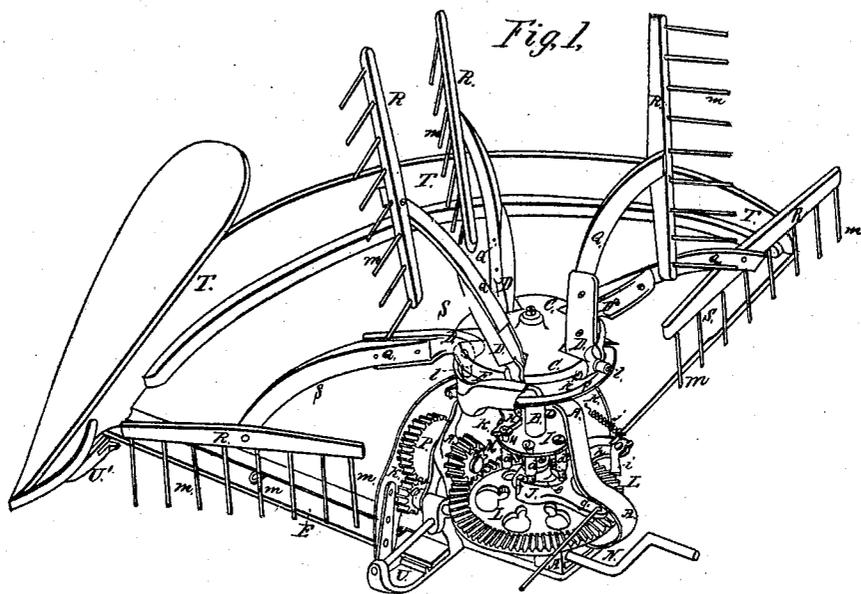


C. YOUNG.

Improvement in Reel-Rakes for Harvesters.

No. 133,285.

Patented Nov. 19, 1872.



Witnesses.

Henry K. Mygatt.
Edmund Mason.

Inventor.

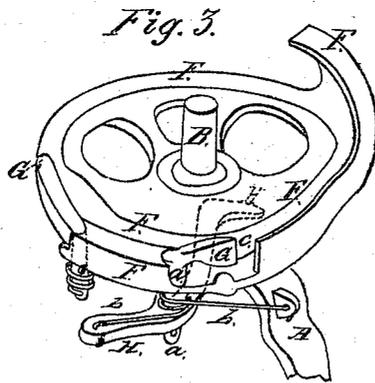
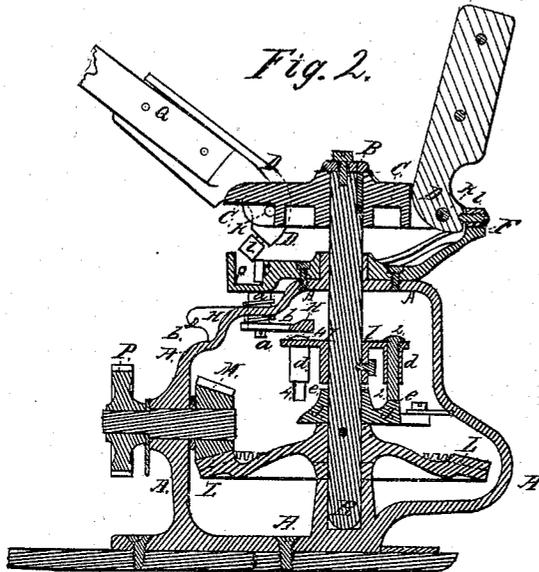
Calvin Young
By atty A. B. Staughton.

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UNITED STATES PATENT OFFICE.

CALVIN YOUNG, OF AUBURN, NEW YORK, ASSIGNOR TO CYRENUS WHEELER, JR., OF SAME PLACE.

IMPROVEMENT IN REEL-RAKES FOR HARVESTERS.

Specification forming part of Letters Patent No. 133,285, dated November 19, 1872.

To all whom it may concern:

Be it known that I, CALVIN YOUNG, of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Reel-Rakes for Harvesting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 represents the reel-rake in perspective and so much of a harvesting-machine as will illustrate its connected action therewith. Fig. 2 represents a vertical section through the rake-operating mechanism; and Fig. 3 represents, in perspective, the permanent cam-way, and the switches connected therewith, for changing the path of the friction-rolls upon the rake-shanks, as well as the operation of the rake itself.

Similar letters of reference, where they occur in the separate figures, denote like parts of the apparatus in all of the drawings.

By my invention the rake can be set to deliver the bundles automatically, and at uniform or adjustable distances. It can also be set, if so desired, as to deliver the cut grain in a practically continuous swath; and when the rake is arranged for delivering bundles, or in a continuous swath, the operator can still control its action so as to carry the bundle or the swath beyond the corners of the field, so that the team will have a clear space in turning at the corners, and will not trample on the bundles or the swath.

To enable others skilled in the art make and use my invention, I will proceed to describe the same with reference to the drawings.

In a stand, A, having suitable bearings therefor, is placed and supported, so as to be freely turned by suitable driving-machinery, a spindle, B, on the top of which is fastened, so as to turn with it, a head, C, having five or more jaws for receiving the elbow-pieces or rake-shanks D. The location of the spindle is nearly perpendicular to the surface of the platform, and slightly inclined forward at its top to the plane of the finger-bar E. Near the top of the stand, and below the head C, is fastened a track or cam-way, F, which track is

double on that portion of it next to the platform, and it is furnished with switches or gates G G', hinged at each end of the outer portion of the two tracks. The switch G has a lever, H, fastened to the lower end of its spindle *a*, which projects below the track F. To the short end of the lever H is fastened a spring, *b*, which is coiled around the bearing of the gate-spindle, and is fastened at its other end to the stand A. This spring *b* serves to keep the free end of the switch against the wall *c* of the inner track of the cam-way. To the spindle B, below its upper bearing in the stand, is fastened a wheel or head, I, having five holes arranged around its circumference and near its edge, equidistant apart, and parallel to the spindle. In each of these holes is placed a bolt or pin, 1 2 3 4 5, which have rounded or conical heads, and are flat underneath their heads. These bolts are loose in their holes so as to freely rise and fall therein, and their shanks project through and beyond the under portion of the wheel or head I, or of the sleeves or bosses *d* thereon. On this same spindle B, and below the head I that carries the pins or puppets 1, 2, 3, &c., is placed another head, J, so arranged as to play loosely around the spindle as a center, and on the upper surface of this head J there is formed an inclined track, *e*, that terminates abruptly at the point *f*, and this track *e* is so placed as to be in the same path in which the lower ends of the puppet-pins travel as they move around with the spindle B. The track *e* has sufficient elevation to raise the pins as they travel over it, so that the heads of the pins will be somewhat higher than the thickness of the lever H, which is fastened to the switch G. The vibrating head or track J has two arms, *g h*, which serve to limit or regulate its extent of motion. To the rear arm is fastened a button or stop, *i*, by a set-screw, so that it may be set or changed at pleasure; and to one end of this stop, or to its arm, is fastened one end of a spring, *j*, the other end being fastened to the platform, or to the shield K, which spring serves to keep the vibrating track J drawn back. A cord, or chain, or rod is fastened to the other arm *h*, and extends to the driver's seat, so that the driver may draw the track around in one direction, while the spring *j*

will return it, when released by the driver. To the spindle, below the track J, there is fastened a crown-wheel, L, with which a pinion, M, supported by bearings in the stand A, meshes. Motion may be imparted to the shaft of the pinion M through a shaft, N, and the gears O P, or by a sprocket-wheel united by an endless chain to a similar wheel on the main axle of the driving-wheel of the machine, or by the gearing driven from said axle, as may be preferred, and should be so arranged that the crown or bevel wheel L will make one revolution while the machine advances forward from eighteen to twenty feet. To the jaws of the head C, on top of the spindle B, are pivoted, as at *k*, the elbow-pieces D. The short arms of the elbow-pieces, below their pivot or hinge, have friction-rollers *l* on them; and the upper or outer portions of said elbows are recessed on their sides for receiving and holding one end of the wooden arm Q bolted thereto, the other end of said wooden arm having a rake-head, R, bolted thereto, so that the teeth *m* will follow closely the surface of the platform when the friction-rollers *l* move on the inside track or cam. The platform S is what is termed a "quadrant-platform," and has a fence or guide board, T, on its outer circumference, for keeping the grain in its proper path, when moved by the rake-teeth *m* in discharging it. The platform is fastened to the finger-bar E and to the shoes U U', the inner shoe U being furnished with lugs or ears for hinging it to a two-wheeled machine. On the platform S, close to and just back of the inner shoe U, the stand A is placed and bolted, and it may be further supported by the rear part of said shoe. This location of the stand and gears balances, or aids to do so, that part of the platform beyond or outside of said shoe, said shoe being the fulcrums upon which the platform is supported, and would rock laterally. The shield or curb K on the inner corner of the platform, and outside of the stand A, is designed to protect the stand and gear from the falling grain.

The operation of the machine is as follows: When the button or stop *i* on the arm *h* of the vibrating track J is set so that it will strike against the stand A when the track is drawn around, then, in that condition, the rakes will alternately sweep the grain from the platform, and will so continue to do as long as the track is there held, for in this position the poppets 1, 2, 3, &c., as long as they pass around, are each successively raised up, so that they will strike the switch-lever H, if it be in position to be struck, and as they move forward they push out the lever and open the switch, so that the friction-roller *l* nearest the switch is permitted to follow the inner track of the camway F, and the rake sweeps off the accumulated grain in a gavel at the side of the platform. As the switch-lever H, when thus pushed around by one of the pins or poppets, does not return to its normal position as soon as or in time to be caught by the next succeeding pin,

or before the lower end of the pin drops off of the track at *f*, that pin does not catch or operate said lever, its head passing underneath the lever, and the rake then next the switch or its roller must take the outer track, and is by it raised up above the platform and does not sweep it. But by the time the very next succeeding pin comes around the lever has returned to its normal position, and this pin, striking it and carrying it around, opens the switch, and allows the next rake to take the inner track, and, as before, sweep the platform. The heads of these poppet-pins, when once brought against the lever H, prevent the pins from dropping down until the switch is entirely and fully opened; and it will be seen that by this arrangement the gate or switch must be open to its full capacity and at the proper time to receive the rake-roller, so that there is no chance for the friction-roller to come in contact with it so as to check or stop the movement or endanger the breaking of the machine. When delivering the grain by each alternate rake, as above described, and it should become necessary to carry the grain on the platform further—as, for instance, in turning the corner of the field, where a clear path is necessary for the next round—it is only necessary for the driver to slacken the rod, chain, or cord, and the vibrating track will be immediately drawn back by its spring *j*, and in this position the poppets will drop down before they reach the switch-lever, and, not striking it, the switch remains closed, and the friction-rollers of the rakes will travel on the outer track and raise the rake-teeth above the grain on the platform. As soon as the team has passed the corner the vibrating track is again brought around by the operator, and each alternate rake again sweeps off the grain. When the grain varies in stoutness or bulk the operator can, by means of the vibrating track, make the bundles of any desired size, and at pleasure change them, by holding the track forward until one of the poppets strikes the switch-lever, and then releasing the track until sufficient has gathered to make a bundle, and then drawing it around again, and so repeating the operation. This can be done leisurely, as the second rake cannot be made to rake off the grain when the stop or button *i* is properly adjusted. By turning the button or stop back so that it will not strike the leg of the stand, the track can then move far enough to permit each poppet in regular succession to strike the switch-lever, so that when held by the operator each rake will necessarily sweep the grain from the platform, which will be in nearly one continuous swath. By slacking the rod, chain, or cord, at the corners the grain can be carried by and out of the way of the team in turning, as above stated. If all of the poppets be removed except one, and the operator holds the vibrating track in place, then one bundle will be made at each revolution of the series of rakes, and without any further attention on his part than merely to hold on to the rod,

chain, or cord; and, as above stated, by releasing the track the grain can be carried around the corners of the field and out of the way of the team. When an even number of rakes are used, as two, four, six, and so on, the removing of a part of the poppets will cause the raking to be done automatically, at a sixth, third, or half of, or an entire revolution of the crown or bevel wheel, so that if the machine moves forward, say, twenty feet, at one revolution of said wheel, a gavel may be made every three feet and four inches, six feet and eight inches, ten, or twenty feet, as the case may be, or it may be left in a swath, the only change necessary being the use of the necessary number of poppets in the head I, and as they are or may be entirely loose in their seats they can be removed and replaced in a moment. The rake-heads R all act as reels, as they enter the grain in advance of the cutters, and bring it back and onto the platform. After passing the cutters and finger-beam the rakes rise and pass over and above the fallen grain; and as the rake-heads pass the delivery side of the platform they are elevated still higher, so that space is left on the machine for the driver to ride. By this arrangement all danger of breakage by reason of the friction-rollers striking the switch is prevented. The machine itself opens the switch, and delivers the gavels without the care or attention of the driver, or delivers it in a swath, if desired. It is entirely controllable, whether

delivering the grain in bundles or in a swath, and can be changed, set, or adjusted without any liability to disarrangement or of breakage.

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

1. In combination with a reel-rake, the series of sliding pins or spurs, or substantial equivalents, which open the switch G when necessary to change the action of the reel-rake, and which are always under the control of the operator, substantially as and for the purpose described.

2. The switch G, worked controllably by means of a series of pins or spurs inserted loosely in a series of holes formed in a collar fastened to and revolving with the rake-shaft, and a movable cam-track, J, arranged below the pins or spurs so as to cause any one of the pins or spurs to act upon the lever for moving the switch at the pleasure of the operator, substantially as described.

3. The combination of a reel-rake, a double cam-way, a switch and lever, and the pins or spurs and movable cam-track, arranged to prevent two of the rakes in succession from sweeping the platform when the switch is opened for discharging the gavel, substantially as set forth.

CALVIN YOUNG.

Witnesses:

A. B. STOUGHTON,
EDMUND MASSON.