

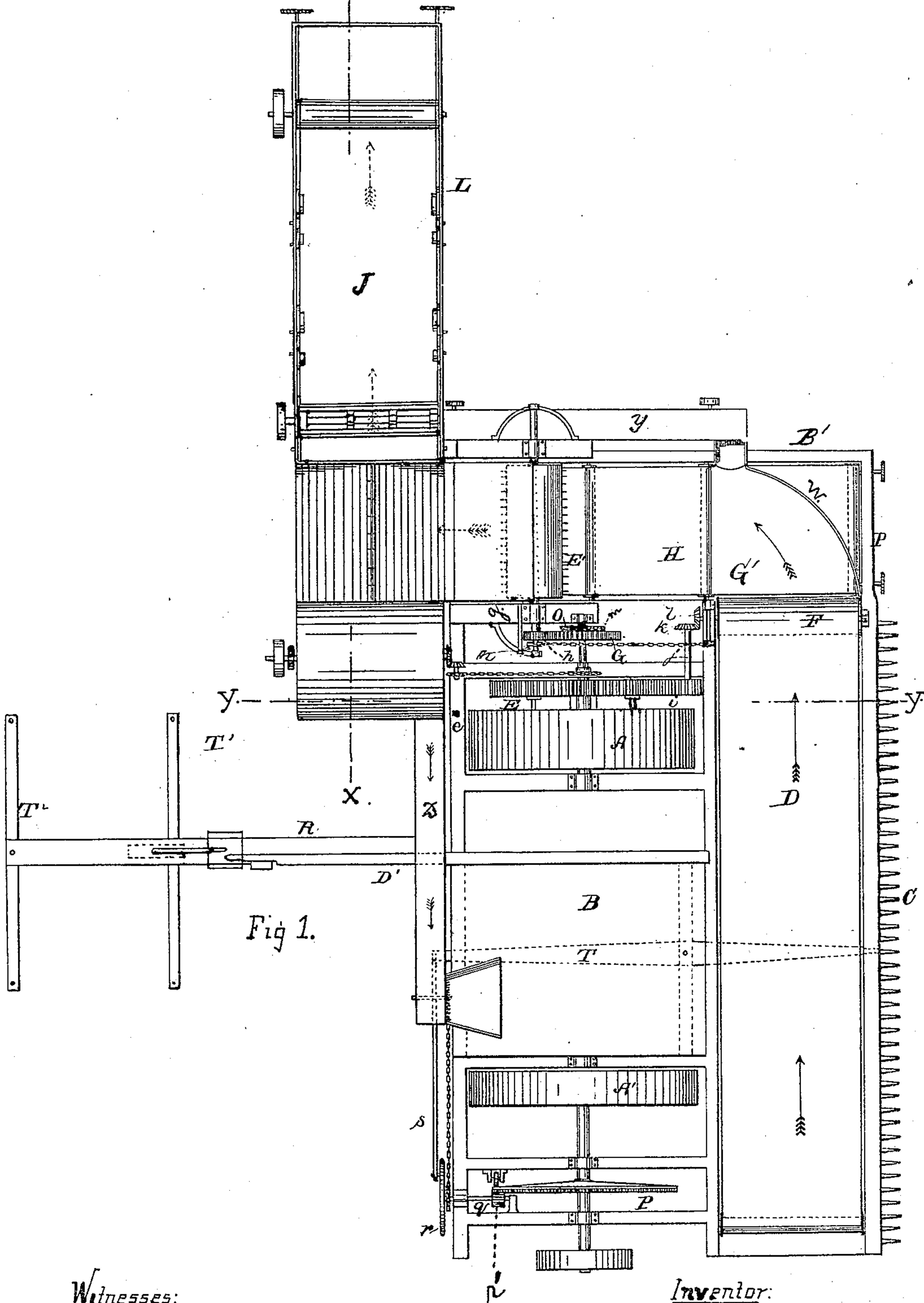
(No Model.)

3 Sheets—Sheet 1.

W. J. LITTLE.
Harvester Thrasher.

No. 238,510.

Patented March 8, 1881.



Witnesses:
Wm. A. Lane.
Jno. L. Boone

Inventor:
William J. Little,
by his attys.
Boone & Lane

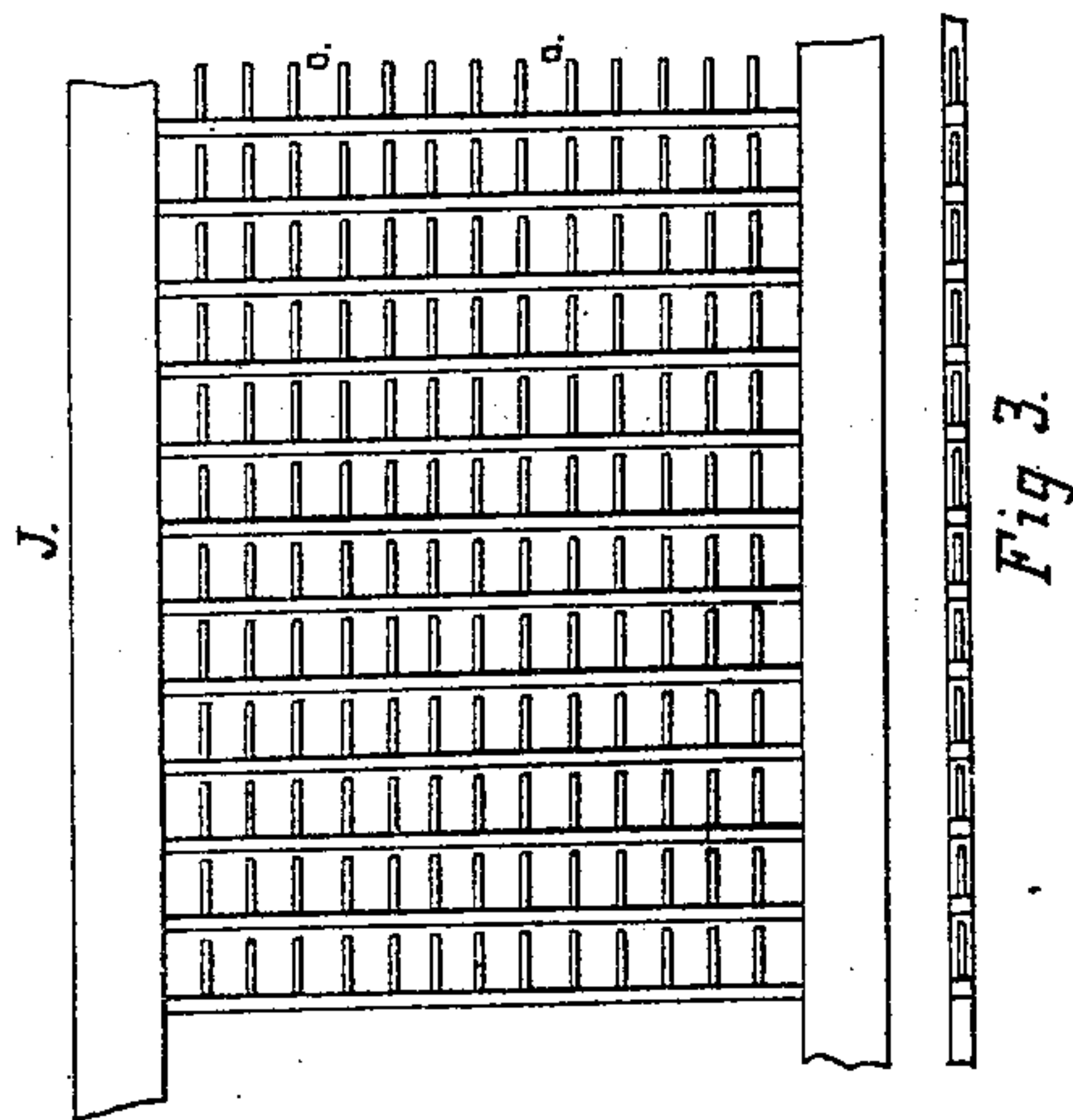
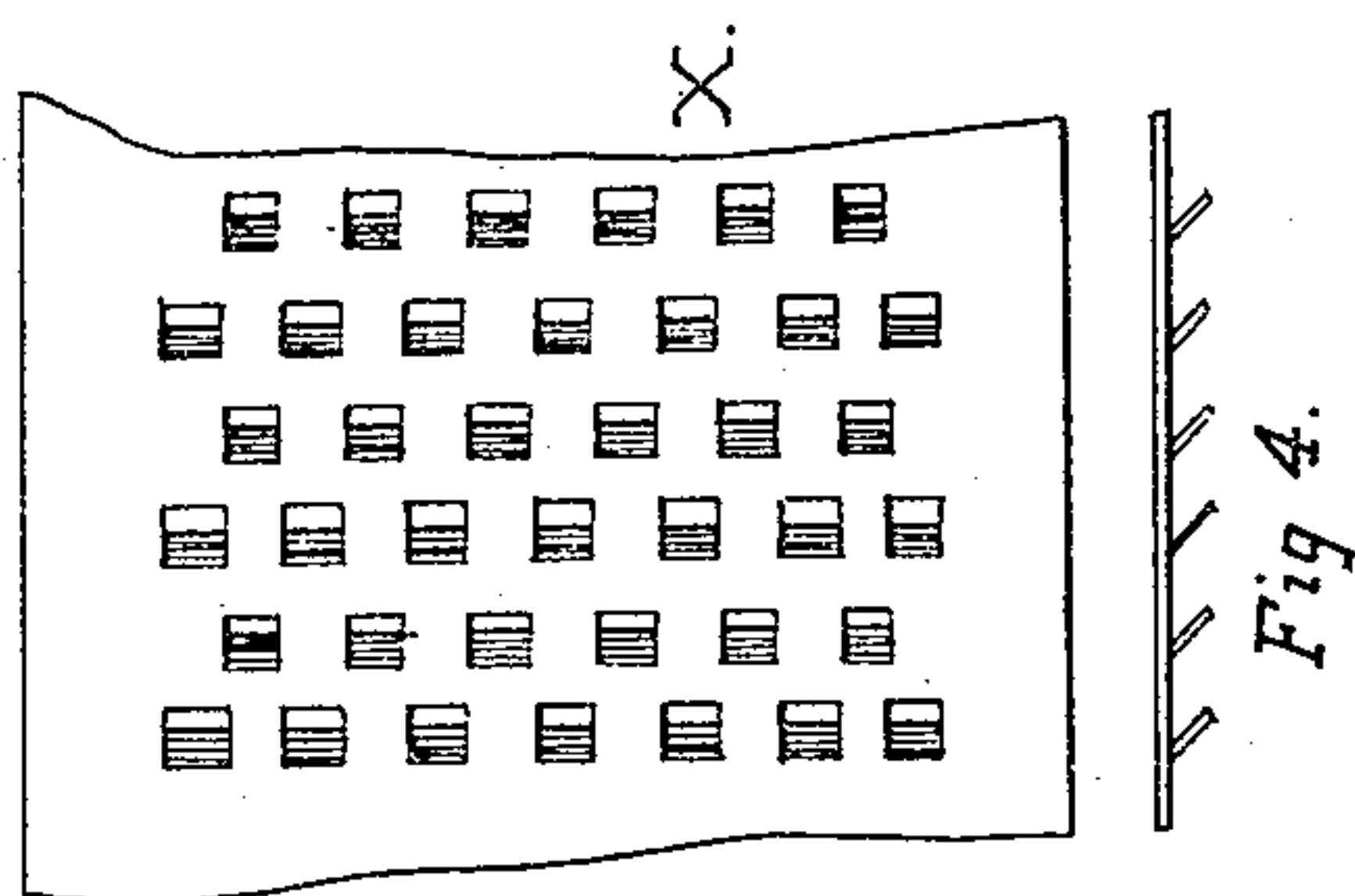
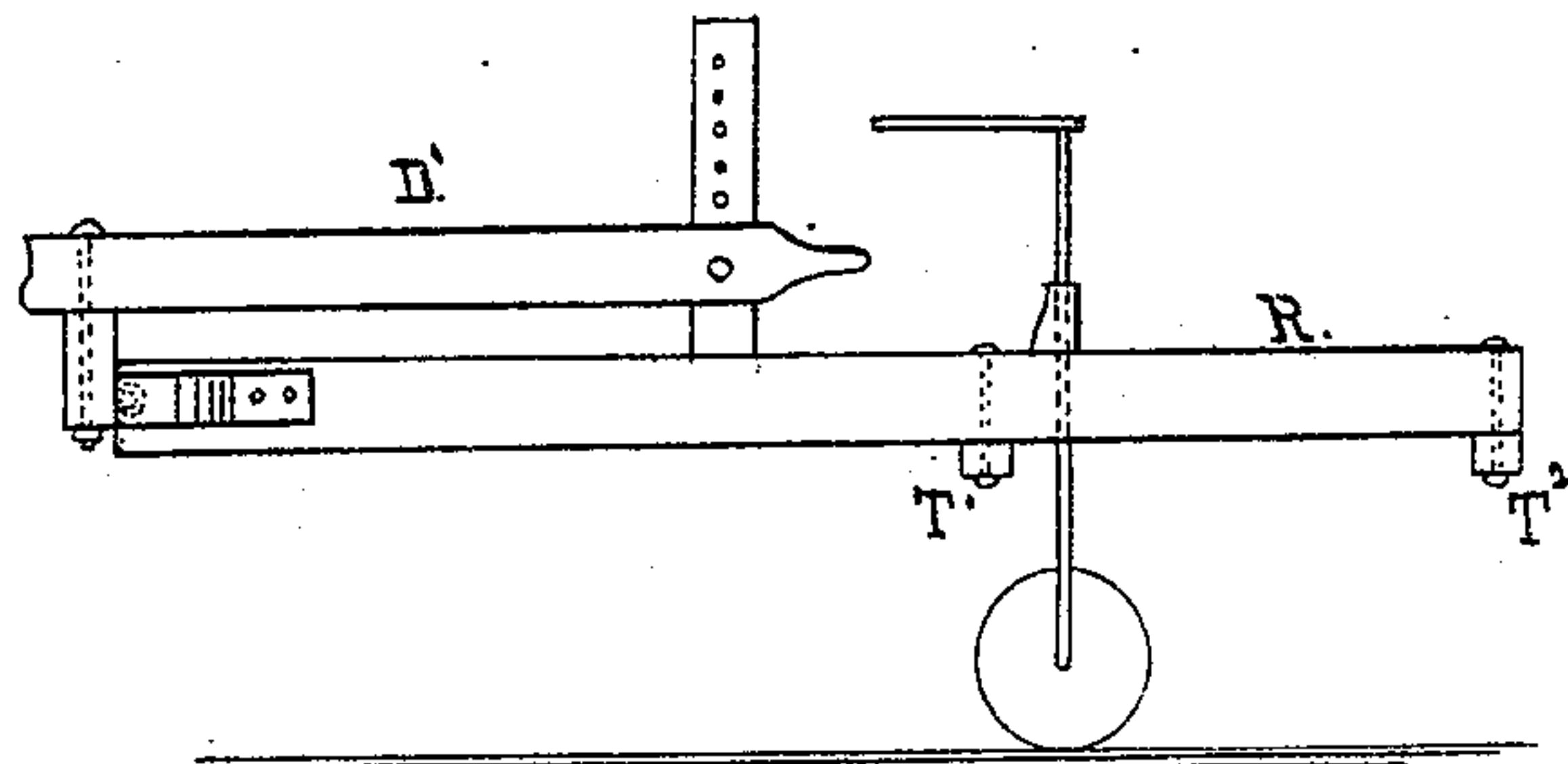
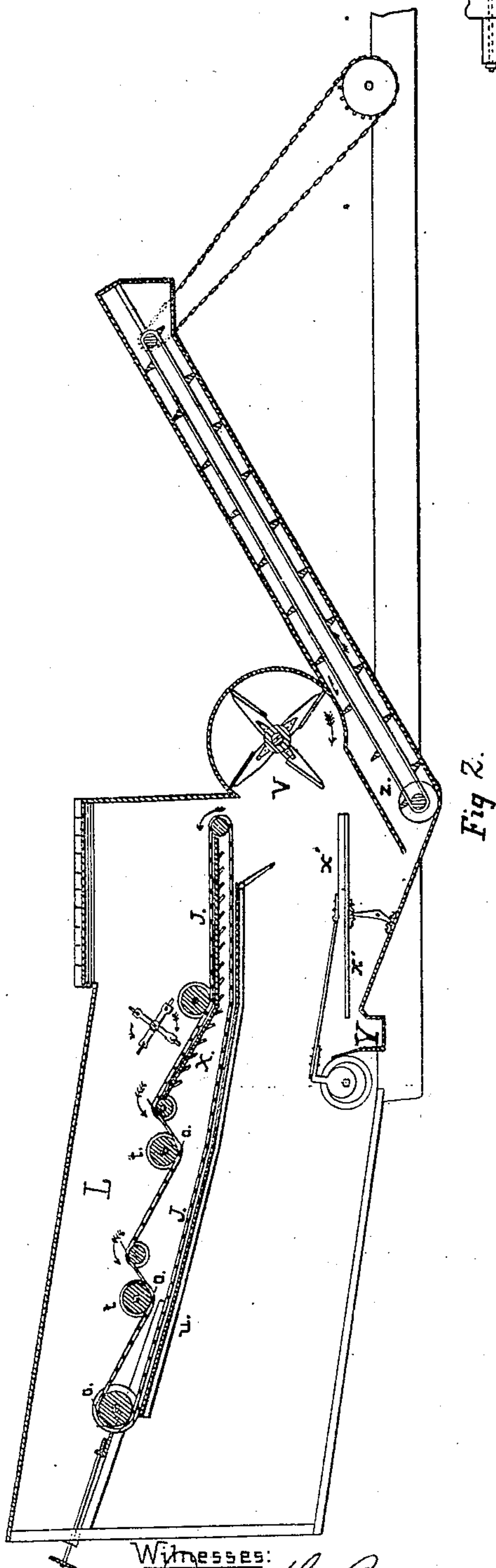
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3 Sheets—Sheet 2.

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No. 238,510.

Patented March 8, 1881.



Witnesses:

Geo. L. Boone
Wm. F. Black.

Inventor:

William J. Little

by his attys *Boone & O. O. O. O. O.*

(No Model.)

3 Sheets—Sheet 3.

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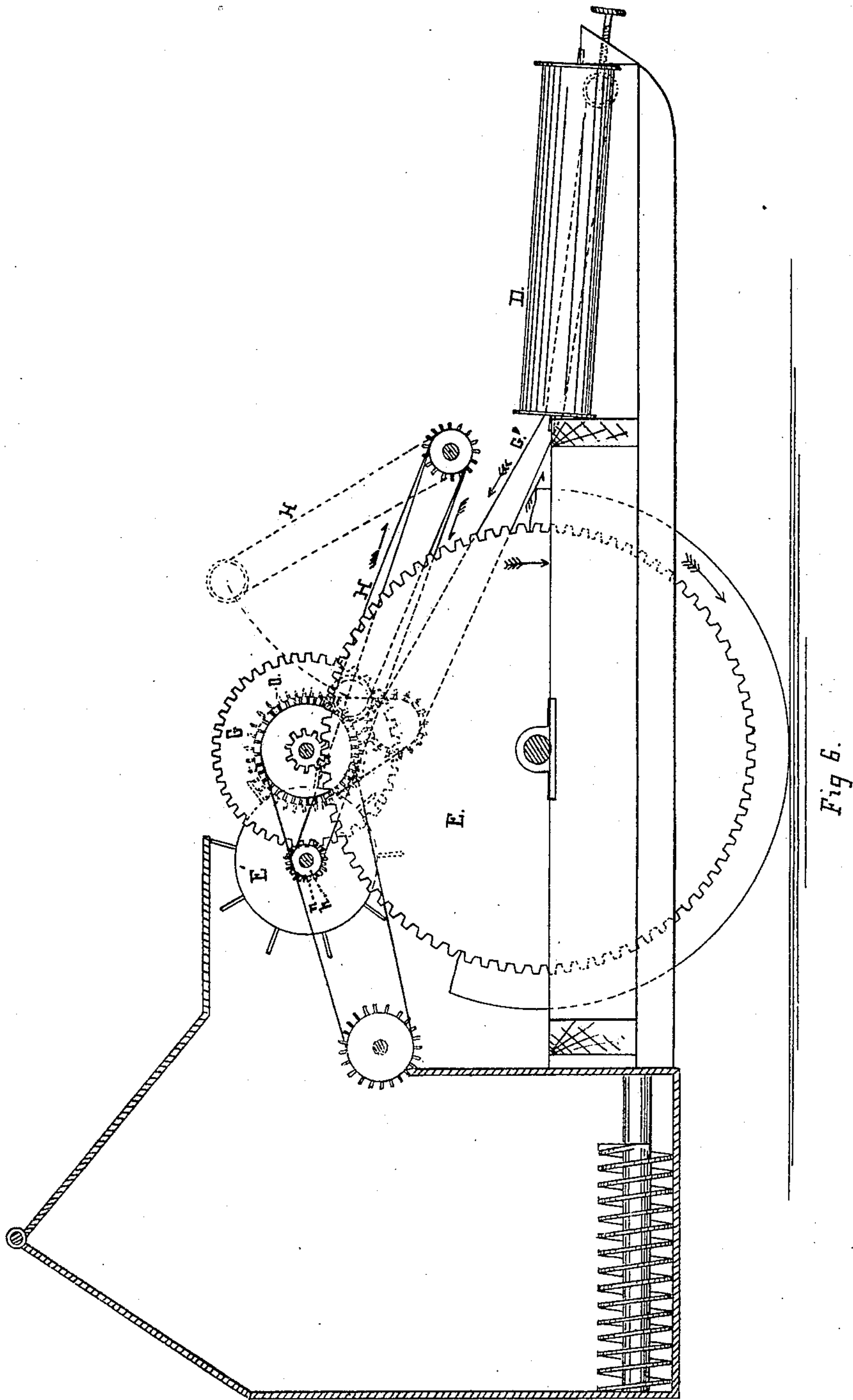


Fig 6.

Witnesses:

Jno L. Borne
Wm P. Clark

Inventor:

William J. Little
by *Doone & Osborn*
his attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM J. LITTLE, OF STOCKTON, CALIFORNIA.

HARVESTER-THRASHER.

SPECIFICATION forming part of Letters Patent No. 238,510, dated March 8, 1881.

Application filed July 23, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. LITTLE, of Stockton, county of San Joaquin, in the State of California, have invented an Improved Harvester; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention has reference to that class of harvesting-machines in which a thrashing and separating mechanism is combined with a header, so that the grain is cut, thrashed, cleaned, and sacked in one continuous series of operations, and all upon the same machine, while the machine is moving over the field, the power for driving the entire mechanism being derived from one of the bearing-wheels of the header.

My invention relates to a novel arrangement of the thrashing and separating mechanism with reference to each other and to the header-drawer by which the machine is rendered more effective and much more convenient than former machines of this class. It also relates to improvements in the details of the machine, all as hereinafter more fully described.

Referring to the accompanying drawings, Figure 1 is a plan view of my improved machine. Fig. 2 is a transverse section through *x x*, Fig. 1. Figs. 3, 4, and 5 are detail views of the parts shown in Figs. 1 and 2. Fig. 6 is a longitudinal section through *y y*, Fig. 1.

Let *A A'* represent the two bearing-wheels, and *B* the frame of that class of reaping-machines known as "headers." *C* is the sickle, and *D* is the header-drawer. These machines are too well known to require any special description.

In converting this machine into a harvester I do not alter its general arrangement and construction other than to add an extension to the header-frame on one side of the machine in order to provide a support for the thrashing, separating, and cleaning mechanism, and to provide bearings for the necessary gearing for driving this additional machinery. This extension-frame *B'*, I construct on the outer side of the header-machine by extending the front and rear timbers of the header-frame beyond the end of the sickle-bar, and uniting the ends of these extension-timbers by a suitable framework, on which the side boards of the thrasher

are secured. This forms the outer side of the thrasher attachment. I also build up a corresponding side, *g*, on the timber which originally formed the outside timber of the header-frame, thus providing a narrow supplemental or extension frame at one side of the header which is of the proper width to admit of the thrashing-cylinder and its concave being mounted between its sides. Between the sides of this supplemental frame I mount the thrashing-cylinder *E'* and its concave just back of a line drawn through the center of the bearing-wheels. The outside bearing-wheel, *A*, serves as the driving-wheel for driving the thrashing and separating mechanism, and for driving the header-drawer, while the opposite or inside bearing-wheel, *A'*, drives the sickle.

A large spur-wheel, *E*, is secured upon the axle of the outside bearing-wheel, *A*, which engages with a pinion, *i*, on a counter-shaft, *j*, in advance of the wheel-axle. A bevel-wheel, *k*, is secured on the opposite end of the counter-shaft, and engages with a bevel-pinion, *l*, on the end of the roller *F*, which drives the header-drawer. Another spur-wheel, *G*, is secured upon this axle, outside of its bearing-timber, and engages with a pinion, *h*, on the cylinder-shaft, and serves to drive the cylinder.

A short endless belt or draper, *G'*, is mounted on pulleys at an inclination in front of the cylinder, so as to extend from the outer edge of the header-drawer up to the throat of the thrasher. This is what I call the "feeder-belt." The grain, after being carried to the end of the header-frame by the header-drawer, is received upon this inclined belt, and is conducted upward by it and delivered to the thrashing-cylinder. This apron is driven by a belt which passes around a small pulley, *m*, on the end of the wheel-axle, and around a pulley on the roller, around which the upper end of the draper passes, so that the travel of the upper side of the belt is in an opposite direction to the motion of the wheel *A*. To insure a positive feed of the grain up this incline I mount an endless belt, *H*, directly above the draper *G'*, so that it will travel parallel with the draper. This belt I drive from a chain-pulley, *n*, on the end of the cylinder-axle, so that its under side will move in the same direction that the upper side

of the draper G' travels. The grain will then be caught between these two parallel moving belts and be carried up and delivered to the thrashing-cylinder in a thin and uniform stream as it comes from the header-draper.

The sickle is driven from the inner bearing-wheel, A', through the large crown-wheel P, shaft *q*, with its spur-wheel *r'*, and the connecting-rod S, connecting with the lever T.

To prevent the grain from falling over the side of the inclined draper G' at its lower end, where the grain is delivered upon it by the header-draper, I secure a curved guard or plate, *w*, around the outer corner of the draper, as represented at Fig. 1, so that the direction in which the grain is to travel is changed and waste prevented. This completes the arrangement for transferring the grain from the header-draper to the feeder-draper and feeding it to the thrashing-cylinder. After it passes the cylinder the straw and grain are delivered upon the straw-carrier J, which is mounted in a transverse frame, L, in rear of the cylinder. This transverse frame projects outward beyond the extension-frame in which the thrashing-cylinder is mounted, and also contains the shoe for separating and cleaning the grain. This arrangement of the separator and shoe enables me to transmit the power and motion from the driving-wheel A to the straw-carrier, fan, and screens in a convenient manner, and renders the machine quite compact.

The straw-carrier J, I mount in the upper part of the separator-frame, so that it will receive the straw and grain from the cylinder on one end. The upper side of this belt or carrier I arrange to move over and under pulleys which are placed in different planes, by means of which an undulating surface or series of inclined planes are provided, so that the straw is carried up one of the inclines and drops from its upper end to the foot of the next incline, and so on from one incline to the other. This loosens up and shakes the straw so that the grain is set free. A perforated plate, X, is mounted under each incline, which prevents the straw from passing through the carrier, while it allows the grain to pass to the screens below. The straw-carrier is constructed of transverse slats, in the usual way, and each slat has a number of fingers, O, secured to it, so that every time a slat passes over a pulley the fingers are raised and the straw loosened. The depression-pulleys *t* are arranged on the sides of the belt opposite each other, so as to keep it down and not interfere with the travel of the straw. The perforations in the plates X are formed by cutting tongues in the plate and bending them downward at an angle, so that they also serve to catch and direct the wind-blast from the fan upward through the holes. A plate or chute, *u*, is mounted underneath the belt, so as to catch the grain that drops through the belt and conduct it to the screens in the usual way.

The fan V is located just in the rear of the

straw-carriers, and is driven by a belt and bevel-pinions from a pulley on the wheel-axle.

x' x' are the shaking-screens of the shoe. 70

Y is the conveyer-spout, and Z is the elevator for leading off the grain to the place where it is sacked.

y is the elevator for returning the unthrashed heads which are ejected by the shoe to the feeder-belt in front of the cylinder, so that it will pass the cylinder again. 75

The construction of the shoe, fan, and elevators is too well known to require special description. 80

This arrangement therefore forms a simple attachment on one side of the header-frame, where it is out of the way, and is in a better position to be operated without interfering with the ordinary work of the header. 85

I am aware that a thrasher and separator has been mounted on the header-frame, in rear of the header-draper, and the grain conducted to the thrashing-cylinder by an inclined belt; but in that case the thrasher forms an obstruction to the view of the person who operates the lever to regulate the cut of the sickle, and the grain is carried around two angles before it reaches the thrashing-cylinder. My arrangement, however, does not interfere with the view of the person who handles the lever, and is much more simple and convenient. 90 95

For propelling the machine, I use a double bank of horses. I therefore extend the pole R in rear of the machine, and attach an additional double-tree, T², so that two banks or series of horses can be hitched to the machine for propelling it forward. 100

Two men can operate this machine successfully in the field. One will stand on the pole and handle the lever D', and at the same time drive the horses, while the other attends to sacking the grain, so that by means of this machine grain can be harvested at a small expense and with great rapidity. 105 110

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

1. In a harvester, the combination of the header-frame B, the draper D, knives C, the supplemental frame B', having the draper G', above which is arranged the belt H, thrashing-cylinder E', and straw-carrier J, arranged to extend from the outer side of the supplemental frame and at right angles to the latter, substantially as and for the purpose set forth. 115 120

2. In a harvester, the combination, with the drapers D G', arranged at right angles to each other, of the curved guard *w*, disposed at their angle and adapted to guide and prevent the falling off of the grain at that point, substantially as and for the purpose set forth. 125

In witness whereof I have hereunto set my hand and seal.

WILLIAM J. LITTLE. [L. S.]

Attest:

JNO. L. BOONE,
WM. F. CLARK.