(No Model.) 4 Sheets—Sheet 1.

E. RUTISHAUSER.

NULLING OR BEADING LATHE.

No. 557,894. Patented Apr. 7, 1896.

Fig. 1.

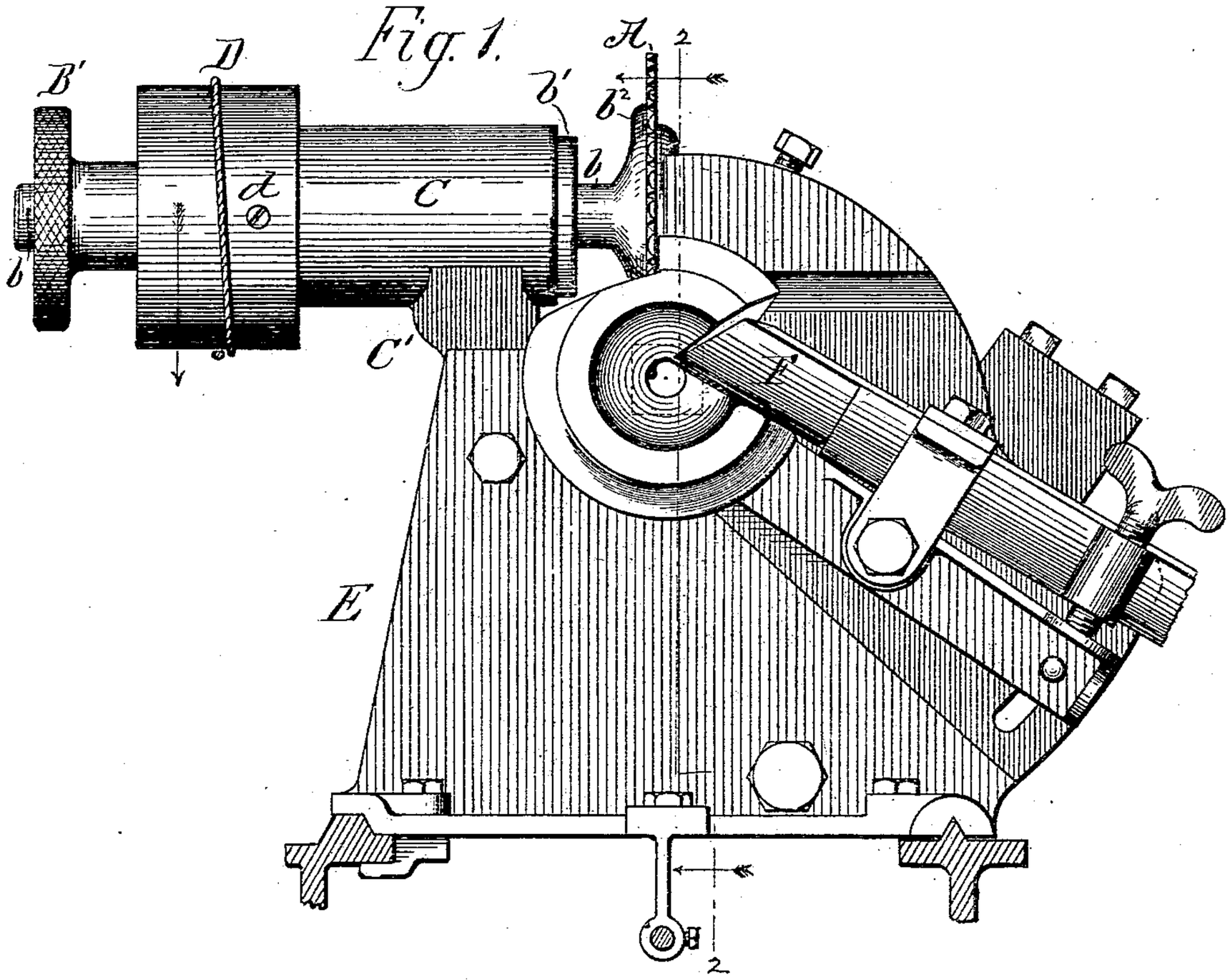
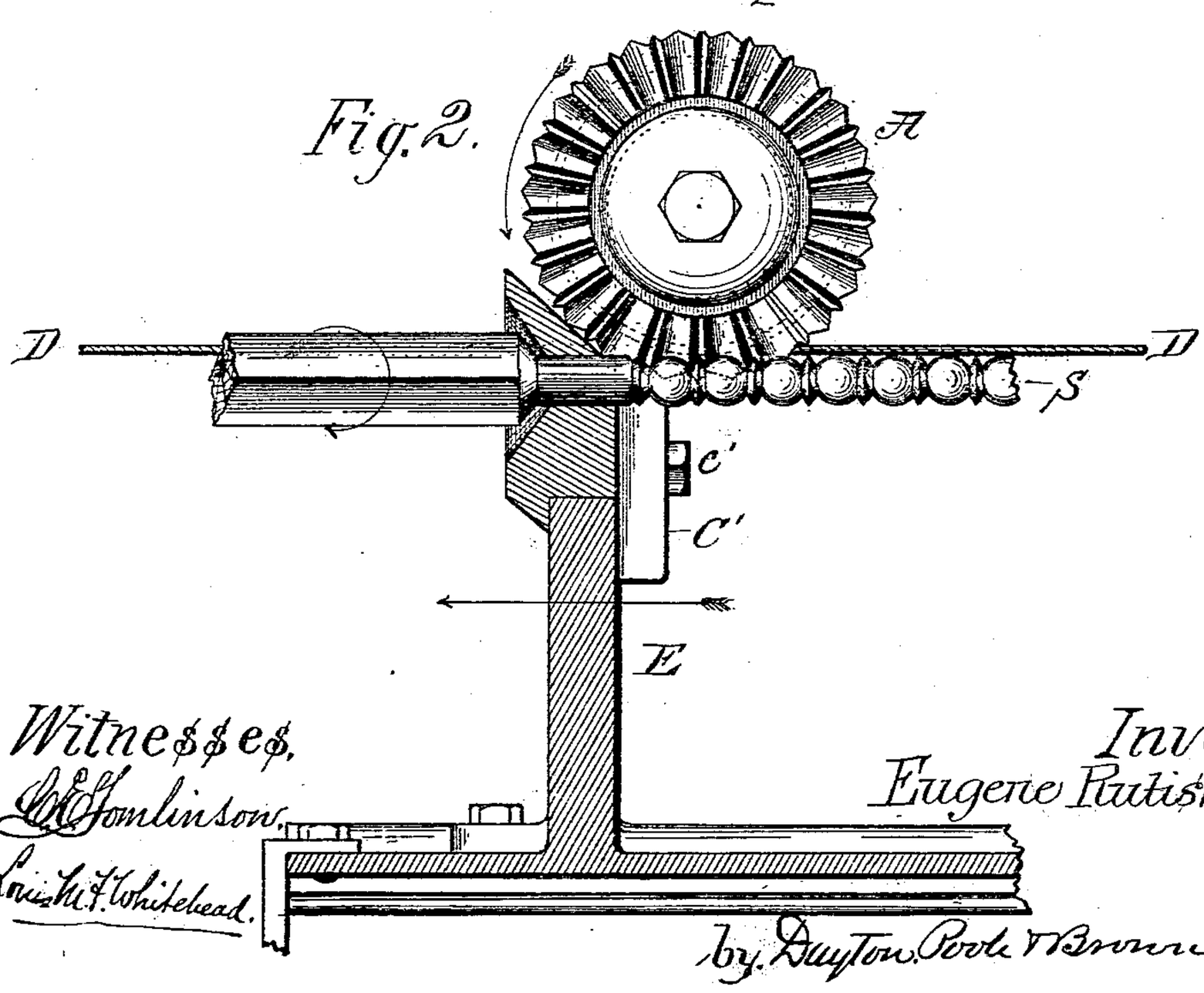


Fig. 2.



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Louis H. T. Whitehead.

Inventor.
Eugene Rutishauser.

by Dayton, Poole & Brown Atty's.

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Fig. 4.

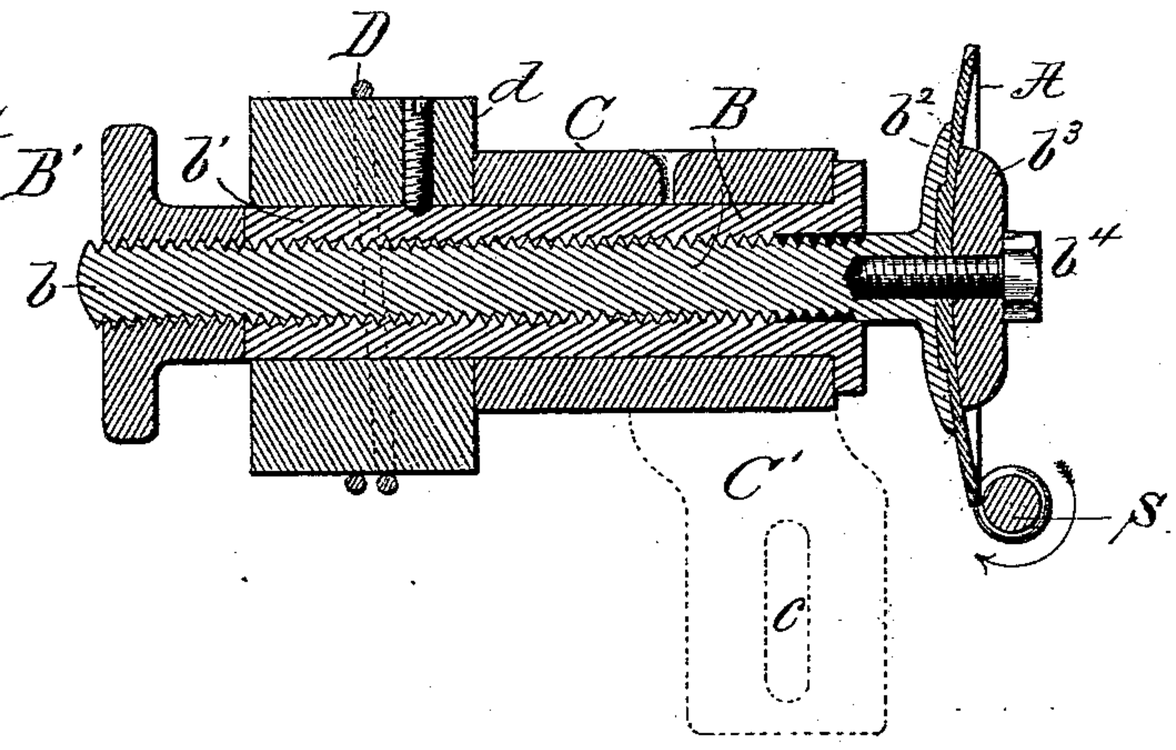

Fig. 3.

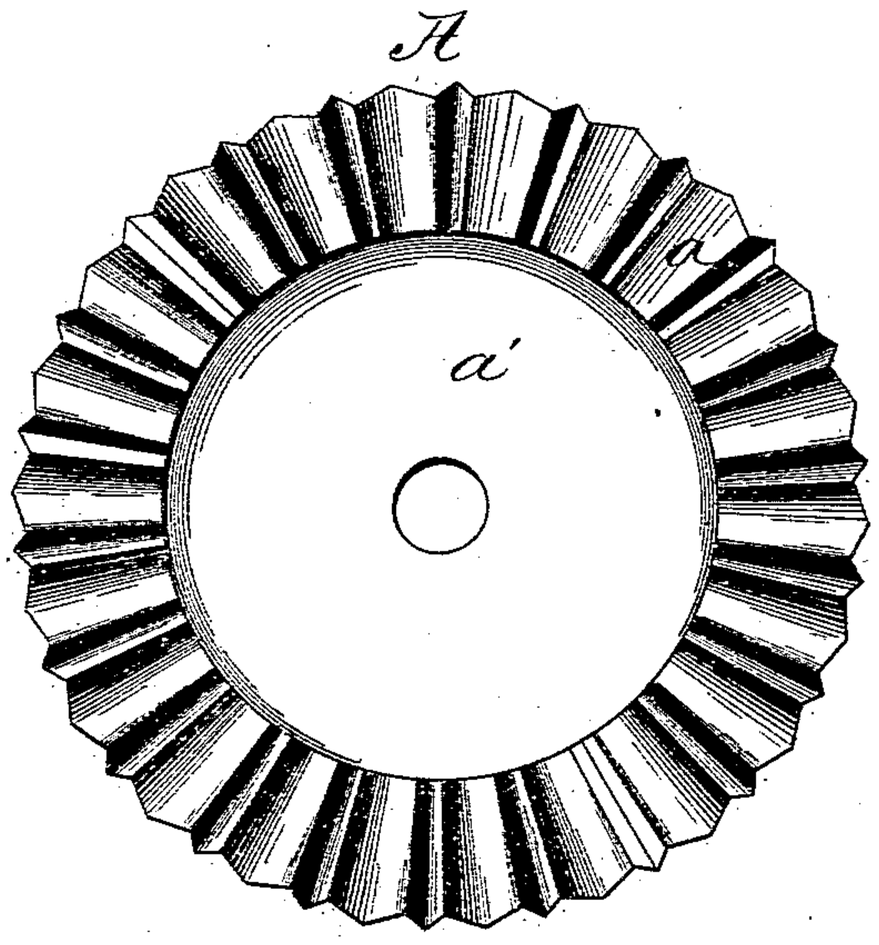

Fig. 5

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E. RUTISHAUSER.

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No. 557,894. Patented Apr. 7, 1896.

Fig. 6.

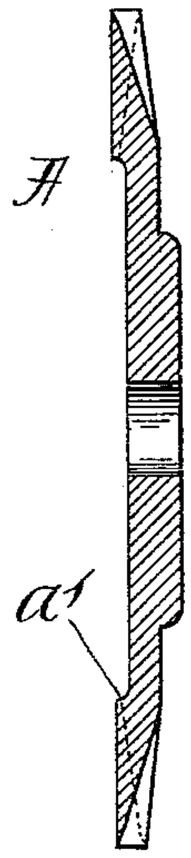
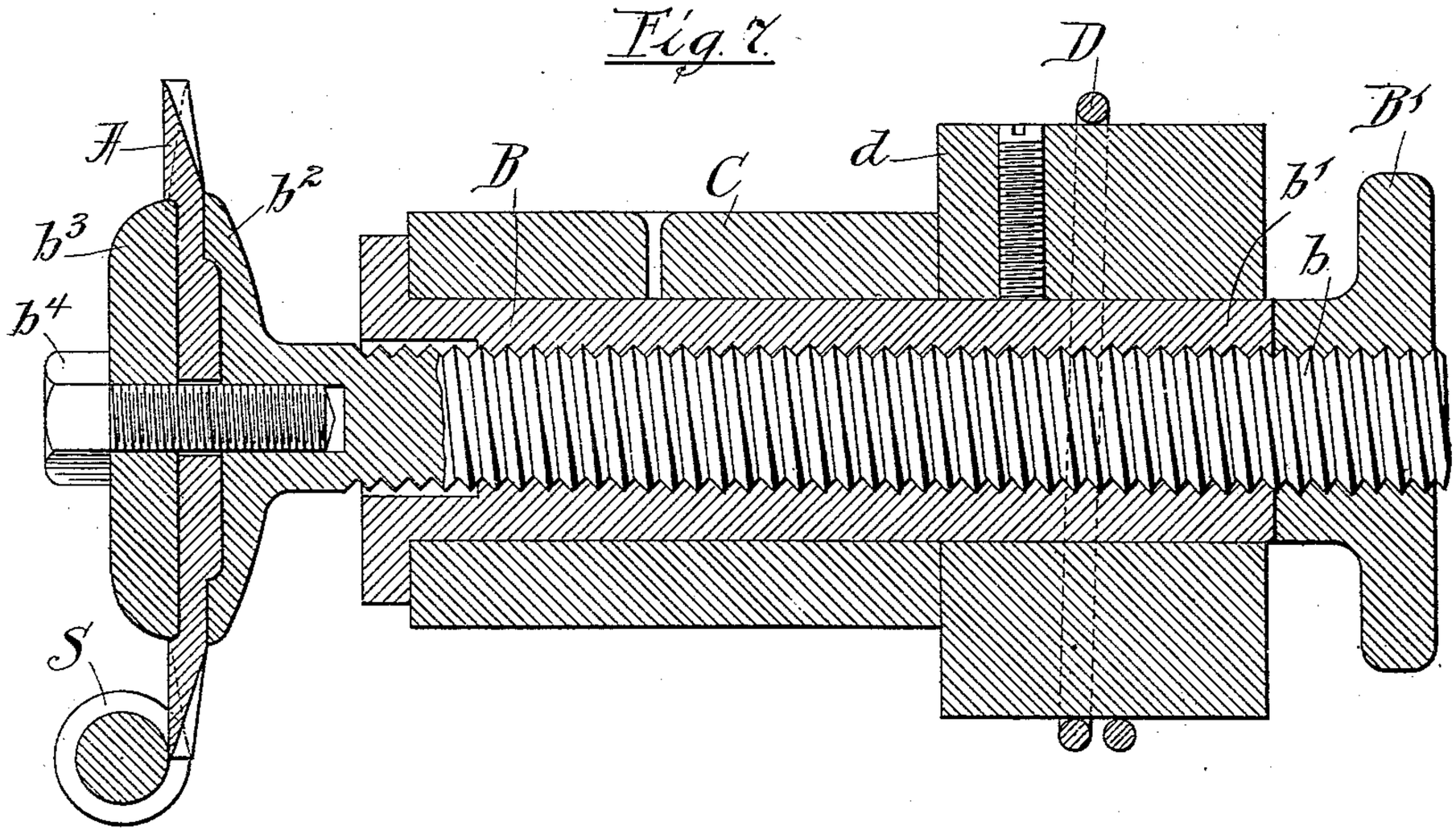


Fig. 7.



Witnesses:-
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Clinton Hamlink

Inventor:-
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(No Model.)

4 Sheets—Sheet 4.

E. RUTISHAUSER.

NULLING OR BEADING LATHE.

No. 557,894. Patented Apr. 7, 1896.

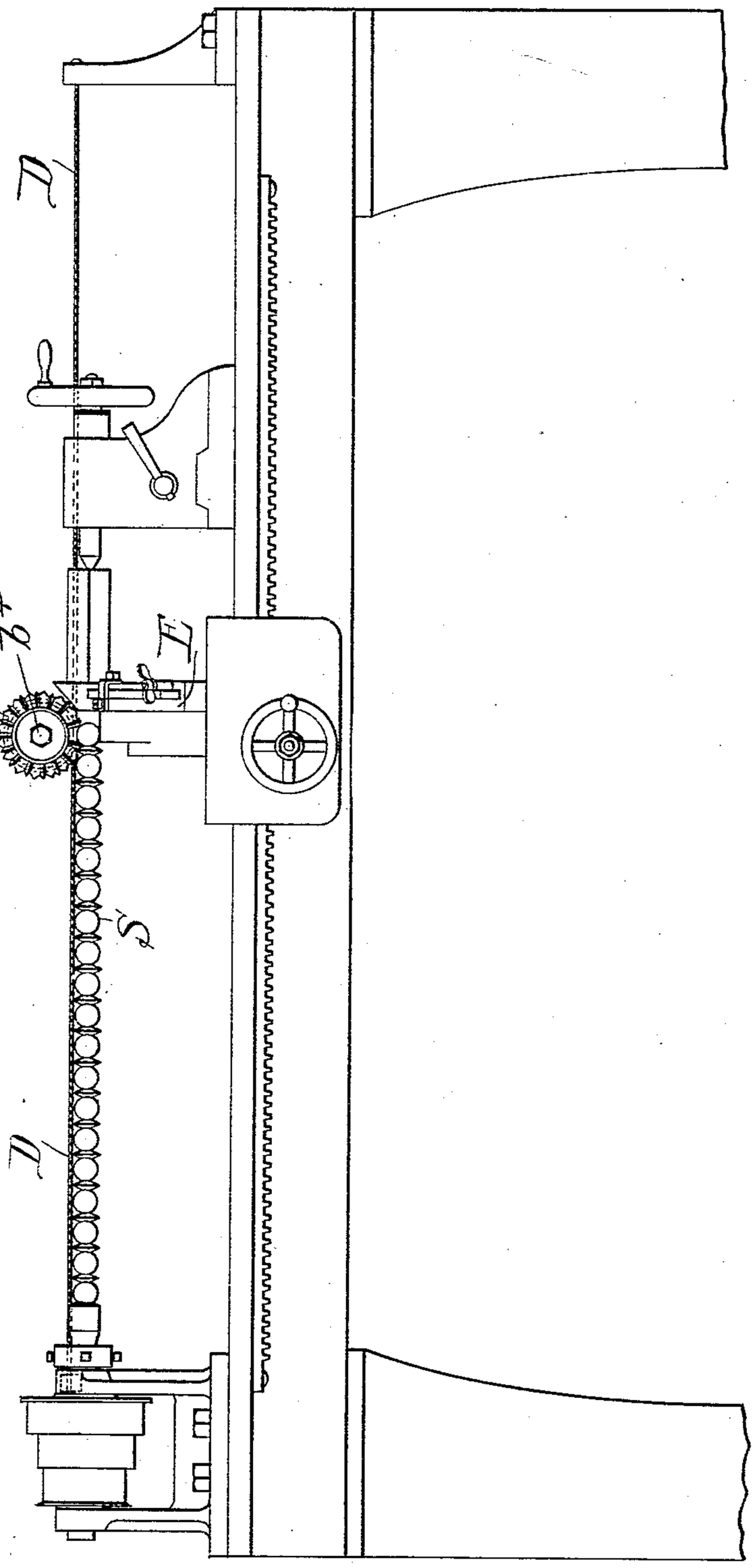

Fig. 8.

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Inventor:-
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UNITED STATES PATENT OFFICE.

EUGENE RUTISHAUSER, OF CHICAGO, ILLINOIS.

NULLING OR BEADING LATHE.

SPECIFICATION forming part of Letters Patent No. 557,894, dated April 7, 1896.

Application filed July 15, 1892. Serial No. 440,123. (No model.)

To all whom it may concern:

Be it known that I, EUGENE RUTISHAUSER, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Nulling-Lathes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to nulling or beading lathes, and has more especial reference to the bead-cutting tool of such lathes.

Heretofore a bead-cutting tool essentially cylindric in form has usually been employed in such machines, the cylinder being in the nature of a circular flange projecting in one direction from a plate which affords support and an axis of rotation for the tool, the free edge of the flange being sharpened, and said flange having the needful corrugations to give the desired contour to the work. While having the advantage of always presenting corrugations of the same width after wear and repeated sharpenings, this cylindric form of cutter has certain disadvantages with respect to the manner in which its cutting edge is presented to the work. To remedy this defect is the object of the present invention; and to this end said invention consists in a circular disk-cutter having its corrugations disposed radially upon one side of the disk and being sharpened from the other side. The cutting edge of this form of cutter, arranged alongside the rotating and advancing spindle to be beaded, therefore descends with reference to the spindle as the latter advances, with the advantage of giving a shearing and gradual downward cut, and for this reason the tool of this form is found in practice to be greatly superior to the cylindric tool above referred to.

In the accompanying drawings, illustrating my invention, Figure 1 is an end elevation of the cutting devices, showing the bead-cutting tool in edge view. Fig. 2 is a vertical longitudinal section in the line 2 2 of Fig. 1, showing the bead-cutting disk in front view. Fig. 3 is an enlarged front view of the bead-cutting tool in detached condition. Fig. 4 is a vertical axial section of the bead-cutter and of the devices by which it is supported and rotated. Fig. 5 is a side view of a portion of a finished beaded spindle, which may have been formed by the tool shown in Fig. 3. Figs. 6 and 7 are transverse sections of Figs. 2 and 3, respectively. Fig. 8 is a side elevation of a lathe equipped with my invention.

A designates the novel disk-formed beading-tool, consisting of a circular steel plate, which may be either flat, as shown in Fig. 1, or concavo-convex, as shown in Fig. 4. It will commonly be thick enough to allow corrugations *a* to be cut therein; but it may be of less thickness, and the corrugations may be swaged therein. These corrugations are radial depressions and elevations, as indicated in Fig. 3, varying in their particular form according to the contour of spindle S desired. These corrugations are accurately and permanently formed, and the tool is sharpened by filing or grinding the face of the disk opposite said corrugations as a chisel or turning-tool is sharpened.

The disk K may be of practically uniform thickness at its middle portion, if desired, as shown in Figs. 1 and 4; but as a matter of convenience in forming the corrugations *a* the disk A may be given a central depression *a'*, leaving a raised margin containing the corrugations and of suitable width to allow many successive sharpenings without obliterating them.

The bead-cutter A, having the disk form described, is secured to the end of a suitable shaft B, Figs. 1 and 4, which is rotated in a fixed bearing by means of a belt-cord D or otherwise. The shaft B is shown as being adjustable in length (to enable the cutter to shape spindles of different diameters) by being made of two lengthwise-adjustable parts *b b'*, the former of which carries the cutter A and the latter of which forms the journal for the rotation of the whole and carries the belt-pulley *d*. The parts *b* and *b'* are here shown as having relative lengthwise adjustment by screwing the former within and through the latter and the application of a set-nut B' to the projecting inner end of the part *b*, the screw-threads being so directed as to tighten on the set-nut under the working strain upon the cutter. Greater rigidity is given the cutter by the provision of a flange b^2 on the shank *b*, against which the cutter-disk is clamped by the plate b^3 and the fastening-screw b^4.

For the purpose of giving vertical adjustment to the cutter, in compensation for variations in the diameters of the same or different cutters, the bearing C is vertically adjustable upon the tool-carrier E, Figs. 1 and 2, such adjustment being attained, as here shown, by providing the bearing with a slotted lug C′ through the slot *c* of which, Fig. 4, the holding-bolt *c′* is passed.

It will be understood that the bead-cutter is rotated upon its axis by the cord or belt D as the tool-carrier or the work-holder advances and at such speed that the edge of the cutter has practically no motion relative to the work other than the vertical movement incident to its form and rotary motion.

In respect to the primary shaping tool or cutter F and of the means for rotating the work and driving the machine there is nothing new in the machine, and such parts are therefore illustrating as of conventional form.

I claim as my invention—

1. A cutter for nulling or beading lathes in the form of a circular disk corrugated or fluted around its periphery and brought to a cutting edge, whereby different parts of said cutting edge are located at varying distances from a plane parallel with the plane of the disk; the outline of which edge corresponds to the profile of the work to be done thereby, substantially as set forth.

2. A cutter for nulling or beading lathes having the form of a disk, having in one of its side faces around its periphery corrugations corresponding in cross-section to the profile of the work to be done thereby, and sharpened to a cutting edge, substantially as set forth.

3. A cutter for nulling or beading lathes having the form of a disk, having in one of its side faces around its periphery radially-disposed corrugations, corresponding in cross-section with the profile of the nulls or beads to be formed thereby, and extending to the margin of the disk, said margin of the disk being sharpened to a cutting edge, substantially as set forth.

4. A cutter for nulling or beading lathes in the form of a circular disk radially corrugated or fluted at one of its side faces and sharpened from the opposite side, whereby different parts of its cutting edge are located at varying distances from a plane parallel with the side faces of said disk and correspond with the profile of the work to be done thereby, substantially as set forth.

5. A beading or nulling machine embracing means for supporting and revolving the work, a revoluble disk-shaped cutter having radial corrugations extending to and forming its cutting edge and having its cutting edge located in a plane parallel with and at one side of the longitudinal axis of rotation of the work, whereby it is adapted to act tangentially and with a shearing cut on the work, substantially as described.

6. A nulling or beading machine comprising a suitable framework, a stock-carrier arranged to move the stock longitudinally and to simultaneously rotate the stock axially, and a revoluble disk-shaped cutter having radial corrugations extending to its margin and mounted beside the stock so as to rotate coincidently with the longitudinal movement of the stock, and so as to operate thereon with a shearing cut, substantially as set forth.

7. A nulling or beading machine comprising a suitable framework adapted to carry a longitudinally-movable and axially-revoluble piece of stock, and a revoluble cutter-disk mounted upon the framework so as to stand adjacent to one side of the stock with its face parallel with the longitudinal axis of the stock and also tangential to the finished part thereof and revoluble coincidently with the longitudinal movement of the stock so as to operate at its edge upon the stock with a shearing cut, substantially as set forth.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

EUGENE RUTISHAUSER.

Witnesses:
M. E. DAYTON,
TAYLOR E. BROWN.