

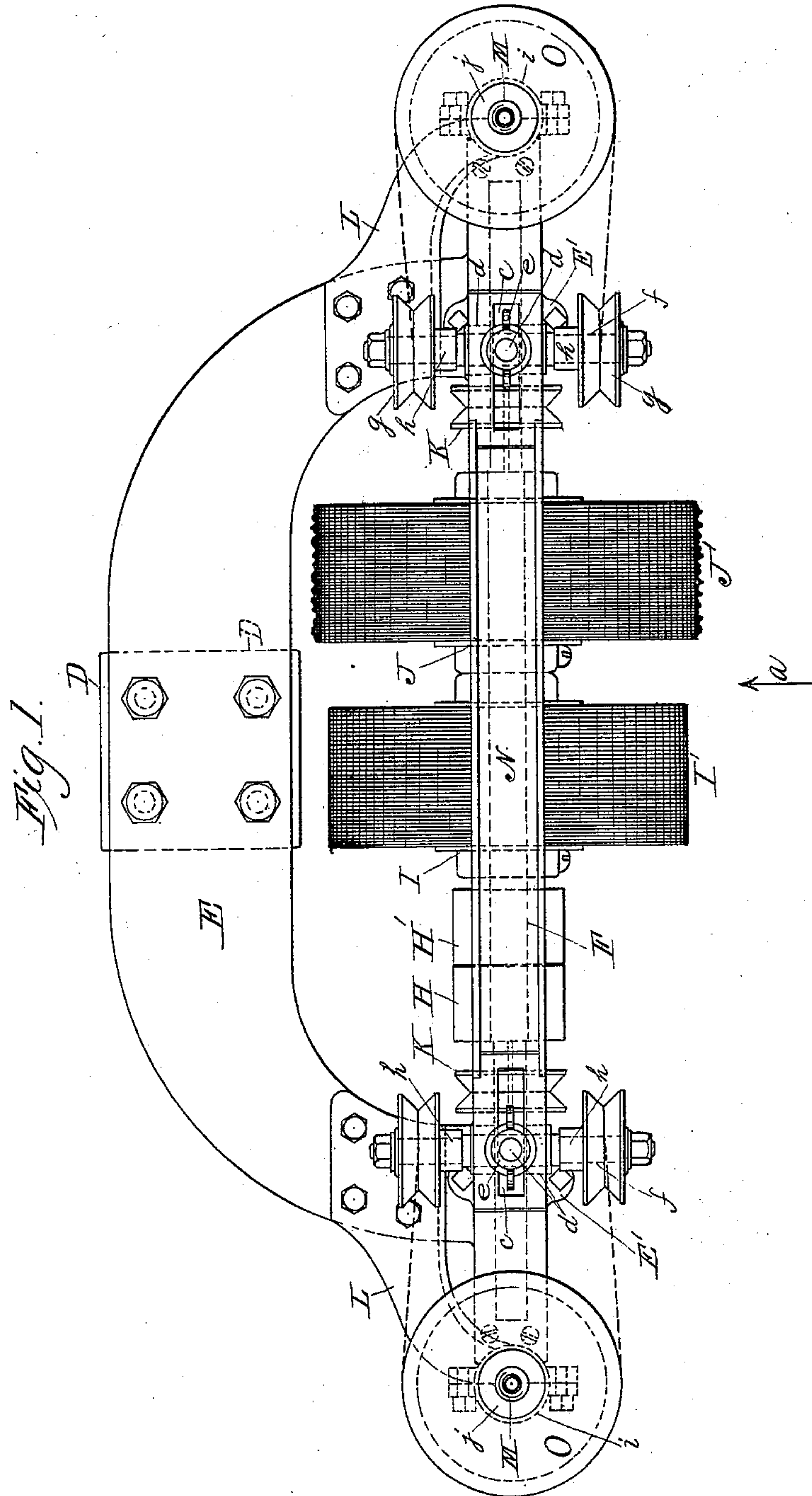
(No Model.)

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BLEACH AND STAIN BRUSHING MACHINE FOR THE BOTTOMS OF BOOTS
AND SHOES.

No. 300,819.

Patented June 24, 1884.



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Henry L. Willes.
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Inventors;
Justin O. White.
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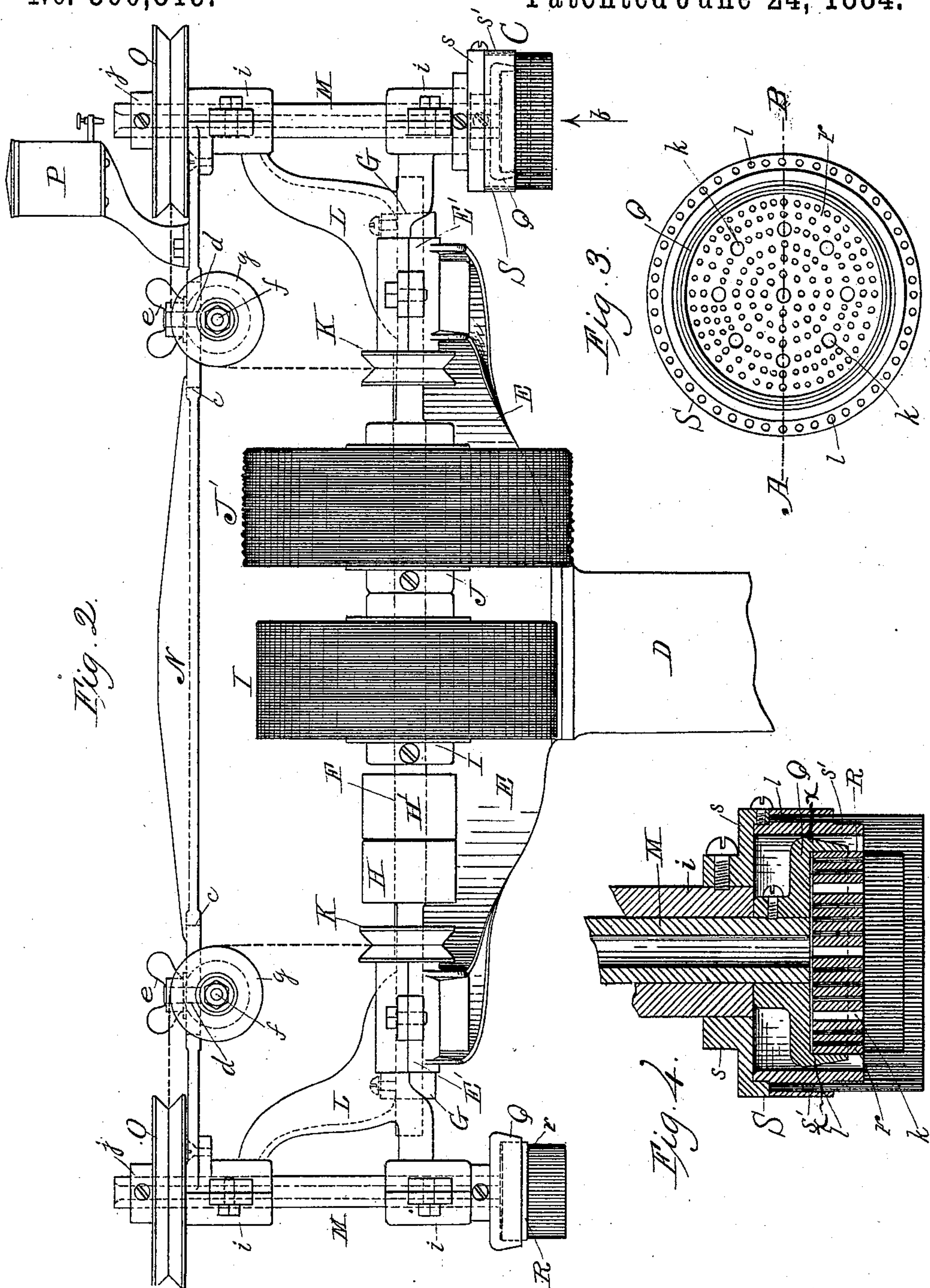
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UNITED STATES PATENT OFFICE.

JUSTIN P. WHITE AND DAVID HARRINGTON, OF WORCESTER, MASS.

BLEACH AND STAIN BRUSHING MACHINE FOR THE BOTTOMS OF BOOTS AND SHOES.

SPECIFICATION forming part of Letters Patent No. 300,819, dated June 24, 1884.

Application filed November 15, 1883. (No model.)

To all whom it may concern.

Be it known that we, JUSTIN P. WHITE and DAVID HARRINGTON, both of the city and county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Bleach and Stain Brushing Machines for the Bottoms of Boots and Shoes; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a top or plan view of our machine attached to a suitable supporting pedestal. Fig. 2 represents a front side view of our machine, shown in Fig. 1, looking in the direction of arrow *a*, same figure. Fig. 3 represents, on an enlarged scale, an end view of the bonnet or protector and rotary brush shown in Fig. 2 at C, looking in the direction of arrow *b*, same figure, the bristles being removed, and the larger holes representing the holes or perforations made through the head of the rotary brush, for the purposes to be hereinafter fully stated; and Fig. 4 represents, on the same enlarged scale as Fig. 3, a vertical section through the parts shown in Fig. 2 at C, and also on line A B, Fig. 3, the bristles being shown in their proper positions.

Our invention relates to a machine for applying a bleach, stain, or finish to the bottoms or soles of boots and shoes by means of a brush or brushes, which are supplied automatically by a self-feeding arrangement with the bleach or stain, and are operated in connection with the other parts of the machine to apply and work into the soles of boots and shoes said bleach, stain, or finish by a rotary motion of the brush or brushes; and our invention consists in the construction and arrangement of the several parts of the machine and their mode of operation, as will be hereinafter fully described.

To enable those skilled in the art to which our invention belongs to make and use the same, we will proceed to describe it more in detail.

In the drawings, D represents the upper portion of a proper pedestal or support, of about four feet in height, upon the top of which the frame of our machine is secured by bolts or in any other suitable manner. (See Fig. 1.)

The pedestal D may be screwed or bolted to the floor at its base, so as to hold the machine mounted thereon in its proper position when it is in use.

The part marked E is the frame of the machine, made in the form shown in Fig. 1, and bolted to the top of the pedestal D, and to this frame E the other parts of our machine are attached, as will be described.

The ends of the frame E are provided with box-bearings E' upon their upper sides, for the horizontal shaft F (see dotted lines, Figs. 1 and 2) to turn in. At each end of said shaft F a collar, G, is secured by a set-screw, to prevent any longitudinal movement of said shaft in its bearings.

Upon the shaft F there is a fixed pulley, H, and a loose pulley, H', to furnish belt-connection for turning said shaft. There are also secured to said shaft F, by set-screws or otherwise, two brush-arbors, I J, upon which revolving brushes I' J' are placed, to turn with the shaft F.

Near each end of shaft F a grooved belt-pulley, K, is secured, to furnish belt-connection for turning the vertical shafts and the rotary brushes attached thereto, to be hereinafter described. The said pulleys K are fastened to the horizontal shaft F by means of a feather or spline, to allow of a slight longitudinal movement of said pulleys K upon the shaft, if desired.

Near the ends of the frame E are bolted or secured curved and upright arms or frame-pieces L, to furnish bearings and support for the vertical hollow shafts M. The flat cross-bar N is fastened at each end to the top part of the arms L, and has longitudinal slots *c* near each end, in which the parts *d* fit and are held in place by thumb-screws *e*. Said parts *d* have an opening or hole therein longitudinally, to form a bearing for the shafts *f* to turn in. Upon said shafts *f* are secured the grooved guide-pulleys or idlers *g*, having hubs *h*. The object of the slots *c* in the cross-bar N is to allow of the parts *d*, which furnish bearings for the shafts *f*, with the guide-pulleys *g* thereon, being moved back and forth in said slots in connection with the pulleys K on the horizontal shaft F, to tighten or loosen the belt-connection with the fixed pulleys O on the vertical hollow shafts M.

The part marked P in the drawings represents a reservoir or receptacle for holding the bleach or stain. It is supported upon an upright arm secured to the cross-bar N, the faucet of the reservoir being directly over the upper end of the vertical shaft M, which is made hollow for the purpose of allowing the bleach or stain to run into and through said vertical hollow shaft M, as will be hereinafter described. The vertical hollow shafts M turn in box-bearings *i* on the projecting ends of the supporting-arms L. Upon the upper ends of said vertical shafts M are secured grooved pulleys O, having hubs *j*, to turn said vertical shafts M by means of belt-connection with the pulleys K on the horizontal shaft F, (as shown by dotted lines in the drawings.) The pulleys O rest upon the top or shoulder of the boxes *i*, thus holding the shafts M in their vertical positions in their bearings.

Upon the lower ends of the vertical shafts M are secured circular holders or sockets Q, to turn with said shafts M, and into which the rotary brushes R, with bristles attached in circles thereto, tightly fit around the sides thereof, and leaving a narrow space or chamber, *x*, (see Fig. 4,) between the heads of the brushes R and the holders Q, to allow the liquid running through the hollow shafts M to spread itself over the heads of the brushes R and run through the different holes made therein, as will be hereinafter fully described. The size of said space or chamber *x* between the heads of the rotary brushes and their holders may be varied according to the thickness of the liquid or stain used. The said rotary brushes R are held securely in place by a taper fit, to turn with the vertical shafts M and the holders Q attached thereto. The said holders Q, secured upon shafts M, fit up against the lower part of boxes *i* on supporting-arms L, and thus, in connection with the pulleys O, prevent any longitudinal movement of the vertical shafts M in their bearings. (See sectional view, Fig. 4.)

The circular brush-heads *r* of the brushes R are made perforated, or with holes *k* therein, (see Figs. 3 and 4,) to allow of the bleach or stain flowing from the reservoir P through the hollow vertical shafts M into the narrow space or chamber *x*, to pass through said perforated heads *r* and be communicated to the bristles, to be brushed by them and worked into the soles of boots or shoes held or placed against them as said brushes R are revolved or turned.

The part marked S represents a stationary bonnet or protector, which fits over and around the brush R and the socket or holder Q, and is secured to the lower box, *i*, on the arm L by a set-screw or otherwise. The said bonnet S is in this instance made in two parts, the upper part, *s*, being fastened to the lower part of the box *i*, and the lower part, *s'*, being fastened to said upper part, *s*, by a set-screw or otherwise. (See sectional view, Fig. 4.) The lower part may be removed for any purpose without removing from the vertical shaft M the holder Q

and brush R, which could not be done if the bonnet S were made in one piece; but we may sometimes prefer to use a bonnet made in one piece, and therefore do not wish to limit ourselves to a bonnet or protector made in two parts, as described. The lower part of bonnet S is provided with a row of bristles, which extends entirely around the lower edge thereof, said bristles being fastened in holes *l* made in the outer side of bonnet S. (See Figs. 3 and 4.) Said bristles extend down below the bristles of the brush R, for purposes to be hereinafter stated. The object and purpose of the stationary bonnet S is to prevent the bleach or stain, automatically fed to the bristles of the brushes R in the manner already described, from flying off in all directions by the centrifugal force of the brushes R when being revolved to apply and work the bleach or stain into the soles of boots and shoes. The bristles on the lower edge of the bonnet S, extending down below the bristles of the brush R, catch the liquid or material thrown off from the said brush R as the same is rotated, and it then drops off in a straight direction, and may be caught in some suitable receptacle, and the bristles being flexible, the operator is able to hold the sole of the boot or shoe up against the circular brush R to apply the bleach or stain thereto, which he could not do if the lower part of the bonnet or protector S were made of or provided with some non-flexible material.

In the drawings, Fig. 2, I have left off the bonnet or protector S on the left-hand side of the machine, as its mode of attachment and operation is the same as that shown on the right-hand side of the figure, the parts being merely duplicated in order to apply the bleach on one side of the machine and the stain or finish on the other side; or, if preferred to use both sides at the same time, to apply the bleach, stain, or finish.

The operation of our machine is as follows: The bleach, stain, or finish is put into the reservoir P, and the faucet thereof slightly turned to allow of the liquid running slowly into the upper open end of the hollow vertical shaft M, and the shafts M and brushes attached thereto are then turned or revolved in the manner already described by means of power applied to the fixed pulley H on the horizontal shaft F. The bleach or stain runs through the hollow vertical shafts M into the space or chamber *x*, and through the perforated heads of the brushes R to the bristles thereon by the force of gravity, and is brushed or worked into the soles of the boots or shoes held up against said bristles by said brushes R revolving with the vertical shafts M. The bristles or their equivalents upon the lower edge of the stationary bonnet or protector S catch the surplus material thrown off from the brushes R and prevent it from being thrown around in all directions. After the bleach, stain, or finish has been sufficiently brushed and worked into the soles of the boots or shoes by the brushes R the bottoms of the boots

and shoes are held against the revolving brush J' on the horizontal shaft F, for the purpose of wiping off the bottom and laying the fiber smooth. The edges are then held against the revolving brush I' and the superfluous material quickly and neatly wiped off, and the operation is completed.

It will be readily seen that our machine possesses many advantages, because by means of the hollow vertical shafts, to which are attached the brushes having perforated heads, the bleach, stain, or finish may be fed automatically in suitable quantities to said brushes, and be applied in connection with the bonnet or protector, which fits over said brushes, very quickly and much better than where the bleach or stain is painted or wet on and brushed or worked in by hand; and better results are obtained by using our machine than are possible by applying the bleach or stain by hand.

Having described our improvements in bleach and stain brushing machines for the bottoms of boots and shoes, what we claim therein as new and of our invention, and desire to secure by Letters Patent, is—

1. In a machine for applying bleach, stain, or finish to the bottoms of boots or shoes, an adjustable stationary bonnet or protector having bristles or their equivalents on the lower edge thereof, in combination with the rotary bleach or stain brush and means for operating the same, substantially as shown, and for the purposes stated.

2. The combination, with a rotary brush having a perforated head for applying bleach or stain automatically, and means for operating the same, of an adjustable stationary bon-

net or protector, substantially as shown, and for the purposes stated.

3. The combination, with the horizontal shaft provided with suitable wiping-brushes and means for holding and operating said shaft, of the vertical hollow shafts provided with bleach or stain rotary brushes, and means for holding and operating said shafts, substantially as shown and described.

4. The combination, with the vertical hollow shaft M, of the rotary brush R, the head thereof being provided with two or more holes, *k*, and its holder Q, said rotary brush and holder being so arranged in relation to each other as to leave a narrow space or chamber, *x*, for the liquid or stain to run into previously to running through the holes *k* in the head of said brush, substantially as shown and described.

5. The combination, with a rotary brush for applying bleach or stain, having a perforated head with two or more holes, *k*, through it, of means, substantially as described, for holding and operating the same, substantially as shown and described.

6. In a machine for applying bleach, stain, or finish to the bottoms of boots and shoes, a rotary bleach or stain brush having two or more holes through the head thereof, in combination with means, substantially as described, for operating the same.

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