

No. 670,031.

Patented Mar. 19, 1901.

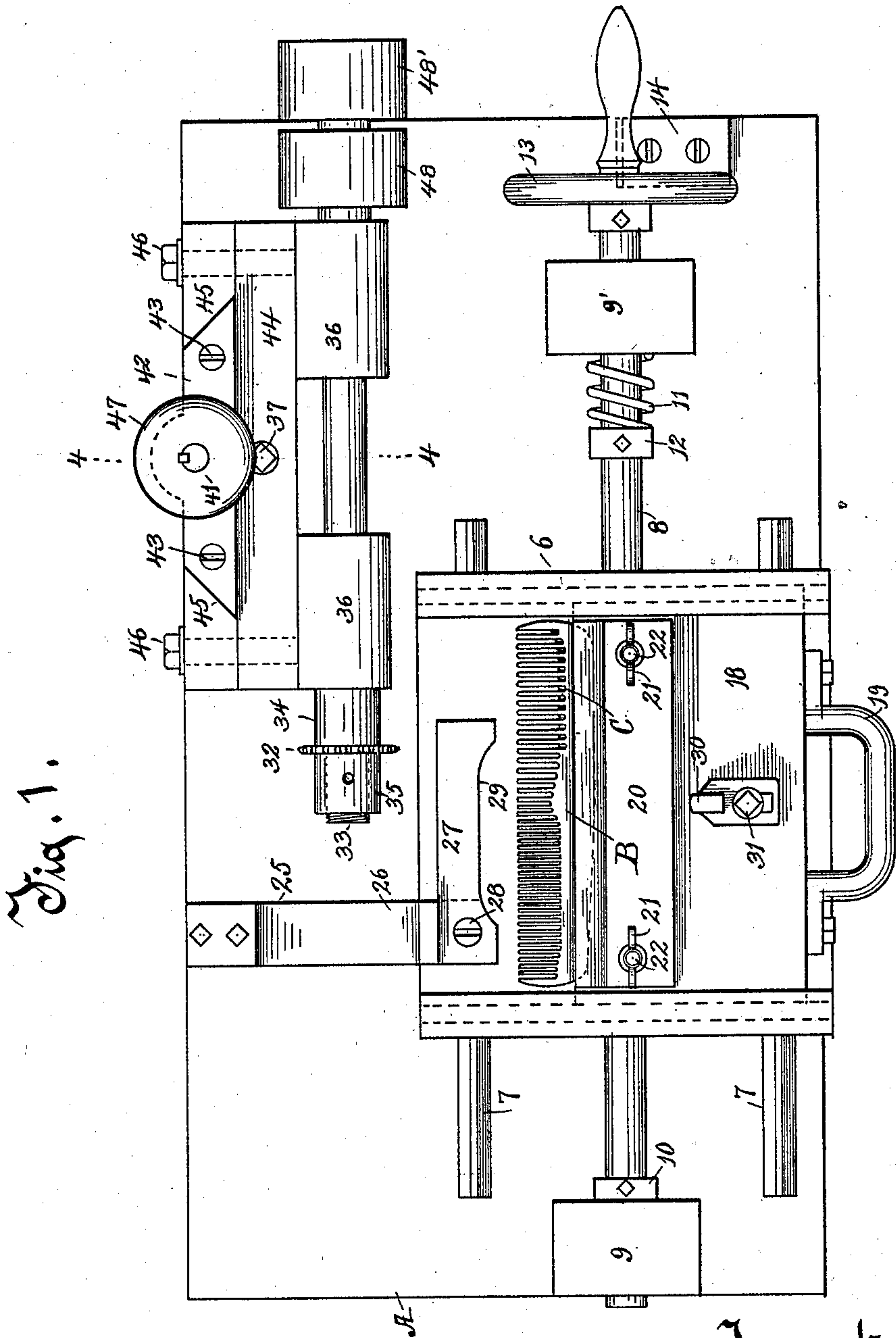
H. MEIHSNER & M. AUMANN.

COMB FINISHING MACHINE.

(Application filed Sept. 11, 1900.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.

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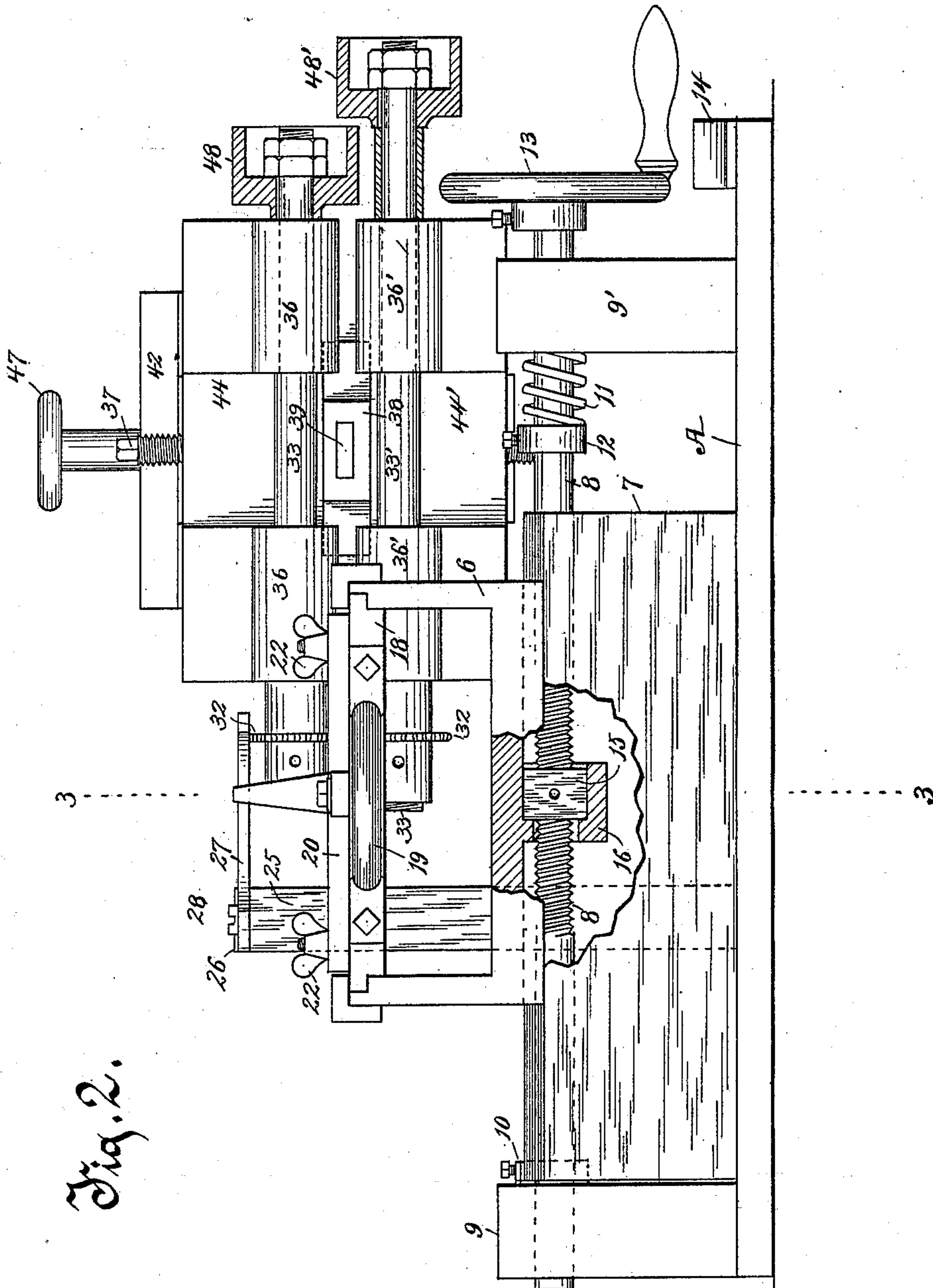
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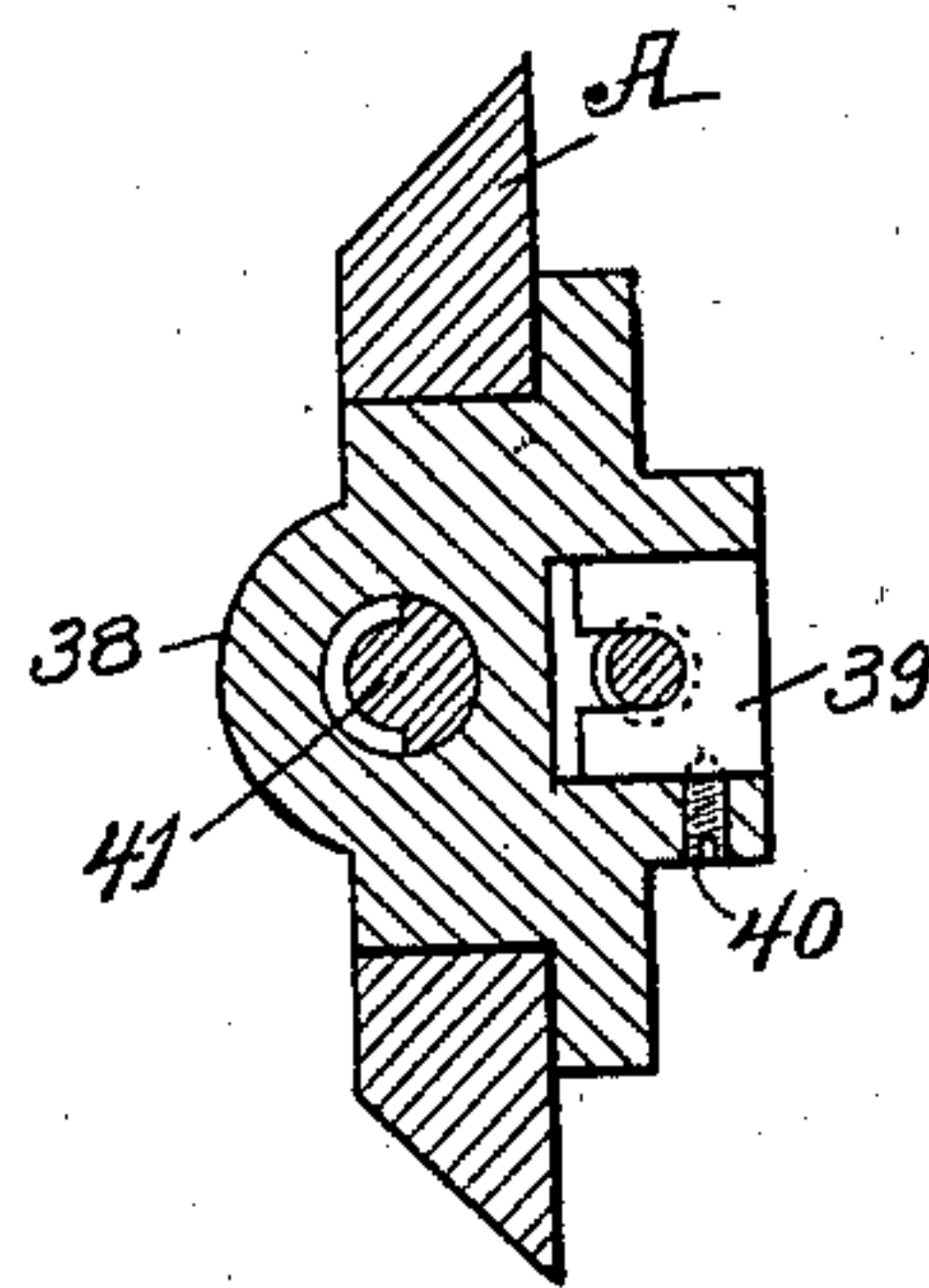
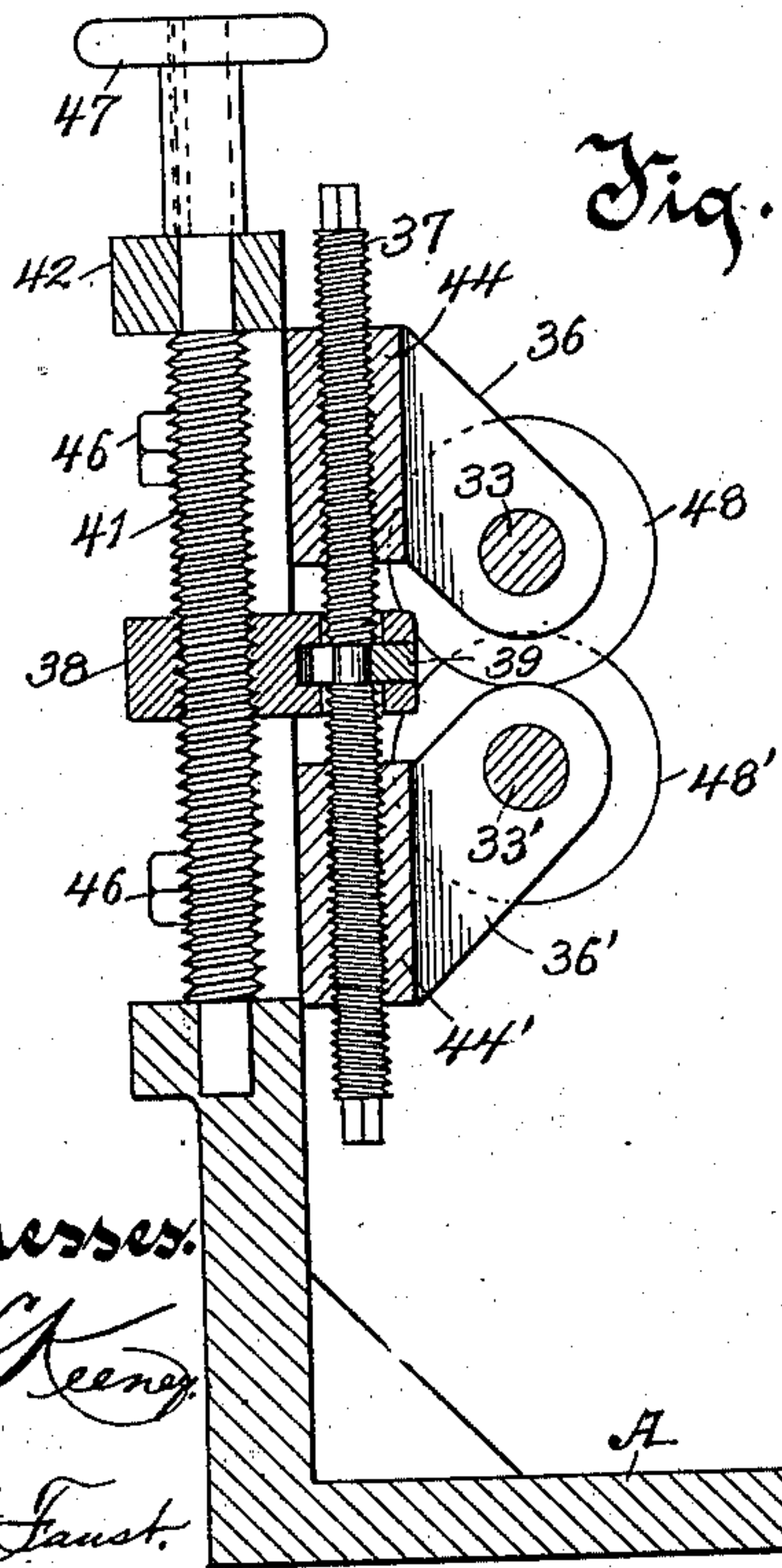
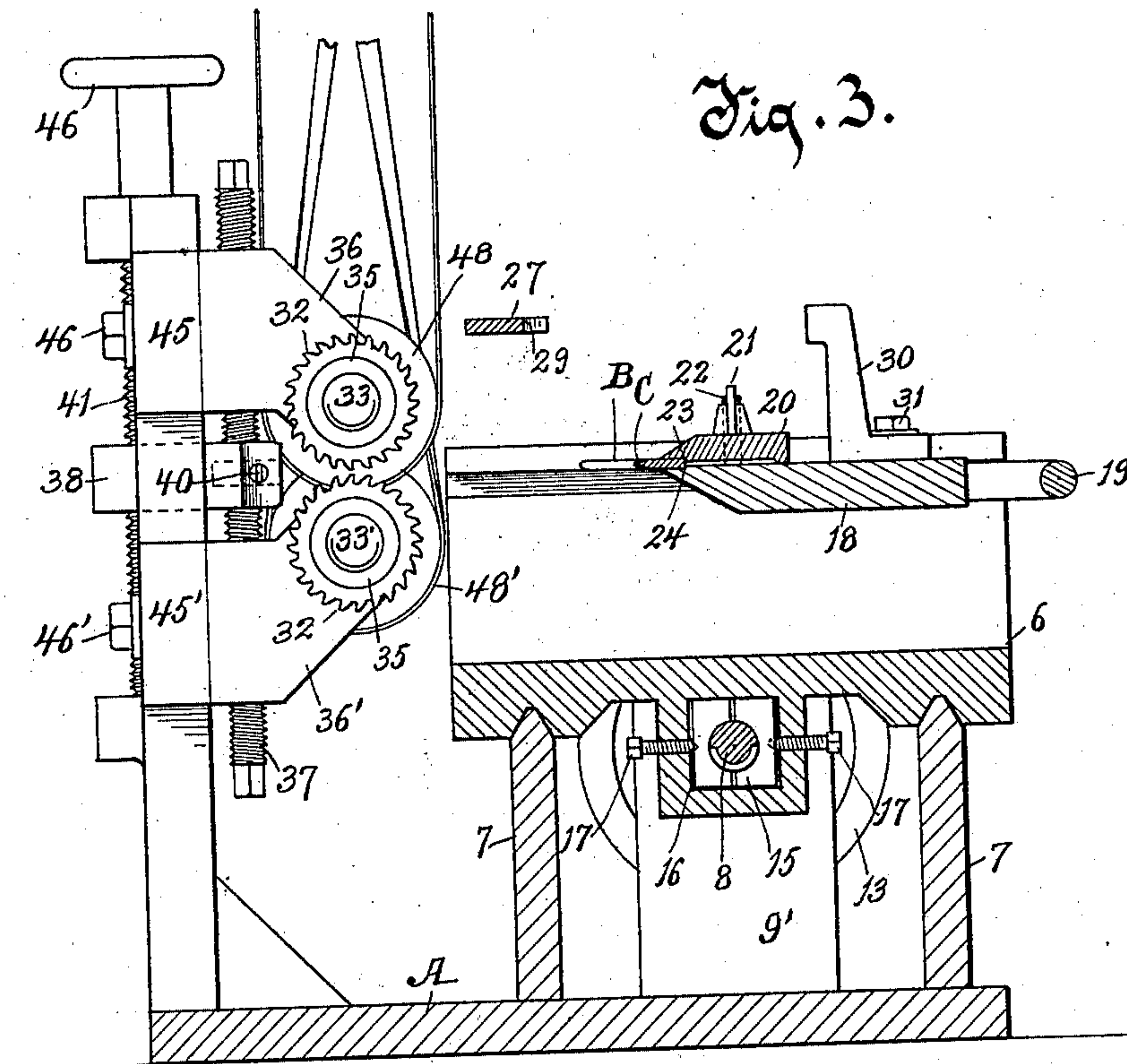
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UNITED STATES PATENT OFFICE.

HENRY MEIHSNER AND MAX AUMANN, OF MANITOWOC, WISCONSIN,
ASSIGNORS TO MANITOWOC ALUMINUM NOVELTY COMPANY, OF
SAME PLACE.

COMB-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 670,031, dated March 19, 1901.

Application filed September 11, 1900. Serial No. 29,647. (No model.)

To all whom it may concern:

Be it known that we, HENRY MEIHSNER and MAX AUMANN, of Manitowoc, in the county of Manitowoc and State of Wisconsin, have
5 invented a new and useful Improvement in Comb-Finishing Machines, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

10 Our invention relates to a machine adapted to be employed for cutting out recesses or pockets in the back of a metal comb at and between the inner or base ends of the teeth of the comb. To that extent the machine is
15 a comb-finishing machine.

The invention consists of the machine and its parts and combinations of parts, as herein described and claimed, or the equivalents thereof.

20 In the drawings, Figure 1 is a top plan view of the machine. Fig. 2 is a side elevation of the machine at the front, parts being broken away for illustrating the interior construction. Fig. 3 is a vertical transverse section
25 on line 3 3 of Fig. 2 looking toward the right. Fig. 4 is a vertical transverse section on line 4 4 of Fig. 1 looking toward the right. Fig. 5 is a transverse section of parts shown in Fig. 4.

30 In the drawings, A is a frame of suitable size and form for supporting the operative parts of the mechanism. The machine in a general way is provided with an adjustable and movable table on which a metal comb is
35 clamped and by means of which it is presented to rapidly-rotating cutting-tools in the general form of circular saws or graining implements. A table-supporting frame 6 is supported reciprocally on ways or tracks 7 7,
40 fixed on the main frame. A frame-shifting screw 8 is mounted revolubly and adjustably endwise in blocks 9 9', fixed on the main frame. A collar 10, secured by a set-screw
45 adjustably on the screw 8, is adapted for adjustment longitudinally on the screw and when adjusted is adapted to bear against the block 9 and prevent the movement of the screw endwise in one direction, and a spring
50 11 about the screw 8, bearing against the journal-block 9' and against a collar 12, secured

by a set-screw adjustably on the screw 8, is adapted to hold the collar 10 on the screw 8 against the journal-block 9. This construction secures the screw 8 in position against
movement endwise when it has been adjusted 55 by means of the collar 10 and the spring 11 and collar 12. A hand-wheel 13 on the screw 8 is a convenient means by which the user of the machine can rotate the screw, and a lug
14, fixed on the frame adjacent to the handle 60 on the hand-wheel, serves as a guide or stop against which a finger of the hand of the user of the machine engages and regulates the movement of the screw. A nut 15, fitted
loosely and adjustably in a socket 16 therefor 65 on the under side of the frame 6, is held thereby against rotation, and the screw 8 turns through the nut. The nut 15 is preferably formed in two parts, the parts being held to-
ward each other and against the screw by 70 means of set-screws 17 17, turning through the walls of the socket 16 against the outer surfaces of the parts of the nut. By this construction the taking up of wear is provided
for and accurate movement of the parts is se- 75 cured. A table 18, fitted in ways therefor on the top of the frame 6, is adapted to slide thereon in a direction at a right angle to the direction of the reciprocation of the frame 6
on the ways 7. A handle 19, secured to the 80 front edge of the table, is a convenient means by which the user of the machine can slide the table forward and back on its frame. A plate 20, above and laterally across the table, is adapted to be clamped to the table and to a
85 comb B, placed on the table under the plate by means of thumb-nuts 21 21, turning on posts 22 22, fixed in the table and projecting loosely through the plate 20. A shoulder 23, on the
under surface of the plate 20, is adapted to re- 90 ceive the outer edge of the back of the comb against it, the shoulder being formed and located to serve as a guide for properly placing the comb on the table under the plate in front
of the cutting-tools. A complementary shoul- 95 der 24 may be provided on the table 18, if desired. As a means for limiting the movement of the table toward the cutting-tools a stand-
ard 25 is fixed on the main frame and a support- ing-arm 26, secured thereto, projects laterally 100

therefrom over the path of the table, and a guard-arm 27 is secured removably by a screw 28 to the arm 26, which guard-arm 27 is provided with an edge having a contour of a form substantially like the contour of the line on the comb to which the cutting-tools are to be advanced. A stop 30, secured to the table 18 adjustably by means of a set-screw 31 through a slot in the foot of the stop and turning into the table, is located in front of the guard-arm 27 and is adapted to prevent the movement of the table 18 in that direction by the contact of the stop against the edge of the guard-arm. The capability of adjustment of the stop 30 on the table 18 provides for permitting of a greater or less length of cut of the tools in the surface of the back of the comb. By removing the guard-arm 27 and replacing it with a similar guard-arm of a greater or less size or slightly different edge contour combs of other forms or styles can be cut, the various arms serving for suitable guards therefor.

For cutting the finishing-sockets in metal combs on both sides thereof concurrently between the teeth at their base in the form and manner shown at C we employ two circular toothed cutting-tools 32, having the general appearance of circular saws, which cutting-tools being generally in the form of annular plates are placed removably, respectively, on shafts 33 33' and are severally conveniently secured thereto by being placed against the end or shoulder of an enlarged part 34 and secured in place by a nut 35, turning on a screw-threaded portion of the shaft against the cutting-tool and holding it against the enlarged part 34. The shafts 33 33' are located opposite each other and in such positions that the cutting-tools are adapted to cut the sockets C one on the upper surface and the other on the under surface of the comb as the comb is pushed between them by advancing the table 18. The shafts 33 33' are respectively mounted rotatively in journal-blocks 36 36', and these blocks are secured to each other adjustably by means of the reversely-threaded screw 37, which screw is secured rotatively medially in a nut-block 38 by means of a journal-block 39, that is inserted in a socket therefor in the nut-block 38, which journal-block 39 encircles a smooth contracted portion of the screw 37 and is held in place in the nut-block by a set-screw 40. The nut-block 38 receives through it an adjusting-screw 41, which screw 41 is footed revolubly in the main frame and near its upper end turns revolubly in a plate-block 42, which is secured to the main frame by screws 43. The journal-blocks 36 36', in which the shaft 33 is mounted, are a part of the head-block 44. Beveled rails 45 45', adjacent to the rear surface of the head-block 44, overhang and are adapted to be clamped against correspondingly-beveled faces on the main frame, the rails being connected to the head-block by screws 46 46', which pass through

the rails and turn into the head-block. Similar rails 45' are connected by screws 46' to the head-block 44'. When the head-blocks 44 44', with the shafts 33 33' therein, have been adjusted toward or from each other by rotating the reversely-threaded screw 37 and the head-blocks and the shafts have been adjusted vertically to desired position by rotating the screw 41, the head-blocks are secured in position releasably on the frame by turning the screws 46 46' into the head-blocks, thus clamping the rails 45 45' and their head-blocks 44 44' to the main frame. The screw 41 is provided with a hand-wheel 47 for conveniently rotating it. The shafts 33 33' are respectively provided with pulleys 48 48', by which they are connected to a source of power.

When used, the comb B is clamped on the table 18, and the frame 6 is adjusted by rotating the screw 8 to proper position to bring an initial intertooth-space in the comb in front of the cutting-tools 32. A guard-arm 27 is placed on the supporting-arm 26, which guard-arm has a contour edge 29 corresponding with the contour of the line of recesses to be cut in the comb, and the stop 30 is adjusted to contact with the guard 27 at the proper moment to prevent the cutting-tools from making a longer cut across the surface of the back of the combs than is desired. The cutting-tools are adjusted at a proper distance apart to suitably cut into the comb in both sides thereof by rotating the screw 37, and the cutting-tools are adjusted at a proper height for receiving the comb between them by rotating the screw 41, and the cutting-tools are clamped in position by turning the screws 46 46' into the head-blocks 44 44'. Thereupon, the cutting-tools being in motion, the comb is moved up between the cutting-tools by sliding the table 18 forwardly in its ways, and when the recesses are cut at the inner end of one intertooth-space the comb is withdrawn from the cutters and the shaft 8 is rotated one revolution, bringing the next intertooth-space opposite the cutting-tools. The shaft 8 is screw-threaded, the distance between which threads is equal to the thickness of a tooth and a space of the comb, so that one revolution of the screw moves the frame 6 a distance equal to the distance from one interdental space to the next interdental space of the comb.

If it is desired to use this machine for finishing combs having teeth of varying distances apart, the shaft 8 and its nut 15 can readily be changed and replaced by a shaft and nut having a thread corresponding with the thickness of the teeth of the comb, so as to adapt it therefor. Such change of screws would be a matter of ordinary mechanical work, and we have not deemed it necessary to show means for the removal of one screw and nut and replacing them by others.

What we claim as our invention is—

1. In combination, a frame, a comb-holding table mounted reciprocally on the frame, a

pair of rotatable cutters opposite each other on parallel shafts on the frame, the cutters being so disposed that a comb on said table by the reciprocation of the table can be inserted between the cutters, journal-blocks 5 slidable on the frame in which said shafts are respectively journaled, means for moving both said journal-blocks toward and from each other coincidentally, and other means 10 for coincidentally and unitedly moving both said journal-blocks and shafts transversely of the plane of movement of the comb-holding table.

2. In combination, a frame provided with 15 ways, a pair of head-blocks 44, 44', shafts provided with circular cutters and mounted in said head-blocks, a reversely-threaded screw mounted rotatably in a nut-block and turning through said head-blocks, a screw mounted 20 ed rotatably in a fixed support and turning

in said nut-block, and means for clamping said head-blocks to said ways.

3. In combination, a main frame provided with ways, a movable frame supported on said ways, a non-revoluble nut in said movable 25 frame, a screw 8 mounted revolubly in the main frame and turning through said nut, a collar 10 on said screw bearing revolubly against a fixed support, and a spring about the screw bearing against a fixed support, and 30 against a collar 12 on the screw adapted to hold the first-enumerated collar 10 against the fixed support.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY MEIHSNER.
MAX AUMANN.

Witnesses:

L. A. SCHMITZ,
SUSAN H. DEMPSEY.