

2 Sheets—Sheet 1.

Patented Dec. 2, 1879.

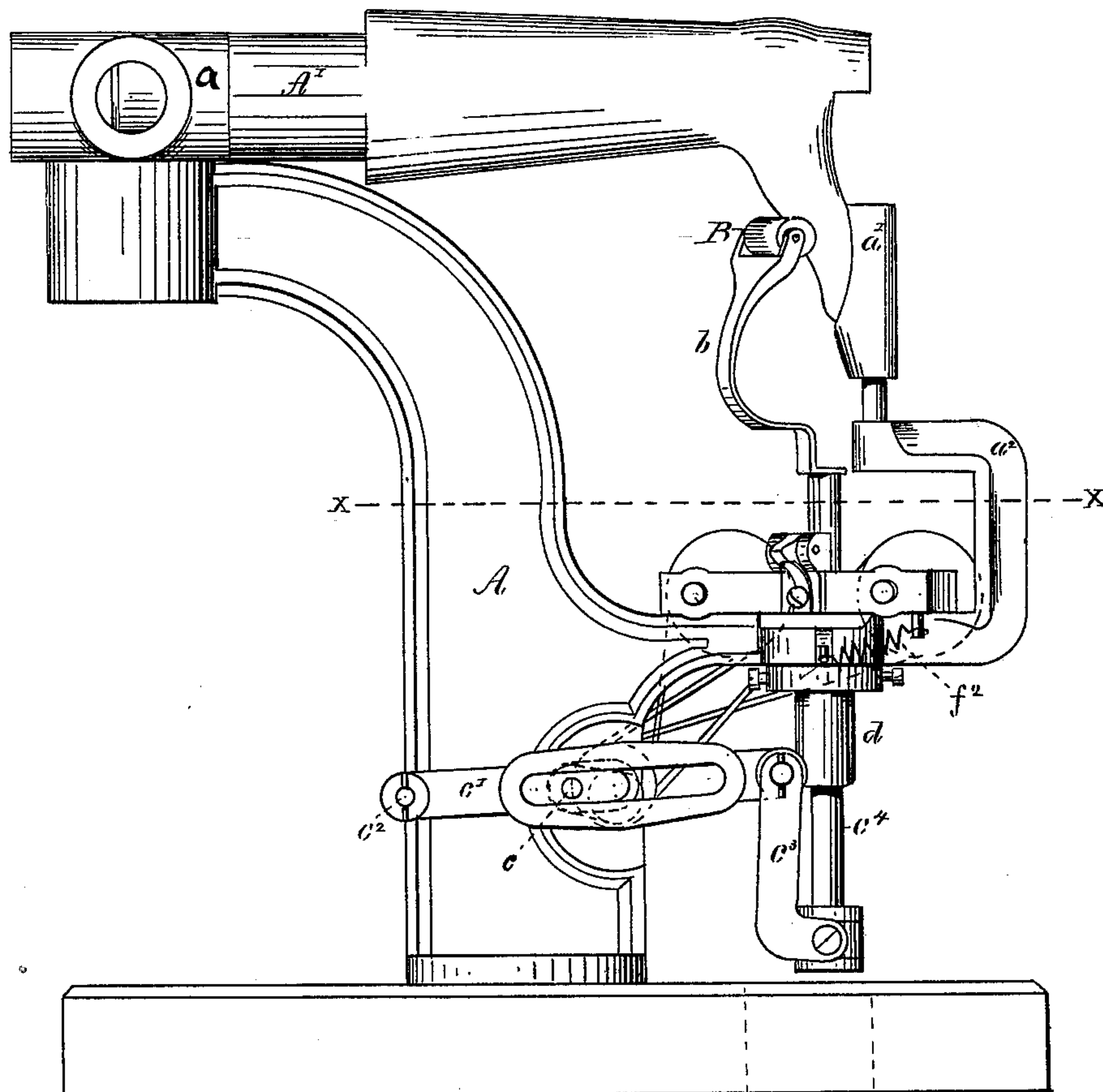


Fig. 1.

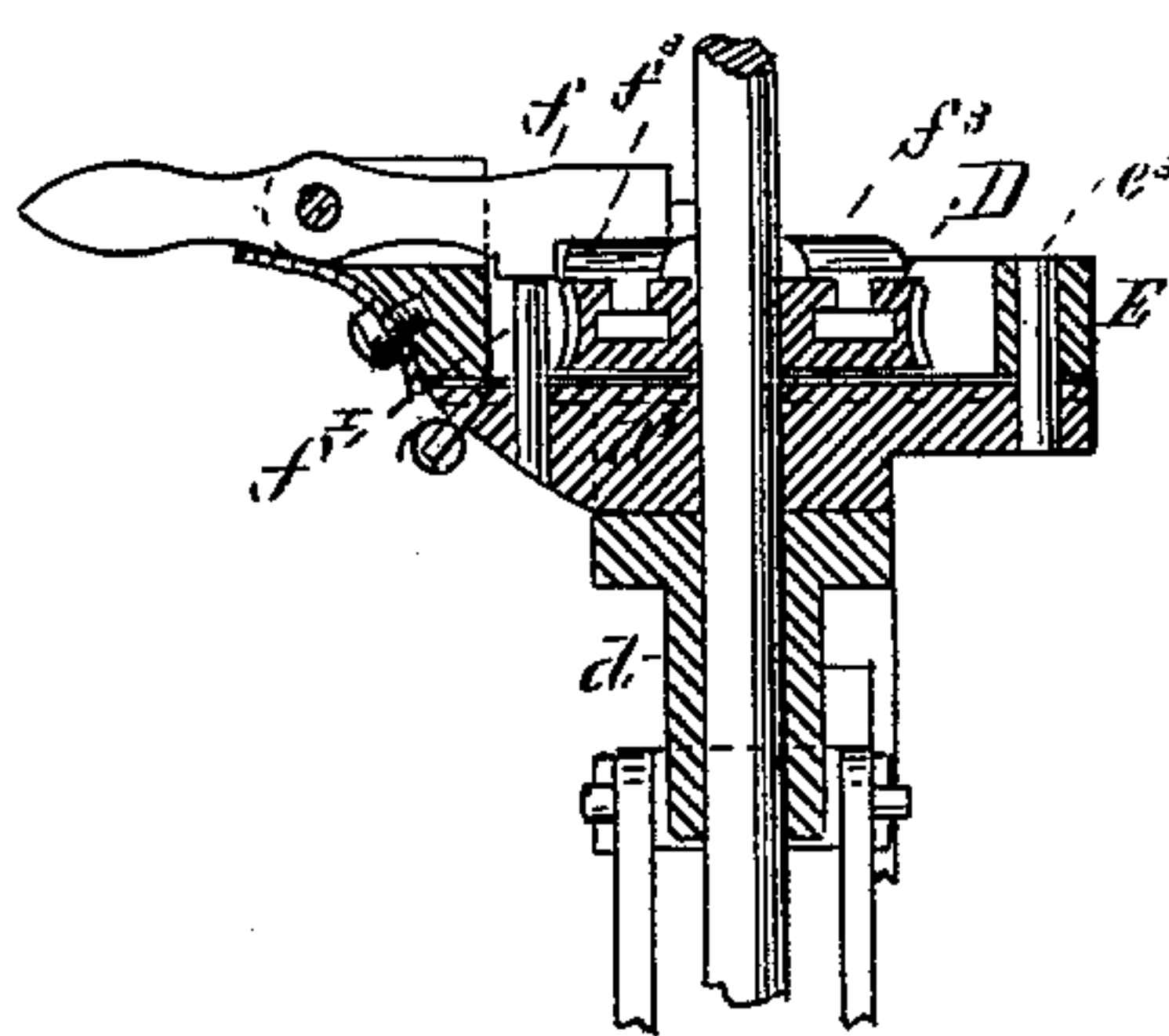


Fig-2.

WITNESSES.

Geo. F. Walker
M. W. Sawyer.

INVENTOR_

Joseph E. Crisp
by his attys
Clarke & Raymond.

J. E. CRISP.
Boot-Treeing Machine.

No. 222,249.

Patented Dec. 2, 1879.

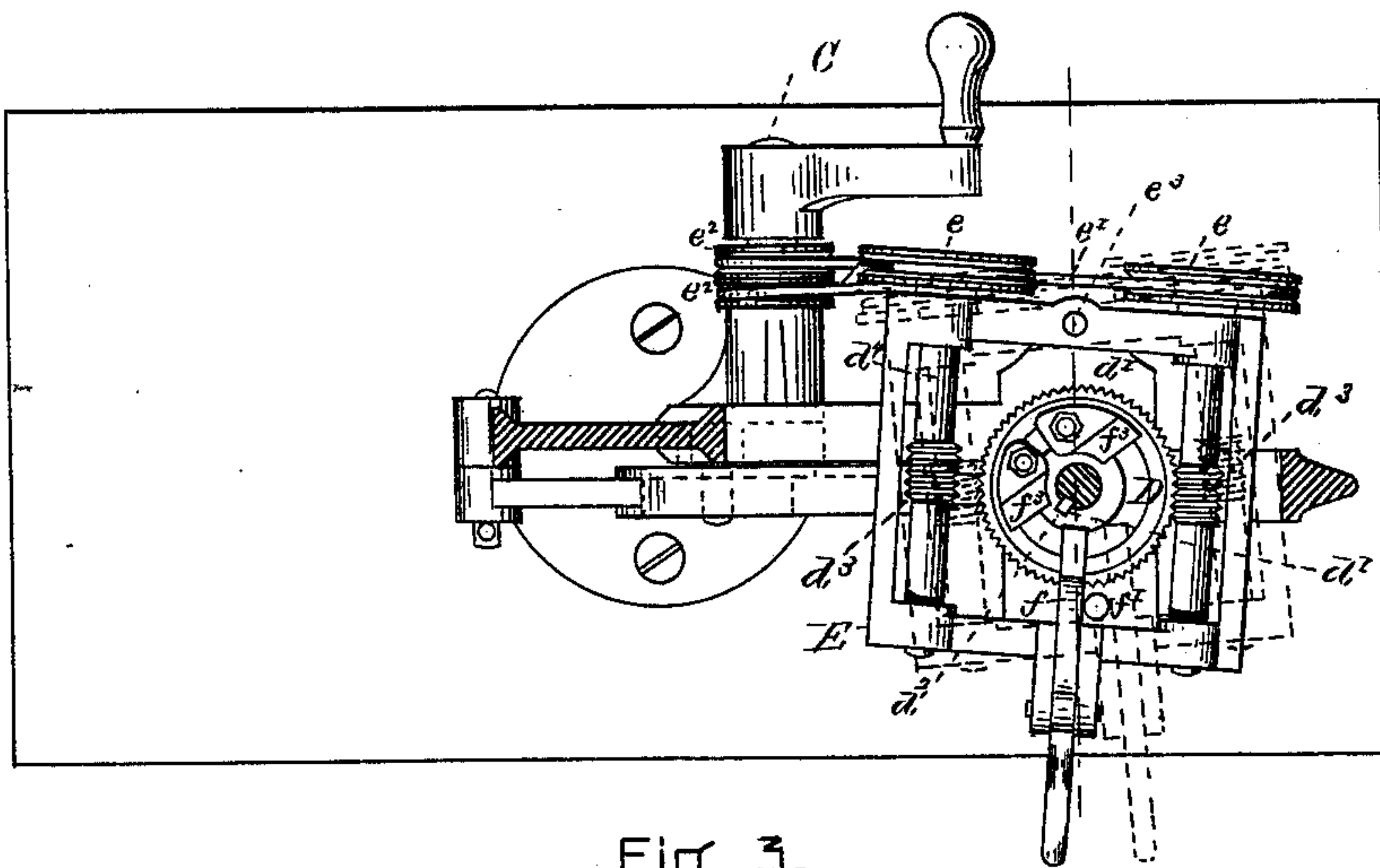


Fig. 3.

WITNESSES.

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UNITED STATES PATENT OFFICE.

JOSEPH E. CRISP, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN BOOT-TREEING MACHINES.

Specification forming part of Letters Patent No. **222,249**, dated December 2, 1879; application filed August 27, 1879.

To all whom it may concern:

Be it known that I, JOSEPH E. CRISP, of Boston, in the county of Suffolk, in the Commonwealth of Massachusetts, have invented an Improvement in Boot-Treeing Machines, of which the following is a specification.

This invention relates to boot-treeing machines; and it consists in devices for treeing the foot portion of the boot, principally that part in front of the side seams comprising what is generally called the "vamp."

Owing to the singular conformation of the foot portion of the tree, it is necessary that the tool for smoothing and finishing the vamp thereon in the treeing process should be provided with a yielding movement; and my invention relates to a yielding roll, which is provided with a reciprocating movement from the toe to or beyond the side seams, and which traverses the entire upper surface of the foot part of the tree from one side to the other. It further relates to means for automatically reversing the traversing movement of the tool, so that at any stated interval, preferably when the tool has reached the opposite side of the foot, the motion is reversed, and the reciprocating and traversing movements are continued over the portion on which the tool has already acted.

Reference is made to the accompanying drawings, forming a part of this specification, in explaining the nature of my invention, in which Figure 1 is a side elevation of my machine. Fig. 2 is a vertical section illustrating the construction of the tripping mechanism. Fig. 3 is a plan of the portion of the machine below the line *xx* of Fig. 1.

The standard A supports a tree-holding device, *a*, adapted to be revolved horizontally, and furnished with any of the adjustments named in the Patent No. 215,440, granted me May 20, 1879, and the boot is placed upon the boot-tree A', with its sole resting against the support *a'*, which is shaped upon the portion against which the sole of the boot or shoe contacts to conform to the curvature of the bottom or sole of the tree. This support projects upwardly from the bracket *a*².

The roll B is supported upon the end of the spring-arm *b*, has a reciprocating movement parallel or substantially parallel to the sole,

and is revolved by contact with the work. It is provided with the reciprocating movement by means of the shaft C, which has a suitable bearing in the frame A, crank *c*, slotted lever *c'*, pivoted at *c*² to the frame of the machine, link *c*³, which connects the end of the lever with the rod *c*⁴, and said rod *c*⁴ has a bearing in the revolving spur-wheel D and collar *d*, and to it the spring-arm *b* is fastened. Any other desirable means for reciprocating the yielding roll, however, may be employed.

The spur-wheel D is provided with a bearing in the bracket *a*². The rod *c*⁴ has a groove, *d'*, into which the fast feather *d*² on the spur-wheel projects, so that the rod, and consequently the roll, revolves with the spur-wheel. The spur-wheel is revolved successively in opposite directions by means of the worms *d*³ on the shafts *d*⁴, which have suitable bearings in the frame E, and are revolved by means of the driven pulleys *e*, belts *e'*, and the driving-pulleys *e*² on the shaft C. The frame E is pivoted at *e*³ to the bracket *a*², and it is adapted to be moved horizontally at the completion of the traversing movement of the roll by the spring *f*². The latch *f* and the catch *f'* serve to hold the frame E stationary in relation to the spur-wheel D until, upon the revolution of the spur-wheel, the latch is tripped by one of the inclined blocks *f*³. It will thus be seen that at the end of the traversing movement of the roll the frame E is automatically disconnected therefrom and moved sufficiently to engage the reversing-worm with the spur-wheel, thereby effecting an automatic reversal of the traversing movement of the roll.

In operation the machine is so adjusted that the roll first operates upon the section adjacent to the side edge from the toe to or beyond the side seam, upon either side, and by the slight traversing movement successive sections, substantially parallel with the first, are operated upon until the entire vamp to the sole-edge upon the opposite end has been subjected to the rolling action. A reverse movement is then produced automatically, if desired, and the operation continued, the roll passing over the vamp from sole-edge to sole-edge as many times as may be desirable for properly treeing, fitting, and finishing the vamp.

It will be observed that by providing the roll with the traverse movement all portions of the vamp are reached, and that no portion is left untouched by the roll from the line upon which it commences to operate to the end of its movement, as the traverse movement is so slight that the roll does not move laterally sufficiently to leave any part of the vamp unrolled between each reciprocation, but, to the contrary, overlaps sufficiently to break joints, as it were, between the section operated upon in its upward movement and that operated upon by its next downward movement.

The spring-arm should be shaped to provide a uniform stress upon the roll, and to yield or to give laterally to allow the roll to come to a proper bearing upon the surface of the tree, and this can be effected by making the spring-arm sufficiently long and thin to allow it a slight torsional movement.

When it is desirable to tree shoes or brogans a last will be used instead of a boot-tree. A slight modification in the shape of the holding devices or jack will be necessary for supporting the last; but as there are a great many contrivances for jacking a last in a machine, it is not necessary to describe any specific construction.

I wish to state, however, that I intend that this mechanism shall be used for treeing shoes and brogans as well as boots, and that the adjustable roll herein described may be used upon any portion of the boot-tree in treeing the vamp or boot-leg.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a machine for treeing boots and shoes, the combination of a boot tree or last, firmly supported within the machine, with a yielding roll or other smoothing and finishing tool, provided with a reciprocating movement and with an automatic traversing movement, substantially as and for the purposes described.

2. In a machine for treeing boots and shoes, the combination of a jack or last, firmly supported within the machine, with a yielding

roll or other smoothing and finishing tool, provided with a reciprocating movement from the toe to or toward the heel, and with a traversing movement from one sole-edge to the other, with the means for automatically reversing the traversing movement, whereby the roll is caused to automatically return over the surface previously rolled, substantially as and for the purposes described.

3. In a machine for treeing boots or shoes, the combination of a boot tree or last, firmly supported within the machine, with the roll B, spring-arm b' , and the means for reciprocating the same upon the foot portion of the tree or last from the toe to or beyond the instep, the roll being revolved by contact with the vamp, substantially as and for the purposes described.

4. The combination, in a machine for treeing boots and shoes, of the boot tree or last firmly supported within the machine, the roll B, yielding arm b , with means for reciprocating said roll and arm from the toe to or beyond the instep, and the means for providing said arm and roll with a traversing movement, substantially as and for the purposes described.

5. In a machine for treeing boots or shoes, the combination of the spur-wheel D, the reciprocating rod c' , the two worms d^3 , and the means for automatically disengaging the driving-worm from the spur-wheel at the completion of a traverse movement, and for engaging the reversing-worm therewith, substantially as and for the purposes described.

6. In a machine for treeing boots and shoes, the combination of a boot tree or last with a smoothing and finishing roll, arranged and operated substantially as set forth, adapted to revolve automatically by contact with the surface of the boot leg or upper upon the boot tree or last, whereby the boot leg or upper is fitted thereto in the treeing process.

J. E. CRISP.

Witnesses:

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