

(No Model.)

J. A. AMBLER.

Mechanism for Abrading and Polishing Boot and Shoe Soles.

No. 232,323.

Patented Sept. 21, 1880.

Fig. 1.

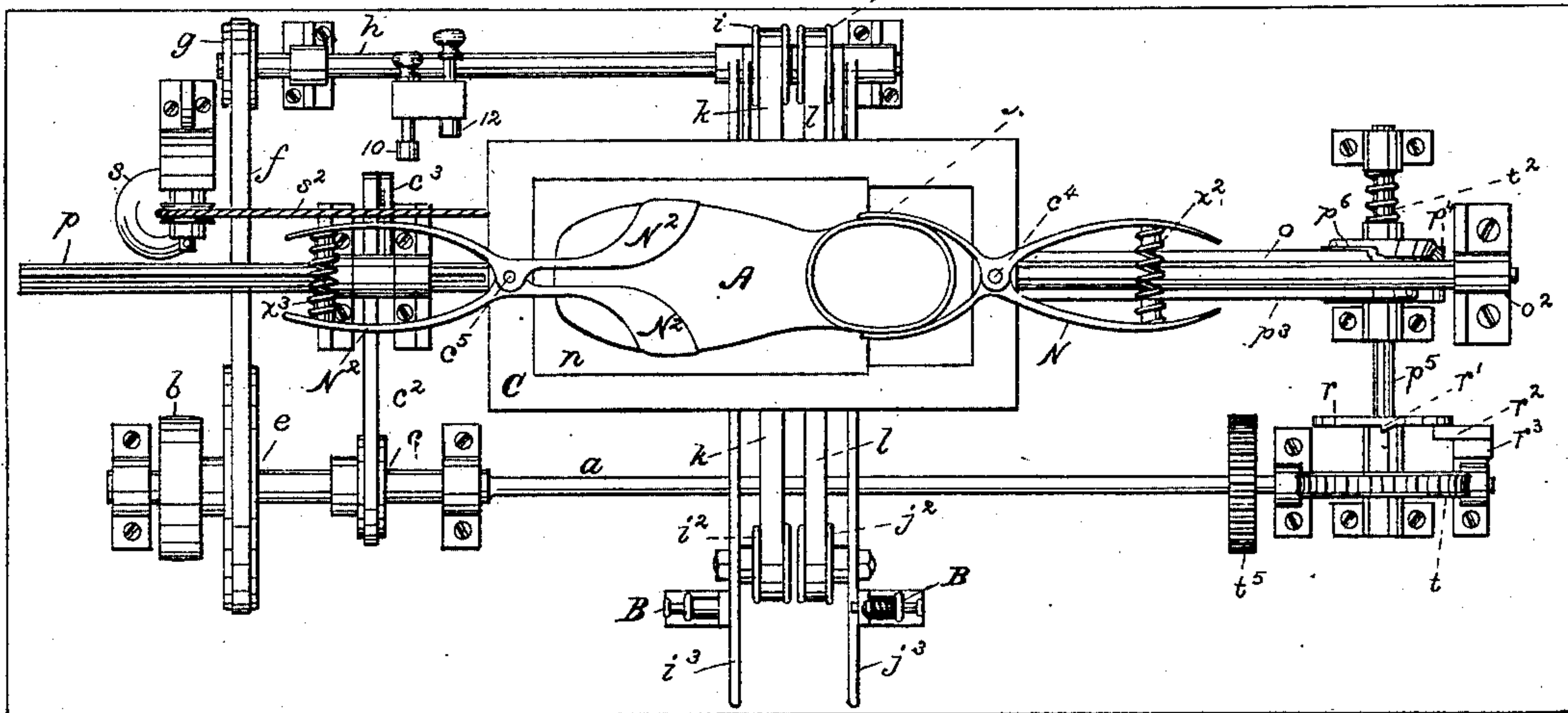


Fig. 2.

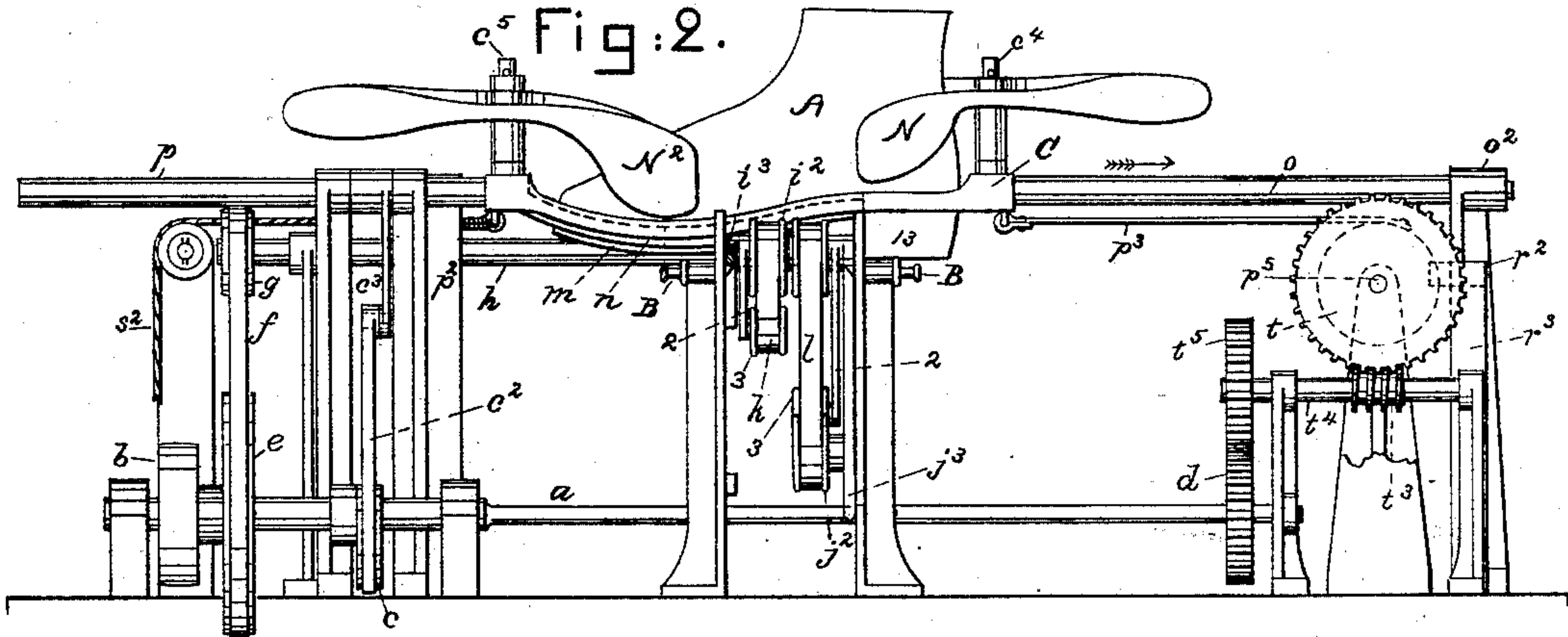


Fig. 4.

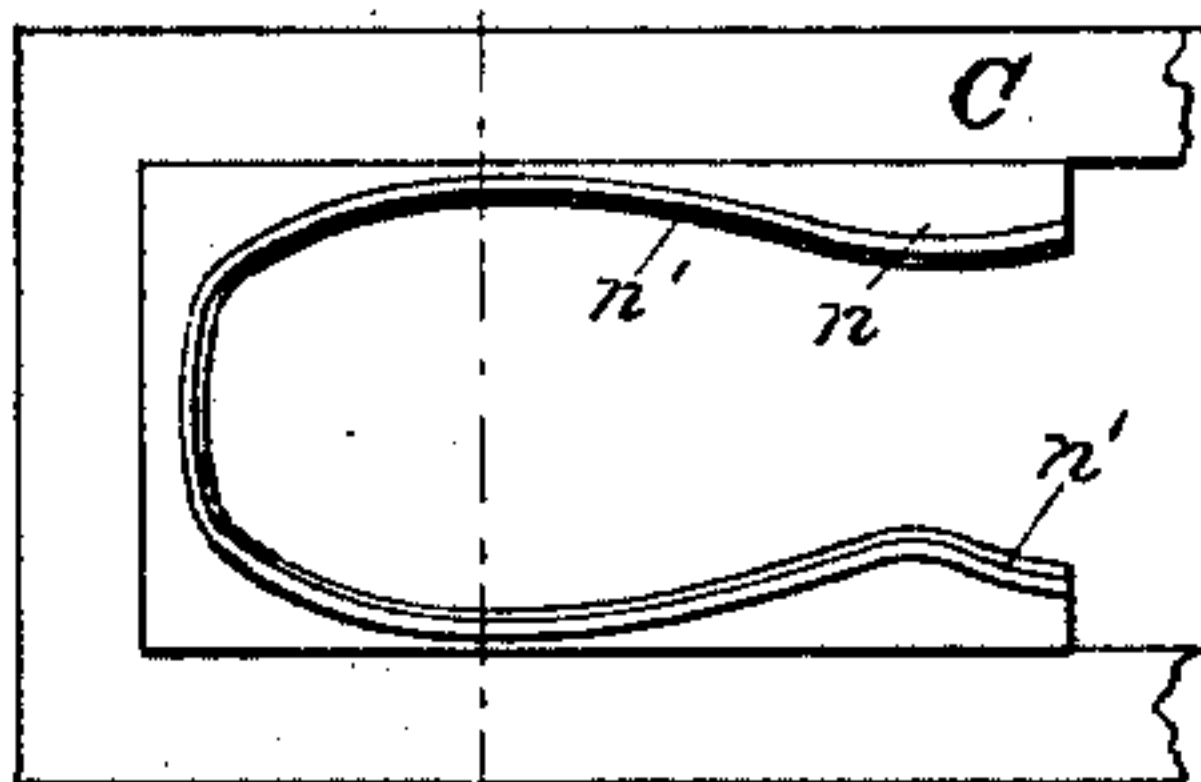


Fig. 5.

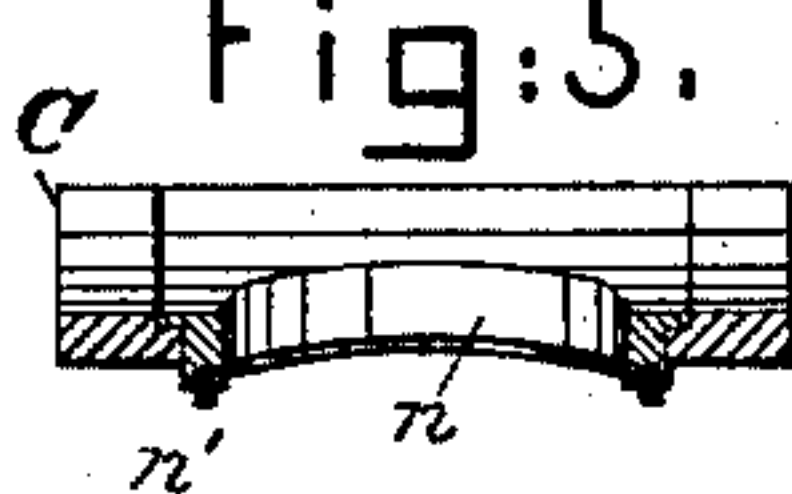


Fig. 6.

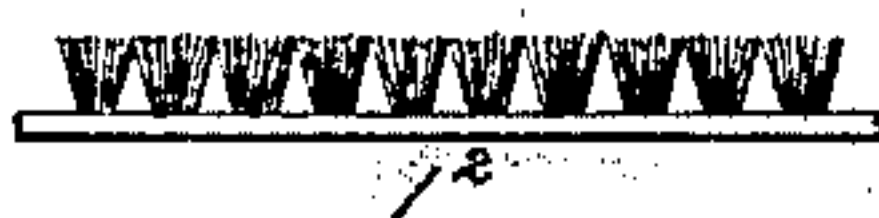
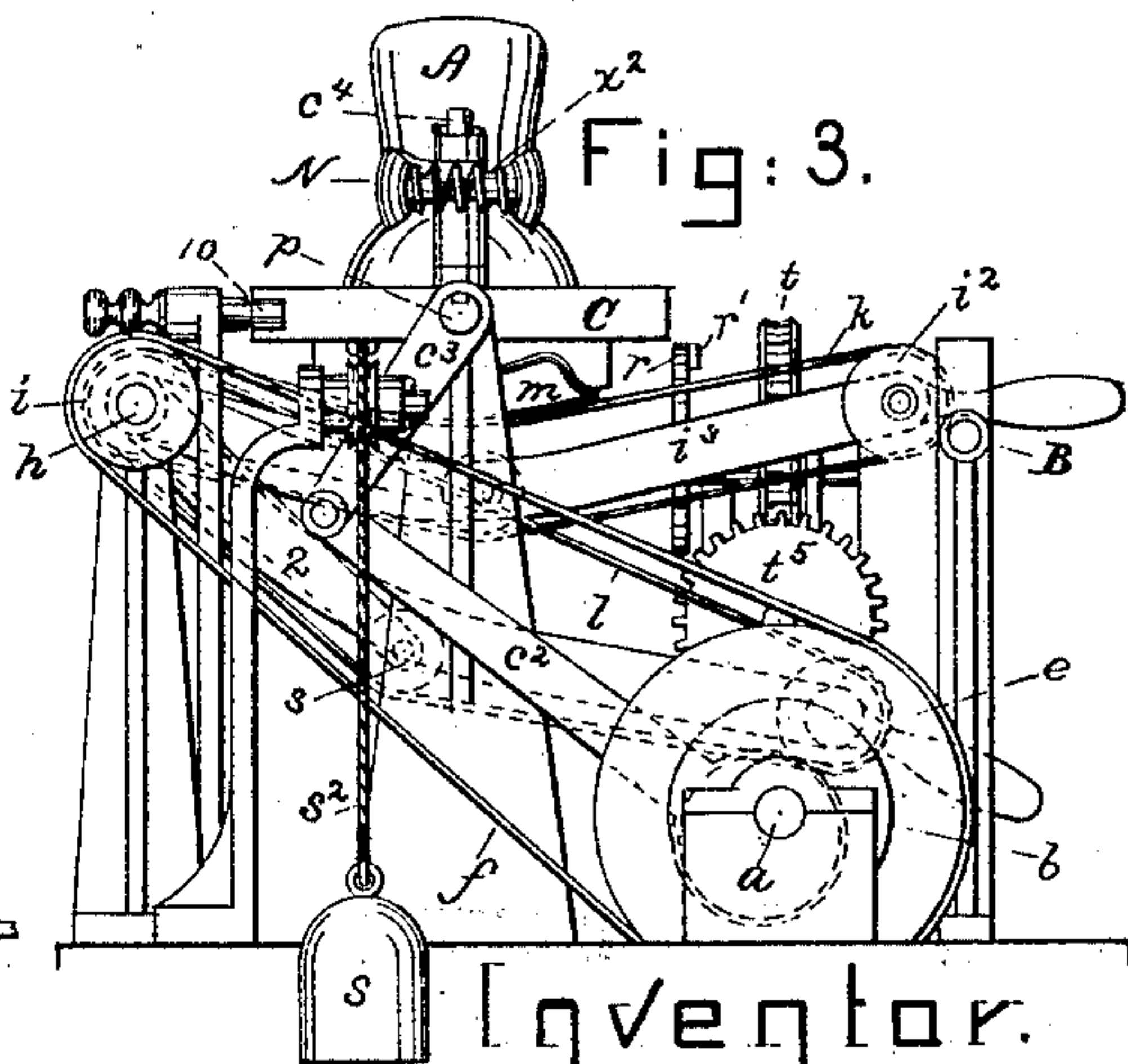


Fig. 3.



Witnesses.

Arthur Reynolds.
A. E. Whitney

Inventor.

James A. Ambler
by Crosby & Gregory Attys

UNITED STATES PATENT OFFICE.

JAMES A. AMBLER, OF NATICK, MASSACHUSETTS.

MECHANISM FOR ABRADING AND POLISHING BOOT AND SHOE SOLES.

SPECIFICATION forming part of Letters Patent No. 232,323, dated September 21, 1880.

Application filed July 16, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. AMBLER, of Natick, county of Middlesex, State of Massachusetts, have invented an Improvement in Mechanism for Abrading and Cleaning or Polishing the Soles of Boots and Shoes, of which the following description, in connection with the accompanying drawings, is a specification.

10 This invention relates to mechanism for abrading and cleaning or polishing the soles of boots and shoes, and is especially adapted to operate upon the face of the sole. In this my machine the sole of the boot or shoe attached to the upper is held in a longitudinally-movable frame or holder, which will also, preferably, be rocked somewhat as it is moved longitudinally, and as the boot or shoe is so moved it is acted upon by an endless rotating
15 belt covered with sand-paper or other usual abrading surface, or by an endless brush-belt or a felt-covered belt, according to whether it is desired to remove the surface of the sole more or less, or to clean or polish it.

25 My invention consists, essentially, in the combination, with the traveling frame or holder to receive and embrace the sole of the boot or shoe, of a belt or abrading-surface to operate transversely upon the said sole and abrade or
30 polish it, according to the class of belt being used.

Figure 1 represents, in top view, a machine for abrading and cleaning or polishing the soles and bottom parts of boots and shoes, the frame and shoe being partially drawn back-
35 ward; Fig. 2, a side elevation thereof; Fig. 3, a left-hand end view of Fig. 1; Fig. 4, an under-side view of part of the longitudinally-movable frame in which is placed the sole of the boot or shoe; Fig. 5, a section thereof; Fig. 6, a detail of an endless brush-belt for cleaning and polishing the sole-face when it is desired to do so.

45 The main shaft *a*, having a band-pulley, *b*, by which it may be driven, has upon it an eccentric, *c*, a pinion, *d*, and a belt-pulley, *e*. The pulley *e* has upon it a band, *f*, extended over a belt-pulley, *g*, on a shaft, *h*, having, as herein shown, two pulleys, *i j*, over which are
50 extended the endless belts *k l*, which are rotated by the said pulleys. The belt *k* will be supposed to be a sand or emery coated belt for

abrading the sole and cutting it away from edge to edge, and the belt *l* will be covered with felt, or may be a brush-belt, or the belts
55 may differ only as to fineness of their abrasive faces. These belts are extended over pulleys *i² j²* at the ends of levers *i³ j³*. These levers *i³ j³* may be elevated and locked in the full-line position denoted in Fig. 3 by the locking de-
60 vices *B*, the belt so held elevated then bearing upon the sole *m* of the boot or shoe *A*. The belt not in use may be lowered, as shown by the belt *l* at the right of Fig. 2 and as in Fig. 3.

The belts *k l* are kept taut by means of the
65 rollers 3 at the ends of the arms 2.

The shoe *A* has its sole *m* placed in the sole-receiving portion *n* of the movable frame *C*, and the frame has at its ends rods or shafts *o p*, supported in bearing *o² p²*, in which they
70 slide as the frame *C* is moved longitudinally in one and then in the other direction.

The frame *C* is moved in the direction of the arrow, Fig. 2, by means of the strap *p³*, connected with a pulley, *p⁴*, loose on the shaft
75 *p⁵*, and forming part of a clutch-pulley, the other member, *p⁶*, of the said clutch-pulley being attached to the said shaft *p⁵*.

The shaft *p⁵* has fixed upon it a disk, *r*, with a lug, *r'*, that strikes the projection *r²* on the
80 standard *r³* as the strap *p³* is wound upon the drum or pulley *p⁴*, and moves the shaft *p⁵* longitudinally, causing the fixed part *p⁶* of the clutch to release the loose drum or pulley *p⁴*, and permit the weight *s*, connected with the
85 rope or cord *s²*, attached at the opposite end of the frame, to quickly draw the said frame forward until it is checked by one or the other of the stops 10 12, the stop 10 being forward when the belt *k* is operative and the stop 12
90 when belt *l* is operative. Instead of this weight *s*, I may employ a spring, or, if desired, I might move the frame *C* backward and forward by racks and pinions.

The shaft *p⁵* is extended loosely through the
95 worm-toothed pinion *t*, which is so keyed upon the shaft as to rotate it, but yet so as to permit the shaft to be moved longitudinally when it is desired to free the pulley *p⁴*.

A spring, *t²*, on the shaft *p⁵* bears against
100 the hub of the fixed part *p⁶* of the clutch-pulley, and moves the shaft longitudinally in opposition to the lug *r'*.

The pinion *t* is moved by the worm *t³* on the

shaft t^4 , having a pinion, t^5 , engaged and driven by the pinion d .

The eccentric e is, by link c^2 , connected with the arm c^3 , the hub of which is so splined to the shaft or rod p as to rock the said rod and frame c on its center as it is being moved longitudinally.

The sole-receiving portion n is provided at its edges with a shoulder (see Fig. 5) to support it properly in the frame C . This sole-receiving portion will be changed from time to time, according to the shape and size of the sole of the boot or shoe being operated upon.

To prevent the abrading-surface of the belt (which surface may be of emery, sand, glass, or equivalent material) from wearing away the corners of the metal receiver n , I have grooved the receiver and placed in the groove a strip or line of wood or other material, as at n' .

The face of the sole m to be operated upon by the belt or belts is permitted to extend a little below the bottom of the receiver n , the said receiver falling a little below the under face of the frame C .

On the frame C are two standards, c^4 c^5 , which serve as pivots or supports for the two upper-holders, N N^2 , that embrace the heel and toe parts of the boot or shoe upper yet held on the last, each of said upper-holders, as herein shown, being made as clamps shaped to grasp the shoe upon the last, the holders being held together upon the boot or shoe by means of springs x^2 x^3 .

After the sole has been abraded and brought into shape by the belt k the said belt will be thrown down from contact with the sole, and the cleaning and polishing belt l raised to operate upon the sole.

In practice I contemplate adding to the machine a belt or belts to operate upon the face of the heel-lift.

The heel of the shoe is represented by 13.

Instead of employing an endless polishing-belt of felt, as at l , I may employ a brush-belt, a piece of which is shown at l^2 , Fig. 6.

I claim—

1. In a machine for abrading, cleaning, or polishing the soles of boots and shoes, the combination, with the traveling frame or holder, constructed to receive and embrace the sole of the boot or shoe, of a belt or abrading-surface to operate transversely upon the said sole and abrade or polish it, according to the kind of belt used, substantially as described.

2. The longitudinally-movable frame and sole-receiver therein, shaped to fit or embrace the sole about its fore part, combined with an endless traveling belt, substantially as described.

3. The frame C and receiver n , provided with the strip n' , combined with the endless traveling belt, to obviate the belt striking the receiver, as set forth.

4. In a machine for abrading, cleaning, or polishing the soles of boots and shoes, the combination of the endless traveling, abrading, cleaning, or polishing belt, the longitudinally-movable frame, and the boot or shoe receiver therein, shaped to fit or embrace the fore part of the sole, with means, substantially such as described, to move the frame longitudinally and at the same time impart a rocking motion thereto over the belt, as and for the purpose set forth.

5. The shoe-holding frame C and receiver, combined with the upper-holding devices to engage the upper of the shoe and hold it, as set forth.

6. The frame C and receiver for the sole, combined with the endless traveling belt and its carrying-arm, adapted to be raised and lowered, as described, to hold the belt in contact with the sole or to throw it out of operation, as set forth.

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

JAMES A. AMBLER.

Witnesses:

G. W. GREGORY,
N. E. C. WHITNEY.