

No. 638,204.

Patented Nov. 28, 1899.

T. J. TELLEFSEN.
MACHINE FOR GRINDING CUTLERY.

(Application filed Oct. 19, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 6.

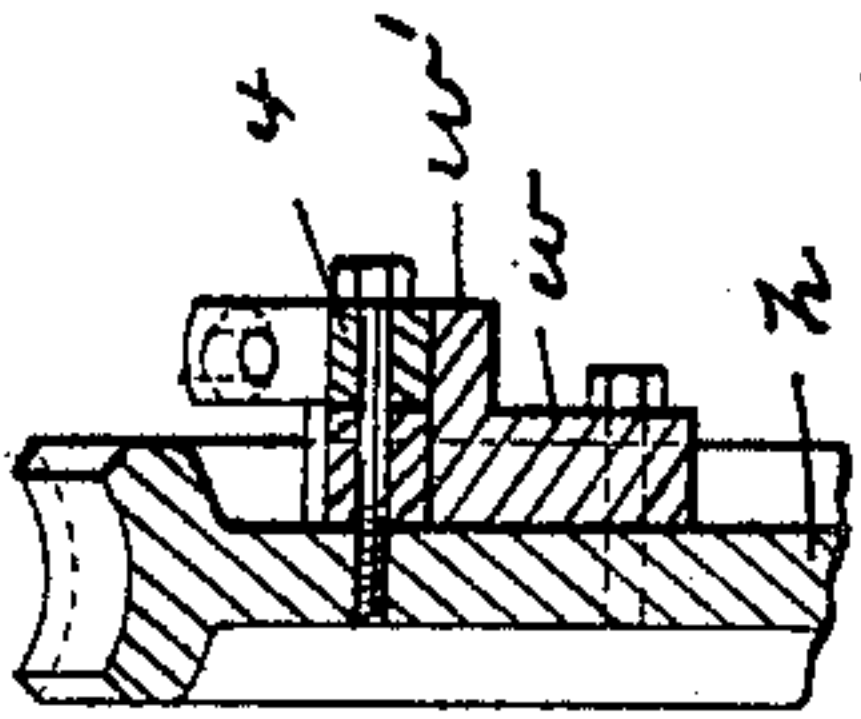


Fig. 5.

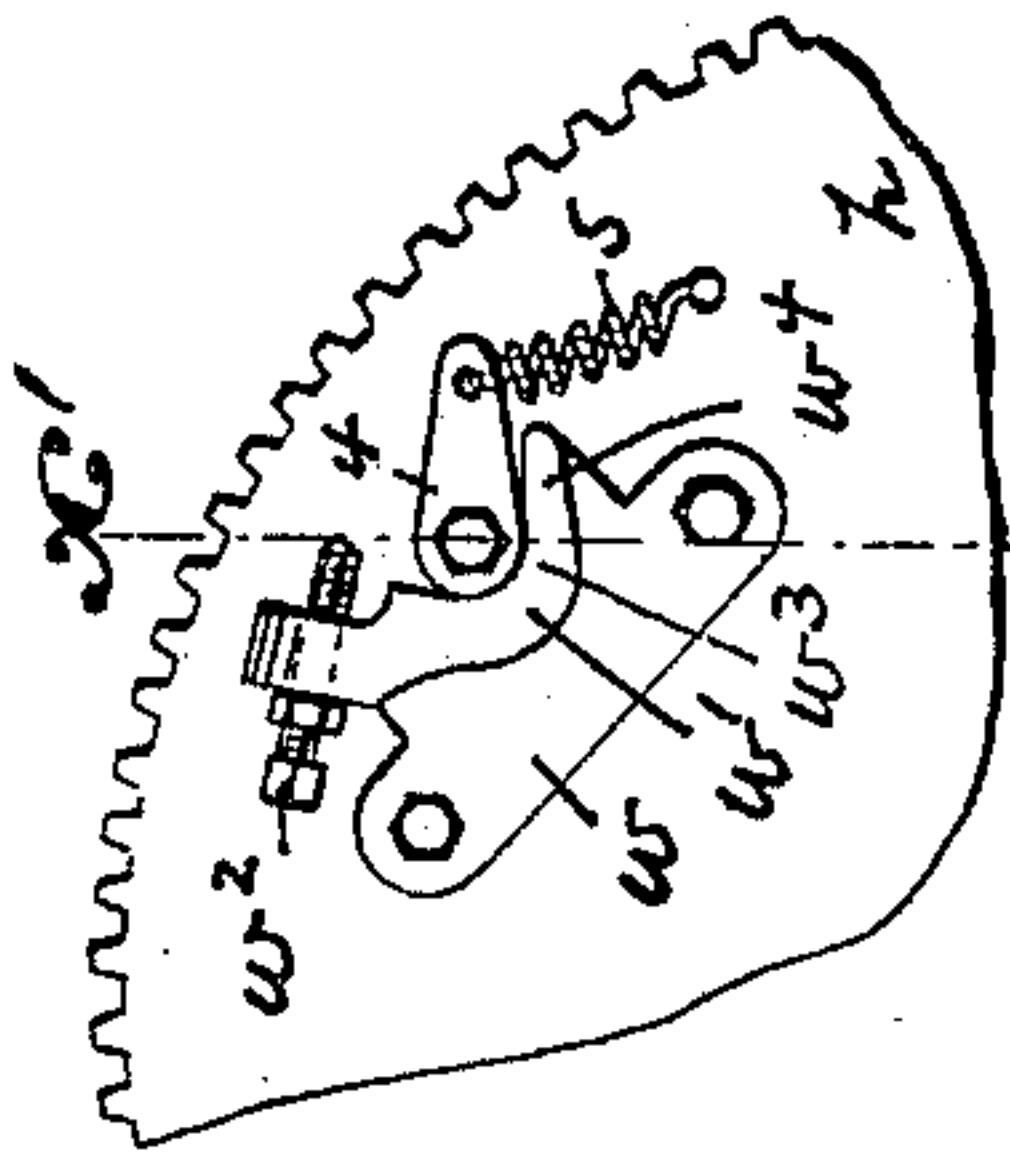


Fig. 3.

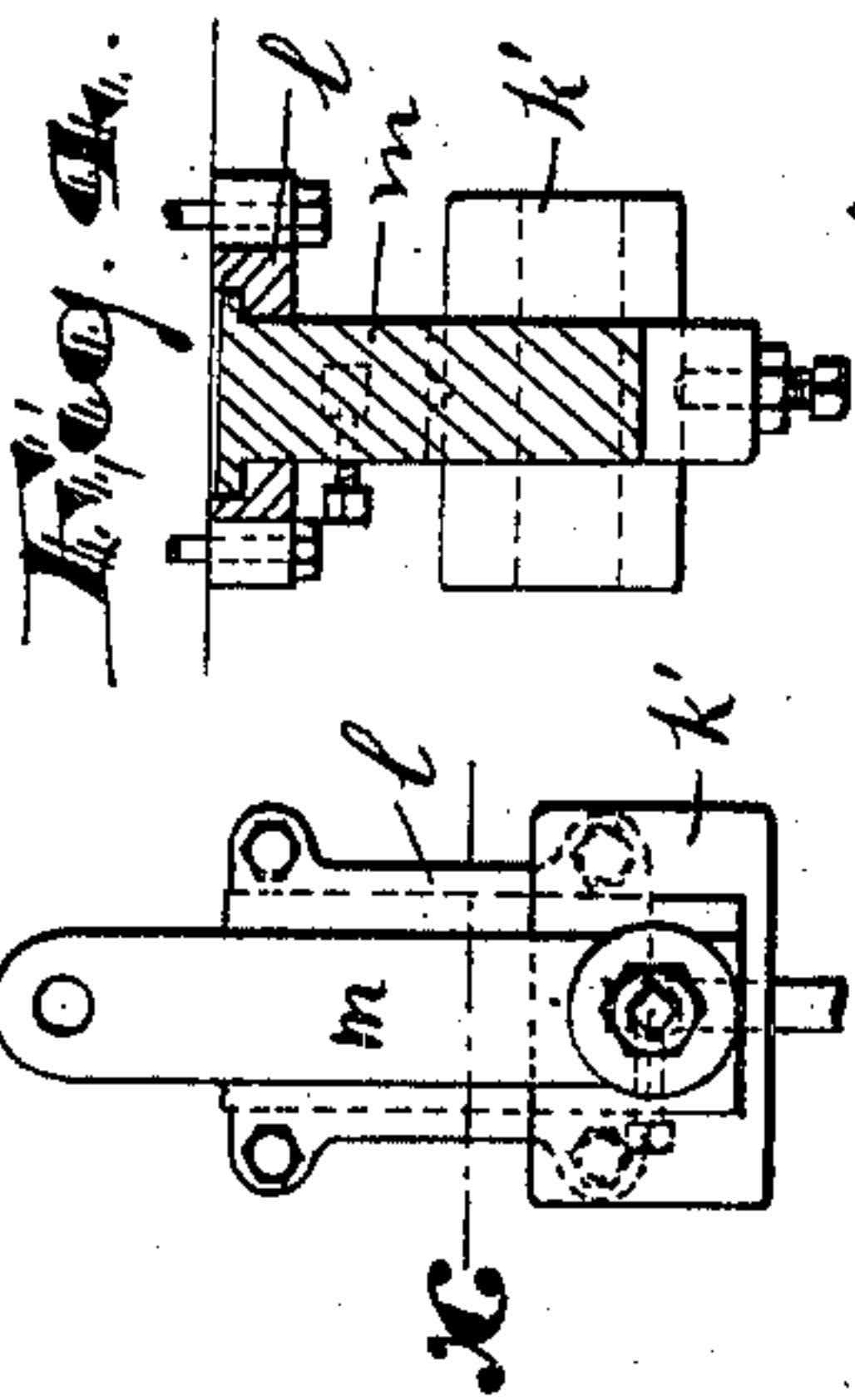


Fig. 4.

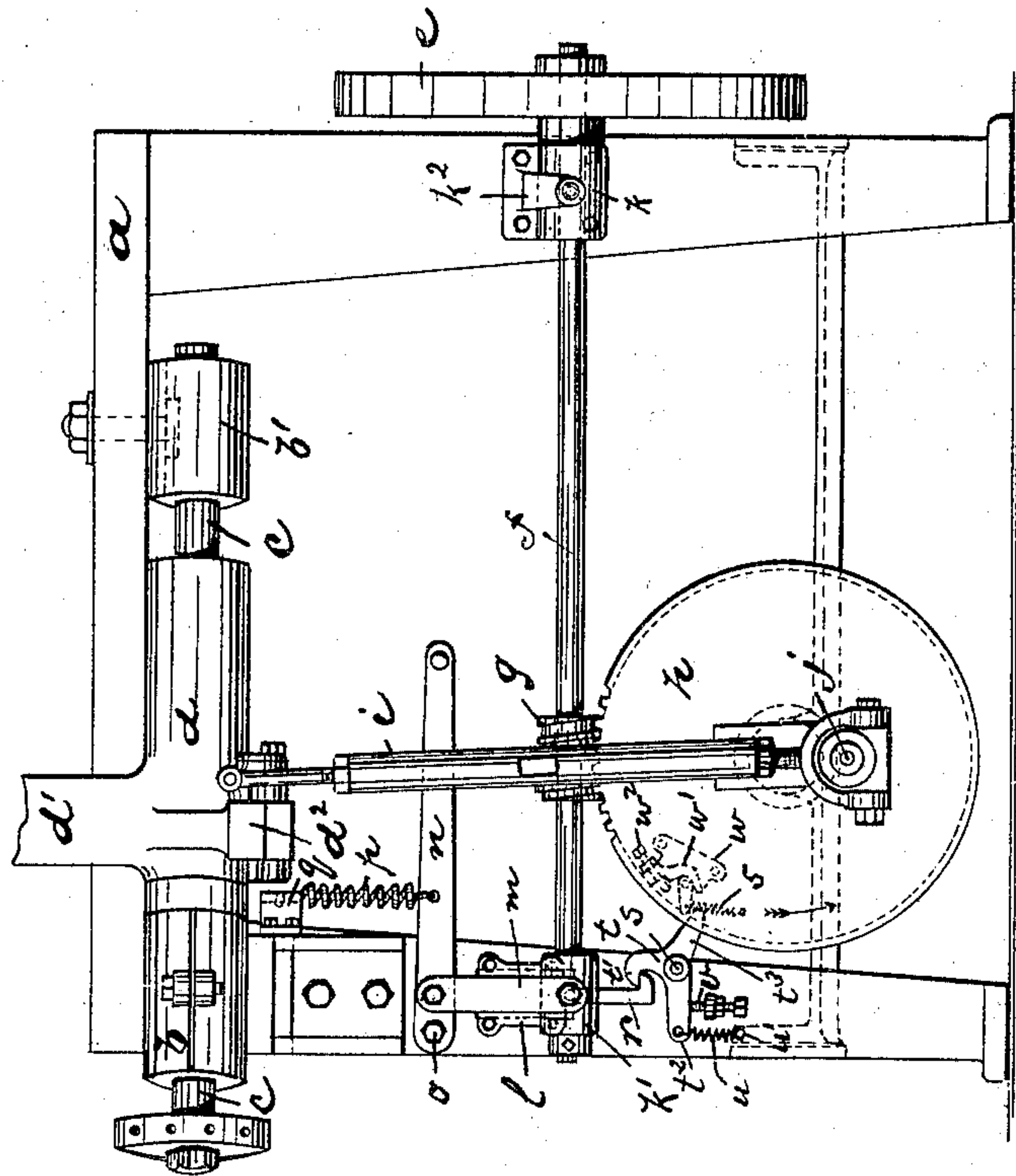
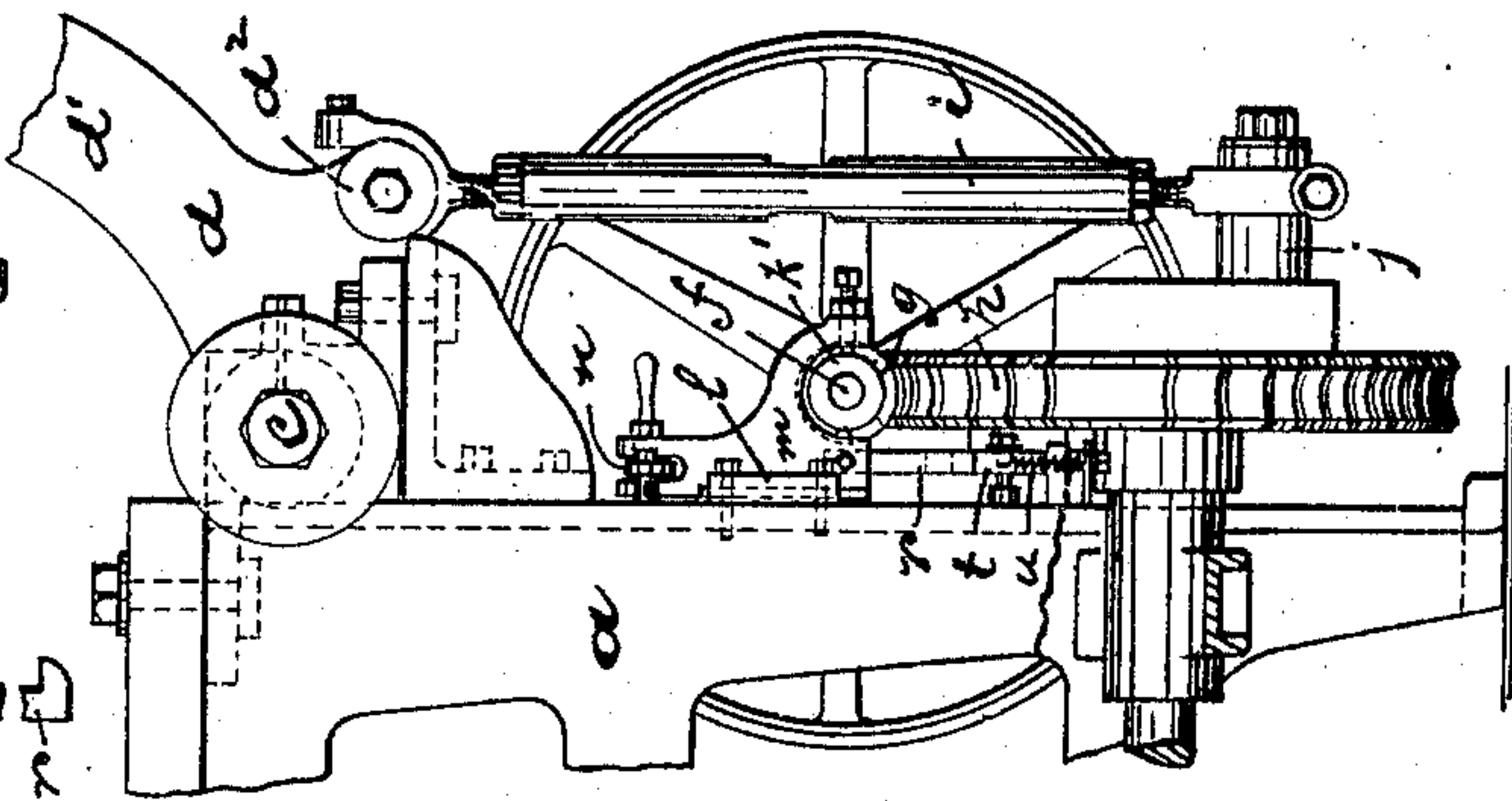


Fig. 1.

Fig. 2.



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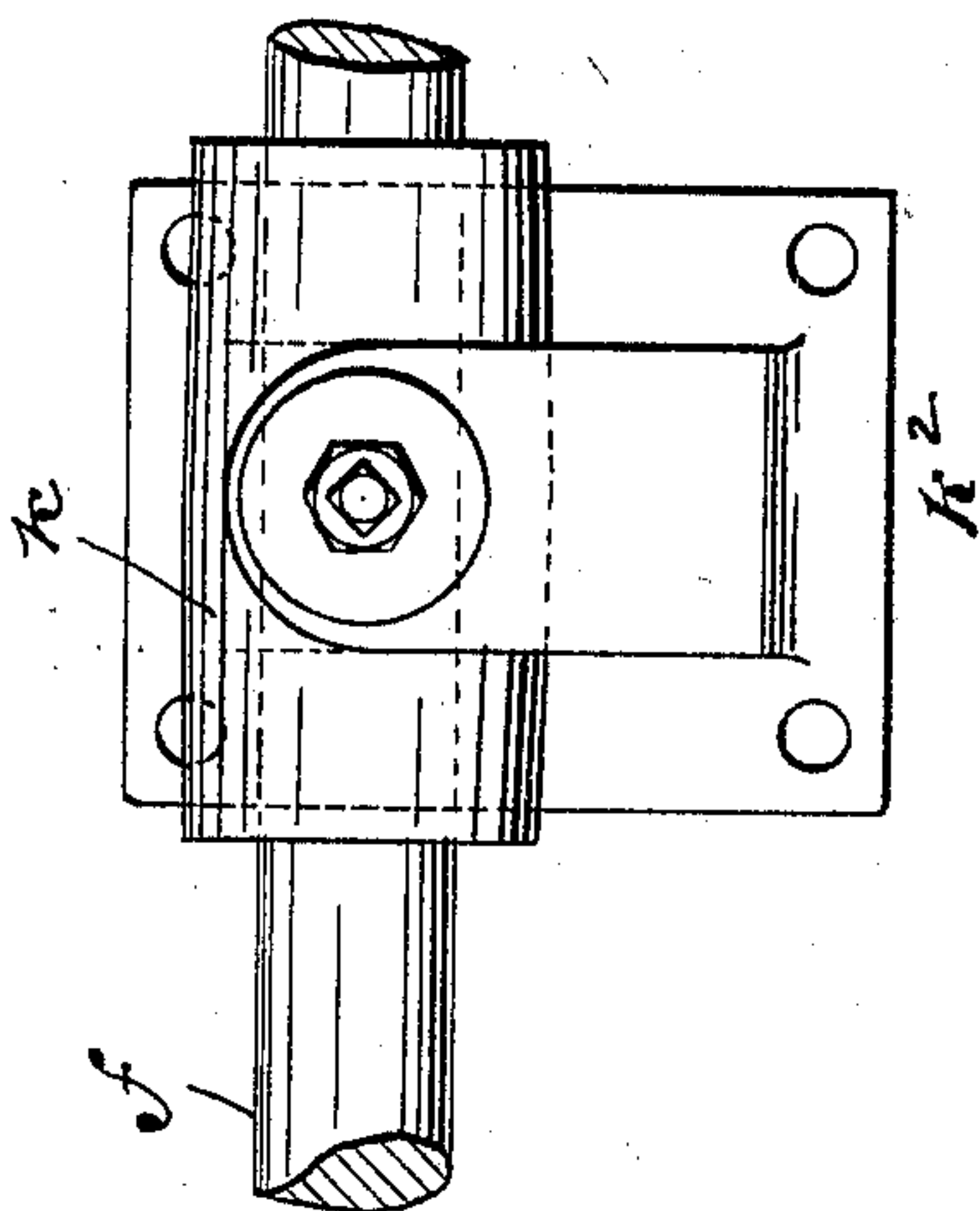


Fig. 7

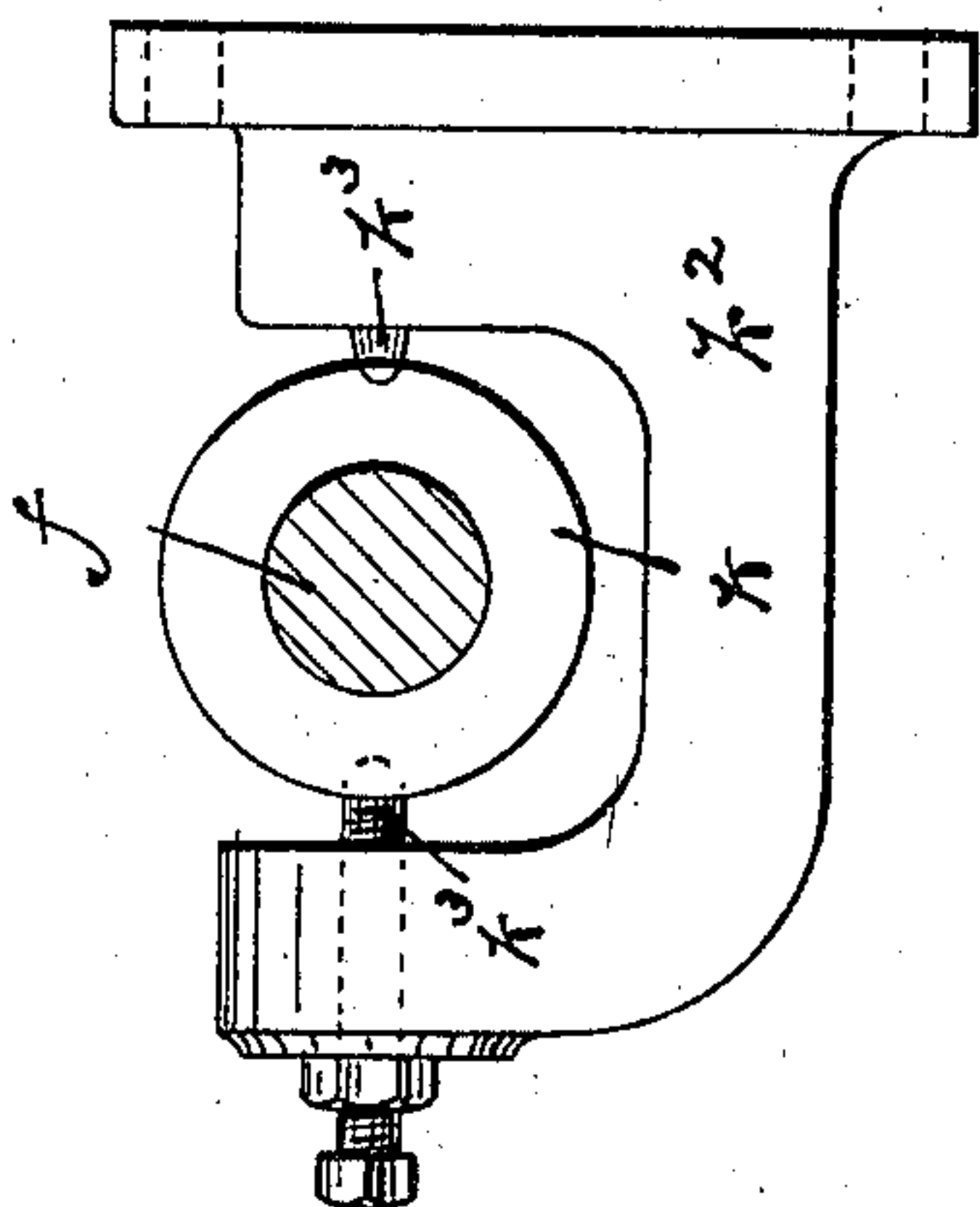


Fig. 8

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UNITED STATES PATENT OFFICE.

THEODORE J. TELLEFSEN, OF NEWARK, NEW JERSEY, ASSIGNOR TO
ALFRED F. BANNISTER, OF SAME PLACE.

MACHINE FOR GRINDING CUTLERY.

SPECIFICATION forming part of Letters Patent No. 638,204, dated November 28, 1899.

Application filed October 19, 1898. Serial No. 694,049. (No model.)

To all whom it may concern:

Be it known that I, THEODORE J. TELLEFSEN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Grinding-Machines for Cutlery and other Articles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and numerals of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in that class of machines for grinding cutlery shown in Patent No. 543,076, granted July 23, 1895, and more particularly to the means for automatically stopping the movement of the blade-holding arm at the completion of the grinding operation.

The objects of the invention are to secure increased convenience in the starting operation, to avoid the use of chains and the disadvantages incident thereto, to simplify the construction and reduce the cost thereof, and to obtain other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

Referring to the accompanying drawings, in which like letters and numerals of reference indicate corresponding parts in each of the several views, Figure 1 is a front elevation of a portion of a grinding-machine for cutlery having my improvements. Fig. 2 is a side view of the same. Fig. 3 is a detail elevation showing a certain bracket-shaft bearing-box and catch. Fig. 4 is a section of the same on line *x*, Fig. 3. Fig. 5 is a detail elevation of a portion of a worm gear-wheel, showing more clearly certain stop devices thereon; and Fig. 6 is a sectional view of the same, taken on line *x'*, Fig. 5. Fig. 7 is a detail showing a pivoted box or bearing for a certain power-transmitting shaft, and Fig. 8 is a side view of the same.

In said drawings, *a* indicates the framework, stand, or bed upon which the working parts are supported. This may be of any or-

dinary construction. Near the top of said frame the same is provided with boxes *b b'* for supporting the oscillating shaft *c*, said oscillating shaft having thereon and serving as the fulcrum for the lever-like work-holder *d*. Said work-holder has an upwardly-extending arm *d'*, upon which the knife-blades or other article or articles to be ground are arranged so as to be properly presented to the grinding-wheel, (not shown,) as clearly described in the patent above referred to.

The work-holder is oscillated slowly to effect the proper grinding of the knife, cutlery, or the like by means of a pulley *e*, shaft *f*, worm-wheels *g* and *h*, and connecting-rod *i*, arranged on a crank-pin *j* of the worm-wheel *h* and on an arm *d''* of the work-holder, all substantially as heretofore described.

In the patent referred to power was transmitted from the worm-wheel *h* by means of sprocket-wheels and chains to certain automatic stopping devices for stopping the movement of the oscillating arm when the work of grinding the article is complete. The use of the sprocket-wheels and chains rendered the machine more complex and expensive and tended to increase the liability of obstruction, and to simplify the construction and avoid the use of sprocket and chain, especially where it may catch the clothing of the attendant, I have constructed and arranged the stop devices as indicated in the drawings.

The shaft *f* is arranged in boxes *k k'*, attached to the frame *a*, the box *k* being preferably pivoted on a bracket *k''* of said frame, permitting a vertical vibration of the shaft therein, unless said shaft is made to have sufficient elasticity to permit a limited vibration at its opposite end sufficient for the purpose hereinafter expressed, in which case the pivots *k''*, Fig. 8, may be dispensed with.

The box *k'* is arranged upon a vertical bracket or slideway *l*, fastened upon the frame *a*, and said box has a vertical play thereon sufficient to enable the shaft *f* to be raised and the wheel *g* thereon to be disengaged from the worm-wheel *h*, so that power is not transmitted from one wheel to the other. The said sliding or movable box *k'* is connected by a link-like box-holder *m* to a hand-lever *n*, fulcrumed upon the frame *a*, as at *o*,

and normally held in an elevated position by a spring *p*, suitably attached to bracket *q* upon the frame, the said spring when free to act serving to automatically raise the worm-wheel *g* out of operative relation to the wheel *h*. Projecting down from said box or the carrier *m* thereof is a hook or catch *r*, and upon the bed or frame *a*, near said hook, is fulcrumed, as at *s*, a three-armed lever *t*, the catch-arm *t'* of which serves to engage the hook or catch *r* and hold the box *k'* and the shaft *f* therein down into operative position against the power of the spring *p*. The catch-arm *t'* is held in position to automatically enter into caught relation with the hook or catch *r* when the latter is forced down by a spring *u* and stop *v*, the said spring being secured at one end to the bed or frame at *u'* and to a second arm *t²* of the lever *t* at the other, the tendency of the spring *u* being to hold said arm *t²* down upon the stop *v*, which latter is adjustable and limits the movements of the lever to bring the hooked arm thereof into proper relation to the hook or catch *r* to secure the automatic catching above referred to. A third arm *t³* of the lever *t* projects to a point close to the worm-wheel *h*, where it is engaged by tripping devices upon said wheel *h*, adapted to turn said lever *t* upon its pivot or fulcrum *s* and throw the hooked arm *t'* away from catching engagement with the catch or hook *r*, so that the shaft *f* and worm-wheel may be automatically raised by means of the spring *p* to effect a disengagement of the wheels *g* and *h*.

The trip device preferred is shown more clearly in Figs. 5 and 6, where *w* indicates a bracket attached to one side of the wheel *h*, near the periphery thereof. Said bracket has an irregular rib *w'* projecting laterally from the side of the wheel *h*, which rib is perforated and threaded at one end to receive a limiting screw *w²* and near its other end is curved to form a socket *w³*, in which socket a pivotal trip-pawl 4 has a limited movement, the movement of said pawl being limited in one direction by the screw *w²* and in the opposite direction by the extension *w⁴* of the ribs *w'*. A spring 5 holds the trip-pawl normally against the limiting extension *w⁴*. Said pawl 4 projects toward the periphery of the wheel *h*, and at its projecting or free end is adapted to impinge on the arm *t³* when carried toward the same by the rotating wheel *h*. The spring 5 is stronger than the spring *u* and occasions an elastic impingement of the pawl against the arm *t³* of the catch, whereby there is no jamming or obstruction of parts when meshing the small worm-wheel into the larger.

In operating the device the attendant upon the machine applies a knife or other article to be ground to or upon the work-holder in the usual manner and then by pressing upon the free end of the hand-lever *n* forces the box *k'* and its shaft *f* and hook *r* downward,

when the small worm-wheel *g* is brought into engagement with the large one and power and motion are transmitted from said wheel *g* to the wheel *h*, causing the same to rotate and effect an oscillation of the work-holder, as heretofore. Simultaneous with the engagement of the worm-wheels the catches *r* and *t* enter into holding relation one with the other, the catch-arm *t'* first giving way as the hook *r* is pressed and then springing into the desired holding relation, impelled by the spring. Upon the completion of a revolution of the wheel *h* and oscillation of the work-holder by which the grinding-wheel is caused to traverse the blade upon said holder the trip-pawl pressing upon the arm *t³* turns the lever *t* upon its pivot or fulcrum and disengages the arm *t'* from the hook *r*, thus releasing the box *k'* and its carrier *m*, so that the latter is free to slide upward upon the bracket *l*, drawn by the lever *n* and spring *p*. The oscillatory movement of the work-holder is thus discontinued and an opportunity is given for the attendant to remove the ground blade and replenish the machine with one to be ground.

I am aware that the construction positively described may be varied without departing from the spirit and scope of the invention. I consequently do not wish to be limited by such description, excepting as the state of the art may require.

Having thus described the invention, what I claim as new is—

1. The improved grinding-machine for cutlery, comprising a frame, and oscillating work-holder, worm-wheel *h*, and connecting-rod, a shaft *f*, having a worm-wheel *g*, meshing with the worm-wheel *h*, means for holding said worm-wheel *g*, into meshed relation to the worm-wheel *h*, means for releasing said holding means at the completion of a stroke or oscillation of the work-holder, and means for raising said worm-wheel out of meshed relation, automatically, substantially as set forth.

2. In a grinding-machine for cutlery and other articles, the combination with the frame, oscillating work-holder, worm-wheel *h*, and connecting-rod, of a shaft *f*, box *k'*, therefor, a hand-lever *n*, spring *p*, trip devices upon the wheel *h*, and catches engaged by said trip devices and disengaged thereby from one another to permit the said spring to act to release the worm-wheels from operative engagement, substantially as set forth.

3. In a grinding-machine for cutlery and other articles, the combination with the frame and oscillating work-holder, of a shaft *f*, means for rotating the same, worm-wheel and connecting means, of a catch for holding the power-transmitting means in operative relation to effect an oscillatory movement of the work-holder and tripping means arranged on one of said worm-wheels to release said catches and effect a discontinuance in the transmis-

sion of power to said work-holder, substantially as set forth.

4. In a grinding-machine for cutlery and other articles, the combination with the frame and oscillating work-holder, of a shaft, means for rotating said shaft, a worm-wheel on said shaft, a second worm-wheel engaged by the first and rotated slowly thereby, a connecting-rod eccentrically connected to said second wheel and transmitting motion therefrom to the work-carrier, a trip device upon said second wheel and means affected by said trip device to interrupt a transmission of power, substantially as set forth.

5. In a grinding-machine for cutlery and other articles, the combination with the frame and oscillating work-holder, of a connecting-rod for operating the work-holder, a wheel eccentrically connected with said connecting-rod and carrying a pivotal pawl, a catch for holding the power-transmitting means in train with said wheel, and said power-transmitting means adapted to be thrown out of operative

relation by said pawl, substantially as set forth.

6. In a grinding-machine for cutlery and other articles, the combination with the frame and oscillating work-holder, of a connecting-rod for operating the work-holder, a wheel in connection with said connecting-rod, a bracket arranged on said wheel and having a laterally-projecting rib having a limiting-screw and forming a socket, a trip-pawl arranged in said socket, a spring for said pawl, catches, adapted to be engaged by trip-pawl, for holding power-transmitting means in operative relation and said power-transmitting means, all said parts being arranged and adapted to operate, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of September, 1898.

THEODORE J. TELLEFSEN.

Witnesses:

CHARLES H. PELL,
PETER S. STERNSTRUP.