

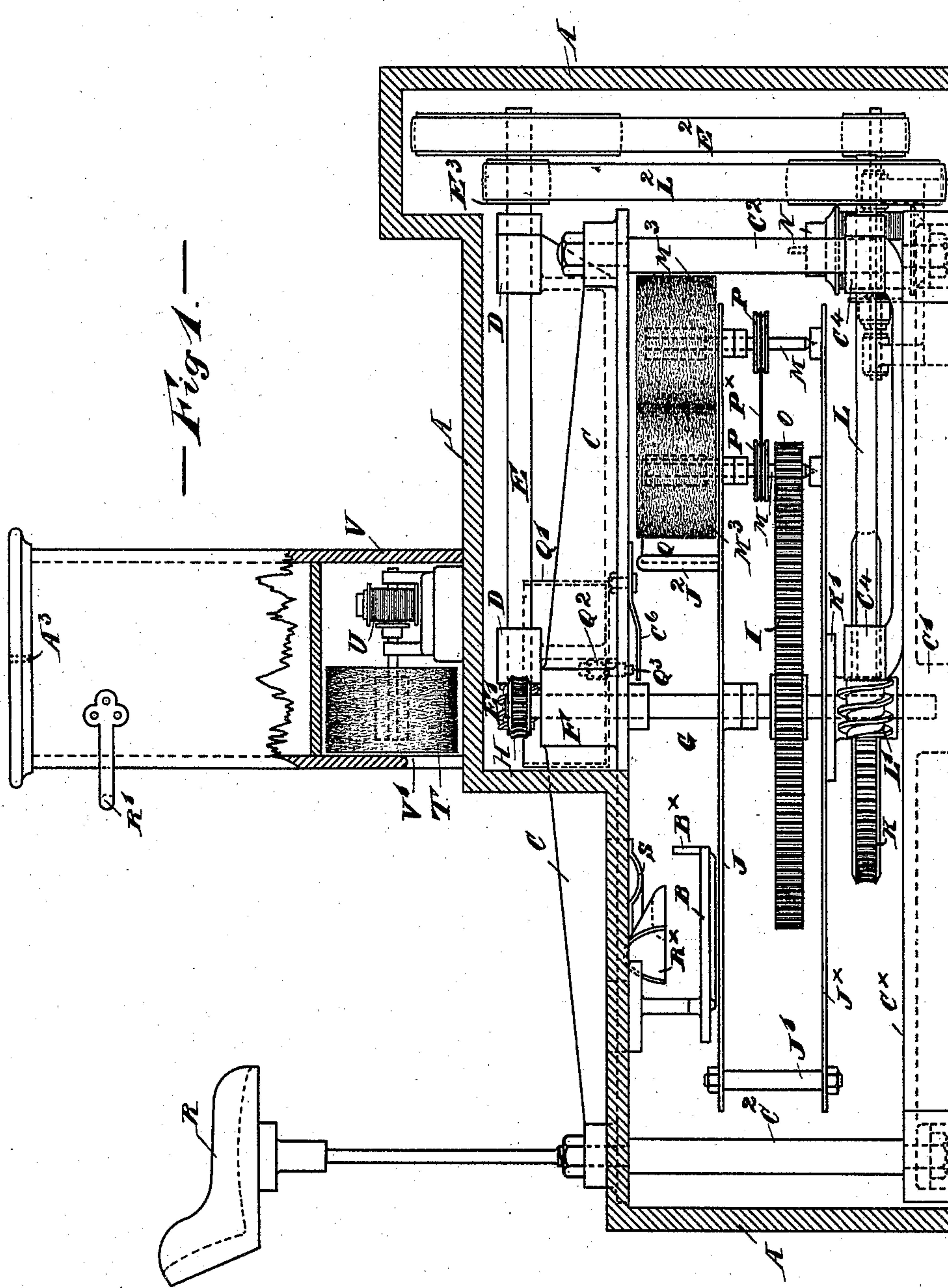
(No Model.)

2 Sheets—Sheet 1.

**A. FARINETTI.**  
**BOOT OR SHOE CLEANING MACHINERY.**

No. 547,204.

Patented Oct. 1, 1895.



—Witnesses.—

Stephen Edward Gungor -  
William Anderson Smith

—*Inventor.*—

Artidoro Farinetti

(No Model.)

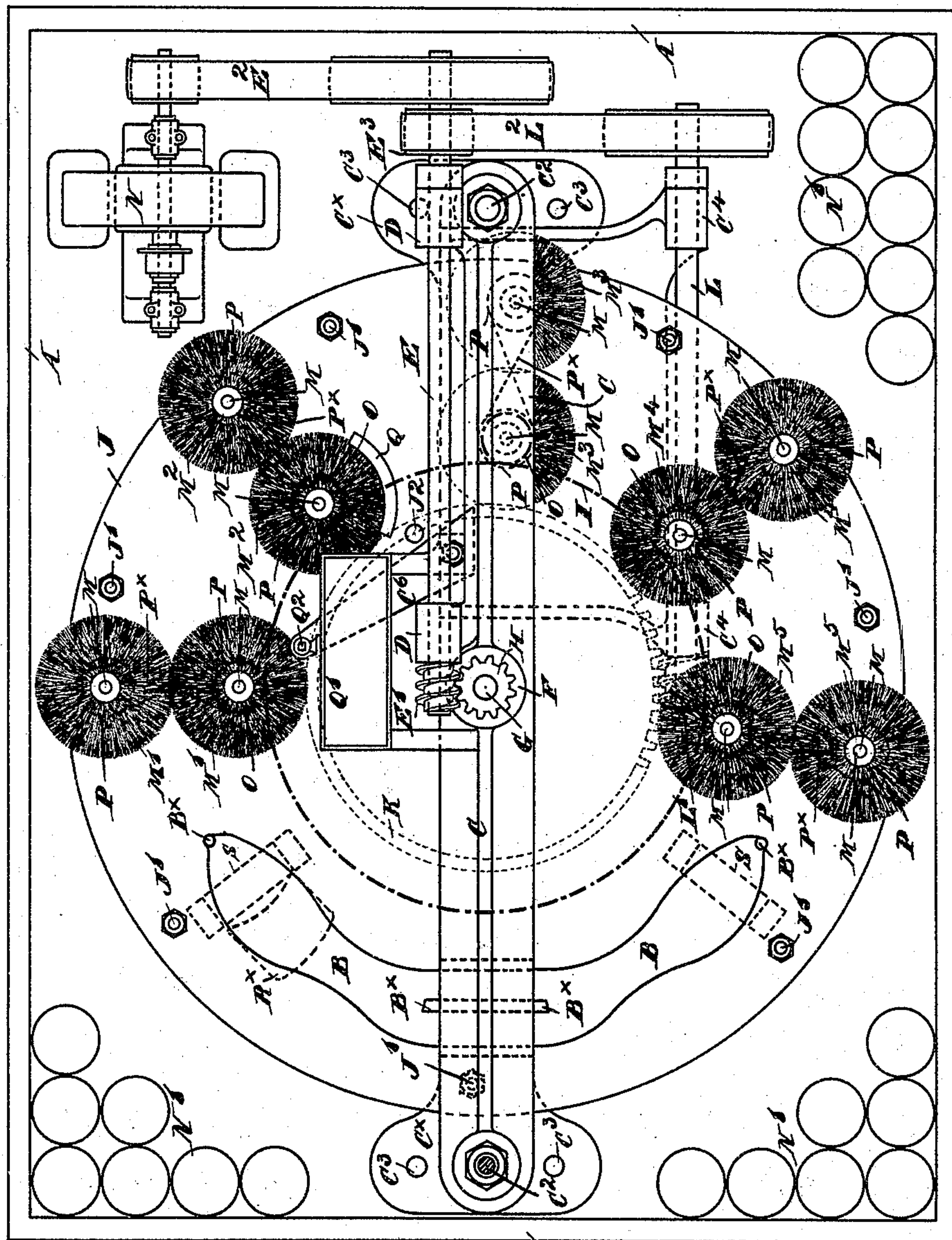
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— Fig 2. —



— Witnesses. —

Stephen Edward Gungor  
William Anderson Smith

— Inventor. —

Artidoro Farinetti



# UNITED STATES PATENT OFFICE.

ARTIDORO FARINETTI, OF LONDON, ENGLAND, ASSIGNOR OF ONE-HALF TO  
FERDINAND FRANCIS ERNEST HEYSE, OF SAME PLACE.

## BOOT OR SHOE CLEANING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 547,204, dated October 1, 1895.

Application filed July 10, 1894. Renewed June 22, 1895. Serial No. 553,718. (No model.) Patented in England May 12, 1893,  
No. 9,555.

*To all whom it may concern:*

Be it known that I, ARTIDORO FARINETTI, civil engineer, a subject of the King of Italy, residing at 15 Seething Lane, in the city of London, England, have invented certain new and useful Improvements in Boot or Shoe Cleaning Machinery, (for which I have received, in conjunction with Ferdinand Francis Ernest Heyes, of 15 Seething Lane aforesaid, Letters Patent in Great Britain, No. 9,555, dated May 12, 1893,) of which the following is a specification.

This invention relates to machinery or apparatus for cleaning boots and shoes, preferably so arranged and adapted that it can be set in motion automatically or by hand on the insertion of a coin into a slot; but it may also be employed without coin-freed mechanism.

Figure 1 of the accompanying drawings is an elevation, with its containing-case in section, of a machine or apparatus constructed in accordance with this invention; and Fig. 2 is a plan of same with the top of the containing-case removed.

Similar letters of reference relate to like parts in each of the figures of the drawings.

A is a box or case of suitable form, in the upper part or cover of which are provided two apertures  $A^1$   $A^2$ , through which the boots or shoes to be cleaned, whether on the feet of the wearer or mounted on lasts or stretchers, or otherwise held, are inserted and retained on foot plates or supports B. These foot plates or supports B are firmly attached to or suspended from a cross-bar C and are provided with suitable stops  $B^x$  for steadying the boots or shoes while being cleaned. The cross-bar C also carries bearings D for the upper horizontal shaft E, and also the bearing F for the central axis G, as shown. This central axis G carries at its upper end the worm-pinion H, into which gears the worm  $E'$  on the upper horizontal shaft E. It also has keyed thereon the large spur-wheel I and passes loosely through holes in the plates J  $J^*$ , its lower end turning in the foot-step  $C'$  in the lower cross-bar  $C^*$ . The upper and lower cross-bars C  $C^*$ , being connected together by the pillars or distance-pieces  $C^2$ , form a rigid frame, which may be held down to any convenient foundation

by means of holding-down bolts passing through the holes  $C^3$ .

To the under side of the lower plate  $J^*$  is attached by means of the flanged boss  $K'$  the worm-wheel K, such boss encircling the central axis G, but being free of the same. The worm-wheel K gears with the worm  $L'$ , attached to the counter-shaft L, which runs in bearings  $C^4$ , carried by the lower cross-bar  $C^*$ . The plates J  $J^*$  are connected together by the distance-studs  $J'$ , the whole forming a case or frame free to revolve round the central axis G and carrying the vertically-mounted brush-spindles M, which are preferably arranged in pairs, as shown, and have secured on their upper ends circular brushes of shapes or contours adapted to fit more or less accurately the various parts of the boots or shoes to be cleaned.

Rotary motion is imparted to the case or frame J  $J^*$   $J'$  and to the spindles M and brushes thereon by gearing, belts, and pulleys, or otherwise, as may be convenient, and this motion may be derived from any suitable motive power—such as an electric motor, or a compressed-air or hydraulic motor, for example, or in some cases hand-power.

In the drawings, N represents an electric motor, to which the necessary current is supplied from a dynamo, primary or secondary batteries, or other suitable source of electric energy. When batteries are employed, they may be contained within the box or case A, as shown at  $N'$ , for example.

When it is desired to make the machinery automatic, the motive power is brought into operation by the introduction of a coin into a slit—such as at  $A^3$ , for example. This coin may be caused to liberate certain mechanism which will allow the motive power to act automatically or will allow of its being brought into action by any suitable arrangement of well-known coin-freed mechanism. When an electric motor is employed, as in the case illustrated, the coin may be caused to close the circuit directly or indirectly. I have not thought it necessary to illustrate this part of the apparatus in detail nor the electrical connections to the various parts of the apparatus, as these in themselves form no part of my



invention and can be readily supplied by persons conversant with this class of machinery.

The brushes are arranged in pairs, as before explained,  $M'$  representing brushes for removing the mud or dirt,  $M^2$  blacking-brushes, and  $M^3 M^4 M^5$  first, second, and third pairs of polishing-brushes. The innermost spindle of each pair of brush-spindles  $M$  is provided with a spur-pinion  $O$ , which pinions gear with the before-mentioned large spur-wheel  $I$  on the vertical axis  $G$ , as shown. Each of the said innermost spindles transfers rotatory motion in the reverse direction to its adjacent spindle by means of further gearing or by pulleys  $P$  and cross-belts, cords, or chains  $P^*$ . Suitable arrangements are provided for supplying blacking to the blacking-brushes  $M^2$ , and in some cases water or other fluid may be provided periodically and automatically to the brushes or to the cake of blacking in order to soften the latter before it is applied to the boot or shoe. For example,  $Q$  is a case containing blacking, against the surface of which one of the blacking-brushes revolves, as shown.  $Q'$  is a small tank containing water, for example, and provided with a self-closing valve  $Q^2$ , the downwardly-projecting stem  $Q^3$  of which is adapted to be momentarily pressed upward once during each revolution of the case or frame  $J J^* J'$ , when the post  $J^2$  passes across the stationary spring-plate  $C^6$ , fixed to the upper cross-bar  $C$ , whereby a few drops of water are allowed to pass the valve at each such revolution at the time the blacking-brushes  $M^2$  are passing under the said valve.

The action of the machine is as follows. The person who requires his boots to be cleaned seats himself on the seat  $R$  (which may be adjustable, if preferred, according to the height of the person using the machine) and steadies himself, if necessary, by taking hold of the handle  $R'$ . He then places his feet through the apertures  $A'$  in the top of the box or cover  $A$  on to the foot plates or supports  $B$ . He then places a coin of predetermined value and size into the slit, as at  $A^3$ , for example, which coin by any suitable or well-known arrangement of mechanism starts the motor  $N$ . By means of the belt  $E^2$  motion is communicated from the said motor to the upper horizontal shaft  $E$ , thence by the worm  $E'$  and worm-pinion  $H$  to the central axis  $G$  and large spur-wheel  $I$  thereon, and finally by the pinions  $O$ , cords  $P^*$ , and pulleys  $P$  to the spindles  $M$ , which carry the brushes  $M' M^2 M^3 M^4 M^5$ , which latter are thus set in rapid rotation. The upper horizontal shaft  $E$  also imparts motion by means of the pulley  $E^3$  and belt  $L^2$  to the counter-shaft  $L$ , which by the worm  $L'$  causes the worm-wheel  $K$  and with it the case or frame  $J J^* J'$  to revolve at a comparatively slow speed. It will now be understood that not only is each brush caused to rapidly rotate with its spindle in the bearings in the plates  $J J^*$  in an opposite direction to that of its adjacent brush, but

that the case or frame  $J J^* J'$ , which carries the brushes  $M' M^2 M^3 M^4 M^5$ , is caused to revolve slowly on and independently of the central axis  $G$ . By this arrangement each successive pair of rapidly-revolving brushes is caused to pass one on each side of and in contact with the boots to be cleaned, whereby that on the left foot is first subjected from toe to heel to the action of the mud or dirt removing brushes  $M'$ , which then act upon the boot or shoe on the right foot from heel to toe. Meanwhile the blacking-brushes  $M^2$ , having received the necessary quantity of blacking from the blacking-case  $Q$  and been moistened by the action of the post  $J^2$  and spring-plate  $C^4$  upon the self-closing valve  $Q^2$  of the water-tank  $Q'$ , as hereinbefore explained, are caused to act upon the boot on the left foot from toe to heel and then upon the boot on the right foot from heel to toe and the three pairs of polishing-brushes in like manner. The case or frame  $J J^* J'$  will during this operation complete one revolution, while each brush will have made, say, three hundred revolutions, the boots or shoes being thereby cleaned and polished. On the completion of one revolution of the case or frame  $J J^* J'$  the electric circuit is automatically broken, (by a commutator upon the said case or frame, for example,) the machine stops, and the person withdraws his feet from the apertures  $A' A^2$ , or the case or frame  $J J^* J'$  may be arranged to make two or more revolutions, and thus apply the whole or some of the brushes more than once to the boots or shoes to be cleaned, and may in some cases also be adapted to clean more than one pair or a single boot or shoe at one operation of the machine.

I sometimes employ a guard  $R^*$  in order to protect the upper part of the front of the boot from the mud, which might otherwise be deposited there by the mud or dirt brushes  $M'$ , more especially in the case of the left foot. Other guards may also be employed to protect other parts of the boot during the process of cleaning.

In order to insure the entire surface of the front of the boot or shoe being cleaned, especially when the said boot or shoe is creased or furrowed at that part, I sometimes provide a swell or projection  $S$ , which causes the bristles of the brushes as they pass under same to come into close contact with the said parts of the boots or shoes, or I sometimes provide for the same purpose one or more supplementary brushes  $T$ , rotated by a separate electric motor  $U$  in a case  $V$ , in which an opening  $V'$  is formed for the introduction of the front part of the boot between the brush  $T$  and the top of the case  $A$ .

The motor  $U$ , and consequently the brush  $T$ , preferably remain stationary while the frame  $J J^* J'$  is making its rotation and the boots or shoes are being operated upon by the brushes  $M'$  to  $M^5$ ; but just before the said frame completes its rotation it closes an electric circuit with the said motor, which then



rotates the brush T a certain number of revolutions, when the said electric circuit is opened by suitable mechanism, such as a worm and worm-wheel or other gearing connected with the axis of the motor or brush, and the motor and brush then stop.

It is obvious that instead of the boot-cleaning machinery being driven by an electric or other motor it may be driven by hand by any suitable arrangement of mechanism and that such mechanism may be governed by coin-freed apparatus, so that it cannot be used until a coin is introduced into the slit of such coin-freed apparatus. It is also obvious that when the means, whatever they may be, employed to communicate motion to the boot-cleaning machinery are governed by coin-freed apparatus any suitable well-known device may be employed to stop such motion when the boot-cleaning machinery has completed its operation.

I claim—

1. In an automatic shoe blacking machine a stationary support for a pair of shoes, a revolving frame carrying a plurality of brushes arranged in pairs, and means for rotating the brushes as the frame revolves, substantially as described.

2. In combination, the case, the vertical shaft revolving therein with means for driv-

ing it, the frame loose on said shaft with means for rotating said frame, the plurality of brushes arranged in pairs and connections to the brushes from the shaft for revolving them, and the supports for the pair of shoes arranged one behind the other in the path of the brushes and adapted to pass said shoes successively between said brushes, substantially as described.

3. In combination the supports for the shoes, the revolving brushes traveling in proximity to said supports, and the stationary deflectors for forcing the bristles of the brushes into close contact with all parts of the shoes, substantially as described.

4. In combination the case, the vertical shaft revolving therein, the frame loose on said shaft with means for revolving it, the series of pairs of spindles on said frame carrying brushes on their upper ends, the gear wheel on the shaft, the small gears on the inner spindles meshing with the gears on the vertical shaft, the operating connections between the inner and outer spindles, and the supports for the shoes in the path of the brushes, substantially as described.

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Witnesses:

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