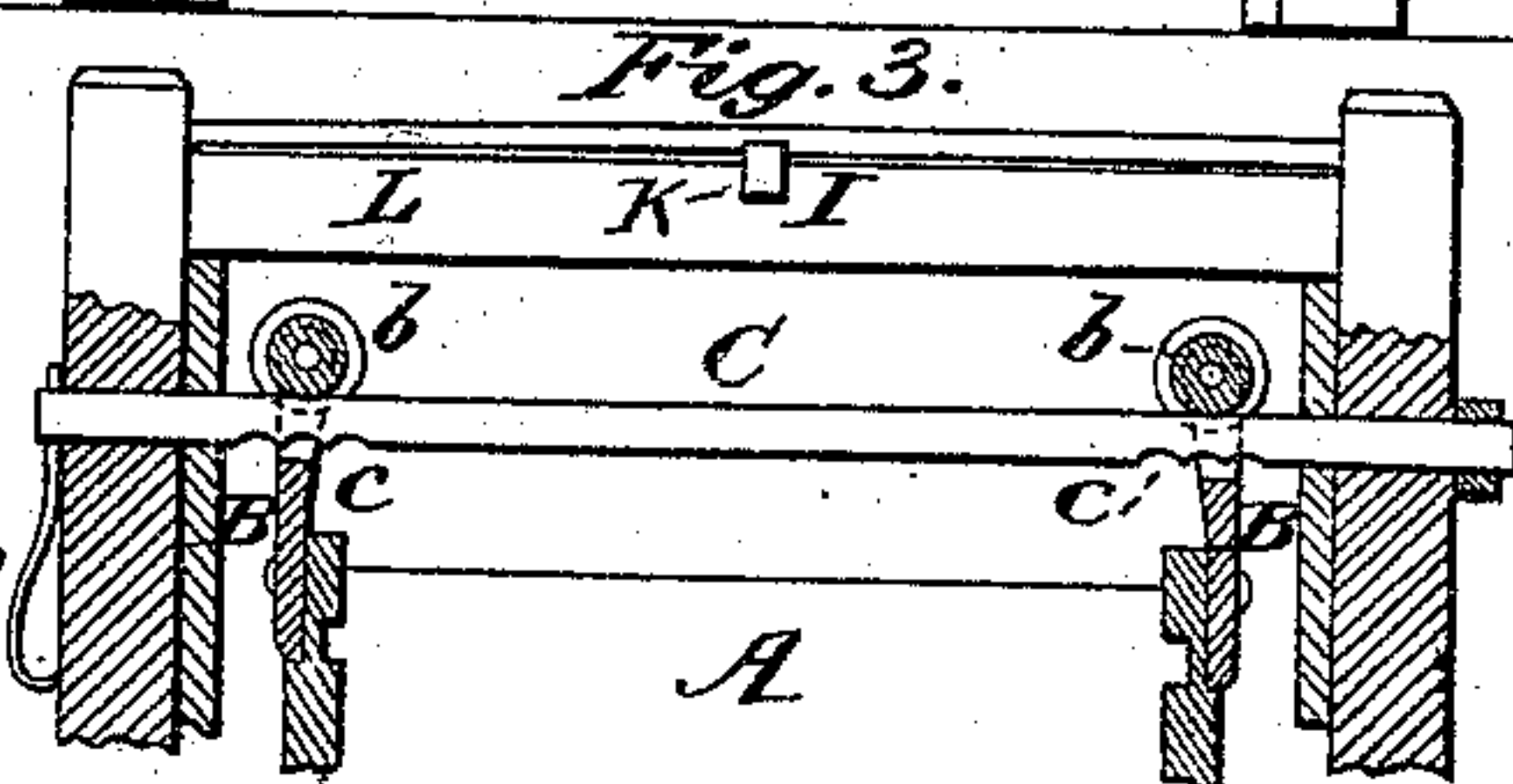
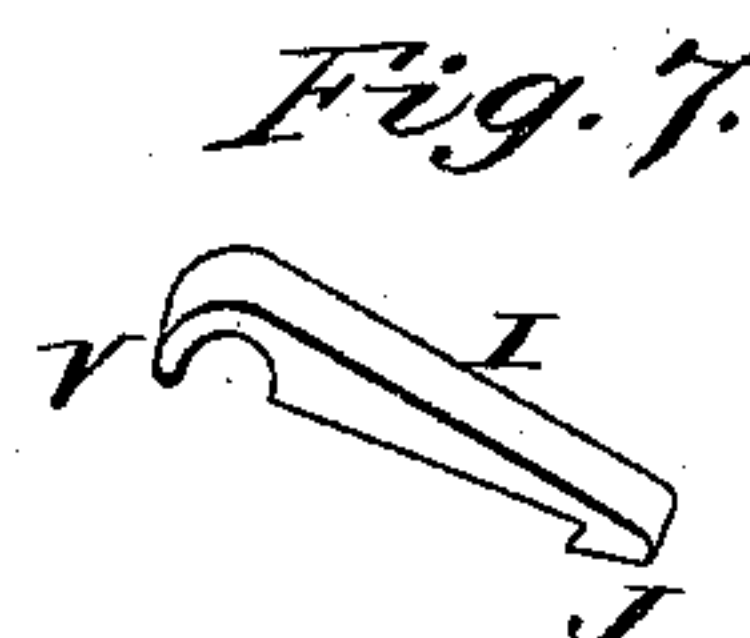
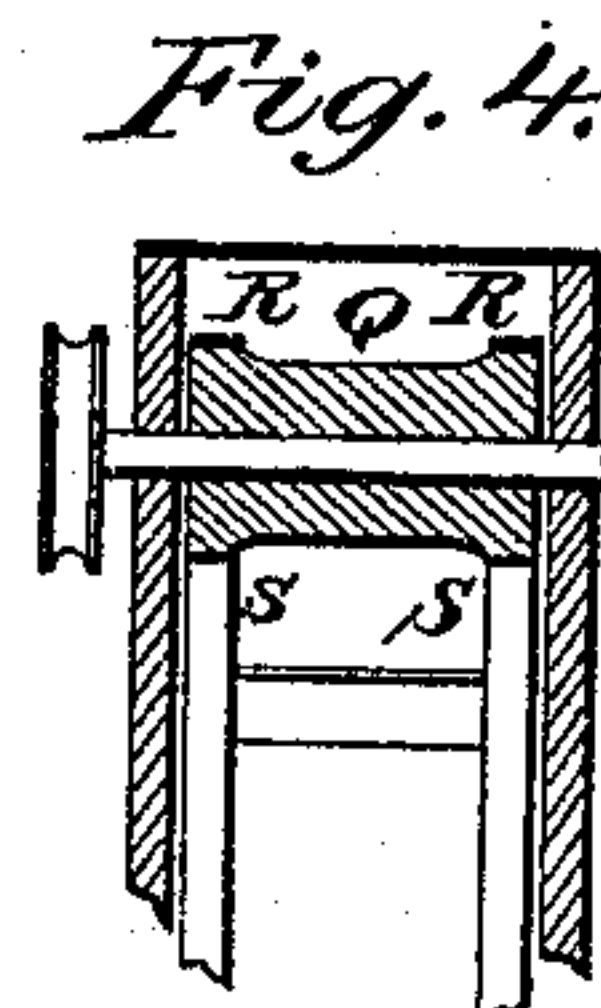
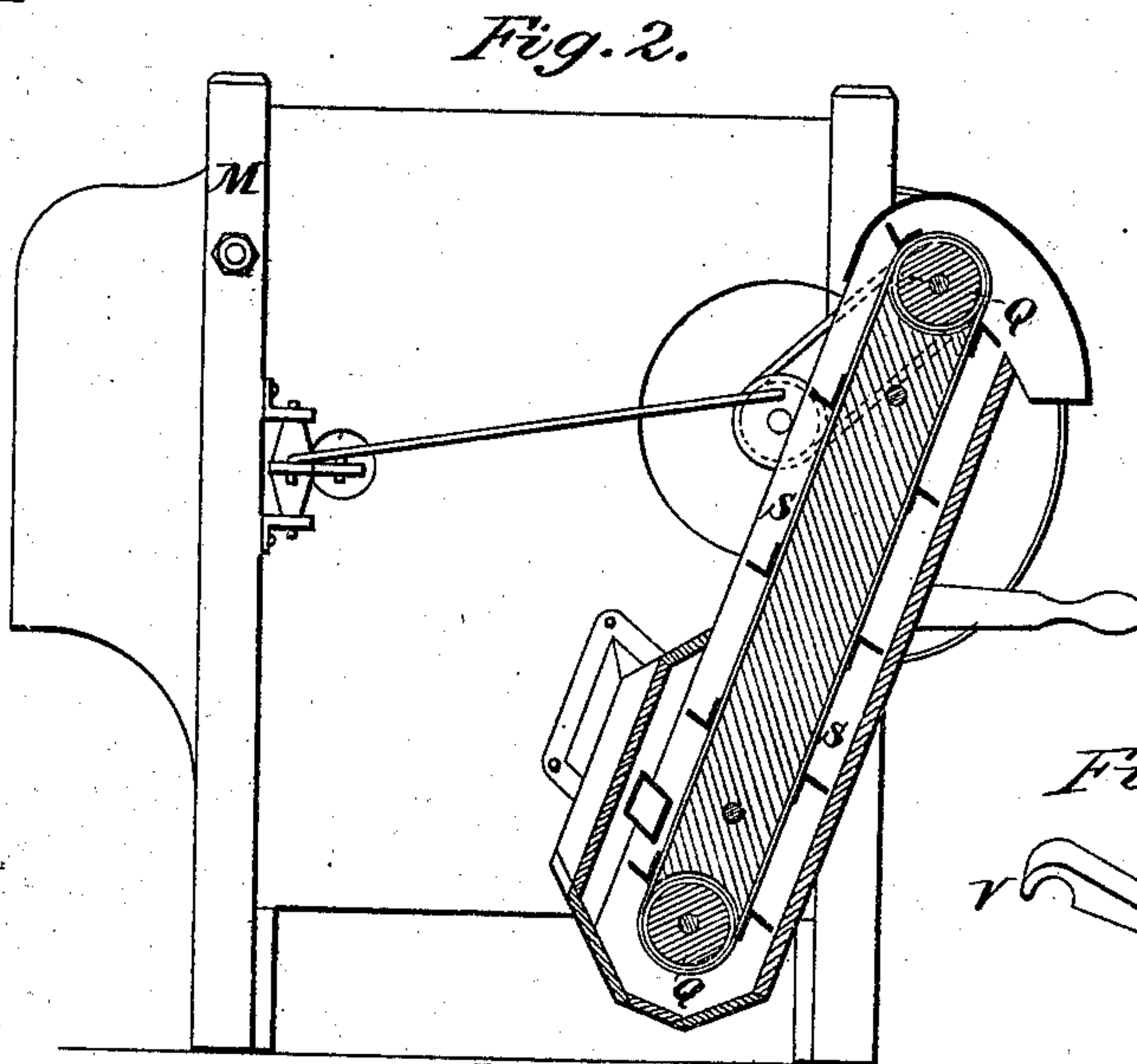
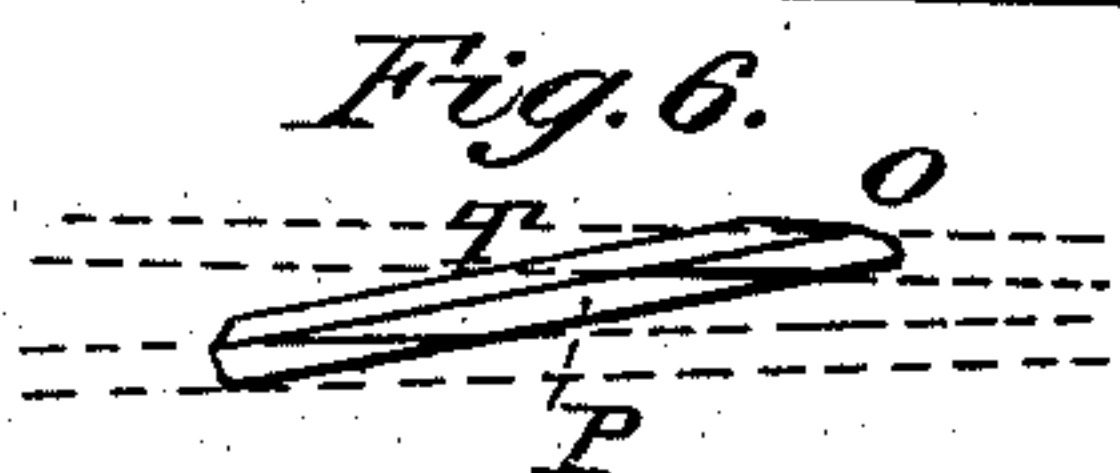
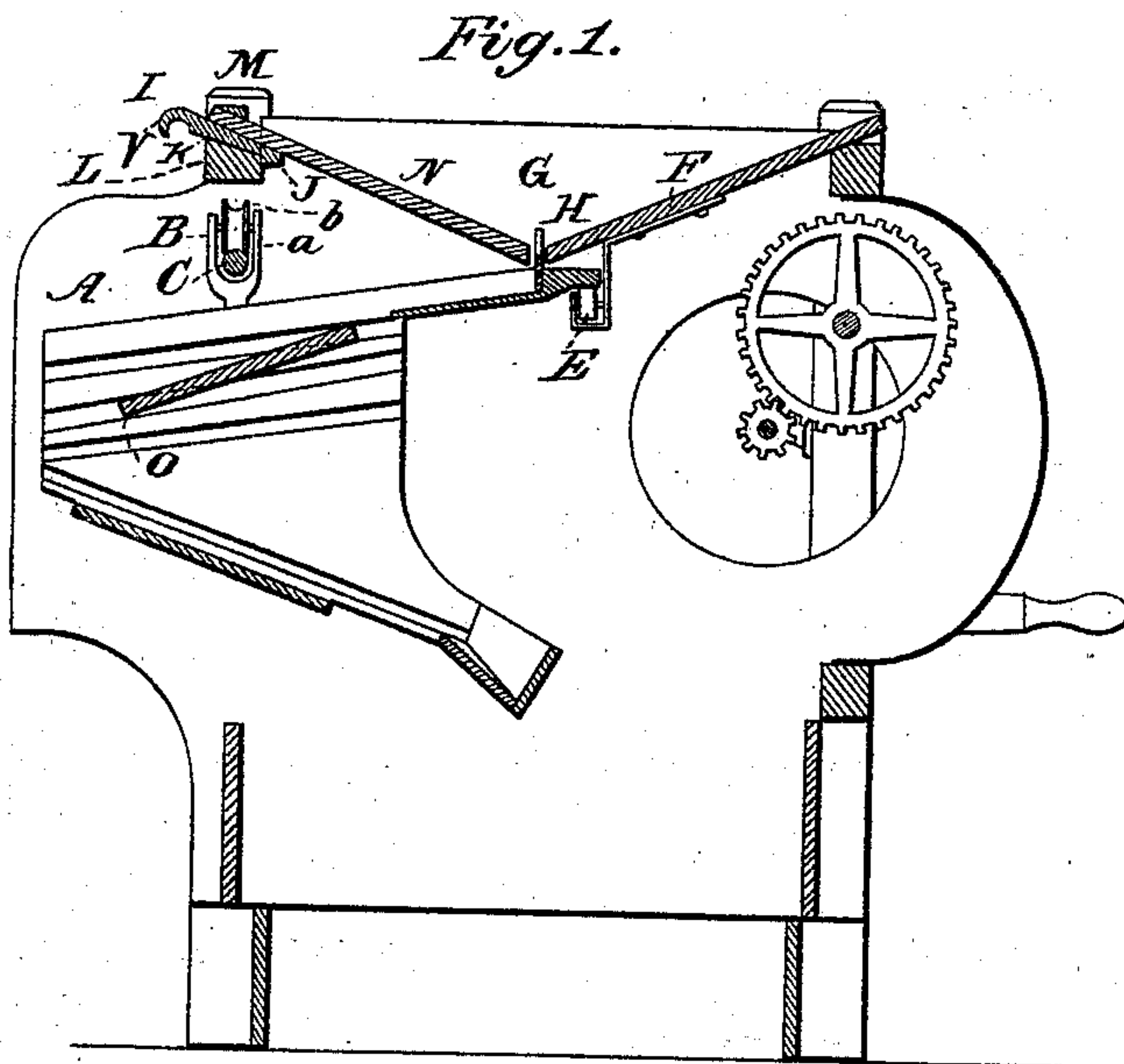


J. J. BRADNER.
Grain-Separators.

No. 149,829.

Patented April 21, 1874.



Witnesses.
Wm. Howard
E. J. Newman

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UNITED STATES PATENT OFFICE.

JOHN J. BRADNER, OF PINE CREEK, NEW YORK, ASSIGNOR TO HIMSELF
AND WILLIAM H. HAVEN, OF FINDLAY, OHIO.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. 149,829, dated April 21, 1874; application filed
December 6, 1873.

To all whom it may concern:

Be it known that I, JOHN J. BRADNER, of Pine Creek, in the county of Schuyler and State of New York, have invented certain new and useful Improvements in Grain-Separators; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a sectional elevation of the separator. Fig. 2 is a side elevation of the separator, and a sectional elevation of a bagger or elevator. Fig. 3 is a lateral sectional view through the rear bent of the machine. Fig. 4 is a lateral sectional view of the upper end of an elevator, showing an improved pulley. Fig. 5 is a view of the agitator. Fig. 6 is an end view of the chess-board provided with the diagonal groove, the dotted lines representing the grooves in the vibratory shoe; and Fig. 7 shows the key or shouldered wedge.

My invention relates to certain improvements in grain-separators; and consists, first, in suspending the rear end of the shoe from a horizontal reversible rod or track traversing the rear bent of the frame of the machine by movable hangers, each consisting of an elongated block provided with a sheave in the upper end, and supporting the front end of the shoe upon a roller or rollers secured to the under surface of the hopper in a suitable manner, the whole being arranged in such a manner as to give the shoe a horizontal vibratory motion, instead of the oscillatory or tilting motion heretofore given, the object of this part of the invention being to cause the grain, &c., to pass evenly over or through the sieves or screens, thereby avoiding the glutting of the center portion, or making bare or nearly bare the outer portion of the sieves or screens, which is the result obtained from an oscillatory or tilting motion of the shoe; secondly, of a horizontal rod or track, one side of which is plain, and the other notched or serrated at its points of contact with the movable hangers, provided with a lever, or a head for receiving a lever, by which it may be turned to bring either plain or serrated side in contact with

the movable hangers, in combination with a shoe suspended therefrom by movable hangers consisting of elongated blocks provided with sheaves, the object of this part of the invention being to produce either an even horizontal vibratory motion, or a jarring horizontal vibratory motion of the shoe, this latter motion causing the grain, &c., to move more rapidly over the sieves or screens; also, preventing the choking or clogging of the same; thirdly, of a wedge or key provided with a shoulder on one side of its point, and a handle at its rear or large end, in combination with the rear side of the hopper and the girt of the rear bent of the frame, the object of this portion of the invention being to retain the movable side of the hopper at any point desired, and to avoid the loss of the key by preventing its withdrawal undesignedly from a gain in the girt, in which it rests; fourthly, of a chess-board, the ends of which are provided with diagonal grooves, so arranged as to permit the chess-board to be inserted into either one or two sets of gains or grooves in the shoe at one and the same time, the object of this portion of the invention being to increase or diminish the angle of the chess-board within the shoe, so as to increase or diminish the speed with which the grain is conducted to the sieves without changing the speed of the shoe, and to prevent the grain from running over at the rear of the sieve by bounding as it falls from the chess-board.

In the accompanying drawings, A represents the vibratory shoe, the rear end of which is suspended by hangers B from the horizontal track or rod C. The hangers B consist of elongated blocks *a a*, provided with sheaves *b b* in their upper ends. They are secured to the shoe A, and the sheaves *b b* run upon the rod C. The rod C is plain on one side through its entire length, and serrated upon the other side at its points *c* of contact with the sheaves *b b*. A lever, D, or head is made upon one end of the rod C, by which it can be turned so as to cause either the plain side or the serrated side *c* to come in contact with the sheaves *b b*. The front end of the shoe A is supported on one or more rollers, E, secured in bearings depending from the under surface of the sta-

tionary side F of the hopper G. A feeder or agitator, consisting of a serrated plate, H, secured to the front upper edge of the shoe A, extends into the hopper G through its bottom, between the movable and stationary sides F N of the hopper, and agitates the contents of the hopper at their point of discharge into the shoe A. A wedge or key, I, provided with a shoulder, J, on one side of its point, and a handle, V, at its large or rear end, enters a gain, K, in the girt L of the rear bent M of the frame, and retains the movable side N of the hopper G at any desired point. The shoulder J prevents the loss of the key I by withdrawal from the gain K, as it can only be withdrawn by entirely removing the side N from the hopper. The chess-board O, provided with the diagonal grooves P P, can be inserted into either one or two sets of grooves in the shoe A at the same time. Cleats T on the chess-board O, extending across it and near its ends, strengthen it and facilitate the operation of inserting it in the grooves. Notches in the grooves P P retain the chess-board O in place until designedly removed. A pulley, Q R, maintains two narrow endless belts, S S, to which the elevator-cups are attached.

Power is applied in the ordinary manner to the separator, and from this to the bagger or elevator, placed at the side for convenience, as it occupies less space, by an endless band.

The operation of the machine is as follows:

The shoe A has a horizontal vibratory motion, consequent upon the hangers B traveling upon the rod C, which forms a track for the sheaves *b b*. The front end of the shoe A obtains a horizontal movement from traveling on the supporting-roller E. Thus the entire shoe A has the horizontal vibratory movement. This movement is superior to the oscillatory or tilting movement obtained by suspending the shoe from straps or suspenders, for the reason that it obviates glutting the centers of the sieves or screens, and causes the grain, &c., to pass evenly over or through them, while the other movement causes the sides of the sieves or screens to be bare or nearly bare of grain, &c., by throwing the body of the grain to the center, thereby choking or clogging the sieves or screens at this point. When the rod C is turned, by means of a fixed or removable lever, D, so as to bring the serrations *c* in contact with the sheaves *b b*, a jarring vibratory motion of the shoe A is produced, which, when there is a tendency to clog, obviously renders the screenery more effectual. The agitator H disturbs the contents of the hopper G at their point of discharge into the shoe A, and prevents the choking or filling up of the discharge-orifice from chaff, straw, &c., in the separation of the various kinds of grain or seed. The key I, having the shoulder J on one side of its point, retains the movable side N of the

hopper G in any position to which it may have been moved. The key I cannot readily be lost, as it can only be removed from the gain K by wholly removing the movable side N from the hopper. The chess-board O is provided at the ends with diagonal grooves, P P, which permit it to be inserted into one set of grooves in the shoe A in the ordinary manner, and also to be inserted into two sets of grooves, so as to partially occupy both sets of grooves at the same time. The diagonal grooves P P permit the upper edge of the board O to be inserted into one groove and the lower edge dropped and inserted into the groove directly beneath. The notches in the grooves *p p* retain the board O in place until designedly removed. This construction of the chess-board O admits of placing it at different angles in the shoe A, thereby increasing or diminishing at will the speed with which the grain, &c., shall be conducted to the sieves or screens without changing the motion of the shoe A, and also lessening the liability of the grain being run over the rear of the sieves by bounding as it falls from the chess-board, by lessening the distance which the grain has to fall from the board. The pulley Q, having its sheaves provided with elevations or ridges R R at or near its ends, is a device applicable to all elevators, and is a separate and distinct invention. I do not, therefore, claim it in this application, but reserve the right to present it in a future separate application.

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

1. The shoe A, suspended at its rear end from the reversible rod C by the hangers B B and rollers *b b*, and supported at its front end by the roller E, operating substantially as and for the purposes hereinbefore set forth.

2. The rod C, provided with the serrated and plain sides and head or lever D, in combination with the hangers B B, rollers *b b*, and shoe A, substantially as and for the purposes hereinbefore set forth.

3. The key I, provided with the shoulder J and the handle V, in combination with the movable side N of the hopper G and the bent L of the frame, substantially as and for the purposes hereinbefore set forth.

4. The chess-board O, provided with the diagonal grooves P P, substantially as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing improvements in grain-separator, as above described, I have hereunto set my hand this 18th day of November, 1873.

JOHN J. BRADNER.

Witnesses:

W. H. HAVEN,
SAMUEL MYRES.