

(No Model.)

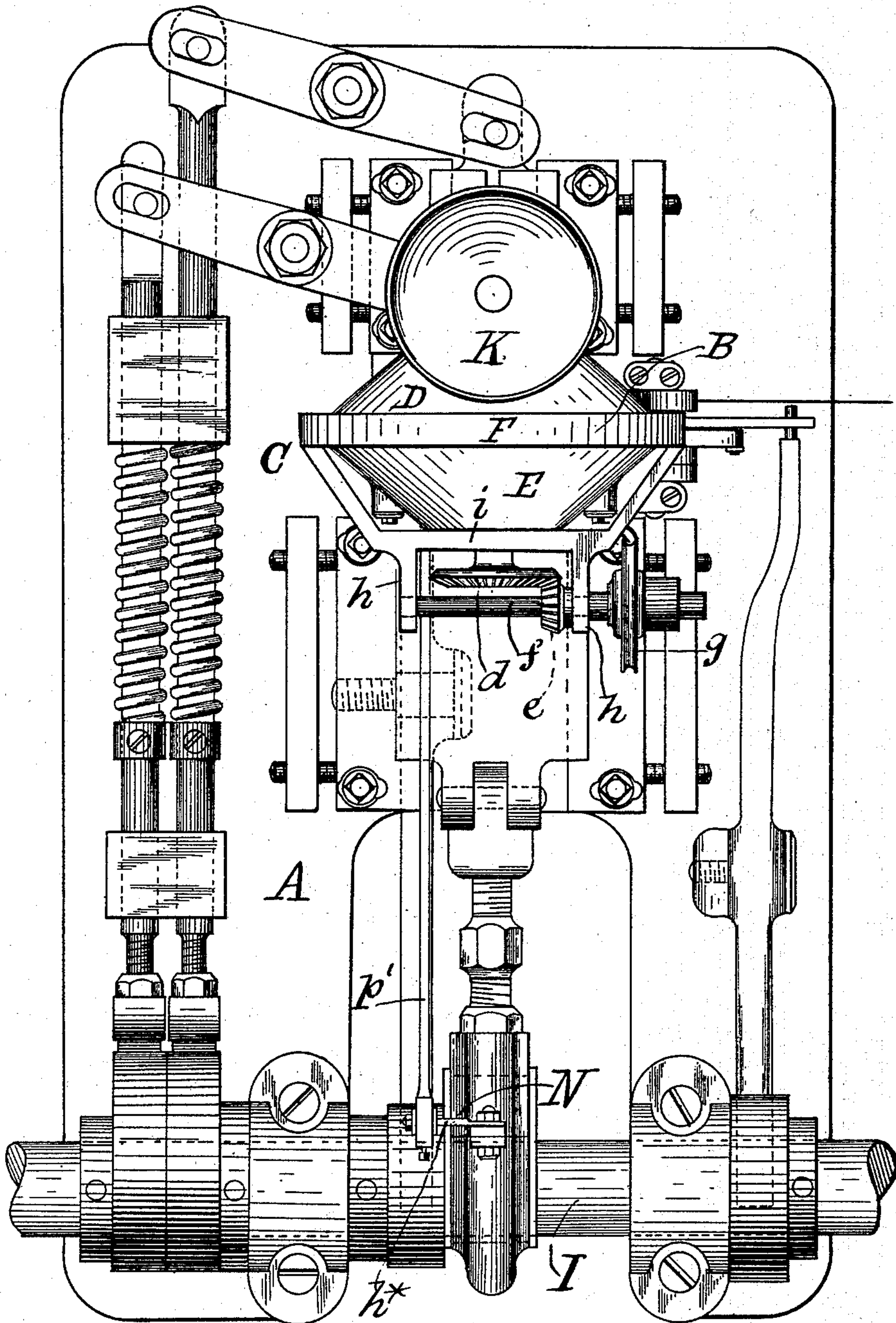
5 Sheets—Sheet 1.

R. L. ELLERY.

FEEDING DEVICE FOR BUTTON MAKING MACHINES.

No. 413,502.

Patented Oct. 22, 1889.



WITNESSES:

Fig. 1.

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(No Model.)

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R. L. ELLERY

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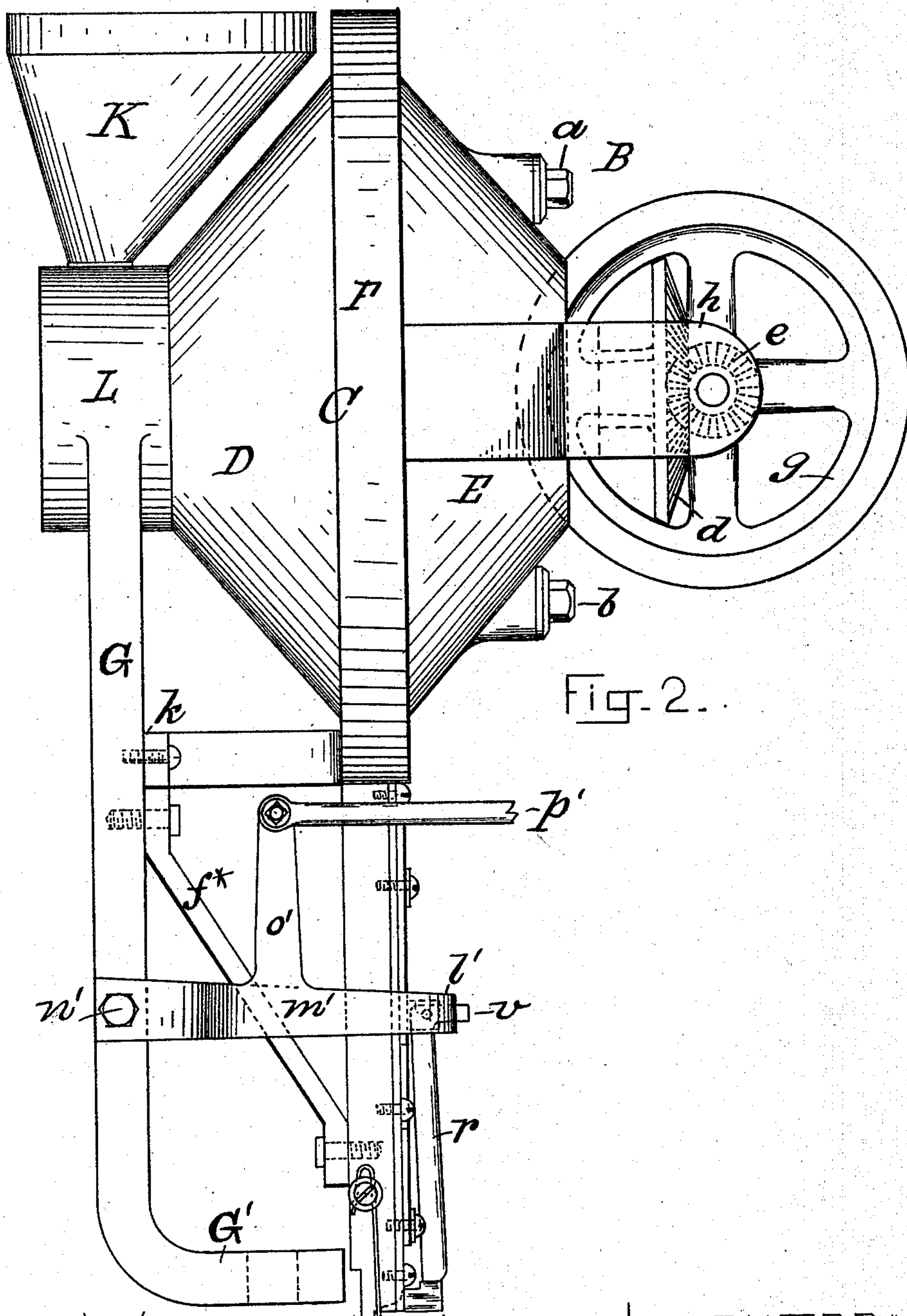


Fig-2..

WITNESSES:

Chas. S. Goring.
Geo. H. Cushman.

INVENTOR:

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(No Model.)

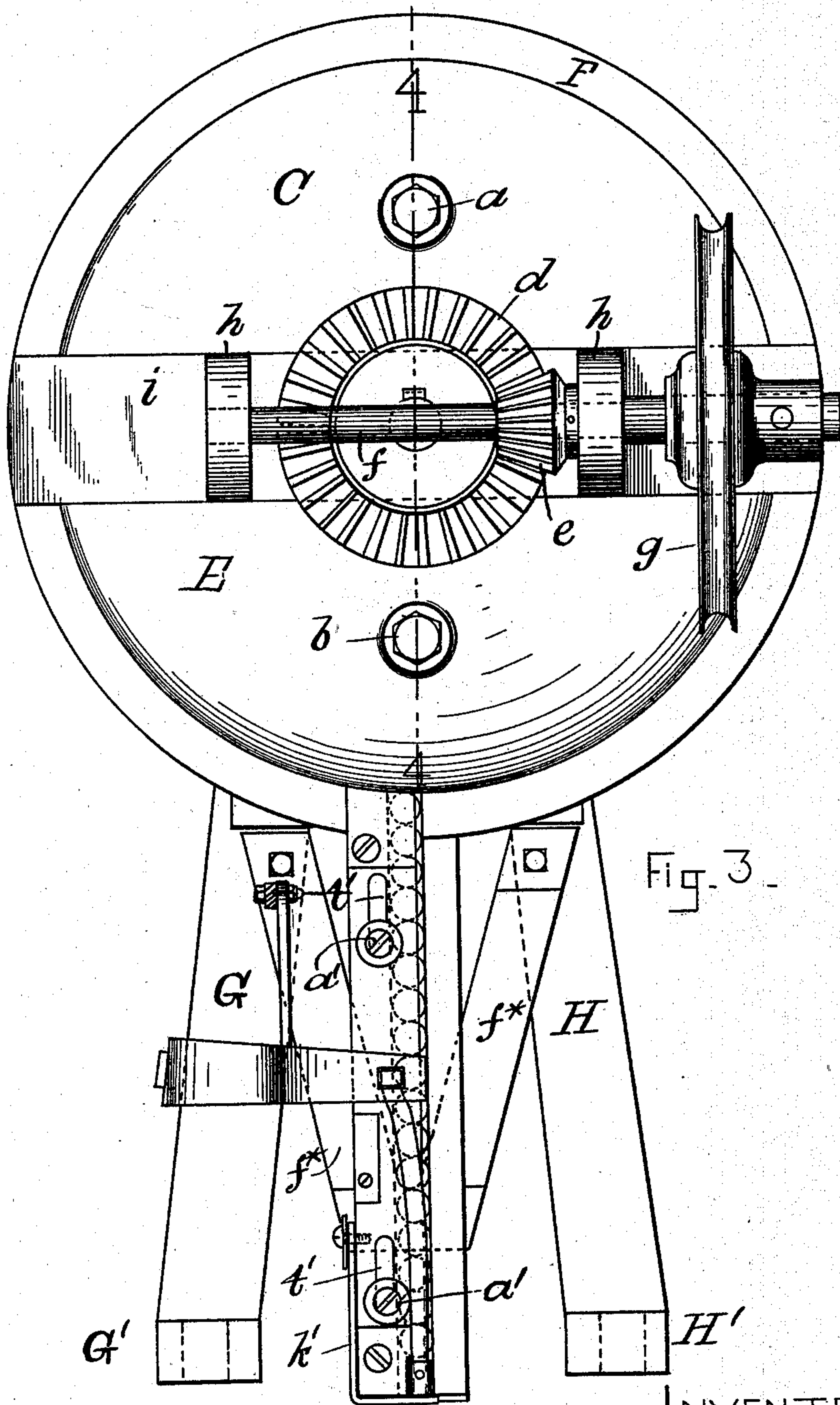
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WITNESSES:
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(No Model.)

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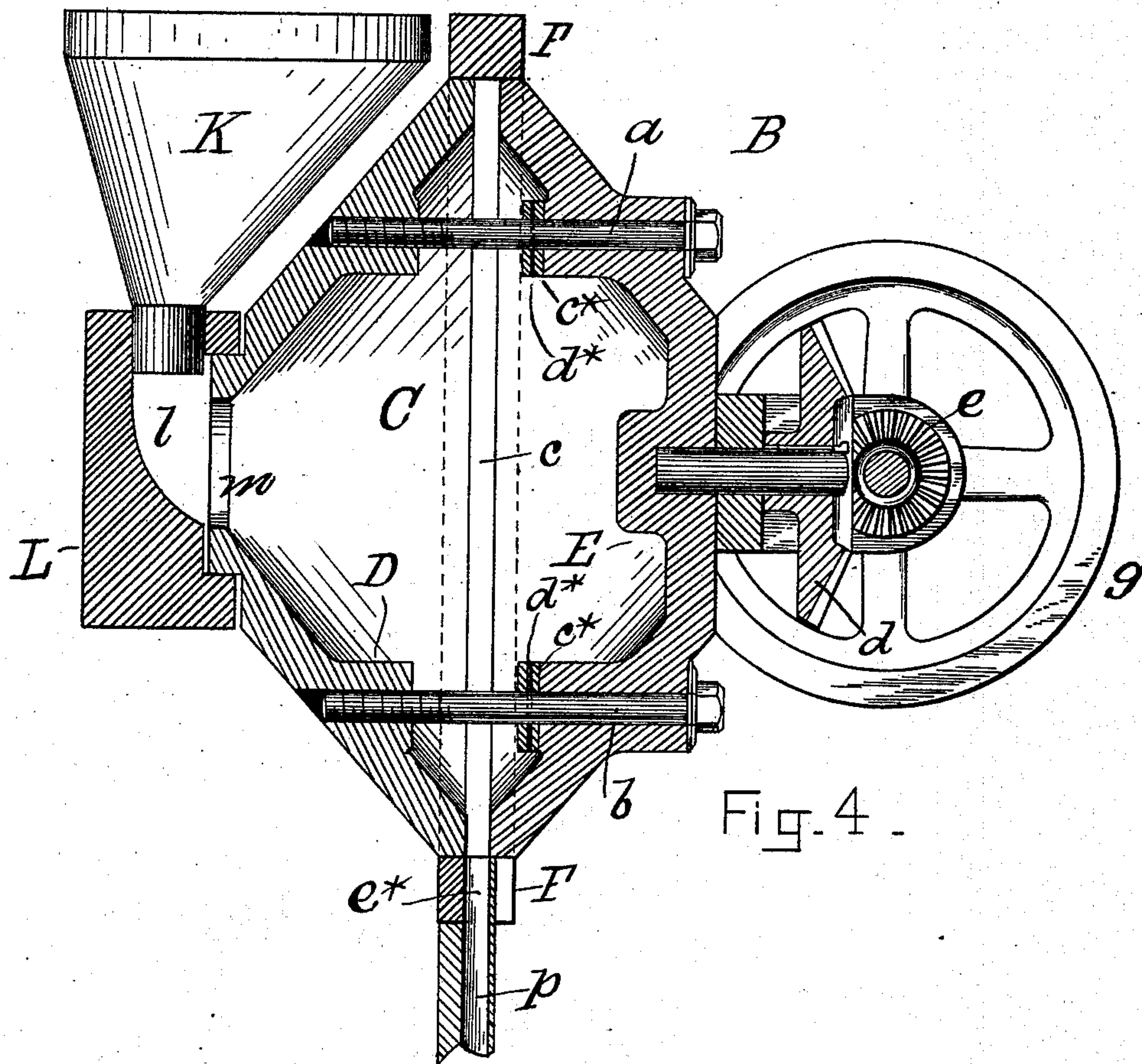


Fig. 4.

WITNESSES:
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(No Model.)

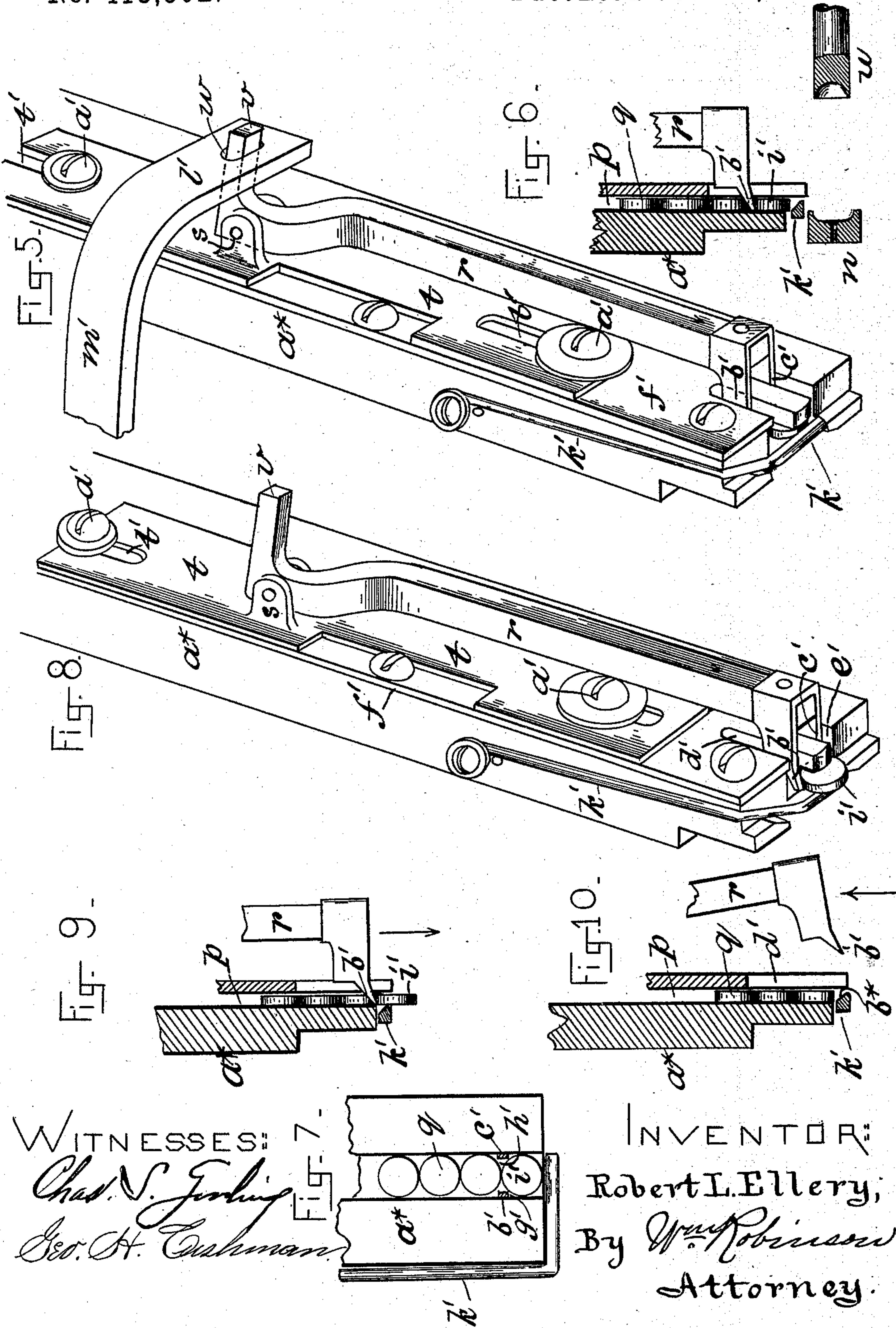
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R. L. ELLERY.

FEEDING DEVICE FOR BUTTON MAKING MACHINES.

No. 413,502.

Patented Oct. 22, 1889.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT L. ELLERY, OF TAUNTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO FRANCIS E. FULLER, OF SAME PLACE.

FEEDING DEVICE FOR BUTTON-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 413,502, dated October 22, 1889.

Application filed November 10, 1888. Serial No. 290,482. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. ELLERY, a citizen of the United States, residing at Taunton, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Feeding Devices for Button-Making Machines, of which the following is a specification.

The object of my invention is to produce a simple and effective mechanism for feeding button-blanks to button-making machines; and while my invention may be used in connection with any button-making machine to which it may be adapted, I show it in the drawings as applied to the button-making machine patented by myself and Julian Veazie, on September 25, 1888, No. 390,118.

The nature of my invention will be clearly understood from the description which follows, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a plan view of the button-making machine with my improved feeding device attached thereto. Fig. 2 is a detached side elevation of the feeding device. Fig. 3 is a front elevation of the same. Fig. 4 is a vertical cross-section through the line 4 4, Fig. 3. Fig. 5 is a perspective view showing the four-motion feed-lever in the first position ready to push the button-blank forward. Fig. 6 is a vertical section of the lower part of the same, showing the feed-lever in side elevation, and Fig. 7 is a front elevation of the same with the face-plate removed, showing the button-blanks and the points of the feed-lever in position. Figs. 5, 6, and 7 all show the feed-lever in the first position ready to push the button-blank forward. Fig. 8 is a perspective view, and Fig. 9 a vertical section, both showing the feed-lever approaching the second position and pushing the blank forward; and Fig. 10 is a vertical section showing the feed-lever in the third position ready to be drawn back to the fourth position.

Similar letters of reference indicate corresponding parts in all the figures.

A is a button-making machine provided with the feed mechanism B, as shown in Fig. 1. Said feed mechanism is constructed as follows:

C is a hopper constructed of two truncated cones D E, hollow inside and having their bases toward each other. These truncated cones are connected adjustably with reference to each other by the screws or pins *a b*. The hopper C has horizontal bearings in the hub L and the fixed plate *i*, and revolves in a vertical plane within the fixed ring F, which is secured rigidly to the machine A by means of the legs G H (to which said ring is secured at *k*) and the feet G' H'.

The hopper C is provided with the beveled gear-wheel *d*, rigidly secured thereto, into which gears the beveled gear-wheel *e*, secured to the revolving shaft *f*, to which shaft *f* the driving-pulley *g* is also secured. The shaft *f* revolves in the projections *h*, which are rigidly secured to the fixed ring F by means of the plates *i*, as shown. The power is applied to the pulley *g* by means of a belt driven either by the main driving-shaft I of the machine A or independently thereof. Thus, as is evident, the revolution of the pulley *g* causes the hopper C to revolve within the fixed ring F.

The fixed hopper or funnel K is attached to the fixed hub L and serves to carry the button-blanks into the revolving hopper C through the orifices *l m*, as shown.

The dishes or truncated cones D E of the revolving hopper are adjusted such a distance apart as to allow the button-blanks to drop readily edgewise through the space *c* between the same into the runway *p* of the feed mechanism. The runway *p* is of such size as to allow the round button-blanks *q* to drop readily to the bottom of said runway, and the revolution of the hopper C keeps said runway *p* always full of said blanks. When one blank is removed at the bottom of said runway, to form a button, the column of blanks drops the space of one blank, and another blank is dropped into the top of the runway by the revolving hopper, as described. The feed-lever *r* is pivoted at *s* to the sliding face-plate *t*, which is provided with vertical slots *t' t'*, through which the guide-screws *a'* pass, somewhat loosely, whereby the said plate *t*, with its superimposed feed-lever *r*, is allowed to slide bodily up and down vertically, being held in place by said guide-screws *a'*. This construc-

tion permits the feed-lever *r* to be carried bodily backward and forward vertically in feeding the blanks. The lower end of the feed-lever *r* is provided with two projecting points *b' c'*, which project, respectively, through the slots *d' e'* of the fixed face-plate *f'*, and thence into the spaces *g' h'* between the lowest blank and the one above it in the runway *p*, as shown.

The points *b' c'* are thus in position to push the lowest blank *i'* down and out of the runway *p* and into proper position to be formed into a button between the die *n* and the punch *u*, Fig. 6. The spring *k'*, secured to side of the grooved plate *a**, stops the lower end of the groove or runway *p*, thus preventing the blanks from falling out of their own weight.

That part of said spring *k'* which crosses the runway *p* has its inner side beveled off, as shown at *b**, whereby, when the lowest blank *i'* is pressed down against said spring by the advancing feed-lever *r*, said spring is pressed to one side, thus allowing said blank to pass, as clearly illustrated in Fig. 9. When the blank *i'* has fully passed said spring, the latter springs back into the position shown in Fig. 10, thus again closing the bottom of said runway *p*. The short end *v* of the feed-lever *r* passes through the eye *w* of the bent end *l'* of the lever *m'*, which is pivoted at *n'* to the leg *G* of the frame. The lever *m'* is provided with the projection *o'*, to which the connecting-rod *p'* is pivoted, as shown. Said rod *p'* has its opposite end pivotally connected to the cam or eccentric *N* on the main shaft *I* of the machine, whereby a regular back and forward motion is imparted to said connecting-rod *p'* by the revolution of said shaft *I*.

The operation is as follows: Suppose a quantity of round button-blanks to be thrown into the fixed hopper *K* and the machine to be set in motion. The revolution of the hopper *C* quickly fills the runway *p* with blanks down to the stop-spring wire *k'*, and the feed-lever *r* is, say, in the position shown in Figs. 5, 6, and 7. The forward motion of the connecting-rod *p'*, caused by the revolution of the shaft *I*, turns the lever *m'* on its pivot *n'* and carries the bent end *l'* of said lever downward. This downward movement carries the sliding plate *t*, with the feed-lever *r*, downward on the guide-screws *a'*, in the manner already described, into and beyond the position shown in Figs. 8 and 9, thus discharging the lowest blank from the runway *p*. The continued revolution of the shaft *I* reverses the direction of the connecting-rod *p'*, and consequently of the lever *m'*, raising the end *l'* of said lever. The first result of this movement is to slightly turn the feed-lever *r* on its pivot *s*, thus raising the lower end of said lever from the runway *p* and slots *d' e'* into the position shown in Fig. 10. The continued backward movement of said connecting-rod *p'* continues to raise the end *l'* of the lever *m'*, and this carries the sliding

plate *t* and feed-lever *r* upward bodily until the points *b' c'* of said feed-lever are opposite the spaces *g' h'* between the two lowest blanks in the runway *p*. The next reversal of the connecting-rod *p'* first turns the feed-lever *r* slightly on its pivot *s*, thus dropping the points *b' c'* of said feed-lever into the spaces *g' h'* between the blanks, as shown in Figs. 5, 6, and 7. The continued downward motion of the end *l'* of the lever *m'* feeds the blank downward, as already described. Thus I produce and operate a four-motion feeding device which is simple in construction and effective in operation.

The adjusting-screws *a b* are provided with washers *c**, secured to said screws by the pins *d** passing through the same, by which means longitudinal motion of said screws in the dish or truncated cone *E* is prevented while the rotary motion of said screws in said dish is allowed. The opposite ends of said screws turn in screw-threads in the dish *D*, as shown. By this means the dishes or truncated cones *D E* are adjusted toward or away from each other, whereby the space *c* between said truncated cones *D E* is adjusted to correspond to the thickness of the blank to be used.

The vertical plate *a**, in which is formed the vertical groove or runway *p*, is secured in position against the lowest point of the ring *F*, partly or wholly by the braces *f**, the opening *e** through said ring being opposite the runway *p* and the space *c*, whereby the blanks from the hopper *C* drop through said ring into the runway *p*.

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

1. In a button-making machine, the combination, substantially as described, of the driving-shaft, the fixed plate *f'*, the plate *t*, adapted to slide bodily back and forth on said fixed plate *f'*, the feed-lever *r*, pivoted to said sliding plate *t*, and an intermediate lever driven by said shaft and operating to drive said lever *r* and said sliding plate *t* back and forth on said fixed plate *f'*, said intermediate lever imparting four distinct motions to said feed-lever.

2. In a feeding device, the combination of the feed-lever *r*, pivotally mounted on the sliding plate *t*, the lever *m'*, engaging said feed-lever *r*, and the connecting-rod *p'*, operated by the shaft *I* and imparting reciprocating motion to said lever *m'*, whereby said feed-lever *r* has its operative end first raised from or lowered into the runway *p* by the action of said lever *m'*, said feed-lever *r* being then carried bodily with the sliding plate *t* backward or forward by the continued action of said lever *m'* thereon, substantially as described.

3. In a button-making machine, the combination of the following elements: the driving-shaft, the button-blank-feeding lever, a device connecting said feeding-lever to said driving-shaft, the plate *a**, provided with the

runway *p* for the reception and passage of the button-blanks, and the spring *k'*, normally closing said runway, but adapted to be pushed aside by the advancing button-blank to allow the passage of the same, substantially as described.

4. In a feeding device, the revolving hopper C, composed, essentially, of two hollow truncated cones or dish-shaped parts D E, adj-
10 justably connected together, the bases of said truncated cones being toward each other and having a space between them, substantially as set forth.

5. In a button-making machine, a feed
15 mechanism composed, essentially, of the fol-

lowing elements: a revolving hopper, a plate adjacent thereto provided with a groove or runway for the reception of the button-blanks from said revolving hopper, a four-motion traveling feed-lever provided with points 20 adapted to push the button-blanks forward, another lever engaging and operating said feed-lever, and a connecting-rod connecting said second-named lever with the driving-shaft.

ROBERT L. ELLERY.

Witnesses:

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DANIEL E. SHEPARD.