

R. F. BURNS.
Edge-Trimming Machines for Boot and Shoe Soles.
 No. 158,569. Patented Jan. 12, 1875.

Fig 1.

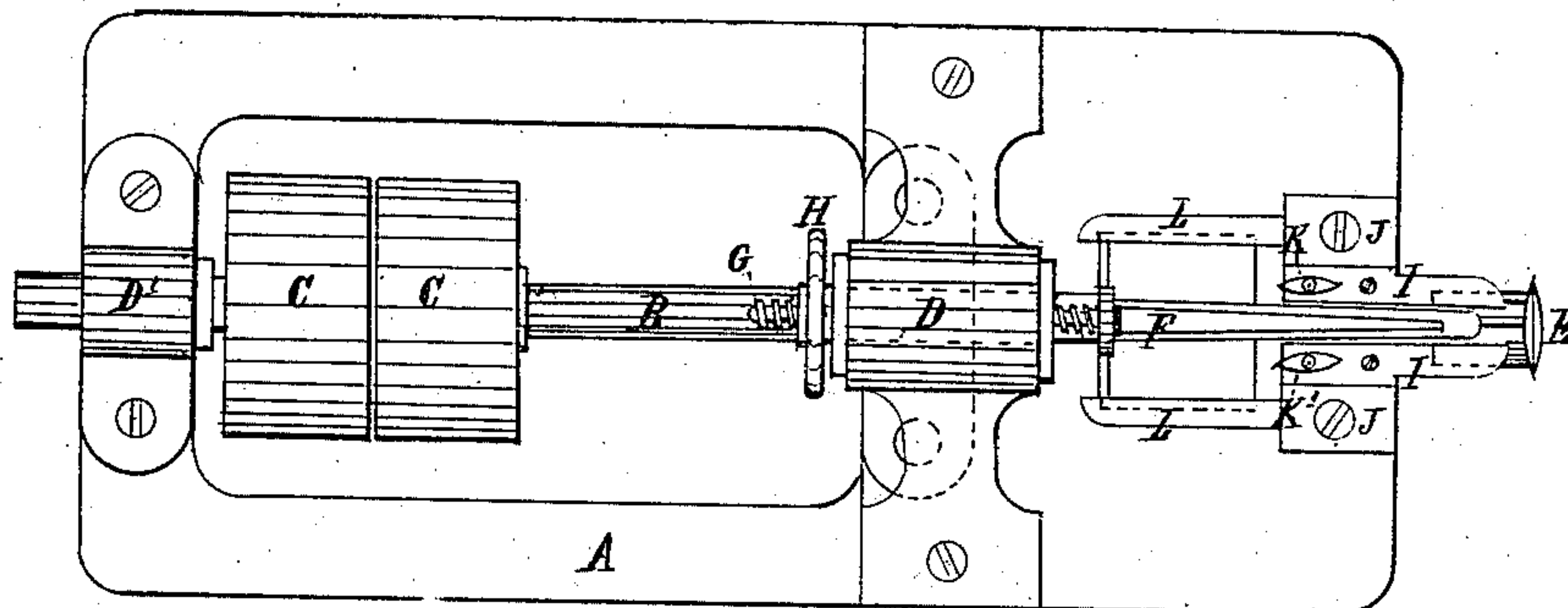


Fig 2.

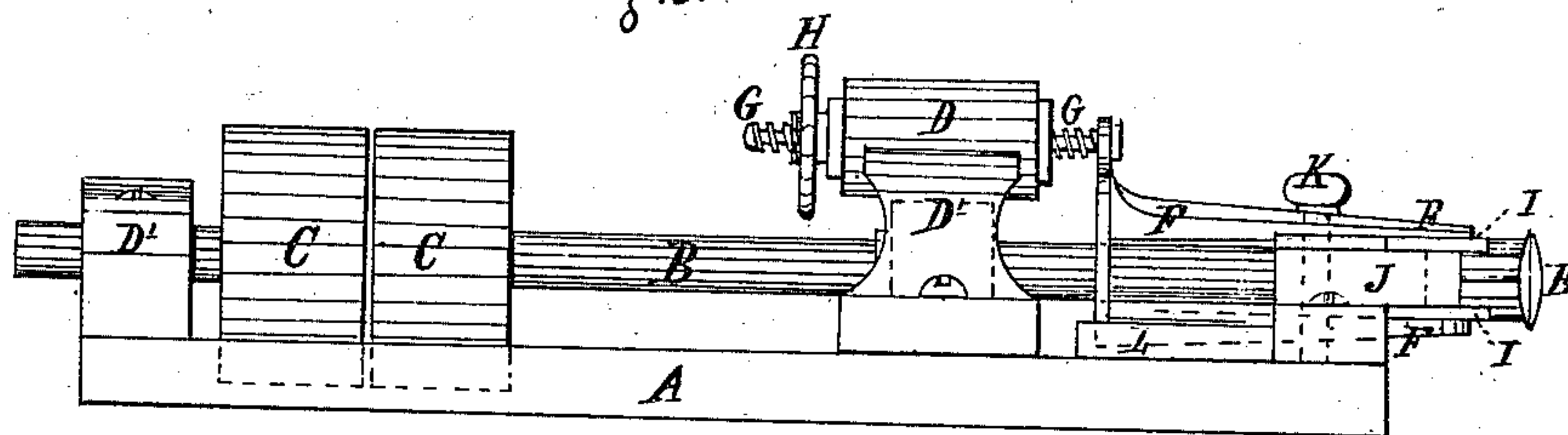
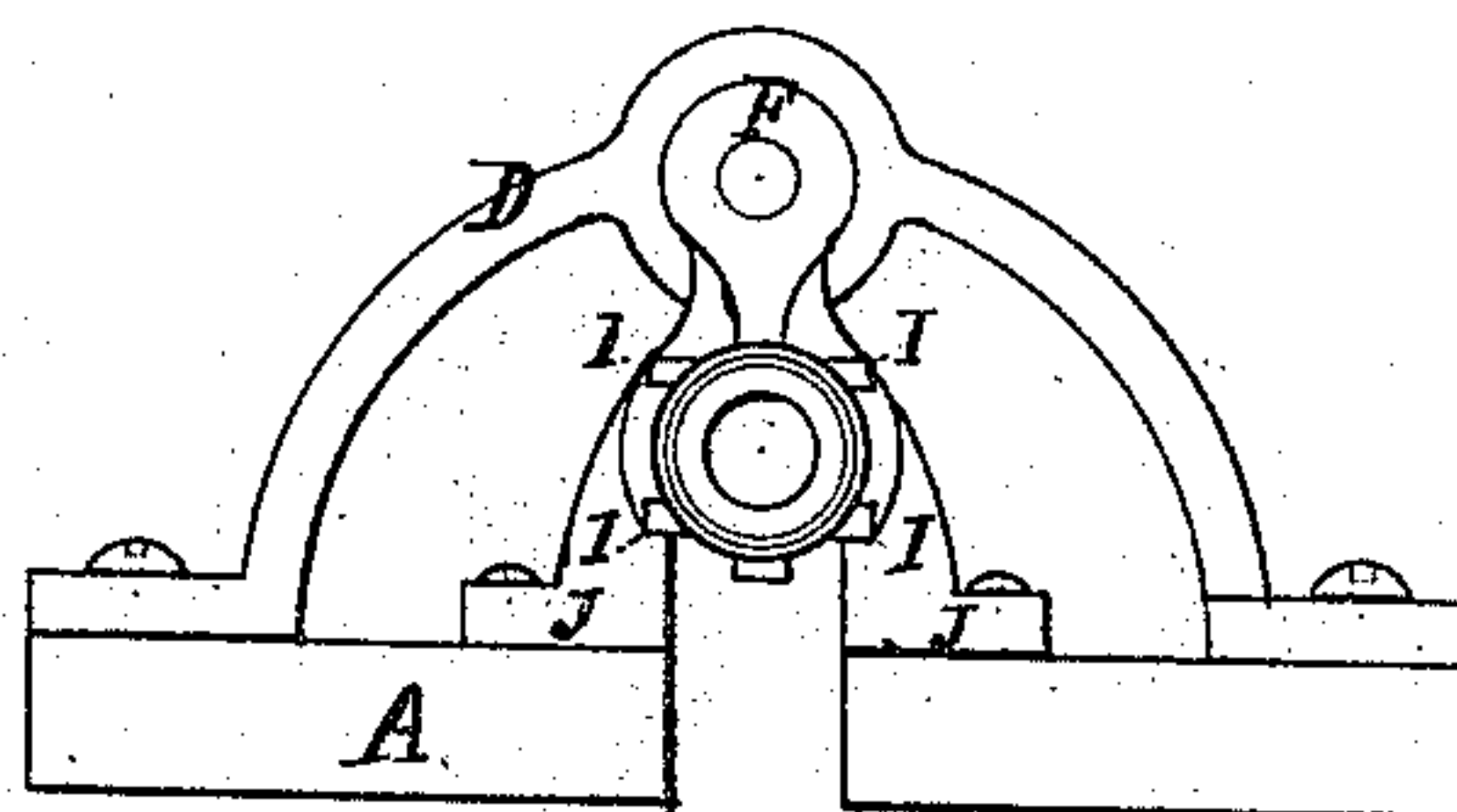


Fig 3.



Witnesses:
Thos S. Simpson
Horner S. Beardsley.

Inventor:
Robert F. Burns.
 By *A. L. Munson*
 Attorney.

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Fig 4.

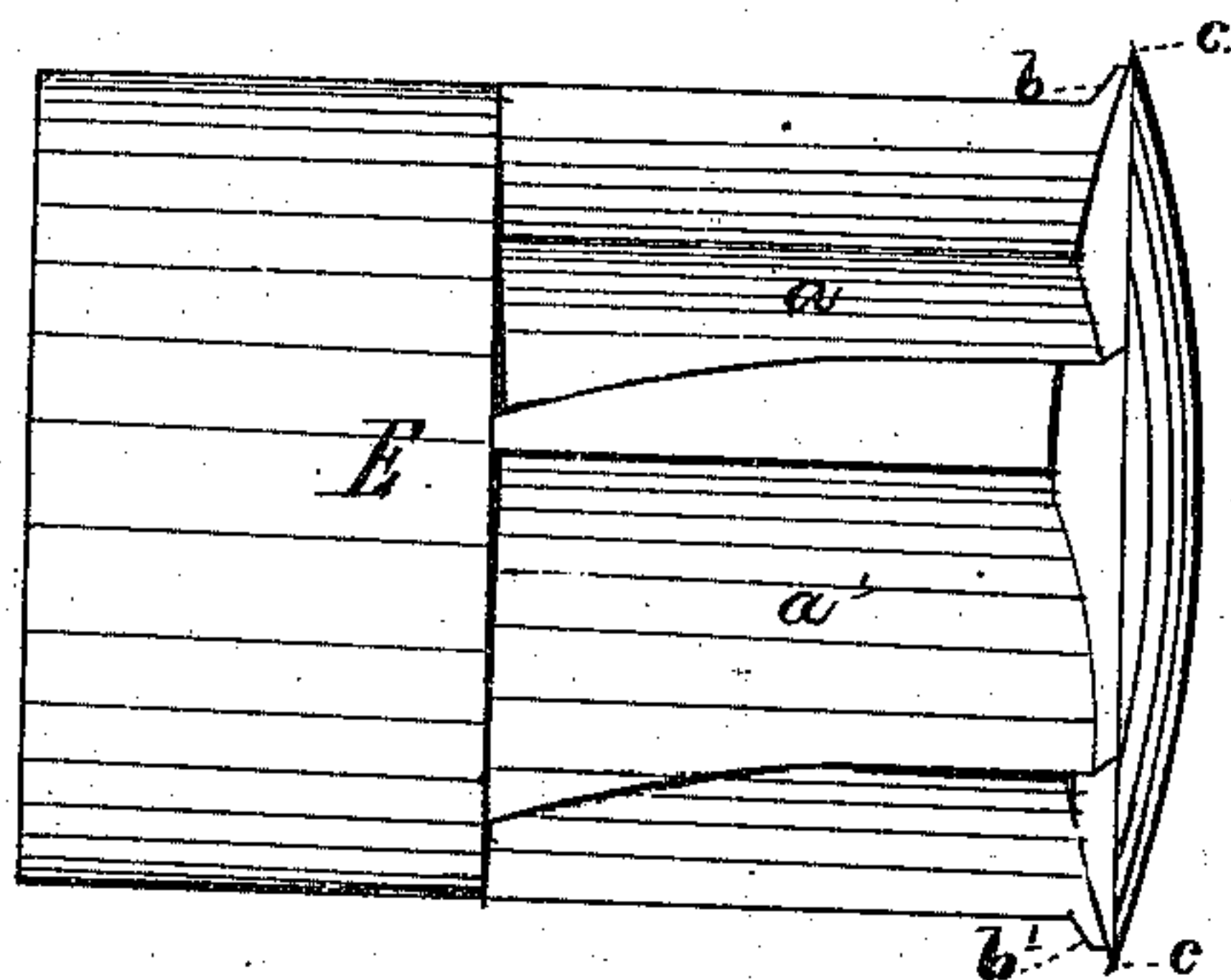


Fig 5.

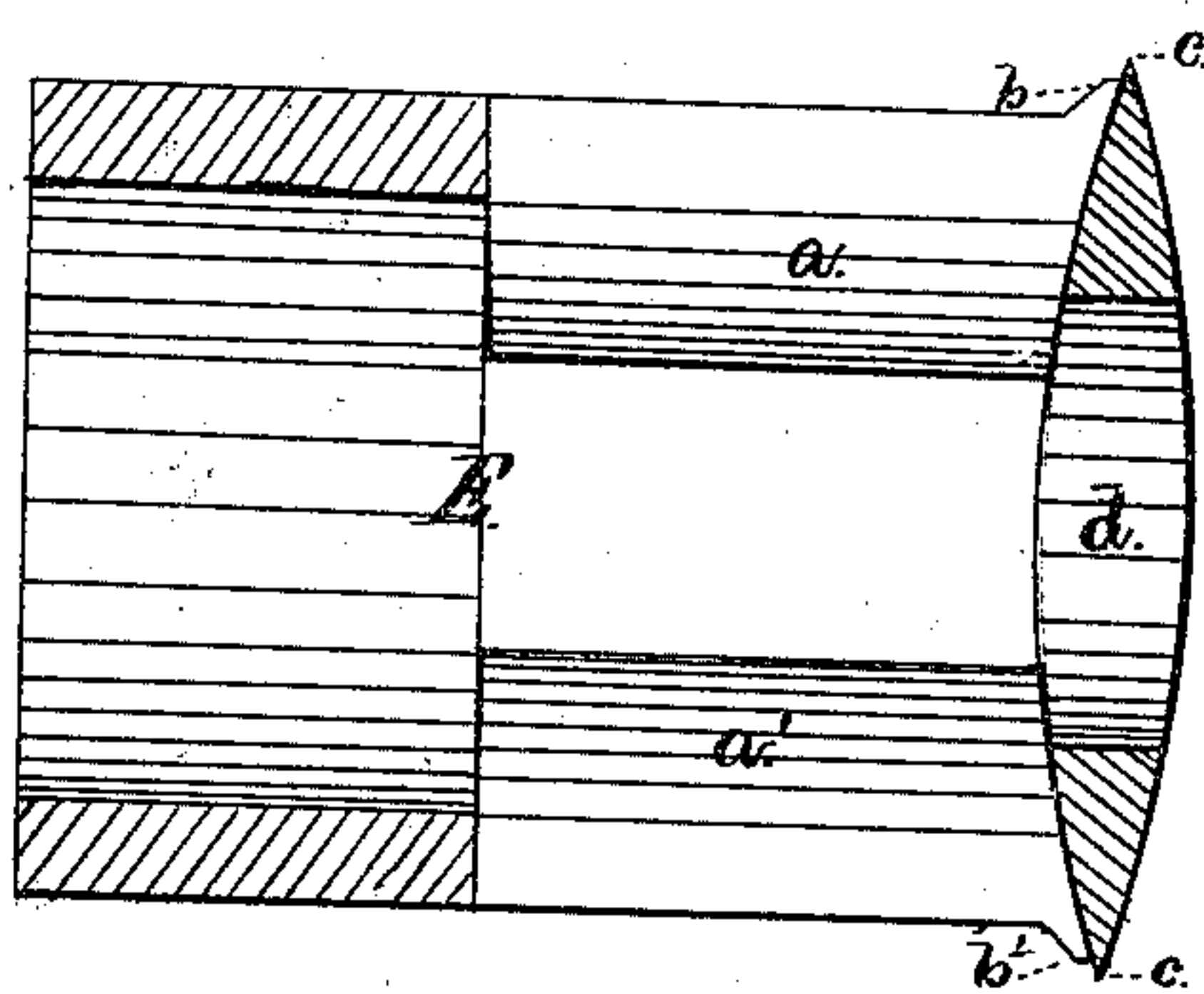


Fig 6.

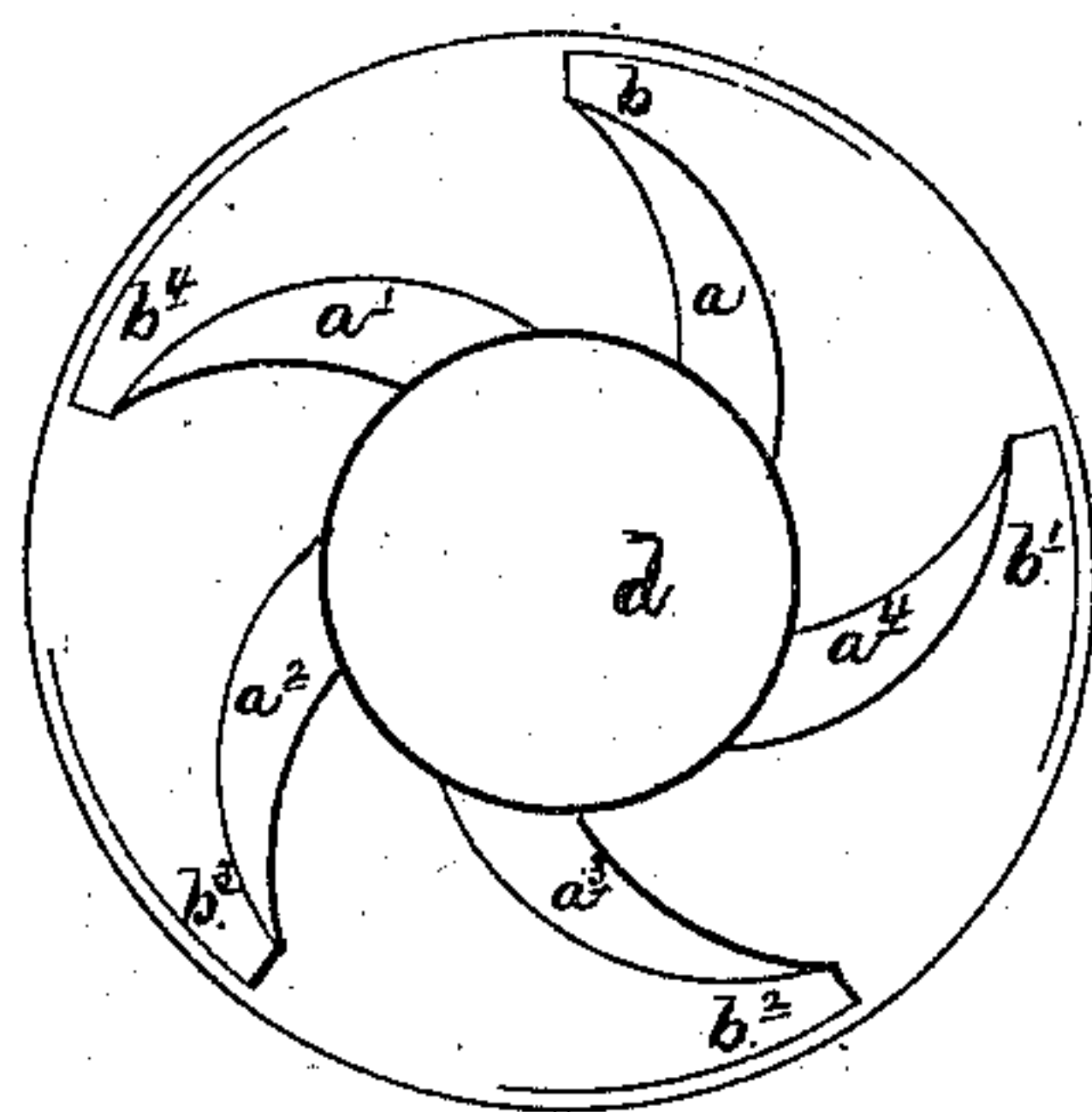
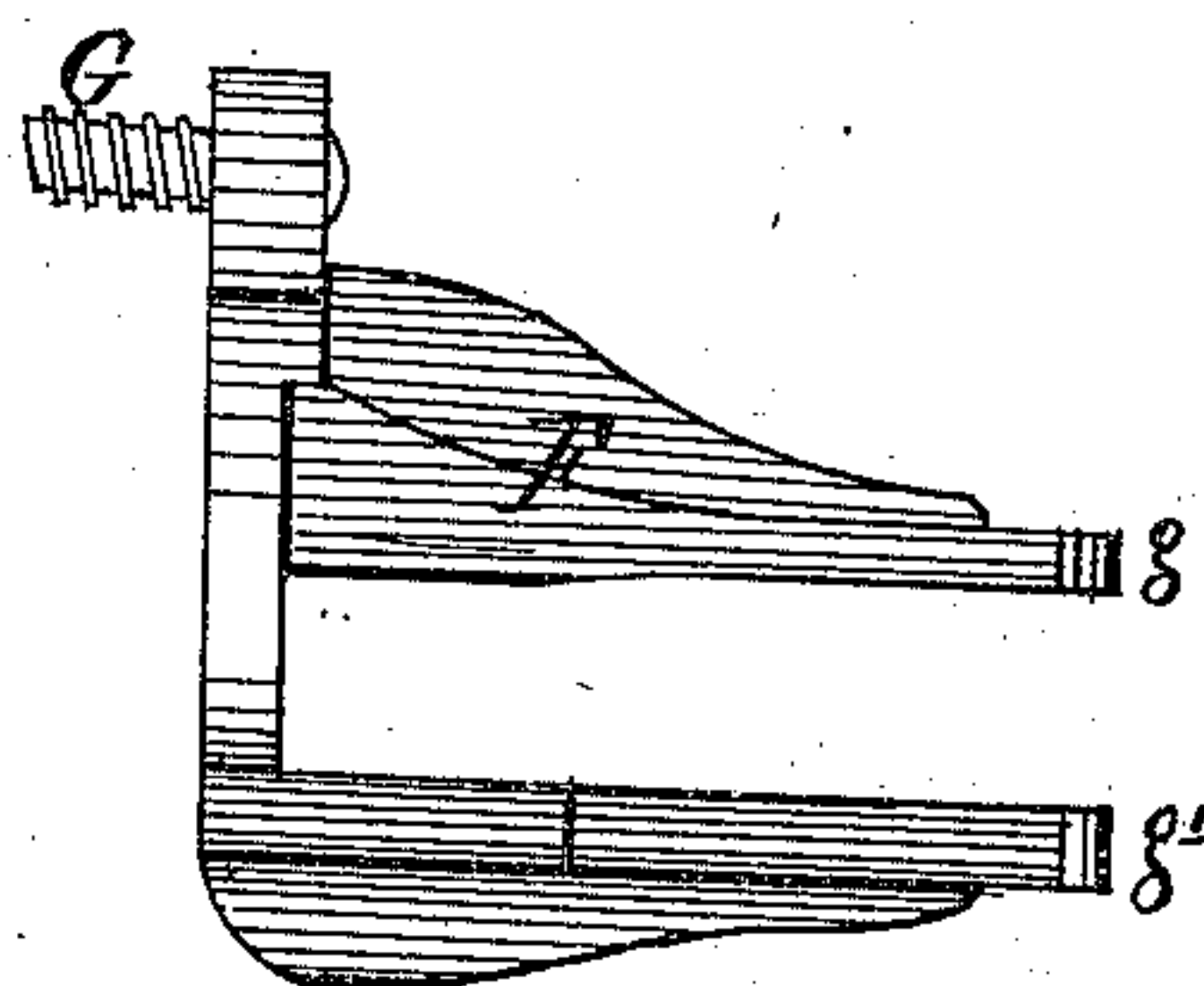


Fig 7.



Witnesses:
Jm S Sampson
Homer S Beardley.

Inventor:
Robert A Burns.
By A L Munson
Attorney.

UNITED STATES PATENT OFFICE.

ROBERT F. BURNS, OF NEW YORK, N. Y., ASSIGNOR TO THE BURNS MACHINE COMPANY, OF SAME PLACE.

IMPROVEMENT IN EDGE-TRIMMING MACHINES FOR BOOT AND SHOE SOLES.

Specification forming part of Letters Patent No. 158,569, dated January 12, 1875; application filed October 23, 1874.

To all whom it may concern:

Be it known that I, ROBERT F. BURNS, of the city of New York and State of New York, have invented an Edge-Trimming Machine for the Soles of Boots and Shoes, of which the following is a specification:

My invention relates to that class of machinery adapted to the finishing of the soles of boots and shoes, and, in this instance, is applied as an "edge-trimmer," the object being to thoroughly and smoothly trim the edges of the soles at one operation and at a rapid rate.

In carrying out my plans I have found it convenient to use portions of the mechanism for adjusting the position of the boot or shoe while being trimmed, similar to that as shown in the Letters Patent No. 97,758, of 1869, granted to me for a machine for polishing the edges of boot and shoe soles, and the construction of my present machine for trimming resembles the same in general design, though adapted to another purpose.

In my present invention I employ a revolving circular cutter-head, having on and forming a part of its circumference a series of spiral cutting-blades placed parallel to its axis. On the inner face of this cutter-head, and also forming a part of it, are small vertical cutting-blades placed at a given angle above, and inclined to the rear of the parallel spiral blades. The edge of the cutter-head projects above the cutting-blades; and at its outer circumference is perfectly smooth for the purpose of protecting the "uppers" of the boots or shoes from being injured. This cutter-head and its two sets of blades is made of one piece of metal. It is constructed hollow for the purpose of preventing any clogging by the chips and shavings cut from the sole, they passing freely between the spiral knives into the interior of the cutter-head, and dropping out of the same through the opening in its face. The function of the spiral knives is to cut and trim the face of the edge of the sole; that of the vertical knives (which I term "feathering-knives") is to finish the corners of the sole, removing any roughness or "feather" left by the spiral knives. I also employ a double adjustable gage so arranged that the sole may be trimmed above or below the cutter-head as best suits

the convenience of the operator; also, fixed rests, having thereon adjustable guides, (also made double,) adjusted by a right-and-left-hand set-screw, to adapt them to governing the position of the sole for any desired thickness of cut by the spiral knives.

In the drawings, Figure 1 is a plan view; Fig. 2, a side elevation; Fig. 3, a front elevation; Fig. 4, an enlarged side elevation of the circular cutter-head; Fig. 5, a vertical section of the same; Fig. 6, a sectional front elevation, showing the form of the two sets of cutting-knives; and Fig. 7, a detached and enlarged side elevation of the double adjusting-gage.

A is the bed or frame of the machine. B is the driving-shaft, on which are placed two pulleys, C C, one fast and one loose. D is a stand attached to the bed A. D and D' are the boxes affixed to the bed of the machine, in which the shaft B is held and revolves. E is a circular revolving cutter-head, which is screwed on the end of the shaft B, and is constructed as hereinafter described. F is a double adjustable gage fastened to the screw G, which passes through a socket in the stand D, turned by a hand-wheel, H, and the gage is moved forward and back by this screw G, operated by the hand-wheel H. It is held in position by a guiding-piece, which operates in the female-guides L L, attached to the bed A. This adjustable gage F is for the purpose of governing and gaging the width of the sole to be trimmed, and is made double in order that the operator may trim the sole above or below the cutter-head as may best suit his convenience. I I are adjustable guides attached to the fixed rests J J on the bed A. These guides are also double, a set being placed on each side of the cutter-head, and affixed, respectively, to the top and bottom of the rests J J. The surfaces of these guides, when in use, are a little retired from the cutting-surfaces of the knives of the cutter-head, and they are raised and lowered by means of the right-and-left-handed thumb-screws K and K', each screw controlling an upper and lower guide at the same time, thus governing the thickness of the material to be trimmed from the sole.

The revolving circular cutter-head E (see Figs. 4, 5, and 6) is constructed hollow, for the purpose of allowing the chips and shavings of leather cut from the sole to pass to its interior, and thence out through the opening *d* in its face. The series of spiral knives *a a¹ a² a³ a⁴* are constructed parallel to its axis, and form a portion of its circumference. They are made spiral for the purpose of producing drawing cuts. The outer end of the cutter-head is provided with a circular disk or shield, for the purpose of protecting the "upper" from injury on its inner face, and, forming a part of it, are a series of small vertical cutters, *b b¹ b² b³ b⁴*, set at a given angle (at nearly right angles) to the spiral cutters, above and inclined to their rear. The periphery of the face or shield of the cutter-head reaches above the cutting-knives, and is turned perfectly smooth on the outer edge, as seen at *c* in Figs. 4 and 5. This obviates any liability to injury of the boot or shoe while the sole is being trimmed. The cutter-head is screwed on the end of the shaft B, it being provided with screw-threads for that purpose. The sole of the boot or shoe to be trimmed is passed over the cutters transversely above or below the cutter-head, the shoe being held by hand up or down on the guides I I and against the face of the gage at *g* or *g'*.

I am aware that the trimming of soles by

means of revolving cutters is old, but by the use of my improved hollow cutter-head and double gages and rests I obtain important advantages over all other forms of construction.

I claim as new and as my invention—

1. The hollow circular cutter-head E, having the spiral cutters *a, a¹, a², a³, and a⁴*, arranged parallel to its axis; also, provided with a circular disk or shield at its outer end, the periphery of which extends beyond the spiral cutters, and having upon its inner face the vertical cutters *b, b¹, b², b³, and b⁴*, all constructed from one solid piece of metal, arranged and operating substantially as and for the purposes herein shown and described.

2. In combination with the hollow circular cutter-head E, provided with the two sets of cutters and shield, the double adjusting-gage F, operating substantially as and for the purposes described and set forth.

3. In combination with the hollow circular cutter-head E, provided with the two sets of cutters and shield, the double set of guides I I, adjustable by means of thumb-screws K, substantially as and for the purposes as described.

ROBERT F. BURNS.

Witnesses:

A. L. MUNSON,
W. H. GRAY.