

No. 742,086.

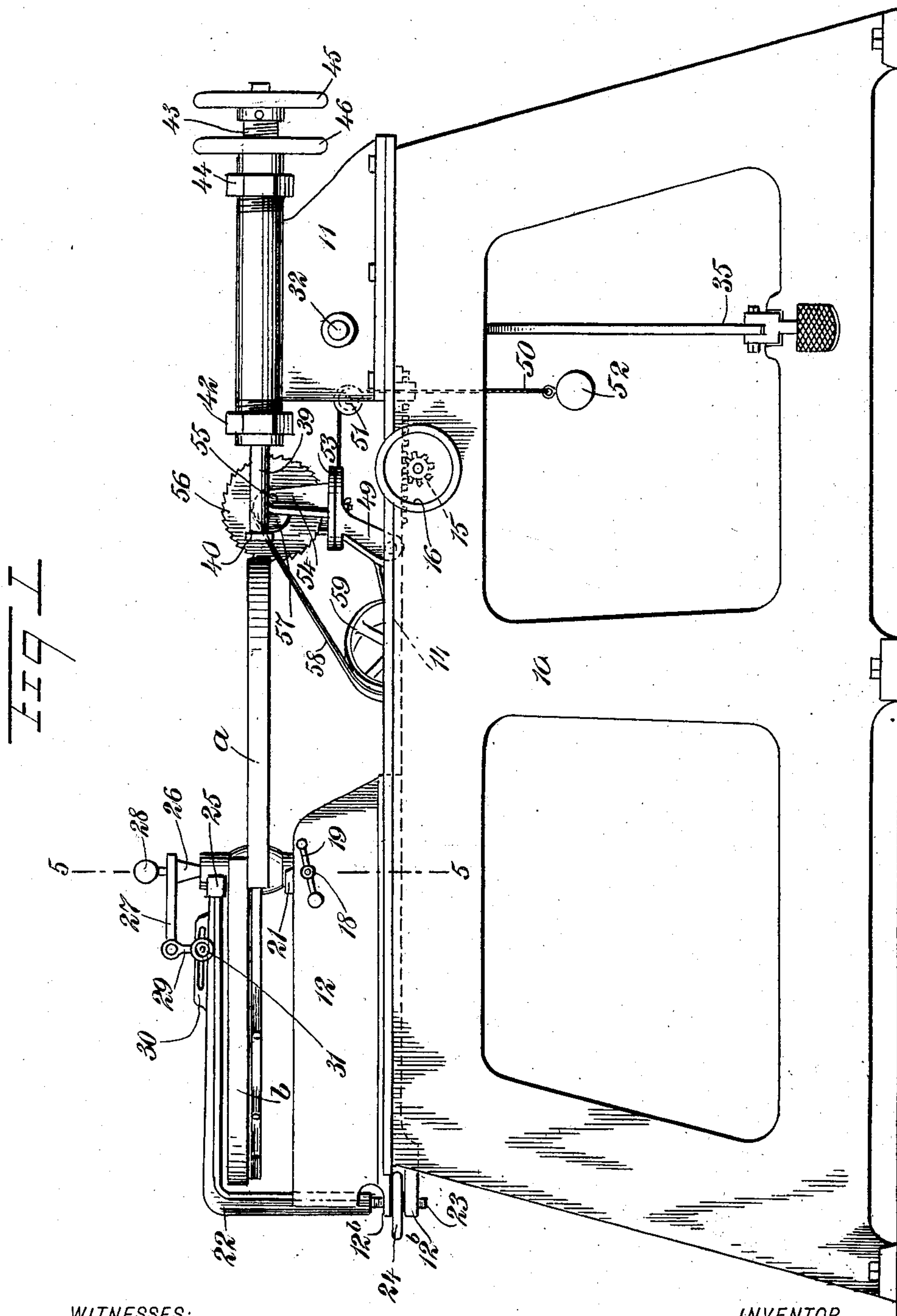
PATENTED OCT. 20, 1903.

F. UNCKRICH.
RIMMING MACHINE.

APPLICATION FILED JULY 15, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

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Isaac B. Owens.

INVENTOR

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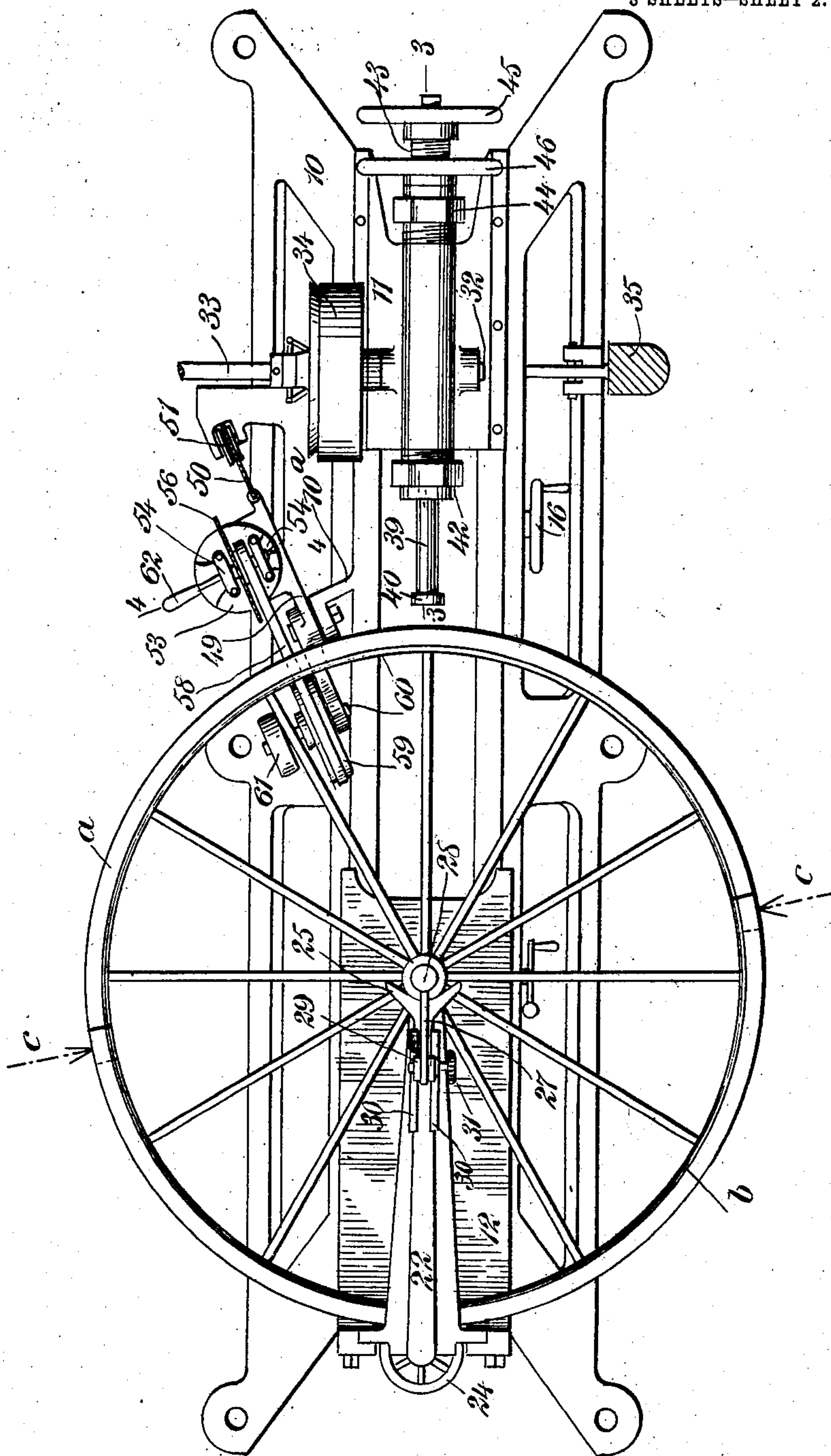
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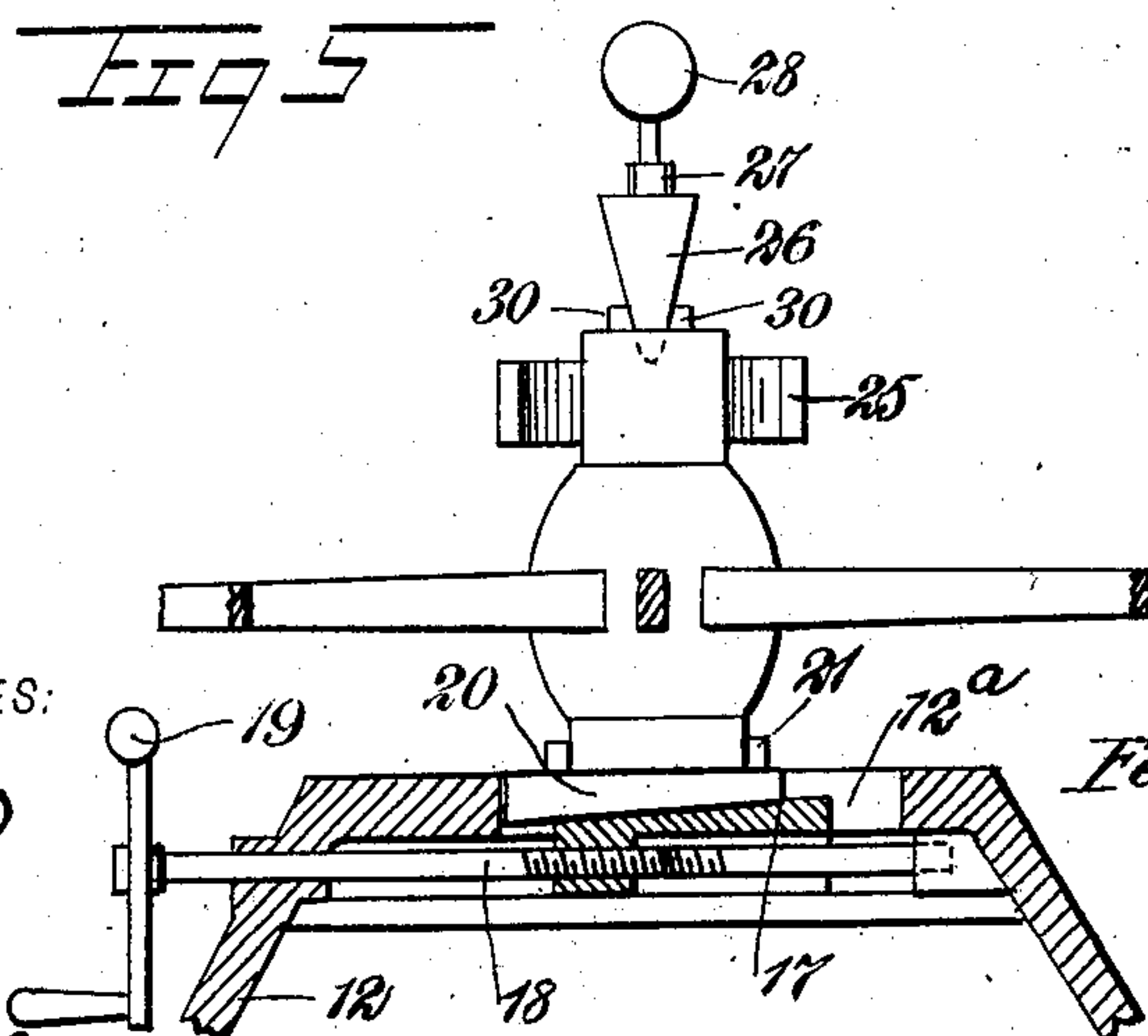
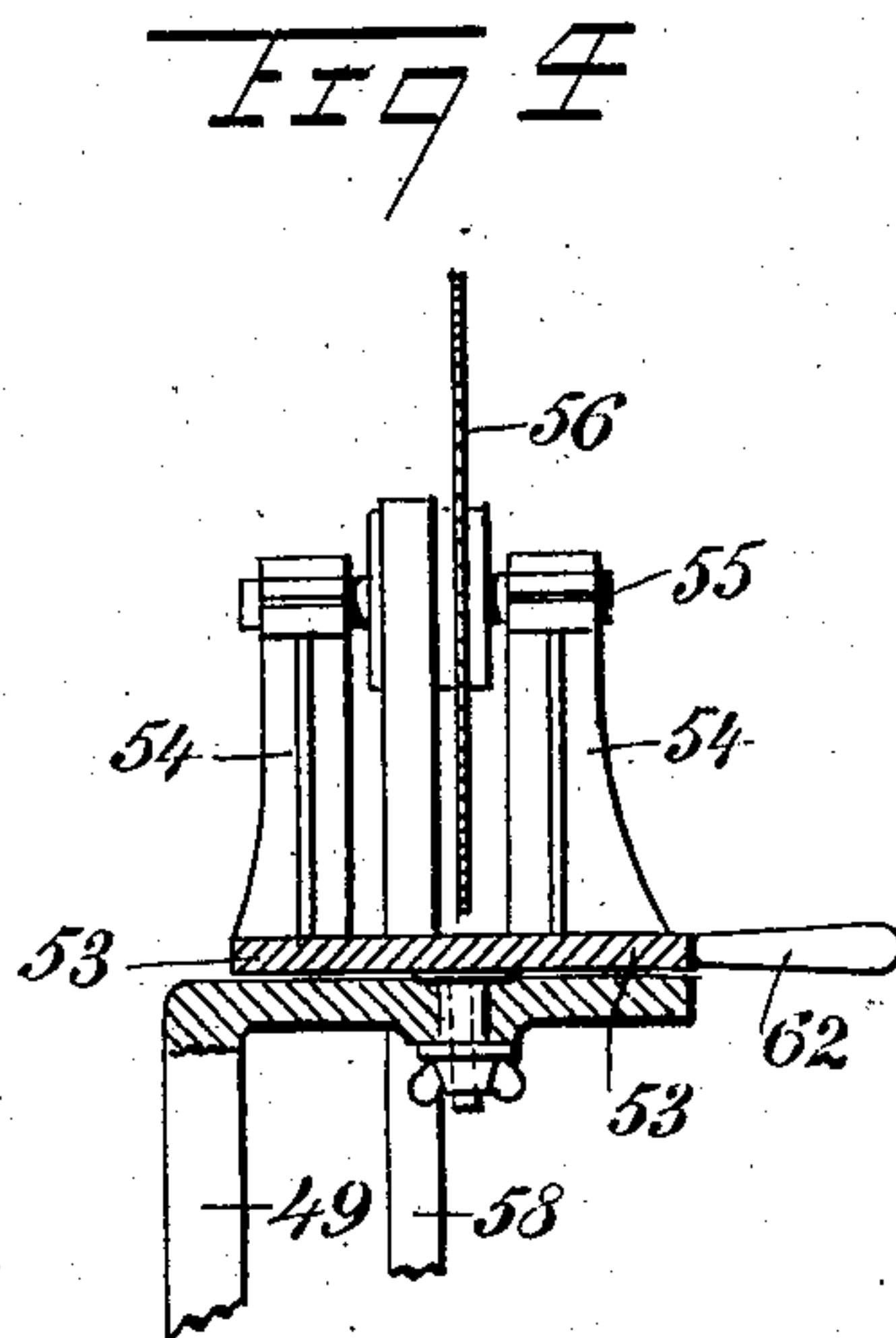
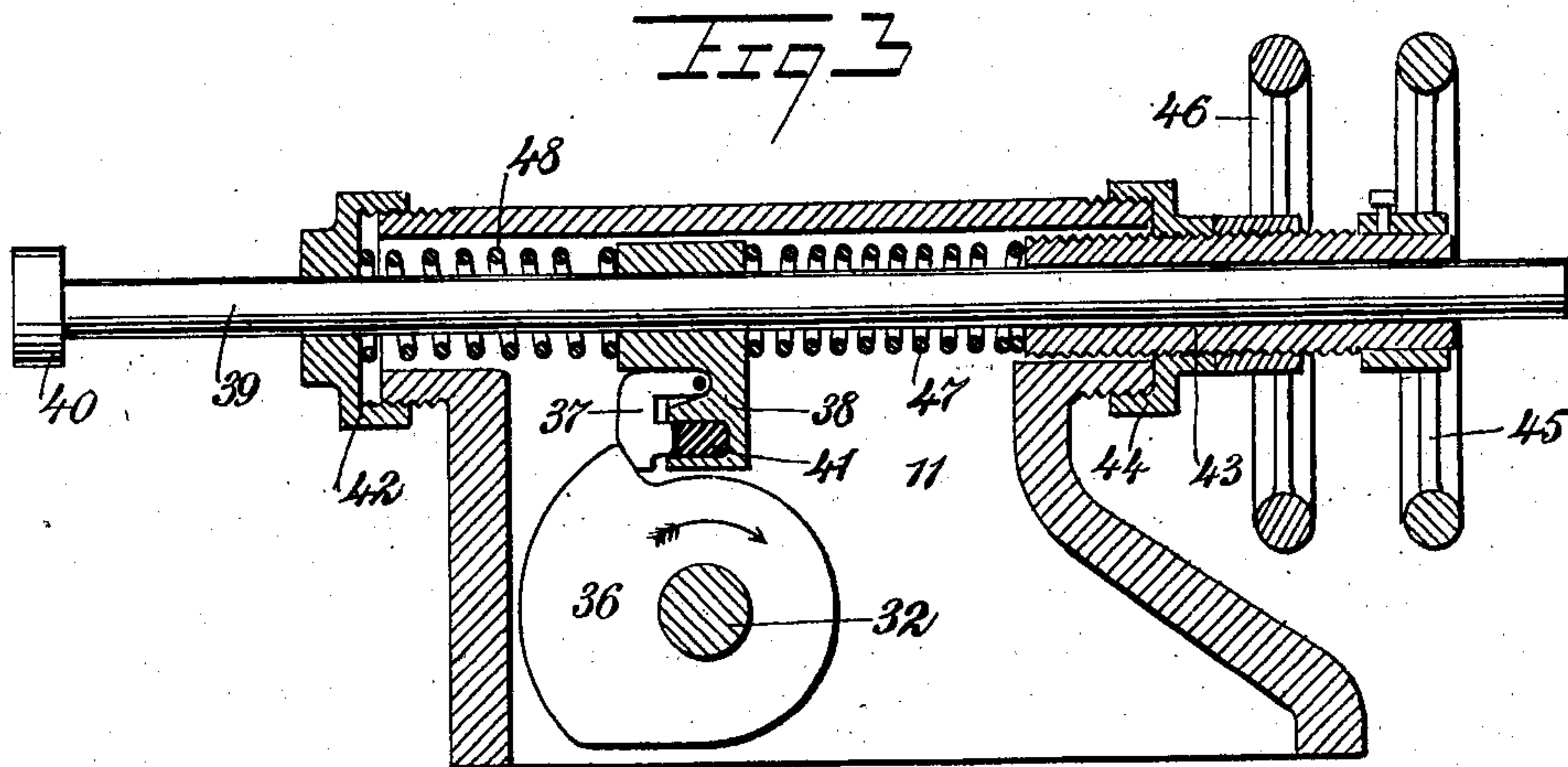
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NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

FERDINAND UNCKRICH, OF GALION, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE DEFIANCE MACHINE WORKS, OF DEFIANCE, OHIO.

RIMMING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 742,086, dated October 20, 1903.

Application filed July 15, 1902. Serial No. 115,673. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND UNCKRICH, a citizen of the United States, and a resident of Galion, in the county of Crawford and State of Ohio, have invented a new and Improved Rimming-Machine, of which the following is a full, clear, and exact description.

This invention relates to an apparatus for applying the rims or fellies to wheels, the spokes having been previously affixed to the hubs.

The machine embodies a saw for trimming the ends of the rim-sections, so as to cause them to fit properly with respect to each other, and a hammer serving to drive the rims into the spokes, together with such auxiliary devices as the means for holding the wheel-hub during these operations, for operating the hammer and saw, and the devices for mounting and adjusting the various operative parts.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the invention. Fig. 2 is a plan view thereof. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is a section on the line 4 4 of Fig. 2, and Fig. 5 is a section on the line 5 5 of Fig. 1.

10 indicates the frame or base of the machine, on the table of which is mounted at one end the head-stock 11 and at the other end the carriage 12, which embodies the devices for holding the wheel. The carriage has two racks 14 connected therewith, (see the dotted lines in Fig. 1,) and these racks extend to the right from the carriage and are meshed with pinions 15, to the shaft of which is attached a hand-wheel 16, facilitating the rotation of the shaft. By these means the carriage 12 may be moved on the frame or base 10 to suit the size of the wheel being operated on. As best shown in Fig. 5, the carriage 12 has a transversely-movable slide 17, mounted just under a cavity 12^a in the carriage, this slide being movable by the action of a threaded rod or shaft 18, extending trans-

versely in the carriage and having a hand-wheel 19 to facilitate its rotation. The slide 17 has an inclined upper surface, on which bears a block 20, longitudinally inclined and having an upwardly-projecting flange 21 of approximately semicircular form. The block 20 is intended to have the hub rested thereon, and the flange 21 serves to position the hub on the block, all of which is shown in Fig. 5. It is clear that by the adjustment of the slide 17 the block 20 may be raised or lowered, and thus the wheel will be held at any elevation desired. On the outer end of the carriage an angled bar 22 is arranged, the vertical part of which is held to move vertically on the carriage and is provided with a threaded stem 23, extending through two lugs 12^b on the carriage, and on this stem between said lugs a hand-nut 24 is arranged. By the operation of this hand-nut the angled beam 22 may be raised or lowered to occupy the desired position. The horizontal portion of the beam 22 extends inward over the carriage, so that the wheel may lie between the carriage and the beam, as shown in Fig. 1. This horizontal portion of the beam terminates in a fork 25, intended to engage the upper end of the hub.

26 indicates a center which serves to engage in the bore at the upper end of the hub, so as to hold the wheel in place and permit it to be turned as the operations of the machine require. This center is held on an arm 27, provided with a weight 28 and pivotally mounted on a slide 29, which works in a guide 30, formed on the horizontal portion of the beam 22, and which is provided with a device 31, by which to lock the slide 29 in any position desired. By these devices a wheel of any size may be properly fitted on the carriage and held to turn around a constant axis.

The head-stock 11 is fixedly mounted on the base or frame 10 and carries revolvably a transversely-disposed shaft 32, to which movement is imparted from a drive-shaft 33 through the medium of a friction or other clutch 34. (See Fig. 2.) This clutch is operated by a treadle device 35, said parts 34 and 35 being of any preferred design. On the shaft 32 within the head-stock is fastened a cam 36, and this cam is designed to strike a

wear-piece 37, pivotally mounted on a collar 38, in turn fastened to the stem or shaft 39 of the hammer 40. The said wear-piece 37 engages at or near its free end with a cushion 5 41, of rubber or the equivalent, said cushion being set into a cavity in the collar 38. The cam 36 turns in the direction of the arrow shown in Fig. 3, striking said wear-piece, and this element being yielding mounted 10 on the collar transmits to the same a cushioned movement. The hammer stem or shaft 39 is mounted to reciprocate longitudinally in the head-stock, the shaft being carried at one end in a box 42, fastened to the inner 15 end of the head-stock, and at its outer end is a sleeve 43, which is threaded into a box 44, carried by the corresponding end of the head-stock. The sleeve 43 is provided with a hand-wheel 45 to facilitate its rotation, and a hand- 20 operated lock-nut 46 is mounted on the sleeve outward from the box 44. By these devices 44, 45, and 46 the sleeve 43 may be moved to any longitudinal position desired with respect to the head-stock, and when properly adjusted 25 this sleeve may be locked securely against further movement. An expansive spiral spring 47 encircles the shaft 39 and bears between the inner end of the sleeve 43 and collar 38, this spring tending to push the shaft 30 39 to the left in Fig. 3 and furnishing the impulsive force of the hammer. By adjusting the longitudinal position of the sleeve 43 the tension of the spring 47 may be regulated at will.

35 48 indicates a buffer-spring which incloses the shaft 39 and bears between the spring 38 and box 42. It will accordingly be observed that as the cam 36 acts on the collar 38 and throws the shaft 39 to the right against the 40 action of the spring 47 when the cam releases the collar the spring 47 will throw the shaft 39 and its hammer 40 to the left, delivering a blow upon the rim of the wheel, and as the cam continues this rotation it again 45 moves the hammer to recover its stroke and again releases it to permit the spring 47 to throw the hammer onward.

49 indicates an arm which is pivoted intermediate its ends on a bracket 10^a, forming 50 part of the frame 10, and to the upper end of which is connected a cord or chain 50, which runs over an idler-pulley 51, carried on the frame, and which has at its lower end a weight 52, serving to throw outward the 55 upper end of the arm. The arm 49 carries at its upper end a table 53, which is arranged to turn around a vertical axis and which has brackets 54 carrying the shaft 55 of a circular saw 56. This shaft 55 also carries a band- 60 pulley 57, over which runs a band 58 down to a pulley 59, mounted on a shaft 60, revolvably carried in the lower end of the arm 49. Said shaft 60 also carries a pulley 61 or other device to facilitate the transmission of rotary 65 movement to the shaft.

62 indicates a handle attached to the table 53 to facilitate moving the same around its

axis independently of the movement of the arm 49. When the upper end of the arm 49 is thrown inward, it carries with it and places 70 the saw in position to act on the rim of the wheel; but when the parts are in normal position under the action of the weight 52 the saw lies apart from the wheel and has no action thereon. It will be observed that the 75 saw is driven from the shaft 60 independently of any movement which might be performed by the arm 49.

The operation of the apparatus is as follows: The hub having the spokes driven there- 80 in is placed on the carriage in the manner described, and one of the rim-sections is placed on the spokes and driven home by the action of the hammer 40. Let it be assumed that this section of the rim is indicated by 85 the letter *a* in Figs. 1 and 2. When this has been done, the other section of the rim, (indicated by the letter *b*,) is placed diametrically opposite the section *a*, with its ends overlapping the ends of the section *a*, and the 90 spokes corresponding to the rim-section *b* are sprung upward to the line of said section and entered into the holes provided for the spokes. When this has been done, the slide 17 should 95 be operated to lower the wheel sufficiently to allow the hammer to work against the rim-section *b* and the wheel should be manually turned to bring this rim-section into line. The rim-section *b* should be driven home onto its corresponding spokes. Then the arm 49 100 should be rocked forward against the action of the weight 52 and the saw 56 caused to cut off the ends of the rim-sections at the points indicated by the arrows *c* in Fig. 2. This allows the ends of the rim-sections to 105 abut snugly together, and said sections will therefore spring toward each other, so as to lie in a plane, whereupon the wheel will be ready to have the rim finally fastened thereto and the tire applied. 110

Various changes in the form and details of my invention may be resorted to at will without departing from the spirit of my invention. Hence I consider myself entitled to all 115 forms of the invention as may lie within the intent of my claims.

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

1. In a rimming-machine, the combination 120 with a means for supporting the wheel, of an arm overhanging the wheel, a slide adjustably mounted thereon, an arm pivotally carried on the slide, and a center pin carried by the last-named arm and adapted to en- 125 gage the upper end of the hub, revolvably to hold the wheel.

2. In a rimming-machine, the combination with the hammer, of a collar attached thereto, a wear-piece pivotally mounted thereon, a 13 cushion engaged by the free portion of the wear-piece, and a rotary cam arranged to strike the wear-piece to operate the hammer.

3. In a rimming-machine, the combination

with the means for holding the wheel and driving the rim, of a saw, and means for mounting the same, said means permitting the movement of the saw toward and from the rim of the wheel and the adjustment of the saw around a center parallel with the plane of the saw.

4. In a rimming-machine, the combination with a frame, of an arm mounted to move thereon, a table arranged to turn on the arm, and a saw carried on the table, the center of the turning movement of the saw being in a plane coincident with or parallel to that of the saw.

5. In a rimming-machine, the combination with a frame or base, of a carriage mounted to move thereon, said carriage serving to sustain the wheel, an arm mounted on the carriage, the arm overhanging the wheel, a center pin adapted to engage the upper end of the hub of the wheel, for the purpose specified, and means for mounting the center pin on the overhanging arm.

6. In a rimming-machine, the combination with a frame or base, of a carriage mounted to move thereon, said carriage serving to sustain the wheel, an arm mounted on the carriage, the arm overhanging the wheel, a center pin adapted to engage the upper end of the hub of the wheel, for the purpose specified, and means for mounting the center pin on the overhanging arm, said means comprising a slide on the arm, and an auxiliary arm pivotally mounted on the slide and having the center pin attached thereto.

7. In a rimming-machine, the combination with a frame or base, of a carriage mounted to move thereon, said carriage serving to sustain the wheel, an arm mounted on the carriage, the arm overhanging the wheel, a center pin adapted to engage the upper end of the hub of the wheel, for the purpose specified, and means for mounting the center pin on the overhanging arm, the said overhanging arm having a fork at its end to engage the hub of the wheel.

8. The combination with a base, of a carriage mounted thereon and adapted to sustain the wheel, an arm mounted on the carriage, said arm extending upward and thence horizontally to overhang the wheel, and holding devices for the wheel, said devices being carried by the overhanging portion of the arm.

9. The combination with a base, of a carriage mounted thereon and adapted to sustain the wheel, an arm mounted on the carriage, said arm extending upward and thence horizontally to overhang the wheel, holding devices for the wheel, said devices being carried by the overhanging portion of the arm, and comprising a center pin adapted to engage in the hub, and a fork adapted to engage the outer portion of the hub.

10. In a rimming-machine, the combination with a frame or base, of a carriage mounted thereon, an arm comprising a vertical and an

overhanging horizontal portion, means for mounting the arm to be vertically adjustable on the carriage, and means carried by the overhanging portion of the arm and adapted to engage the upper part of the wheel-hub, for the purpose specified.

11. In a rimming-machine, the combination with a frame or base, of a carriage mounted thereon, an arm comprising a vertical and an overhanging horizontal portion, means for mounting the arm to be vertically adjustable on the carriage, and means carried by the overhanging portion of the arm and adapted to engage the upper part of the wheel-hub, for the purpose specified, the said means for adjustably mounting the arm comprising lugs on the carriage, through which lugs the threaded portion of the arm is passed, and a nut working on said threaded portion of the arm and bearing between the lugs.

12. In a rimming-machine, the combination with the base, of a carriage mounted thereon, an arm carried on the carriage and overhanging the wheel, means carried by the arm for engaging the wheel to guide the same, and means on the carriage for mounting the wheel, said means being adjustable to raise or lower the wheel.

13. In a rimming-machine, the combination with the base, of a carriage mounted thereon, an arm carried on the carriage and overhanging the wheel, means carried by the arm for engaging the wheel to guide the same, and means on the carriage for mounting the wheel, said means being adjustable to raise or lower the wheel, and comprising a movable slide having an inclined upper surface and a block bearing on said surface and engaged by the wheel.

14. In a rimming-machine, the combination with the base or frame, of a carriage mounted thereon, a slide mounted on the carriage, means for moving the slide, said slide having an inclined upper side, a block bearing on the inclined side of the slide and adapted to sustain the wheel, and means mounted on the carriage and overhanging the wheel to engage the upper portion of the hub thereof, for the purpose specified.

15. In a rimming-machine, the combination with a base, of a carriage mounted thereon, means sustained on the carriage for mounting the wheel, said means being adjustable to adjust the elevation of the wheel, and means mounted on the carriage and extending upward and thence horizontally to overhang the wheel, said means comprising a part engaging the upper end of the hub.

16. In a rimming-machine, the combination with a hammer, of a member attached thereto, a wear-piece movably mounted on the member, a cushion placed back of the wear-piece, yieldingly to sustain the same, and a driven cam arranged to strike the wear-piece to operate the hammer.

17. In a rimming-machine, the combination with a base, of means mounted thereon for

holding the wheel, means also mounted on the base for driving the rim, a movably-mounted arm, a table arranged to turn on the arm, and a driven saw carried on the table.

5 18. In a rimming-machine, the combination with the base and with the means for holding the wheel and driving the rim, said means being mounted on the base, of a member movably mounted on the base, a table arranged
10 to turn on said member, and a driven saw mounted on the table, for the purpose specified.

19. In a rimming-machine, the combination with a base, of means mounted at one end

thereof for holding the wheel, means mounted at the other end of the base for driving the rim, a saw, and means for movably mounting the saw at one side of and intermediate the ends of the frame, said means permitting the saw to be moved toward and from the
20 wheel into and out of operative position.

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

FERDINAND UNCKRICH.

Witnesses:

G. C. BLOOMER,

W. J. GEER.