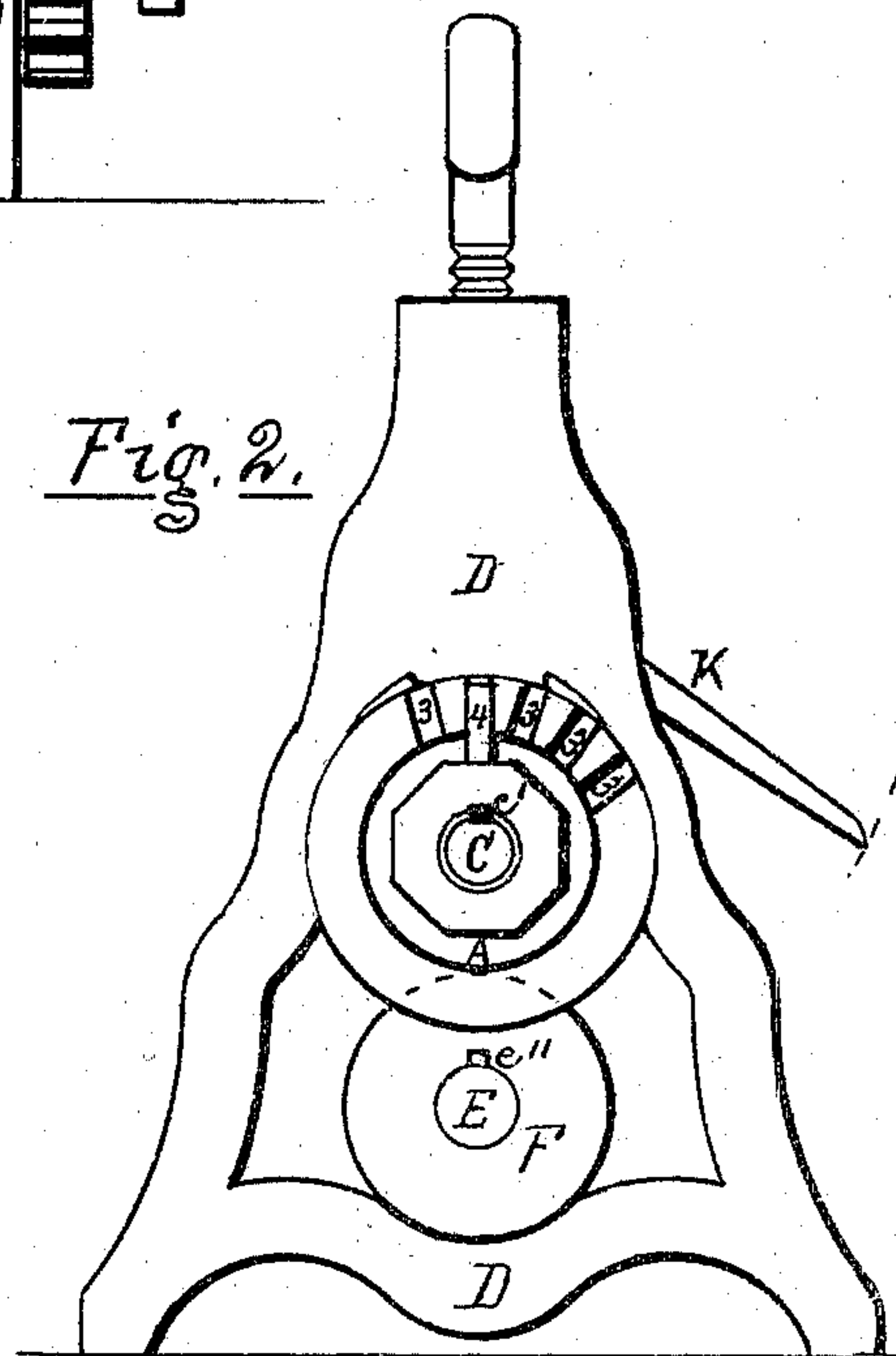
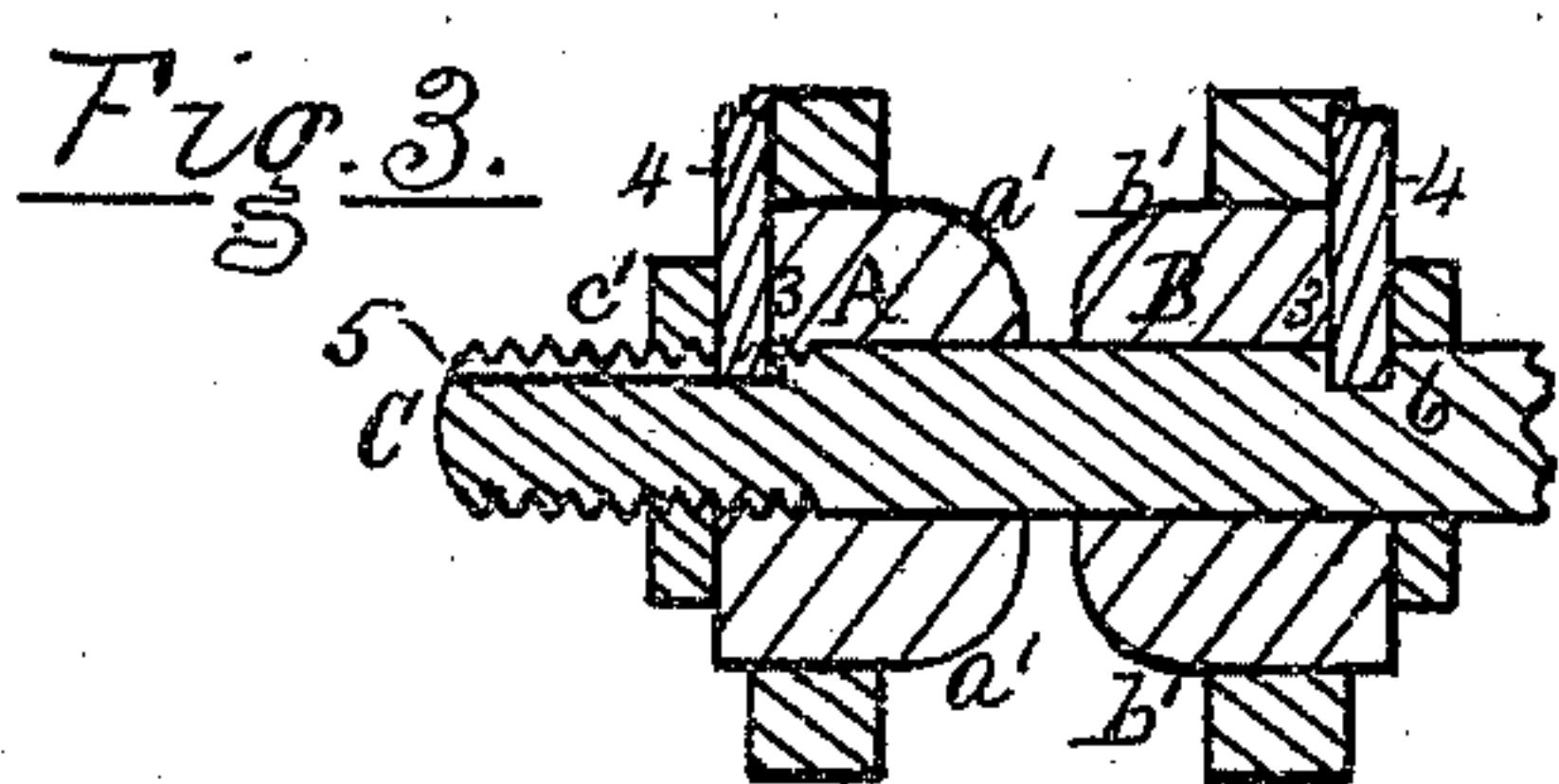
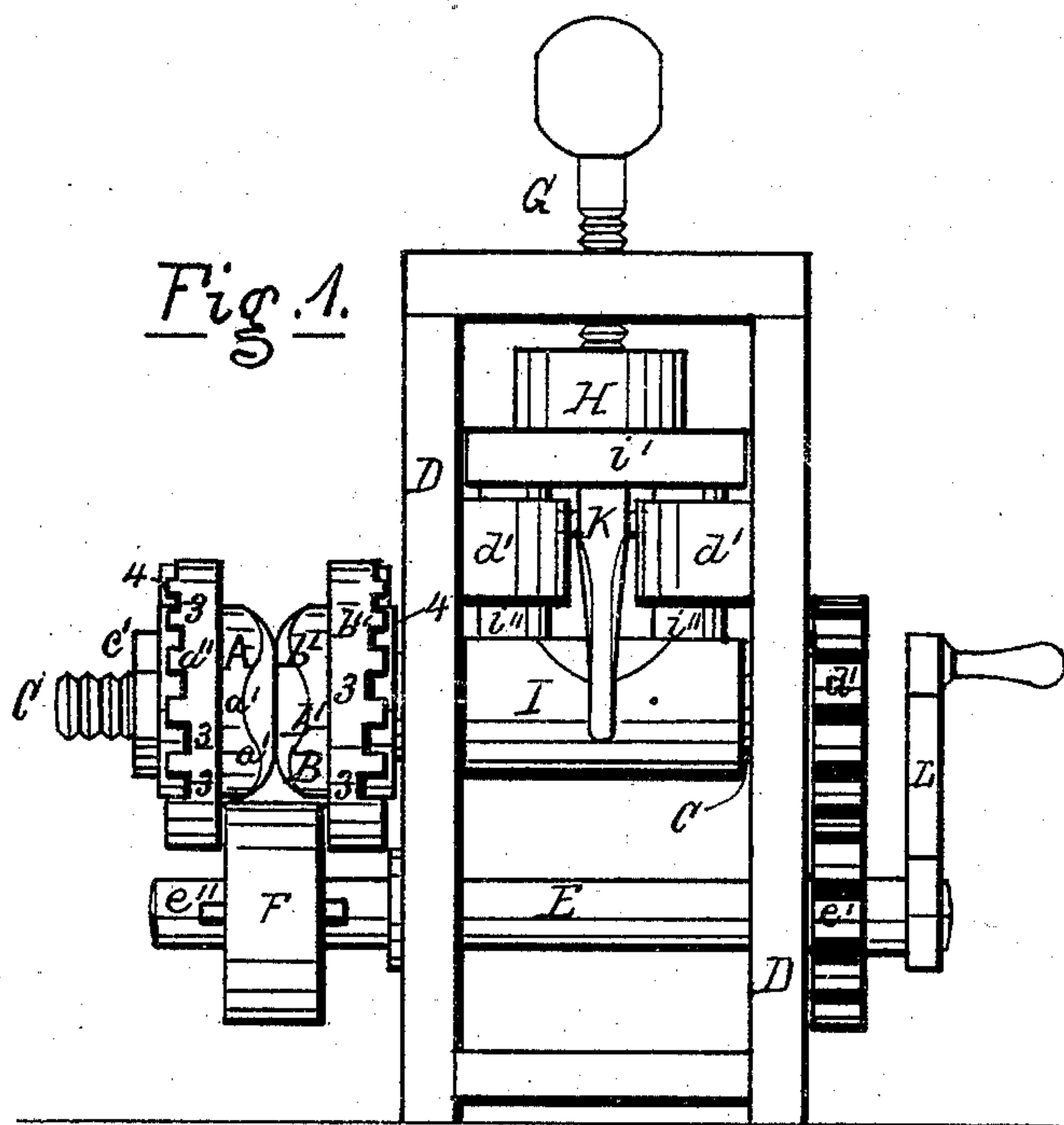


D. H. UNGER.
Machines for Waving or Embossing Leather Straps.
 No. 143,477. Patented Oct. 7, 1873.



Witnesses:

Benz Morrison.
Wm H. Morrison.

Inventor:

Daniel H. Unger

UNITED STATES PATENT OFFICE.

DANIEL H. UNGER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR WAVING OR EMBOSSING LEATHER STRAPS.

Specification forming part of Letters Patent No. **143,477**, dated October 7, 1873; application filed June 13, 1873.

To all whom it may concern:

Be it known that I, DANIEL H. UNGER, of the city of Philadelphia, in the State of Pennsylvania, have invented a Machine for Waving or Embossing Leather Straps or Bands in the Manufacture of Harness, of which the following is a specification:

The object of my invention is to facilitate the production of the waved embossments required in the manufacture of ornamented harness for horses, and to render the shapes and forms of the said embossments more uniform and perfect in their outlines. This I accomplish by means of a pair of adjustable rollers with suitably-formed peripheries arranged upon the same shaft, so as to bear upon a supporting-cylinder rotated simultaneously on another shaft, so as to compress the leather between them at certain parts, and cause it to rise at other parts, during the passage of the latter between the said rollers and cylinder, the latter being each provided with an adjustable flange, to confine the passing leather strap or band within the required width intended for the same.

Figure 1 is a side elevation of the machine embodying my invention. Fig. 2 is an elevation, showing the end of the machine at which the rollers and cylinder are attached. Fig. 3 is a central longitudinal section of the two embossing-rollers, with their respective adjustable flanges and their carrying-shaft detached from the frame of the machine.

The embossing or waving rollers A B are supported upon a shaft, C, which is arranged to rotate in a horizontal position in the main frame D, motion being given to said shaft by means of a fingered cog-wheel, *d'*, fixed on the opposite end of the same, which gears into a like cog-wheel, *e'*, fixed on the driving-shaft E, which carries the cylinder F. The inner edges of the peripheries of the two rollers A and B are cut away, so as to leave a waved or serpentine edge on each, substantially as shown at *a'* and *b'*, or of any other conformations that the style of the embossment may require.

The cylinder F rotates with its shaft E, and serves as a moving support to the leather operated upon by the waving or embossing rollers A B.

The flanges *a'' b''* of the rollers A B are adjusted to suit the width of the strap or band of

leather which is to be waved or embossed by means of a series of recesses, 3 3, in the outer sides of the same, respectively, and a wedge-key, 4, for each roller, which key fits the respective recesses 3 3, and enters a longitudinal groove, 5, for the outer roller A, or a hole, 6, for the inner roller B, and thus prevents the said rollers from turning on the shaft C, and, the recesses in each flange *a'' b''* being of graduated depths in respect to each other in each of the series, enables the operator to adjust the distance between the two said flanges on the rollers A B to suit the required width of the leather strap or band which is to be operated upon; and as the said width between the rollers is varied, the supporting-cylinder F is intended to be changed to correspond; and this change is provided for by means of a fin, *e''*, on the shaft E and a corresponding recess in the cylinder. The outer roller A is sustained in any required position to suit the width required between the two rollers A B by means of a screw-nut, *c'*, on the outer end of the shaft C. The shaft C rests in vertical slots of the frame, and the required pressure upon the same, to give pressure upon the rollers A B, is produced by means of a hand-screw, G, bearing adjustably upon an elastic gum block, H, which rests upon the upper part *i'* of a saddle pressure-block, I, through which latter the shaft C passes, so as to be allowed to rotate freely, the two parts I and *i'* being connected by means of two tie-pieces, *i'' i''*, which are made to slide vertically in respect to guides *d' d'* fixed to the frame. A hand-lever, K', of the first order, having its fulcrums in the guides *d' d'*, enables the operator to raise the shaft C, against the pressure of the block H, sufficiently to admit of the introduction of the strap or band of leather to be operated upon between the cylinder F and the rollers A B.

In operating with this machine, the rollers A B and cylinder F are put in rotary motion by means of the hand-crank L, the shaft C raised sufficiently, by means of the lever K, to allow the leather strap or band which is to be embossed to be introduced between the rollers A B and the cylinder C, the band or strap being cut a little wider than the space which is between the two flanges *a'' b''*, and skived off to thin it along each side. The full pressure

required is then given to the said rollers by means of the hand-screw G, and the strap or band carried through the rollers and cylinder, finished or embossed.

It will be understood that, as the band or leather strap is a little wider than the space between the two rollers, as before stated, the said band or strap will be raised along its midlength, because the strong pressure given by the rollers A B flattens down firmly all parts of the leather upon which they bear; and, the inner edges of the said rollers being cut into wavelines, the part raised in the midlength of the leather strap or band will have its side edges formed in a corresponding wave form, which will be the line for stitching.

It will be seen that the production of the required embossments on leather straps or bands can be produced with much greater facility and rapidity, and of a more perfect and uniform structure, than can be produced by the mode in present use, which consists in ham-

mering the dampened leather upon a board, cut or gouged out to form and receive the embossments produced by the hammering.

I claim as my invention—

1. The two separate rollers A and B, and their respective adjustable flanges *a''* and *b''*, with their keys 4 4, in combination with the adjusting screw-nut *c'* and the rotary shaft C, the said parts being constructed and arranged in a suitable frame, D, so as to operate substantially as and for the purpose hereinbefore set forth.

2. In combination with the shaft C and the frame D, the raising and lowering device, consisting of the parts I *i' i'' i'''*, lever K, and guides *d' d'*, constructed and arranged to operate substantially as and for the purpose hereinbefore set forth and described.

DANIEL H. UNGER.

Witnesses:

BENJ. MORISON,
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