

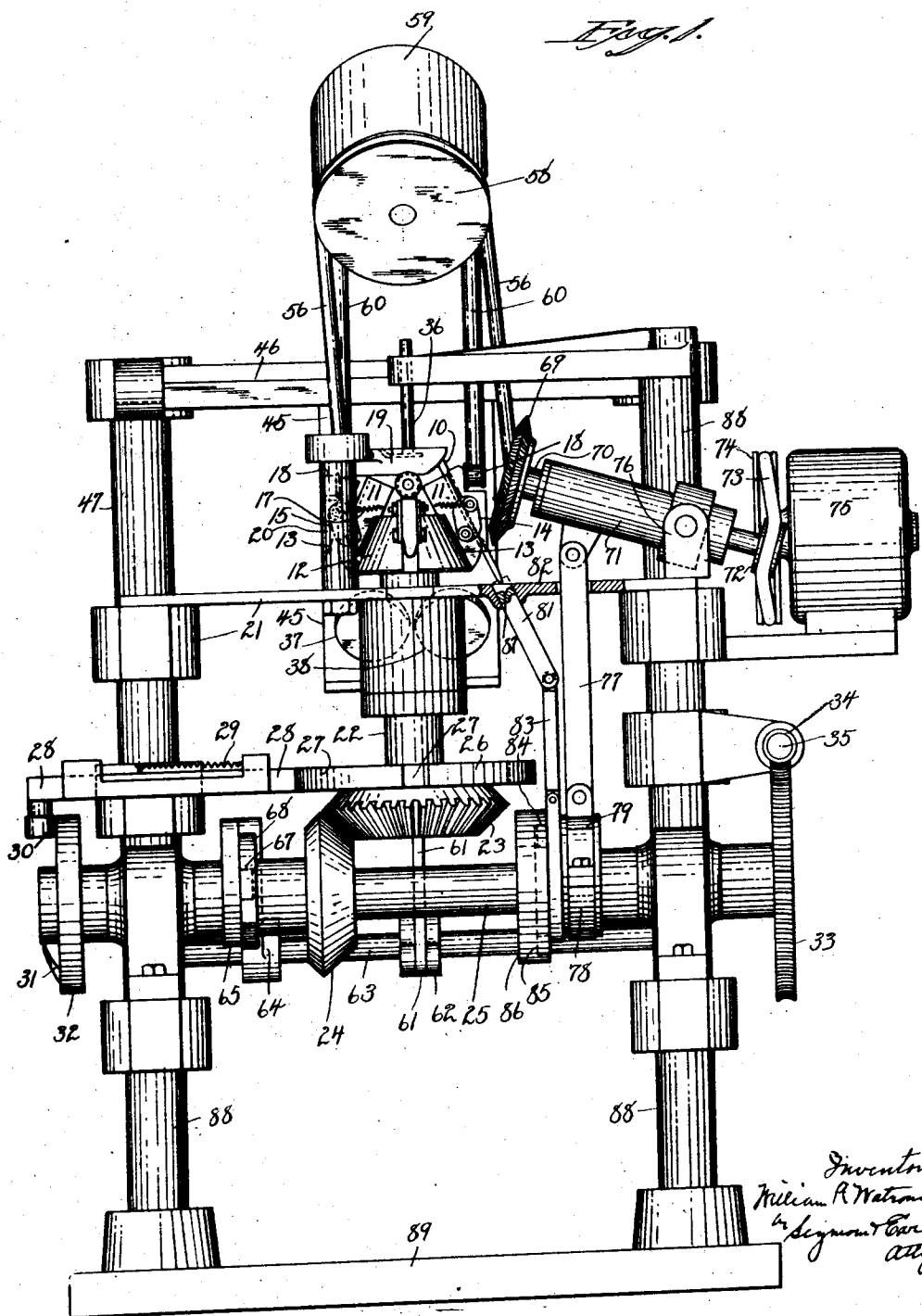
Sept. 15, 1925.

1,553,885

W. R. WATROUS
MACHINE FOR FINISHING CROCHET HOOKS

Filed July 6, 1923

3 Sheets-Sheet 1



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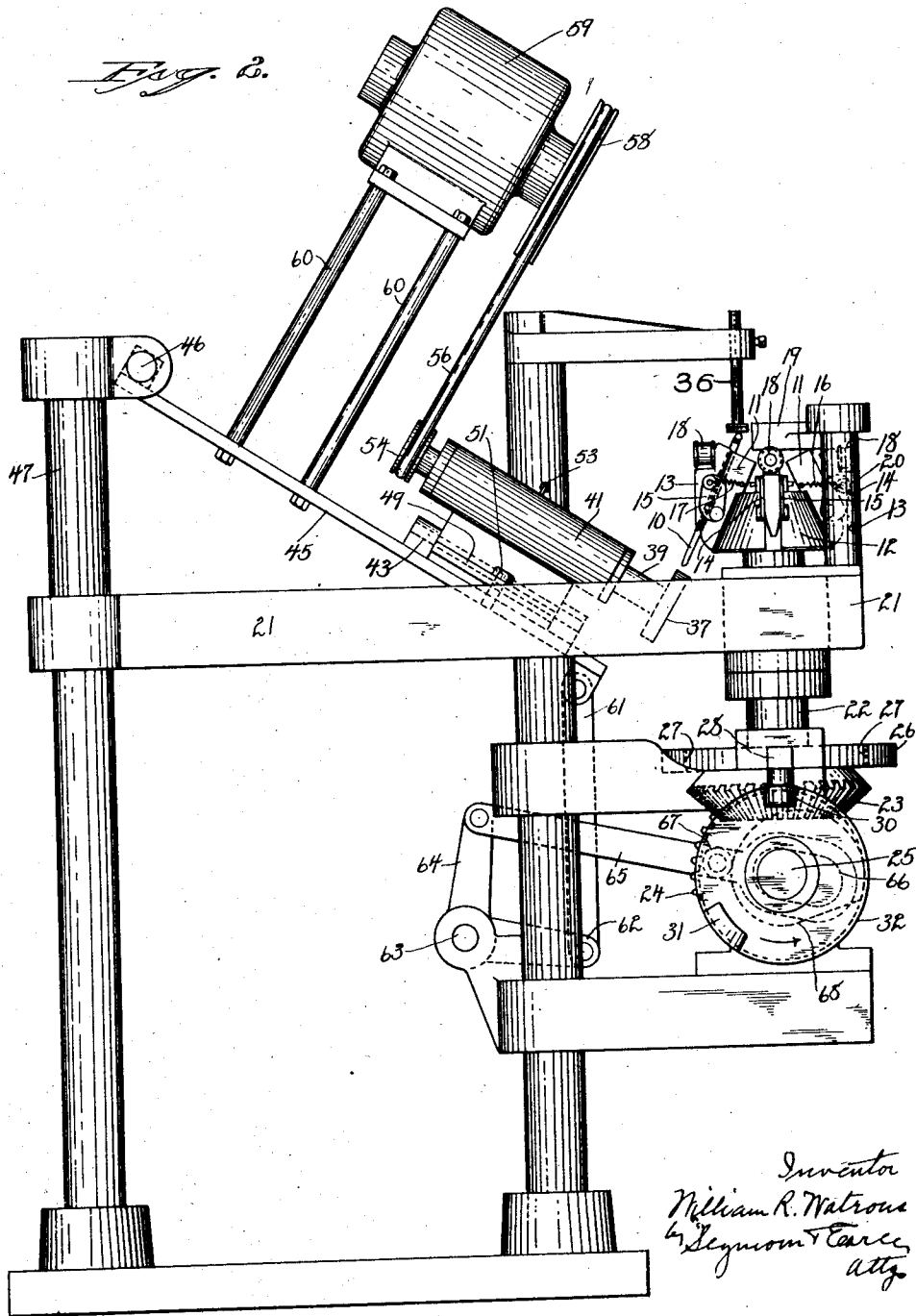
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Fig. 3.

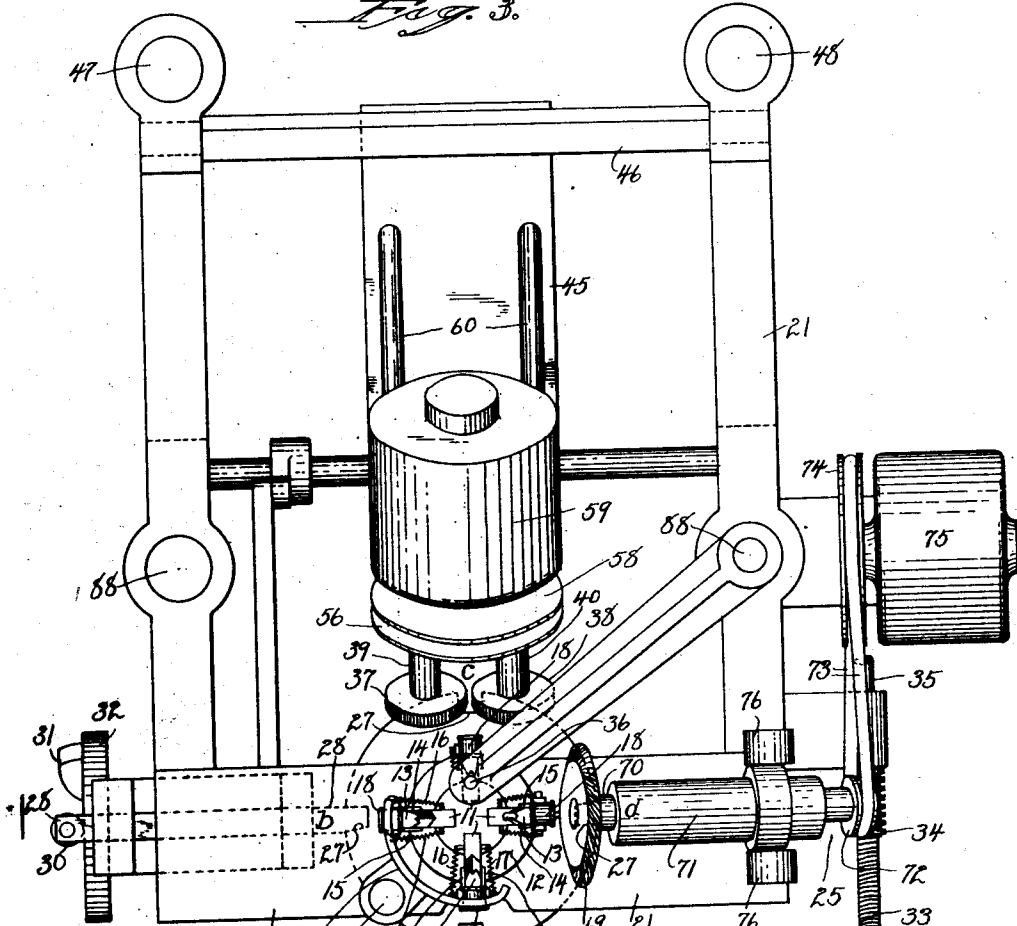


Fig. 4.

Fig. 5.

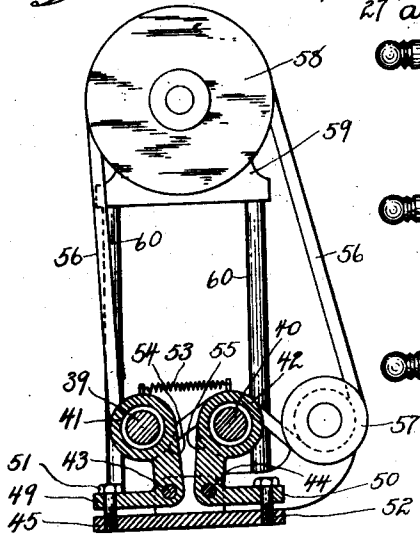
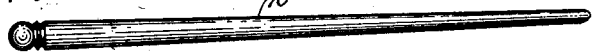


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM R. WATROUS, OF CHESTER, CONNECTICUT, ASSIGNOR TO C. J. BATES & SON,
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MACHINE FOR FINISHING CROCHET HOOKS.

Application filed July 6, 1923. Serial No. 649,830.

To all whom it may concern:

Be it known that I, WILLIAM R. WATROUS, a citizen of the United States, residing at Chester, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Machines for Finishing Crochet Hooks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent in—

Fig. 1 a view in front elevation of a machine for finishing crochet hooks, constructed in accordance with my invention.

Fig. 2 a side view of the same.

Fig. 3 a plan view of the same.

Fig. 4 a transverse section through the table and bearings of the side-cutters.

Fig. 5 a plan view of a blank for crochet hooks which has been turned and beaded.

Fig. 6 a similar view of a blank which has had the sides of its point flattened.

Fig. 7 a side view of a finished crochet hook.

This invention relates to improvement in machine for finishing crochet hooks, the object being to provide a machine which will receive blanks previously turned, tapered, and beaded if desired, at least blanks which are ready to have the hook formed in the smaller end, and the invention consists in the mechanism hereinafter described and particularly recited in the claims.

The construction and operation of the machine will best be understood when described in connection with the several operations.

A blank 10, previously turned, tapered and beaded, is fed, point downward, between an inclined jaw 11, fixed to a tapered head 12, so as to stand in an inclined position, and a movable jaw 13, which is connected, on opposite sides, by links 14 and 15 with the fixed jaw 11; their adjacent faces being grooved to receive the blank. The jaws are forced together by springs 16 and 17. There are four sets of these jaws, and the outer jaws are each provided with rollers 18 to be engaged by a segmental cam 19 extending from the discharge position *a* to the loading position *b*. This cam is rigidly supported by a post 20 rising from the frame 21. The head 12 is mounted on a vertically-arranged shaft 22 carrying a bevel-gear 23 meshing with a segmental bevel-gear 24 on the main driving-shaft 25. The teeth on the gear 24 are so arranged as to intermittently turn the head 12, giving it a series of quarter turns, so as to provide rest periods between them. On the shaft 22 is a stop-disk 26 formed with stop-notches 27, which are entered by a latch 28 arranged in line with them and forced into the notches by a spring 29, the rear end of the latch being provided with a roll 30 arranged to be engaged by a cam-lug 31 on a disk 32 secured to the main driving-shaft 25. The main driving-shaft may be driven from any convenient source, as herein shown being provided with a worm-wheel 33 meshing with a worm 34 on a driving shaft 35 driven by any desired means.

The blank having been fed to the open jaws in station *b*, are carried to station *c*, so as to rest beneath a vertically-arranged backing-pin 36, and the sides of the blank are flattened by two milling-cutters 37 and 38, respectively mounted on shafts 39 and 40, respectively mounted in bearings 41 and 42. These bearings are long tubular bearings mounted on pins 43 and 44 on an oscillating table 45, journaled on a bar 46, journaled in posts 47 and 48. The bearings 41 and 42 have outwardly-turned adjusting-lugs 49 and 50, through which bolts 51 and 52 pass into the table 45, the bearings being drawn together by a spring 53, the depth of cut being determined by the position of the bearings. The shafts 39 and 40 carry, at their rear ends, pulleys 54 and 55, around which a belt 56 passes, the belt passing below the pulley 54 and over the top of the pulley 55 beneath an idler 57 and around a pulley 58 on a cutter-driving motor 59, also supported on the table 45 by means of posts 60. The table 45 is moved up and down by means of a link 61 connected at its lower end with a lever 62 fixed to a rock-shaft 63, to which is also fixed a lever 64, to the upper end of which is pivoted a link 65 having a clearance slot 66, through which the driving-shaft 25 extends. The link carries a roller 67 engaged by a cam 68 on the shaft 25, and so timed that when the blank is at rest.

at station *c*, the cutters 37 and 38 will ride up on opposite sides of the blank and flatten the point, as shown in Fig. 6. The blank is then advanced to station *d*, adjacent to which is an oscillating beveled cutter 69 mounted on a shaft 70 in a rocking-bearing 71, the shaft having a pulley 72 at its outer end, which is driven by a belt 73 running over a pulley 74 on the shaft of a motor 75. The bearing 71 is mounted in a bracket 76 and is connected by a link 77 with an eccentric strap 78 on an eccentric 79 fixed to the shaft 25, and so timed that when the blank is at rest, at station *d*, the cutter will be moved downward, so as to form a notch 80 in the point of the hook, as shown in Fig. 7 of the drawings. While the blank is at station *d*, and just before the cutter 69 moves downward into operating position, the point of the blank is supported by a backing-pin 81, reciprocating in a table 82 and moved upward by a link 83 carrying a roller 84 traveling in a cam-groove 85 of a cam-disk 86 also fixed to the shaft 25. The end of the backing-pin has a slight recess 87, into which the point of the blank extends, so that the point is firmly held against the stress placed upon it by the cutter 69. The blank is then advanced to station *a*, where the roller 18 engaged with the cam-rib 19, by which the outer jaw is moved away from the inner jaw, so as to release the finished blank, which drops down to any suitable receptacle, and the jaws remain open until they again pass station *b*, at which point another blank is fed between them.

It will be understood that the parts are so timed that when one blank is being fed at station *b*, another blank is being operated upon at station *c*, another being notched

at station *d*, and a fourth released at station *a*.

It will be understood that the mechanism is suitably supported by posts 88 on a suitable bed or foundation 89. The blanks thus formed are uniform and the hook is located at a predetermined distance from the point of the completed device.

I claim:

1. A machine for finishing crochet hooks, comprising a tapered head, a series of chucks mounted thereon, each chuck comprising a fixed jaw and a movable jaw connected by links, and each movable jaw carrying a roller, a segmental cam with which the rollers are adapted to engage, whereby the jaws are opened and held open for a predetermined time, means for intermittently moving said head, and means for locking the same for predetermined intervals, a pair of milling-cutters adapted to be moved upward on opposite sides of a blank, when the blank is held in one position, and a beveled cutter adapted to form the hook in the blank when in another position.

2. A machine for finishing crochet hooks, comprising a head carrying four sets of chucks, means for intermittently moving said head and for locking the same in its positions of rest, means for opening and closing said chucks at predetermined times, a pair of milling-cutters adapted to flatten the point of a blank when the blank is in one position, a beveled cutter adapted to form the hook in the blank when in another position, and means for backing up the blank during these operations.

In testimony whereof, I have signed this specification.

WILLIAM R. WATROUS.