

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 29,084, dated July 10, 1860.

To all whom it may concern:

Be it known that I, BENJAMIN A. JENKINS, of Whitewater, in the county of Walworth and State of Wisconsin, have invented a new and useful Improvement in Harvesters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a plan, Fig. 2 a vertical longitudinal section, and Fig. 3 a vertical cross-section, of the machine.

Similar letters of reference in each of the several figures indicate corresponding parts.

The nature of my invention consists, first, in a toothed rake-arm, pivoted at one end, and actuated by two springs, cord, and lever, so as to move in an arc of a circle in a plane parallel to the platform, and also to turn on its own axis, in combination with a spring-plate, forked deflectors, slotted platform, and cutters.

It consists, second, in arms m' , pivoted at the lower end, in combination with stirrups, supporters, cord, pulleys, perforated crank-shaft, and ratchet for the purpose of operating the two arms simultaneously, and thereby to elevate or depress the reel.

It consists, third, in the arrangement of the reel-supporting bar k' , so that its fulcrum is behind the driving-wheels and always in line with the center of the pulleys c' d' , in combination with the pivoted arms m' , in the manner and for the purpose described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Two driving-wheels, z , support the main frame of the machine to which the platform g is attached. The platform g is provided with slots f , which are arcs of circles whose common center is in the point i near the rear end of the platform.

A rake-arm, a , is pivoted at i , so that its axis represents the radius of the axes of slots f . The arm a is provided with a row of rake-teeth, b —one to each of the slots f —and a spiral spring, j , at the pivoted end of the rake-arm (in combination with a stop, s' , fastened to the rake-arm and resting against the under edge of the platform-frame) serves to hold the arm in such a position that the rake-teeth stand upright and project through the slots f up-

ward beyond the level of the platform. The rake-arm is also tied to another spring, k , by means of a cord, l , so as to draw it toward one side of the platform, as seen in Fig. 1.

A plate, c , is arranged underneath the platform, two slots, d , in the plate fitting over two stationary pins, so as to allow the plate to play backward and forward. The plate is pressed forward by a spring, e , so as to cause the edge of the plate to project into one of the slots f in the platform. One end of the projecting edge of the plate c is rounded while the other end is square.

One end of a cord, m , is fastened to the front end of rake-arm a . The cord passes over two guide-pulleys—one, n , attached to the main frame of the machine, the other, o , to the upper end of an arm, n' , the lower end of which arm is pivoted to the main frame. The other end of cord m is fastened to the frame of the machine. The arm n' is arranged near the driver's seat q , so that the driver can readily move it whenever it is necessary to discharge the cut cornstalks in a gavel on the ground ready to bind, which is done in the following manner:

On moving forward the arm n' the cord resting on pulley o is also moved forward, and thereby caused to draw the forward end of rake-arm a to the side of the platform next to the driver's seat, the path of every point of the rake-arm being a circle in a plane parallel to the platform, and the center of which path is at i . The rake-teeth move, while in an upright position, through the slots f , and thus gather the cornstalks and move them toward and under the deflectors p' and discharge them in gavels onto the ground. One of the rake-teeth b , while passing by the rounded corner of plate c , presses the plate back until the tooth has passed the other square corner of the plate, when the plate will assume its original position in obedience to the action of spring e .

When the driver desires to remove the rake-arm a to its original position (represented in Fig. 1) he moves the arm n back. The cord m , as it descends together with pulley o , allows the rake-arm to obey the tendency of spring k and return into its original position. As the rake-arm commences to move back the tooth b , which had previously actuated the plate c , strikes against the square corner of

the plate and is turned down, so as to pass in an oblique position underneath the plate *c* until, passing the other corner of the plate, it is free to reassume its original vertical position. As the tooth is turned down the rake arm is turned on its own axis against the tension of the spiral spring *j*, and of course all the rake-teeth are turned down so as not to project above the platform, while the rake-arm moves back to its original position. When the tooth has passed the plate *c* the rake arm and teeth assume their first position, turning on the axis of the rake-arm in obedience to the impulse of the spiral spring *j*. The deflectors *h* on that side of the platform are forked, as seen at *h'* *h'*, so as not to obstruct the path of the rake-teeth. The reel-shaft *h'* has its bearings in the forward ends of two supporting-bars, *k'*, the rear ends of which are pivoted at *b'* to standards *a'*, projecting from the main frame of the machine in rear of the driving-wheels. The reel-supporters *k'* are held in stirrups *l'*, fastened to the upper ends of oblique arms *m'*, the lower ends of which are pivoted to the main frame at *q'*. A cord, *r*, is fastened at one end to one of the arms *m'*, passes around guide-pulleys *r' r'*, (fastened to the standards *a'*), through a perforation in a crank-shaft, *s*, and has its other end fastened to the other arm *m'*.

Whenever the driver desires to raise the reel he turns the crank on shaft *s*, so as to wind up the cord *r*. As the cord *r* is wound up the arms *m'* are made to turn on their pivots *q'*, so as to approach a vertical position. The forward ends of the supporters *k'* (and with them the reel) will slide through the stirrups *l'* and be raised in exact proportion to the approach of arms *m'* to a vertical position. The reel is raised in the line of a circle the center of which is at *b'*; but this center or fulcrum of the supporters *k'* being arranged back of the driving-wheels, the radius of that circle (equal to the length of the supporters *k'*) is so long that the path in which the reel is raised does not materially deviate from a vertical line above the cutters *i i*, and is thus kept in a proper relation to the cutters, whether raised or lowered.

A ratchet-wheel, *u*, upon crank-shaft *s*, and spring-click *t*, serve to maintain the crank-shaft, and thus the arms *m'*, supporters *k*, and reel, in any position.

Motion is transmitted from a pulley, *e'*, attached to one of the driving-wheels, to pulleys *c' d'* by means of a band, *f'*, passing over pulleys *e'* and *c'*. The reel-pulley *o'* is driven from pulley *d'* by means of a band, *g'*, passing over these two pulleys. As the pulleys *c' d'* have their bearings in line with the fulcrum *b'* of the sup-

porters *k'*, the distance of the pulleys *c' d'* from the driving-pulley *e'* and from the reel-pulley *o'* will not be varied while the reel is raised or lowered. Thus a uniform tension necessary for the proper transmission of power will always be maintained in the bands *g' f'* independent of the adjustment of the reel. The shafts *w'*, to which the animal is to be hitched, are hinged to the machine at *x'*. The forward end of a lever, *w'*, is hinged to the cross-bar *w''* of the shaft *w'*. The lever is fulcrumed at *v'*, and a cord, *t'*, is tied at one end to the rear part of lever *w'* and at the other end to a crank-shaft, *y*. The driver on turning this crank-shaft can wind up the cord *t'*, so as to lift the rear end of lever *w'* and cause its forward end to depress the shafts and throw the heft of the fore part of the machine on the horse's back, thereby raising the cutters and rollers from the ground so as to turn round easily. The lever and shafts are maintained in their positions by a ratchet-wheel, *x*, upon shaft *y*, and spring-click *w*. Two rollers, *j'*, are arranged—one at each side of the cutters *i' i'*—to run on the ground, and thus to support the cutter end of the machine and keep the cutters at the proper height above the ground. Any long grass, weeds, vines, or the like which come between and overhang the cutters will be caught and drawn underneath the rollers *j'*, and thus be cut or torn out and drawn over the cutters, so as not to obstruct their operation.

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

1. A toothed rake-arm, *a*, pivoted at one end and actuated by two springs, *j k*, cord *m*, and lever *n'*, so as to move in an arc of a circle in a plane parallel to the platform, and also to turn on its own axis, in combination with a spring-plate, *c*, forked deflectors *h h'*, slotted platform *g*, and cutters *i' i'*, in the manner and for the purpose described.

2. Arms *m'*, pivoted at the lower end, in combination with stirrups *l'*, supporters *k'*, cord *r*, pulleys *r' r'*, perforated crank-shaft *s*, and ratchet *u*, for the purpose of operating the two arms *m'* simultaneously, and thereby to elevate or depress the reel, in the manner and for the purpose described.

3. The arrangement of the reel-supporting bar *k'*, so that its fulcrum is behind the driving-wheels and always in line with the center of the pulleys *c' d'*, in combination with the pivoted arms *m'*, in the manner and for the purpose set forth.

B. A. JENKINS.

Witnesses:

GOODWIN Y. ATLEE,
R. W. FENWICK.