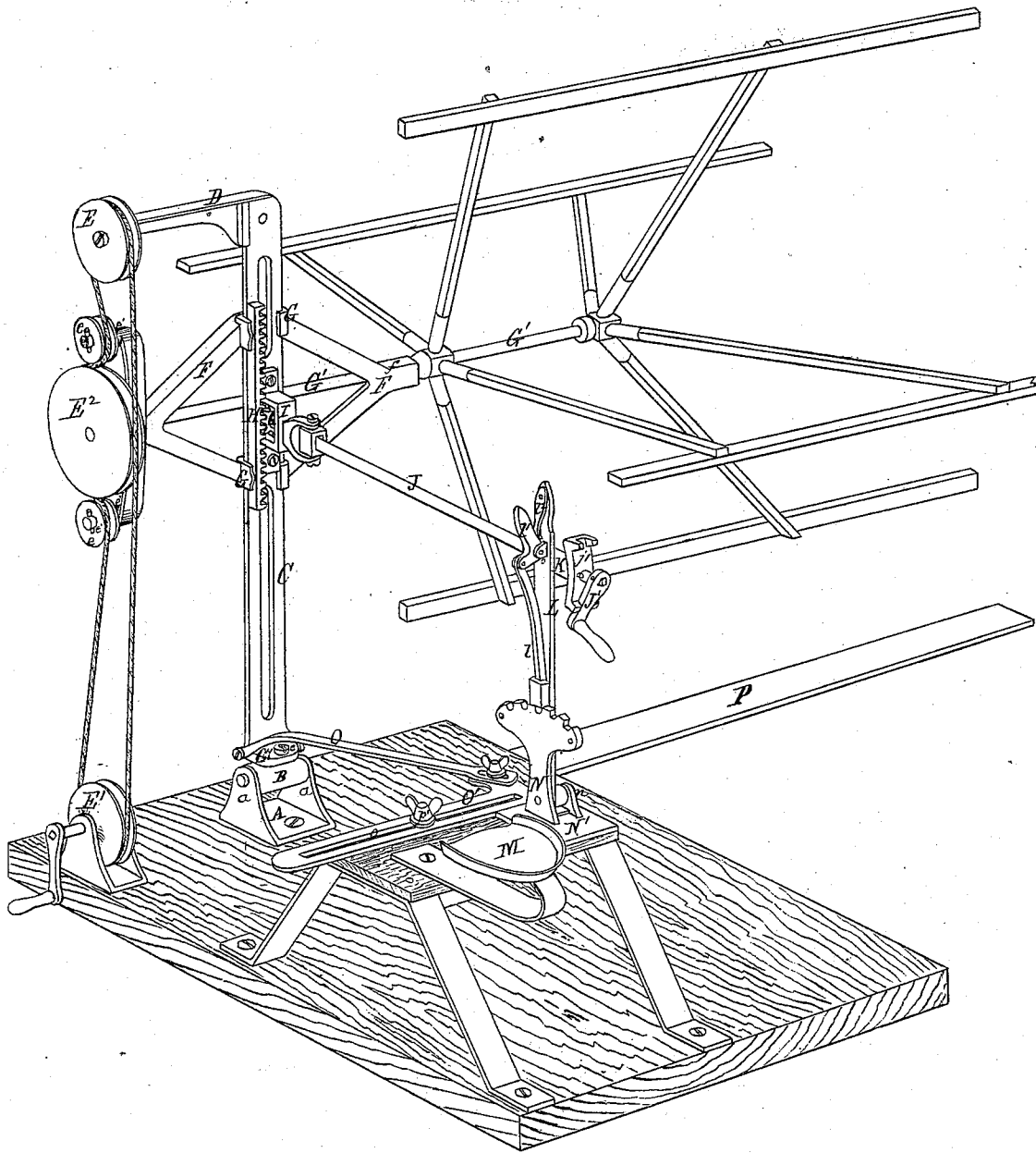


J. W. BOPE.
HARVESTER REEL.

No. 103,970.

Patented June 7, 1870.



Witnesses
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United States Patent Office.

JACOB W. BOPE, OF SOUTH BEND, INDIANA, ASSIGNOR TO HIMSELF AND
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Letters Patent No. 103,970, dated June 7, 1870.

IMPROVEMENT IN REELS FOR HARVESTERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JACOB W. BOPE, of South Bend, county of St. Joseph, State of Indiana, have invented certain new and useful Improvements in Reels for Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making a part of this specification, which is a perspective view of a reel, embodying my improvements.

My invention relates to a novel means for effecting the required adjustment of the reel, while the machine is at work in the field, to adapt it to the varying condition of the grain operated upon, as hereinafter set forth.

In the drawing—

A represents a base-plate or casting of any suitable form to adapt it to that part of the machine-frame, finger-bar, or platform, to which it may be desired to secure it, and provided with uprights or lugs *a a*, in bearings, in which is mounted a horizontal rock-shaft, B.

C is a reel-post, provided with a horizontal base or flange, C', which is connected by a vertical pivot, *c*, to the horizontal rock-shaft B.

To the upper end of post C is secured a horizontal bar or frame-piece, D, which projects inward or on the main-frame side of upright reel-frame or post, and is provided with a stud-shaft, on which is mounted a loose pulley, E, around which the reel-driving belt passes, as hereinafter explained.

F is a horizontal cross-head or reel-bearer, made in the form shown in the drawing, or in other suitable form for the purpose. I prefer to make said cross-head in a single casting of light angular or flanged form, whereby the requisite strength is obtained with the least possible weight of material.

Said cross-head is provided, at its opposite end, with bearings *f*, for the reel-shaft, and, at or near midway of its length, with vertical sleeves or clasps G, adapted to receive upright C, and to slide freely up and down thereon.

These sleeves or clasps have a vertical rack, H, firmly secured to them on the side of the standard opposite the yoke, said rack engaging with and being operated by a pinion, *h*, in a vertical direction, and carrying the cross-head F with it in its vertical movement.

The shaft of pinion *h* has its bearings in a box, I, secured to the reel-standard, and is connected at one end, by a tumbling or universal joint, to one end of a crank-shaft, J.

The opposite end of said shaft is mounted in a sleeve, K, connected by a horizontal pivot with an upright lever, L, and provided with recessed arms or hooks *j*, with which the pivoted crank-arm J' is made to engage for holding said shaft and the pinion-rack, and cross-heads

operated thereby, at any desired point of adjustment.

The lever L is located in convenient relation to the driver's seat M, so as to be operated by the driver sitting thereon, and is pivoted at its lower end in upright standard N *n*, on a base-plate or casting, N'. The upright standard N is extended in width at its top, and is provided with a curved rack, in which a spring pawl, *l*, operated by a bell-crank lever, L', connected with the lever L, engages to hold said lever at any desired adjustment.

A spring, *l*², serves to hold the pawl engaged with the rack, when not thrown out by the hand of the attendant in grasping the top of the lever, together with bell-crank lever, for operating the same.

From the foregoing description it will be seen that, when it is desired to raise or lower the reel, the attendant simply releases the pivoted crank-arm J' from its holding-socket, or hooks and rotates the same, together with the shaft and pinion connected therewith, thereby moving the vertical rack H, and the cross-head connected thereto, and carrying the reel-shaft, until the desired height of the reel is secured, when the crank-arm is locked, as before.

In adjusting the reel back and forth horizontally, the shaft J serves merely as a connecting-rod or link between the reel and lever, and, by releasing the latter, the attendant is enabled to set the reel forward or back, as may be desired.

A link or rod, O, forked at one end, and embracing the foot of the reel-standard, is pivoted horizontally to said standard, and extends to a point near the driver's seat, where it is connected adjustably, by a slot and thumb-screw or otherwise, to a transversely adjustable plate, O'.

The plate O' is secured to the driver's foot-board, or other convenient support within reach of the driver on his seat, and is provided with a slot at *o*, and thumb-screw *p*, or with other suitable means for permitting its adjustment transversely of the machine.

By the lateral movement of said plate, or the end of the rod or bar O, connected thereto, the reel-post D is swung upon its vertical pivot, and the reel-shaft is thereby caused to diverge either forward or backward, as may be required, and to any desired extent from the line parallel with the finger-bar, represented at P.

The adjustment of the reel is designed to adapt said reel to grain which leans either toward or away from the main frame, and enables the driver to readily set the reel so as to cause the beaters to strike underneath and raise such grain, and to present it properly to the action of the cutters.

The arrangement of means for driving the reel permits the several adjustments above described, and is as follows:

A pulley, E', is mounted upon a shaft, arranged in

line with the horizontal pivot at the foot of the reel-post, and mounted upon the same part of the machine, so as to maintain a fixed relation thereto. Said pulley may be operated or driven by any suitable connection with the main driving-wheels or axle, and is provided with a band, which passes upon opposite sides of a pulley, E^2 , on the end of the reel-shaft G' , and over the loose pulley E , on arm D of the reel-standard, above referred to.

Guide-pulleys or sheaves $e e$, mounted on studs e' , on opposite sides of the pulley E^2 , on an arm or support attached to the sliding yoke, serve to confine the belt to any required extent of surface of said pulley, to insure the rotation of said pulley, and of the reel-shaft with which it is connected, and also permit the vertical adjustment of the reel without changing the tension of the band.

By this arrangement of the driving-pulley E^1 , relative to the pivot of the reel-post C , the pulleys $E E^1$ are maintained at a uniform distance apart, and the reel-shaft, with its pulley E^2 , may be moved up or down to any desired intermediate point, without affecting the tension of the driving-belt.

Having now described my invention,

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

1. The single pivoted reel-post C , in combination with a lever and link, arranged substantially as described, whereby the driver, in his seat on the machine,

can control the horizontal or forward and backward adjustment of the reel.

2. The reel-post or standard, provided with the two pivots, arranged at right angles to each other, the one vertical and the other horizontal.

3. The cross-head or yoke F , in combination with rack H , pinion h , and a device for operating said pinion, to adjust the reel vertically.

4. The cross-head or yoke F , provided with the rack H , in combination with pinion h and tumbling-shaft J , for adjusting the reel, as described.

5. The sleeve K , in combination with a standard for supporting the same, and devices connecting said sleeve with the standard and with the reel, substantially in the manner described, so that the reel may be adjusted as set forth.

6. The pivoted crank-arm J' , in combination with hooks or sockets j' , for holding the reel at any desired point of adjustment.

7. The swiveling reel-post, in combination with rod or link O and slide O' , for adjusting the angle of the reel, relative to the cutting apparatus, as described.

8. The arrangement of guide-pulleys $e e$ with the driving-belt and the driver-pulley E^2 , whereby the required vertical adjustment of the reel may be effected without varying the tension of the driving-belt.

Witnesses:

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