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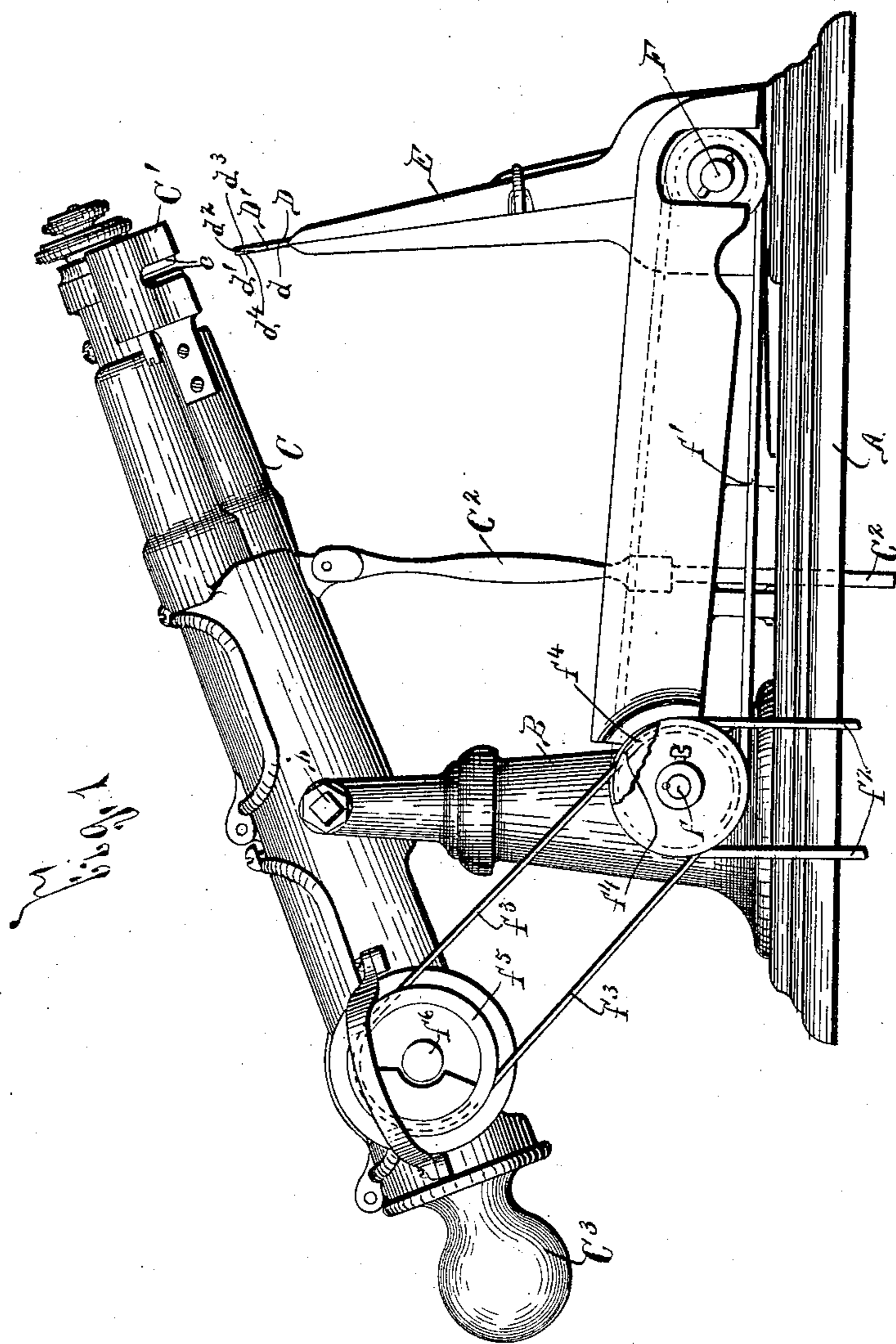
Patented July 19, 1898.

C. B. HATFIELD.  
BEADING MACHINE.

(Application filed Jan. 23, 1892.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:

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*G. A. Wright.*

INVENTOR

*Charles B. Hatfield*

BY

*Ray Wilkins & Parsons*  
ATTORNEYS

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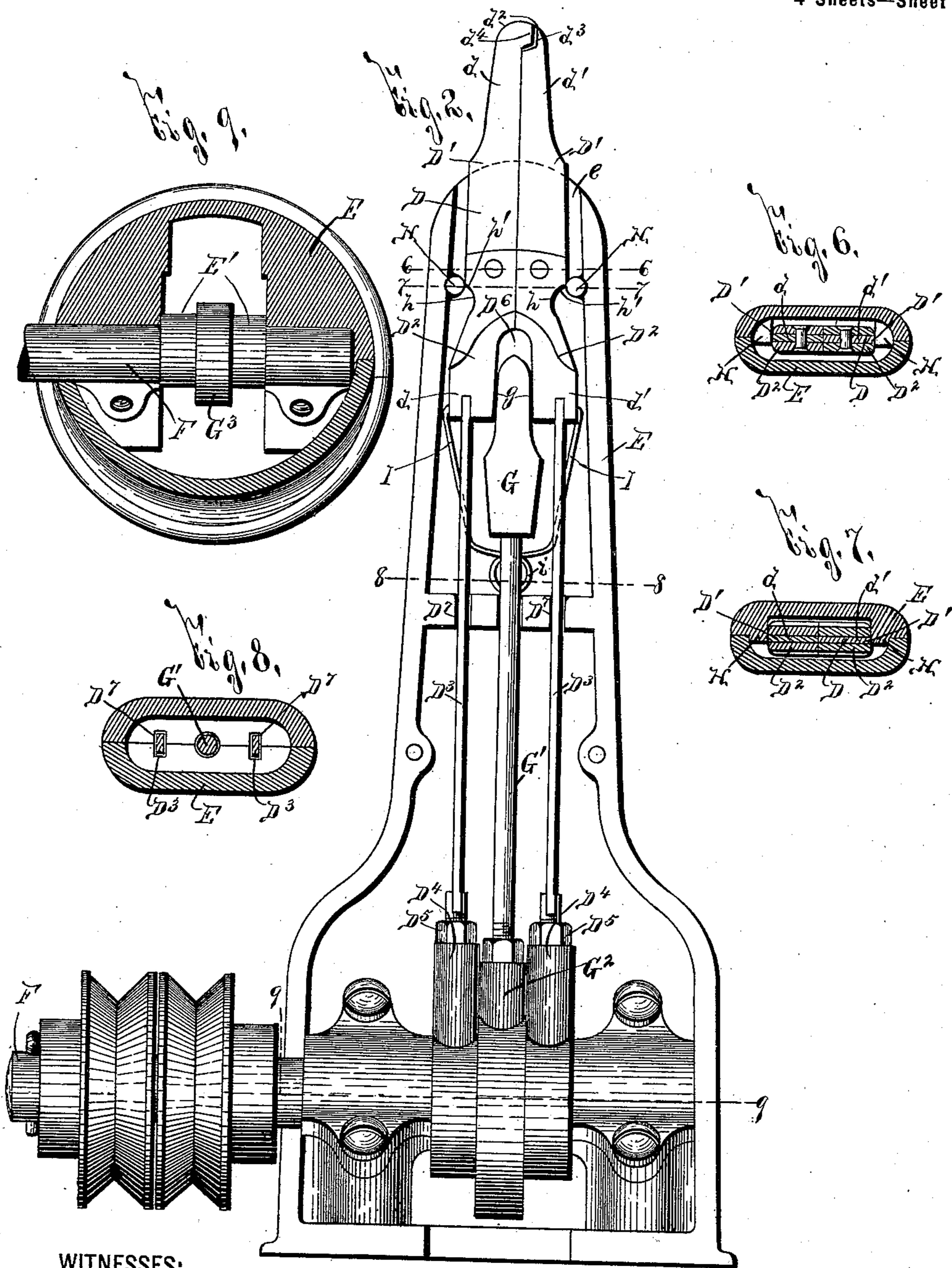
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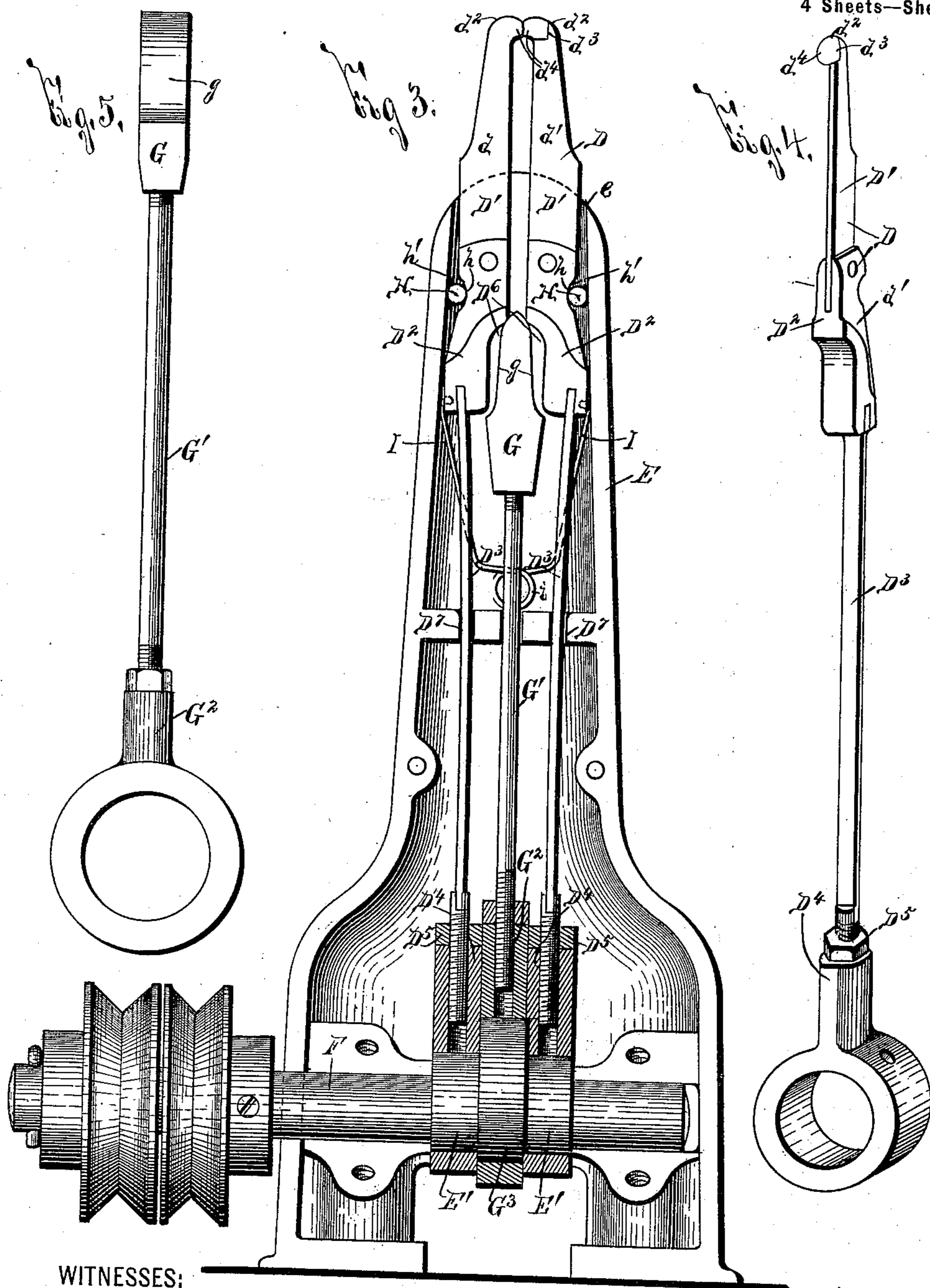
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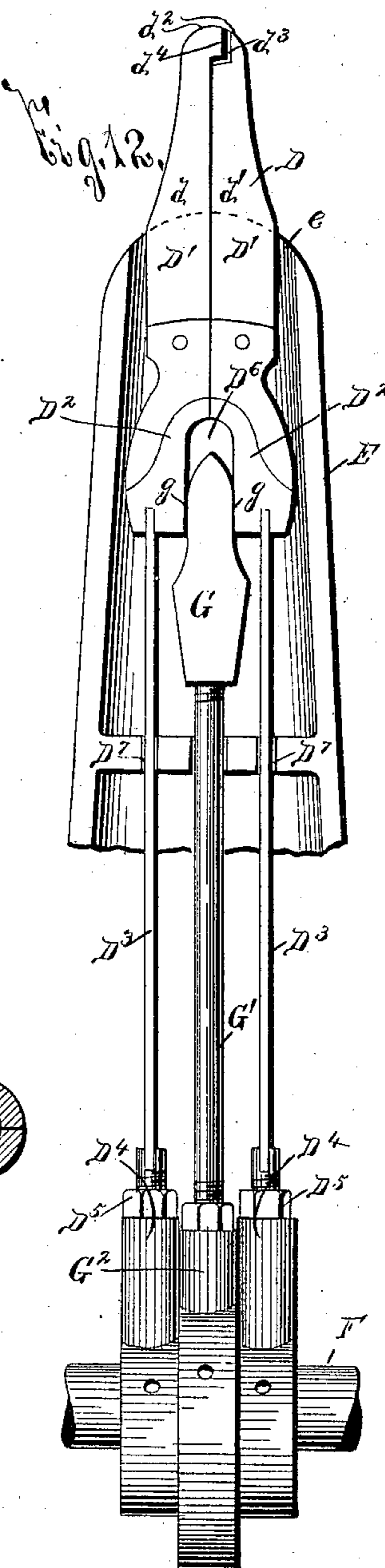
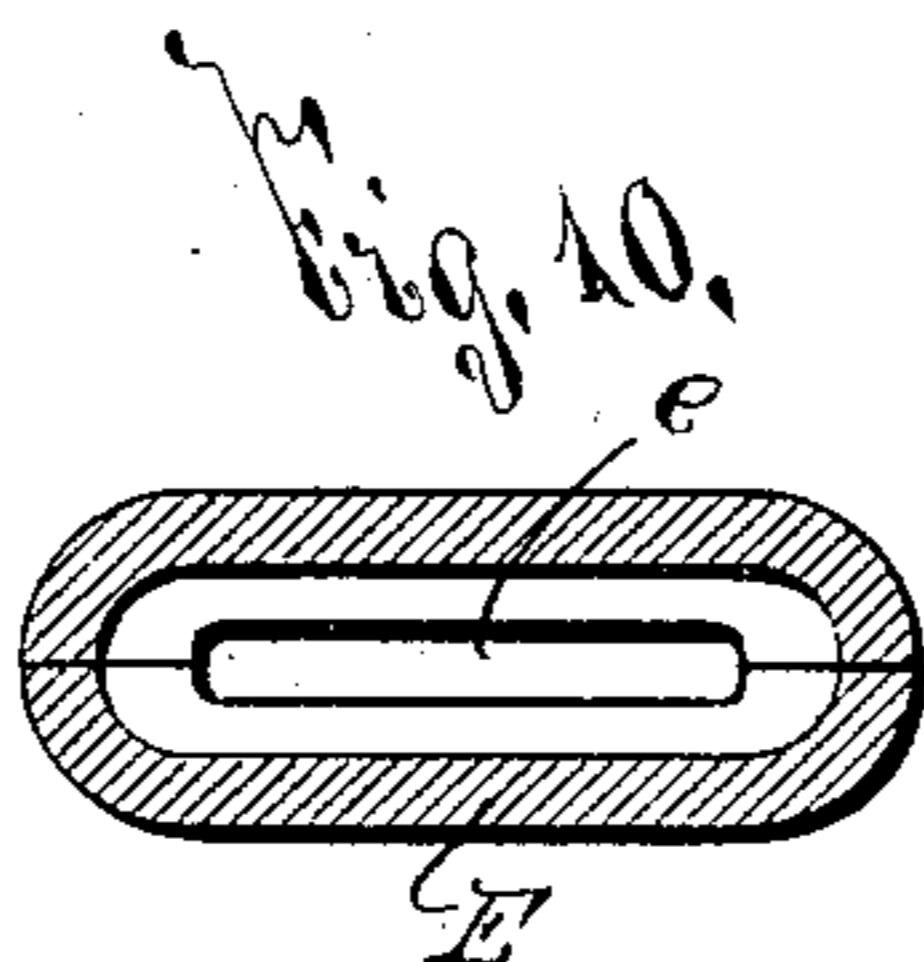
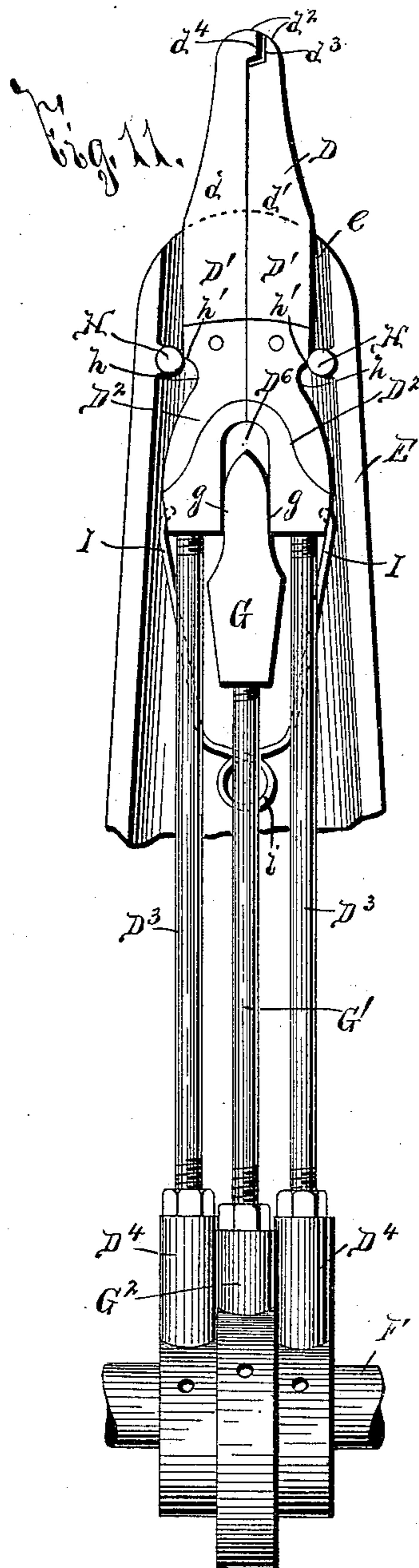
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4 Sheets—Sheet 4.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES B. HATFIELD, OF UTICA, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO QUENTIN W. BOOTH AND IRVING E. BOOTH, OF ROCHESTER, NEW YORK.

## BEADING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 607,637, dated July 19, 1898.

Application filed January 23, 1892. Serial No. 419,046. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES B. HATFIELD, of Utica, in the county of Oneida, in the State of New York, have invented new and useful  
5 Improvements in Beading-Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to an improved beader  
10 designed for turning the scallops and edges of shoe-uppers and for similar operations, and has for its object the production of a strong and practical device which is particularly efficient in use and economical in manufac-  
15 ture.

To this end it consists, essentially, in a turning-finger composed of separable spring-sections having projecting from the adjacent edges of their upper extremities lateral lugs  
20 lapping one with the other, cams for reciprocating said finger-sections longitudinally, a separator for forcing said finger-sections laterally away from each other, a retractor for aiding said sections in their return to normal position, and in the detail construction  
25 and arrangement of the parts, all as herein-after more particularly described, and pointed out in the claims.

In describing this invention reference is  
30 had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 represents a side elevation of my invention; Fig. 2, a front elevation of the  
35 detached standard containing the turning-finger, the front portion of the standard being shown as removed for the purpose of illustrating the construction and operation of said finger. Fig. 3 is a similar view to Fig. 2,  
40 the finger-sections being shown as in their elevated separated position. Fig. 4 is an isometric perspective of one of the detached finger-sections; Fig. 5, an edge view of the separator for forcing apart the finger-sections.  
45 Figs. 6, 7, 8, and 9 are detail horizontal sectional views taken, respectively, upon lines 6 6, 7 7, 8 10, and 9 9, Fig. 2. Fig. 10 is a horizontal sectional view taken on the line 8 10, Fig. 2, looking upwardly toward the  
50 end of the standard instead of downwardly,

as at Fig. 8; and Figs. 11 and 12 are elevations similar to Fig. 2 of slightly-modified forms of my invention, the base of the remaining half of the standard being broken away.

A represents the base of my beader, having  
55 an upwardly-projecting standard B, pivoted to which at *b* is a swinging arm C, carrying one or more movable jaws *c c*, all of which parts may be of any desirable form, size, and construction, it being understood that the  
60 movable jaw or jaws are adapted to be forced against the scallop or edge turned by my improved turning-finger D, presently described, in order to properly compress said scallop or  
65 edge.

In my previous patent, No. 318,731, issued  
May 26, 1885, I have shown and claimed a similar construction of standard B, swinging  
arm C, and movable jaws *c c* to that shown  
70 herein, and consequently it is unnecessary to herein further illustrate or describe this swinging arm or its movable jaws *c c*, as the same is identical with the structure set forth in said Patent No. 318,731, with the exception  
75 that I have shown attached to the arm C guides C', shown in the patent to Charles W. Collyer, No. 436,752, issued September 16, 1890, and to which I make no claim herein.

In my aforesaid previous patent the arm C was drawn downward by the hinged and  
80 suitably-actuated link C<sup>2</sup> until the jaws *c c* were disposed on opposite sides of said finger for compressing the scallop or edge there against, thus necessitating the upward swing-  
85 ing of the arm C by the counterbalance C<sup>3</sup> when the scallop or edge was removed and about to be replaced by another. In my present device when the arm C is in its extreme downward position, as shown at Fig. 1, the  
90 jaws *c c* are above the turning-finger, so that the scallop or edge after being turned is lifted upwardly by the operator and inserted between the jaws *c c*, which with this construction can operate continuously. The turning-  
95 finger D is, however, of peculiar construction, forms the essential feature of my invention, and is mounted within a front hollow upright or standard E, which is provided upon the frame A and is formed with a slot *e* at its up-  
100 per extremity, through which projects the

upper end of the finger D. Journalled in this upright E is a shaft F, actuated by means of a driving-shaft  $f$ , connected thereto by a belt  $f'$ , passing over suitable pulleys upon the respective shafts F and  $f$ , it being understood that the driving-shaft  $f$  may be driven in any suitable manner, as by a belt  $f^2$ , Fig. 2.

Although, as previously stated, it is unnecessary to describe the construction of the mechanism for reciprocating the compressing-jaws  $c c$ , I have illustrated in the drawings a belt  $f^3$ , which transmits motion from a pulley  $f^4$  upon the driving-shaft  $f$  to a pulley  $f^5$  upon a shaft  $f^6$ , journalled at the rear end of the swinging arm C. As will be presently described, the rotation of the shaft F is enabled to force the turning-finger sections up and down by means of eccentrics or cams mounted on said shaft, straps encircling the eccentrics, and shanks connected to the turning-finger sections and said eccentric-straps, and without further illustration or description it is evident that similar eccentrics, eccentric-straps, and shanks may be connected between the shaft  $f^6$  and the movable beader-jaws  $c c$  for reciprocating the beader-jaws  $c c$  by the rotation of the shaft  $f^6$ .

The finger D consists, preferably, of two sections  $d d'$ , arranged edgewise and formed with an upper rounding edge  $d^2$ , a tapering cut-out  $d^3$  at their inner edges, and lugs  $d^4$ , projecting laterally from said inner edges and lapping one with the other. These lugs  $d^4$  are tapered from their base to their extremities, so that when they are lapped one upon the other in their normal position, as shown at Fig. 4, the thickness of the extreme upper end of the turning-finger is no greater than any other portion of the upper extremity thereof, as seen at Fig. 1. Each of the sections  $d d'$  is formed of a thin plate  $D'$ , the thickened portion  $D^2$ , the spring-shank  $D^3$ , and the eye  $D^4$  screwing upon the shank and adapted to be held in position by an adjustable nut  $D^5$  thereon. The eyes  $D^4$  are mounted over similar cams or eccentrics  $E'$ , Figs. 3 and 8, provided on the shaft F, and as said shaft revolves in the operation of the machine the turning-finger sections are simultaneously reciprocated longitudinally.

It is particularly desirable to cause the turning-iron to expand the scallops to their utmost extent, and with this end in view the separate turning-finger sections are reciprocated longitudinally, as previously stated, and, as presently described, are separated laterally one from the other and then returned to their normal position for permitting easy removal of the scallop.

The lugs  $d^4$ , previously described, lap one with the other even when, as shown at Fig. 3, the finger-sections are separated to the greatest extent one from the other and serve to prevent any of the leather or other article being turned from being forced between the adjacent edges of said fingers in the operation of the beader. It will be particularly noted,

however, that the lugs  $d^4$  are of small area and that the remaining portions of the separate finger-sections do not lap with each other, and consequently but little friction is produced when the sections move laterally or separate from and return to their normal position.

The separator G for forcing apart the turning-finger sections  $d d'$  consists, preferably, of a wedge-shaped cam having its upper end provided with opposite cam-faces  $g g$  and mounted in a recess  $D^6$ , formed by cutting away the inner edges of the thickened portion  $D^2$  of the finger-sections  $d d'$ , a shank  $G'$ , extending rearwardly from the cam G, an eye  $G^2$ , adjustably mounted on said shank, and a cam or eccentric  $G^3$  within said eye. This cam  $G^3$  is so arranged in relation to the cams  $E' E'$  that after the cams  $E' E'$  have forced the finger-sections to their elevated position the cam  $G^3$  then causes the separator G to force apart said finger-sections and laterally expand the loop or edge being turned.

As previously stated, the shanks  $D^3$ , secured to the finger-sections  $d d'$ , are formed of spring metal, and as these shanks are movable in suitable guides  $D^7$ , provided on the interior of the upright or standard E beneath the separator G, it is evident that as the separator G forces the finger-sections  $d d'$  outwardly the upper ends of the spring-shanks  $D^3 D^3$  are bent outwardly and that upon the retraction or depression of the separator G they return to their normal position, as shown at Fig. 2.

Owing to the rapid operation of the beader, I prefer to aid the retraction of the spring-shanks to their normal position by means of retractors H, consisting, preferably, of a pair of stationary cams or lugs adapted to register with cut-outs  $h$  in the adjacent sides of the finger-sections  $d d'$  when the finger is forced upwardly and to encounter inclined faces  $h'$  as the finger is drawn downwardly, and thus force the finger-sections toward each other as the finger returns to normal position. The retraction of the turning-finger sections may be further aided by means of a spring I, Figs. 2 and 3, having its central portion coiled at its ends secured to the outer faces of said separate sections.

The operation of my invention will be readily perceived from the foregoing description, and upon reference to the drawings as it will be particularly noted that the parts are strong and simple, easily replaced or repaired, and that the operation of the turning-finger is particularly practical and effective. It is evident, however, that the particular form of movable compressing-jaw  $c$  forms no essential part of my invention and may be dispensed with, if desired, and that the detail construction and arrangement of my beader may be somewhat changed from that shown and described without departing from the spirit of my invention. Hence I do not herein limit myself to such precise detail construction and arrangement.

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

1. In a seam turning and spreading machine, a spreader composed of two vibrating blades, the working ends of which are movable to and from each other, in similar curves and in substantially the same plane, and means for simultaneously vibrating said blades, substantially as set forth.

2. The herein-described finger for beading-machines, the same comprising two rectilinearly-reciprocating separable sections arranged edgewise with their adjacent edges normally in proximity to each other and their upper extremities provided with cut-outs  $d^3$  and lugs  $d^4$  projecting laterally from said extremities of the sections, tapered from their base toward their free extremity and adapted to register with the cut-outs  $d^3$ , substantially as and for the purpose set forth.

3. The herein-described beader, the same comprising a finger-section, a cam for longitudinally reciprocating said section, and a cam for moving said section laterally, substantially as and for the purpose set forth.

4. The herein-described beader, the same comprising a finger-section, a cam for longitudinally reciprocating said section, an adjustable end on the finger for varying its movement, and a cam for moving said section laterally, substantially as and for the purpose set forth.

5. The herein-described beader, the same comprising a finger-section adapted to be reciprocated laterally and provided with a cut-out in its edge, a cam adapted to register with said cut-out when the section is reciprocated in one direction, and an inclined shoulder on the cut-out adapted to engage the cam and force the section in the opposite direction, substantially as and for the purpose set forth.

6. The herein-described beader, the same comprising a pair of turning-finger sections arranged side by side and movable laterally toward and away from each other, a cam movably mounted between the finger-sections for forcing them apart, and a spring for returning said sections to their normal position, substantially as and for the purpose set forth.

7. The herein-described beader, the same comprising a pair of turning-finger sections movable toward and away from each other, a cam adapted to engage the finger-sections and force them apart, cams for returning said sections to their normal position, and a spring for aiding the return movement of the sections, substantially as and for the purpose specified.

8. In a beader, the combination of a finger consisting of separable sections, cams for longitudinally reciprocating the sections, a separator for forcing the sections laterally, a cam for reciprocating the separator for laterally forcing the sections, cams for returning the sections to their normal position, a spring for aiding in the return of said sections to their normal position, substantially as and for the purpose set forth.

9. The herein-described beader, the same consisting of a finger-section, a spring-shank for said section, a cam for longitudinally reciprocating the finger-section, and a separator or cam for moving the section laterally, substantially as and for the purpose specified.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Rochester, in the county of Monroe, in the State of New York, this 3d day of December, 1891.

CHARLES B. HATFIELD.

Witnesses:

ANNA L. FOOTE,  
HAMPDEN HYDE.