

(No Model.)

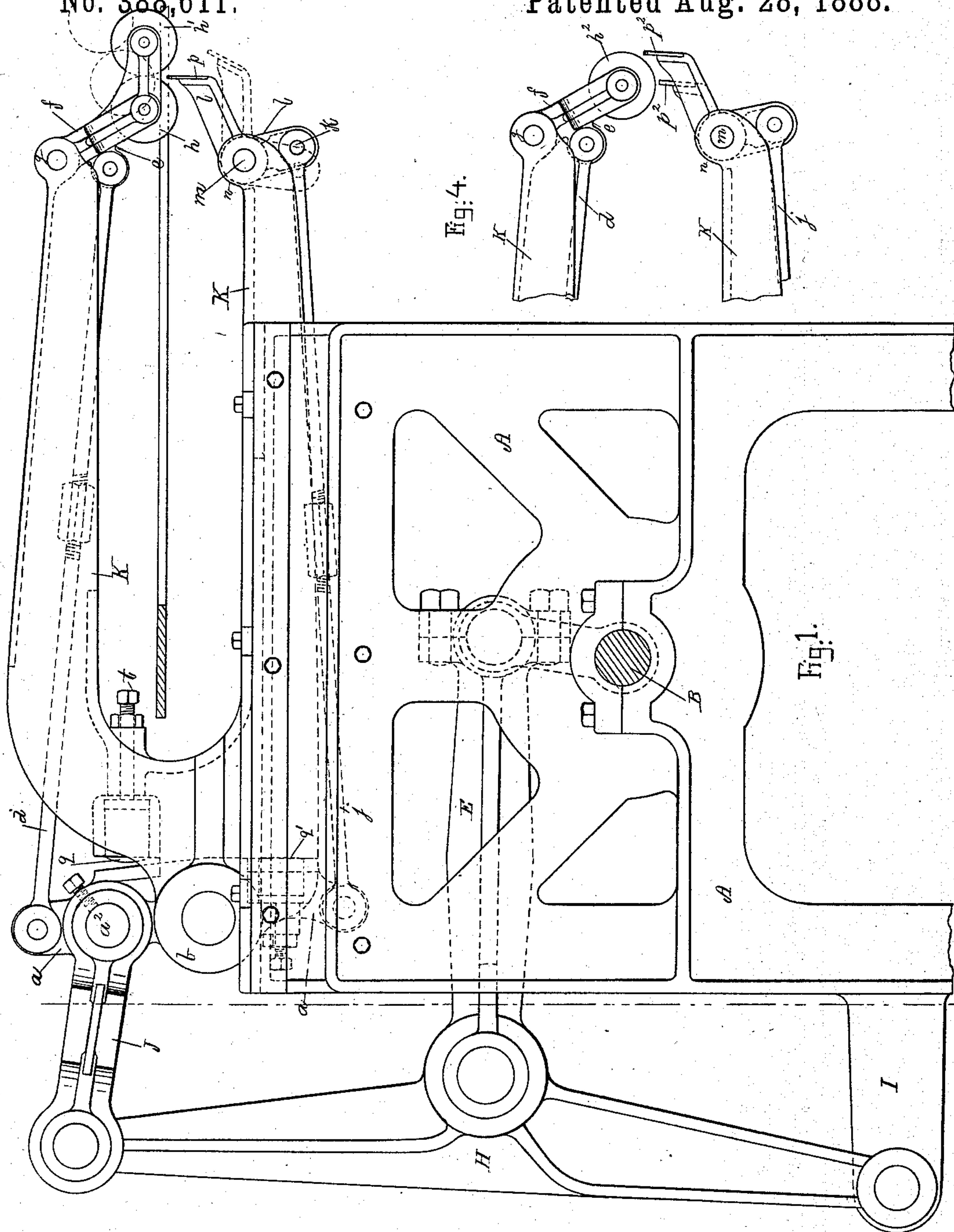
3 Sheets—Sheet 1.

W. E. ADAMS.

LEATHER STRETCHING MACHINE.

No. 388,611.

Patented Aug. 28, 1888.



Witnesses.

Conrad Reno.
Robert Wallaer.

Inventor

Wm E. Adams,
by Wm D. Macleod,
his Atty

(No Model.)

3 Sheets—Sheet 2.

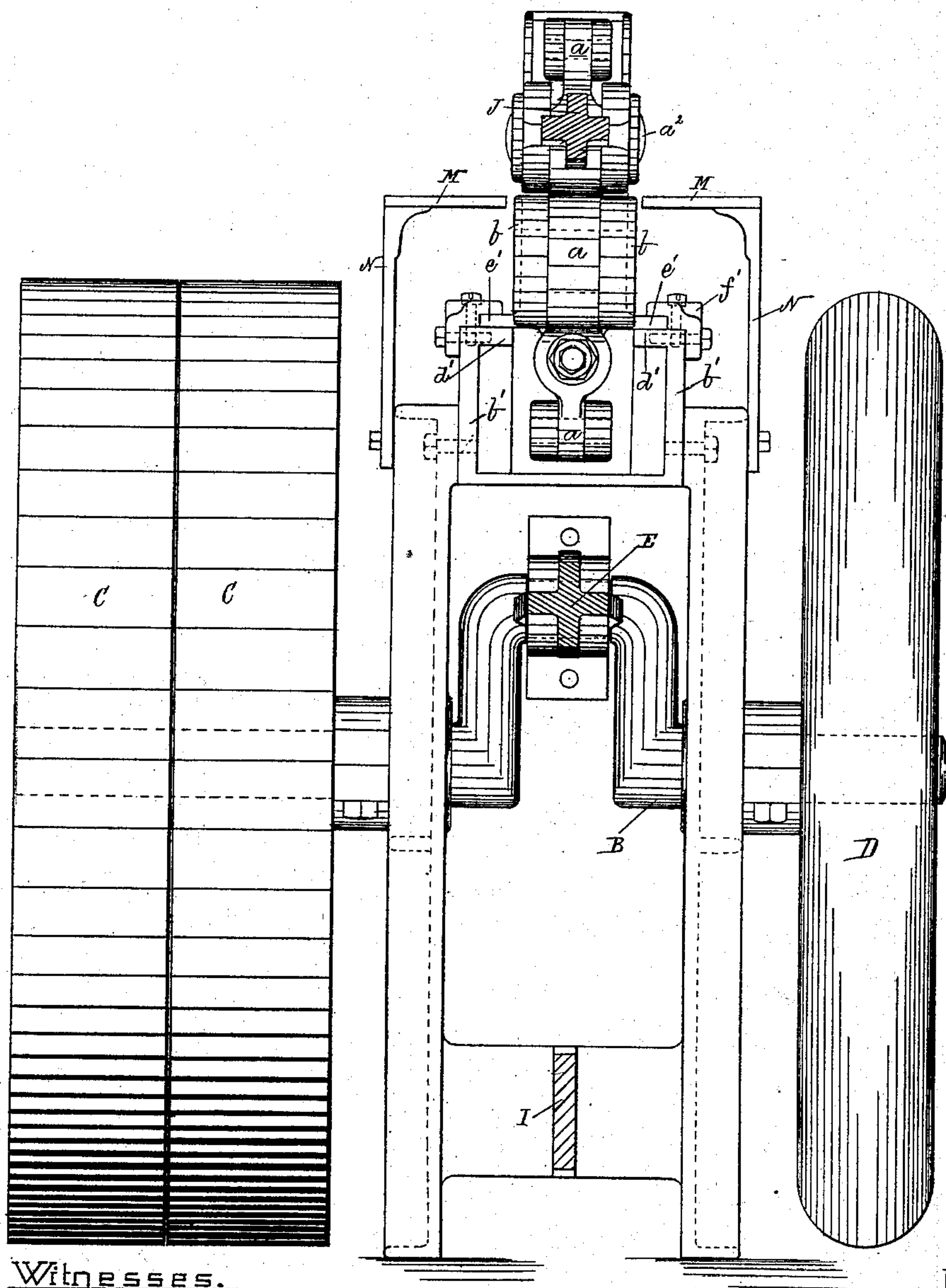
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Fig. 2.



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(No Model.)

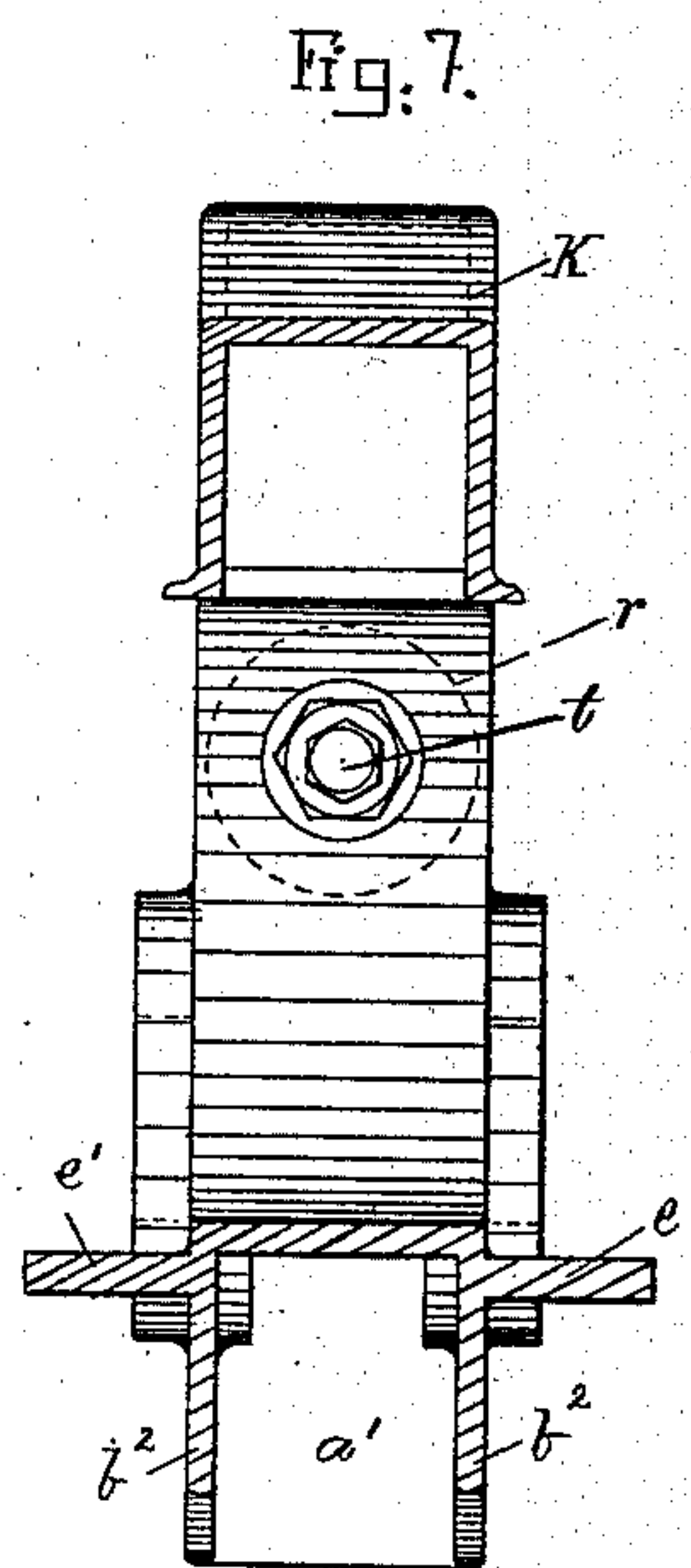
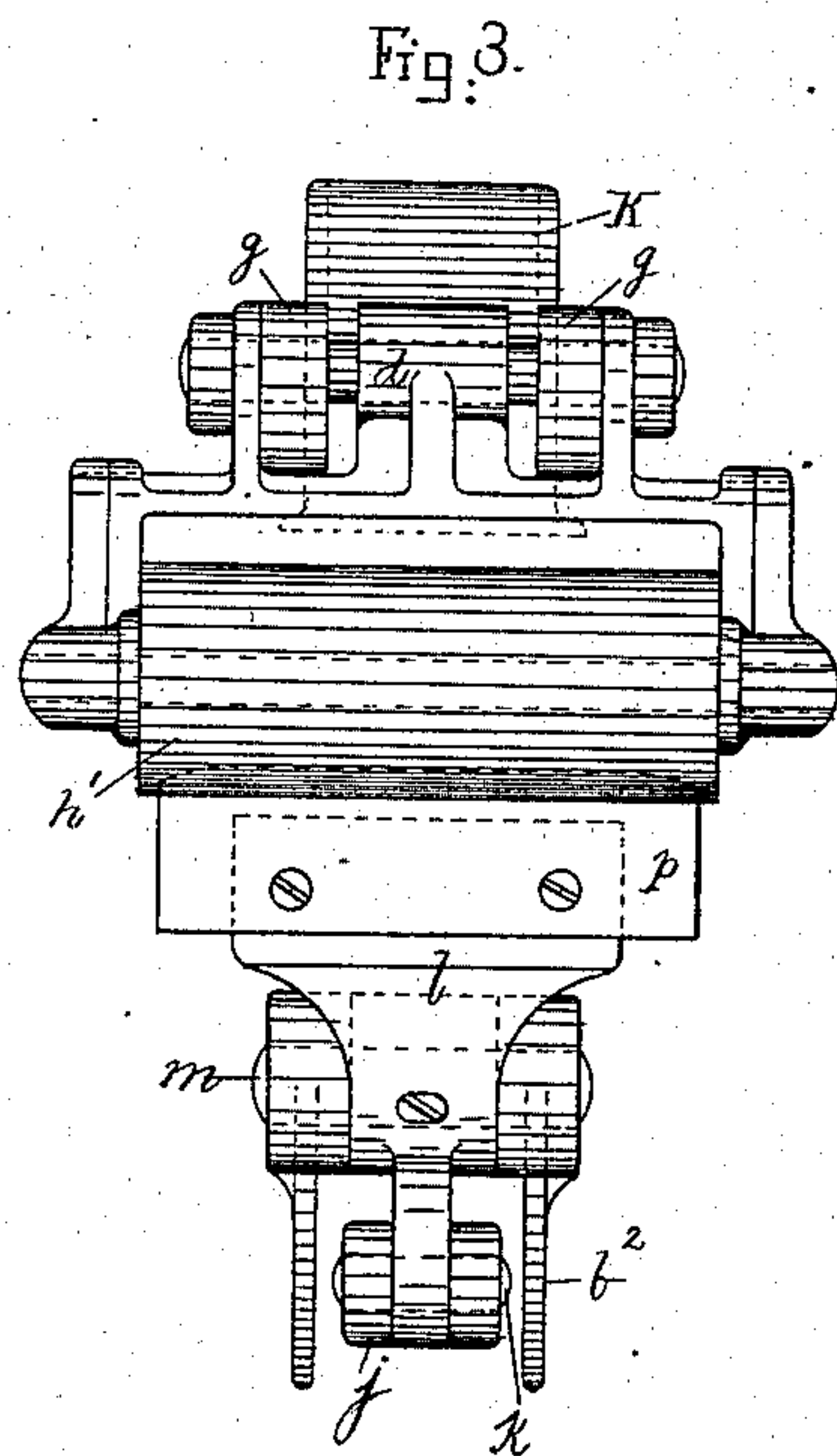
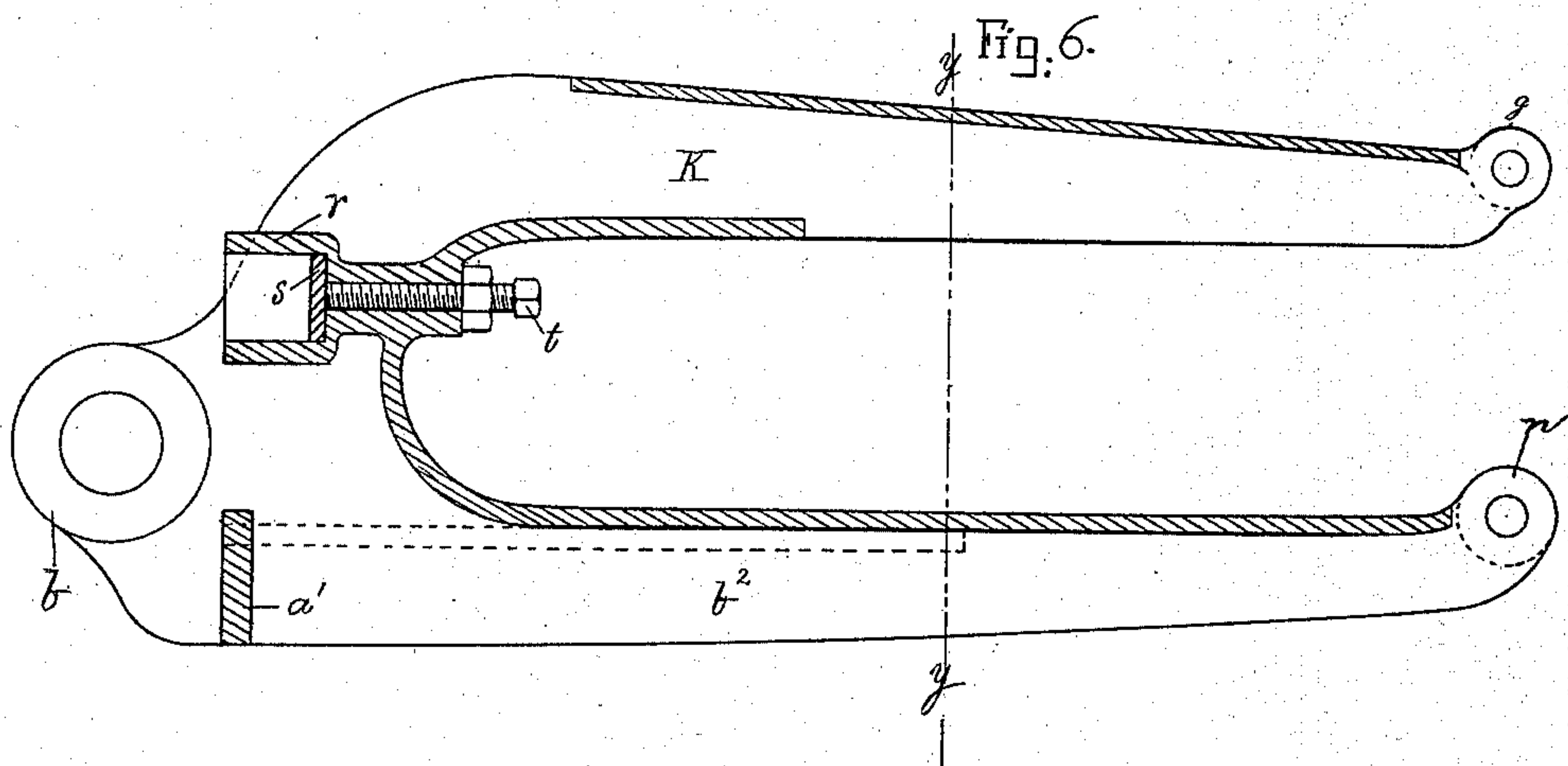
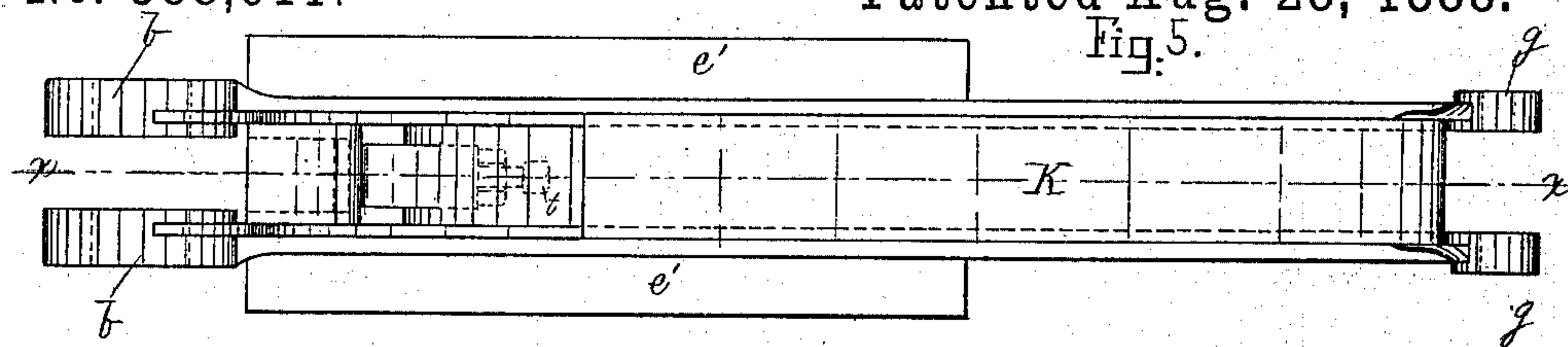
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UNITED STATES PATENT OFFICE.

WILLIAM E. ADAMS, OF LYNN, MASSACHUSETTS.

LEATHER-STRETCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 388,611, dated August 28, 1888.

Application filed April 17, 1888. Serial No. 270,911. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. ADAMS, of Lynn, county of Essex, and State of Massachusetts, have invented certain new and useful Improvements in Machines for Stretching Leather, of which the following is a specification, reference being had to the drawings accompanying and forming a part hereof, in which—

Figure 1 is a side elevation. Fig. 2 is a rear view with the large upright lever removed. Fig. 3 is a front view of the tools and their operating-levers. Fig. 4 is a side view of a modified form of the same. Fig. 5 is a top view of the sliding frame detached. Fig. 6 is a section on line *xx*, Fig. 5. Fig. 7 is a section on line *yy*, Fig. 6.

The object of my invention is the production of a simple and efficient machine for stretching leather; and it consists, chiefly, in the mechanism, hereinafter more fully described, for operating the stretching-tools, as also in the construction and arrangement of the parts which carry the tools.

I will describe my invention as embodied in the machine shown in the drawings, using like letters of reference to indicate like parts throughout.

A represents the frame of the machine, which is provided with suitable standards. A crank-shaft, B, is mounted in suitable bearings in the frame, and is provided outside of the frame on one side of the machine with fast and loose pulleys C, and on the other side of the machine with a balance-wheel, D. A connecting-rod, E, is journaled at one end to the crank of the shaft B centrally inside the frame of the machine, (see Fig. 2,) and at the other end is pivoted to the upright lever H midway of said lever. The lower end of the lever H is pivoted to a projection, I, on the rear of the frame, as shown, Fig. 1. The upper end of this lever H is connected by means of a link, J, which is pivoted thereto, with the short vertical lever *a*, to which the other end of the link J is pivoted at *a*², as shown. The lever *a* is fulcrumed between lugs or projections *b* on the rear of the sliding frame K, (see Fig. 5,) said frame being mounted, as hereinafter described, on the top of the frame A, so as to slide back and forth thereon. In this way the upright lever H actuates the slid-

ing frame K. The movement of lever H is also used to open and close the tools by means of the following mechanism:

To the upper end of the lever *a* is pivoted a connecting-rod, *d*, provided at about midway of its length with a right and left hand adjusting-screw, said rod being pivoted at its forward end to a projection, *e*, of the tool-carrying lever *f*. The lever *f* is pivoted at its upper end between lugs *g* on the forward end of the upper arm of the sliding frame K. (See Fig. 5.) The lower end of the lever *f* is spread into a Y shape and has two rolls, *h h'*, (see Figs. 1 and 3,) journaled between the arms of the Y. To the lower end of the lever *a* is pivoted a similar connecting-rod, *j*, also provided with an adjusting-screw, and pivoted at its forward end at *k* to a bell-crank lever, *l*.

The lever *l* is pivoted at *m*, between lugs *n*, at the forward end of the lower arm of the sliding frame K. The free end of lever *l* is provided with a blade, *p*, which forms the lower member of the stretching-tool. As these tools move forward above and below the hide, they are open or thrown back into the position indicated by the dotted lines, Fig. 1, and as soon as they have reached the extreme of their forward movement it is necessary that they should close on the hide, assuming the position shown in full lines, Fig. 1, and maintain that position until they have reached the extreme of their backward movement. When the sliding frame K is at the extreme of its backward movement, the tools are closed and the commencement of the forward movement of lever H does not act immediately to move the sliding frame K, but its first action is received by the lever *a*, the upper end of which is thrown slightly forward and the lower end slightly backward. The forward movement of the upper end of lever *a* forces the rod *d* forward, thus raising the rolls *h h'*, as will be clear, and the backward movement of the lower end of the lever *a* pulls back the connecting-rod *j*, thus pulling back the lower end of the bell-crank lever *l* and throwing down the free end of said lever, which carries the tool *p*. The further movement of lever H acts, as will be obvious, to move the sliding frame K. After the frame K has completed its forward movement the beginning of the backward move-

ment of lever H acts reversely on the lever *a*, and so closes the tools upon the hide, and the further backward movement of the lever H pulls back the frame K, causing the tools to stretch the hide.

To prevent the lever *a* from moving too far, as also to prevent it from injuring the frame K, I provide yielding blocks *q q'*, of rubber or similar elastic material, the block *q* above the pivot of lever *a* being set in a socket, *r*, (see Fig. 6,) provided for it in the frame K. A rest, *s*, is placed in the socket behind the block *q*, and an adjusting screw, *t*, is set in the frame K, so as to bear against the rest *s*, and thus provide for the adjustment of the block *q*. Below the pivot of lever *a* the block *q'*, provided with similar means of adjustment, is set in a socket provided in the lever *a*, and when the lower end of the lever *a* is thrown forward the block *q'* comes in contact with a web, *a'*, (see Fig. 6,) projecting between the lower flanges, *b²*, of the frame K.

The frame K is of the goose-neck shape shown, and is mounted as follows: A box, *b'*, of the shape, in cross-section, shown in Fig. 2, is bolted between the top of the sides of the frame A. The top of this box or case *b'* is provided with flanges *d'*, which receive the laterally-projecting flanges *e'* on the lower portion of the frame K. Guides or ways *f'*, projecting at their inner edges over the flanges *d'*, as shown in Fig. 2, are bolted to the top of the case *b'* at either side, and serve to hold the frame K in position as it slides backward and forward.

The frame K is cored out centrally, as shown in Figs. 1 and 6, in order that the connecting-rods *d j* may work centrally therein.

A table, M, is provided, which is cut away centrally, in the usual manner, to allow the tools to act upon the hide throughout the length of their movement. This table is supported by the upright brackets or arms N, (see Fig. 2,) which are bolted to the sides of the frame. Instead of the two rolls *h h'* and the single blade or scraper *p*, projecting between the rolls, a single roll, *h²*, and a pair of blades, *p²*, acting against different points on the periphery of the roll, as shown, Fig. 4, may be employed. In this case the second knife, *p²*, is mounted behind and parallel to the first knife on the upper end of the lever *l*, and the Y-shaped lever *f*, which carries the rolls, does not require to be so long as when two rolls are used.

The operation of the machine is as follows: The operator places the hide on the table over the opening therein when the frame K is back and the tools are open. The machine is then started and the hide is stretched by the tools

during each backward movement thereof, the operator holding the skin against the strain of the tools by bending it sharply over the front edge of the table. The hide is shifted from time to time until all its parts have been acted upon and stretched.

What I claim is—

1. In a machine for stretching leather, the combination, with a stationary support or frame, of a sliding frame mounted thereon and provided with movable stretching-tools, a two-armed tool-actuating lever mounted on said sliding frame and connected by adjustable rods with said stretching-tools, said lever having a limited movement independently of said frame, an operating-lever pivoted to said stationary frame and connected with the said tool-actuating lever, and a crank with which said operating-lever is connected, whereby one part of the movement of the said operating-lever will vibrate the tool-actuating lever to operate the stretching-tools, and the other part of the movement of the said operating-lever will reciprocate the said sliding frame, as set forth.

2. The combination, with the sliding frame K, of the two-armed tool-actuating lever *a*, mounted on said frame at its rear end, the tool-carrying levers *f* and *l* at the forward end of said frame, the stretching-tools carried by said levers, the rods *d* and *j*, connecting the opposite arms of said lever *a* with the said tool-carrying levers, and the operating-lever H, connected with the said lever *a*, and stops on said sliding frame to limit the independent or vibrating movement of the said lever *a*, whereby the tool-actuating lever is adapted to serve as a medium through which the said operating-lever can both reciprocate the said sliding frame and actuate the stretching tools, substantially as set forth.

3. In a leather-stretching machine, the combination, with the sliding frame K, of the two-armed tool actuating lever *a*, mounted on said frame at its rear end, the tool-carrying levers *f* and *l* at the forward end of said frame, the operating-lever H, connected with the said lever *a*, the stretching-tools carried by the said levers *f* and *l*, the rods *d* and *j*, connecting the said lever *a* with the tool-carrying levers, and the yielding blocks *q q'*, serving as elastic or cushioning stops to limit the vibratory movements of the said lever *a* independently of the sliding frame on which it is mounted, substantially as set forth.

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Witnesses:

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ROBERT WALLACE.