied to the brushes and in case a very high speed of rotation is imparted to said brushes, I provide suitable means such as plates 83 which may be adjustably connected to the side walls of the cover 82 as by means of slots and screws 84 (Figs. 1 and 9). The outer surfaces of these plates also serve as stops to arrest movement of either toe or heel portions of a shoe when the wearer is so manipulating the shoe on his foot as to contact with side portions of either of said brushes. In other words, the user can turn his foot around in any position without the risk of any surface portion of the shoe being damaged by contact with mechanism or parts inside of the cover.

A shield 85 (Fig. 1) preferably of some flexible material such as leather depends from the portion of the platform 14 which projects beyond the cover so that a shoe can not be so inserted as to contact with any portion of the brush 19 excepting the lower ends or tips of the bristles of said brush.

The preferable operation is as follows: Assuming that the motor 25 is driving the machine, the user while standing on one foot and grasping the handle 30 to steady himself, places his other foot with the shoe thereon upon the platform 14 and then so turns his foot around while in contact with the brush 20 as to sufficiently clean all side parts of the upper, such position being indicated by the dotted lines a in Fig. 1. He then transfers his foot to the position indicated by the dotted lines b so as to clean the upper surface of the forepart of the shoe.

During the movements which result from so moving one foot around while standing on the other foot, the user would lose his balance if not for the steadying handle 30. Since said handle is located substantially in line with the axis of shaft 16, it is always in position to afford the same steadying effect whether the user is standing at the end or either side of the machine.

After cleaning the shoe the user then repeats the operation of placing and moving
his foot as described, first in contact with one of the brushes 19, 20 and then with the other, applying blacking at the same time or immediately thereafter to the proper brush by manipulating one or the other of the handles 32, 37. Such manipulation of the handle partially rotates the selected blacking supplying roll to such position as to carry a film of material from its associated reservoir to position where such film will be taken off on the brush and transferred by such brush on to the shoe. The proper thickness of the film is supposed to have been adjusted by means of the sliding plates herebefore described, and the width or length of film on either roll which will be brought to position to be wiped off by the brush will have been determined by the proper setting of the stop pins herebefore described and illustrated in Figs. 7 and 8. As the blacking is taken from the roll, it is spread over the outer surfaces of the film-determining plates by the brush, so that the blacking is thereby broken up and distributed on the brush to properly wipe on to the shoe. If one application of blacking is insufficient, the user can operate the proper handle 32 or 37 again. In other words, the user can apply a succession of predetermined amounts of blacking to either brush.

After the blacking has been applied to the shoe, either over the entire surface to be polished or any portion thereof, the user transfers his foot to the position indicated by dotted lines σ in Fig. 1 and so manipulates his foot that the entire coated surface of the shoe will be polished by the yarn brush 18, such manipulation including contact of the sides of the shoe upper with the periphery of said brush and contact of the upper surface of the forepart of the shoe with the under side of said brush.

The operation of the machine as a whole is facilitated because the two brushes 19, 20 are of different shapes and because the rolls 46, 69 are of different shapes. As has been described, these two brushes operate on different portions of a shoe, the brush 20 being cylindrical and its periphery being employed on the sides of the shoe and the brush 19 having a substantially flat lower face to act on the upper surface of the forepart of the shoe, thus facilitating the presentation of the shoe to the machine. By employing a cone-shaped roll 46 and a cylindrical roll 69 to apply polishing material to said two brushes respectively, the requisite amount of said material is supplied to the proper portions of both brushes.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A machine for operating upon shoes, having, in combination, a plurality of rotary brushes, a foot rest adjacent to each brush, and means for independently applying a predetermined and variable amount of blacking to each of said brushes.

2. A machine of the character described having, in combination, a brush for operating upon the sides of a shoe, a brush for operating upon the upper surface of the forepart of a shoe, and means for independently applying a predetermined and variable amount of blacking to each of said brushes.

3. A machine for operating upon shoes, having, in combination, a plurality of rotary brushes in vertical axial alignment, a foot rest adjacent to each brush, and manually controlled means for applying predetermined amounts of blacking to said brushes.

4. A machine for operating upon shoes, having, in combination, an upright shaft, a plurality of brushes carried by said shaft, separate foot rests one adjacent to each brush, and manually controlled means for independently applying a predetermined and variable amount of blacking to said brushes.

5. A machine for operating upon shoes, having, in combination, an upright shaft, upper and lower brushes and an intermediate brush carried by said shaft, a foot rest close to the lower part of the upper brush to support a shoe sideways against the periphery of the brush, a foot rest spaced below the intermediate brush to support a shoe with its toe portion inserted under said brush, and a foot rest spaced below the lower brush.

6. A machine for operating on shoes having, in combination, a rotary brush, a reservoir for blacking adjacent to said brush, a smooth surfaced roll having one portion of its periphery in said reservoir and another portion permanently contacting with the brush, means for turning said roll portion to devote a film of blacking from the reservoir to the brush, and means for turning the roll back to a normal position again to effect transfer of blacking from the reservoir to the brush.

7. A machine for operating on shoes having, in combination, a rotary brush, a reservoir for blacking adjacent to said brush, a smooth surfaced roll having one portion of its periphery in said reservoir and another portion permanently contacting with the brush, manually controlled means for turning the roll in one direction to effect transfer of a film of blacking from the reservoir to the brush, and automatic means for turning the roll back to transfer a second film of blacking from the reservoir to the brush.

8. A machine for operating upon shoes having, in combination, a brush mounted to rotate in a substantially horizontal plane, a reservoir for blacking underneath and adjacent to said brush, an oscillatable transferrer for conveying in each direction of os-
cillating movement a predetermined amount of blacking from the reservoir to the brush, and manually controlled means for actuating said transferrer.

9. A machine for operating upon shoes, having, in combination, an upright shaft, a pair of brushes carried thereby, one having a vertical working surface for the sides of a shoe and the other a horizontal working surface for the toe of a shoe, separate foot rests one adjacent to each of said brushes, a pair of reservoirs for blacking, a transferrer movable from one reservoir to the periphery of one brush, a transferrer movable from another reservoir to the under surface of the other brush, and independent means for manually actuating said transferrers to vary independently the amount of blacking transferred to each brush.

10. A machine for operating upon shoes, having, in combination, an upright shaft, a pair of brushes carried thereby, a foot rest adjacent to each of said brushes, a pair of reservoirs for blacking, a transferrer movable from one reservoir to the periphery of one brush, a transferrer movable from another reservoir to the under surface of the other brush, a standard extending above the plane of the upper brush, a pair of handles movably mounted on the standard, and independent operating connections between said handles and transferrers.

11. A machine of the character described, comprising a base, a pair of platforms above the base, an upright shaft and a post parallel therewith, brushes carried by the shaft, a pair of reservoirs for blacking, concentric shafts mounted on the post and having handles, and means actuated by said shafts for independently transferring blacking from the reservoirs to the brushes.

12. In a machine of the character described, a rotary brush, a blacking reservoir, a transferrer for taking blacking from the reservoir to the brush, a post at one side of the brush adapted to be grasped by the user, a handle, and means connecting the handle with the transferrer to enable the latter to be actuated, said means being supported from said post.

13. In a machine of the character described, an upright shaft having a pair of brushes one above the other, a blacking reservoir adjacent each brush, transferrers for taking blacking from the reservoirs and applying to the brushes, an upright post at one side of the shaft, a pair of sleeves one within the other and mounted upon said post, each of said sleeves having a handle, and separate connections between said sleeves and the transferrers to enable either one of the transferrers to be actuated independently of the other.

14. In a machine of the character described, a rotary brush, means for presenting a film of blacking to the brush, and adjustable means for variably predetermining the length of such film.

15. In a machine of the character described, a rotary brush, a blacking reservoir adjacent to the brush, a roll for transferring blacking from the reservoir to the brush, means for turning the roll to transfer blacking to the brush, and means for variably determining the extent of turning of the roll to regulate the amount of blacking transferred to the brush.

16. In a machine of the character described, a rotary brush, a reservoir for blacking, manually operable means extending into the reservoir for supplying a measured quantity of blacking to said brush, and adjustable means for predetermining the quantity of blacking.

17. In a machine of the character described, a rotary brush, a reservoir adjacent to the brush, a manually operable roll for transferring blacking from the reservoir to the brush, and means for adjustably determining the limits of movement of said roll.

18. In a machine of the character described, a rotary brush, a reservoir adjacent to the brush, a manually operable roll for transferring blacking from the reservoir to the brush, and means for adjustably determining the limits of movement of said roll, said means comprising a rotary shaft having a projection, and an adjustable stop for said projection.

19. In a machine of the character described, a rotary brush, a reservoir adjacent to the brush, a manually operable roll for transferring blacking from the reservoir to the brush, and means for adjustably determining the limits of movement of said roll, said means comprising a rotary shaft having a projection, a pair of adjustable stops for said projection, and a spring for holding the projection normally in contact with one of said stops.

20. In a machine of the character described, a rotary brush, a blacking reservoir adjacent to said brush, a roll for transferring blacking from the reservoir to the brush when rotated in either direction, means independent of the brush for actuating said roll in two directions, and means for varying the thickness of the film of blacking transferred by the roll to the brush when rotated in either direction.

21. In a machine of the character described, a rotary brush, a blacking reservoir adjacent to said brush, a roll for transferring blacking from the reservoir to the brush, means for actuating said roll in two directions, and means for varying the thickness of the film of blacking transferred by the roll to the brush, said means comprising
adjustable plates having their edges slightly spaced from the periphery of the roll.

22. In a machine of the character described, a rotary brush, a blacking reservoir adjacent said brush, a roll for transferring blacking from the reservoir to the brush, means for actuating said roll, means for varying the thickness of the film of blacking transferred by the roll to the brush, said means comprising a pair of plates having their opposing edges adjacent to the periphery of the roll, and means for adjusting said plates toward and from the roll.

23. In a machine of the character described, an upright shaft having a brush, a foot rest below said brush, and a flexible guard surrounding the upper portion of the brush, said guard depending to a point slightly above the operative face of the brush.

24. In a machine of the class described, a rotary brush having a vertical working face to engage the side of a shoe, a reservoir for blacking adjacent the brush, a roll having a conical surface bearing against the vertical face of said brush and extending into said reservoir, an inclined shaft secured to the roll, and means for turning the shaft to transfer blacking from the reservoir to the brush.

25. A machine for operating upon shoes, having, in combination, an upright shaft having a brush exposed for contact with a shoe on either side of the axis of the brush, a foot rest adjacent to said brush, mechanism for applying blacking to one side of the brush, and guards disposed on either side of the blacking applying mechanism for preventing contact of a shoe with the sides of the blacking applying mechanism said guards leaving the greater portion of the brush exposed for contact with both sides or the rear of the shoe.

26. A machine for operating upon shoes, having, in combination, an upright shaft having a brush, a foot rest adjacent said brush, means for applying blacking to one side of the brush, and means comprising a pair of adjustably mounted plates having edge portions adjacent the periphery of the brush for preventing contact of a shoe with the sides of the blacking applying means.

27. In a machine of the character described, a rotary brush, a reservoir for blacking, a roll for transferring a film of said blacking to the brush, and a pair of spaced plates having their edges extending between the brush and the roll, said plates having a portion of their surfaces in contact with the brush so that they present a surface on which the said blacking is spread by the brush.

28. In a machine of the character described, a rotary brush having a peripheral operating surface, a second rotary brush having a substantially flat lower operating surface, a cone-shaped roll for applying blacking to the periphery of the first-mentioned roll, a cylindrical roll for applying blacking to the lower face of the other brush, and means for supplying blacking to said rolls.

29. In a machine of the character described, an upright shaft having a brush, a foot rest adjacent said brush, and a fixed support at one side of the shaft and having a laterally extending arm provided with a handle above and substantially in line with the upright shaft.

In testimony whereof I have signed my name to this specification.

HENRY A. DODGE.