G. BOZZOLA.

SHOE POLISHING MACHINE.

APPLICATION FILED SEPT. 5, 1917.

1,304,447.

Patented May 20, 1919.

5 SHEETS—SHEET 1.

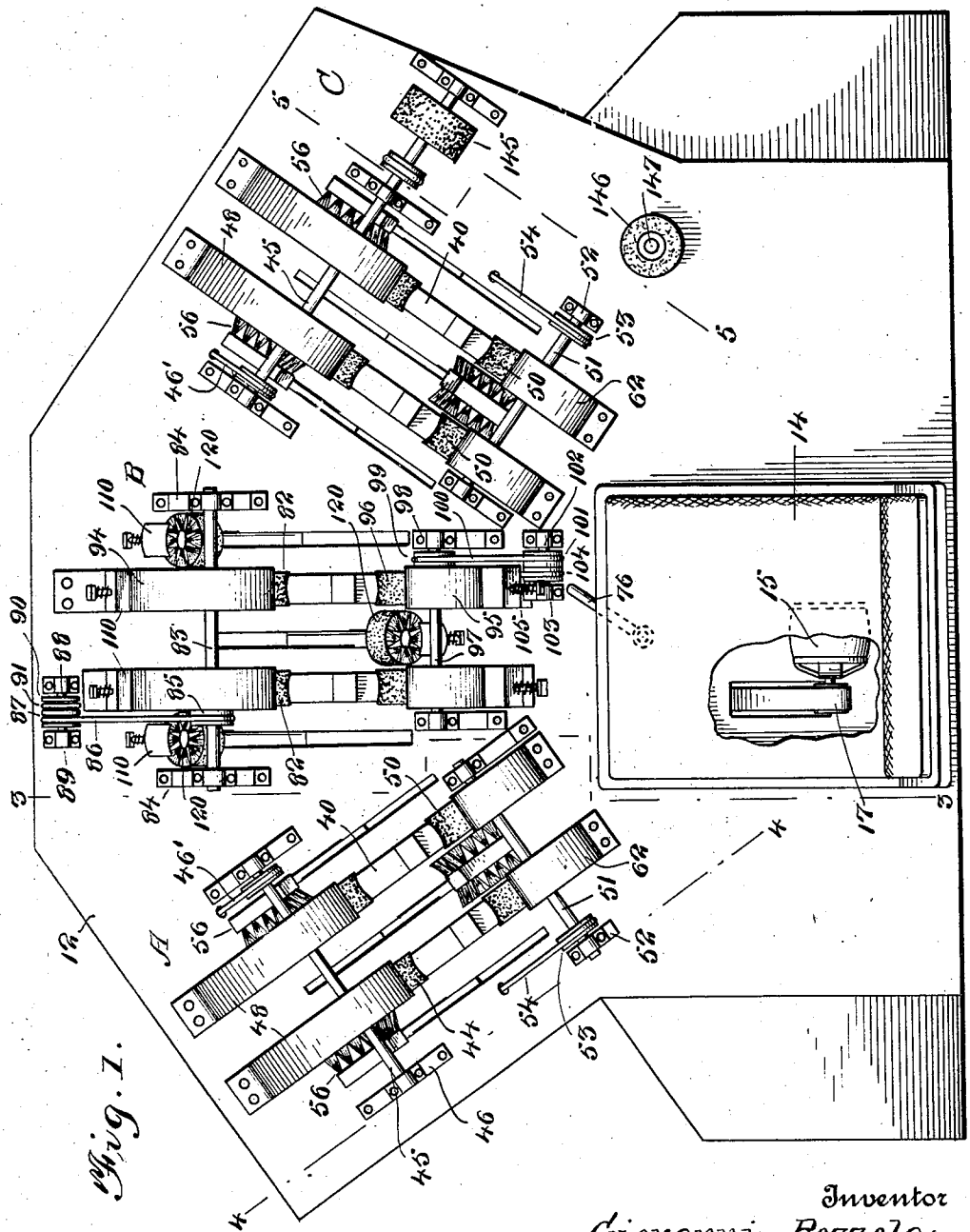


Fig. 1.

Witness

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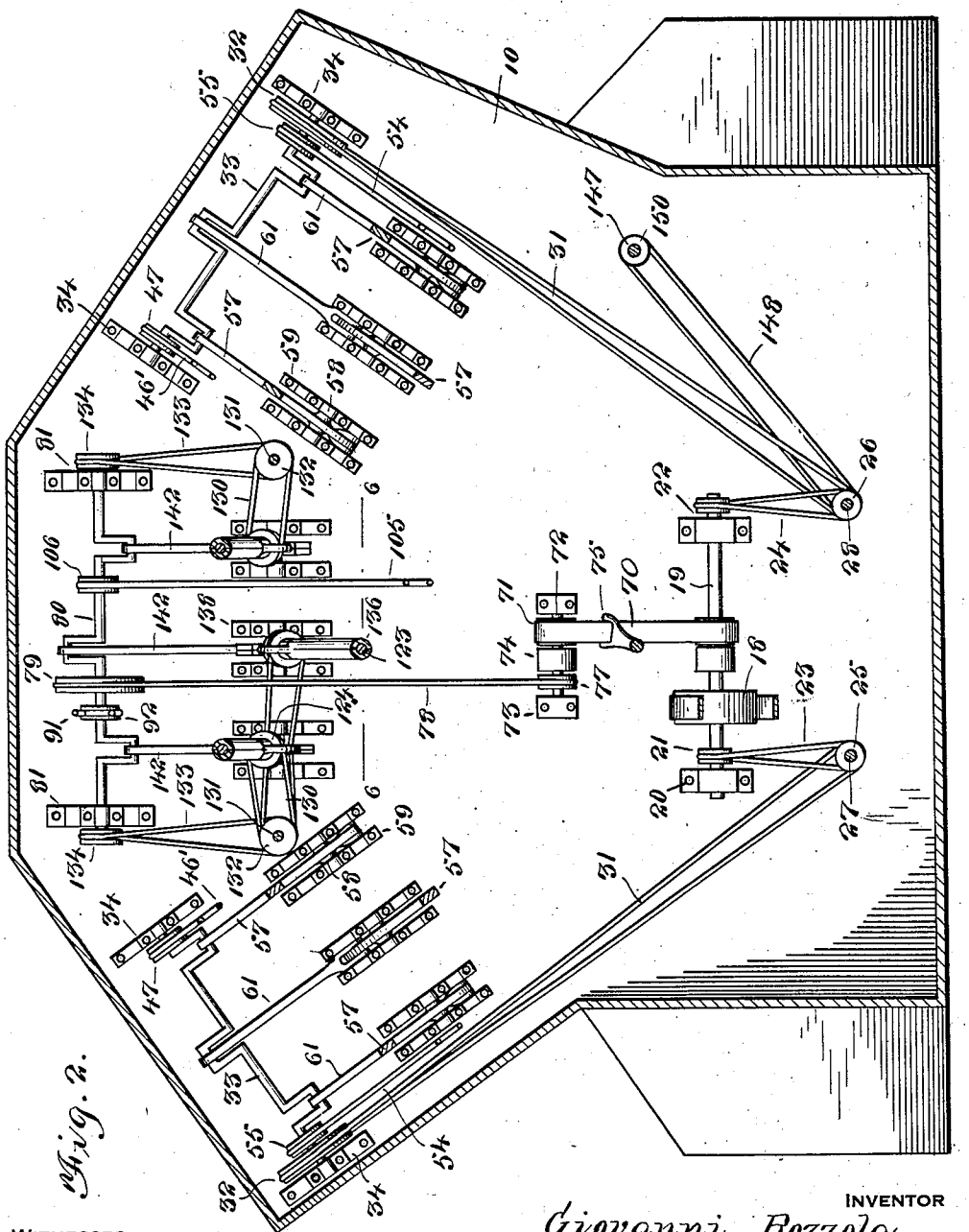


Fig. 2.

WITNESSES

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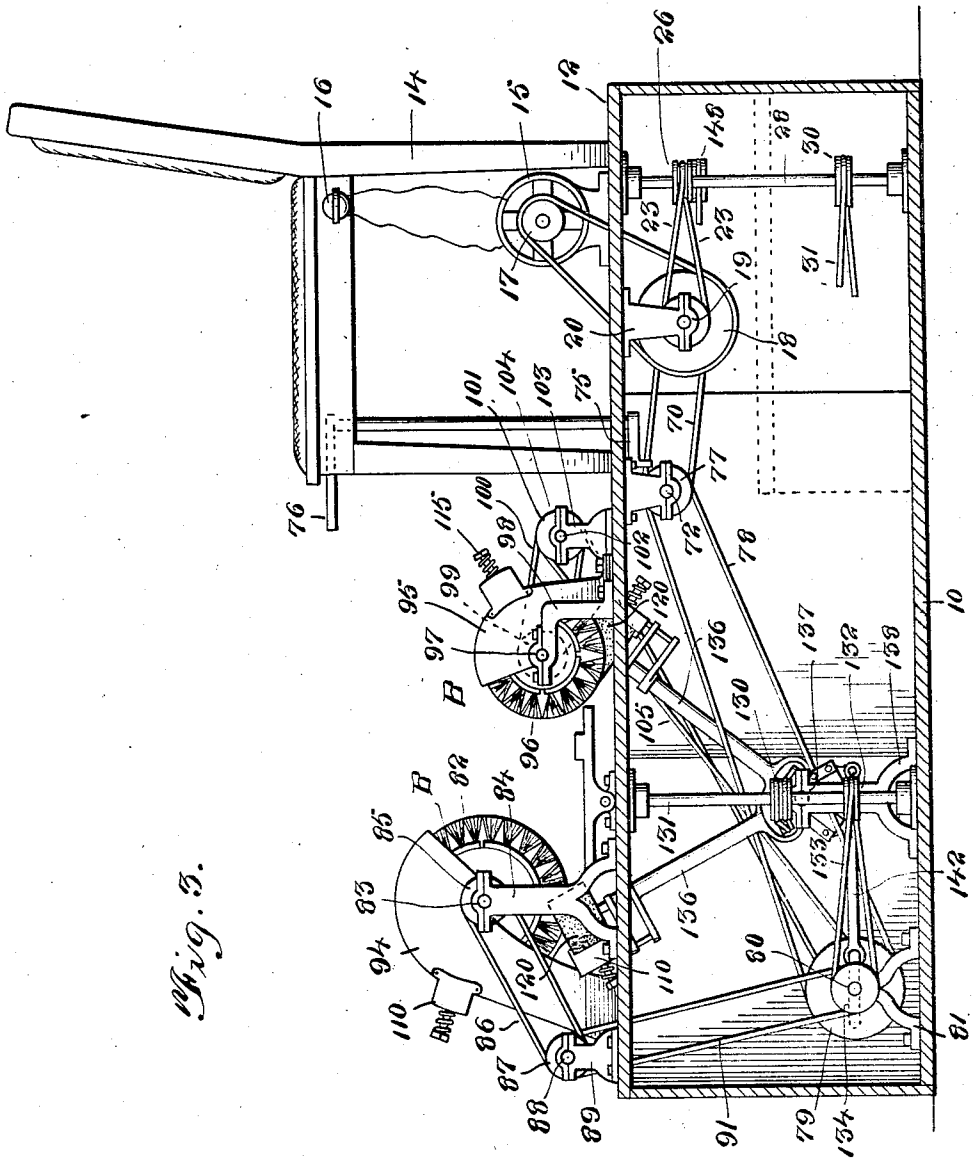


Fig. 3.

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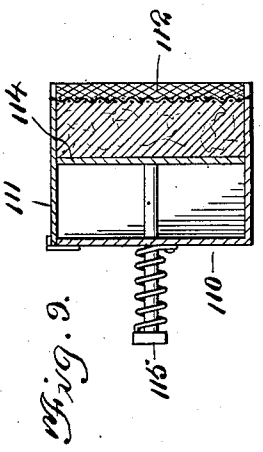


Fig. 3.

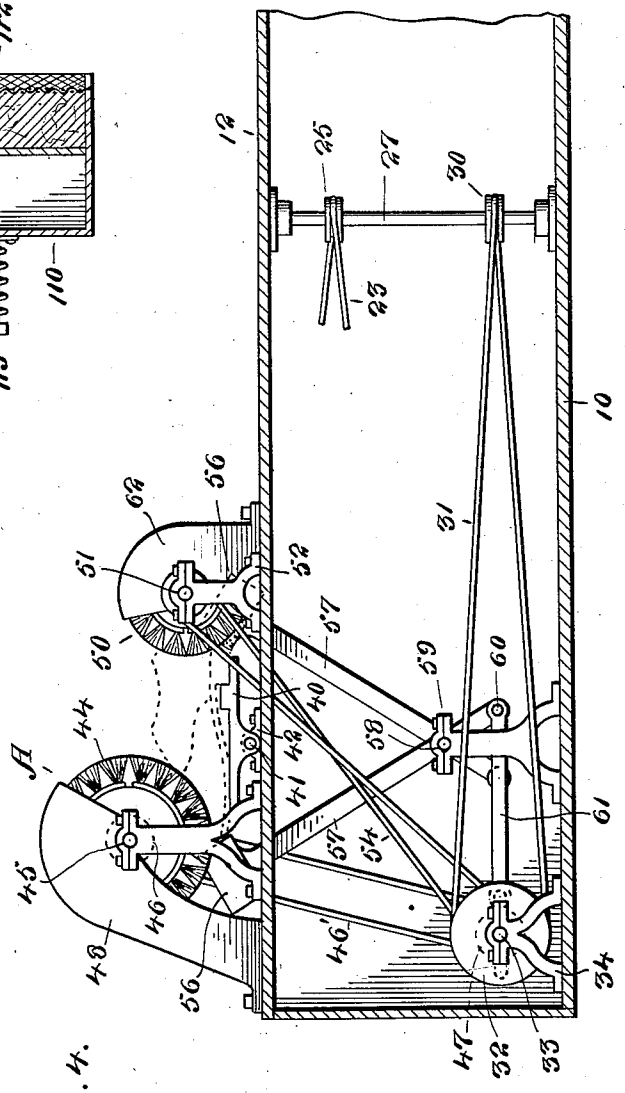


Fig. 4.

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5 SHEETS—SHEET 5.

Fig. 5.

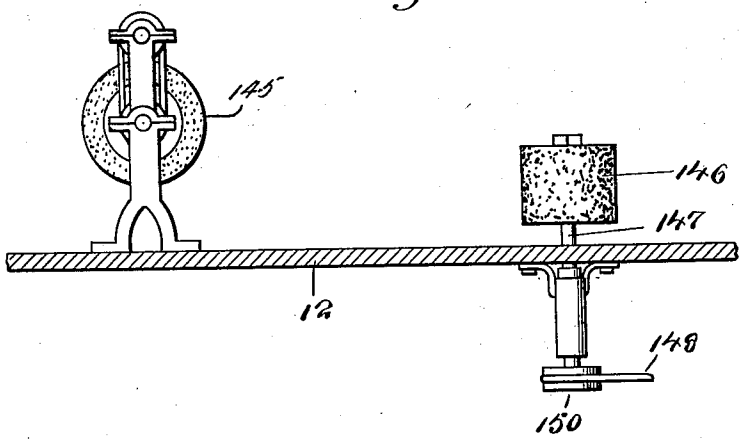


Fig. 7.

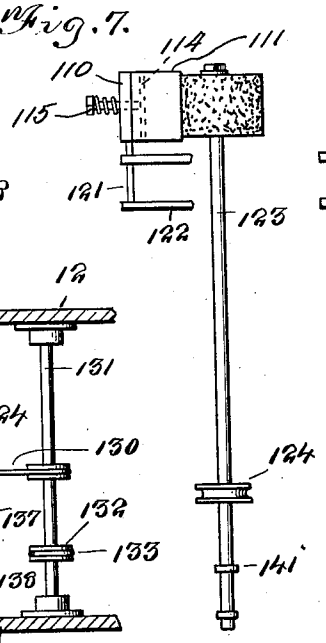


Fig. 6.

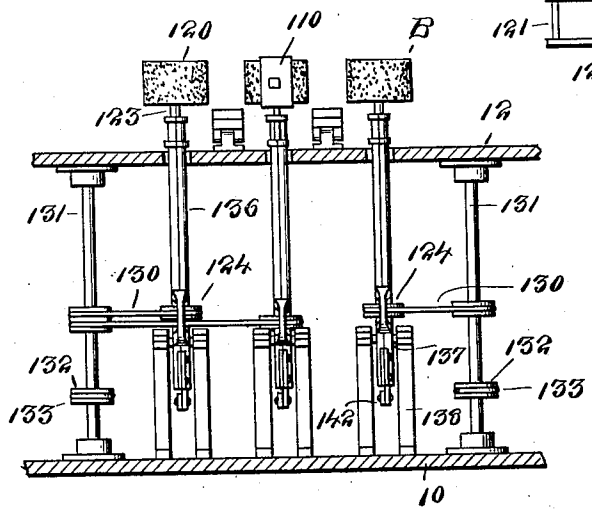
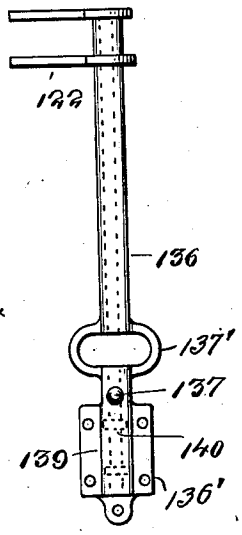


Fig. 8.



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UNITED STATES PATENT OFFICE.

GIOVANNI BOZZOLA, OF PHILADELPHIA, PENNSYLVANIA.

SHOE-POLISHING MACHINE.

1,304,447. Specification of Letters Patent. Patented May 20, 1919.

Application filed September 5, 1917. Serial No. 189,791.

To all whom it may concern:

Be it known that I, GIOVANNI BOZZOLA, a subject of the King of Italy, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Shoe-Polishing Machines, of which the following is a specification.

This invention relates to shoe polishing machines and one of the objects of the invention is to provide a plurality of complete series of brushes, the elements of each series being similar to those of the other series, sufficient modification or variation however being provided in the respective series whereby the first series affords means for effecting the entire cleaning operation, the second series applies the polish, and the third series produces the polishing operation, an additional or supplemental series being provided for completing the operation last mentioned.

A further object is to so locate the respective series that the individual using the machine, seated in a chair at a given point, conveniently moves his foot from one series of brushes to another, the foot rests of the several series being positioned and the reciprocating brushes of the series operating, in a path radiating from a common point or center where the driving mechanism is located, and above which the chair for the person using the machine is placed.

A still further object is to provide for the operation of a given series of brushes independently of the other series.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of elements hereinafter described and claimed.

In the accompanying drawings:

Figure 1 is a top plan view.

Fig. 2 is a horizontal section through the casing and showing in top plan the driving mechanism below the series of brushes of Fig. 1,

Fig. 3 is a vertical section on the line 3—3 of Fig. 1.

Fig. 4 is a section on the line 4—4 of Fig. 1.

Fig. 5 is taken on the line 5—5 of Fig. 1, looking toward the right.

Fig. 6 is partly in section and partly in elevation, and shows means for rotating and oscillating certain of the brushes of the centrally located series.

Figs. 7 and 8 are detail views in elevation showing means for mounting the polish receptacles.

Fig. 9 is a section through one of the polish receptacles.

Corresponding reference characters refer to similar parts throughout the several views, the three principal groups of brushes being shown at A, B and C, respectively.

The series of brushes for cleaning the shoes is designated A, the series for applying polish to the shoes is designated B and the series for polishing the shoes is shown at C.

The framework of the machine comprises a base portion 10 and a platform 12 above which a chair 14 and the various series of brushes are mounted. The driving mechanism is mounted above base 10 and transmits motion to the brushes by means of belts of a suitable character, leather belts of circular cross section usually being employed.

An electric motor 15 is under the control of a switch 16 and the pulley 17 on the armature shaft thereof drives a pulley 18 on a main driving shaft 19, mounted in bearings 20. This shaft 19 carries pulleys 21 and 22 transmitting motion by means of belts 23 and 24 to pulleys 25 and 26 mounted on vertically arranged shafts 27 and 28, each of the shafts last named carrying a pulley 30 imparting motion to a belt 31 and thence to pulley 32 on the shaft 33 mounted in bearing 34 carried by the base 10. Shaft 33 constitutes a crank shaft and operates the various brushes of the series designated A.

The series of brushes A include mechanism similar to that comprising series C, but the brushes of series C are soft, being formed of fine bristles, whereas the brushes

of series A are somewhat coarse, being designed for cleaning purposes.

In series A the foot rest is designated 40 and is pivotally mounted at 41 on a bracket 42 carried by the platform 12. A plurality of circular brushes 44 are mounted on the shaft 45 having its bearings in standards 46 carried by the platform 12. This shaft is driven by means of a belt 46′ passing over pulley 47 on the crank shaft 33. A brush shield or guard is designated 48 and passes over the upper portion of each brush and is secured to the platform, this element being designed to prevent material from flying from the brush and being deposited on the clothing of the person seated in the chair. A plurality of rotating cleaning brushes 50 designed to operate on the heel portion of the shoes are carried by shaft 51 mounted in bearings in standard 52, this shaft being driven by a pulley 53 and a belt 54 passing around pulley 55 on crank shaft 33. Each brush 56 is carried by an arm 57 pivotally mounted at 58 on standards 59 carried by the base, and arm 57 has pivotal connection at 60 with a pitman 61 operated upon crank shaft 33.

The brushes 50 are provided with guards or shields 62 similar to the corresponding members 48 provided for the brushes 44 and already described.

Reference will now be made to the series of brushes shown in the central portion of Fig. 1 and elsewhere, and designed to apply the polish.

The central series of brushes designated B is driven from main shaft 19 by means of a belt 70 passing over pulley 71 on a shaft 72 mounted in bearings 73. Shaft 72 is also provided with a loosely mounted pulley 74 so that the belt imparts no power to the shaft when shifted to the pulley last named, by means of the belt shifting device 75 operated by lever 76. This permits the entire series of brushes designated B to be thrown out of action when series A and series C are in operation.

A pulley 77 on shaft 72 drives a belt 78 passing over pulley 79 on shaft 80 mounted in bearings in standards 81 carried by the base 10.

The rotating brushes 82 are carried on the shaft 83 mounted in bearings on standards 84 carried by the platform 12, this shaft being driven by pulley 85, a belt 86 and a pulley 87. The pulley last named is carried on shaft 88, having bearings in standards 89 and carries also a pulley 90 receiving power from belt 91 and pulley 92 on shaft 80.

Brushes 82 are provided with shields or guards 94 similar to those already described and another set of brushes for operating upon the rear portion of the shoe is provided with shields or guards 95.

The brushes last named are designated 96 and are carried by shaft 97 mounted in bearings on standards 98 supported by the platform 12. This shaft 97 is driven by a pulley 99, a belt 100 and a pulley 101, a shaft 102 having bearings in standards 103. A pulley 104 on this shaft is driven by a crossed belt 105 passing to a pulley 106 on shaft 80.

Each brush included in series B is provided with a polish receptacle including a casing designated 110 and provided with a cover 111 and having a netting 112 across the open face of the casing through which the polish is discharged. This polish is inserted through any suitable opening to be provided in the cover 111 and is supplied in the form of tablet, these tablets being pressed forwardly into positive contact with the netting by means of a plate 114 acting under the influence of a spring pressed pin 115 which extends outwardly from that portion of the casing opposite to the netting. When the polish is to be inserted the pin 115 is moved outwardly drawing the plate to the extreme end of the casing so as to free the slot 113, and the tablets of polish are inserted within the slot and when a sufficient quantity has been supplied, the pin is released and the plate 114 bears against the supply of polish as indicated.

Each casing 110 is carried by one of the shields or guards 94 or 95 of the brushes 82 and 96.

Similar polish receptacles are provided in connection with the brushes 120, these polish receptacles being mounted on standards 121 carried in a bracket 122 which latter includes a plurality of projecting members having apertures through which the shaft 123 extends. This shaft is driven from a pulley 124.

Shaft 123 is rotatable within the tubular member 136, the latter being connected with bracket 136′ by means of a spider 137′.

Each pulley 124 is driven by a belt 130, driven in turn by a pulley on shaft 131, the shaft last named being driven by pulley 132 and belt 133 passing around pulley 134 on crank shaft 80.

Shaft 123 is mounted in a two-part bracket 136 provided with trunnions 137 mounted in bearings 138. The tubular portion 139 of the bracket is grooved at 140 and the grooves engage flanged portions 141 on shafts 123. The bracket 136 and shaft are oscillated by a pitman 142 connected with crank shaft 80, each brush 120 being operated by similar mechanism.

Felt polishing devices for completing the polishing operation are designated 145 and 146. Polisher 146 is mounted on a shaft 147 driven by a belt 148 passing around pulley 150, this belt being driven from shaft 26

previously mentioned. The polishing device 145 is carried on a horizontal shaft, driven from the crank shaft of the series of brushes designated C, and serve to polish the toe portion of the shoe.

In the operation of the machine, or in the use thereof, the individual after seating himself in the chair, presses button 16, starting motor 15, the belt shifting device being thrown by means of element 76 (under the chair seat), in order to shift belt 70 to loose pulley 74. The series of brushes at the right and left of Figs. 1 and 2 will be placed in operation, the series at the left being used for cleaning. The toe, the heel and the sides are cleaned by the brushes previously referred to in detail, and the individual shifts his feet to the foot rests of the central series of brushes. These brushes are thrown into operation by shifting belt 70 to pulley 71, in order to apply the polish, the arrangement of elements for which operation is illustrated in Fig. 3.

Upon completing the application of polish, the individual places his feet on the rests of the series of brushes at the right, designated C (shifting the belt 70 to the loose pulley), and, after the main polishing operation effected by series C, uses, if he desires, the brushes 145 and 146.

What is claimed is:

1. In a machine of the class described, a series of brushes for applying polish, an independent series of polishing brushes, each series including oscillating brushes, the paths of oscillation diverging, in each series, with reference to the paths of oscillation of similar brushes of the remaining series, a main driving shaft, and means operated from said driving shaft for imparting movement to each series of brushes independently of the other series.

2. In a machine of the class described, a series of brushes for applying polish, a series of polishing brushes, the respective series being arranged radially with reference to adjacent series and with reference to a central point, a main driving shaft, a crank shaft for operating each series of brushes independently of the other series, and means driven from the main shaft for operating each crank shaft independently of the other.

3. In a machine of the class described, a series of brushes for applying polish, a series of polishing brushes, each series including rotary and oscillating brushes and the brushes last named operating in a direction at an angle to the oscillating brushes of the adjacent series, a crank shaft for driving each series of brushes independently of the other series, reciprocating means connected with each crank shaft and oscillating certain of the brushes in the series associated with said shaft, a main driving shaft, and means operated thereby for driving each crank shaft independently of the other crank shaft.

4. In a machine of the class described, a plurality of series of brushes, each series including rotary brushes and oscillating brushes, said series being located adjacent to each other and the oscillating brushes moving in the same relative path with reference to a central point, a crank shaft for operating each series independently of the other series, a main driving shaft, means for driving certain of the crank shafts directly therefrom, means operating the remaining crank shaft from the said driving shaft, and means for disconnecting the operating means.

5. In a machine of the class described, a series of brushes for applying polish, a series of polishing brushes, said series being located adjacent to each other and in the same relative position with reference to a central point, a crank shaft for operating the brushes of each series, means connected with each crank shaft for applying rotary movement to certain of the brushes of each series, means connected with the crank shaft of each series for applying an oscillating movement to certain of the brushes of said series, a main driving shaft, and means connected therewith for imparting movement to said crank shafts.

6. In a machine of the class described, a plurality of rotary brushes, a plurality of oscillating and rotating brushes, a crank shaft, and means for driving the brushes first named from the crank shaft, and mechanism for driving the brushes last named from the crank shaft and permitting the simultaneous oscillation of the brushes mounted for such movement.

7. In a machine of the class described, a plurality of brushes, a plurality of oscillating and rotating brushes, shafts for the brushes last named, polish receptacles carried by the shafts, and means for causing the simultaneous oscillation and rotation of the brushes, the path of oscillation being curved and extending lengthwise of the shoe being operated upon.

8. In a machine of the class described, a plurality of rotating brushes, a plurality of oscillating and rotating brushes, shafts for the brushes last named, brackets for mounting said shafts, means for oscillating the brackets, and means for rotating the shafts and permitting the simultaneous oscillation thereof, the path of oscillation being curved and extending lengthwise of the shoe being operated upon.

9. In a machine of the class described, a crank shaft, a vertically mounted shaft driven thereby, a pivotally mounted bracket, a shaft mounted for rotation therein, a

brush carried by the shaft, a pitman connected with the bracket and with the crank shaft, and means for rotating the shaft within the bracket from the vertical shaft while said bracket is being oscillated.

10. In a machine of the class described, a crank shaft, toe and heel brushes operated from said crank shaft, an oscillating and rotating brush, and means for effecting the simultaneous oscillating and rotating movement thereof, said means including a pivotally mounted bracket, and means for rotatably mounting therein the brush last named.

In testimony whereof I affix my signature.

GIOVANNI BOZZOLA.