

(No Model.)

2 Sheets—Sheet 1.

J. & W. PATERSON.
COMBINED HARVESTER.

No. 417,936.

Patented Dec. 24, 1889

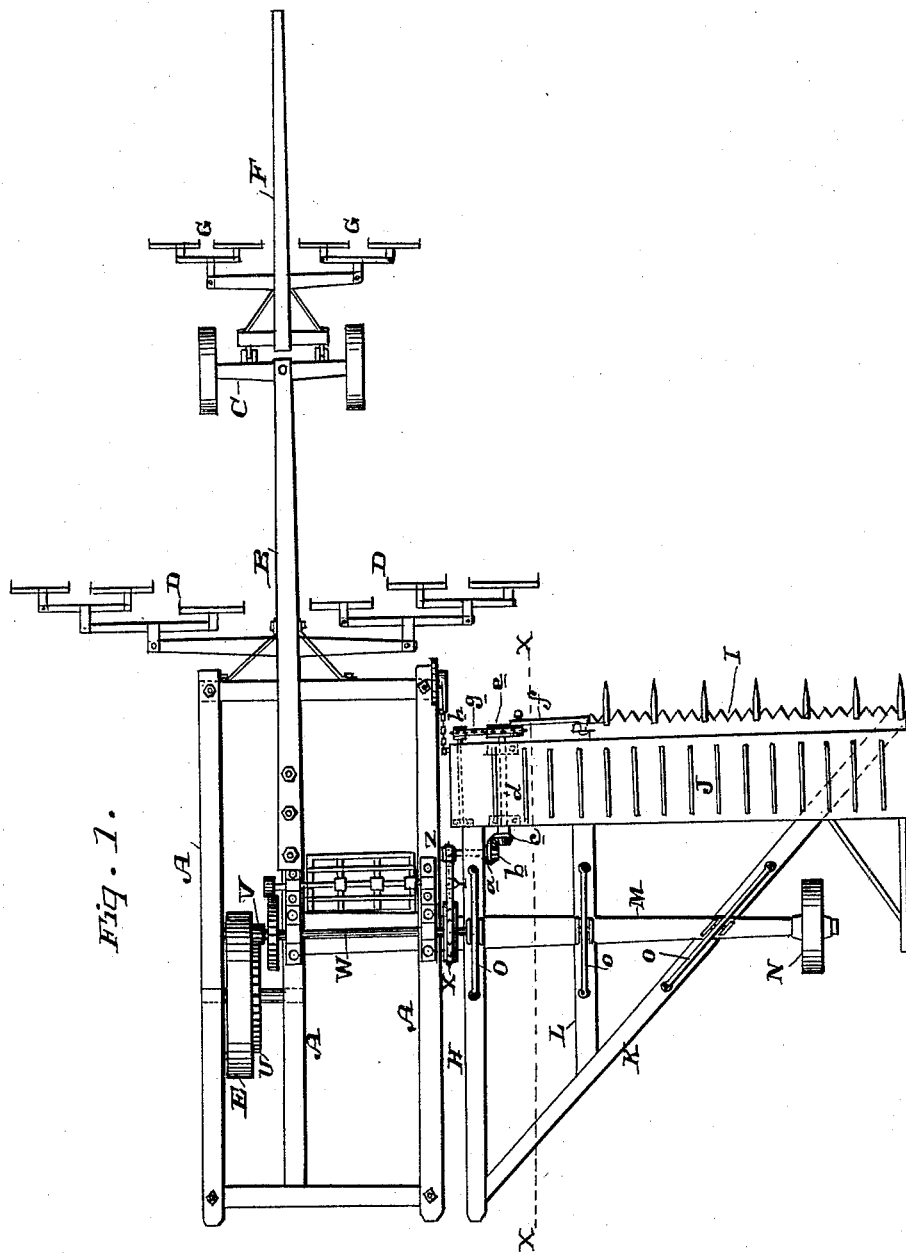


Fig. 1.

Witnesses,
Geo. H. Strong,
J. H. Hulse

Inventors,
James Paterson
William Paterson
By Deroy & Co. atty

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Fig. 2.

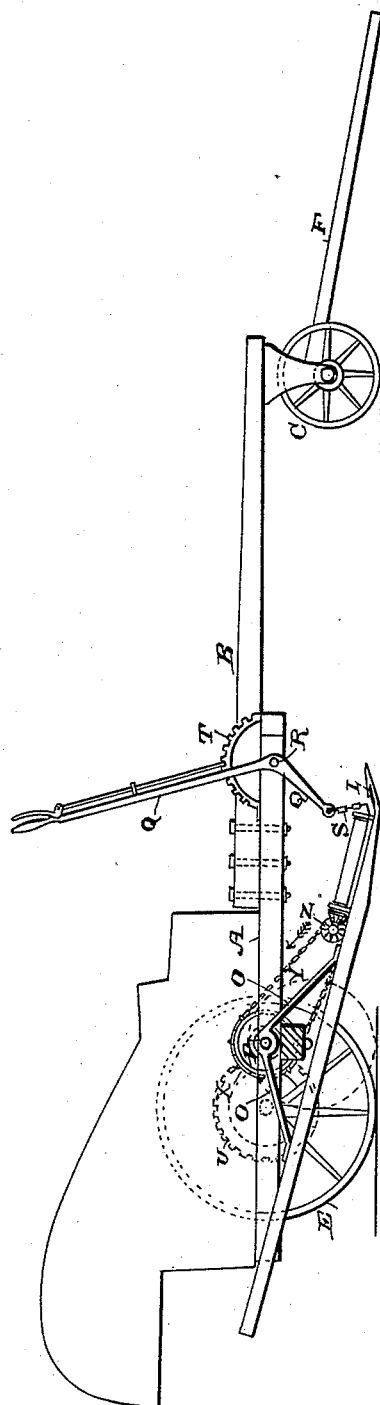
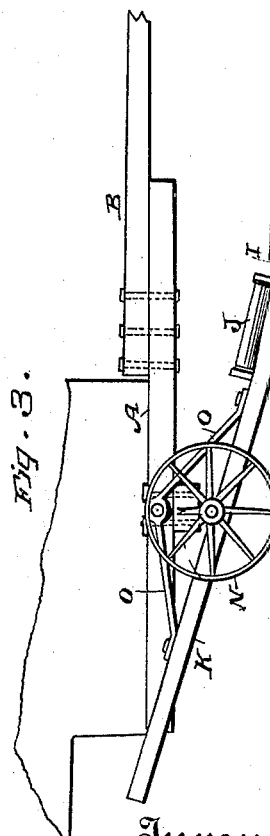


Fig. 3.



Witnesses,
Geo. H. Strong,
J. H. House,

Inventor,
James Paterson
William Paterson
by Dewey & Co. atty.

UNITED STATES PATENT OFFICE.

JAMES PATERSON AND WILLIAM PATERSON, OF STOCKTON, CALIFORNIA.

COMBINED HARVESTER.

SPECIFICATION forming part of Letters Patent No. 417,936, dated December 24, 1889.

Application filed September 2, 1889. Serial No. 322,751. (No model.)

To all whom it may concern:

Be it known that we, JAMES PATERSON and WILLIAM PATERSON, of Stockton, San Joaquin county, State of California, have invented an Improvement in Combined Harvesters; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to certain improvements in traveling harvesters and thrashers; and it consists in certain details of construction, which will be more fully described by reference to the accompanying drawings, in which—

Figure 1 is a plan view of a sufficient portion of the machine to show our invention. Fig. 2 is a side view of the thrashing-machine, looking from the header side, and showing a section of the header, taken through $x x$ of Fig. 1. Fig. 3 is a detail side elevation.

A is the main frame of the thrasher, which supports the separating, cleaning, and thrashing mechanism, this mechanism being of the usual or any suitable construction, and not here shown, because it forms no part of our present invention.

B is a rigid tongue bolted firmly to the main frame of the thrashing-machine, and extending forward and resting upon a two-wheeled truck C, which is pivoted to the front of the pole, so as to turn in any direction. The pole B is of sufficient length and the truck C is sufficiently far away from the front of the machine to admit the necessary equalizing-bars and singletrees for the attachment of as many horses behind the steering-truck as may be needed to form this portion of the team to draw the machine about the field.

The truck C consists of two wheels mounted upon the ends of the axle, which is provided with a pivot or king-bolt attaching it to the front of the tongue B, and by this construction the front of the tongue is supported with great steadiness. By placing the truck C at so great a distance from the main driving and bearing wheel E and by reason of the rigid connection of the pole B with the frame A it will be manifest that there will be very little up-and-down motion of the thrashing-machine frame, and this is extremely important, because it is necessary to keep the cleaning-shoes and screens as nearly in their

normal positions as possible at all times, in order to insure the perfect cleaning of the grain.

When the ordinary swivel-wheel is employed at the front of the thrashing-machine, the distance between it and the main bearing-wheels is too small to maintain this steadiness and level of the machine, and in consequence the machine is changing its position very considerably as it passes over the irregularities of the surface of the ground.

If the pole B were simply pivoted to the frame A, so as to allow the latter to be raised and lowered, as is the case when a header is rigidly attached to a thrashing-machine frame, all the advantages of our construction would be lost; but in our invention the thrashing-machine frame is always supported rigidly upon the main bearing-wheels and the truck-wheels C, and consequently always maintains its comparatively level position.

The means for raising and lowering the header-frame will be described hereinafter, the header-frame moving independently of the thrashing-machine frame, and not being in any way dependent upon it so far as the raising and lowering is concerned.

To the front of the truck C is connected a single pole F, having the equalizing-bars and singletrees G for the attachment of the forward team of horses. The horses may be driven in two or more rows; but the team can be kept very compact and under better control when driven in two rows, as here shown, the rear row or main-pole team consisting of as many horses as may be needed for this place and the remainder of the team forming the front row and attached to the pole F. This pole turns from side to side, as the horses may be guided, and in doing so turns the truck C, which thus acts to turn the machine as may be desired.

In cutting a field of grain the machine is driven so as to turn to the right, and when the team is attached to the machine by a pivotal connection there is danger of the rearmost team getting into the sickle in turning too short; but by reason of this rigid pole B this team can only turn with the machine, and consequently can never get any nearer to the sickle.

The truck C forms a very good support for the pole B, and when the machine passes

over very irregular ground this truck prevents the pole B from being thrown violently from side to side, so as to strike the horses which are nearest to it, and for the same reason the pole F will be held steady and prevented from side motion, although it and its team are allowed to turn, as above described, to guide the machine.

The header-frame is shown in the present case as of a triangular form, consisting of the timber H, parallel with the side timbers of the thrashing-machine frame, the front timber at right angles with it supporting the sickle I and draper or carrying-belt J, and the diagonal bracing-timber K, uniting the outer end of the front timber with the rear end of the side timber H, and one or more intermediate timbers L parallel with the timber H. This frame may have other suitable bracing-timbers, if desired.

A timber M extends across the thrashing-machine frame, to which it is strongly secured, and across the full width of and above the header-frame, as shown, and upon the outer end of this is journaled a wheel N, which supports the outer end of the machine, and with the main wheel E and wheels C at the front of the rigid pole B it forms a large triangular base, which is very steady. The header-frame is suspended beneath this timber by means of the suspending bars or irons O, which are bolted to the timbers H, L, and K, and which have the journals P supported upon the timber M, so that the header may swing about these journals and the front may be raised and lowered, so as to cut high or low, according to the quality and character of the grain.

In order to raise and lower the front end of the header with its sickle, we have shown a bell-crank lever Q fulcrumed to the side of the thrashing-machine frame at R, and having a short arm connected with the front of the header-frame at its inner side by means of a chain S. The lever Q is provided with a pawl, which is operated from a handle and which engages a rack T, so as to hold the lever Q at any desired point, and with it the front of the header at any desired elevation. Upon the side of the main bearing-wheel E is the gear-wheel U. This engages with the pinion V upon the shaft W, which extends across the frame A of the thrashing-machine and has a sprocket-wheel X upon the end next to the header, from which a chain Y passes around the sprocket-wheel Z upon the shaft *a*, which is journaled to the header-frame and carries a pinion *b*. This pinion engages the corresponding beveled pinion *c* upon the shaft *d*, which extends across beneath the draper or carrying-belt J and has a wheel *e* upon its outer end. This wheel has a crank-pin, from which a pitman *f* connects with the sickle I and causes it to reciprocate. The crank-wheel *e* is also a sprocket-wheel, and a chain *g* from this wheel passes over another sprocket-wheel *h* upon

the shaft which drives the draper or carrying-belt J. By this double use of the crank-wheel *e* we are enabled to dispense with a number of intermediate wheels and use this directly as a driver for the draper. This use of the crank-wheel as a driver for the draper also serves another important purpose, and it is very much steadied by reason of the connection with the draper and prevented from jerking and shaking by reason of the reciprocation of the sickle.

The shaft W, which extends across the frame A A, as above described, is exactly in line with the journals P, by which the header-frame is supported, and it will be readily seen that on account of this the distance of the sprocket-wheel Z, which is on the tilting header-frame, will always be exactly the same from the sprocket-wheel X whether the header-frame be elevated or depressed, and for this reason the chain belt Y will always maintain the same tension whatever be the position of the frame. This chain belt Y travels in the direction shown by the arrow in Fig. 2, and by reason of this a pulling strain is brought upon the upper part of the belt. This acts beneficially, as it tends to lift the front of the header, and especially when any heavy work is to be done, and it thus counteracts the tendency to force the front of the header down toward the ground when passing through heavy grain.

The thrashing-cylinder is turned by suitable gearing or connection from the left side of the thrashing-machine, and the various other parts of the machine are driven in any suitable manner, not necessary to show in the present case.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

In a traveling harvester and thrasher, a main frame upon which the thrashing and cleaning mechanisms are supported, a single driving-wheel for communicating power to said mechanisms, a pole rigidly secured to said frame and extending in front thereof, a swiveled wheeled frame supporting the front end of the pole, means for the attachment of a team to said swiveled frame and for the attachment of a second team between the machine-frame and swiveled frame, a timber rigidly secured to the right side of the main frame and extending at right angles thereto, a non-driving wheel at the outer extremity of said timber, a header-frame suspended from said timber so as to swivel thereon, and a means, comprising a bell-crank lever, chain and pawl and rack, for raising the front of the header-frame, substantially as described.

In witness whereof we have hereunto set our hands.

JAMES PATERSON.
WILLIAM PATERSON.

Witnesses:

JAMES HIGGINS,
T. C. MALLON.