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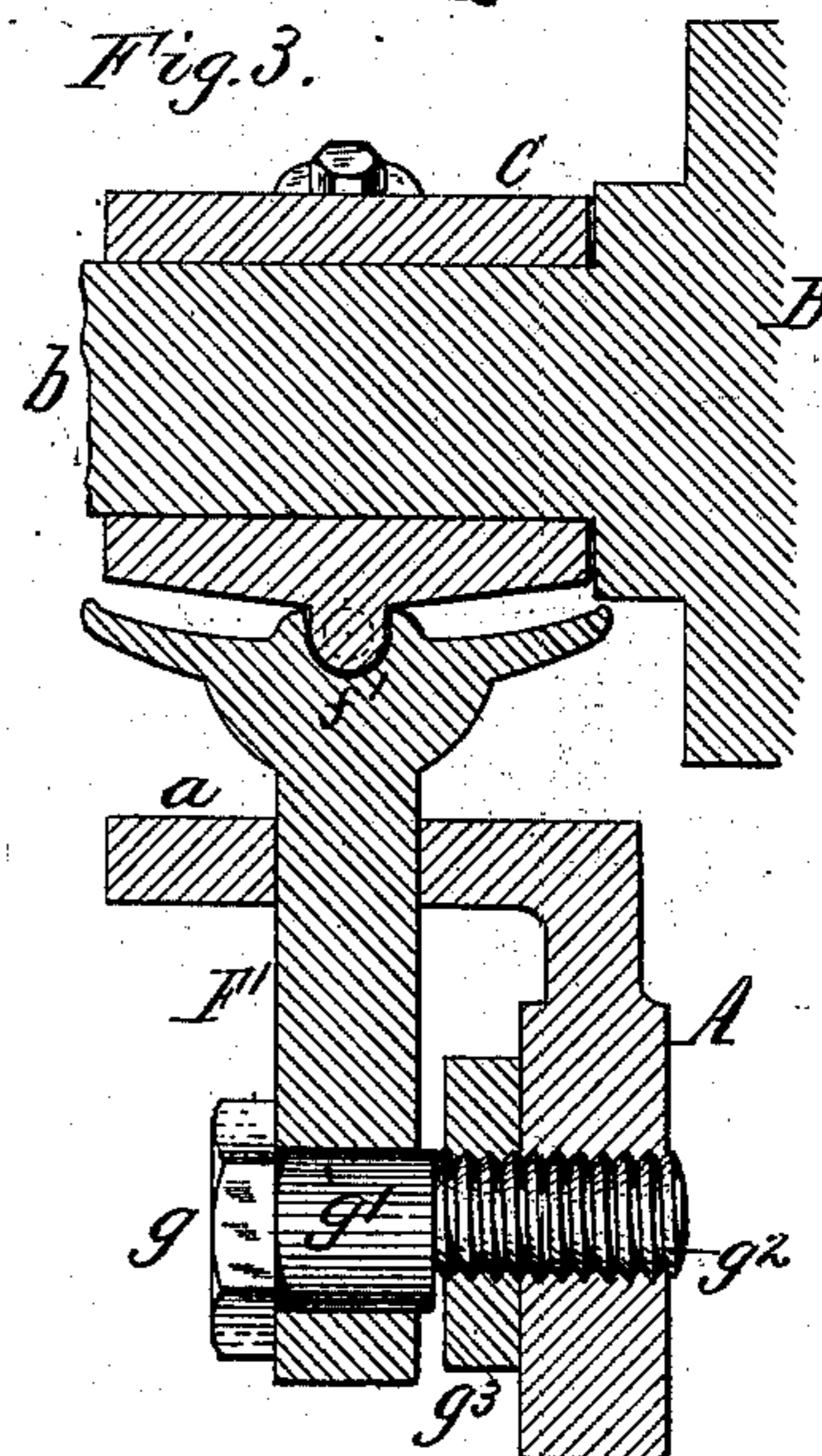
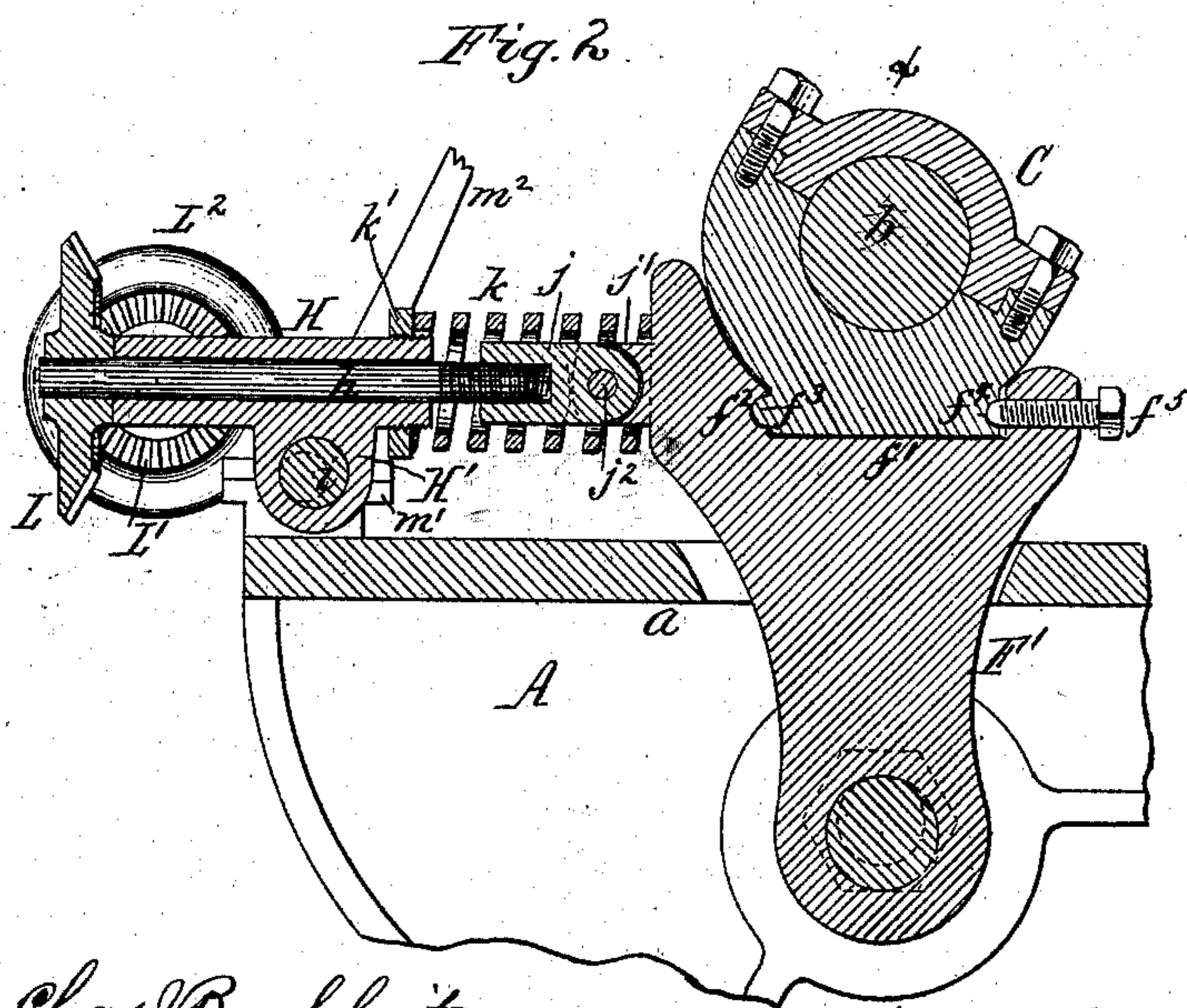
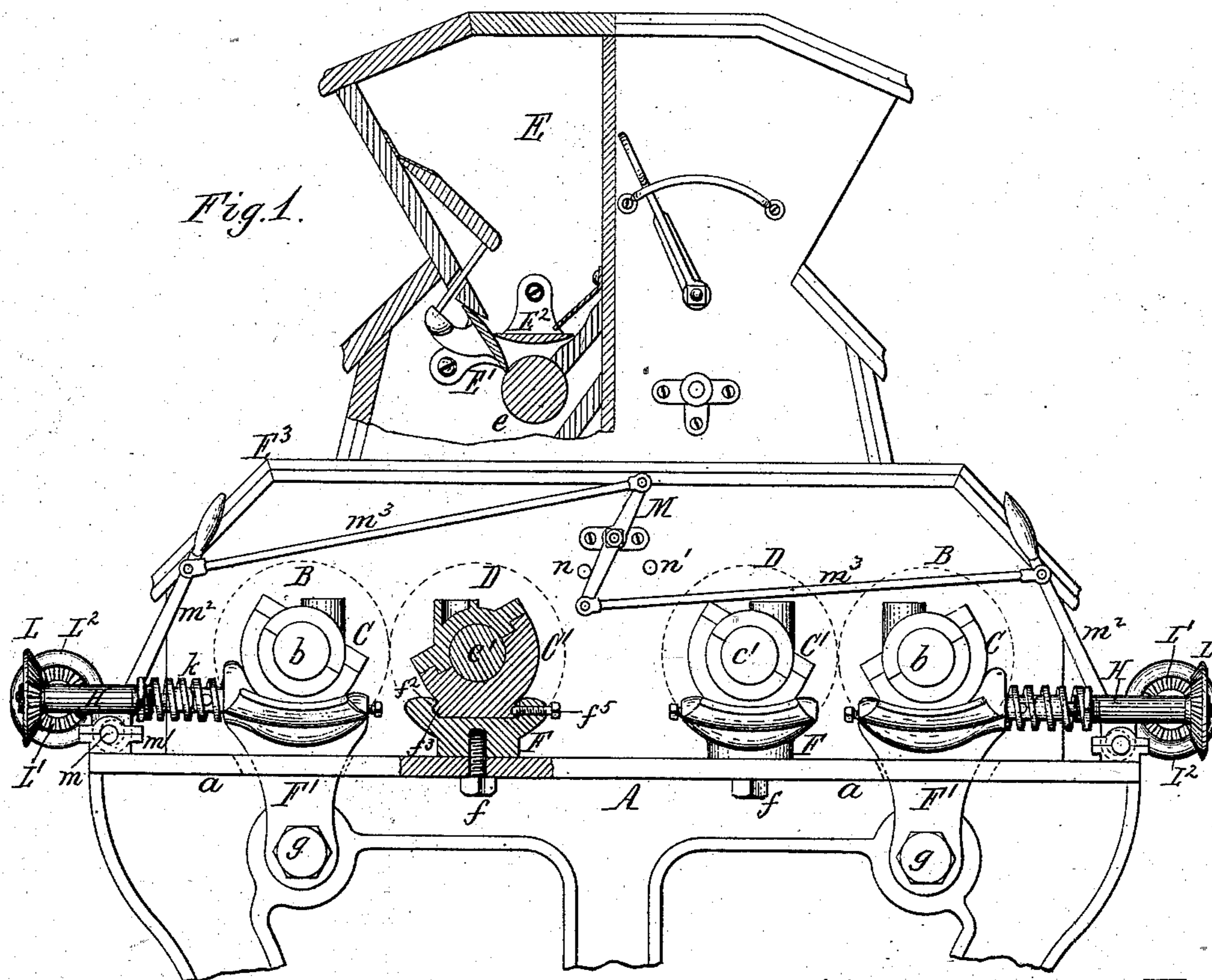
2 Sheets—Sheet 1.

N. W. HOLT.

ROLLER MILL.

No. 255,859.

Patented Apr. 4, 1882.



Chas. Buckheit
Edw. J. Brady } Witnesses.

Noah W. Holt Inventor.
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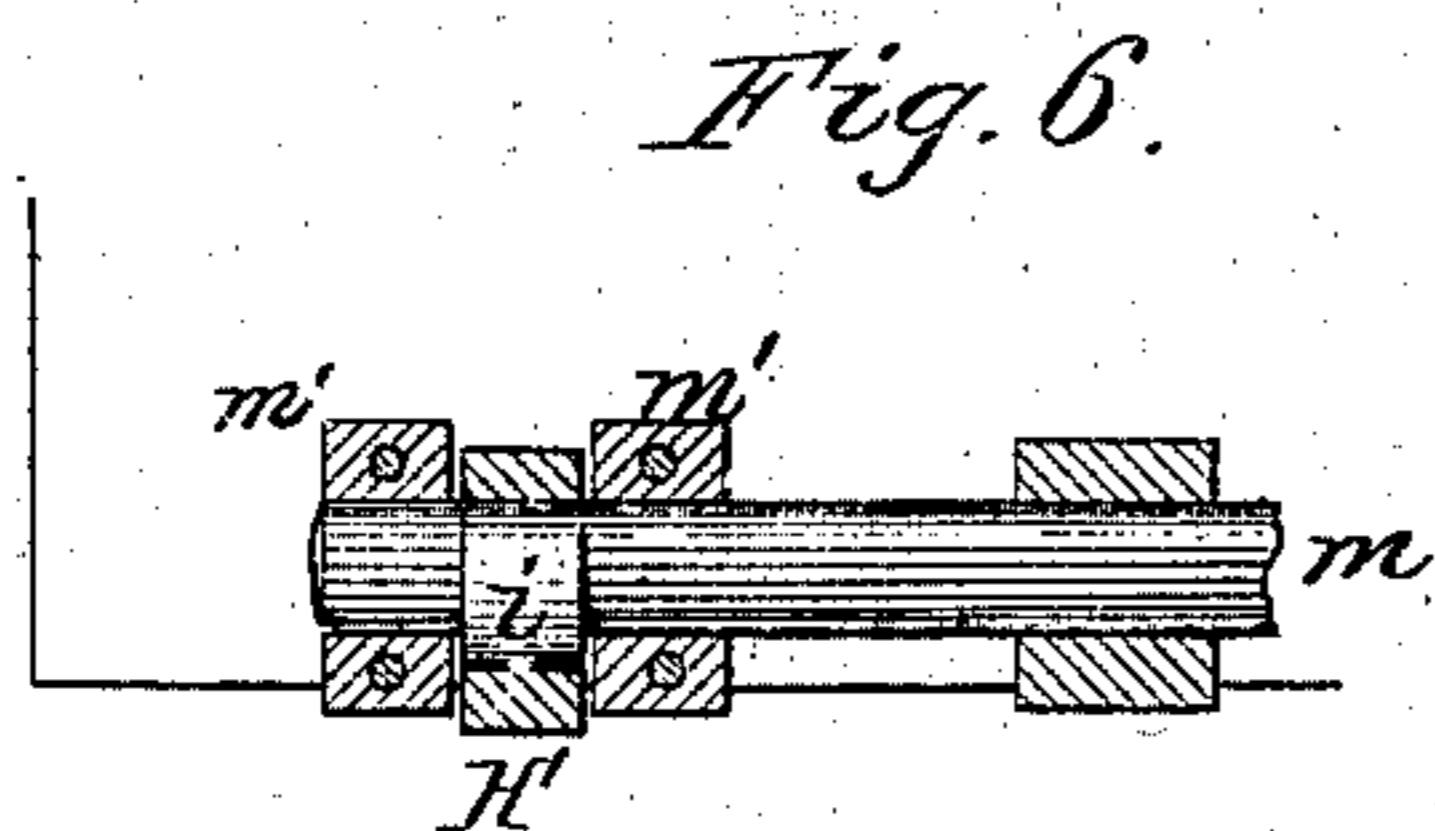
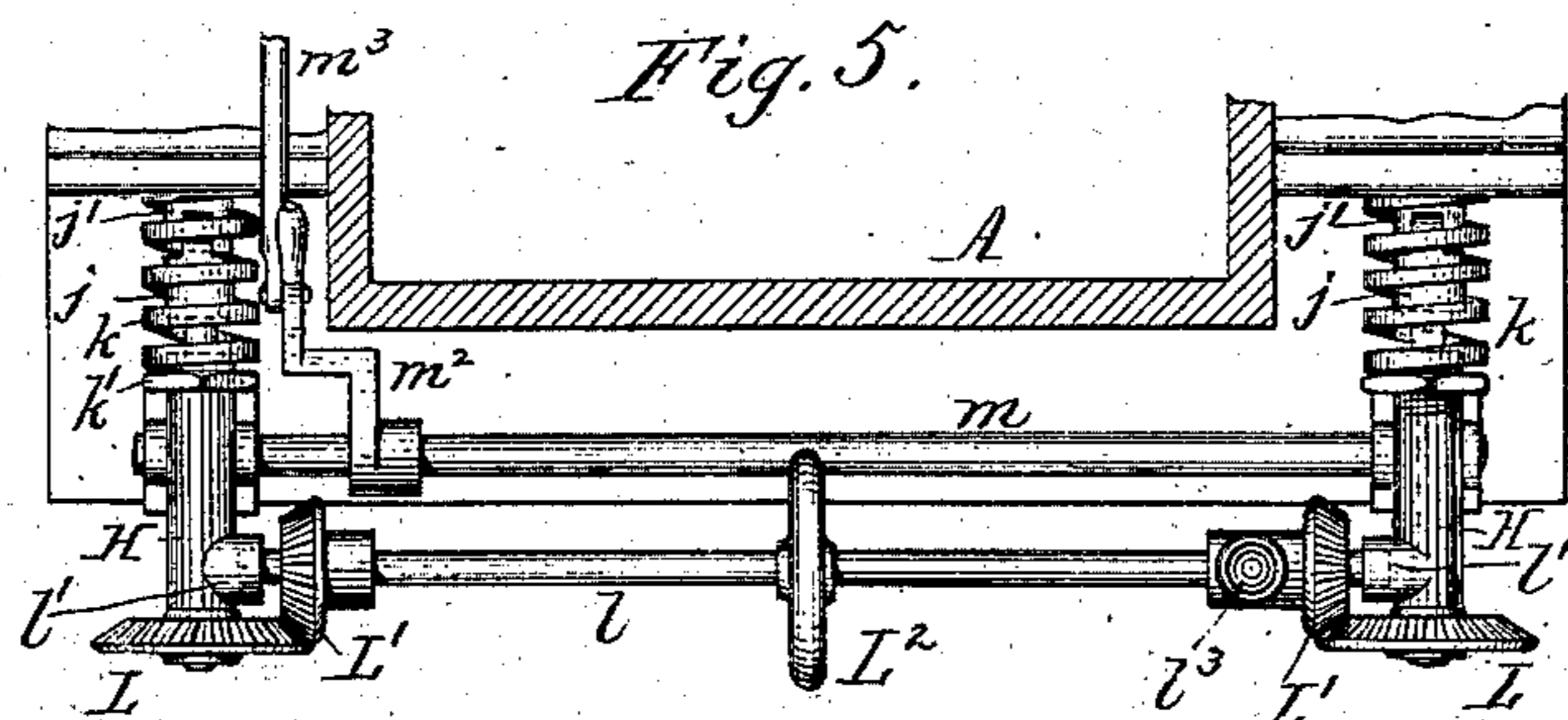
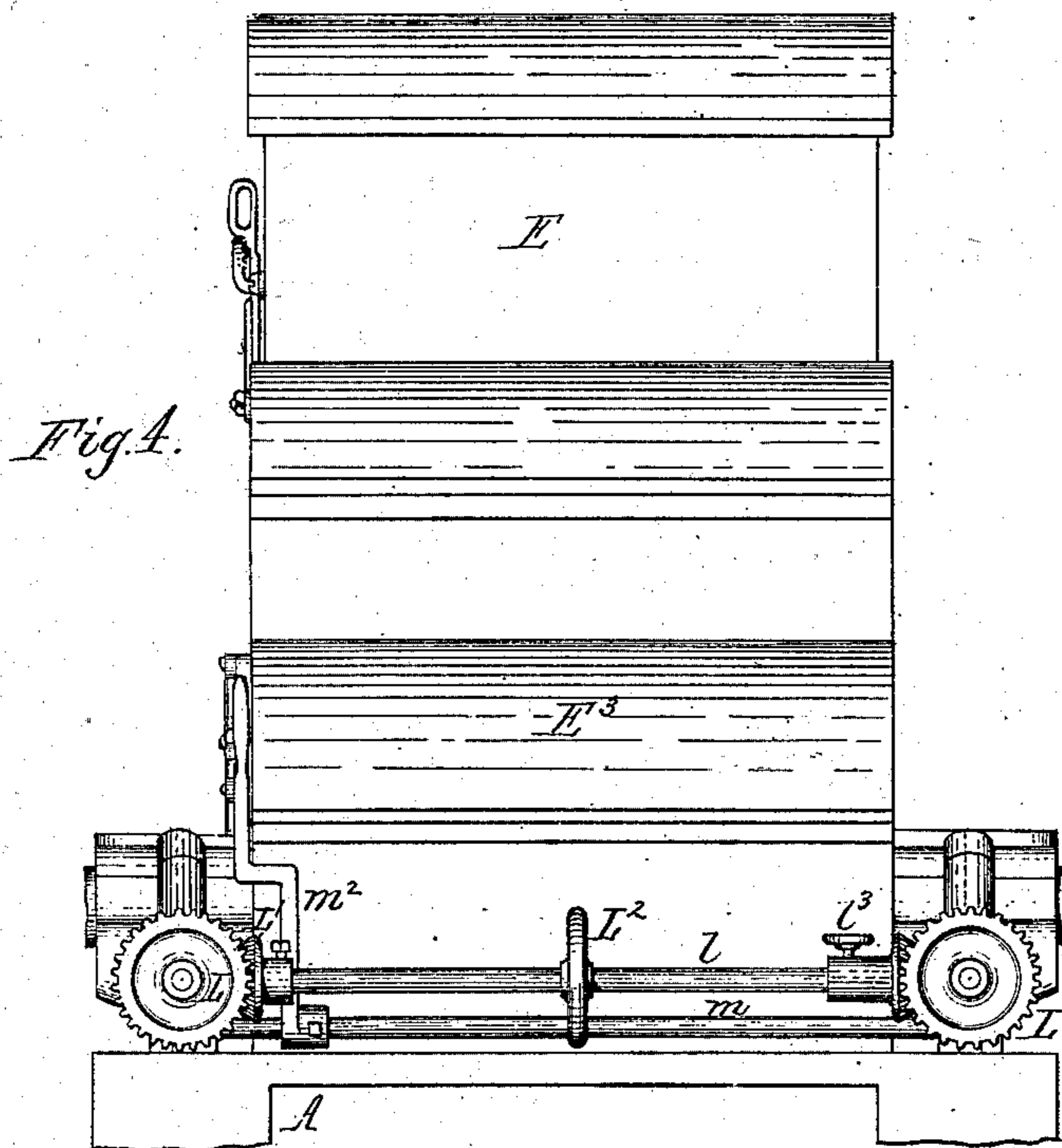
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2 Sheets—Sheet 2.

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Witnesses

Noah W. Holt Inventor,
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Attorneys

UNITED STATES PATENT OFFICE.

NOAH W. HOLT, OF BUFFALO, NEW YORK.

ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 255,859, dated April 4, 1882.

Application filed January 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, NOAH W. HOLT, of the city of Buffalo, in the county of Erie, in the State of New York, have invented new and useful Improvements in Roller-Mills, of which the following is a specification.

This invention relates to that class of roller-mills which are employed for the reduction of grain and similar substances; and it has for its object to render such mills more convenient and effective in their operation.

My invention consists of the mechanism whereby the rollers are adjusted, as hereinafter fully set forth.

In the accompanying drawings, consisting of two sheets, Figure 1 represents a side elevation, partly in section, of a roller-mill provided with my improvements. Fig. 2 is a longitudinal section, on an enlarged scale, of the mechanism whereby the movable roller is adjusted. Fig. 3 is a vertical cross-section in line *xx*, Fig. 2. Fig. 4 is an end view of the roller-mill with the lower part of the frame broken away. Fig. 5 is a top plan view of one end of the roller-mill. Fig. 6 is a top plan view of one of the eccentrics and connecting parts whereby the movable roller is adjusted.

Like letters of reference refer to like parts in the several figures.

A represents the stationary frame of the roller-mill; B, the adjustable rollers, provided with journals *b*, which turn in journal-boxes C. D represents the stationary rollers, provided with journals *c*, turning in journal-boxes C'. As shown in the drawings, two pair of rollers are arranged in the same horizontal plane, the inner rollers being stationary and the outer rollers being adjustable.

E represents the feed-hoppers, provided with the feed-rollers *e*, automatic feed-plates E', and cut-off plates E'', of any suitable construction, whereby the desired quantity of material is uniformly fed between each pair of rollers.

E³ represents the casing which incloses the rollers.

The stationary journal-boxes C' are seated in a base-piece, F, which is arranged on the upper side of the frame A and secured thereto by a vertical bolt, *f*, which is arranged centrally under the journal-box, and which passes upwardly through the frame A and taps into the

base-piece F. The base-piece F is provided on its upper side with a horizontal recess, *f'*, having approximately a semi-cylindrical form and arranged transversely with reference to the axis of the journal-bearing, in which a transverse rib formed on the lower portion of the journal-box plays. One of the vertical sides of this recess *f'* is provided centrally with a semi-spherical depression, *f*², and the adjacent side of the journal-box is provided with a corresponding semi-spherical projection, *f*³, which enters the depression *f*². The opposite side of the journal-box is provided with a round depression, *f*⁴, into which projects the inner rounded end of a horizontal screw-bolt, *f*⁵, which passes through a threaded hole in the base-piece F. The bolt *f*⁵ and projection *f*³ are arranged on the same horizontal plane. Upon loosening the bolts *f* and *f*⁵ the base-piece F is permitted to turn in a horizontal plane on the vertical bolt *f* as a pivot, and the journal-box C' is permitted to rock in a vertical plane on the horizontal bolt *f*⁵ and projection *f*³ as a pivot, thereby giving the journal-box an adjustment in the manner of a universal joint, and enabling the journal-box to adjust itself to the position of the journal. The rocking movement of the journal-box is limited by the walls of the recess *f'* in the base-piece F, which sustain the journal-box approximately in its proper position when the bolt *f*⁵ is loosened, but permit of the requisite slight adjustment of the box. When the bolts have been so loosened the roller is placed with its journals in the boxes C', when the latter will adjust themselves to the position of the journals and support the same without binding. By tightening the bolts *f* and *f*⁵ the journal-boxes C' are readily secured in this position.

F' represents the supporting-arm in which the bearing C of the adjustable roller is mounted, and which extends downward through an opening in the horizontal top flange, *a*, of the frame A, and is attached at its lower end to the frame A by a horizontal bolt, *g*. This bolt is provided with an eccentric neck or shank, *g'*, outside of its threaded portion *g*², which latter is tapped into the frame A, and a jam-nut, *g*³, is applied to the outer threaded portion of the bolt *g*, so as to bear against the outer side

of the frame A. The supporting-arm F' turns on the eccentric neck g' of the bolt, and is raised or lowered at desire by releasing the jam-nut and turning the bolt in one or the other direction, thereby raising or lowering the roller accordingly, and the parts are secured in the desired position by again tightening the jam-nut. The supporting-arm F' is provided at its top with a recess, f' , in which the journal-box is mounted, by a projection, f^3 , depressions f^2 and f^4 , and a screw-bolt, f^5 , constructed and arranged like the corresponding parts of the base-piece F and journal-box C , hereinbefore mentioned.

h represents the horizontal adjusting-bolts whereby the arms F' and the movable rollers B connected therewith are moved toward and from the stationary rollers D . Each bolt h passes through a sleeve, H , which is provided on its under side with a lug, H' , which surrounds an eccentric, i . The inner end of each bolt h is provided with a screw-thread which works in a threaded hole formed in the outer end of the connection j . The latter is attached to the upper end of the arm F' by bifurcated bearings j' , formed on the arm F' , and a horizontal pivot, j^2 , whereby the connection j is connected to the bearing j' .

k represents a spiral spring which surrounds the parts h , j , and j' , and which bears with one end against the arm F' , and with the opposite end against a screw-nut, k' , which is applied to the inner threaded end of the sleeve H , whereby the tension of the spring k can be regulated.

L represents a bevel-wheel secured to the outer end of each bolt h , and L' represents two bevel-pinions gearing into the wheels L and mounted on a transverse shaft, l , which is supported at its ends in bearings l' , formed on the sleeves H .

L^2 is a hand-wheel whereby the shaft l can be turned.

m represents a horizontal transverse shaft, connecting the two eccentrics i , located in the two sleeves H of the same adjustable roller. The shaft m is supported in bearings m' , secured to the stationary frame A . The two shafts m on opposite ends of the machine are each provided with an upwardly-projecting arm, m^2 , and both arms m^2 are connected by rods m^3 with a lever, M , which is pivoted centrally between the rods m^3 to the casing E^3 .

n n' represent two projecting stops secured to the side of the casing E^3 , whereby the sweep of the lever M is limited.

By turning the bolts h in one or the other direction the arms F' are swung on the bolts g , so as to move the roller B toward or from the stationary roller D . The rotation of the bolts h is effected simultaneously by means of the shaft l and gear-wheels L L' , whereby the movable roller is retained parallel with the stationary roller in its movement toward and from the stationary roller. One of the bevel-wheels, L' , is attached to the shaft l by a set-screw, l^3 , or

an equivalent device, which permits the wheel to be loosened when the movable roller is pressed against the stationary roller, thereby permitting the parts to adjust themselves to the position of the rollers when in contact with each other. The loose wheel is then tightened, whereby the parallelism of the two rollers is secured. By turning the shaft m in one or the other direction the eccentrics i , mounted thereon, cause the sleeves H to swing the arms F' toward or from the stationary roller without affecting or altering the position of the adjusting mechanism. Both shafts, m , being connected by the arms m^2 , rods m^3 , and lever M , the two movable rollers are swung away from the stationary rollers or toward the same simultaneously. By this means the movable rollers can be separated from the stationary rollers when necessary—as, for instance, in starting the machine—without affecting the adjustment of the rollers, as the stops n n' are so arranged as to permit of this movement of the rollers and to determine the proper position of the movable rollers by the contact of the lever M with said stops. When the rollers are in their proper working position the lever M will lie against the stop n , as represented in Fig. 1, and when the rollers clear each other the lever M will lie against the stop n' .

I do not in this application desire to claim the construction of the feed-hopper, as it forms the subject of another application.

I claim as my invention—

1. The combination, with the frame A and journal-boxes C' , having each a projection, f^3 , and socket f^4 , of base-pieces F , supporting said boxes, and provided with a socket, f^2 , and horizontal bolt f^5 , and a vertical pivot-bolt, f , whereby each base-piece F is attached to the frame A , substantially as set forth.

2. The combination, with the frame A and journal-boxes C' , each provided on its under side with a transverse rib, of base-pieces F , each provided with a transverse recess, f' , in which the rib of the journal-box plays, and whereby the play of the journal-box is limited, and a projection, f^3 , and bolt f^5 , constituting horizontal pivots on which the journal-box can rock, substantially as set forth.

3. The combination, with the rollers B D and journal-boxes C C' , provided each with a projection, f^3 , and a recess, f^4 , of supporting base-pieces provided each with a recess, f^2 , and screw-bolt f^5 , substantially as set forth.

4. The combination, with the movable roller B and its journal-boxes, of the pivoted supporting-arms F' , adjusting-bolts h , sleeves H , in which the bolts h are supported, and mechanism whereby the sleeves H are simultaneously moved toward or from the stationary roller, substantially as set forth.

5. The combination, with the movable roller B and its journal-boxes, of the pivoted supporting-arms F' , adjusting-bolts h , and mechanism whereby the same are simultaneously adjusted, sleeves H , in which the bolts h are supported,

and mechanism whereby the sleeves H are simultaneously moved toward or from the stationary roller, substantially as set forth.

6. The combination, with the movable roller B and its journal-boxes, of the pivoted supporting-arms F', adjusting-bolts *h*, sleeves H, in which the bolts *h* are supported, eccentrics *i*, and shaft *m*, and mechanism whereby the movement of the eccentrics is limited, substantially as set forth.

7. The combination, with the movable roller B and its journal-boxes, of the pivoted supporting-arms F', adjusting-bolts *h*, sleeves H, in which the bolts *h* are supported, mechanism whereby the sleeves H are moved simultaneously, gear-wheels L, secured to the bolts *h*, shaft *l*, supported on the sleeve H, and gear-wheels L', substantially as set forth.

8. The combination, with the movable rollers

B B and their journal-boxes, of the pivoted supporting-arms F', adjusting-bolts *h*, sleeves H, in which the bolts *h* are supported, eccentrics *i*, shafts *m*, arms *m*², rods *m*³, lever M, and stops *n* *n'*, substantially as set forth.

9. The combination, with the stationary roller-bearings C' C' and movable roller-bearings C C, of the springs *k* and adjusting-screws *h*, whereby the movable roller-bearings are adjusted, sleeves H, eccentrics *i*, whereby the sleeves H are moved toward and from the stationary roller-bearings, and mechanism whereby both eccentrics are connected and turned simultaneously, substantially as set forth.

NOAH W. HOLT.

Witnesses:

JNO. J. BONNER,
CHAS. J. BUCHHEIT.