(No Model.) 3 Sheets—Sheet 1.

I. WESCOTT & J. S. KARNS.

ROLLER MILL.

No. 258,832. Patented May 30, 1882.

Fig. 2.

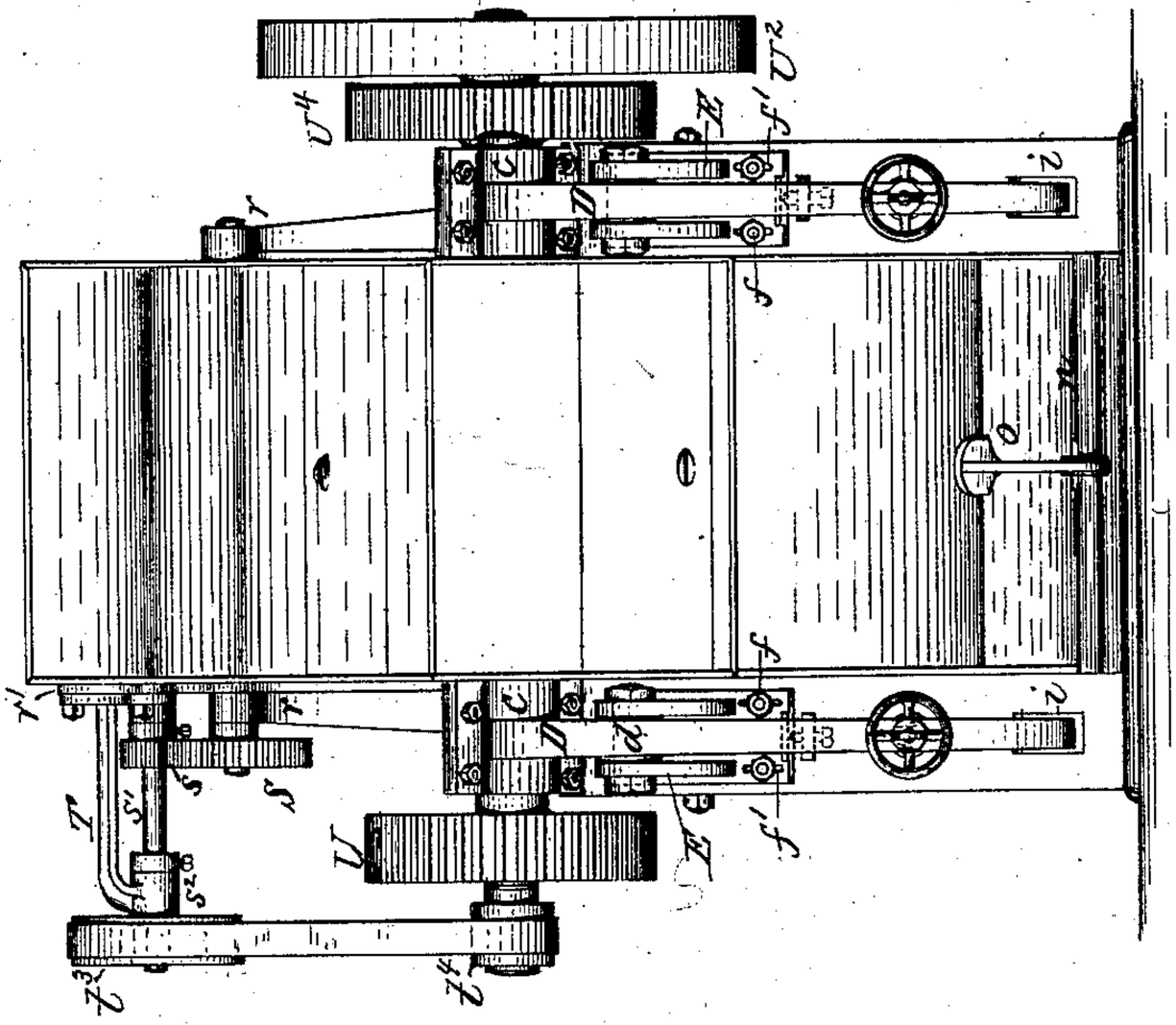

Fig. 1.

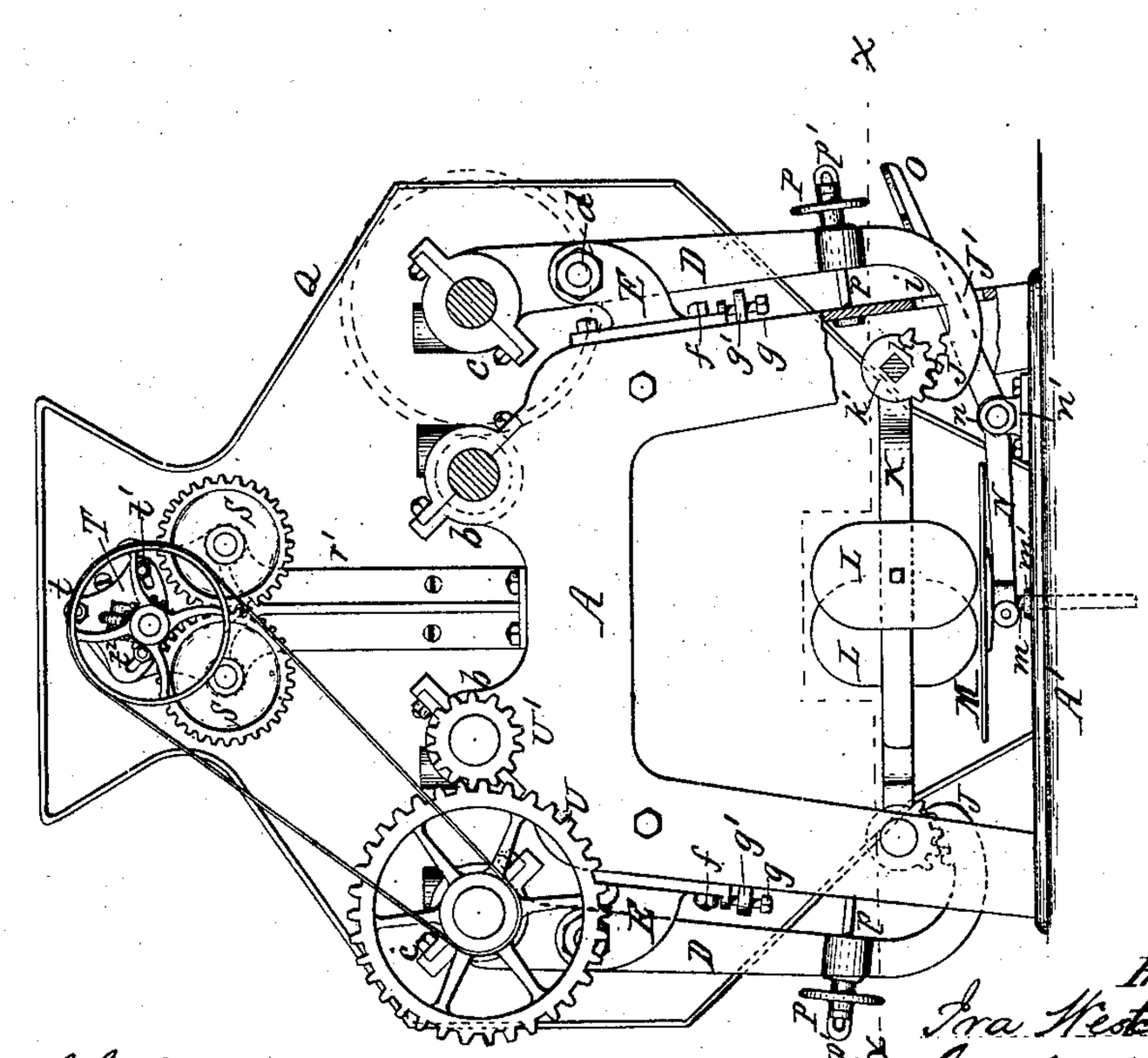

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Fig. 3.

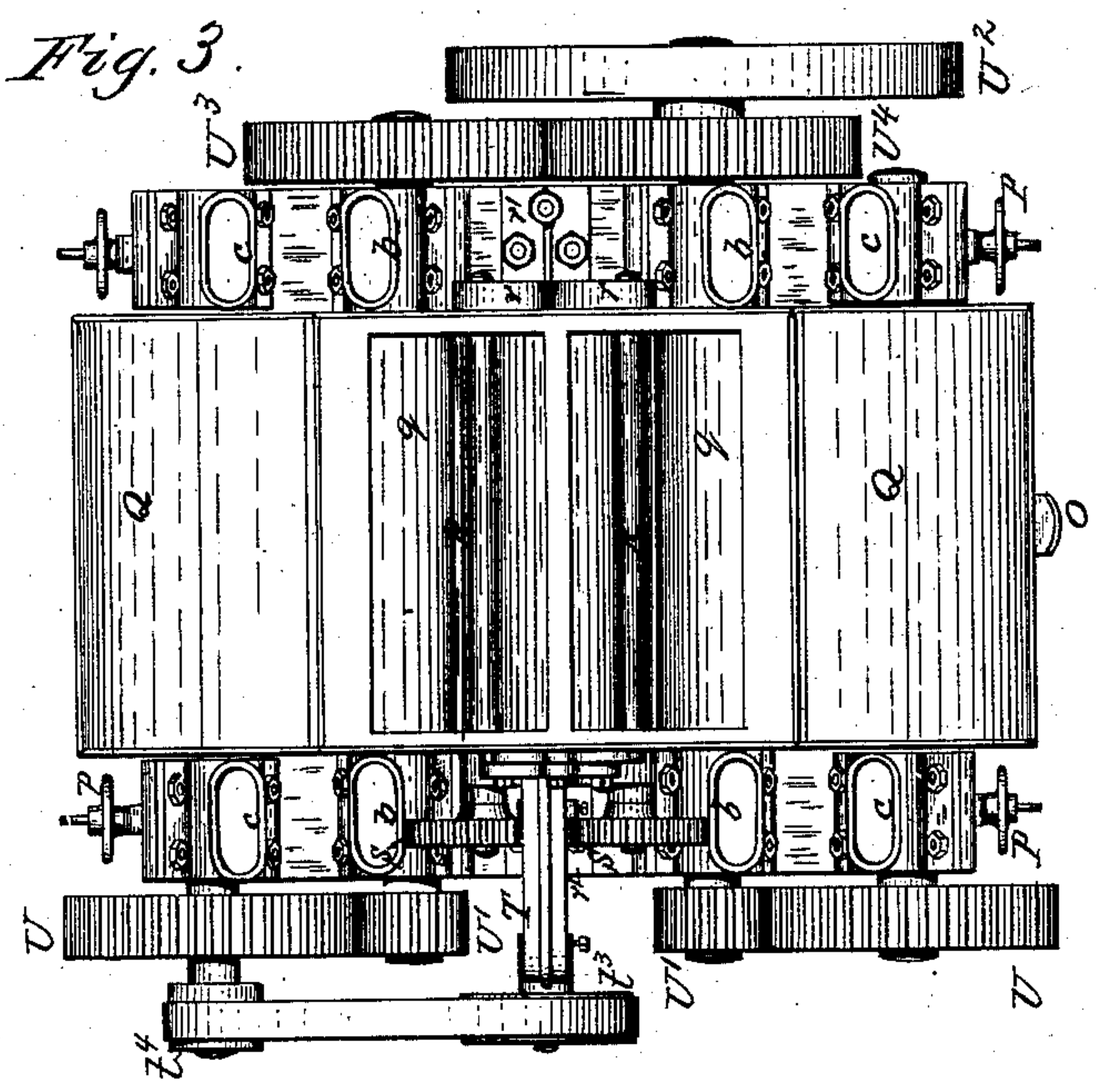
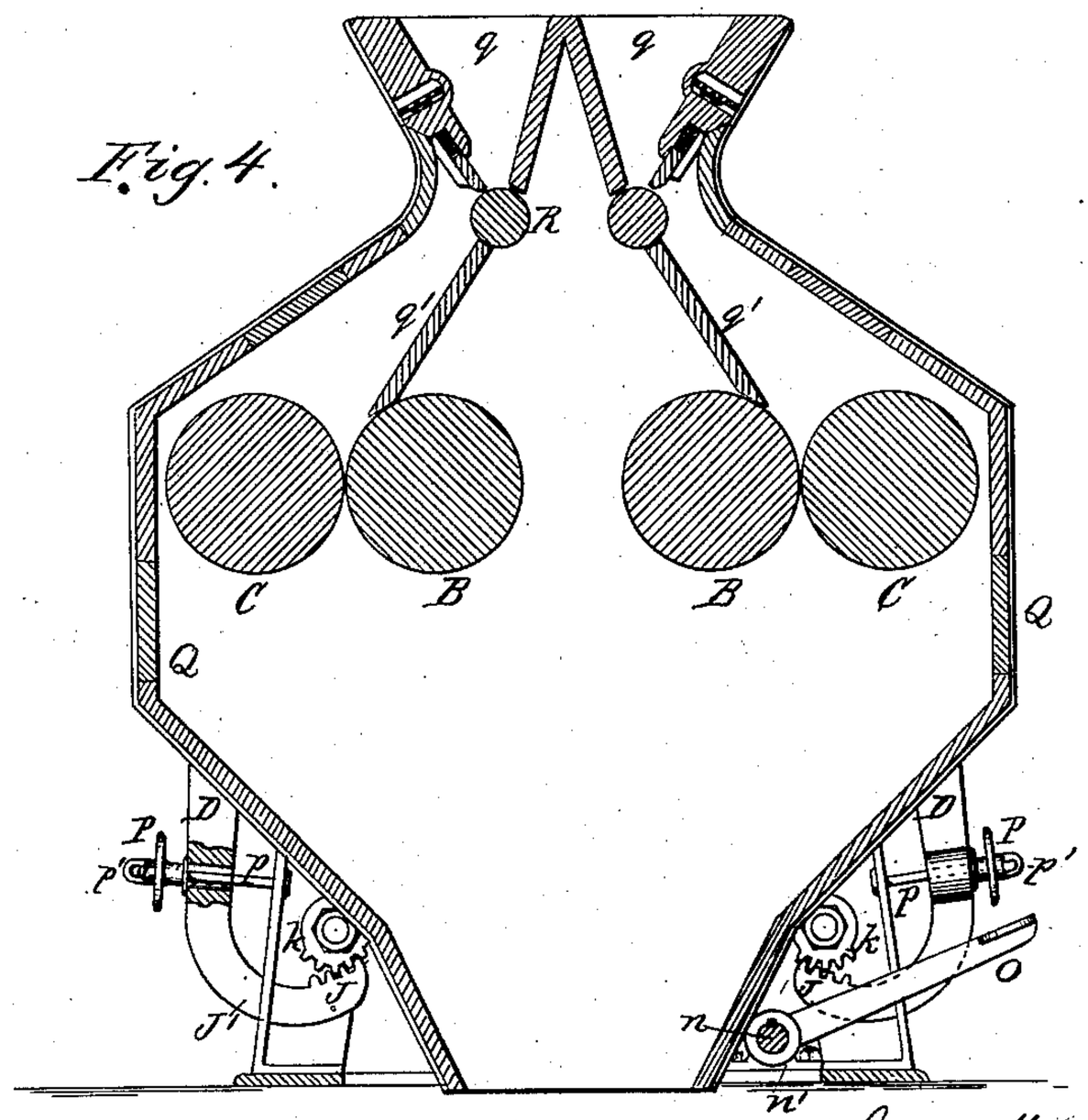


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

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Fig. 5.

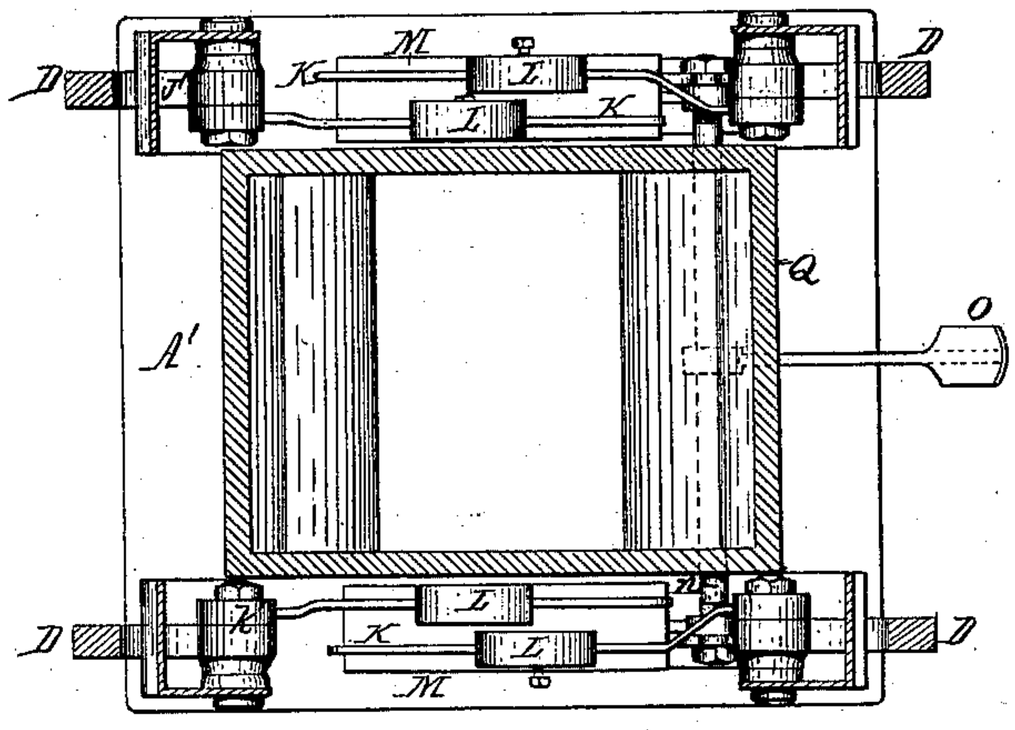


Fig. 6.

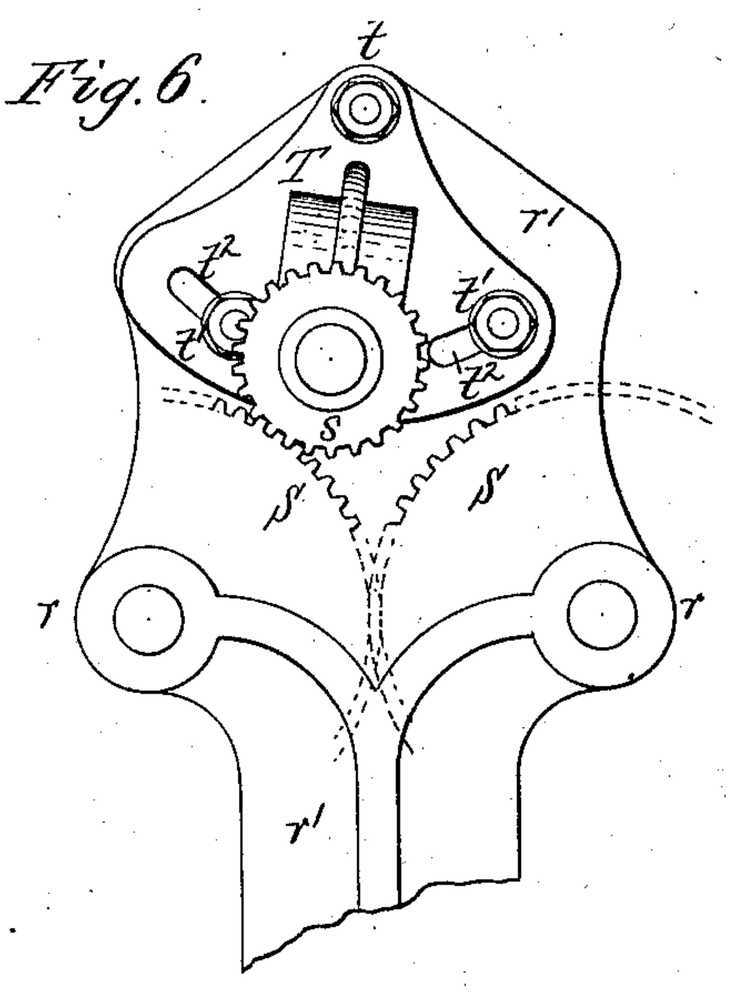
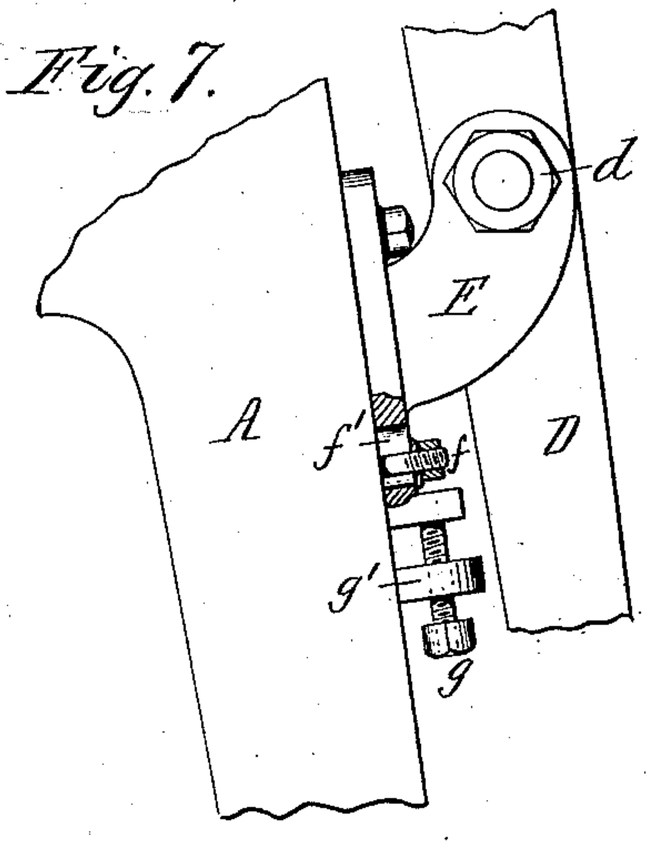


Fig. 7.



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UNITED STATES PATENT OFFICE.

IRA WESCOTT, OF BUFFALO, NEW YORK, AND JOSEPH S. KARNS, OF LIMA, OHIO, ASSIGNORS TO JOHN T. NOYE & SONS, OF BUFFALO, N. Y.

ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 258,832, dated May 30, 1882.

Application filed May 17, 1880. (No model.)

To all whom it may concern:

Be it known that we, IRA WESCOTT, of the city of Buffalo, in the county of Erie and State of New York, and JOSEPH S. KARNS, of Lima, in the county of Allen and State of Ohio, have invented new and useful Improvements in Roller-Mills, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in the construction of roller-mills designed to be used in the manufacture of flour and in similar operations.

The object of our invention is to render such mills more convenient and reliable in use and capable of being nicely adjusted to the special kind of work which they are required to perform.

Our invention consists of adjusting contrivances whereby the position of the movable rollers is regulated, and of a feed mechanism of peculiar construction, as hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, consisting of three sheets, Figure 1 is a partly-sectional side elevation of our improved roller-mill. Fig. 2 is an end elevation. Fig. 3 is a top plan view, and Fig. 4 is a vertical section thereof. Fig. 5 is a horizontal section in line *x x*, Fig. 1. Fig. 6 is a detached side elevation, on an enlarged scale, of the adjustable driving-pinion of the feed-rollers. Fig. 7 is a detached side view, on an enlarged scale, of the fulcrum-bearing of one of the levers which support the movable roller.

Like letters of reference designate similar parts in the several figures.

A A represent the side frames of the machine, connected by suitable cross-stays, and supported upon a suitable bed-plate, A′.

The machine represented in the drawings contains two pairs of rollers, each consisting of a roller, B, supported in stationary bearings *b*, and a roller, C, supported in movable bearings *c*. The bearings *b*, in which the inner stationary rollers, B, turn, are cast with or otherwise secured to the side frames, A, of the machine. The bearings *c*, in which the movable rollers C turn, are formed in the upper ends of vertical levers D, pivoted at *d* to bifurcated fulcrum-bearings E, which are secured to the outer sides of the side frames, A, by bolts *f*. The latter pass through vertically-elongated holes *f′* in the plate of the bearing E.

g represents a set-screw, which bears against the under side of the fulcrum-bearing E, and works in a lug, *g′*, projecting from the side frame, A, below the fulcrum-bearing. By releasing the bolts *f* and adjusting the set-screw *g* the bearing E can be raised or lowered, as may be desired, and the position of the movable roller nicely adjusted.

The lower ends of the levers D are turned inwardly and play through an opening, *i*, in the outer wall of each side frame, A.

J represents a gear-rack formed on the upper side of the inwardly-turned lower portion J′ of each lever D; and *k* is a pinion or gear-segment meshing with the rack J and formed on the hub of a horizontal lever, K, which has its fulcrum at *k′* in the lower portion of each side frame. L is a weight secured adjustably to the long arm of the lever K by means of a set-screw or otherwise. The weight L tends to depress the free end of the lever K, and thereby turns the pinion *k* in such a direction that the lower end of the lever D, which is geared therewith, is swung outward, and the upper end of the lever D, which carries the movable roller C, is swung inward against the stationary roller B. If a substance of unusual size and hardness should enter between the rollers, the movable roller C will be forced outward, raising the weights L, which latter will return the movable roller to its normal position as soon as the substance has passed through the rolls.

M represents a table or plate arranged underneath the weights L on each side of the machine, and made of sufficient length and width to receive both weights L on the same side of the machine in whatever position they may be placed upon the levers K. The table M is provided on its under side with a stem, *m*, which plays vertically in a guide or opening, *m′*, formed in the base-plate A′ of the machine.

N is a pivoted arm, arranged underneath each plate M, by which the same is raised when desired. The free end of the arm N is bifurcated, and straddles the stem *m* of the plate M, while the opposite end of the arm N

is secured to a horizontal rock-shaft, *n*, which turns in bearings *n'*, secured to the base-plate A' of the machine on opposite sides thereof.

O is a foot-lever secured centrally to the rock-shaft *n*, and projecting outwardly between the side frames, A, in a convenient position. By depressing the foot-lever O the weights L are simultaneously raised and the movable rollers swung away from the stationary rollers.

p is a screw-bolt secured with its inner end to the lower portion of the side frame, A, and passing with its outer portion through an opening formed in the lower part of each lever D.

P is a hand-wheel or thumb-nut provided with an internal screw-thread, and placed on the screw-bolt *p* against the outer side of the lever D. The hand-wheel P is preferably secured in position on the screw-bolt *p* by a jam-nut, *p'*. The hand-wheel P forms a stop to the outward movement of the lower arm of the lever D, and thereby limits the movement of the roller C toward the roller B. By adjusting the hand-wheels P of both levers D, which support the same roller, inwardly on the bolt *p* the rollers are kept farther apart, and by adjusting them outwardly the rollers are permitted to come more closely together.

If from any cause the axes of two contiguous rollers should not be parallel, the movable roller can readily be made parallel with the contiguous stationary roller by a proper adjustment of the hand-wheels P.

Q represents the wooden casing which incloses the rollers, and which is secured between the side frames, A.

q q are the hoppers, formed in the upper portion of the casing Q for the reception of the material, and *q'* are the inclined chute-boards which conduct the material from the hoppers *q* to the rollers.

R represents the feed-rolls, which are arranged in the discharge-openings of the hoppers *q*, and which deliver the material uniformly upon the chute-boards *q'*. The shafts of the feed-rolls R are journaled in bearings *r*, which are formed in standards *r'*, which are arranged on both sides of the machine and supported upon the side frames, A.

S S are gear-wheels mounted on the shafts of the feed-rolls, so as to mesh together, and *s* is the pinion which imparts motion to one of the gear-wheels S. The pinion *s* is mounted on a short shaft, *s'*, which is supported in bearings s^2, formed in a pendent bracket, T. The latter is pivoted to the upper end of one of the standards *r'*, at *t*, in such manner that by swinging the bracket on its pivot *t* the pinion *s* may be made to gear with either of the wheels S, as may be desired. The bracket T is held in the desired position by screw-bolts *t'*, which pass through curved elongated holes t^2 in the bracket. By changing the position of the driving-pinion *s* with reference to the wheel S with which it gears the motion of the feed-rolls is reversed. By this means the driving-pinion is readily adjusted to operate the feed-rolls properly, whether the driving-belt runs in one or the other direction.

t^3 is a pulley mounted on the end of the shaft *s'*, and receiving motion by an endless belt from a pulley, t^4, on the shaft of one of the movable rollers C. The rollers B C are geared together by gear-wheels U U', the larger one of which is preferably a core-wheel provided with wooden teeth.

Motion is imparted to the machine by a pulley, U^2, which is mounted on the shaft of one of the stationary rollers B, and the other stationary roller is geared with the driving-roller by gear-wheels U^3 U^4, as clearly shown.

The rollers B C are either made smooth or provided with spiral or other suitable grooves of proper depth and form, according to the kind of work for which they are intended.

We claim as our invention—

1. The combination, with a stationary roller, B, of a movable roller, C, the levers D, supporting the movable roller in their upper ends, and the fulcrum-bearings E, arranged between the ends of the levers, made vertically adjustable on the stationary frame of the machine, substantially as set forth.

2. The combination, with the levers D, pivoted as described, provided at their lower ends with gear-racks J, of the levers K, provided with pinions *k* and weights L, and mechanism whereby the weights L can be raised simultaneously, substantially as set forth.

3. The combination, with the levers D, provided at their lower ends with gear-racks J, of the levers K, provided with pinions *k* and weights L, tables M, and lifting-levers N O, substantially as set forth.

4. The combination, with the feed-rolls R, provided with gear-wheels S, of the driving-pinion *s* and supporting-bracket T, made adjustable with reference to the gear-wheels S, substantially as set forth.

5. The combination, with the feed-rolls R, provided with gear-wheels S, of the driving-pinion *s* and supporting-bracket T, pivoted at *t*, and provided with screw-bolts *t'* and curved elongated holes t^2, substantially as set forth.

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