(No Model.)

G. W. DAY.

MACHINE FOR TRIMMING THE EDGE OF THE UPPER AT THE TOE OF A BOOT OR SHOE.

No. 463,948. Patented Nov. 24, 1891.

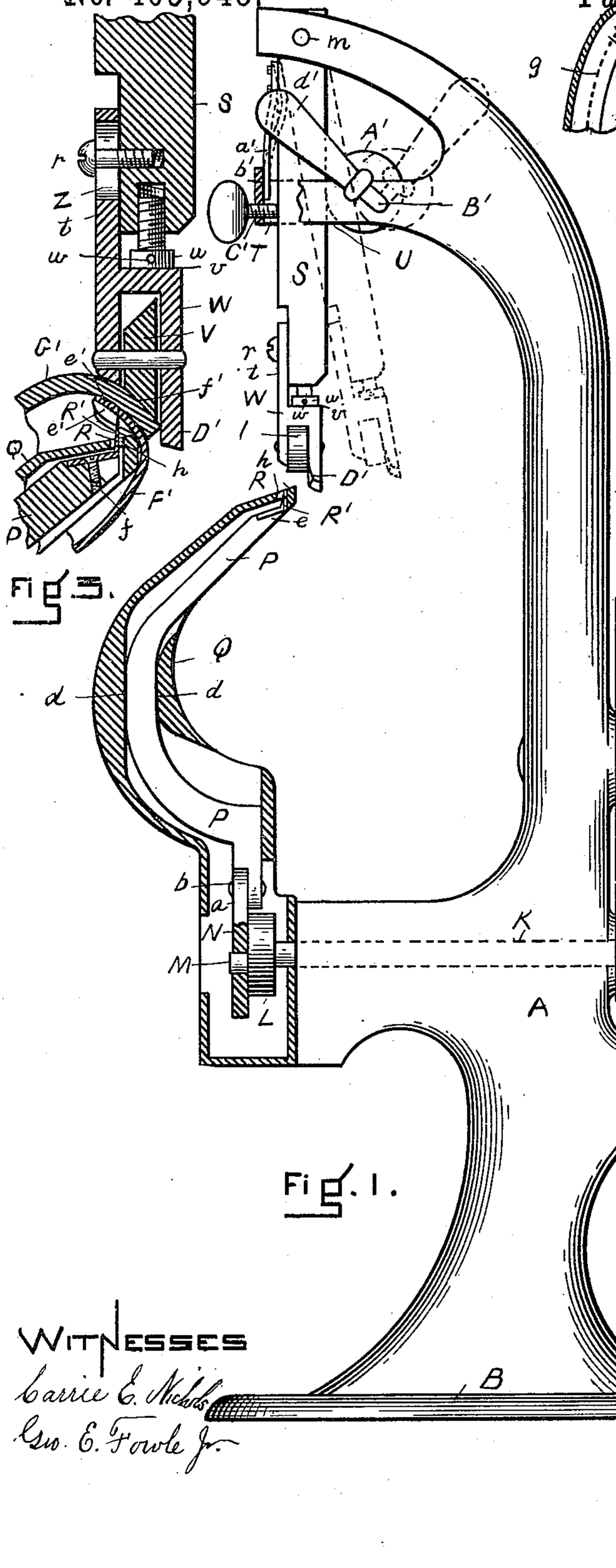

Fig. 1.

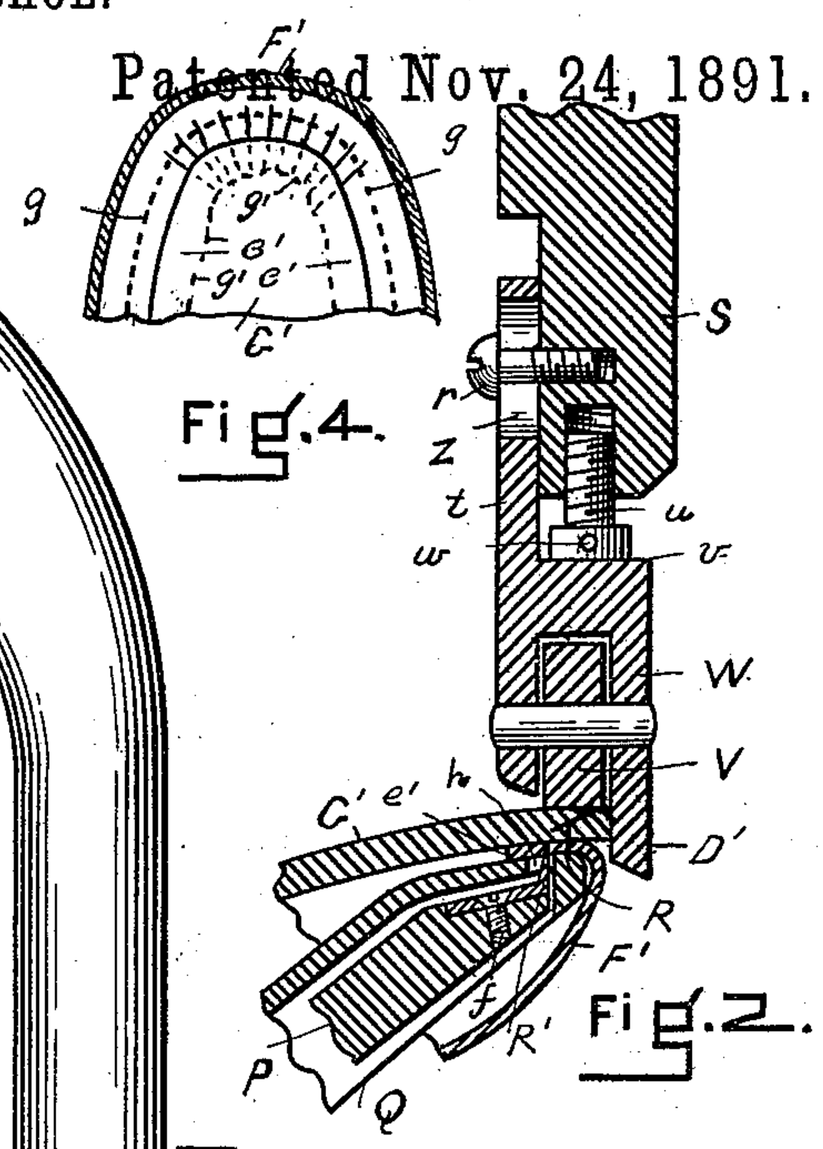

Fig. 4.

Fig. 2.

Fig. 3.

WITNESSES

Carrie E. Nichols

Geo. E. Fowle Jr.

INVENTOR

George W. Day.

per Edwin W. Brown

Attorney

UNITED STATES PATENT OFFICE.

GEORGE W. DAY, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE BALL TURN MACHINE COMPANY, OF MAINE.

MACHINE FOR TRIMMING THE EDGE OF THE UPPER AT THE TOE OF A BOOT OR SHOE.

SPECIFICATION forming part of Letters Patent No. 463,948, dated November 24, 1891.

Application filed October 31, 1889. Serial No. 328,854. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. DAY, of Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Trimming the Folded Edge of the Upper at the Toe of a Boot or Shoe, of which the following is a full, clear, and exact description.

In the manufacture of boots or shoes the upper and upper lining as lasted and secured to the sole at the toe are folded or plaited, forming thick bunches or folds which are necessarily thicker toward the middle of the toe and very objectionable.

In turned boots or shoes, the upper being secured to the sole wrong side out, the surplus portions of the folds of the upper edge beyond the stitches at the toe can be easily cut away after the sole and upper are stitched, they being then outside and easily reached; but in boots or shoes having a sole sewed to the upper right side out it has heretofore been practically impossible after the upper has been stitched to the sole to cut away or remove this surplus portion of the upper at the toe, for the reason that it can not be easily reached in the boot to cut it without danger of cutting and damaging more or less the upper; and the object of this invention is to provide means to trim off or to cut away and remove the surplus edge portion of the folded upper at the toe inside of the stitches in boots or shoes other than turned boots or shoes, so that it can be easily and practically done and not injure in the least the upper nor cut the stitches; and this invention consists of a machine constructed and arranged for operation, all substantially as hereinafter fully described, to cut the thick surplus folded or plaited portion of the upper at the toe of a boot or shoe after it has been sewed to the sole, and without injury to the boot or shoe upper or the stitching, all substantially as hereinafter fully described and shown.

In the accompanying sheet of drawings is represented a machine constructed and arranged for operation in accordance with this invention, Figure 1 being a view in side elevation, with some of the parts in vertical cross-section; Fig. 2, a detail central sectional view; and Fig. 3, a detail central sectional view on same line as Fig. 2, but showing a change in some of the parts. Fig. 4 is a detail plan view of the inside of a boot or shoe at the toe.

In the drawings, A represents a stand or frame having a base B for supporting and carrying the operating parts of the machine.

C is a horizontal shaft adapted to revolve in bearings in the frame A and portion D of the frame and having a driving-pulley E, which can be connected by a belt to any suitable power for operation thereof. The pulley is loose on the shaft, but is connected thereto by a clutch F, constructed and arranged for operation as usual in clutches, and it is connected by a rod G to a treadle, (not shown,) so that in operation the pulley revolves constantly and the shaft is turned when desired by moving the clutch to make operating connection between the pulley and shaft. The shaft carries a gear-wheel H, which engages with a gear-wheel J on the end of another horizontal shaft K, turning in bearings in the frame and having on its other end a plate or disk L, which has a horizontal projecting pin M, on which is a link or arm N, adapted to freely swing thereon and connected by its end *a* by a pivot *b* to an arm P, adapted to slide up and down in bearings *d* in a casing Q, which casing is the usual "horn" in machines for sewing boots or shoes. It has a bearing-place or rest R on its upper end for the boot or shoe. The arm P extends upward in the chamber in the horn and has on its upper end *e* a knife or cutter R, which is secured thereto by a screw *f*, its cutting-edge *g* being arranged to extend up through an opening *h* in the upper end of the horn when operated.

S is an arm pivoted at *m* to the upper end of the frame A and projecting down therefrom through a guiding-slot T in an arm U of the frame into position for a vertical roller V, pivoted to a separate piece W of the arm *n*, to be over or substantially over the upper end of the horn when desired. The piece W is secured to the arm S by a screw *r*, passing through a vertical elongated slot Z in an arm *t* of the piece and screwing into the side of the lower end of the arm S. A screw *u* screws up into the lower end of the arm S above the piece W in position for a shoulder *v* on said piece to bear against the same, the screw hav-

ing holes *w* in its head *y* for the insertion of a pin to turn it in or out, by which the height of the roller V from the top of the horn can be adjusted, and when so adjusted the piece is rigidly secured by tightening the screw *w*.

Attached to the side of the arm S is a spring *a'*, its free end bearing against the outer shoulder *b'* of the guiding-slot T, by which the arm when free to move is swung on its pivot *m* back into the position shown in dotted lines, Fig. 1.

A' is a disk back of and in the same vertical plane as the swinging arm S, eccentrically secured to an arm B', adapted to turn in bearings in the horizontal arm U, against which disk the arm S is held by the spring *a'*, and to swing it forward into its position shown in Fig. 1 the eccentric A' is turned by its handle *d'* from its position shown in dotted lines, Fig. 1, into the position shown in full lines, same figure, where it is held against a screw C', turning in the part *b'*. The turning of this screw in or out regulates the forward position of the arm it is desired to have for the operation of the machine.

The lower end of the part W has a downward projection D', for the purpose hereinafter described.

The operation of the machine is as follows: The eccentric is turned into the position shown in dotted lines, Fig. 1, which allows the spring *a'* to swing the arm S, with the friction-roller, into the position shown in dotted lines, Fig. 1, out of the way of the horn, and then the boot or shoe is placed over the horn bottom upward until the end of the horn bears at the toe end of the boot against and under the edge of the upper, where secured to the sole, as shown in Fig. 2 in detail section. The arm S is then swung forward by swinging the eccentric, which brings the roller V and the projecting arm D' into position for the boot or shoe by its sole at its toe end to bear and rest against the same, as shown in Fig. 2. The shaft C is then revolved by connecting it by the clutch to the pulley, which by its gear connection revolves the shaft K, giving through the link connection N to the cutter-arm P a vertical reciprocating motion, and the cutting-edge *g* of the knife, which is of chisel shape, and in such movements it passes out and back through the opening *h* at each revolution of the shaft K, and in its outward movements it cuts off the portion *e'* of the upper F at the edges beyond the stitches, and as the cutter is so operated the boot or shoe is guided along and turned by hand, so that the whole of this portion of the upper at the toe is presented to the cutter and cut off, and then the arm S is swung back and the boot or shoe removed from the horn and another boot or shoe placed thereon and operated, as before. As shown in Figs. 1 and 2, the portion of the upper is cut off at right angles, or substantially so, to its sides; but it is desirable sometimes, especially when the upper is thick, to cut off such portion on a bevel or slant, so as not to have the end of the upper where cut too abrupt, and an arrangement for so cutting the upper is shown in detail section in Fig. 3, where the friction-roller V is beveled, as shown at *f'*, at an angle, and with a single-sole boot or shoe the sole is bent up, as shown in said figure, and rests against the beveled side *f'* of the roller which presents that portion of the upper secured to the toe at an angle to the line of movement of the cutter, which will, as is plain, cut the edge of the upper off on a corresponding bevel or slanting line. The knife is caused to move rapidly, and its length of movement is so adjusted that it will only project above the upper end of the horn sufficiently to cut through the boot or shoe upper and not any of the thickness of the sole, so as not to thereby injure it.

This invention is especially intended for cutting the upper at the toe, where it has been heretofore practically impossible to reach with cutting mechanism to properly cut and remove the edge of the upper, and the other parts of the edge of the upper along the sides back from the toe are cut in any of the usual ways.

The advantages of the present invention are obvious without particularly enumerating them.

In the present machine the horn is stationary—does not rotate, as in sewing-machines to which it belongs.

In Fig. 4 is shown a plan view of the inside of a boot or shoe at the toe after the upper F' has been trimmed by the present machine, G' being the sole, Y the line where the upper was cut by the machine, the dotted line *g'* showing the edge of the upper before it was cut off.

Having thus described my invention, what I claim is—

1. In a boot or shoe machine, a support having a reciprocating cutter and having an upper bearing-surface adapted to bear against the inside of the shoe, said cutter adapted to be reciprocated to and from the plane of the said bearing-surface, substantially as described, whereby the upper of the shoe may be trimmed off after it has been secured to the sole of the shoe, as set forth.

2. In a boot or shoe machine, a support having a reciprocating cutter and an upper bearing-surface adapted to bear against the inside of the shoe, said bearing-surface having an opening for the cutter, which is adapted to reciprocate through the opening in the bearing-surface, the outer limit of the outer stroke of the cutter extending beyond the outer plane of the surface of the bearing-surface, substantially as described, whereby the cutter is adapted to cut and sever the edge of the upper of the shoe from the main part of the upper after the latter has been secured to the sole, as set forth.

3. In a boot or shoe machine, a reciprocating cutter and its horn provided with a bearing-surface on the inside of the shoe, and an opening through said bearing-surface, said

cutter adapted to reciprocate through said opening to a point beyond the plane of the surface of the support, in combination with an eccentric actuating device for operating the cutter and connected therewith, substantially as and for the purposes specified.

4. In a boot or shoe machine, a support having an opening and guides and a bearing-surface, and a reciprocating cutter extending beyond the line of the face of said bearing-surface, in combination with a tilting pressure-guide carrying a friction-roller and adapted to hold the shoe from the outside with respect to its position on the support, substantially as described, and for the purposes set forth.

5. In a boot or shoe machine, a support having a slotted bearing-surface for the inside of the shoe, and a reciprocating knife adapted to reciprocate through the opening in bearing-surface of the support, in combination with a pressure-guide having a beveled surface adapted to hold the shoe against the bearing-surface of the support and at an angle to the line of the face of the same to secure a beveled cut edge of the upper of the shoe, substantially as and for the purposes specified.

6. The combination, with a support suitably constructed and adapted to be placed in a boot or shoe and support the same at the toe, and a roller-bearing having a bevel circumference or periphery, of a cutter or knife secured to an arm arranged to be guided by said support and connected to mechanism for giving a reciprocating movement to said arm and knife, for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE W. DAY.

Witnesses:
EDWIN W. BROWN,
CARRIE E. NICHOLS.