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IMPROVEMENT IN HARVESTER-RAKES.

Specification forming part of Letters Patent No. 181,538, dated August 29, 1876; application filed April 1, 1876.

To all whom it may concern:

Be it known that I, HENRY E. PRIDMORE, of Brockport, in the county of Monroe and State of New York, have invented a new and useful Improvement in Reel-Rakes, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

Figure 1 is a plan view of the head H, carrying the rake-arms A and the cam T. Fig. 2 is an inverted view of a portion of the cam T, showing the lever *c* and other parts. Fig. 3 is a side elevation of my invention, the view being taken in the direction of the arrow *y* in Fig. 1. Fig. 4 is similar to Fig. 2, showing another position of the lever *c* and other parts. Fig. 5 is an elevation of some of the parts under the cam T, the view being taken in the direction of the arrow *y*¹ in Fig. 3. Fig. 6 is another view of the parts shown in Fig. 5, viewed from an opposite direction, as indicated by the arrow *y*² in Fig. 3. Fig. 7 shows detached portions of the pivoted end of a rake-arm and roller, *a*. Fig. 8 shows more clearly the trip-latch *b*, pivoted to the guide *s* under the cam T. Fig. 9 is a modification of the guide *s*.

My invention relates to that class of harvester-rakes known as "revolving reel-rakes," in which a proper motion is given to the rakes by means of rollers attached to the same traveling upon a cam-shaped track, in which is employed a "switch;" and it consists, mainly, in the employment of a spiral or worm of rapid lead, fitted to and turning with the shaft carrying the rakes, and a tripping-lever of novel construction, operated by a latch, automatically or otherwise.

In the drawings, Fig. 1 shows the driving-head H, rake-arms A, and track or cam T as of ordinary construction. The dotted line K shows the line of the cut, and the arrow *y*³ the advance.

The switch S rests upon the horizontal web portion of the cam T, to which it is pivoted by a short shaft or stem, *g*, rigidly fastened in the switch, and extending vertically down through the said cam. The switch S, as is the case in this class of rakes, has two posi-

tions—open, as shown in full lines, and closed, as shown in dotted lines, the use of which is well understood. To the lower end of the stem *g* the two-armed washer *r* is rigidly fastened, Figs. 2 and 3, the said washer and switch moving together as if of one piece. To the vertical shaft C the spiral cylinder or hub B is fastened, at a short distance beneath the cam T. The convex surface of the hub B is furrowed by several parallel and independent spiral grooves, each traversing the length of the hub at a single turn. The bifurcated lever *c*, Figs. 2 and 3, is provided with a prong, which is hooked through a hole, *e*, in an arm of the washer *r*, forming therewith a free, universally-working joint. One branch, *f*, of the lever *c* reaches through a slot in the guide *s*, while the corresponding branch *f*¹ points directly toward the spiral hub B.

The switch S, as shown by dotted lines in the inverted view, Fig. 2, stands open, the corresponding position of the washer *r* and lever *c* being shown in full lines, the slightly-tilted position of the latter being shown in Fig. 3, in which a branch of the same is shown resting upon the arm *c*¹ of the washer *r*. As a roller attached to a rake-arm enters the open switch, it eventually presses upon the heel *h* of the same, which stands across its way, and closes the switch, as shown in dotted position in Fig. 1.

By observing Fig. 2, it will be understood that, as the point of the switch moves shut, the arm *e* of the washer *r* will be carried in a corresponding direction, carrying the lever *c* with it, by which movement the end of the branch or leg *f*¹ of the said lever will be forced into one of the spiral grooves of the hub B. It will also be seen that the arm *c*¹ of the washer, moving backward or in the opposite direction, will reach the shoulder *i*, when that part of the lever *c* will drop slightly, (see Fig. 3), the ledge *o* catching upon the arm *c*¹. This new position of the lever *c* and washer *r*, corresponding to the switch when closed, is shown in Figs. 4 and 5, in which position the switch is temporarily locked shut.

k is a spring pressing against an upturned portion of the washer *r*, Fig. 3, the use of

which is to open the switch as soon as the same is unlocked by the shoulder *i* and arm *c'* becoming disengaged. The tendency of the spring is to hold the point of the switch open and against the stop *n*, Figs. 1 and 3.

As the spiral hub B, Figs. 5 and 6, slowly revolves, the legs *f'* and *f* of the lever are carried upward, the former along a spiral groove in the hub B, and the latter along the vertical slot in the guide *s*, Fig. 3. The two points of bearing *i* and *e*, between the lever *c* and arms of the washer *r*, form temporary pivot-points, upon which the lever turns in its upward movement. Now, if the upward motion of the leg *f* along the slot in the guide *s* is stopped at any point, the leg *f'* will continue its motion up the spiral, and the pivot-points of the lever *c* above mentioned will suddenly change from *i* and *e* to *e* and the point of contact between the leg *f* and the obstruction that stops it. The effect of this is to cause the side of the lever *c* nearest the observer, as shown in Fig. 5, to rise bodily, which disengages the arm *c'* of the washer *r*, or "trips" the lever, when the spring *k* immediately opens the switch and allows the roller *a* of the approaching rake-arm to pass in and the rake to clear the platform. When the lever is tripped, it falls and assumes the position shown in Fig. 3, the leg *f* resting upon the bottom of the slot in the guide *s*.

In order that the upward motion of the leg *f* may be conveniently arrested at any point, I design to use a stop-latch, *b*, constructed substantially as shown in Fig. 8, lying against and pivoted to the guide *s*. This stop-latch or stop *b* has its middle portion cut out, leaving the teeth *e'*, &c., on one inner side, and *a'*, &c., on the opposing inner side.

The lower end of the guide *s* is elongated laterally, and perforated with as many holes *i'*, &c., as there are teeth *e'*, &c., in the stop *b*. These holes are for the purpose of receiving a pin, *j*, against which the lug *p* of the stop-latch *b* rests, being held thereat by the counterweighted portion *l* of said stop-latch.

The stop-latch *b* is so constructed that when the lug *p* rests against the pin inserted in the hole *i'* the tooth *e'* stands across the slot *v* in the stud and forms a stop for the leg *f*.

When the pin is removed to the hole *i''* the tooth *e''* comes in position to stop the same, and when inserted in the hole *i'''* the tooth *e'''* forms the stop for the said leg. Every time the leg *f* is stopped the lever *c* is tripped, and one rake is allowed to rake the platform, which, however, as the roller *a* passes within the switch, recloses the same, and the succeeding rakes only reel the standing grain till the lever is again tripped.

I prefer to use five rakes, and to so locate the tooth *e'* that the lever will be tripped at regular intervals, allowing but one of the five to rake the platform, and by properly arranging other teeth, *e''*, *e'''*, &c., I am enabled to cause the lever to trip sooner, and allow every

fourth, third, or second rake to regularly and automatically rake the platform.

The rod D, attached to the stop-latch *b* at *l*, is intended to reach to a pedal located conveniently for the foot of the driver, who at any time may trip the lever out of its regular time by throwing the teeth *a'*, &c., across the slot *v* in the stud.

If necessary to use the rakes only to reel the grain, the driver, by means of the rod D and pedal, may bring the space *u* of the stop-latch *b* opposite the slot *v*, and deprive the leg *f* of any stop, during which the lever will remain untripped, and the switch consequently closed, the rakes acting only as a reel. I also design to provide a suitable stop or catch for holding the stop-latch *b* in this position, and relieve the driver from the constant exertion otherwise necessary.

If it is necessary for every rake to clear the platform, as is the case in "swathing" the grain, I design to replace the switch S by one having no heel *h*, in which case the switch will remain open, allowing each roller *a* to pass through.

t is a spring, fastened to the under surface of the cam T, reaching to the spiral hub B, against which the leg *f'* presses as it is carried near the top of the said hub, as shown in Figs. 5 and 6. As the leg *f'* is carried up over the end *e'* of a spiral, this spring forces it down upon the next spiral, up which it rides, and so is forced down upon the next. This operation takes place only when the lever *c* is not intended to trip—that is, when the rakes are operated as a reel only, as above described.

When the leg *f'* drops from the end of one spiral down to the next, the leg *f* drops sufficiently low to be caught under one of the stop-teeth *e'* or *a'* were it presented; and the leg *f'*, riding from the end of one spiral up the next, rises sufficiently to trip the lever *c*, as above described, in case a stop-tooth is thrown in the way of the leg *f*.

Fig. 9 shows another form of guide that it may be convenient to use, having teeth formed on the side of the slot, using a trip-latch, *b*, arranged so as to draw the leg *f* of the lever under the teeth to stop it.

I do not intend to confine myself to a V shaped spiral upon the surface of the cylinder B, as it may be desirable to employ a spiral of rectangular cross-section, or one having the inclination all on one side.

I claim as my invention—

1. In a reel-rake, a cylinder, B, revolving with the shaft C, having its convex surface spirally furrowed, for the purpose set forth.

2. A bifurcated lever, *c*, in combination with the spirally-furrowed cylinder B and stop-latch *b*, substantially as shown, and for the purpose set forth.

3. A stop-latch, *b*, provided with stops *e'* and *a'*, &c., for the purpose set forth.

4. A washer, *r*, provided with arms *e* and

*c*¹, in combination with the switch S, stem *g*, tripping-lever *c*, cylinder B, and spring *k*, substantially as shown and described.

5. A pendent slotted guide, *s*, with or without notches *v*, employed to guide the branch *f* of the lever *c*, substantially as shown and described.

6. A stop-pin, *j*, in combination with a stop-latch, *b*, and stud *s*, substantially as and for the purpose set forth.

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Witnesses:

E. B. WHITMORE,
HENRY H. LATZ.