G. GERALDSON.

SHOE CLEANING MACHINE.

APPLICATION FILED APR. 9, 1909.

965,176.

Patented July 26, 1910.

Fig. 1.

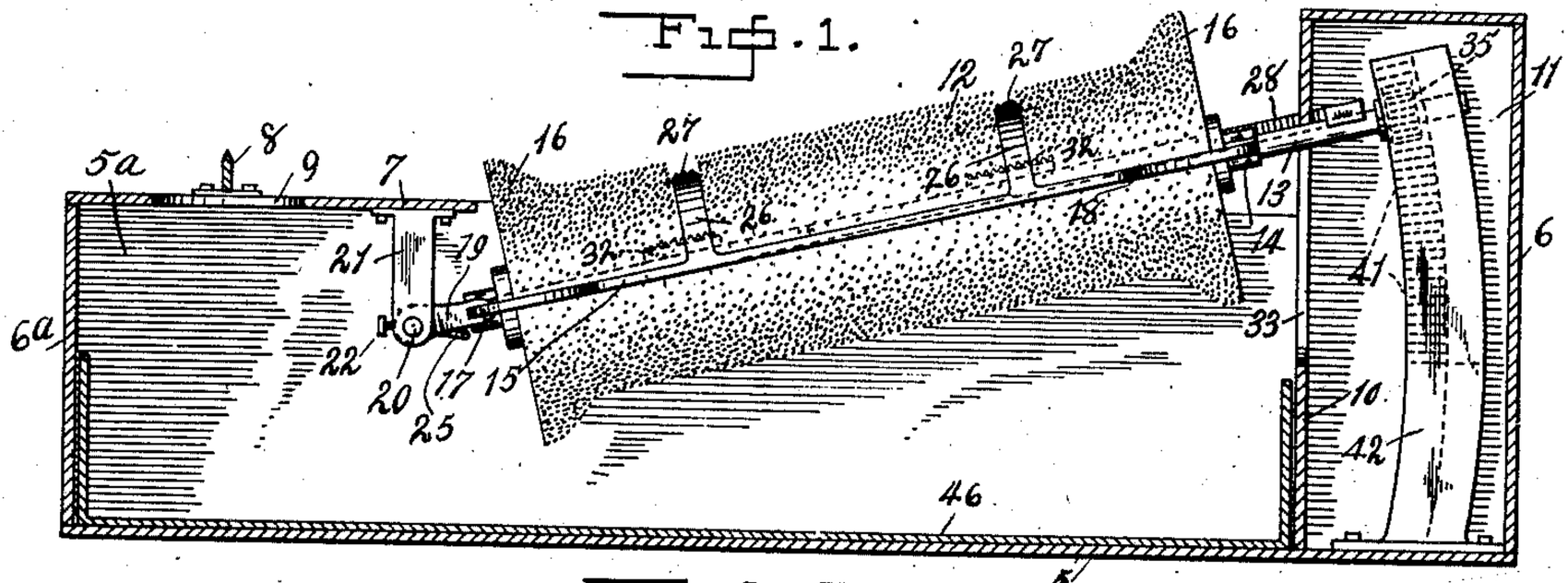


Fig. 2.

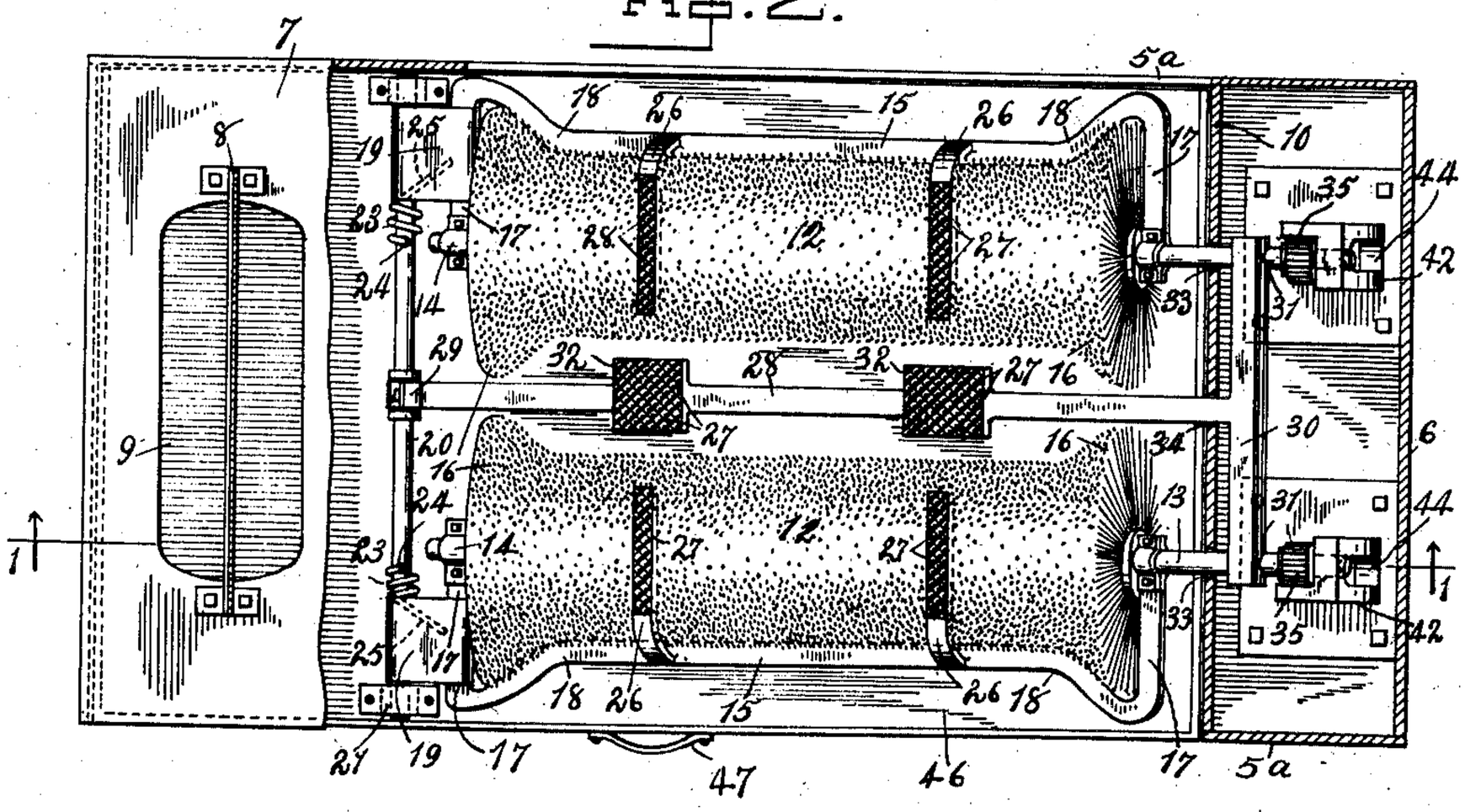


Fig. 3.

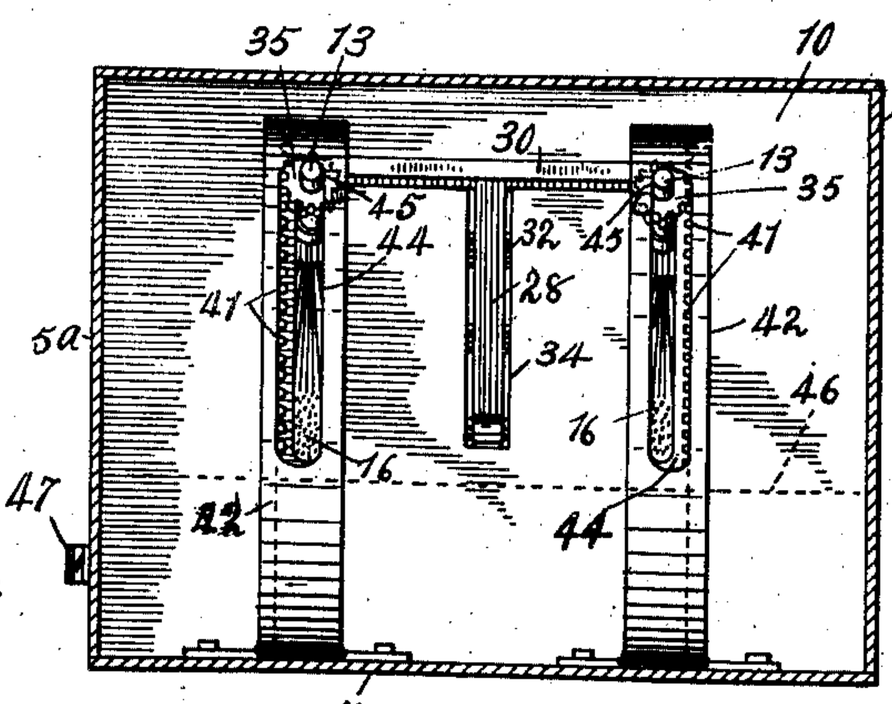
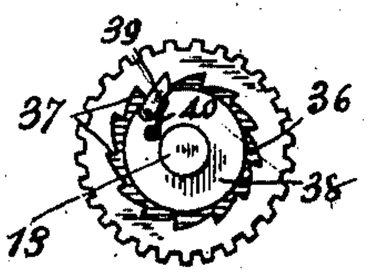


Fig. 4.



Witnesses:

M. J. Marty

Chas. F. Barrett

Inventor

Gerald Geraldson

By Frederick Benjamin

Atty.

UNITED STATES PATENT OFFICE.

GERALD GERALDSON, OF NEWCASTLE, CALIFORNIA.

SHOE-CLEANING MACHINE.

965,176. Specification of Letters Patent. Patented July 26, 1910.

Application filed April 9, 1909. Serial No. 488,846.

To all whom it may concern:

Be it known that I, GERALD GERALDSON, a citizen of the United States, residing at Newcastle, in the county of Placer and State of California, have invented certain new and useful Improvements in Shoe-Cleaning Machines, of which the following is a specification.

My invention relates to shoe cleaning devices and has special reference to appliances adapted for removing dust and dirt from a shoe while it is on the wearer's foot, such appliances being particularly designed to be placed at the house door, or other convenient location in order that each individual before entering may thoroughly clean his shoes by scraping and brushing, and the device is so constructed that the operation of cleaning may be quickly and effectively accomplished with the expenditure of a minimum amount of muscular effort.

Other objects of the invention, stated more in detail, are:—to provide a device of the character stated that will thoroughly clean the soles of the shoes as well as the uppers; to furnish means for keeping the brushes used for cleaning free from accumulations of dust, and to furnish a suitable housing for supporting and protecting the mechanical parts.

Further objects are to furnish a suitable scraper to be employed for removing the coarser accumulations of mud and dirt from the sole of the shoe, and to supply a removable receptacle to receive the dirt as it falls from the scraper and brushes.

I accomplish the desired results by means of the apparatus illustrated in the accompanying drawing, which forms a part of this application, the essential details of construction being shown in the following views:—

Figure 1 is a longitudinal section of the entire apparatus taken on the line of 1—1 of Fig. 2; Fig. 2 is a top plan view, with some portions of the casing removed or broken away to disclose the mechanism beneath; Fig. 3 is an end elevation with the end of the casing removed, and Fig. 4 is a fragmentary view showing the pawl and ratchet movement.

Referring to the details of the drawing, the numeral 5 indicates the bottom plate, 5^a the sides and 6, 6^a, the front and rear ends respectively of a suitable housing or case, in which the mechanical parts are mounted. The rear portion of the casing is covered to a limited extent with a top plate 7, leaving the larger proportion of the case open above. Upon the upper face of the said top plate 7 is mounted a scraper 8, of usual form and below this scraper the plate is cut away to form an opening 9, through which the dirt removed by the scraper will fall. The front end 6 of the casing extends higher than the rear, and the interior of the casing is divided by a transverse partition 10 to form a closed compartment 11.

Arranged in the opening of the casing between the plate 7 and the partition 10 are two cylindrical brushes 12, mounted on shafts 13, journaled in boxes 14, supported by frame members 15. The said brushes are constructed of suitable bristles, and the latter are gradually elongated as they approach the ends of the brushes to form enlargements 16, the brushes thus being suited to more effectively engage the shoe surface, both at the heel and toe, than when the form is regularly cylindrical. The frames 15 are bent at each end to form straight arms 17 and the portions connecting these arms are bent at 18 so that each frame follows the contour of its brush and lies in contact with the tips of the bristles from end to end of the brush and thus performs the office of a cleaner by knocking off the loose dirt and dust as the device is rotated. Each frame 15 is supported at its lower end by a block or lug 19 which is solidly secured at one margin to the lower arm 17 of the frame, and near the other edge is bored to receive a transverse shaft 20, mounted in hangers 21, attached to the under side of said plate 7, said shaft being adjustably fixed in its bearings by suitable set screws 22. The said blocks 19 are loosely mounted on the shaft 20, so that each brush frame 15 is rockable on the said shaft, and is maintained in its upper or initial position by a coiled spring 23, having one end 24 inserted in a hole in the shaft and the other 25 engaging the under side of the adjacent block 19, the tension of the spring being regulated as required by loosening the set screws 22 and turning the shaft 20. Each frame 15 is supplied with a pair of arms 26 which are bent to extend transversely above the brushes and are set low enough in the bristles to permit the latter to come in contact with the sole of a shoe when placed upon said arms. The upper surface of each arm is roughened or pro-

vided with pyramid shaped points 27 to permit the shoe from slipping. Extending longitudinally between the brushes is an operating pedal consisting of a rock-lever 28 journaled at the lower extremity 29 upon the fixed shaft 20 and at the upper end terminating in a cross arm 30 projecting equally upon both sides of the said lever and resting at the ends upon the brush shafts 13 but not attached thereto, the under surfaces of the cross arm being supplied with suitable half round retaining notches 31 where they engage the said shafts. The said rock-lever 28 is furnished with suitable foot plates 32, having roughened surfaces or points 27. The upper ends of the brush shafts 13 project within the compartment or housing 11, suitable vertical slots 33 being provided in the partition 10 for this purpose, and the lever 28 also projects through a similar slot 34 in said partition, so that the cross arm 30 is entirely within said housing 11. Upon the upper end of each shaft 13 is loosely mounted a pinion 35 counterbored upon one side to form a recess 36, provided with an internal ratchet 37. Upon the brush shaft within this recess is mounted a fixed pawl disk 38, which carries a pawl 39, held in engagement with the ratchet by a suitable spring 40. The said pinions are adapted to engage racks 41, formed on rack bars 42, fastened to the bottom of the compartment 11 and suitably curved to form arcs concentric with the axis of the fixed shaft 20 on which the brush frames 15 rock. The extremity of each shaft is projected into a slot 44 in the rack bar 42, and has a sliding contact with one side of the slot, as indicated at 45, thus preventing the pinion 35 from becoming disengaged from its rack.

In order to facilitate the removal of the dirt which falls from the brushes and scraper I provide a dirt pan 46 which is introduced through a suitable opening in the side of the casing and rests upon the floor of the main compartment. The pan is furnished with a convenient handle 47, and the side opposite the handle is left open so that the dirt may be readily removed from the pan when the latter has been withdrawn from the casing.

The operation of the machine is as follows:—The scraper is first brought into use to remove any excessive accumulation of mud or dirt from the shoe. The operator then places his foot upon the plates 32, and presses the lever 28 downward to the limit of its stroke, the arm 30 carrying the brush frames and brushes with it, and the pinions 35, engaging their respective racks will cause a rapid rotary movement of the brushes thus effectually brushing and cleaning the shoe which rests upon the lever. Upon releasing the pressure of the foot the springs 23 will restore the brushes and lever to their initial position, the pawls 39 at the same time yielding so that there will be no rotary movement of the brushes on the up stroke. The gearing and ratchet mechanisms are so arranged that the brushes on the downward stroke will revolve in an opposite direction and toward the shoe so that the dirt will be carried downward to the pan beneath, and the action of the frames 15 will be to knock the loose dirt from the bristles and keep the brushes in good order for effective work. To clean the sole of the shoe which is an important function of the device, the foot is placed over one of the brushes with the sole of the shoe resting upon the arms and the brush alternately depressed and released in the same manner as before. This movement does not affect the opposite brush since the arm 30 is not attached to the shafts 13.

Having thus described my invention, what I claim as new, is—

1. In a shoe-cleaning machine, the combination of a plurality of spring-held rock-frames adapted to be moved independently, a brush journaled in each of said frames, means for rotating said brushes when their respective frames are depressed, and means for operating said frames simultaneously.

2. In a shoe cleaning machine, the combination with a suitable casing, of a pair of rotatable brushes having inclined axes, rock-frames supporting said brushes, said frames comprising members bent to conform to the contour of the brushes and in contact therewith, operating arms attached to each of the rock-frames and extending into the bristles of their corresponding brush, means for rotating the brushes when their respective frames are depressed, and a scraper mounted on said casing.

3. In a shoe-cleaning machine, the combination with a suitable casing, of a pair of rotatable brushes having their axes normally inclined, independently movable rock-frames supporting the brushes, said frames conforming to the contour of the brushes and contacting therewith, arms attached to each of the rock-frames and extending into the bristles of the adjacent brush, means for rotating the brushes when their respective frames are depressed, and means for operating both frames simultaneously.

4. In a shoe-cleaning machine, the combination with a suitable casing, of a shaft fixed transversely to the casing, a pair of brush-frames journaled to rock on said shaft, a brush journaled in each of said frames, a gear loosely mounted on the shaft of each brush, a ratchet on said gear, a pawl connecting the brush shaft with the ratchet, fixed racks engaging said gears, and means for depressing said brush frames, simultaneously.

5. In a shoe-cleaning machine, the combi-

nation with a suitable casing, of a fixed shaft, a pair of brush-frames journaled to rock on said shaft, a brush journaled in each of said frames, gears loosely mounted on the shafts of said brushes, ratchet and pawl connection between the shafts and their respective gears, fixed racks engaged by the gears, a rock-lever arranged between said brushes and having its free end supported by the brush shafts but not attached thereto, and foot plates on said rock-lever.

In testimony whereof I affix my signature in the presence of two witnesses.

GERALD GERALDSON.

Witnesses:
GEO. H. KELLOGG,
S. L. DRAPER.