C. H. SOUTHALL.

BOOT-CLEANERS.

No. 190,256. Patented May 1, 1877.

FIG. 1.

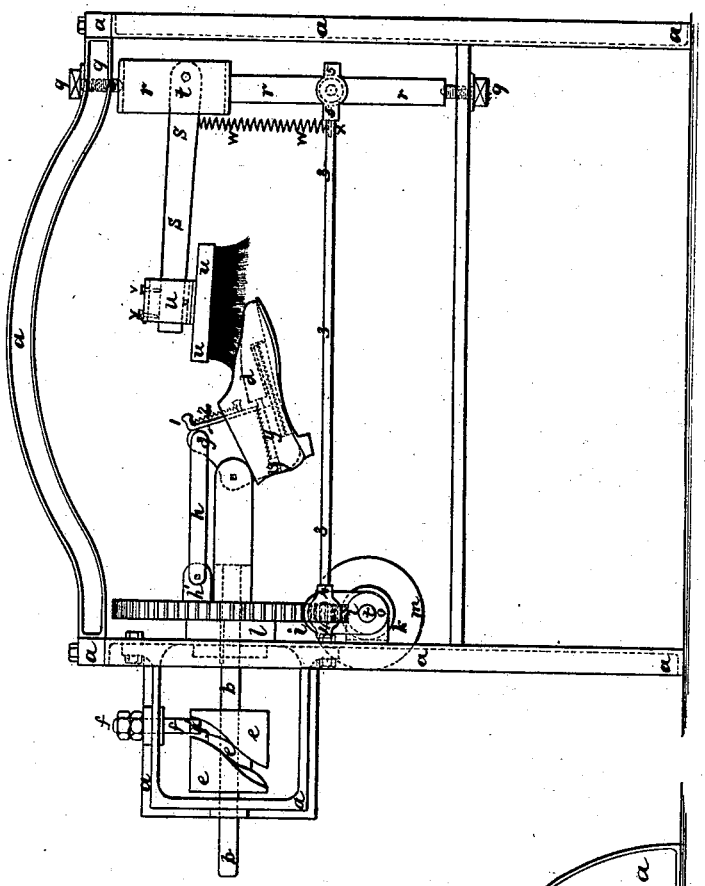


FIG. 3.

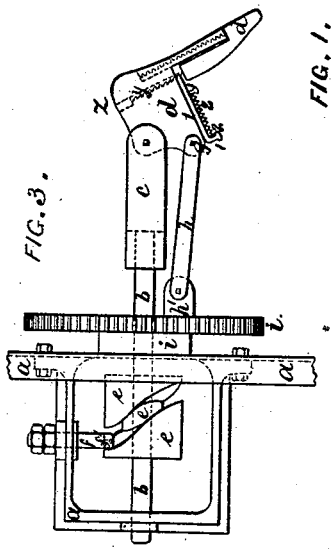
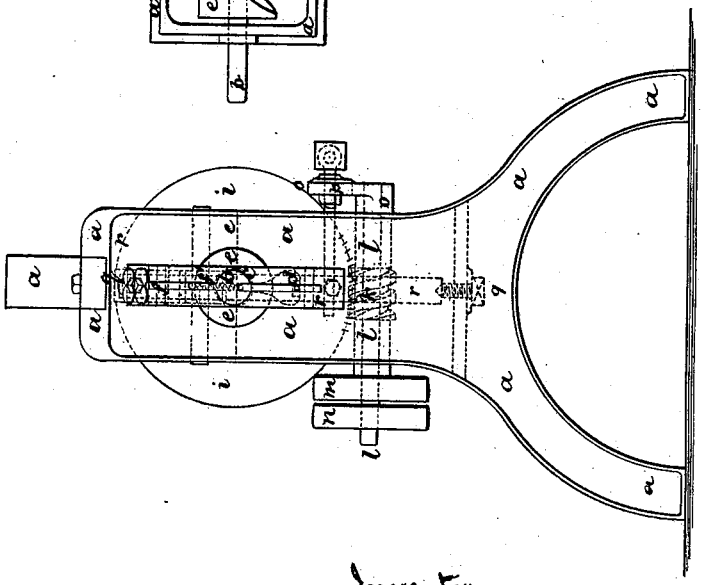


FIG. 2.



Witnesses.

J. W. Gardner

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UNITED STATES PATENT OFFICE.

CHARLES H. SOUTHALL, OF LEEDS, ENGLAND.

IMPROVEMENT IN BOOT-CLEANERS.

Specification forming part of Letters Patent No. **190,256**, dated May 1, 1877; application filed March 26, 1877.

To all whom it may concern:

Be it known that I, CHARLES HENRY SOUTHALL, of Leeds, in the county of York, England, have invented Improvements in Machinery for Brushing and Polishing Boots and Shoes, of which the following is a specification:

My invention consists in so arranging and constructing the machine that when motion is applied to it the boot or shoe is caused to move slowly round, in a peculiar manner, and thereby presents the desired parts to be acted upon by a brush which is caused to move backward and forward with rapidity, the proper pressure being applied by springs or other means, whereby the desired polish is speedily obtained; and in order that my invention may be more completely understood, reference is given to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a side elevation; Fig. 2, an end elevation; and Fig. 3 a part elevation, showing altered position of "last" for holding the boot or shoe during the brushing or polishing operation.

a is the frame for carrying the various motions. *b* is the horizontal sliding shaft, mounted in bearings at one end of the frame. On one end of this shaft *b* is the fork *c*, into which I joint the expanding-last *d*, which holds the boot or shoe. *e* is the grooved cam, which, as the shaft *b* turns round, causes it to slide backward and forward, by means of the fixed stud *f* and roller *f'*. To the arm *g* on the expanding-last *d* I connect the end of the jointed rod *h*, and the other end of this rod *h* I connect to the projection *h'*, cast or otherwise fixed to the boss of the worm-wheel *i*, through which motion is transmitted to the sliding shaft *b* and expanding-last *d*. The result is that when the shaft *b* and expanding-last *d* are pushed out as far as it intended, the toe and sole of the boot are drawn to a right angle to the shaft *b*, as shown at Fig. 3, and when it is drawn back as far as it is intended, the toe and upper part of the boot or shoe are in a straight line, or thereabout, with the center of the sliding shaft *b*, as shown at Fig. 1, and, by this means, in one revolution of the shaft *b*, every part of the boot or shoe which it is necessary to polish is brought under the action of the brush *u*.

In order that the boot or shoe may receive the proper amount of brushing, its motion requires to be slow. To effect this, I employ the large worm-wheel *i*, and drive it with the worm or screw *k*, cut, keyed, or secured by other equivalent known means, on the horizontal shaft *l*. (Shown better at Fig. 2.) On one end of this horizontal shaft *l* I key or secure, by other equivalent means, the driving-pulley *m* and loose pulley *n*, and on the other end of the horizontal shaft *l* I key or fasten, by other equivalent means, the adjustable crank *o* with the slot and stud *p*, in the usual way, to shorten or lengthen the stroke of the brush *u*, as may be required.

On the opposite end of the machine, and in suitable bearings *q*, I place two adjustable screws for carrying the rocking bar *r*, and I couple the arm-lever *s* to the upper end of the rocking bar *r*, with the stud *t*.

When required, any other equivalent means may be employed for carrying the rocking bar *r*, being adjusted by other suitable known means.

On the end of the lever *s* I place the brush *u*, and use the screws *v* to alter its position, when required. To give the required pressure, I use the spring *w*, or its equivalent, and connect it with the stud *x*, which I screw into the lower part of the rocking bar *r*.

The expanding last *d* I make in two pieces, as shown in Figs. 1 and 3, so shaped that they may slide on each other, and the stud *y* on one and a corresponding hole, *z*, in the other. On the stud *y* I cut a number of small ratchet-teeth, and arrange a catch, 1, and spring 2 so that the lower end of the catch 1 is always pressing into the ratchet-teeth, and when the last *d* is expanded, the catch 1 holds the parts asunder. By this means the last is made to fit any sized boot or shoe. I connect the adjustable crank *o* and rocking bar *r* by means of the rod 3 and ball-joint 4 and 5, or by any other equivalent known means.

In order to give more time for the brush to act upon the waist of the boot or shoe, I, in

some cases, dispense with the large worm-wheel *i*, and employ an oval sliding rack, to which is attached an incline cam.

By traversing the rack, the last on which the boot or shoe is placed is actuated, giving more time for the brush to operate upon the waist of the boot or shoe. At the same time the boot or shoe is moved round in a similar manner to that when the large worm-wheel *i* is employed.

I claim as my invention—

1. The sliding shaft *b*, in combination with the revolving shoe-holder and polishing-brush, substantially as set forth.

2. The combination, in a boot or shoe polishing machine, of an expansible last, *d*, revolving holder, and polishing-brush, substantially as set forth.

3. In the boot or shoe polishing machine, the combination, with the holder, of the rocking shaft *r*, arm *s*, brush *u*, and mechanism for rocking the shaft *r*, as set forth.

CHAS. H. SOUTHALL.

Witnesses:
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