(No Model.) 5 Sheets—Sheet 1.

A. JOHNSTON.

MACHINE FOR ROLLING KNIFE OR FORK BLANKS.

No. 541,618. Patented June 25, 1895.

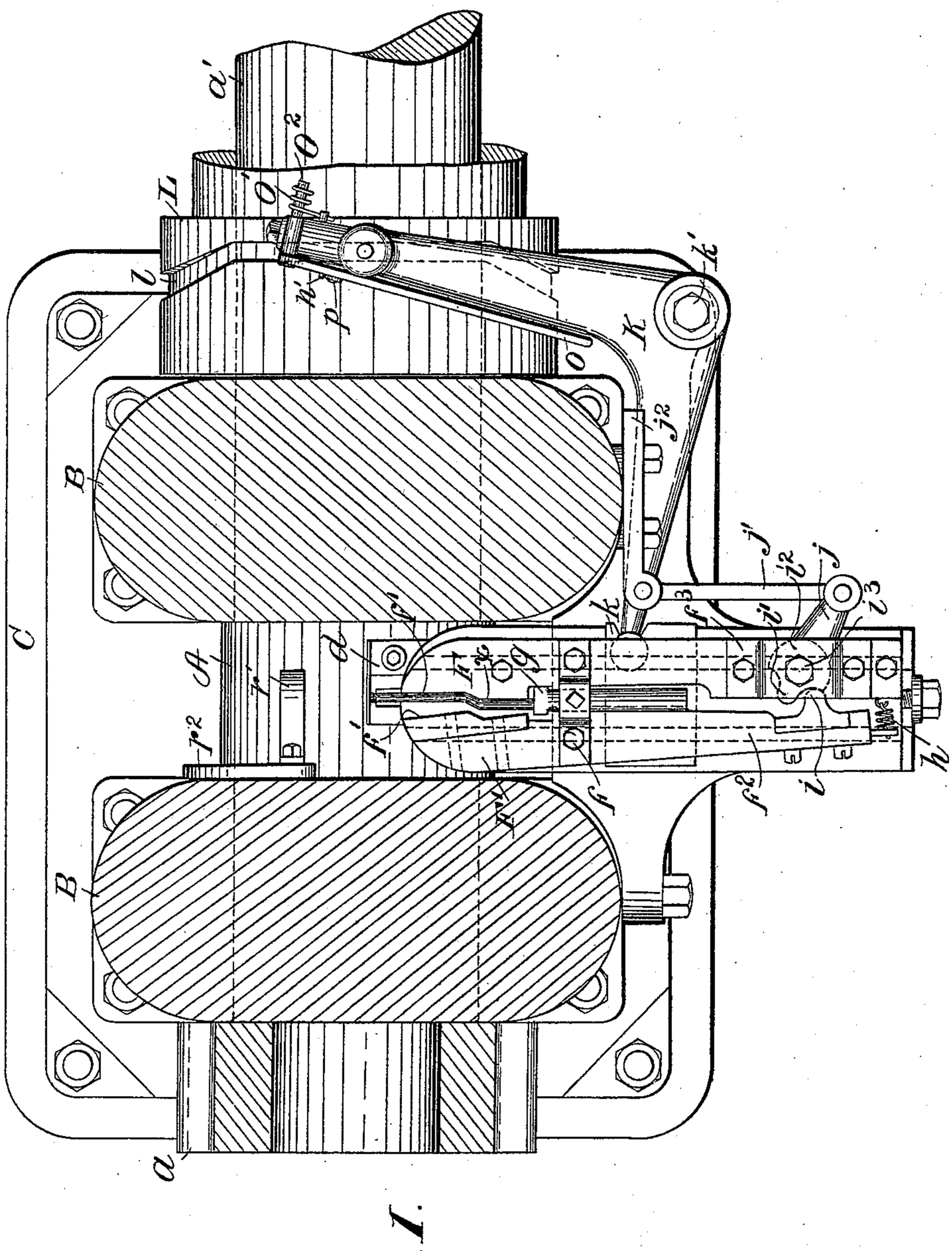

Fig. 1.

Witnesses
W. Rees Edelen.
Geo. Lewis.

Inventor.
Allen Johnston
by Edwd Mann.
his attorneys.

(No Model.) 5 Sheets—Sheet 2.

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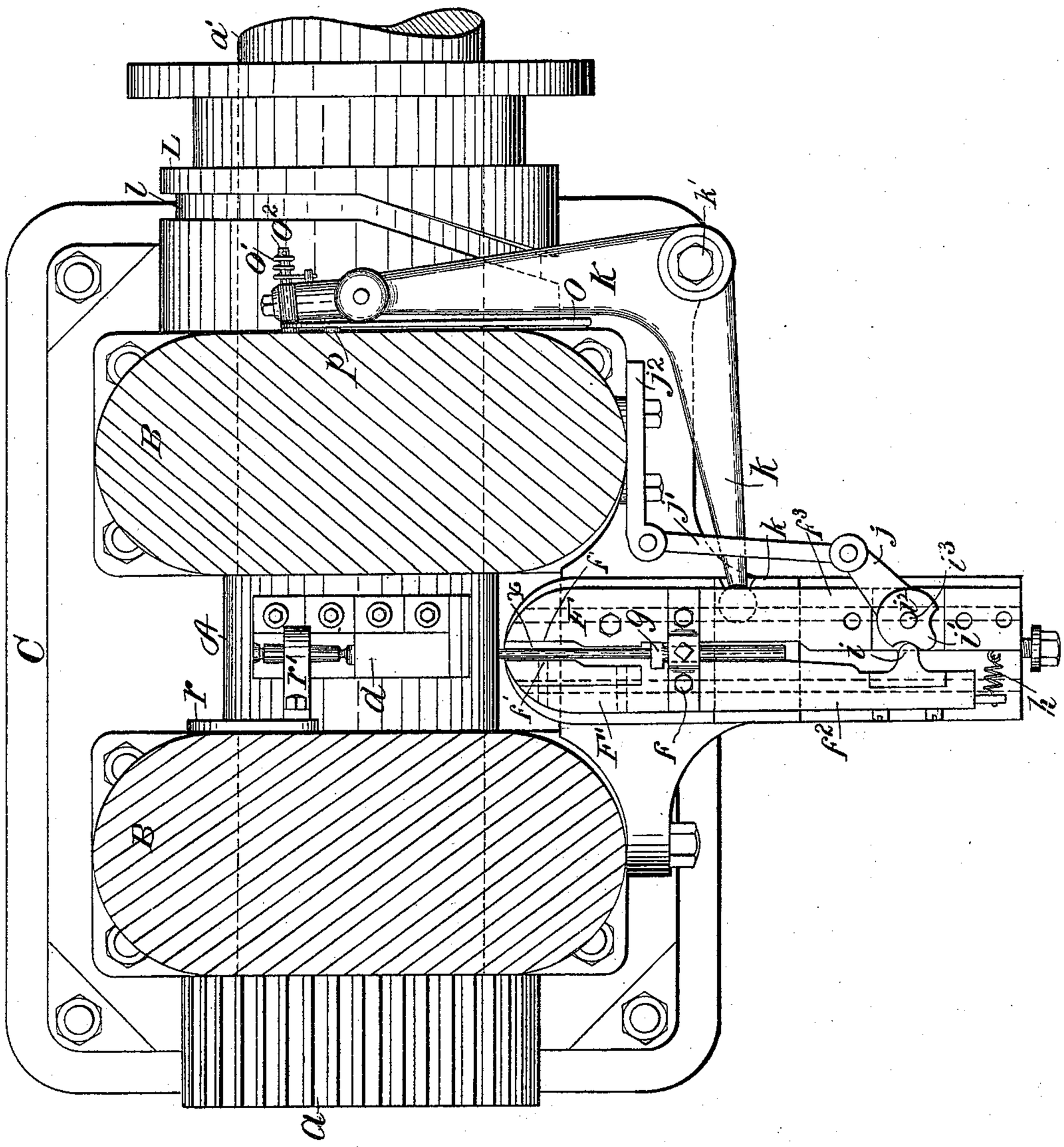

Fig. 2.

Witnesses.
W. Ross Edelen.
Geo. Lewis

Inventor
Allen Johnston
by Edward Mauro,
his attorneys.

(No Model.) 5 Sheets—Sheet 3.

A. JOHNSTON.

MACHINE FOR ROLLING KNIFE OR FORK BLANKS.

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Fig. 3.

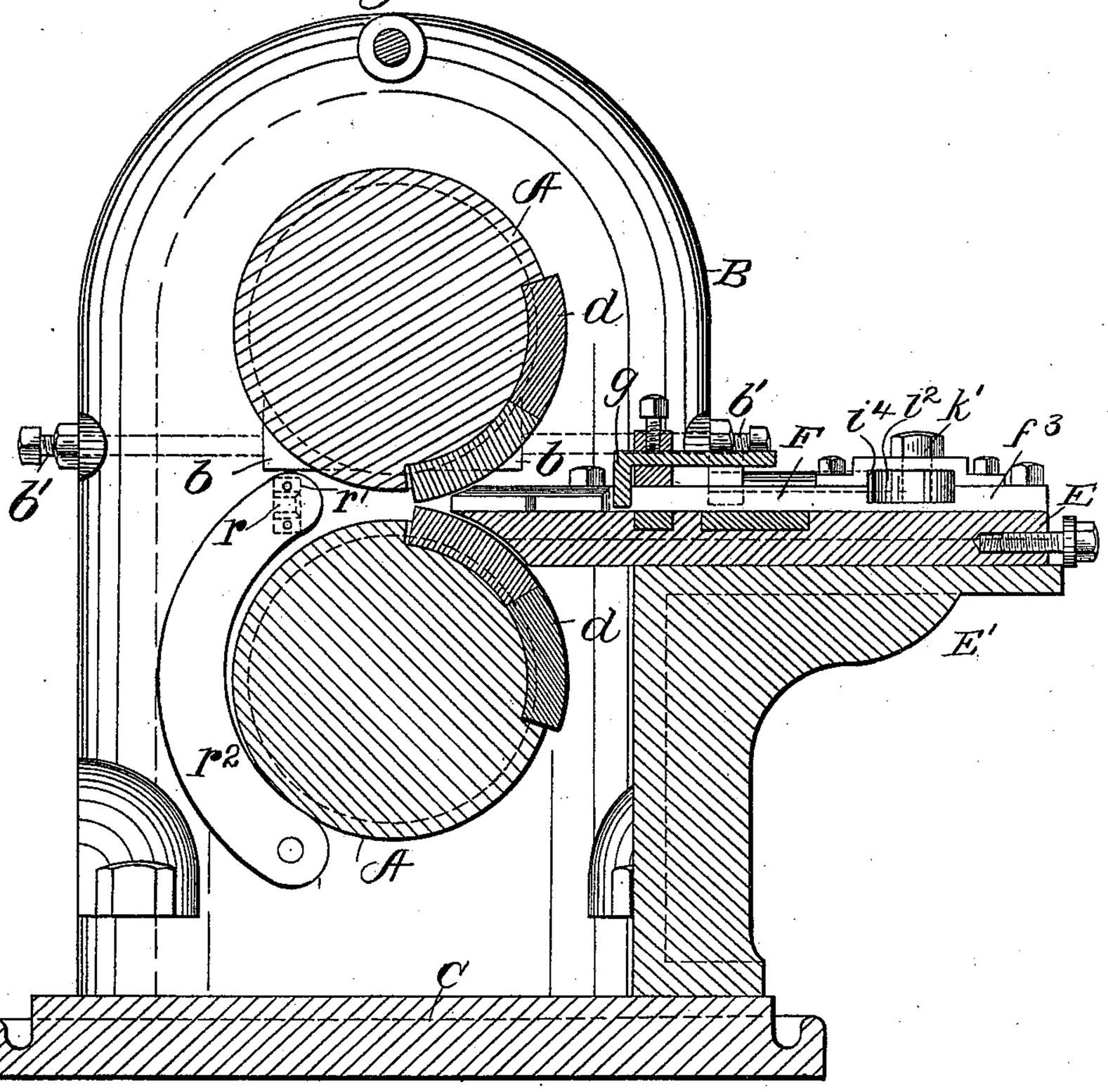
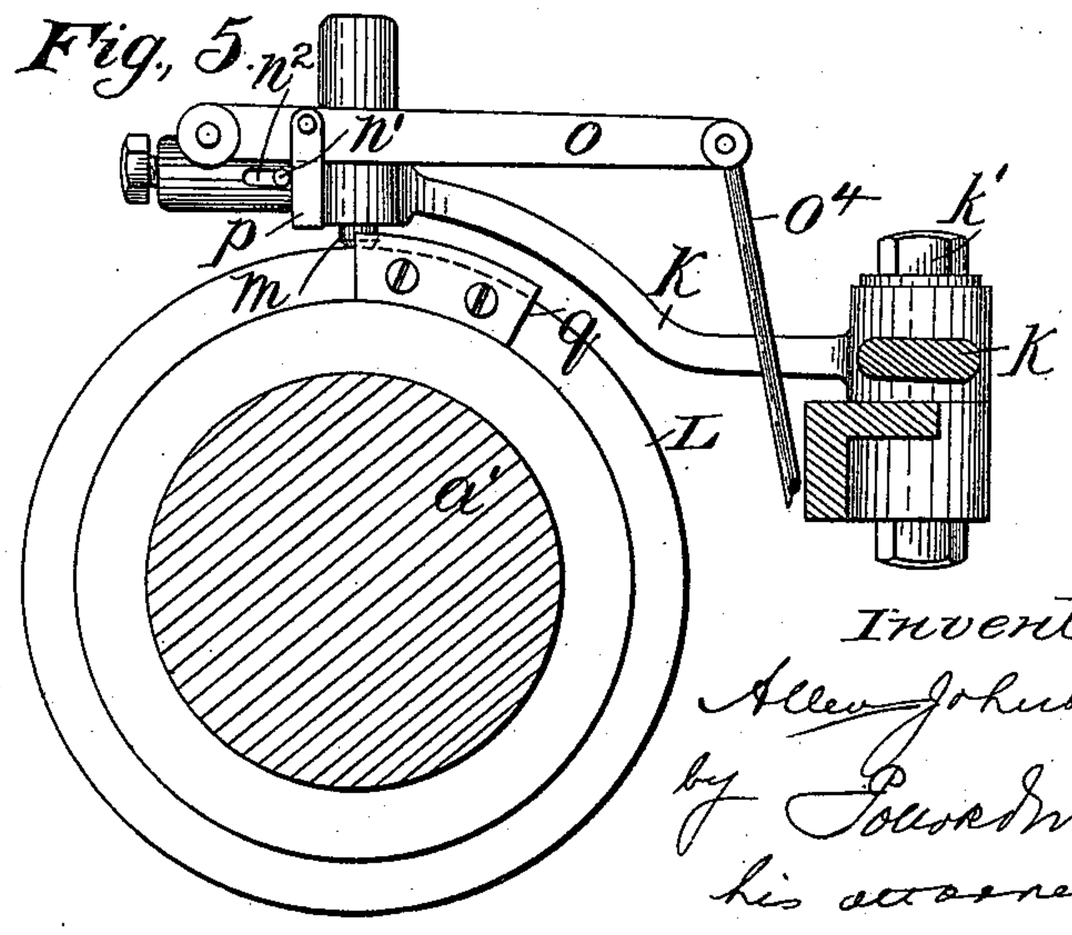


Fig. 5.



Witnesses
W. Reed Edelen.
Geo. Lewis.

Inventor.
Allen Johnston.
by Foster Freeman,
his attorneys

(No Model.) 5 Sheets—Sheet 4.

A. JOHNSTON.

MACHINE FOR ROLLING KNIFE OR FORK BLANKS.

No. 541,618. Patented June 25, 1895.

Fig. 4.

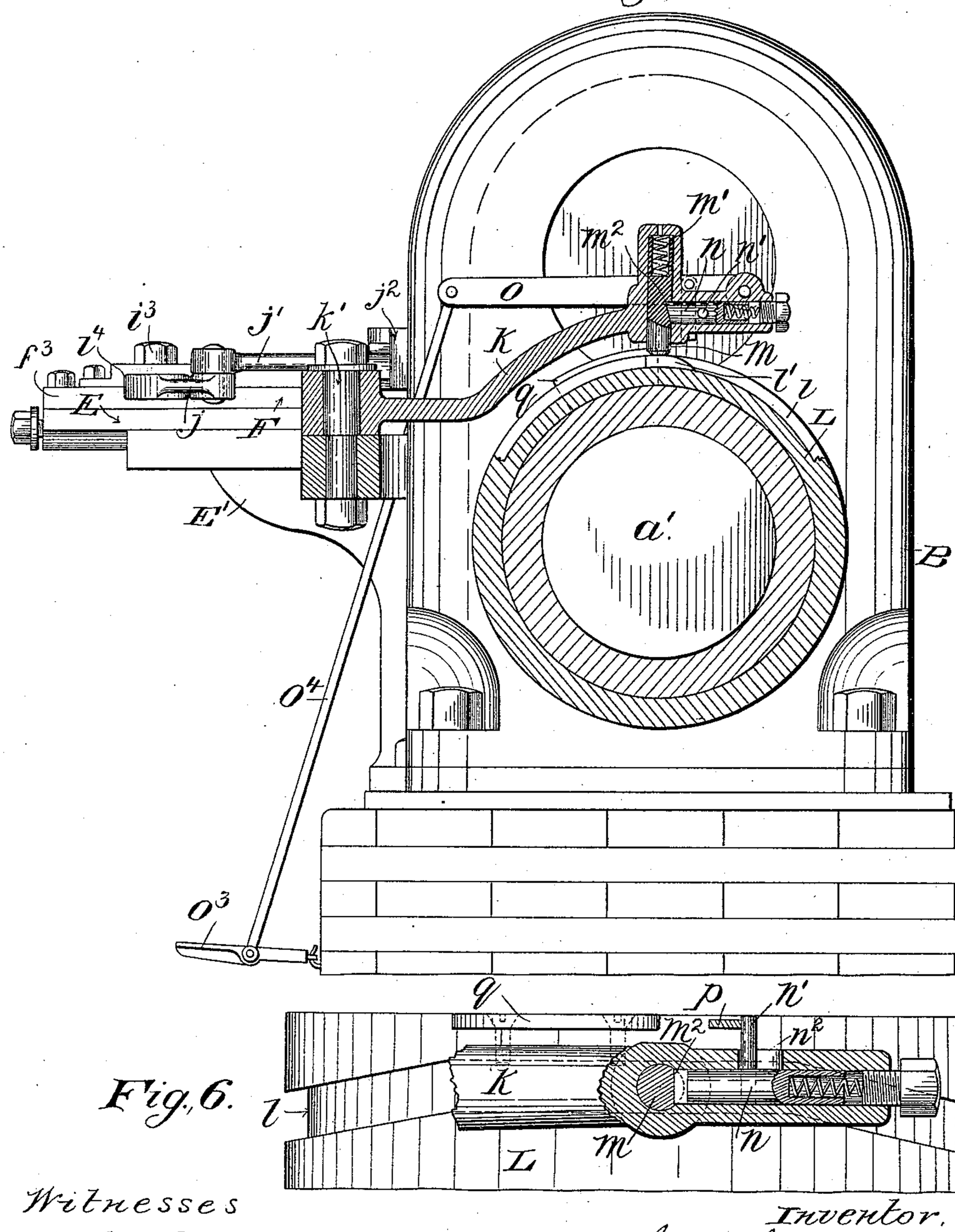


Fig. 6.

Witnesses
W Rees Edelen
Geo Lewis.

Inventor.
Allen Johnston,
by Coltord Mauro,
his attorneys

(No Model.) 5 Sheets—Sheet 5.

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MACHINE FOR ROLLING KNIFE OR FORK BLANKS.

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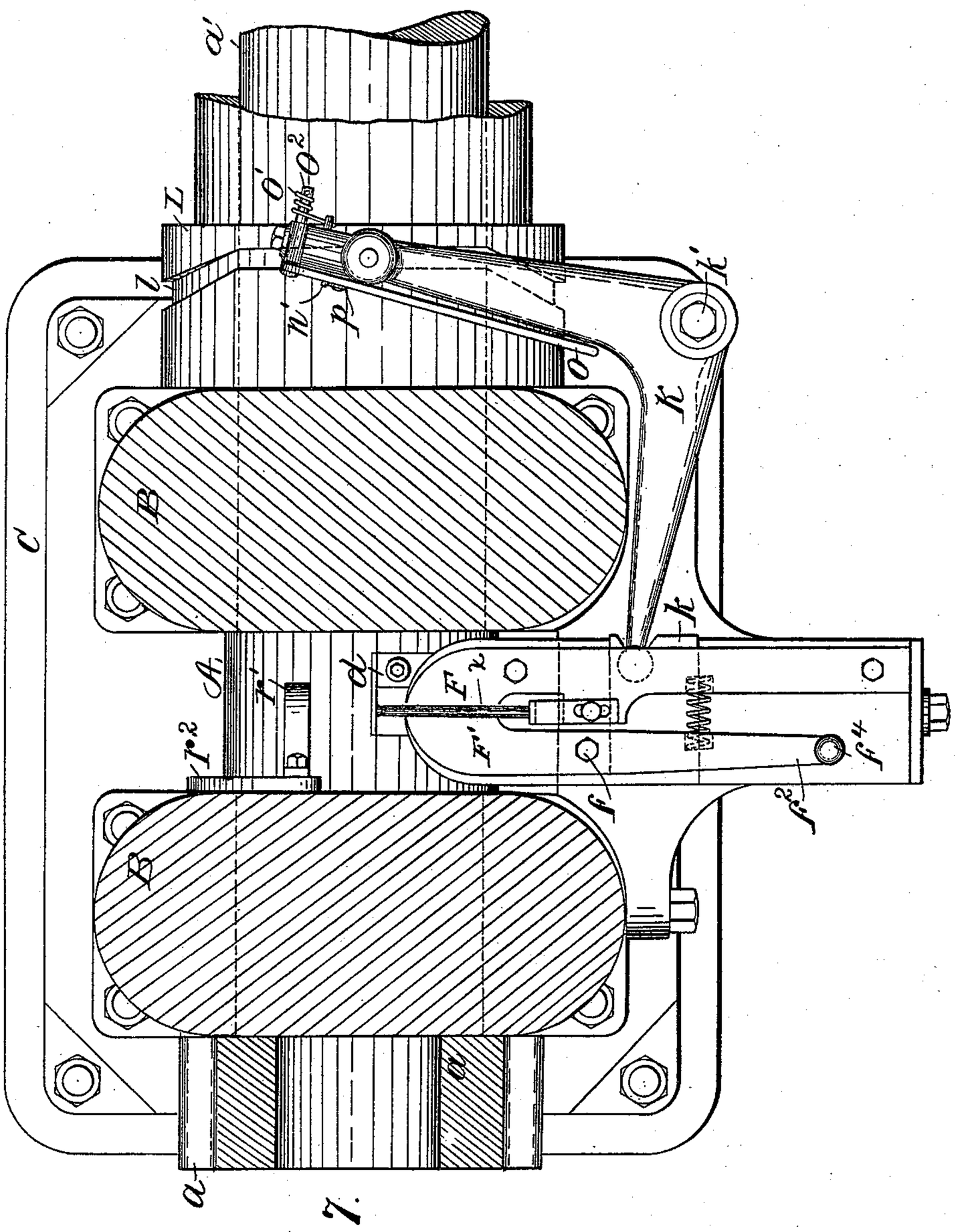

Fig. 1.

Witnesses
W. Rees Edelen
Geo. Lewis

Inventor
Allen Johnston
by Poles & Mauro,
his attorneys.

UNITED STATES PATENT OFFICE.

ALLEN JOHNSTON, OF OTTUMWA, IOWA.

MACHINE FOR ROLLING KNIFE OR FORK BLANKS.

SPECIFICATION forming part of Letters Patent No. 541,618, dated June 25, 1895.

Application filed March 5, 1895. Serial No. 540,628. (No model.)

To all whom it may concern:

Be it known that I, ALLEN JOHNSTON, of Ottumwa, Iowa, have invented a new and useful Improvement in Machines for Rolling Knife or Fork Blanks, which improvement is fully set forth in the following specification.

This invention relates to rolling machines and specially to those adapted for rolling knife and fork blanks for table cutlery. It includes a new method of forming knife blanks.

Where knife and fork blanks are to be so shaped as to be suitable for grinding or finishing in automatic machines such as those patented to me in recent years,—see for example Patents Nos. 534,394, 534,395 and 534,396, issued February 19, 1895,—it is quite desirable, and in fact almost essential to the production of a high class of such articles, to have the blanks as uniform and as near to their ultimate finished form and contour as it is possible to produce them. This is requisite mainly from the fact that in many instances the blank constitutes its own form, it being merely proportionately reduced in its dimensions, during the finishing steps.

According to the present invention these desirable objects are attained by making all of the blanks from a single set of dies applied to pressure rolls and to which the stock is fed by suitable mechanism described hereinafter.

In the forming of knife blanks, if the stock in the form of straight steel bars be fed between the rolls, a blank would be produced having the two edges of the blade, that is the cutting edge and back edge thereof, equidistant from the axis of the knife. In its ultimate form the cutting edge of the blank is farther from the axis than the back edge thereof, and to reduce a straight bar to this form would involve considerable work and a waste of material. To overcome these difficulties and objections, and to obtain at the end of the rolling, and without further operations, a knife blank of the desired form, I have devised a method or mode of procedure which consists essentially of two steps: first, forming a double bend or offset in the metal bar at the point where the blade and handle portions of the stock meet, thus throwing the former to one side of the latter, and, second, rolling down the bar thus bent to the form of a knife blank. These two operations may be performed by any suitable mechanism, and I shall herein describe means which have in practice yielded good results.

My invention also includes automatic mechanism for feeding the stock to the rolls, and for bending the same when knife blanks are to be formed.

The several features above referred to, as well as other points of novelty of my invention, will be fully understood by reference to the accompanying drawings, in which—

Figures 1 and 2 are horizontal sectional views taken between the rolls of a machine for rolling knife-blanks embodying my invention, said views respectively showing different positions of the parts during the operation. Fig. 3 is a vertical section thereof on line 3 3 of Fig. 1. Fig. 4 is a vertical section through the slide-operating mechanism at the right of Fig. 1. Figs. 5 and 6 are details of said slide-operating mechanism, and Fig. 7 is a view similar to Fig. 1 of a machine for producing fork-blanks.

Referring to the drawings A, A represent the rolls, bearing in standards B B, mounted on base C. Said rolls are geared together at one end by pinions *a a* and power is communicated from any suitable source to the extended end *a'* of the shaft of the lower roll. A pair of dies *d d* constructed to impart the proper form to the knife blanks are secured to the surface of rolls A A in corresponding positions.

The upper roll A may be so mounted as to provide for a slight adjusment thereof, effected by means of pairs of wedge shaped blocks *b b* constituting a portion of the bearing surface upon which said shaft rests, each block being adjustable by means of a bolt *b'*. By such means the rolls can be so relatively adjusted as to bring the dies *d d* together at precisely the desired point.

A slide E on bracket E', secured to the front of standards B, B, carries the holding and feeding mechanism for the metal stock from which the blanks are to be formed. Such mechanism comprises a rigid jaw F and a jaw F' pivoted to the slide at *f*. A stop *g* is adjustably secured in a support bridging the space between the jaws F and F'. Said stop *g* is located immediately in front of the

gripping faces f', f' of the jaws, said faces (as shown in Figs. 1 and 2) comprising two parallel surfaces joined by an inclined shoulder, for the purpose of imparting a double bend (for purposes already referred to) to the metal stock before it is rolled into a blank. Jaws F and F' are normally held open by a spring h. To close the jaws, and to grip and impart the proper form to the metal stock placed there between and to release the same at the proper moment, the jaw F' is moved on its pivot through a tooth i on the arm f^2 of said jaw, engaging a similar tooth i' of a disk i^2, pivoted at i^3 in a recess i^4 in the arm f^3 of jaw F. Said disk is rotated upon its pivot upon the movement of slide E, through an arm j integral therewith, connected by a link j' to plate j^2 rigidly bolted to standard B.

Slide E is reciprocated through a bell-crank lever K in conjunction with a cam groove l in a sleeve L on the extension a' of the shaft of the lower roll. The bell crank lever K imparts movement to the slide E by means of a plate k to which it is jointed by a ball and socket connection, said plate sliding in a transverse way in the upper face of slide E, and beneath jaws F and F'. At its other end the bell crank lever K, pivoted at k', carries a spring actuated pin m, held up out of engagement with the cam groove l, (against the tension of its actuating spring m') by a spring actuated catch bolt n engaging a tooth m^2 thereon. Both pin m and bolt n are located in suitable intersecting casings. An arm o is pivoted to the casing of pin n, and normally held in a raised position by a spring o' on its pivot pin o^2. Arm o carries a loosely swinging depending trip-lever p adjacent to a pin n' on bolt n projecting through a slot n^2 in the casing of latter. Said trip-lever p is actuated to engage pin n' to draw back the latch bolt n, by the depression of arm o through pedal o^3 and connecting rod o^4 bringing the trip-lever p into the path of a block q, secured to and projecting from the surface of sleeve L. The pin m is disengaged from cam groove l by an inclined block l' in said groove.

The blank passes out of the machine through a delivery opening r of a plate r' carried by a curved support r^2 bolted to one of the standards B. (See Figs. 1, 2 and 3.)

The operation of the machine is as follows: The steel stock from which the knife blank is to be formed, after having first been cut to the proper length, as bar x, and heated, is placed between the jaws F and F' (slightly projecting beyond the same) against the stop g'. The operator then depresses treadle o^3 effecting the engagement of pin m with cam groove l as heretofore described. Said cam groove is so shaped as to move the bell-crank lever K on its pivot, thereby reciprocating slide E as already explained. As shown in Fig. 2 the slide E is at the limit of its outward movement, in which (its normal) position the tooth i' is in front of tooth i. As the slide advances tooth i' engages tooth i closing the jaws against the steel bar x and imparting thereto the proper bend. As the forward movement of slide E continues tooth i passes tooth i' and spring h thereupon opens the jaws, releasing the stock x. At this instant the slide has advanced to the position shown in Figs. 1 and 3 and the projecting end of steel bar or stock x is gripped between the dies d d and carried between the rolls leaving the machine through delivery opening r in the form of a knife blank. The slide E is returned to its normal position, at which instant the block l' disengages pin m from cam groove l, stopping the reciprocation of the slide. This operation may be repeated indefinitely.

Of course it is understood that the mechanism must be properly adjusted and the respective movements correctly limited and timed.

In the machine illustrated in Fig. 7, for producing fork blanks, straight faced jaws F and F' are employed, as no bend is imparted to the steel bar x, and the mechanism for automatically closing the said jaws is dispensed with, a handle f^4 on arm f^2 of jaw F' being grasped by the operator to swing the latter on its pivot to accomplish such end.

The invention herein described may also be employed in apparatus for rolling various articles, other than knife and fork blanks, to which use it is not limited, as will be apparent to those conversant with such art.

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

1. In a machine for rolling knife and fork blanks, the combination with the rolls and a pair of dies therefor, of a slide adapted to carry the stock to be operated upon, normally open jaws on said slide, means for reciprocating said slide to feed the stock to the rolls, and means operated by the movement of the slide for closing and opening the jaws to grip and release the stock at the proper times, substantially as described.

2. In a machine for rolling knife and fork blanks, the combination with the rolls and a pair of dies therefor, of a slide adapted to carry the stock to be operated upon, a rigid and a pivoted jaw on said slide normally open and means operated by the forward movement of said slide for swinging the pivoted jaw on its pivot to grip the stock, and for releasing said jaw so that it can return to its normal position, substantially as described.

3. In a machine for rolling knife and fork blanks the combination with the rolls and a pair of dies therefor, of a reciprocatory slide adapted to feed the stock to the dies, a bell-crank lever for reciprocating said slide, a pin at the end of said lever, and a trip mechanism under the control of the operator for engaging said pin in a suitable cam groove whereby movement is imparted to the bell-crank lever, substantially as described.

4. The described method of making a knife-

blank, by first forming in a straight metal bar a double bend or offset at the point where the blade and handle portions of the stock meet, and then rolling the bar to the form of a knife-blank, as set forth.

5. The method of forming a knife blank the blade of which is of greater width from the cutting edge to the axis than from the latter to its back edge, said method consisting in forming a double bend or offset in the stock from which such knife is to be formed, so as to set the blade end to one side of the handle end, but approximately parallel therewith, and then passing the stock between the dies of a rolling machine, substantially as described.

6. In a rolling machine the combination with the rolls and dies therefor, of means for automatically imparting a bend to the stock after it is placed in the machine, and for automatically feeding the stock between the dies at the proper time, substantially as described.

7. In a rolling machine for the manufacture of blanks for table cutlery, the combination with the rolls and dies therefor, of a pair of jaws between which the stock for the blank is placed, the faces of said jaws each having a corresponding shoulder or offset, and means for automatically closing the jaws against the stock to bend the same, and for automatically feeding the stock between the dies at the proper time, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALLEN JOHNSTON.

Witnesses:
J. T. HACKWORTH,
G. BANKS.