

(No Model.)

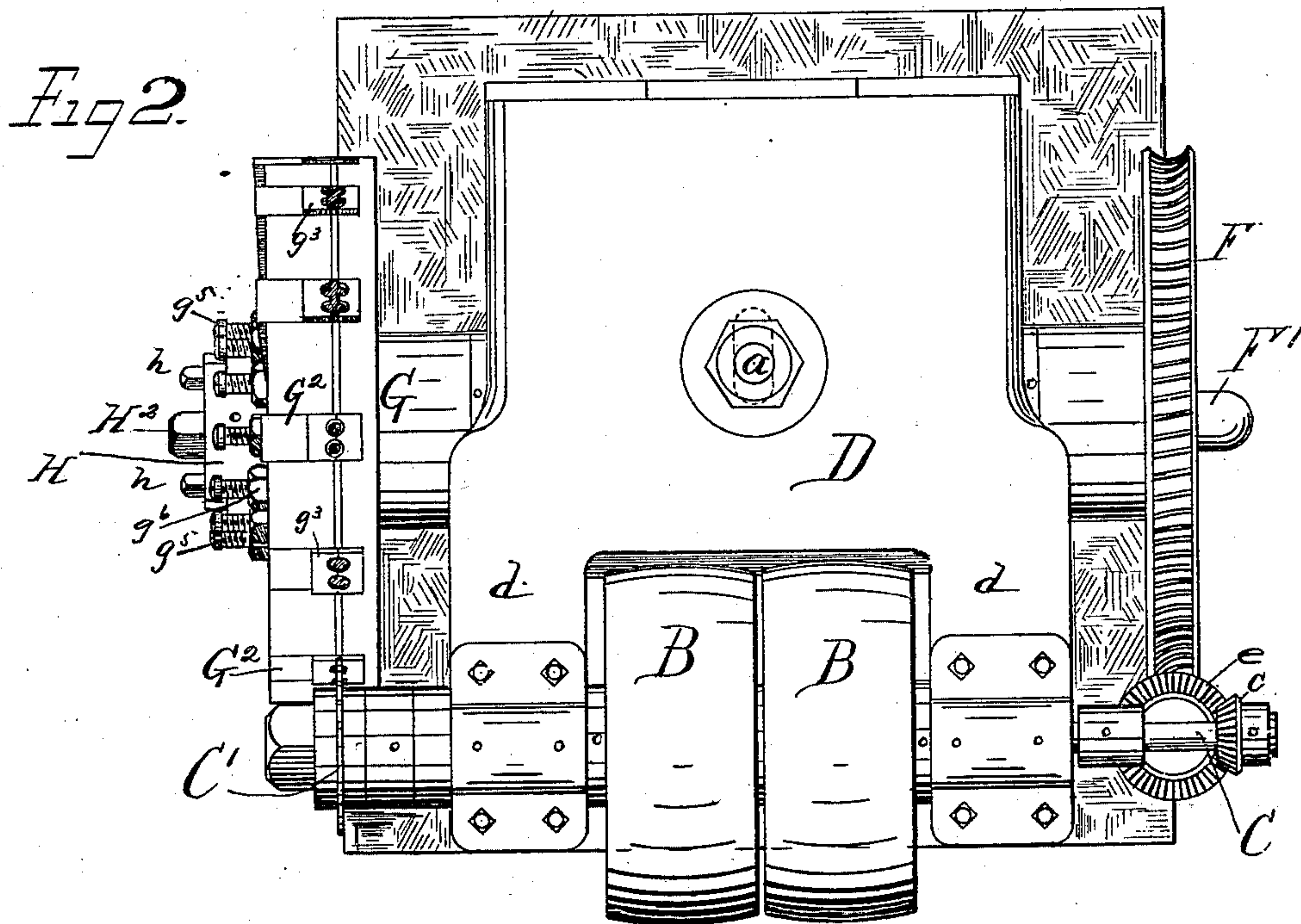
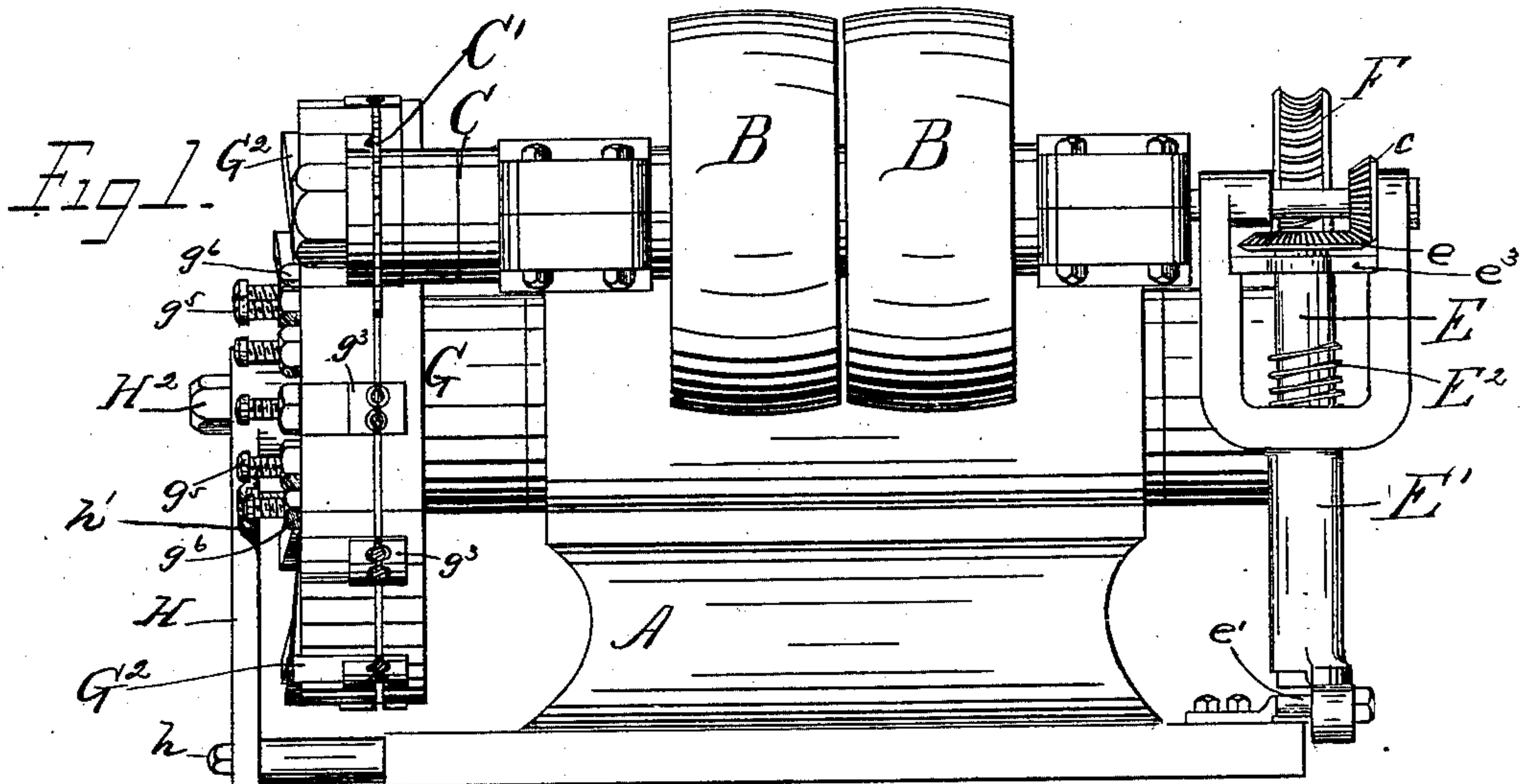
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C. GROTZ.

MACHINE FOR NICKING SCREWS.

No. 278,132.

Patented May 22, 1883.



WITNESSES—
Everett Brown
A. M. Munday

INVENTOR—
Charles Grotz.
Munday, Evans & Adcock
his Attys.

(No Model.)

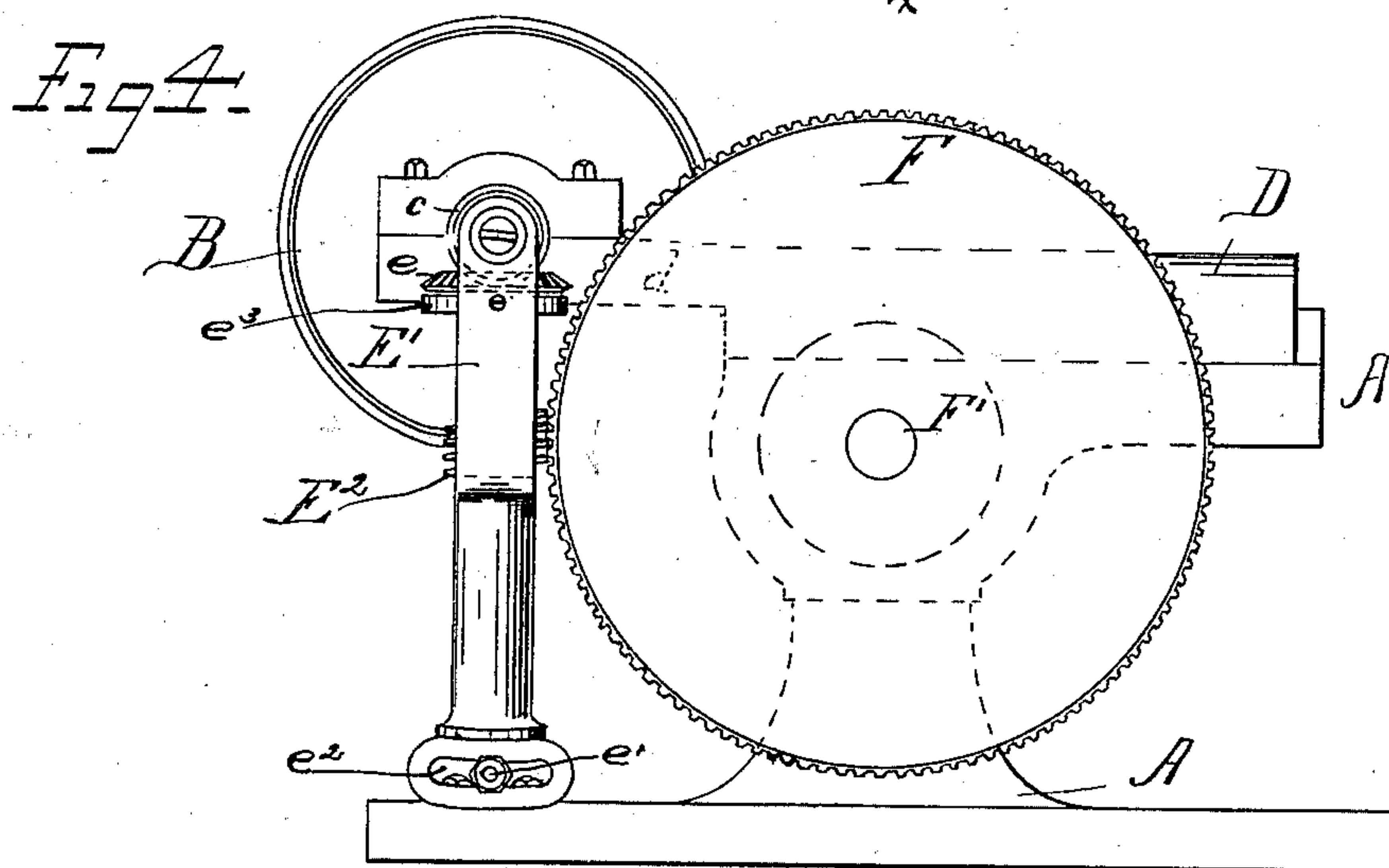
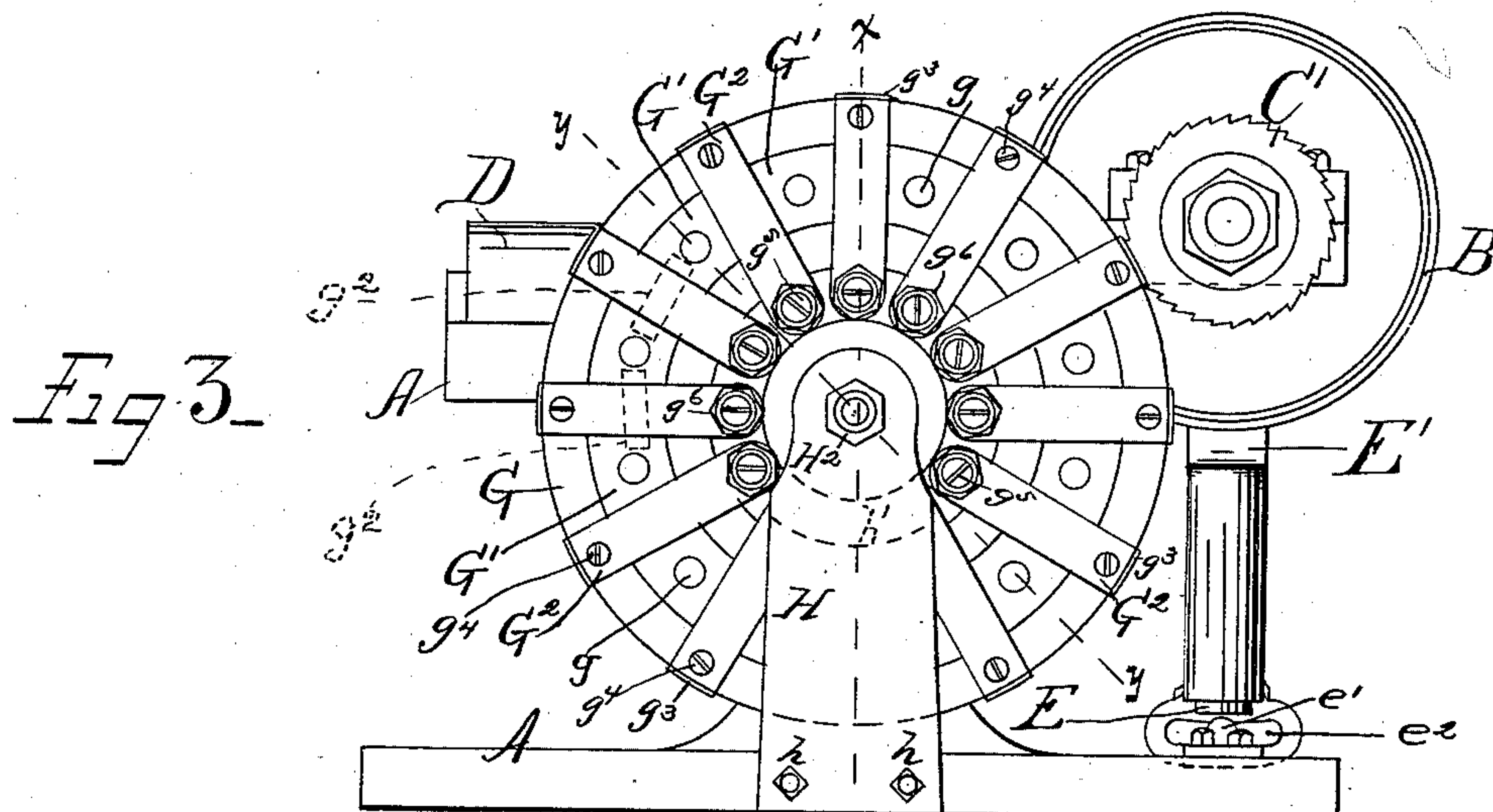
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C. GROTZ.

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No. 278,132.

Patented May 22, 1883.



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(No Model.)

3 Sheets—Sheet 3.

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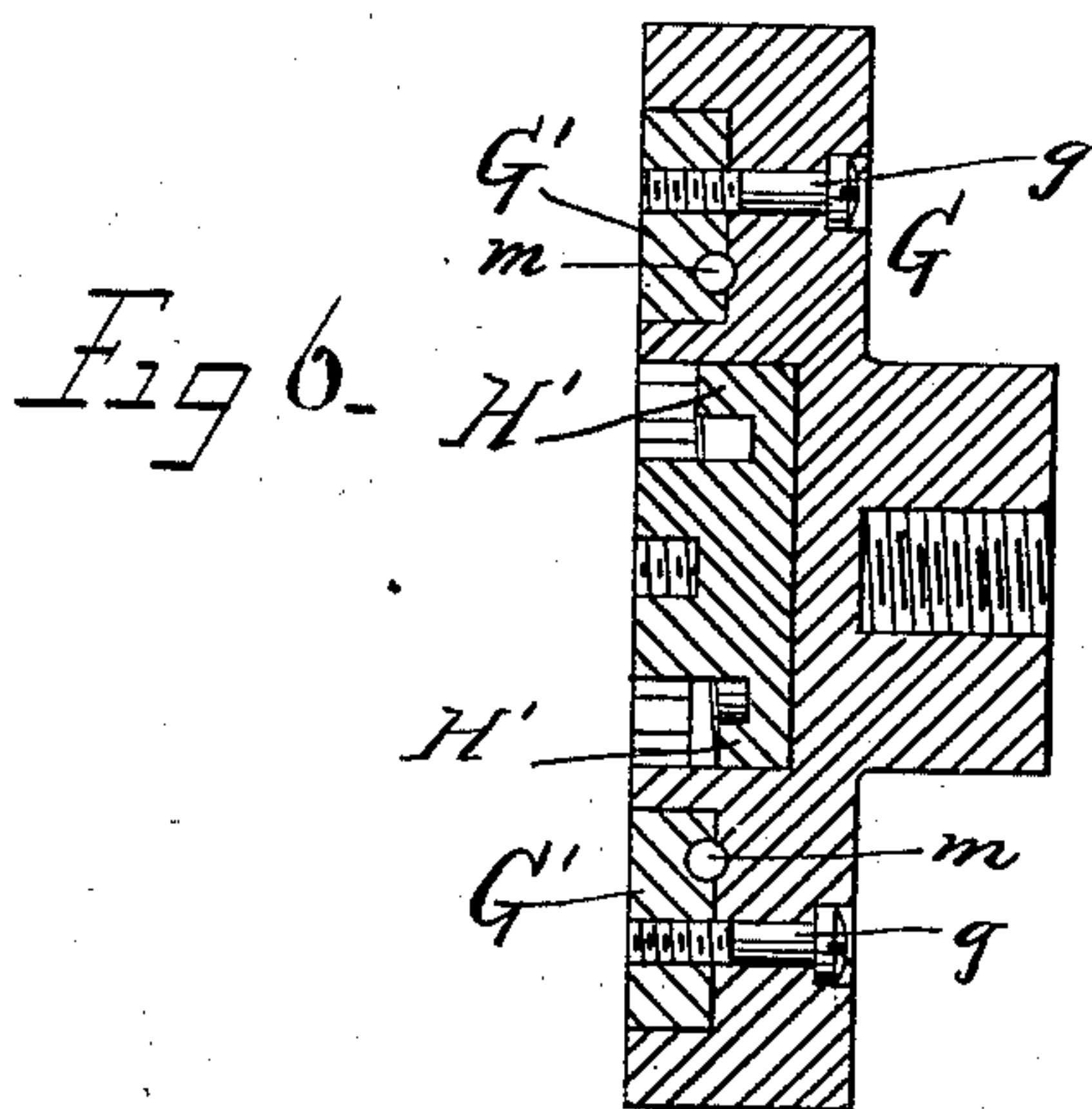
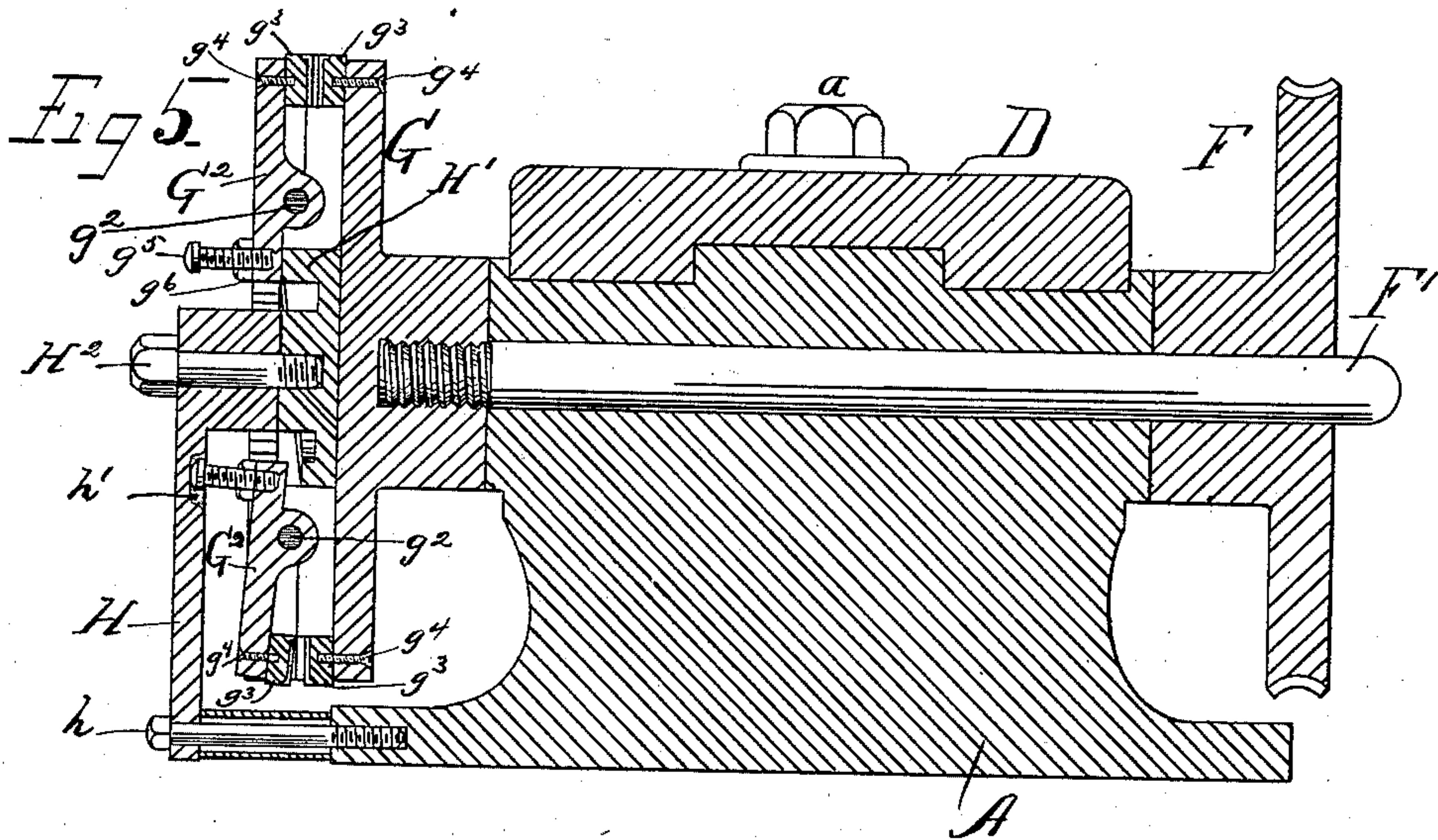
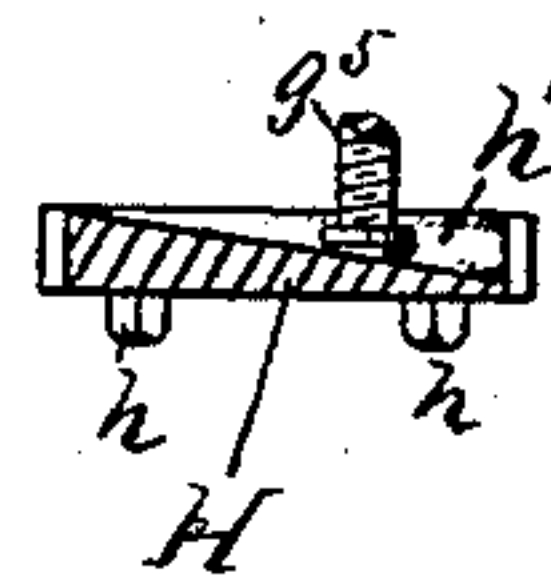


Fig 7.



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UNITED STATES PATENT OFFICE.

CHARLS GROTZ, OF OTTUMWA, IOWA, ASSIGNOR TO THE OTTUMWA IRON WORKS, OF SAME PLACE.

MACHINE FOR NICKING SCREWS.

SPECIFICATION forming part of Letters Patent No. 278,132, dated May 22, 1883.

Application filed September 12, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLS GROTZ, of Ottumwa, in the county of Wapello, State of Iowa, have invented certain new and useful
5 Improvements in Machines for Nicking Screws, of which the following is a specification.

This invention relates to machines for nicking the heads of screws; and it consists in the novel combination and construction of the
10 parts, as hereinafter set forth.

In the drawings accompanying this specification and forming part of the same, Figure 1 is an end view, Fig. 2 a plan view, and Figs. 3 and 4 views of opposite sides, of a machine embodying my improvements. Fig. 5 is
15 a section upon the line xx of Fig. 3; and Fig. 6 is a section of the revolving head which presents the screws to the saw, upon the line yy of Fig. 3. Fig. 7 is a horizontal section
20 through the clamp-releasing cam.

In said drawings, A represents a casting which forms a bed and support for the entire machine. B B are fast and loose pulleys by which the machine is actuated, and which are
25 mounted upon the saw-mandrel C, carrying the saw C', and revolving in boxes upon the ends of projections d , standing out from an adjustable plate, D, resting upon the bed-piece A, and firmly held thereon by the bolt a and
30 the matched joint formed between it and the bed by letting a portion of one into a groove in the other, as clearly shown at Fig. 5. The mandrel C also carries a small bevel-gear, c , which meshes with a horizontal gear, e , upon
35 the upright spindle E, stepped in the stem of a Y-shaped piece, E', having its lower end adjustably secured to the bed by a bolt, e' , passing through a horizontal laterally-enlarged slot, e^2 , at the foot of the Y, the arms of the Y
40 being made to encircle the saw-mandrel at their upper ends, so as to steady and firmly support the device at that point.

Upon the spindle E is a worm, E², which actuates a worm-wheel, F, upon one end of a
45 shaft, F', which has a bearing in the bed-piece. At the opposite end this shaft carries a flanged disk, G, which forms part of the screw-carrying head or clamping device. To the face of this disk are secured a series of filling-blocks,
50 G', and a series of vibrating levers, G², said blocks and levers alternating with each other in regular order, as illustrated more especially

in Fig. 3. The blocks are rigidly held by the screws g , and the levers turn on pivots g^2 , each pivot g^2 finding support in openings m in the
55 blocks, at either side of their respective levers, as shown in dotted lines, Fig. 3.

Extending up from the foot of the machine is a standard or vertical bracket, H, removably held to the bed by bolts h . Through it, in axial line with the shaft F', passes a screw-bolt,
60 H², upon the inner end of which, with its actuating-face in contact with the inner ends of the levers G², is a stationary cam, H', which operates to throw the inner ends of the levers
65 outward, and thereby cause the outer ends thereof to clamp the screw-blanks during a portion of the revolution of the disk and the levers, as shortly to be described. The outer
70 ends of the levers G² are provided upon one side with notched blocks, g^3 , and the portions of the disk-flange opposite the same are likewise provided with similar correspondingly-notched blocks, both being secured by screws
75 G⁴, as shown. When these blocks are brought together the notches in their faces form recesses adapted to receive and hold the screws to be nicked, and the blocks can be readily
80 changed for others having notches fitting different sizes of screws whenever desired. The levers G² are also provided upon the outer
85 faces of their inner ends with adjustable screws and locking-nuts g^5 and g^6 , which screws are acted upon during a portion of the revolution of the head by a cam-surface borne upon the
90 inner side of the standard H, such cam-surface being preferably formed in the material of the standard, and shown at h' . This cam-surface acts in a contrary direction to the cam
95 H', and its operation is such that the screws are released from the clamp caused by said cam H'. The section at Fig. 5 illustrates this
opening and closing of the levers, the lever at the top of said figure being under the influence
100 of the cam H', and that below being partially under the power of the cam h' . The operating-surface of the cam H' commences to close the levers upon the screws when the levers are in the upper part of their revolution, and continues the holding-pressure until the screws have
passed the saw, when the other cam throws the levers out and releases the screws.

The operation of the device is as follows: The screws being inserted in the notches pre-

pared for them, when such notches are approaching the top of their rotation, they are caused to be clamped therein firmly by the throwing out of the inner ends of the levers 5 G^2 , under the action of the levers of the cam H' , and are held thereby during the continued rotation under the saw by which they are nicked. Shortly after passing the saw the cam H' ceases to act, and the cam h' then forces 10 the inner ends of the levers inward, thereby opening the clamp and releasing the screws, so that they drop out automatically. The plate D , carrying the said saw-mandrel, and the Y-piece E' are made adjustable, as stated, to 15 accommodate differing diameters in the saw. The former has an elongated opening for the bolt a , (shown by dotted lines in Fig. 2,) for this purpose, and the matching of surfaces by it and the bed A allows the desired amount of 20 adjustment of the saw to and from the screw-carrying head. The upper end of the spindle E revolves in a cross-bar, e^3 , extending from one arm to the other of Y-piece E' , and may also receive support in a vertical line from said bar, 25 if desired.

It will be noticed that the mechanism described insures the continuous rotation of the screw-carrying head, and that the saw is stationary as regards its operating position.

30 I claim—

1. The rotating head, and the saw mounted

in bearings adjustable to and from the head, in combination with the worm-wheel on the shaft by which the head is carried, the vertical spindle E , having the worm E^2 , the Y-shaped 35 piece E' , adjustably secured to the bed, the gears c e , and cross-bar e^3 , substantially as set forth.

2. The combination of the disk, the series of levers pivoted upon the disk, the cam H' , 40 located between the levers and the disk and acting to force the inner ends of the levers outward, and the cam h' , located outside the levers and forcing the same ends inward, substantially as set forth. 45

3. The rotating screw-carrying head consisting of the disk, the filling-blocks secured to the disk, and the clamping-levers alternating with said blocks and pivoted therein, substantially as described. 50

4. The combination of the bed A , having a bearing for the shaft of the screw-carrying head, the plate D , supporting the saw-mandrel, and secured to and adjustable upon the bed to and from the head, and the adjustable connecting mechanism for carrying power from 55 the saw-mandrel to the shaft of the head, substantially as set forth.

CHARLS GROTZ.

Witnesses:

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J. T. HACKWORTH.