(No Model.)

G. ESTERLY.

HARVESTING REEL.

No. 306,681. Patented Oct. 14, 1884.

Fig. 4.

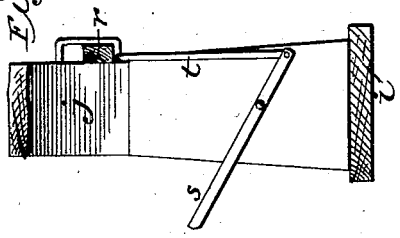


Fig. 1.

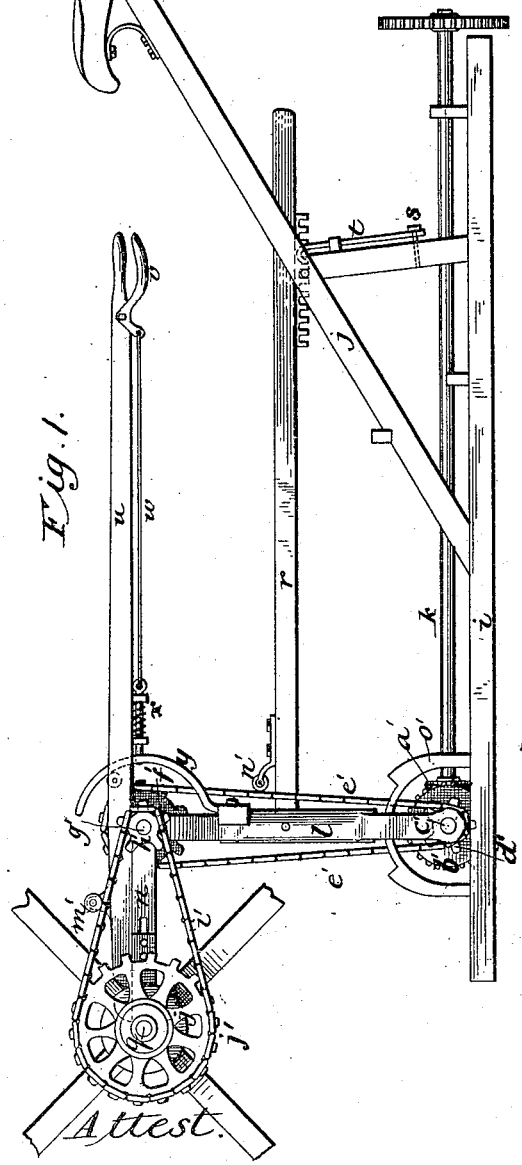


Fig. 3.

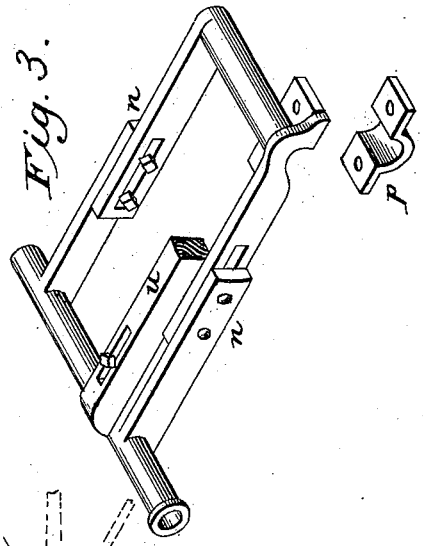
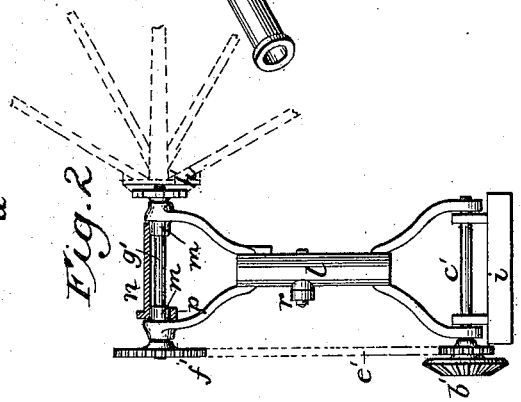


Fig. 2.



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HARVESTING-REEL.

SPECIFICATION forming part of Letters Patent No. 306,681, dated October 14, 1884.

Application filed February 24, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ESTERLY, of Whitewater, in the county of Walworth and State of Wisconsin, have invented certain Improvements in Harvester-Reels, of which the following is a specification.

This invention relates to harvesting-reels; and it consists in the means for adjusting the same, as hereinafter described and claimed.

Inasmuch as my improvements are applicable to various machines of otherwise ordinary construction, and have no special relation to the construction of the main frame and gearing, I have represented in the drawings only those parts of the machine which are immediately connected with the reel.

Referring to the accompanying drawings, Figure 1 is a side elevation of the reel-standard and the driving devices. Fig. 2 is a front elevation of the same, the arm which immediately sustains the reel-shaft being represented in section at its rear end. Fig. 3 is a perspective view of the adjustable frame or support for the reel-shaft. Fig. 4 is a view illustrating the arrangement of the foot-levers by which the reel-standard is unlocked.

The drawings illustrate the manner in which the improvements are commonly employed in harvesters of the form in general use at the present day. A horizontal plank or arm, *i*, commonly secured in an elevated position on the main frame, as usual, gives support to the seat-standard *j* and to a horizontal reel-driving shaft, *k*, as usual, the shaft extending in a fore-and-aft direction. To the forward end of the plank there is hinged or jointed the lower end of an upright standard, *l*, arranged to swing forward and backward, and the upper ends of which are forked or divided, as in Fig. 2. The lower arms of the standard are connected to the supporting-plank through the medium of bearing plates or ears in the form shown, or in any other suitable form which will admit of the standard swinging freely at its upper end. The upper arms of the standard are each provided with a forwardly-extending hub, *m*, and upon these hubs is mounted the rear end of a horizontal reel-sustaining frame, *n*, which thus receives its entire support through the journals directly from the standard. The frame *n* is made of a rectangular form divided transversely into two parts, the overlapping arms of which are swiveled and connected by bolts to admit of the frame being elongated to tighten the reel-driving chain, as hereinafter explained. The rear end of the frame *n*, which bears on the journals of the standard, as before mentioned, is made hollow or semi-tubular to fit upon the trunnions of the standard, and is secured in place by means of a removable half-box, *p*, Fig. 3, which, passing beneath one of the trunnions, holds the frame down securely thereon, preventing it from rocking or tipping upward under the weight of the reel, which overhangs the frame on the opposite side. The frame thus journaled to the standard is free to rise and fall at its forward end, through which the horizontal supporting-shaft *q* is passed. The swinging motion of the frame *n* permits the reel to be raised and lowered, while the swinging motion of the standard admits of its being moved forward and backward. The reel-shaft is provided with a sprocket-wheel, *j'*, driven by a chain, *i'*, from a wheel, *h'*, applied to a driving-shaft, *g'*. This shaft *g'* is extended horizontally and centrally through the arms of the standard *l* and the trunnions thereon.

Inasmuch as the frame *n* is supported by the trunnions of the standard, the driving-shaft is wholly relieved from the weight and friction of the frame, to which it would otherwise be subjected; consequently I am enabled to drive the reel with less power, and to avoid the wear upon the shaft, which would otherwise occur.

I am aware that a reel-supporting shaft has been journaled upon a shaft through which motion was communicated indirectly to the reel, the shaft being made to serve as the pivot or journal of the frame, and to such construction I lay no claim.

For the purpose of locking the standard in the required position, I connect thereto a horizontal bar, *r*, extending upward, and provided at the rear end with a series of notches, or a notched plate adapted to interlock with a stirrup or pin on the side of the seat-standard or other fixed portion of the machine. The

bar engages automatically by reason of its gravity. In order that it may be raised to permit the movement of the standard without requiring the use of the operator's hands for the purpose, I pivot to the seat-supports, as in Figs. 1 and 4, a foot-lever, *s*, provided with an upright arm or rod, *t*, which slides through a fixed guide at its upper end, in position to bear against the inner side of the locking-bar. The operator, by depressing the lever *s* with his foot, raises and unlocks the bar *r*, leaving the standard free, so that the reel may be moved forward and backward at will.

For the purpose of operating and locking the frame *n* to effect the vertical adjustment of the lever, I bolt thereto a backwardly-extending hand-lever, *u*, the rear end of which is within reach of the driver. This lever is provided with a thumb-latch, *v*, and with a rod, *w*, extending thence to a bolt, *x*, mounted on the lever and arranged to engage in notches or perforations in a curved plate, *y*, secured to the reel-standard. By the operation of the latch *v* the lever *u* and frame *n* are released, so that the driver, by raising and lowering the rear end of the lever, may place the reel at the required elevation. The release of the latch is followed by the automatic locking of the parts. The lever *u* will serve as a convenient means of moving the reel-standard forward and backward when unlocked.

I will now describe the mechanism by which the reel-shaft is driven. The primary driving-shaft *k*, driven in any suitable manner from other moving parts of the harvester, is provided at the forward end with a bevel-pinion, *a'*, which engages with a corresponding gear, *b'*, attached to one end of a horizontal transverse shaft, *c'*, extending through the lower end of the reel-standard and the journals by which it is supported. This shaft *c'* carries a sprocket-wheel, *d'*, from which a driving-chain, *e'*, extends upward to a sprocket-wheel, *f'*, on the outer end of the shaft *g'*, before mentioned. This shaft *g'* is provided at the opposite end with a sprocket-wheel, *h'*, from which a chain, *i'*, is extended to a sprocket-wheel, *j'*, on the reel-shaft.

The foregoing combination communicates a positive motion to the reel, and is unaffected in its action by the adjustment of the latter.

It is to be noted that the upright chain *e'* is located on the opposite side of the standard from the reel. This is found in practice to be advantageous, because a downward strain of the chain on the one side tends to tip the reel upward on the opposite side, and thus to overcome the tendency of the reel to sag or hang downward.

Another advantage arising from the location of the driving-chain *e'* on the outer or stubble side of the standard lies in the fact that the chain is thus placed in a position in which it is not liable to become obstructed or entangled with the grain, as is the case when it is located on the inner or grain side of the standard, and this notwithstanding the fact that guards were employed to protect it.

If desired, pulleys *m'* and *n'* may be adjustably secured upon the lever *u* and upon the rod *r*, respectively, as shown, to act upon the chains and serve as a means of tightening the same, the pulleys being mounted on plates which are slotted and secured by bolts to move forward and backward at will.

For the purpose of limiting the swinging motion of the reel, I bolt to the supporting-plank *i* an upright plate or guard, *o'*, provided with shoulders to encounter the standard.

It will be observed that the driving-shaft *k* is located at the outer or stubble side of the seat-plank *i*, whereby the gear upon its end is brought into position to avoid entanglement with the grain.

Having thus described my invention, what I claim is—

In combination with the swinging reel-standard, the notched locking-bar pivoted thereto, fixed devices to engage with said bar, and the foot-lever for unlocking the bar, as described, whereby the operator is enabled to unlock the standard by the use of his foot, leaving his hands free for other purposes.

GEORGE ESTERLY.

Witnesses:
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JO W. RICHMOND.