

No. 743,993.

PATENTED NOV. 10, 1903.

R. W. THOMSON.  
HEEL FINISHING MACHINE.  
APPLICATION FILED MAR. 25, 1902.

NO MODEL.

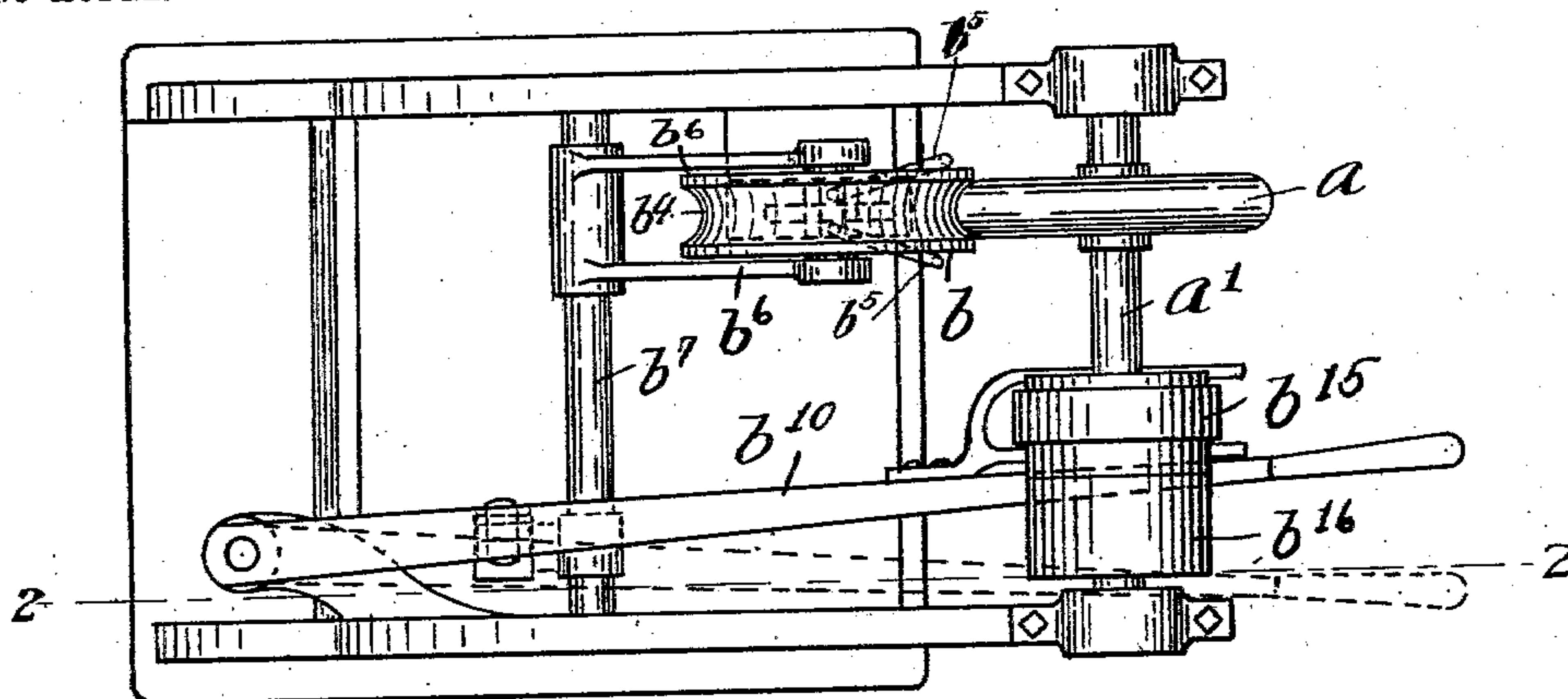


Fig. 1.

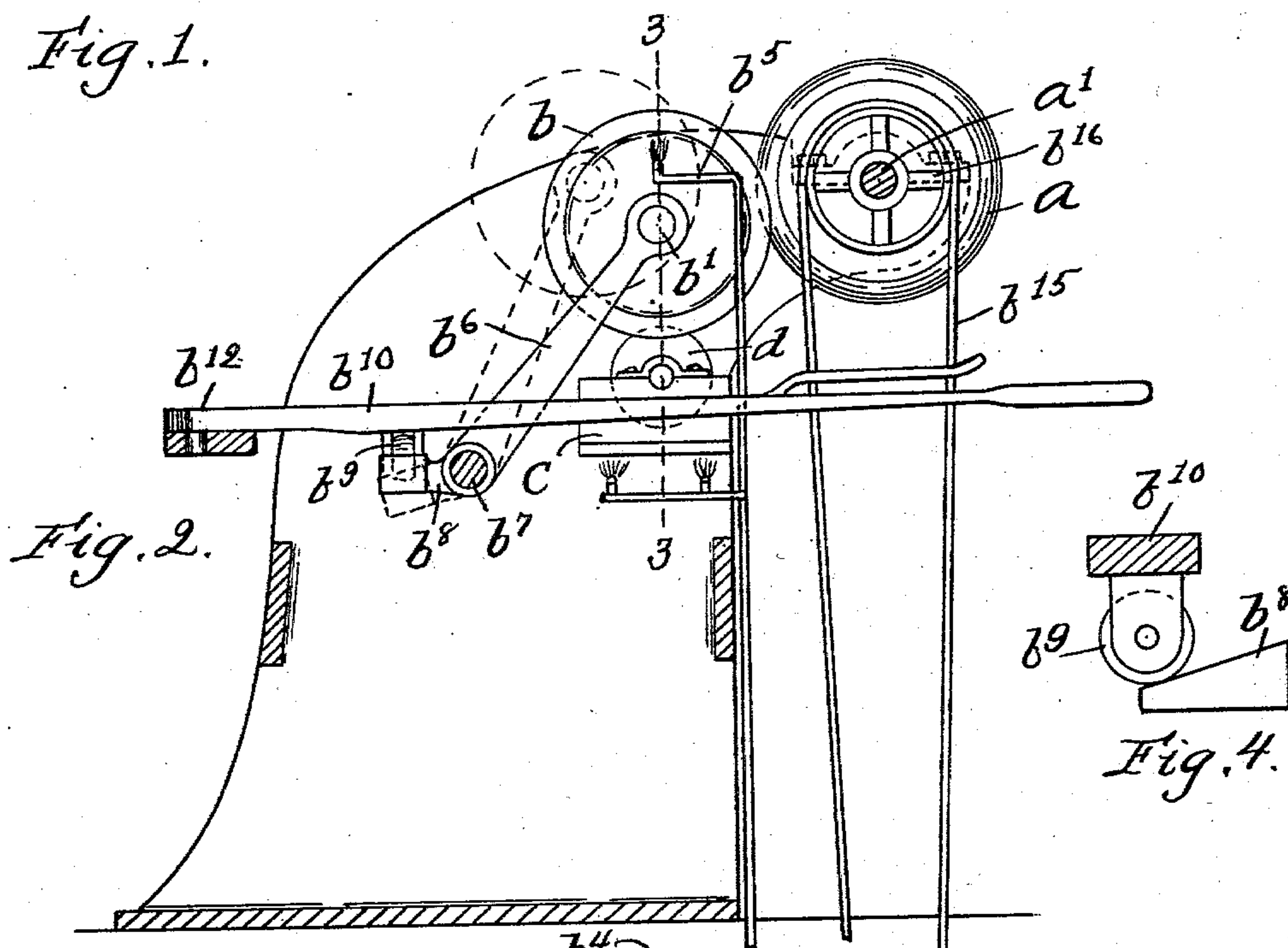


Fig. 2.

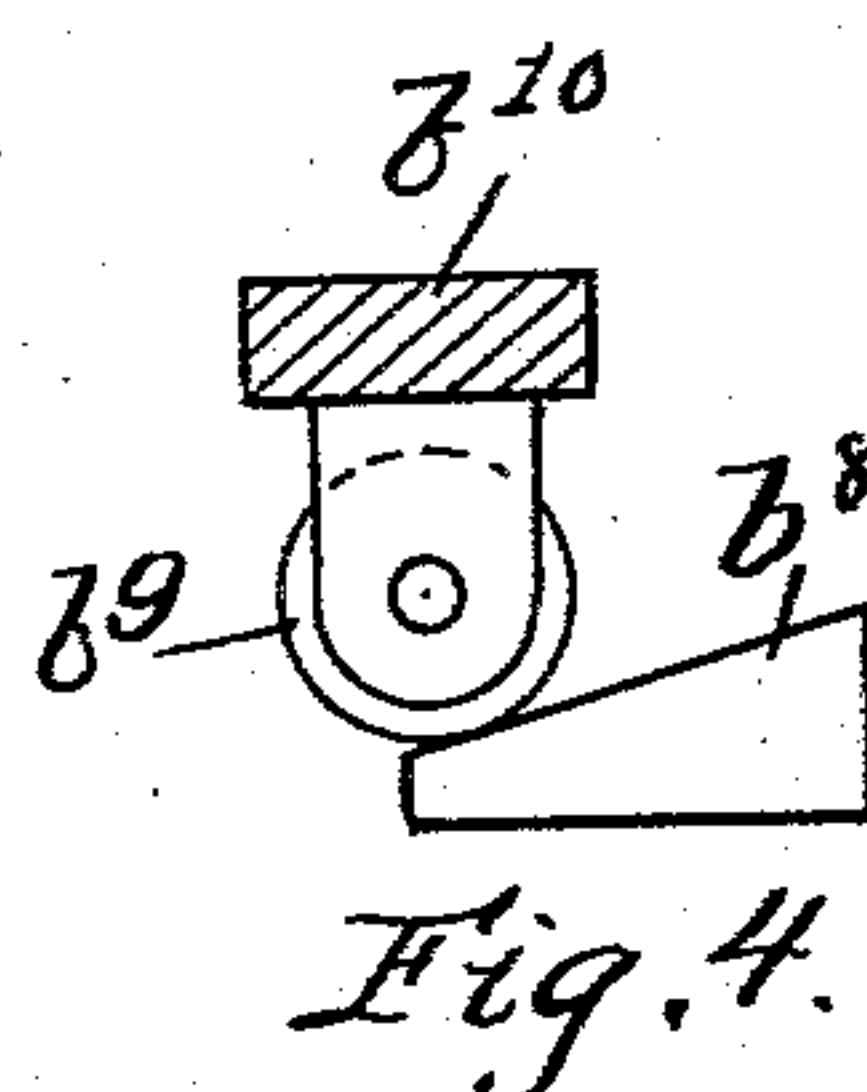


Fig. 4.

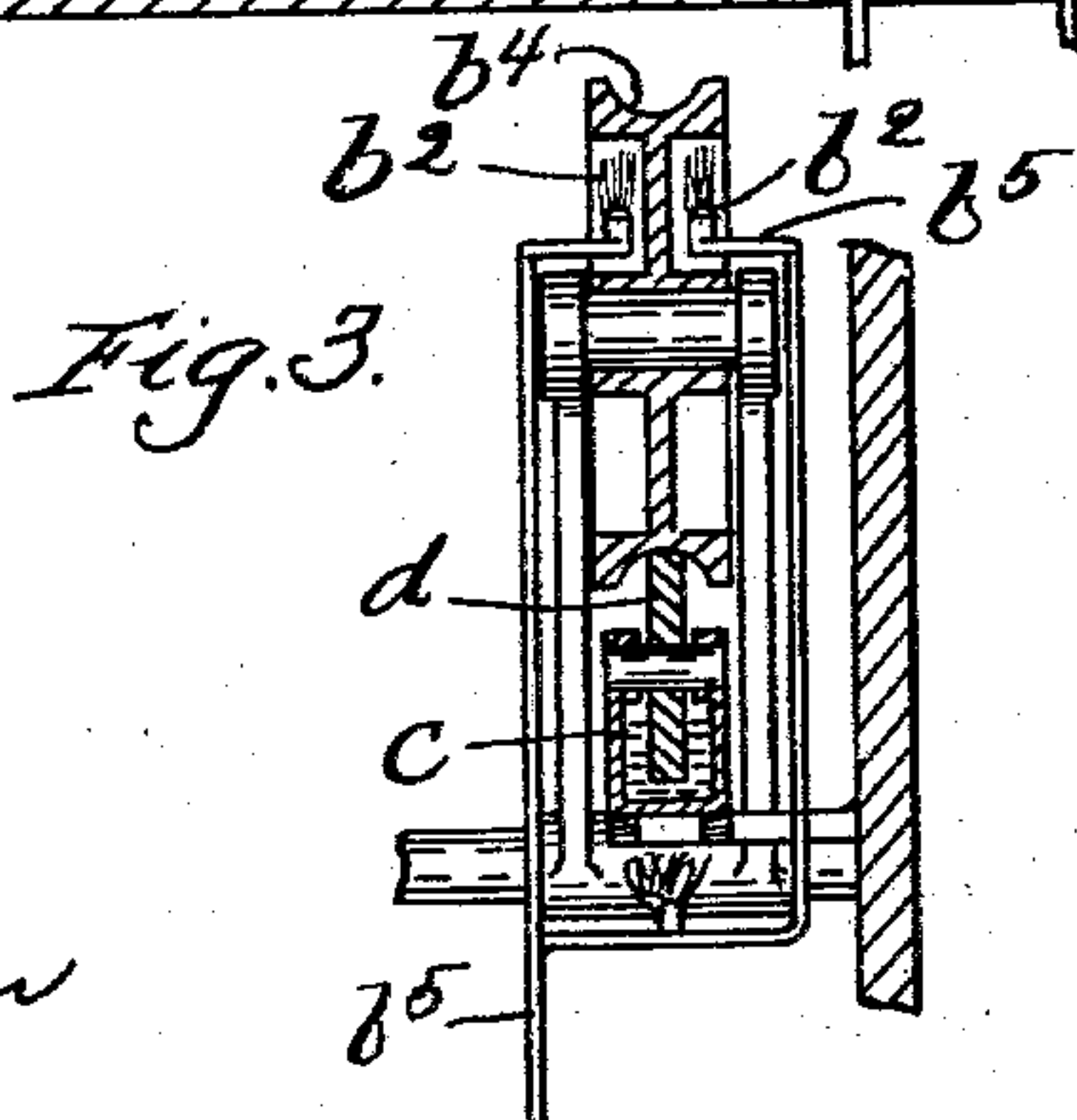


Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## HEEL-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 743,993, dated November 10, 1903.

Application filed March 25, 1902. Serial No. 99,851. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT W. THOMSON, of Lynn, county of Essex, and State of Massachusetts, have invented an Improvement in  
5 Heel-Finishing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

10 This invention has for its object the production of an improved machine for finishing heels, said machine being constructed and arranged to apply a hard wax to the heels.

In accordance with this invention I employ  
15 any usual or suitable form of cloth wheel or cloth-covered wheel or other flexible non-metallic work-rubbing wheel which is constructed with a convex yielding heel-engaging rim, many such wheels being already well known,  
20 and provide means for applying wax to the heel-engaging rim of said wheel and for spreading the wax thereon. Preferably the wax-spreading means is heated, so as to assist in maintaining the heel-engaging rim of said  
25 wheel at a temperature sufficiently high to keep the wax thereon in molten condition while it is being applied to the heel and for shaping the heel-engaging rim of said wheel.

In practice the heel is held pressed against  
30 the work-rubbing wheel with considerable pressure, and this results in flattening the convex rim of the wheel, which for the best results should be restored to its original shape, so that the portion of the rim acting on the heel  
35 shall always present a convex surface.

The necessity for providing means for acting on the rim of the wheel for restoring it to proper shape is rendered greater by reason of the rim becoming saturated with the  
40 wax, so that its natural resilience is almost entirely destroyed. Consequently one of the important features of my invention consists in the provision of means for molding or restoring to shape the heel-engaging rim of the  
45 work-rubbing wheel.

Figure 1 shows in plan view a heel-finishing machine embodying this invention. Fig. 2 is a vertical section of the machine shown in Fig. 1, taken on the dotted line 2-2. Fig. 3 is

a vertical section of the heated roll and wax-  
50 applying device shown in Fig. 2. Fig. 4 is a detail of the means shown in Fig. 2 for moving the heated roll out of engagement with the work-rubbing wheel.

In the embodiment of the invention herein  
55 shown, *a* represents a flexible non-metallic work-rubbing wheel or roll, which is here shown as a cloth wheel or cloth-covered wheel, and *a'* represents a shaft to which the work-rubbing wheel is secured. 60

*b* represents an idle roll which is loosely mounted on a bar *b'* and disposed relatively to the work-rubbing wheel to bear upon its heel-engaging rim. The roll *b* has an annular recess *b<sup>2</sup>* in one or both of its sides, which  
65 provides for the employment of suitable gas-burners *b<sup>5</sup>*, by means of which said roll is heated.

As the work-rubbing wheel *a* is formed with a semicircular or equivalent convex  
70 form of heel-engaging rim, the heated roll *b* will be formed with a circumferential groove or recess *b<sup>4</sup>* of a corresponding shape in order that it may snugly embrace the wheel.

The heated roll, shaped as described, acts  
75 on the wax-saturated rim of the work-rubbing wheel, heating said rim and molding it in accordance with the face of the heated roll, thereby effectually restoring said rim to its original form. 80

The shaft or bar bearing the heated roll *b* is held in suitable bearings in a movable frame, which is herein shown as comprising a pair of arms *b<sup>6</sup>*, secured to a shaft *b<sup>7</sup>*, held in suitable bearings in the frame of the ma- 85

chine. The shaft *b<sup>7</sup>* has an arm *b<sup>8</sup>* projecting from it, formed with an inclined surface which is engaged by a friction-roll *b<sup>9</sup>*, borne by a lever *b<sup>10</sup>*, pivoted at *b<sup>12</sup>*, said lever extending  
90 forward within easy reach of the operator. By swinging said lever from the full-line position to the dotted-line position in Fig. 1 the arm *b<sup>8</sup>* will be depressed and the shaft *b<sup>7</sup>* correspondingly rocked and the heated roll  
95 *b* moved out of engagement with the work-rubbing wheel.

The lever *b<sup>10</sup>* has secured to it a yoke,



which serves as the belt-shifting device for the belt  $b^{15}$ , which drives the pulleys  $b^{16}$ , mounted on the shaft  $a'$ .

The lever  $b^{10}$  will be moved to shift the belt onto the fast pulley at the same time that it operates to move the heated roll into engagement with the work-rubbing wheel and to shift the belt onto the loose pulley at the same time that it operates to move the heated roll out of engagement with the work-rubbing wheel. It is important to remove the heated roll from engagement with the work-rubbing wheel when said wheel is at rest to prevent the heated roll injuring the wheel by standing in engagement therewith.

Beneath the heated roll  $b$  a wax-pot  $c$  is provided which is supported by the frame, and a wax-delivering roll  $d$  is contained in the wax-pot, projecting above the wax-pot into a position to be engaged by the heated roll  $b$  when the heated roll is in its operative position in engagement with the work-rubbing wheel  $a$ , and as said roll  $d$  is turned by the heated roll  $b$  it takes from the wax-pot and delivers to the heated roll  $b$  a supply of hot wax, which is transferred by said heated roll to the wheel  $a$ . When the heated roll is moved to place it out of contact with the work-rubbing wheel, it is also removed from engagement with the wax-delivering roll  $d$ , as shown in dotted lines in Fig. 2. The wax-pot is heated for melting the wax in any suitable manner—as, for instance, by a gas-flame, as shown in the drawings.

The wax-delivering roll  $d$  will be made very narrow, so that but a small quantity of wax will be supplied to the heated roll  $b$ .

In practice the work-rubbing wheel  $a$  will be driven at high speed, and the hot wax conveyed to it by the heated roll  $b$  will be applied to the heel and rubbed over the surface of the heel.

It will be seen that the heated roll  $b$  not only conveys heated wax to the work-rubbing wheel and spreads it over the convex surface of the cloth rim of said wheel, but it also heats the said rim, so as to soften the wax with which it is saturated and mold the rim into its normal convex shape after it has been flattened out by contact with the heel of the shoe being treated. By heating the work-rubbing wheel by means of the wax-conveying roll, as described, the wax or finishing material on said rubbing-wheel is kept hot and in proper condition for the finishing operation.

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

1. In a machine of the class described, a work-rubbing wheel having a yielding working surface, a roll, out of contact with the work, and shaped to embrace the working surface of said work-rubbing wheel, and means for heating said roll, whereby heat is imparted to said wheel, substantially as described.

2. In a machine of the character described, the combination of a rotating work-rubbing wheel having a yielding convex rim, and a roll adapted to engage said wheel having a relatively unyielding concave rim which receives the convex rim of said wheel and thereby shapes said rim, substantially as described.

3. In a machine of the character described, the combination of a rotating work-rubbing wheel for applying finishing material to the work, said wheel having a yielding convex rim, and a roll adapted to engage said wheel and having a relatively unyielding concave rim which receives the convex rim of said wheel and thereby spreads the finishing material over the convex surface of said rim, substantially as described.

4. In a machine of the character described, a rotating work-rubbing wheel having a yielding convex rim, and a roll adapted to engage said wheel, said roll having a relatively unyielding concave rim which receives the convex rim of said wheel, and means for heating said roll whereby the rim of the work-rubbing wheel is heated and shaped.

5. In a machine of the character described, the combination of a rotating work-rubbing wheel having a yielding convex rim of material capable of absorbing wax, means to apply wax to said work-rubbing wheel, and a heated roll adapted to engage and heat said wheel, and having a relatively unyielding concave rim in rolling contact with the convex rim of said wheel whereby said yielding rim is heated to soften the wax thereon and molded into convex shape, substantially as described.

6. In a machine of the character described, a rotating work-rubbing wheel, a heated roll directly engaging and thereby heating the rim of said wheel, a device for supplying said heated roll with wax, and a wax-pot containing said device, substantially as described.

7. In a machine of the character described, the combination of a rotating work-rubbing wheel having a yielding convex rim, and a heated roll adapted to engage and heat said wheel, said roll having a relatively unyielding concave rim which receives the convex rim of said wheel and thereby shapes it, a movable support for said heated roll, and means for moving said roll into and out of operative relation to the work-rubbing wheel.

8. A machine of the class described, comprising a work member having a yielding working face for engaging and applying wax to the surface of the work, means for supplying wax, a conveyer out of contact with the work for transferring wax from said supplying means to said work member, and means to heat the wax while it is on the conveyer whereby the wax is delivered in liquid form to the work member.

9. In a machine of the class described, a work-rubbing wheel, a roll, out of contact with the work, for engaging said wheel, said roll being cut away at its end to form a recess,



and heating means acting on said roll within said recess whereby heat is imparted by said roll to said work-rubbing wheel.

10. In a machine of the class described, a work-rubbing member, wax-supplying means, a conveyer for delivering wax from the wax-supplying means to the work-rubbing member, said conveyer being cut away at its end to form a recess, heating means acting on said conveyer within said recess for maintaining the wax carried by the conveyer in molten condition, and means whereby the workman may render the conveyer operative or inoperative.

11. In a machine of the class described, a shaft provided with a work-rubbing wheel, fast and loose pulleys on said shaft, a roll for engaging said work-rubbing wheel, said roll being arranged to be moved toward and from position to engage said wheel, and means for shifting a belt from one to the other of said pulleys and moving said roll with relation to said work-rubbing wheel.

12. In a machine of the class described, a shaft provided with a work-rubbing wheel, fast and loose pulleys on said shaft, means arranged to be rendered operative or inoperative for supplying wax to said work-rubbing wheel, and means under the control of the workman for shifting a belt from one to the other of said pulleys and simultaneously rendering said wax-supplying mechanism operative or inoperative.

13. In a machine of the class described, a cloth-covered work-rubbing wheel, a roll running in engagement with said wheel and out of contact with the work, and means for heating the roll whereby heat is imparted to the work-rubbing wheel.

14. In a machine of the character described, a work-rubbing wheel, a roll directly engaging the rim of said wheel, means for heating said roll whereby heat is imparted to the

wheel, means for supplying said roll with wax, and means under control of the workman for relatively moving the roll and the wax-supplying means, substantially as described.

15. In a machine of the class described, a rotatable work-rubbing wheel for engaging and imparting a finish to the surface of the work, an idle roll out of contact with the work and arranged to engage the periphery of said work-rubbing wheel, and means for heating said idle roll.

16. In a machine of the class described, a rotatable work-rubbing wheel for engaging and imparting a finish to the surface of the work, a roll out of contact with the work and arranged to engage the periphery of said work-rubbing wheel, means for heating said roll, and means for supplying wax to the roll.

17. In a machine of the class described, a work-rubbing wheel, a roll adapted for running in engagement with said wheel and out of contact with the work, means for heating the roll whereby heat is imparted to the work-rubbing wheel, and a support for said roll arranged to be shifted for moving the roll toward and from the wheel.

18. A machine for finishing heels, comprising a flexible, non-metallic work-rubbing wheel, a roll out of contact with the work, and means for heating the roll, said roll being adapted to occupy an operative position adjacent to the work-rubbing wheel for heating said wheel, in combination with means under the control of the workman for moving said roll toward and from operative position.

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

ROBERT W. THOMSON.

Witnesses:

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