

(No Model.)

2 Sheets—Sheet 1.

E. N. BEECHER & L. D. WHITING.
MACHINE FOR CUTTING OFF AND POINTING OR THREADING BLANKS.
No. 356,818. Patented Feb. 1, 1887.

Fig. 2

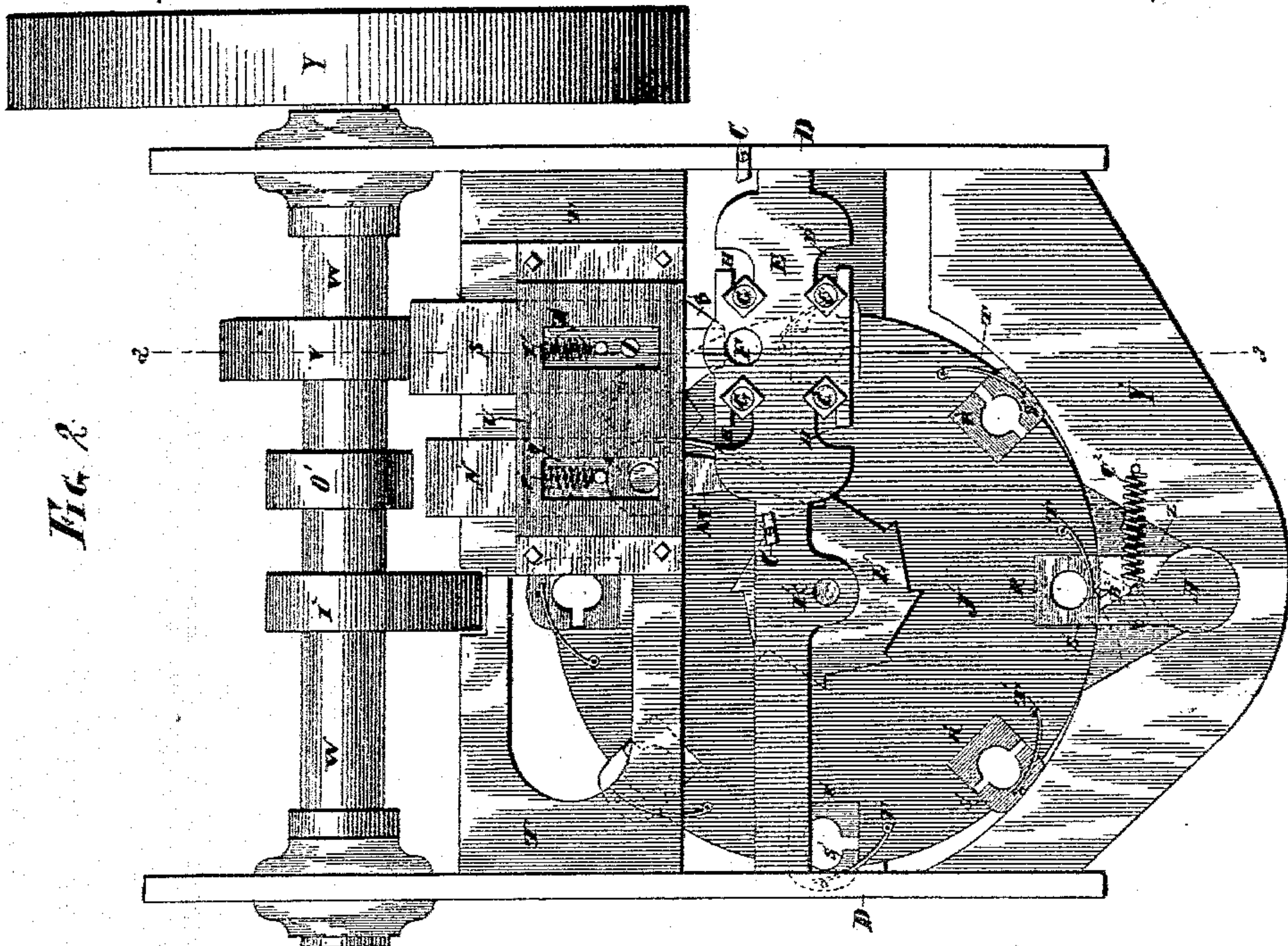
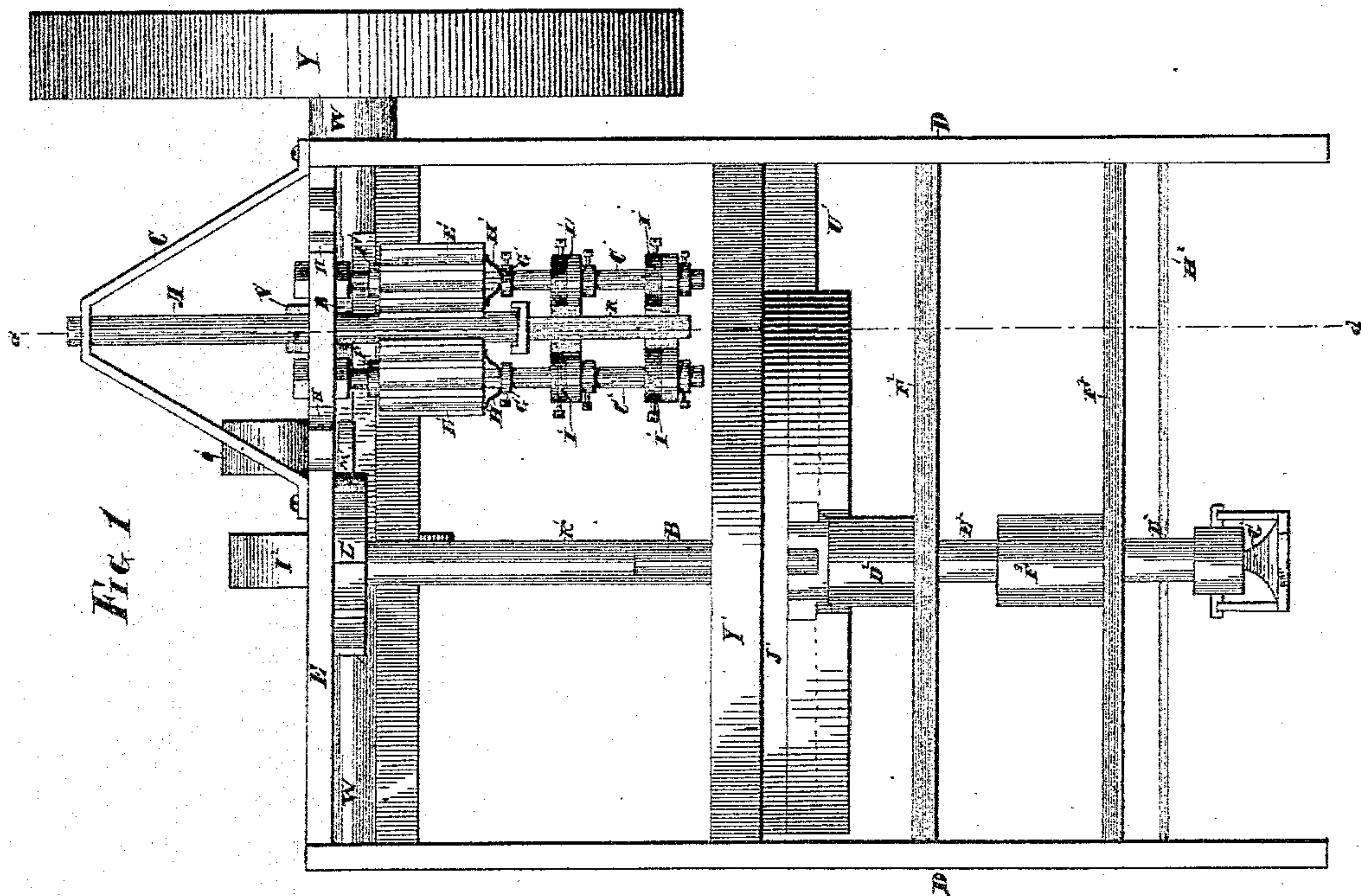


Fig. 1



WITNESSES:

Chas B. Shumway
Edward H. Rogers.

INVENTORS

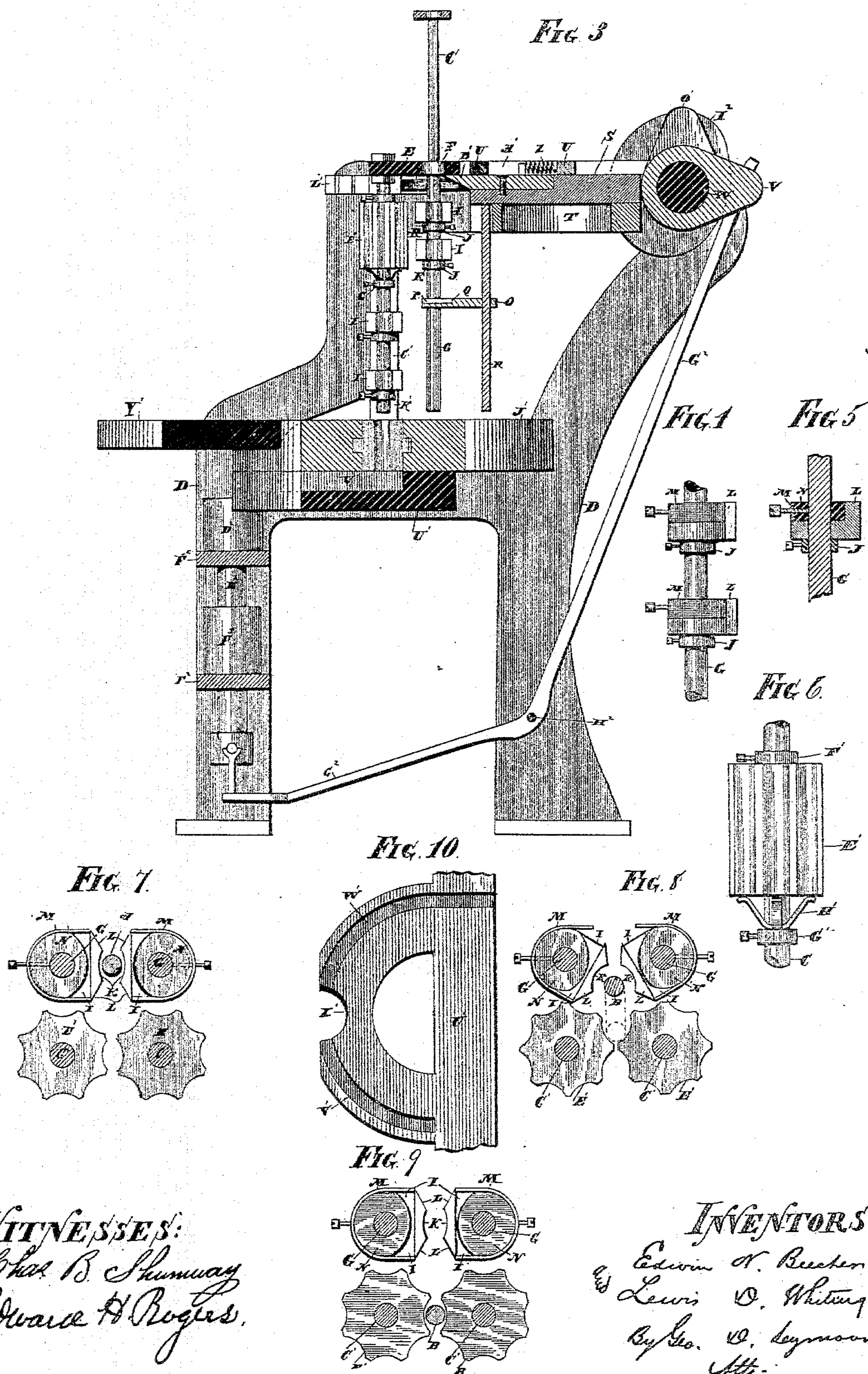
Erwin A. Ruckert
and Lewis D. Whiting.
By Geo. D. Seymour,
Att'y.

(No Model.)

2 Sheets—Sheet 2.

E. N. BEECHER & L. D. WHITING.
MACHINE FOR CUTTING OFF AND POINTING OR THREADING BLANKS.
No. 356,818.

Patented Feb. 1, 1887.



WITNESSES:

Chas. B. Shumway
Edward H. Rogers.

INVENTORS

Edwin N. Beecher.
Lewis D. Whiting.
By Geo. W. Seymour.
Atty.

UNITED STATES PATENT OFFICE.

EDWIN N. BEECHER AND LEWIS D. WHITING, OF SOUTHLINGTON, CONN.

MACHINE FOR CUTTING OFF AND POINTING OR THREADING BLANKS.

SPECIFICATION forming part of Letters Patent No. 356,818, dated February 1, 1887.

Application filed July 15, 1886. Serial No. 208,110. (No model.)

To all whom it may concern:

Be it known that we, EDWIN N. BEECHER and LEWIS D. WHITING, residing at Southington, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Automatic Machines for Cutting and Pointing or Threading Blanks; and we do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to an improved machine for automatically cutting up wire rods into blanks and pointing or threading the same, the object being to produce a machine of such description which shall be simple and durable in construction, reliable and efficient in operation, and have a large capacity for work.

With these ends in view our invention consists in a machine having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in front elevation of a machine embodying our invention. Fig. 2 is a plan view thereof, with the frame for supporting the stock broken away. Fig. 3 is a view of the machine in vertical section on the line *a a* of Figs. 1 and 2. Fig. 4 is a detached view of one pair of the cam-guides. Fig. 5 is a detached view of one of such guides in vertical section. Fig. 6 is a detached view in elevation of one of the fluted guides. Fig. 7 is a plan view showing the relative positions of the cam and fluted guides when the rod descends between the former. Fig. 8 is a similar view showing a blank having the cam-guides, which are deflected forward. Fig. 9 is a like view showing the blank between the fluted guides in position to be dropped into the dial, and Fig. 10 is a broken detached view of the gaging-table.

The wire rod A, forming the stock from which the blanks B are cut, is supported in a frame, C, having its ends respectively secured to the frame D of the machine and to the cross-piece E thereof, the said cross-piece being provided with an opening, F, through which the rod enters the machine. Two upright rods, G G, suspended from such cross-piece through slots H H therein, each carry two cam-guides,

I I, supported upon adjustable collars J J, and provided with concave working faces K K, having upward extensions L L, which are engaged by the opposite ends of springs M M, secured to adjustable collars N N, located above the guides which turn on the rods under the control of the springs. Normally, the concave faces of the guides stand opposite each other, with sufficient space between them to receive the wire rod, such space being exactly in line with the opening F, before mentioned. A gage, O, located below the said guides and in line with the said space and opening, and cut away, as at P, and shouldered, as at Q, is secured with a capacity for vertical adjustment to an upright rod, R, depending from a slide, S, supported upon the cross-piece T of the machine, held in place by the box U, bolted thereto, and reciprocated in a horizontal plane by a cam, V, upon the driving-shaft W, which is driven from a pulley, Y, and by a spring, Z, connecting the slide and the box U, the said spring being located in a slot, A', formed in the box. The said slide carries at its forward end a cutter, B', working upon the under face of the cross-piece and having its forward end to the rear of the forward end of the gage. Two rods, C' C', located directly in front of the rods G G, and suspended from the cross-piece E through slots D' D' therein, each carry a fluted cylindrical guide, E', loosely mounted upon the rods between adjustable collars F' and G', and controlled in rotation by a spring, H', interposed between their lower ends and the collars supporting them, the collars being made adjustable for varying the tension of the springs, and hence the frictional resistance to rotation which the same impose upon the guides. Each of the rods C' C' also carries at a point below its fluted guide two cam-guides, I' I', similar in construction and arrangement to the cam-guides, of which mention has been made.

The cutting and guiding mechanisms just described are located over the edge of a dial, J', intermittently rotated in a horizontal plane through a vertical shaft, K', provided at its upper end with a ratchet-wheel, L', engaged by a pawl, M', carried by a slide, N', supported upon the cross-piece T, held in place by the box U, and advanced by a cam, O', upon the

shaft W, and retracted by a spring, P', connecting the slide and box and located in the opening Q' of the latter. The said dial is provided with a circular series of chucks, located
 5 in its periphery at equidistant points, and each composed of parts R' and S' and a spring, T', the latter being arranged to hold the part S' normally away from the part R', and with its outer end extending beyond the periphery of
 10 the dial.

A gaging-table, U', located below the dial, is provided with a curved groove or channel following the line of the chucks and broken into sections V' and W' by a deep recess, X',
 15 located in the forward edge of the table, which gages the distance the blanks can pass through and project below the dial. The bed Y' is located in the same plane with and cut away on a larger curve than the dial, the bed and dial
 20 being set so that the latter approaches very closely to the central portion of the curve of the former. At such point the bed is recessed, as at Z', to receive a vibrating arm, A², the forward end of which is cut away, as at
 25 B², to conform to the outer ends of the parts S' of the chucks. A spring, C², secured to the bed and attached to the said arm, restores it to its normal position after it has been moved forward, as will be described.

A tool-head, D², receiving tools for pointing or threading the blanks, is located upon the upper end of a vertical shaft, E', mounted in bearings F² F³, rotated through a pulley, F³, and vertically reciprocated by a lever, G²,
 35 mounted upon the shaft H², and actuated in reciprocating the tool-shaft by a cam, I², located upon the driving-shaft W, from which the several mechanisms of the machine are driven.

40 Having described the construction of our improved machine in detail, we will now proceed to set forth the method of its operation.

The parts having been properly timed, a rod is fed into the machine through the frame C and opening F, and is guided by the cam-guides
 45 I I I I to the gage O, which stops and supports it. The cutter B' then advances and cuts off a blank, the gage also moving forward at the same time. By the time a blank has been cut
 50 off its lower end is engaged by the shoulder Q of the gage, and the cutter and gage continuing to advance the blank is pushed out from between the cam-guides, which turn forward, as shown in Fig. 8 of the drawings, to let it
 55 pass, after which the U-shaped springs restore them to their normal positions. (Shown by Figs. 7 and 9 of the drawings.) The cutter and gage still advancing with the blank, now present it to the fluted cylindrical guides, as shown
 60 by dotted lines in Fig. 8 of the drawings, such guides turning on the rods C' C' and inclosing the blank, as shown in the succeeding figure. The spring Z now retracts the cutter and gage and permits the blank to drop into one of the
 65 chucks in the dial, the dial having in the timing of the machine brought a chuck into posi-

tion to receive the blank, which is supported in vertical position by the chuck and rests upon the gaging-table in the section V' of the groove or channel therein. The dial is now
 70 advanced through its connections with the driving-shaft, and another blank is cut off and delivered into it, and so on. As the dial advances the chucks to the right of the recess X' are gradually closed by the curve of the bed-
 75 plate until, when the blanks are about to leave the said section of the groove in the gaging-table, they are clasped firmly by the chucks, and leaving the groove are held suspended by the chucks, with their lower ends projecting
 80 below the dial. The parts S' of the chucks are then engaged with the locking-arm A², which is normally deflected to the right by its spring, as shown by dotted lines in Fig. 2 of the drawings. As the dial advances this arm is swung
 85 around into line with the chuck, as shown by full lines in such figure, and operates to secure a very firm hold upon the blank by the chuck. The chuck having now reached the central
 90 portion of the table U', and in the interval between two actuations of the dial, the tool-shaft is lifted to expose the lower end of the blank carried by the chuck to the action of the tools carried by the tool-head, whether they be for tapering or threading the blank. The
 95 work done, the tool-shaft retires, and the dial advancing carries the tapered or threaded blank into the section W' of the groove in the gaging-table. As the dial advances, as described, the vibrating locking-arm is carried to
 100 the left, as shown by dotted lines in Fig. 2 of the drawings, until released by the chuck passing by it, when it is retracted by the spring to its normal position, in which it is deflected to the right. After the chuck has been advanced,
 105 so as to enter the pointed or threaded blank into the section W' of the groove in the gaging-table, the chuck is allowed to open by the divergence of the curves of the bed-plate and the dial, and the blank, supported in vertical
 110 position by the chuck, rides in the groove in the gaging-table until discharged from the machine.

The described adjustability of the cam and fluted guides adapts the machine to be set for
 115 cutting blanks of all lengths within ordinary limits, while the construction for gripping the blanks by the chucks only during and for a short interval before and after they are being operated upon reduces the power required to
 120 operate the machine to the minimum.

It is apparent that the cutting and feeding mechanism may be replaced by any other mechanism for the same purpose, or for simply
 125 feeding blanks to the dial, or the dial may be fed by hand. We would therefore have it understood that we do not limit ourselves to the exact construction and arrangement of parts herein shown and described, but hold
 130 ourselves at liberty to make such changes and alterations as fairly fall within the spirit and scope of our invention.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a machine for automatically cutting and pointing or threading blanks, the combination, with a cutter and gage, of a rotating dial, chucks located in the periphery thereof, and pointing or threading tools for pointing or threading the blanks when held by the chucks, substantially as set forth.

2. In a machine for automatically cutting and pointing or threading blanks, the combination, with a cutter and gage, of a rotating dial, chucks located in the periphery thereof, guides for leading the blanks to such chucks, and pointing or threading tools for pointing or threading the blanks when held by the chucks, substantially as set forth.

3. In a machine for automatically cutting and pointing or threading blanks, the combination, with a cutter and gage, of a rotating dial, chucks mounted in the periphery thereof, spring-actuated cam-guides for conducting the blanks into the chucks, and pointing or threading tools for pointing or threading the blanks when held by the chucks, substantially as set forth.

4. In a machine for automatically cutting and pointing or threading blanks, the combination, with a cutter, a gage, and rotating fluted cylindrical guides, of a rotating dial, chucks located in the periphery thereof, and pointing or threading tools for pointing or threading the blanks when held by the chucks, substantially as set forth.

5. In a machine for automatically cutting and pointing or threading blanks, the combination, with a cutter, a gage, and two sets of guides, of which one set is located in front of the other, of a rotating dial, chucks mounted in the periphery thereof, and tools for pointing or threading the blanks when the same are held by the chucks, substantially as set forth.

6. In a machine for automatically cutting and pointing or threading blanks, the combination, with a cutter, a gage, and guides, of a rotating dial and chucks mounted in the periphery thereof, the cutter and gage moving the blanks laterally into the guides, which deliver them into the chucks in the dial, and tools for pointing or threading the blanks when the same are held by the chucks, substantially as set forth.

7. In a machine for pointing or threading blanks, the combination, with a rotating dial, of chucks mounted in the periphery thereof, and tools for pointing or threading the blanks when the same are held by the chucks, substantially as set forth.

8. In a machine for pointing or threading blanks, the combination, with a rotating dial, of chucks mounted in the periphery thereof and normally open, means for closing them to clamp the blanks, and tools for pointing or threading the blanks when the same are held by the chucks, substantially as set forth.

9. In a machine for pointing or threading

blanks, the combination, with a rotating dial, of chucks mounted in the same and each having a movable part normally extending beyond the periphery thereof, a curved plate for moving the said movable parts of the chucks inward, and tools for pointing or threading the blanks when held by the chucks, substantially as set forth.

10. In a machine for pointing or threading blanks, the combination, with a rotating dial, of chucks mounted therein, and a gaging-table located below the dial and supporting the blanks when the chucks are not closed, and tools for cutting or threading the blanks when held by the chucks, substantially as set forth.

11. In a machine for automatically pointing or threading blanks, the combination, with a rotating dial, of chucks mounted therein, a gaging-table located below the dial and provided with a deep recess intersecting the path in which the blanks travel over it, and tools located below the dial and intermittently occupying the said recess and adapted to point or thread the blanks, substantially as set forth.

12. In a machine for automatically pointing or threading blanks, the combination, with a rotating dial, of chucks mounted therein, a gaging-table located below the dial and provided with a groove following the line of the chucks in the dial, and with a recess intersecting such groove, and tools located below the dial and adapted to point or thread the blanks, the lower ends of which are exposed through the said recess, substantially as set forth.

13. In a machine for automatically pointing or threading blanks, the combination, with a rotating dial, of normally-open chucks mounted therein, means for normally supporting the blanks, tools for pointing or threading the same, and a plate located adjacent to the dial and adapted to close the chucks just before they reach the pointing or threading tools and to permit them to open again after passing the same, substantially as set forth.

14. In a machine for automatically pointing or threading blanks, the combination, with a rotating dial, of chucks mounted therein and normally open, tools for pointing or threading the blanks when clamped by the chucks, and means for closing and locking the chucks during the action of the pointing or threading tools, substantially as set forth.

15. In a machine for automatically pointing or threading blanks, the combination, with a rotating dial, of chucks mounted therein and normally open, tools for pointing or threading the blanks when clamped by the chucks, and a locking-arm for locking the chucks during the action of the pointing or threading tools, substantially as set forth.

16. In a machine for automatically pointing or threading blanks, the combination, with a rotating dial, of chucks mounted therein, a tool-head carrying pointing or threading tools, and a vertically-reciprocating tool-shaft carrying such head, substantially as set forth.

17. In a machine for automatically cutting

and pointing or threading blanks, the combination, with a cutter, a gage, and guides, of a rotating dial, chucks mounted therein, pointing or threading tools, and connections whereby
5 the mechanisms specified are driven from a common shaft, substantially as set forth.

18. In a machine for pointing or threading blanks, the combination, with a rotating dial, of devices carried by such dial for holding the
10 blanks, a vertically-reciprocating tool-shaft, and pointing or threading tools carried by such shaft, substantially as set forth.

19. In a machine for pointing or threading blanks, the combination, with a rotating dial,

of clamping devices carried by such dial for
15 clamping and holding the blanks, means for operating such clamping devices in closing them upon the blanks, and pointing or threading tools, substantially as set forth.

In testimony whereof we have signed this
20 specification in the presence of two subscribing witnesses.

EDWIN N. BEECHER.
LEWIS D. WHITING.

Witnesses:

GEORGE W. WHITING,
EDWIN S. TODD.