(No Model.) 2 Sheets—Sheet 1.

J. C. HARKER.

HARVESTER.

No. 306,151. Patented Oct. 7, 1884.

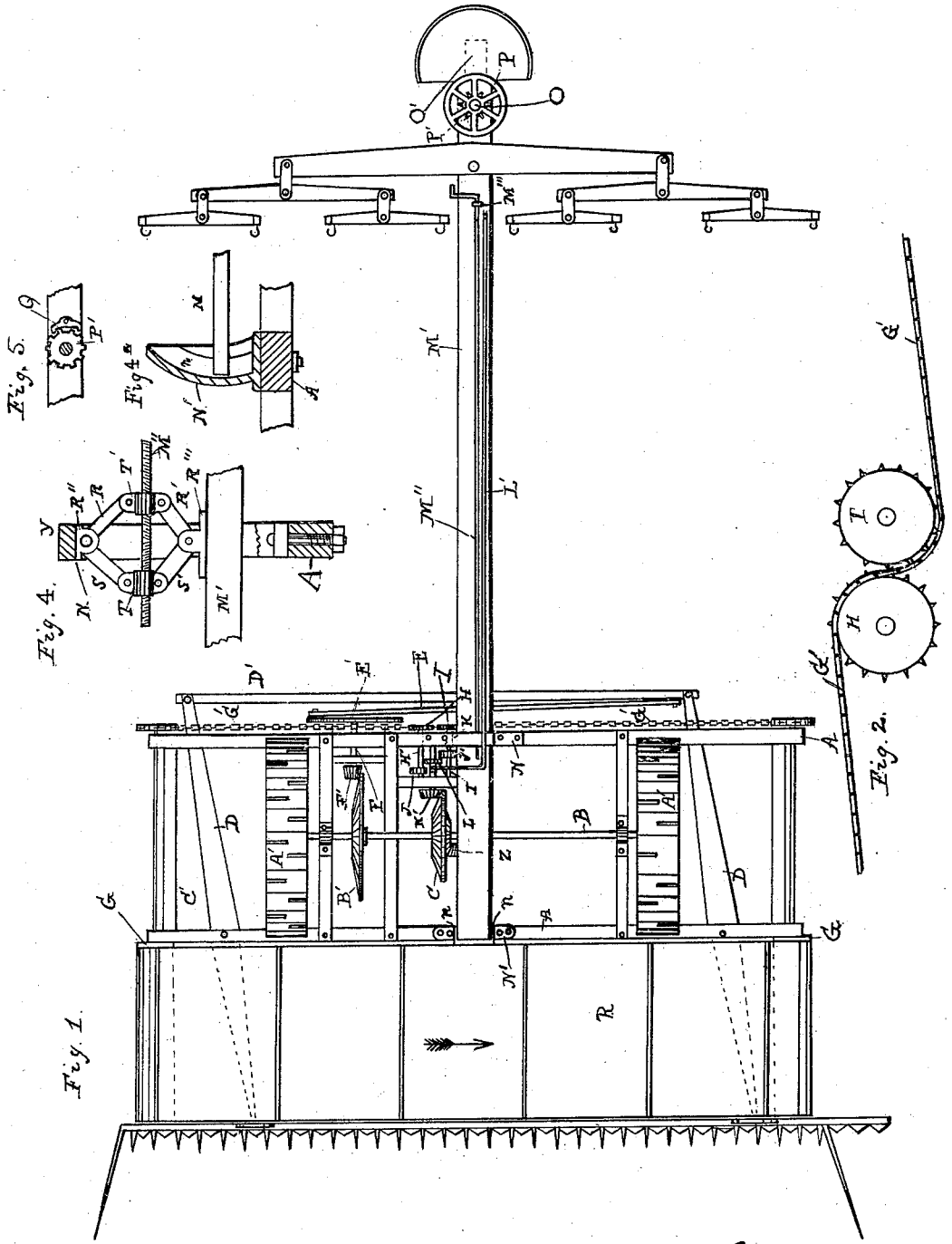

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 4a.

Fig. 5.

WITNESSES

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(No Model.)

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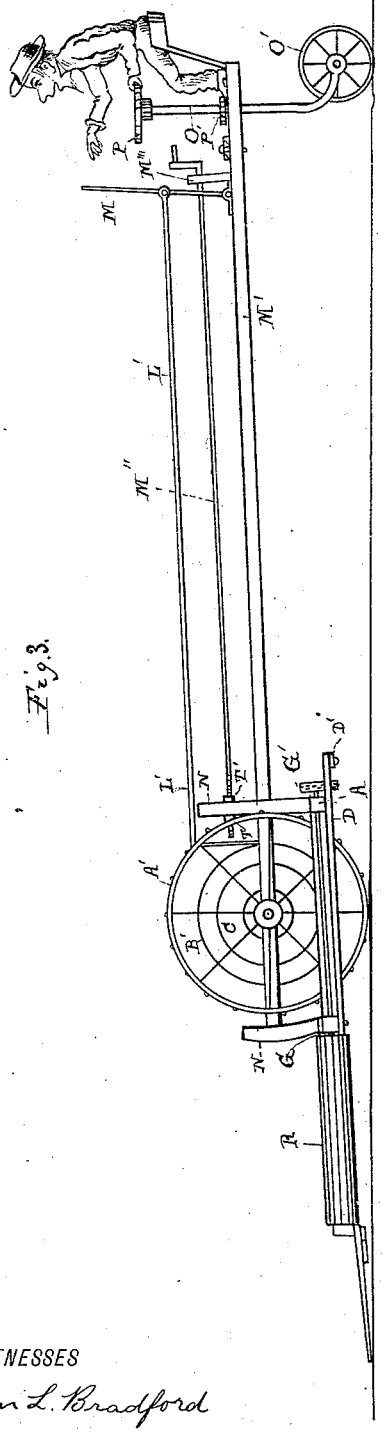

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN C. HARKER, OF GRAND JUNCTION, IOWA.

HARVESTER.

SPECIFICATION forming part of Letters Patent No. 306,151, dated October 7, 1884.

Application filed April 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. HARKER, a citizen of the United States, residing at Grand Junction, in the county of Greene and State of Iowa, have invented certain new and useful Improvements in Harvesters, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in harvesters, particularly to that class in which the main portion of the apparatus is adapted to travel ahead of the draft-animals; and it has for its objects, first, to provide means for conveying the material as it is cut and lodged upon the carrying-apron to either side of the machine at the will of the operator; second, to provide means for adjusting the distance of the cutting apparatus from the ground; and, third, in providing means for securing the guiding-wheel in any set position.

The invention consists of a suitable frame mounted upon driving and supporting wheels and provided with certain mechanical devices for imparting rotary motion in either direction to two or more apron-rollers, over which passes an endless discharging-apron.

It further consists in pivoting the draft-pole upon the main axle and in adjustably securing it at either side of the said axle to the frame by means of a curved guide adapted to receive the forward end of the pole and a second guide or keeper secured to the rear cross-beam of the frame and adjustably connected with the pole.

In the accompanying drawings, forming a part of this specification, and on which like letters of reference indicate corresponding features, Figure 1 represents a plan view of my improved harvester; Fig. 2, a detail view on an enlarged scale of the operating-belt and its driving-wheel; Fig. 3, a side elevation of my improved apparatus; Fig. 4, a detail side elevation of a portion of the main frame, the pole, and adjusting mechanism; Fig. 4ª, a sectional elevation of the keeper or guide for the front end of the pole; and Fig. 5 a plan view of a portion of the pole, showing the devices for holding the guiding-wheel in a fixed position.

The letter A indicates the frame of my improved apparatus, the same being constructed of wood or other suitable material in any desired form. The said frame is mounted upon the main axle B, which carries the driving or supporting wheels A′, the usual clutches being employed for connecting the wheels and the axle. On this axle are secured a gear-wheel, B′, for driving the cutter-bar, and the gear-wheel C, for driving the discharge-belt. To the forward part of the main frame are secured the usual cutter-bar and guard-fingers, and to the said bar are flexibly secured the pivoted levers D, the rear ends of which are connected together through the medium of the bar D′.

To any suitable point of the bar D′ is pivoted one end of the operating-pitman E, the other end of which is attached to the disk E′. This disk is mounted upon the shaft F, having suitable bearings in the frame of the machine, the forward end of the said shaft being provided with a pinion, F′, which intermeshes with the gear-wheel B′, from which it receives and transmits rotary motion to the said disk, which, through the means just described, imparts a reciprocating motion to the cutter-bar.

Journaled at the sides of the frame are the rollers G G, the shafts of which extend rearwardly, and are provided each with a sprocket-wheel, over which passes the drive-chain G′. This chain also engages with sprocket-wheels H I, secured, respectively, to the shafts H′ and I′, which are fitted in suitable bearings secured to the frame. These shafts are provided, respectively, with the pinions J and J′.

Mounted in bearings secured to the frame is an intermediate shaft, K, provided with a bevel-pinion, K′, which intermeshes with the gear-wheel C. To this shaft is fitted the pinion L, having a hub provided with a circumferential groove, the said pinion having a key-seat and being adapted to slide on the shaft, which is provided with a feather or spline.

To the hub of the pinion L is attached a lateral extension of the reversing-rod L′, the extension being preferably bifurcated to engage with the groove in said rod, the other end of the rod being pivoted to the hand-lever M, secured to the draft-pole within reach of the operator's seat. When it is desired to drive the belt in the direction of the arrow, the hand-lever M is drawn toward the driver

and the pinion L shifted rearwardly on its shaft and made to engage the pinion J′, whence through the wheel I and drive-chain G′ rotary motion is imparted to the rollers G, which drive said belt. When it is desired to reverse the direction of the discharge-belt, the lever M is thrown in the reverse direction to that just described. The object of this reversal of the belt will be hereinafter explained.

The letter M′ indicates the tongue or draft-pole of the machine, which near its forward end is pivotally connected with the axle B. To the frame of the machine, forward of the axle, is secured a standard, N′, having side pieces, *n*, the function of which is to form a guide for the forward end of the pole, whereby it is prevented from lateral play. The standards N are secured to the rear bar of the frame, and provided with a cap, *y*, to which is attached a lug, R″, adapted to receive the arms R S, which are pivoted thereto at their upper ends, and at their lower ends to the nuts T T′, below which are the arms S′ R′, also pivoted thereto, and secured at their lower extremities to the plate R‴, the latter being suitably secured to the pole M′. The bar M″ has at one end a right-and-left screw, which passes through the nuts T T′, and extends along the pole M′ through a bearing, M‴, and has at its extremity a crank or hand wheel placed within reach of the driver, in order to enable him to elevate or depress the rear of the frame A by turning the crank to the right or left. This motion will draw the nuts T T′, R R′ closer together or force them farther apart, thus correspondingly moving from or toward each other the parts R″ and R‴, attached, respectively, to the frame and the pole in such a way as either to depress or to elevate the rear of the frame A.

The letter Z indicates a pinion having a shaft and suitable driving-gear to operate the reel. Near the rear end of the pole is attached the double-tree and the single-trees, to the latter of which the draft-chains or traces of the animals are attached.

At the rear of and extending vertically through the pole is a shaft, O, to the lower end of which is journaled the guide-wheel O′, and to the upper end of which is secured rigidly the hand-wheel P. Secured also to this shaft is the pinion P′, and to the pole is pivoted the double foot-pawl Q, which engages with said pinion. The feet of the driver are to be placed upon this pawl, and when the guide-wheel is properly directed the pawl may be forced into locking connection with the pinion P′, and the wheel thus retained as set. To the rear of the shaft O is secured the driver's seat.

The operation of my invention will be readily understood when taken in connection with the above, and is as follows: The horses being hitched to the harvester and driven forward, the cutter-bar and the discharging-belt are operated through the supporting-wheels, the axle, the gear-wheels, and the intermediate mechanism hereinbefore described. As the grain is cut it falls upon the apron and by it is delivered at the side of the machine adjacent to the body of the growing grain. When the machine has traveled around the crop and reaches the point where it started from, the operator in the manner above described reverses the direction of the belt, and thereby delivers the cut grain at the opposite side of the machine to which it was the first time delivered, thus throwing the second swath upon the first and forming a double swath. This greatly faciltates the operation of gathering the hay or grain.

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

1. The combination, in a harvester, of the gear-wheel mounted on the axle, the counter-shaft operated thereby, a pinion sliding on said counter-shaft, the shafts carrying the driving-pulleys, means by which said pinion may be engaged with one or the other shaft at will, the driving-chain, the apron-rollers actuated thereby, and the discharging-apron passing over said rollers, whereby the discharging-apron may be driven in either direction, as desired.

2. The combination, in a harvester, of the gear-wheel mounted on the axle, the operating-shaft actuated thereby, the pinions sliding on said shaft, the shifting-rod engaging said pinion, the lever whereby said rod is operated, the shafts carrying the driving-pulleys and adapted to be engaged either one at will by the sliding pinion, the driving-chain passing over the one and below the other of the said driving-pulleys, the apron-rollers, and the discharging-apron actuated by said drive-chain and adapted to be driven in either direction by shifting the pinion on said shaft.

3. The combination, in a harvester, of the driving gear-wheel mounted on the main axle, the counter-shaft operated thereby, the sliding pinion, the shifting-rod having a lateral extension which engages said pinion, the hand-lever, and the shafts carrying driving-belt wheels, and adapted to be actuated by said sliding pinion at different times.

4. The combination, in a harvester, of the main axle, the main frame pivoted thereto, the thrust-bar also pivoted thereto, the keeper, the toggle-levers pivoted to the keeper and to the pole, the nuts connecting said toggle-levers, and the rod having a right and left hand thread.

5. The combination, in a harvester, of the main axle, the main frame pivoted thereto, the thrust-bar also pivoted thereto, and the guide secured to the frame of the machine and adapted to embrace and guide the forward end of the pole to prevent lateral movement thereof.

6. The combination, in a harvester, of the main axle, the main frame pivoted thereto,

the thrust-bar also pivoted thereto, the guide secured to the frame and adapted to receive and guide the forward end of the pole, the keeper secured to the rear portion of the machine, the toggle-levers pivoted thereto and to the pole, the nuts connected to said levers, and the rod provided with a right and left hand thread for engaging said nuts.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN C. HARKER.

Witnesses:
R. D. O. SMITH,
LEWIS K. ALDER.