

(No Model.)

3 Sheets—Sheet 1.

L. F. BERHEIDE.
FEED CUTTER.

No. 532,757.

Patented Jan. 22, 1895.

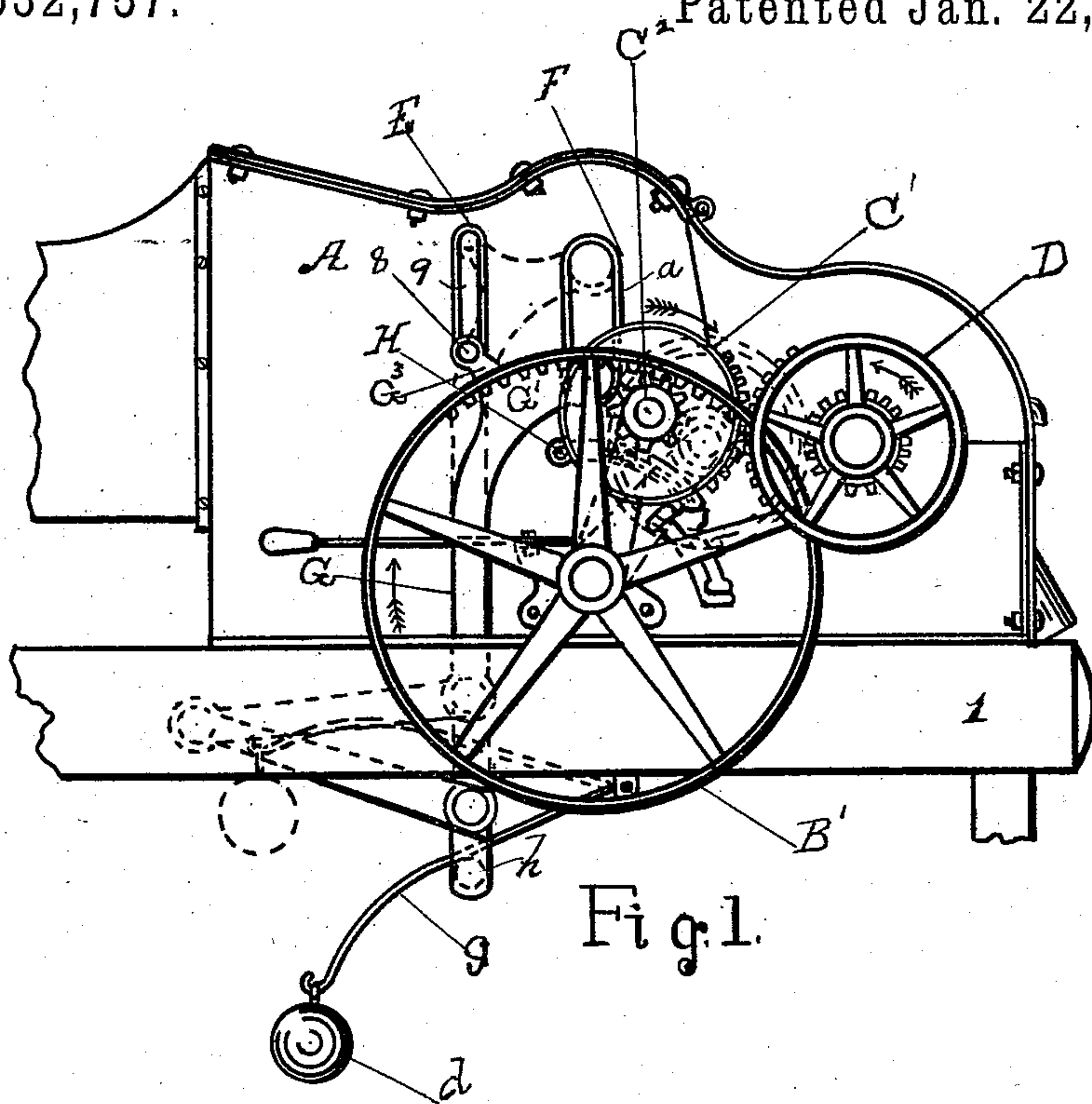


Fig. 1.

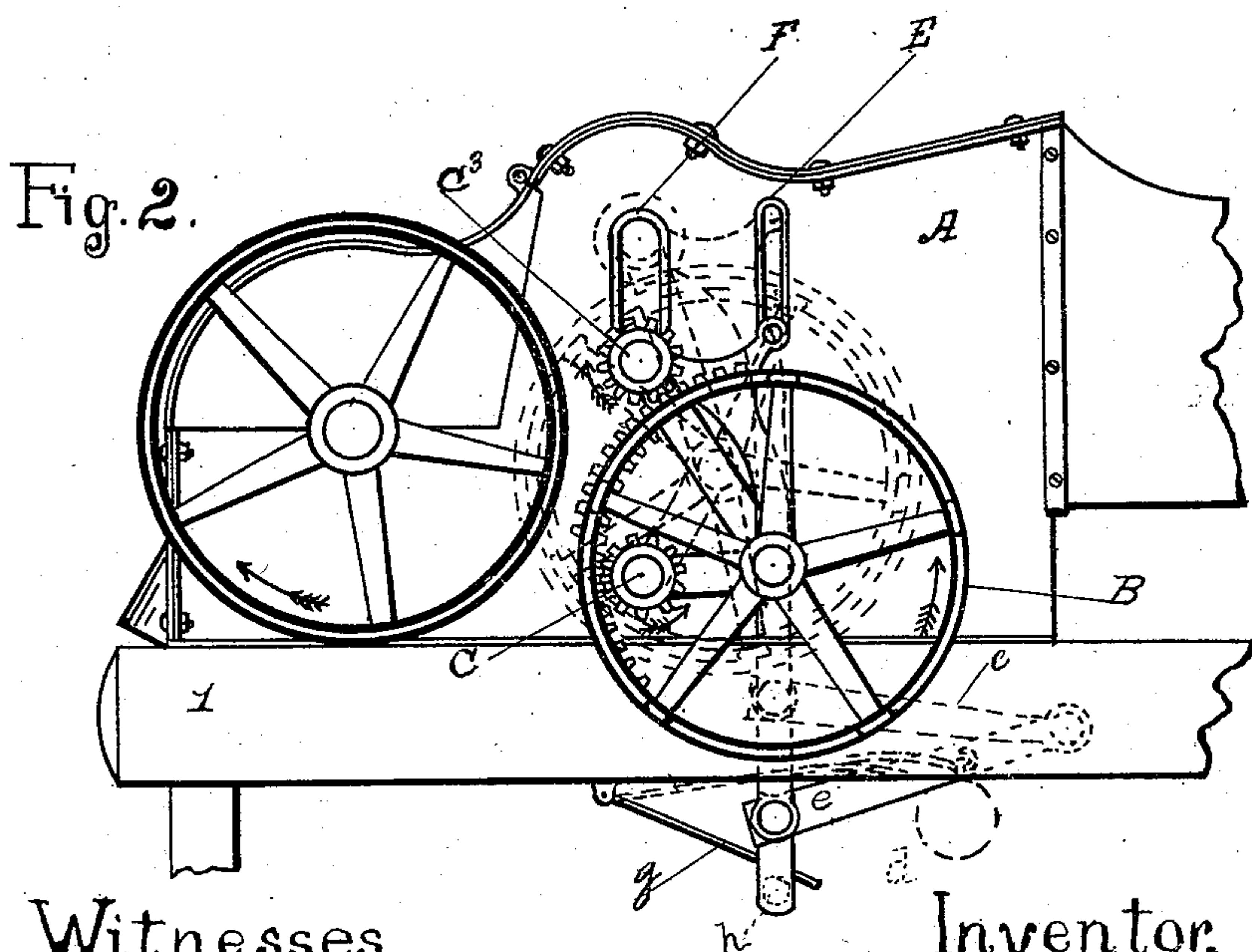


Fig. 2.

Witnesses.
Mary E. Swain
Chas. E. Swain

Inventor.
Leo F. Berheide
by W. J. Dennis
Attorney

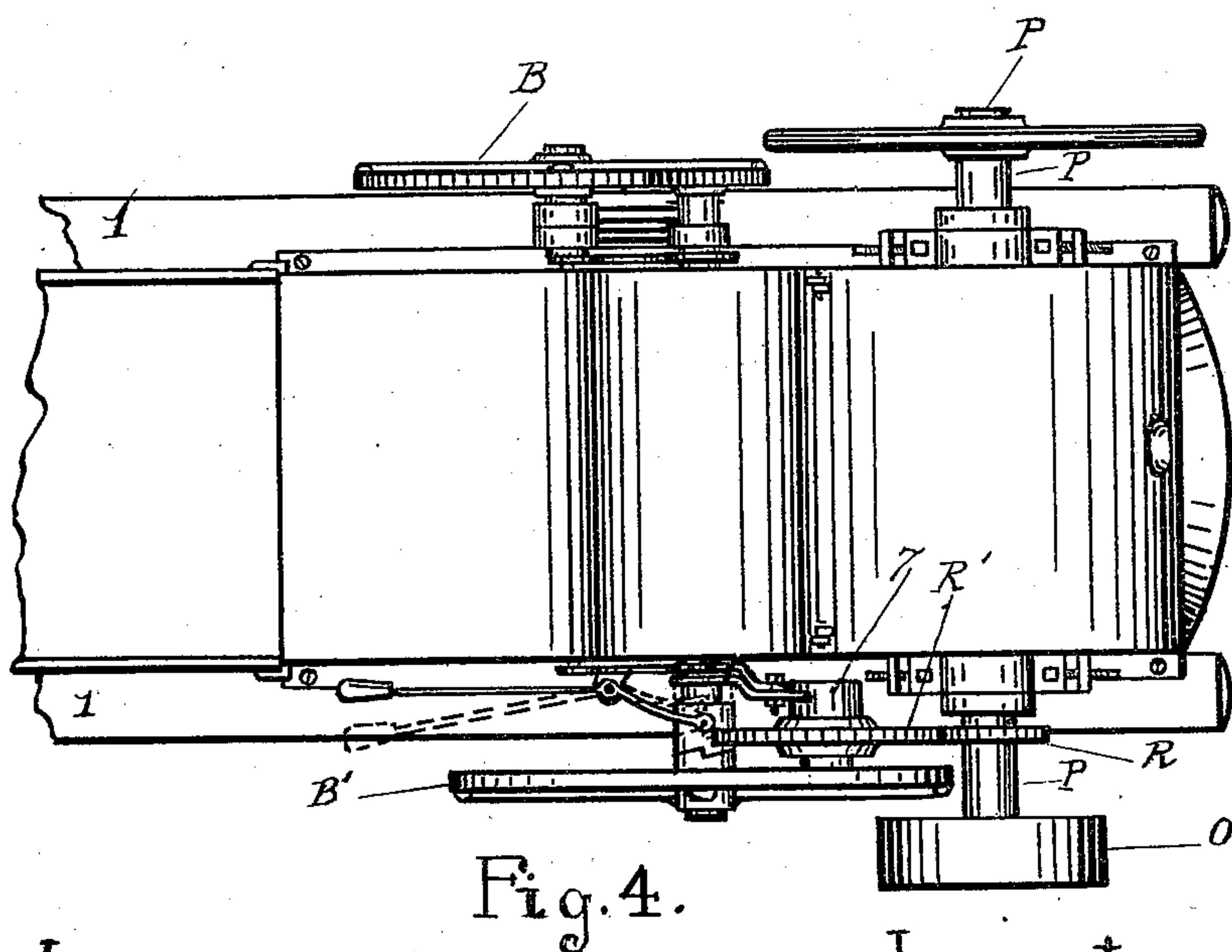
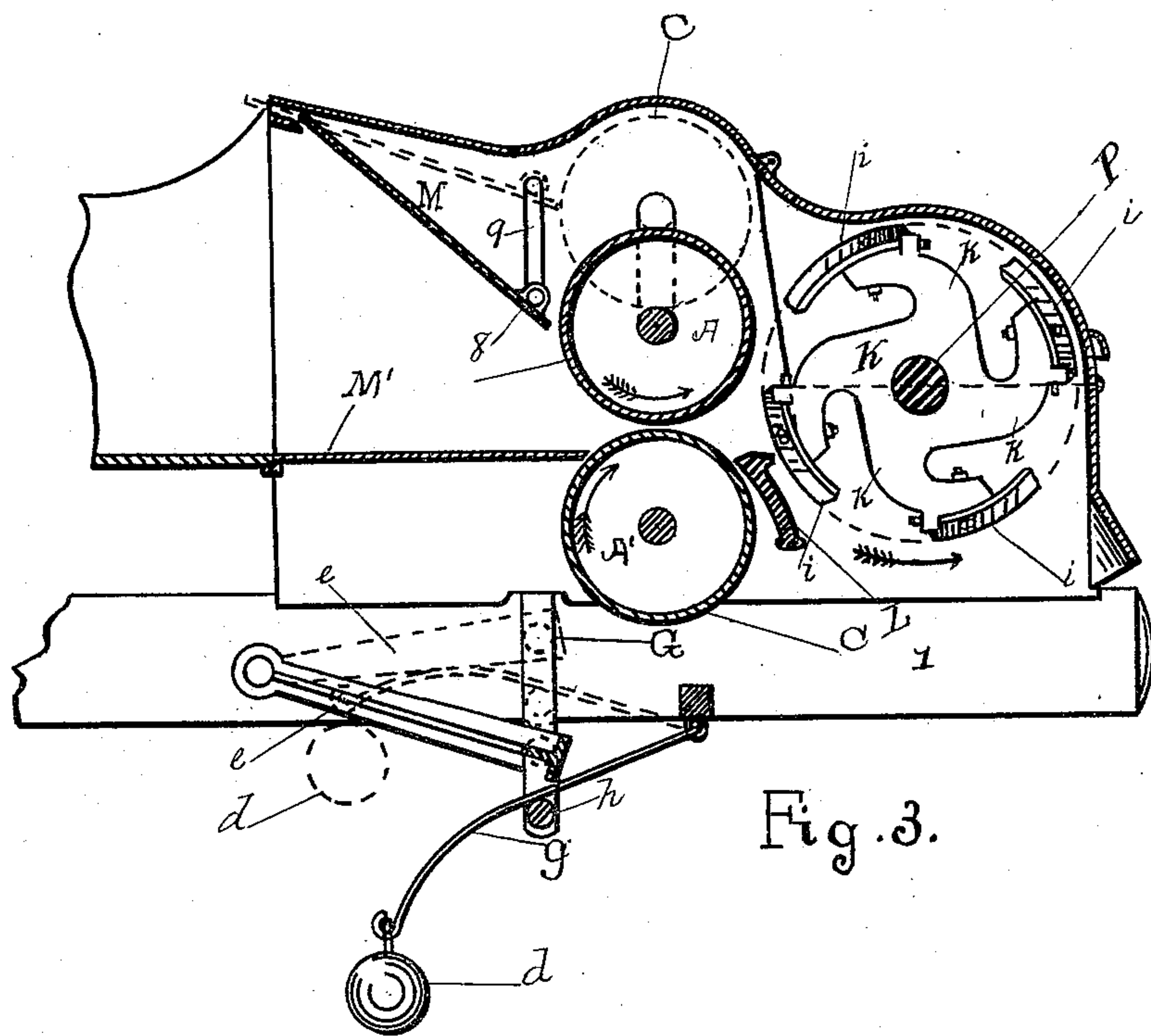
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Mary E. Swain
Chas. G. Swain

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Leo F Berheide
by M J Dennis
attorney

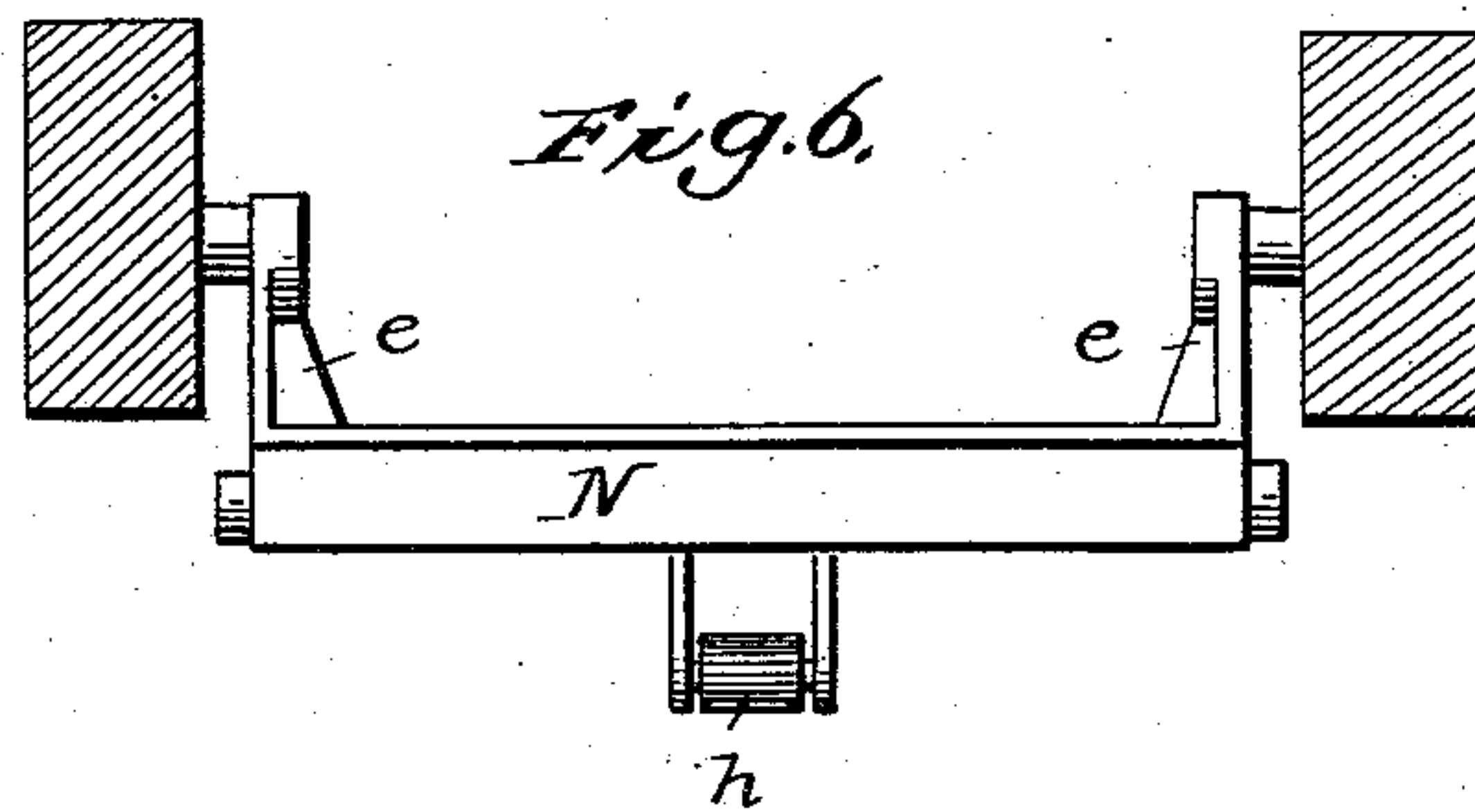
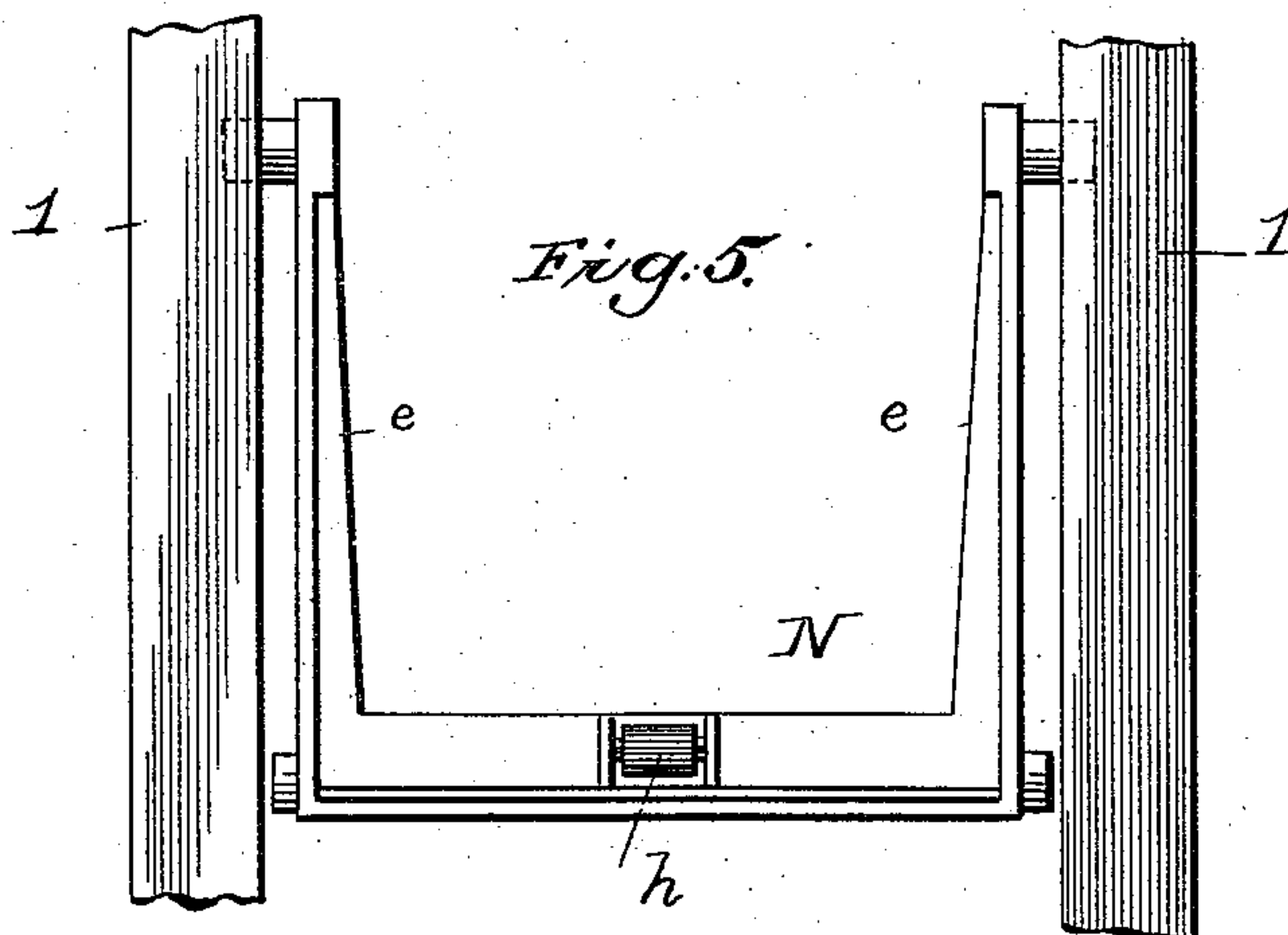
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3 Sheets—Sheet 3.

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Patented Jan. 22, 1895.



Leo F. Berheide

Inventor:

Witnesses:

J. M. Fowler Jr.
J. H. Gudlaug

By Chas. J. Stockman
Asso. Attorney.

UNITED STATES PATENT OFFICE.

LEO F. BERHEIDE, OF RICHMOND, INDIANA.

FEED-CUTTER.

SPECIFICATION forming part of Letters Patent No. 532,757, dated January 22, 1895.

Application filed November 11, 1893. Serial No. 490,708. (No model.)

To all whom it may concern:

Be it known that I, LEO F. BERHEIDE, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Feed-Cutters; 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.

This invention has relation to that class of feed cutters in which the feed to be cut is fed to the cutters by rollers, and its object is to provide a means by which loose and crooked material which would otherwise be deflected and allowed to pass over or around the feed rollers is directed to and positively delivered between the rollers.

To this end the invention consists in certain peculiarities in the construction, arrangement and combination of the several parts substantially as hereinafter described and particularly pointed out in the subjoined claims.

In the drawings Figure 1 is a side elevation of my machine showing one side of the same and the position of gearing. Fig. 2 is a side elevation of the opposite side of the machine showing the gearing on that side. Fig. 3 is a longitudinal vertical section. Fig. 4 is a top plan view. Fig. 5 is an inverted plan view of a section of the under surface of the structure. Fig. 6 is an end elevation of the body of the machine, the friction pulley, and the framing to which it is attached.

In Fig. 4 I I represent the side sills of the box frame of the machine.

P is the main shaft upon the end of which is mounted the driving pulley O and a pinion R which meshes into a spur wheel R' mounted on a short shaft 7 upon the outer end of which is fixed a pinion C², Fig. 1, arranged to mesh into the cogs on the inner surface of the rim of the wheel B', Fig. 1, which in its turn operates the lower feed roll by means of the pinion C, Fig. 2. This pinion C meshes into the cogs on the inner surface of the rim of the wheel B, Fig. 2, which is provided on its periphery with the spur gear and operates the pinion C³ on the shaft of the upper feed roller.

A skeleton frame or spider K, Fig. 3, is mounted on the main shaft P in duplicate

and constitutes the heads of a cylinder to which the knives *i i i i* are bolted and on which they revolve.

L is the cutter bar and forms the counter edge in connection with which the knives *i i i i* perform the operation of cutting and is bolted to a bracket cast on to the side of the frame.

The framing, the cutting mechanism, the feed rollers, the train of gearing for transmitting motion to the feed rollers and cutting mechanism, and the means for throwing the parts into and out of gear shown in the accompanying drawings may be of the usual and well known construction, or of any suitable construction, and for this reason a further description thereof is not required for a proper understanding of the present invention which relates solely to the means for directing the feed positively between the rollers and to the means co-operating therewith for holding the upper roller into positive engagement with the upper surface of the feed and for permitting it to rise and fall to adapt it to inequalities in the bulk of the feed passing between the rollers.

G, Fig. 1, designates an arm or bar, of which two of similar construction are used, one being placed on each side of the frame in front of the feed rollers and on the outside of the box. These arms each extend from a point just below the box to a place on a plane with the journals of the upper roller, A, which journals are received within slots formed in brackets, *a*, so as to permit said roller to rise and fall for the purpose hereinabove stated.

The upper ends of the arms, G, are curved, as shown at G', and embrace the journals of said upper roller, and said arms are also provided with branches, G³, which are curved in a direction opposite to those just referred to and terminate in eyes which embrace the ends of a rod, 8, that extends across the frame and moves bodily, within the opening 9, with the upper feed roller.

M designates a gate the rear end of which is located adjacent to said upper feed roller and is hinged to said rod, 8, and M' designates a plate (which may be stationary) the rear end of which is located adjacent to the lower feed roller A', said gate and plate together forming a throat through which the feed to be cut is fed between the rollers.

As the substance to be cut is passed in between the feed rollers the volume of the same operates to raise the upper feed roller and the larger the bulk the more the roller is raised until checked by the frame or bracket in which the journal moves. As the upper feed roller is raised by this means it carries with it the curved arms G' and G^3 the latter carrying the rod 8 to which the lower edge of the gate M is hinged, thus increasing the space under the gate just as the space is increased between the rollers.

The gate M is rectangular in form and has a smooth lower surface and is arranged at an angle so that the front or upper end is higher than the rear or lower edge. This angle or pitch serves to give direction to the loose or crooked stalks or fibers of the substance to be cut and prevents the same from being deflected from the opening or throat between the rollers thus insuring a perfect and positive feed to the rollers of any and all substances passing into the box.

In order to hold the upper roller, A, yieldingly but positively into engagement with the upper surface of the grain being fed, I employ a frame N and an arm g . Said frame is attached to vibratory arms e that are pivoted to the box, and it is preferably provided with a friction roller h and has a suitable attachment with the arms G , and said arm g is pivoted at one end so as to move with the arms G and frame N and has a counterbalancing weight d at its free end. As the bar G is raised by the upper feed roller the vibrating arm carrying the friction pulley is raised carrying the curved arm g and the weight d . It will be seen that the pressure of the upper feed roller upon the substance passing between the rollers is regulated by the weight of the counterbalance d and also that the means which hold said upper roller into yielding contact with the grain also serves to hold the inner edge of the gate M into the lowermost position which it should, for the time being, assume.

The mechanism shown in Fig. 9 is the means commonly employed for throwing the knife cylinder and feed rolls out of gear, and the train of gearing shown in Figs. 11 and 12 is common to most devices of this character. Therefore they need not be more particularly described; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a feed cutter, the combination with the feed rollers, one of which is movable toward and from the other, and a pivoted gate for directing the feed to between the rollers, of a movable arm, connected with the journal of said movable roller and also with an end of said pivoted gate, and a weight, acting upon said movable arm, substantially as described and for the purposes specified.

2. In a feed cutter, the combination with the feed rollers, one of which is movable toward and from the other, and a pivoted gate and a

plate, forming a throat through which the grain is delivered to between the rollers, of a movable arm, having one branch engaging the journal of said movable roller and another branch connected to said gate, substantially as described, whereby the pivoted gate will be caused to rise and fall and thereby increase or diminish the diameter of the throat simultaneously with the rise and fall of said movable roller, substantially as specified.

3. In a feed cutter, the combination with the feed rollers, one of which is movable toward and from the other, and a movable arm, connected with the journal of said movable roller, of an arm, having a counterbalancing weight at one end and pivoted at its other end, said arm also having connection with said first mentioned movable arm, substantially as described.

4. In a feed cutter, the combination with the feed rollers, one of which is movable toward and from the other, and a movable arm connected with the journal of said movable roller, of a pivoted frame, connected with said arm, and a weighted arm, engaging said frame, substantially as described.

5. In a feed cutter, the combination with the feed rollers, one of which is movable toward and from the other, and an arm connected with the journal of said movable roller and raised and lowered therewith, of a vibratory frame engaged with said movable arm, a roller supported by said frame, and a pivoted weighted arm engaged with said roller, substantially as shown and described.

6. In a feed cutter, the combination with the feed rollers, one of which is movable toward and from the other, and arms connected with the journals of said movable roller and raised and lowered therewith, of a transverse rod connected with and raised and lowered by said arms, a plate located adjacent to one of said rollers, and an inclined gate located adjacent to the other roller and having its lower end pivoted to said rod, substantially as shown and described.

7. In a feed cutter, the combination with the feed rollers, one of which is movable toward and from the other, and movable arms connected with the journals of said movable roller and raised and lowered therewith, of a transverse bodily-movable rod connected with and raised and lowered by said arms, a plate located adjacent to one of said rollers, an inclined gate located adjacent to the other of said rollers and pivoted at its lower end to said transverse rod, and means engaging said movable arms and serving to hold said movable roller and gate into yielding contact with the grain being fed.

In testimony whereof I affix my signature in presence of two witnesses.

LEO F. BERHEIDE.

Witnesses:

W. T. DENNIS,

CHARLES A. FRANCISCO.