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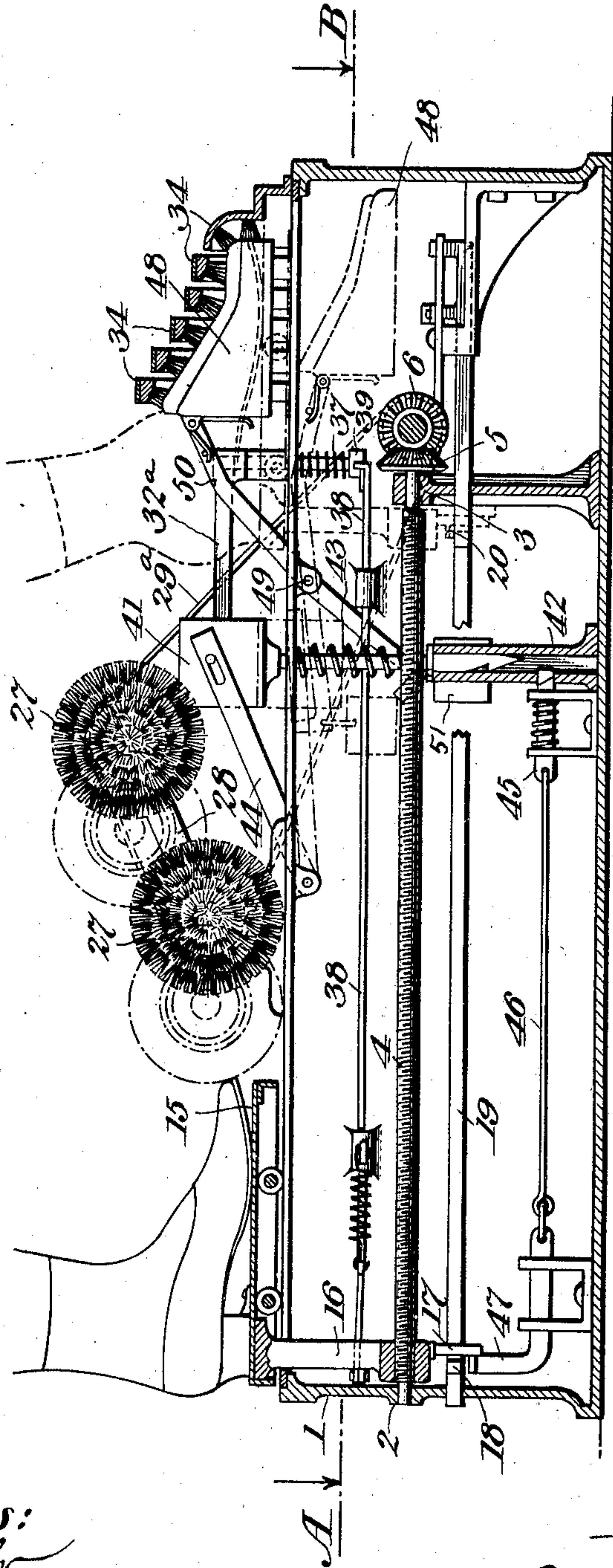
PATENTED JULY 9, 1907.

O. MÜLLER.
MACHINE FOR CLEANING FOOTWEAR.

APPLICATION FILED OCT. 31, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



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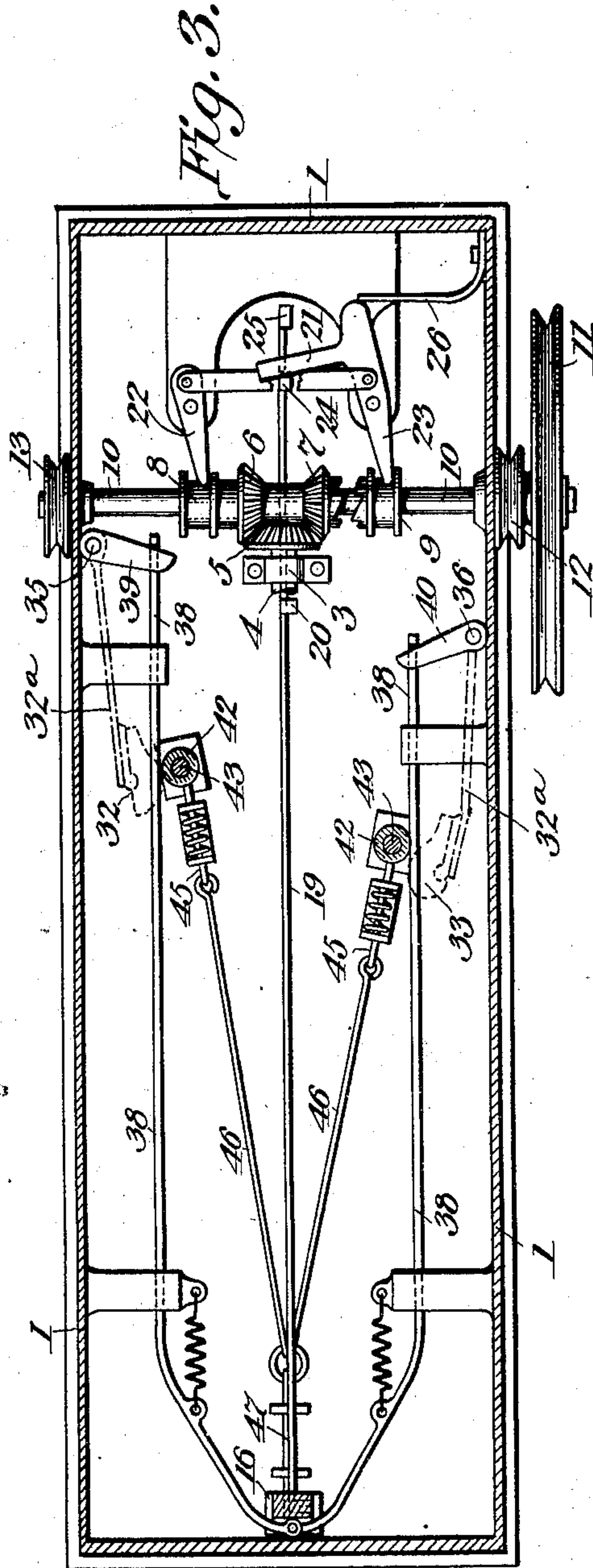
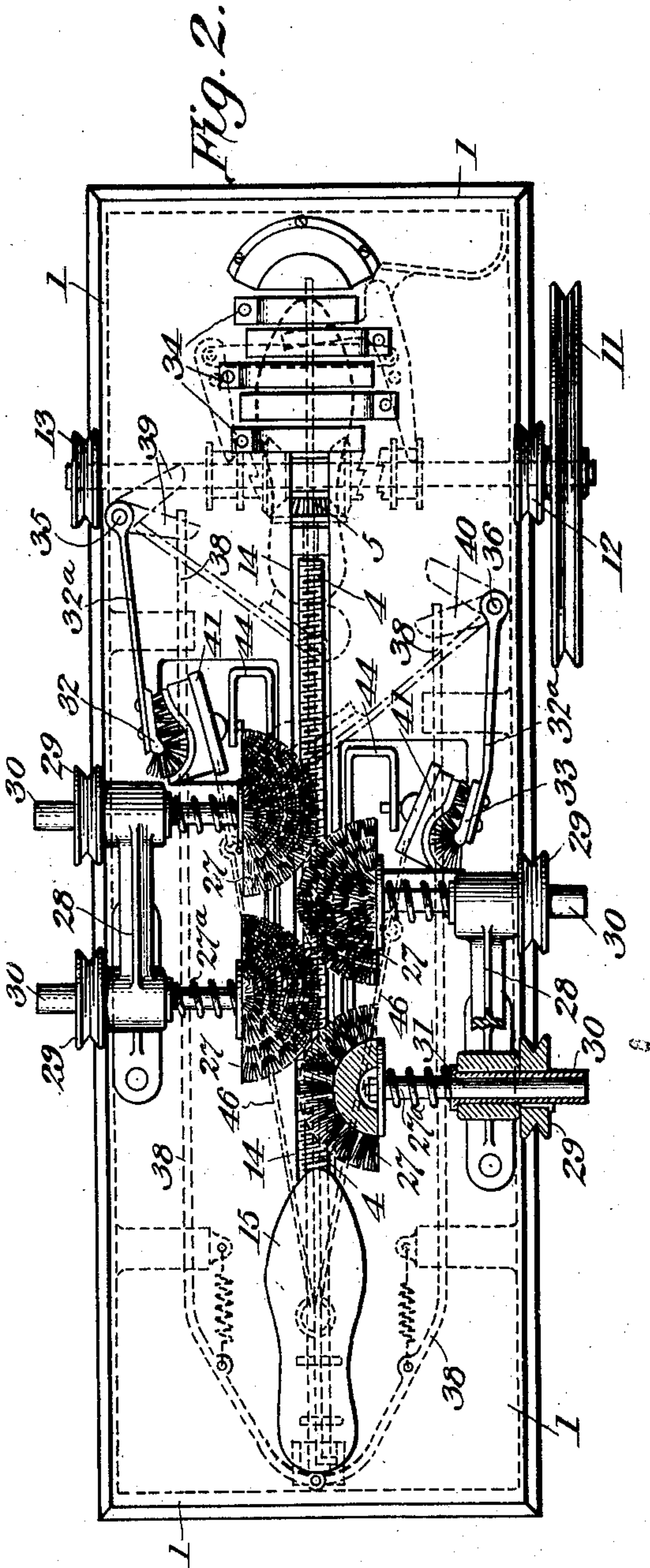
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UNITED STATES PATENT OFFICE.

OTTO MÜLLER, OF CHARLOTTENBURG, GERMANY.

MACHINE FOR CLEANING FOOTWEAR.

No. 859,458.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed October 31, 1905. Serial No. 285,346.

To all whom it may concern:

Be it known that I, OTTO MÜLLER, a subject of the German Emperor, residing at Charlottenburg, Kurfürstenstrasse 101, Kingdom of Prussia, Empire of Germany, gentleman living on his interest, have invented new and useful Improvements in a new or Improved Machine for Cleaning Footwear, of which the following is a specification.

The boot or the like to be cleaned is placed on a platform and passes with the latter first through a series of pairs of rotary elastic brushes, which free it from dust, dirt, etc. and at the end of this movement into a fixed shoe-shaped blacking brush, or series of brushes which blackens the front of the boot. After changing the direction of movement by the automatic operation of a clutch, the back of the boot is also blackened by means of oscillating heel-brushes which are freed in the meantime, whereupon the shoe returns and passes a second time through the first mentioned rotary brushes, which polish it. This being accomplished the boot is used for stopping the operating mechanism by means of the aforesaid platform and renders said mechanism ready for a new cycle of operations.

In the improved machine the whole cleaning process consisting in removing the dirt or dust from the boot, providing it with blacking or other polish and subsequently polishing it is effected during one reciprocating movement of the boot.

One form of construction of the machine is shown as an example in the annexed drawing in which:

Figure 1. is a vertical section, Fig. 2. a plan, Fig. 3. a section on the line A—B of Fig. 1.

Within the casing 1 is the screwed spindle 4 serving as a transporting element and mounted in bearings 2 and 3. Said screw 4 is operated in one or other direction by reversible gear consisting of the three beveled wheels 5, 6 and 7, according to whether one or the other of two clutches 8 or 9, is thrown into gear, said clutches being mounted on the main driving shaft 10. On the latter, outside the casing, are also mounted a rope or belt pulley or disk 11, round which is passed the driving belt or the like, and two smaller rope disks or pulleys 12 and 13, for transmitting motion to the rotary brushes before referred to.

The casing 1 is provided at the top with a longitudinal slot 14 (Fig. 2) above which runs a platform 15 provided with rollers, and adapted to receive the boot to be cleaned. This platform 15 is provided with a depending arm 16, the lower part of which has a threaded socket in which the screw spindle 4 engages. The arm 16 is also provided with an extension or detent 17, adapted to engage a stop or nose 18 on the controlling rod 19 when said arm is moved back. On said rod 19 adjacent to the reversing gear there is located a second

nose or stop 20 (Figs. 1 and 3) against which the extension 17 strikes at the end of the forward movement, and carries said rod 19 along for a short distance.

The reversing gear includes two clutches 8, 9, which are engaged respectively by levers 22, 23. These levers are connected as shown and an arm 21 on the lever 23 extends into the path of two noses 24, 25, on the rod 19. Therefore as said rod is moved longitudinally it will engage said arm 21 and actuate the levers 22, 23 to properly shift the clutches.

To the casing 1 is fixed a flat spring 26, which, owing to the movement just described, has been brought out of unstable equilibrium and effects the engagement of the desired clutch 8 or 9 according to the position of the clutch-fingers 22 and 23.

In the path of the boot on the platform above the casing cover are hemispherical rotary brushes 27, which, as shown in Figs. 1 and 2, are situated in pairs on supporting arms or brackets 28 and further, as shown in Fig. 2 are not situated opposite one another. These brushes 27 are rotated by the pulleys 29 by cords, belts, 29^a, or the like passing round said pulleys 29 and also round the disks 12 and 13 before referred to. The brushes 27 themselves consist each of a hemispherical brush-body mounted on a shaft or spindle 31 mounted in a sleeve 30 (Fig. 2) and forced by a spring 27^a in the direction of the boot, said spindle being prevented from falling out of the sleeve 30 by a catch or other suitable means. The sleeves 30 serve as axles for the disks 29.

The boot is provided with blacking by means of a device consisting of two heel-brushes 32 and 33 and a heelless shoe-shaped brush 34 for the front part of the boot. The said brushes 32, 33 are mounted on arms 32^a mounted on rotatable axles 35 and 36 and are forced by torsion springs 37 (Fig. 1) into the path of the boot until they reach the position shown in Fig. 2 in dotted lines respectively. When said heel brushes 32, 33 have applied the blacking, on the return of the platform 15 they are pulled back into their position of rest by rods 38, which are provided with suitable projections adapted to engage arms 39 and 40 mounted on the axles 35, 36 of the brushes. At the end of the machine frame is situated the previously mentioned shoe-shaped brush 34 for the fore-part of the boot, said brush being adapted to black the "upper" of the boot.

The heel-brushes 32 and 33 and the brush 34 are supplied with blacking or the like by means of movable blacking troughs or receptacles. The receptacles for the brushes 32 and 33, which in the position of rest of the latter serve at the same time as supports therefor, consist of sheet-metal casings or the like 41. (Figs. 1 and 2) mounted on rods 43, spring-pressed in an up-

ward direction and guided in standards 42. The said casings are adapted by means of single-armed suitably bent levers 44 (Figs. 1 and 2) to be pressed downwards into the position shown in dotted lines in Fig. 1, in which position they release the aforesaid heel-brushes and allow them to be moved forwards or inwards into the position shown in dotted lines in Fig. 2. In their lower position the casings 41 are held by spring bolts 45, adapted to be withdrawn by the nose 17 by means of rods 46 and a slide 47. The brush 34 before referred to is supplied with its blacking from a sheet metal casing 48, pivoted to a lever 50 rotatable about point 49. The free end of the lever 50 is provided with a weight 51, which presses the casing 48 containing the blacking against the bristles of the brush.

The action of the machine or the process of cleaning a boot placed on the platform 15 is as follows: On starting the actuating driving motor, which for example may consist of a coin-freed electromotor or the like, the screwed spindle 4 is rotated so that the socket or nut thereon, which is connected to the platform 15 by means of the arm 16 travels in a forward direction towards the rotary brushes 27. The boot then passes through the pairs of hemispherical brushes 27 which free it from mud, dust or the like, whereupon the platform 15 abuts with its front edge against the levers 44 and presses them downwards. This latter movement is imparted to the casings 41 containing blacking for the heel-brushes, so that the latter are released one after the other and move forward under the influence of the springs 37 against the heel portion of the boot and apply blacking to that portion. The platform 15 continuing to travel in the same direction towards the brush 34, makes contact with the lever 50, which carries the casing 48 downwards into the position shown in dotted lines in Fig. 1, and the boot passes into the blacking brush 34. The boot has now reached its end position, and the extension 17 on the arm 16 has arrived against the nose 20 on the rod 19 (Fig. 1) and has effected the reversal of the clutch and consequently of the direction of revolution of the screwed spindle 4. The boot is thus caused to begin its return movement, pushes the heel-brushes back somewhat and passes a second time between the rotary brushes 27, by which it is polished on all sides, and again arrives at the end position shown in Fig. 1. The blacking casing 48 for the brush 34 has in the meantime according to the return movement of the platform been raised again and brought against the brush 34, whereas the heel-brushes 32, and 33 have been pulled back into the position of rest shown in dotted lines in Fig. 3 by means of the pull rods 38. When the platform 15 reaches its end position, the arrival of the nose 17 against the slide 47 and the nose 18 on the rod 19 produces on one hand the raising of the blacking casings 41, which now form supports for the heel brushes, and on the other hand the reversal of the gear so that the machine is made ready for a new cycle of operations. A switch can be connected to the platform 15 adapted to cut out the electro-motor after one cycle of operations said motor being used for instance as the driving medium and starting the machine only after insertion of another coin.

I am aware that prior to my invention machines for cleaning, blacking and polishing foot-wear have been

made with a reciprocating platform operating in conjunction with rotating and fixed brushes. I therefore do not claim such a combination broadly; but

I claim:

1. In a machine for cleaning foot-wear, the combination of a casing, a platform for foot-wear movable thereon, a driving shaft mounted in said casing, transporting means in said casing, reversible gear engaging said shaft and said transporting means, means movably connecting said platform and said transporting means, a plurality of revoluble resilient cleaning and polishing brushes mounted on said casing, means adapted to drive said brushes from said driving shaft, an "upper" blacking brush mounted on said casing, a plurality of movable heel blacking brushes, means adapted to be controlled by said platform adapted to move said heel brushes, whereby when said driving shaft is rotated said platform is reciprocated and said foot-wear on said platform is cleaned, blacked and polished, in one cycle of operations, substantially as described.
2. In a machine for cleaning foot-wear, the combination of a casing, a platform for foot-wear movable thereon, a driving shaft mounted in said casing, a screwed spindle in said casing, reversible gear engaging said shaft and said screwed spindle, a screwed socket provided with an arm movably connecting said screwed spindle and said platform, a plurality of revoluble resilient cleaning and polishing brushes mounted on said casing, means adapted to drive said brushes from said driving shaft, an "upper" blacking brush mounted on said casing, a plurality of movable heel blacking brushes, means adapted to be controlled by said platform adapted to move said heel brushes, whereby when said driving shaft is rotated said platform is reciprocated and said foot-wear on said platform is cleaned, blacked and polished in one cycle of operations, substantially as described.
3. In a machine for cleaning foot-wear, the combination of a casing, a platform for foot-wear movable thereon, a driving shaft mounted in said casing, a screwed spindle in said casing, reversible gear engaging said shaft and said screwed spindle, a screwed socket provided with an arm movably connecting said screwed spindle and said platform, a plurality of revoluble resilient cleaning and polishing brushes mounted on said casing, means adapted to drive same from said driving shaft, an "upper" blacking brush mounted on said casing, a plurality of movable spring-actuated heel blacking brushes, means adapted to be controlled by said platform adapted to move said heel brushes, whereby when said driving shaft is rotated said platform is reciprocated and said foot-wear on said platform is cleaned, blacked and polished in one cycle of operations, substantially as described.
4. In a machine for cleaning foot-wear, the combination of a casing, a platform for foot-wear movable thereon, a driving shaft mounted in said casing, a screwed spindle in said casing, reversible gear engaging said shaft and said screwed spindle, a screwed socket provided with an arm movably connecting said screwed spindle and said platform, a plurality of revoluble resilient cleaning and polishing brushes mounted on said casing, means adapted to drive same from said driving shaft, an "upper" blacking brush mounted on said casing, a plurality of movable spring-actuated heel blacking brushes, revoluble means carrying the latter, arms on said latter means, rods engaging said latter arms, said rods being adapted to be engaged by said screwed socket, whereby when said driving shaft is rotated said platform is reciprocated and said foot-wear on said platform is cleaned, blacked and polished in one cycle of operations, substantially as described.
5. In a machine for cleaning foot-wear, the combination of a casing, a platform (15) for foot-wear movable thereon, a driving shaft (10) mounted in said casing, a screwed spindle (4) in said casing, reversible gear engaging said shaft (10) and said screwed spindle (4), means adapted to operate said reversing gear, a screwed socket provided with an arm (16) movably connecting said platform and said screwed spindle, a detent (17) on said arm, a plurality of revoluble resilient cleaning and polishing brushes mounted on said casing, means adapted to drive the same from said driving shaft, an "upper" blacking brush mounted on

said casing, a plurality of heel blacking brushes, arms (32^a) carrying the latter, revoluble axles (35, 36) provided with arms (39, 40) carrying the latter, torsion springs on said axles, rods (38) engaging said arms (39, 40) adapted to be engaged by said detent (17), a movable controlling rod (19) provided with stops (18, 20, 24, 25), said stops (24, 25) being adapted to engage said means adapted to operate said reversing gear, and said stops (18, 20) being adapted to be engaged by said detent (17) whereby said rod (19) may be moved, whereby when said driving shaft is rotated said platform is reciprocated and said foot-wear on said platform is cleaned, blacked and polished in one cycle of operations, substantially as described.

6. In a machine for cleaning foot-wear, the combination of a casing, a platform for foot-wear movable thereon, a driving shaft mounted in said casing, a screwed spindle in said casing, reversible gear engaging said shaft and said screwed spindle, a screwed socket provided with an arm movably connecting said screwed spindle and said platform, a plurality of revoluble resilient cleaning and polishing brushes mounted on said casing, means adapted to drive said brushes from said driving shaft, an "upper" blacking brush mounted on said casing, a blacking receptacle adapted to engage the latter brush, means carrying said receptacle adapted to be moved by said platform whereby said receptacle is removed from said brush, a plurality of movable heel blacking brushes, a plurality of blacking receptacles each adapted to engage one of said heel brushes, spring-actuated means carrying said latter receptacles, means adapted to control said latter spring-actuated means adapted to be moved by said platform whereby said latter blacking receptacles are removed from their respective brushes, means adapted to be controlled by said platform adapted to move said heel brushes, whereby when said driving shaft is rotated said platform

is reciprocated and said footwear on said platform is cleaned, blacked and polished in one cycle of operations, substantially as described.

7. In a machine for cleaning foot-wear, the combination of a casing, a platform for foot-wear movable thereon, a driving shaft mounted in said casing, a screwed spindle in said casing, reversible gear engaging said shaft and said screwed spindle, a screwed socket provided with an arm movably connecting said screwed spindle and said platform, a plurality of revoluble resilient cleaning and polishing brushes mounted on said casing, means adapted to drive said brushes from said driving shaft, an "upper" blacking brush mounted on said casing, a blacking receptacle adapted to engage the latter brush, a lever pivoted in said casing carrying said receptacle adapted to be moved by said platform in the forward position of the latter whereby said receptacle is removed from said brush, a plurality of movable heel blacking brushes, a plurality of blacking receptacles each adapted to engage one of said heel brushes, a plurality of standards (42), upward spring-pressed rods (43) movable in said standards carrying said receptacles, means adapted to retain said rods in their lowest position in said standards, levers (44) attached to said receptacles adapted to be depressed by said platform when the latter is moved forward, means adapted to control said rod retaining-means adapted to be moved by said platform, whereby when said driving shaft is rotated said platform is reciprocated and said foot-wear on said platform is cleaned, blacked and polished in one cycle of operations, substantially as described.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

OTTO MÜLLER.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.