S. C. COBB.

Harvester-Rake.

No. 209,327. Patented Oct. 29, 1878.

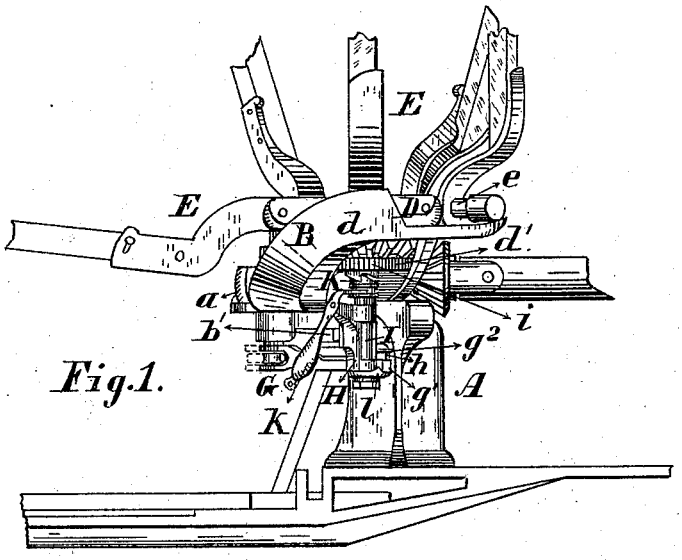

Fig. 1.

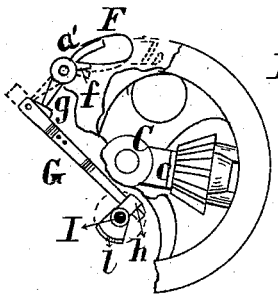

Fig. 2.

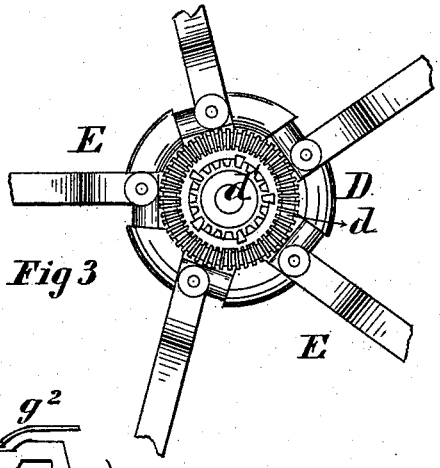

Fig 3

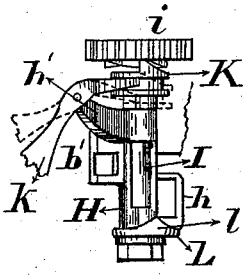

Fig 4

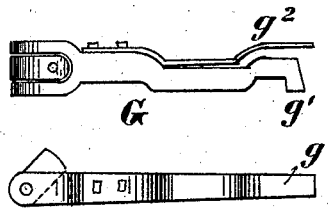

Fig 5

Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL C. COBB, OF JANESVILLE, WISCONSIN, ASSIGNOR TO HARRIS MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN HARVESTER-RAKES.

Specification forming part of Letters Patent No. **209,327**, dated October 29, 1878; application filed February 14, 1878.

To all whom it may concern:

Be it known that I, SAMUEL C. COBB, of Janesville, in the county of Rock and State of Wisconsin, have invented a new and useful Improvement in Harvester-Rakes, which is fully described in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a front elevation of a harvester revolving reel and rake involving my improvements, some portions being broken away; Fig. 2, a plan view of the driving and regulating mechanism, a portion of the cam being broken away; Fig. 3, a plan view of the bottom of the rake-head; Fig. 4, a detail elevation of the trip-gear and its supports; and Fig. 5, detail views of the automatic trip-lever.

My invention relates to that class of harvester-rakes generally known as "combined revolving rake and reel," the general features of which are now well known.

The invention consists in locating the gear-wheel which drives the automatic trip upon the rake-head, and casting it in one piece therewith.

It also consists in special devices for operating the automatic switch-trip and in various combinations of devices, all of which will be hereinafter more fully set forth.

In the drawings, A represents the standard or post upon which the revolving rake and reel is supported, and which is itself mounted either upon the grain-platform or finger-beam in any well-known way. The cam-guide B is mounted upon this standard, and is substantially the same as those heretofore used, and is provided with switches *a b*, so as to give the cam a double track, in a way well known. A post or shaft, C, is arranged upon the upper side of the cam. This post is cast in one piece with the cam, and is arranged in an upright position and adapted to form the journal of the revolving head, to which the rake-arms are hinged. A short shaft, *c*, extending horizontally from the foot of the shaft C, is also cast in one piece with the latter and the cam, and adapted to receive the beveled pinion, by means of which motion is communicated from the main gearing to the rake-head.

The rake-head D is mounted upon the shaft C, and the rake-arms E hinged thereto, the latter being provided with elbows *e* on the under side, at their inner ends, which carry friction-rollers, and are arranged to run upon the cam, for the purpose of changing the position of the rakes as required.

On the under side of the rake-head D the usual bevel-gear *d* is arranged, to which motion is communicated by the bevel-pinion. A spur-gear wheel, *d'*, somewhat smaller than the bevel gear, is arranged just below the latter, as shown in Figs. 1 and 3 of the drawings.

The rake-head, bevel-gear, and spur-gear are all cast together, so as to constitute but a single piece, which feature makes the construction of these parts simple, compact, cheap, and durable.

In this rake I use an automatic trip for changing the front switch, *a*, automatically, thereby changing the path of one of the rake-arms at the proper time to cause it to sweep over the platform for the purpose of discharging the gavel.

A bent spring, F, is arranged at the rear of the switch, below the cam, so as to act upon an arm, *f*, projecting from the rear portion of the switch-pivot in such a manner as to turn the switch outward or open, in which position it will always hold it, unless its force is counteracted by some other device.

An arm or rod, G, is pivoted at one end to an arm, *g*, at the lower end of the front switch-pivot, from which it projects forward, as shown in Fig. 2 of the drawings. The rod G is carried forward and inward toward the standard, and at its forward end is inserted in a loop or keeper, *h*, which is at one side of a bearing secured to the cam, as shown in Fig. 4 of the drawings. The forward end of this arm G is bent down and arranged to form a hook or catch, g^1, as shown in Fig. 5 of the drawings, which, when the rod is projected through the loop *h*, catches over the lower end of the latter, thereby holding it from slipping back.

A spring, g^2, is fastened at the rear end to the upper side of the tripping-arm G, the forward end of which extends within the loop *h*, and operates to depress the forwerd end of the trip-arm G and cause the catch to engage with

the keeper. The trip-arm is attached to the arm on the switch-pivot by a universal joint, so as to permit both vertical and horizontal movement of the arm.

Now, it is evident, from the above description of the construction and arrangement of these parts, that the latch-piece G operates in opposition to the spring F, so that when it is projected forward the switch will be closed, and will be held in this latter position by the engagement of the latch with its keeper *h*, in opposition to the force of the spring F, which tends to throw the switch open. The keeper *h* is on a box or bearing, H, which is constructed to receive and support an upright shaft, I, and is bolted to a lug, *b'*, projecting from the under side of the cam B, the lug being slotted to permit the adjustment of the bearing. In this bearing is journaled the trip-shaft I, which carries upon its upper end a loose pinion, *i*, the parts being arranged so that the latter engages with the spur-wheel *d'* on the rake-head. A sliding clutch, K, is also attached to the shaft I by the usual spline and groove, and arranged just below the pinion *i*, so that when moved up it will engage with clutch-teeth on the lower face of the latter. A clutch-lever, *k*, is pivoted to an arm, *h'*, on the upper end of the box H, the forked end of which embraces the clutch, so as to slip the latter up and down on its shaft when vibrated.

At the lower end of the shaft I is a trip, L, which is rigidly fastened to the shaft, and has a cam-projection, *l*, upon its upper face and outer end. This trip is arranged to revolve just underneath the latch G, so that if the latter is caught in the keeper the cam-projection on the trip will lift the forward end of the latch sufficiently to disengage the catch, when, of course, the switch-spring will operate immediately to throw the switch *a* open. This switch is constructed with the usual extension *a'* in rear of the pivot, bent inward, so that when the switch is open it will stand in the path of the first elbow passing along the inside track of the cam, and by it will be forced out to close the switch again, the spring-latch also engaging again with its keeper to fasten the switch.

Now, the gear-wheels *d'* and *i* are timed so that the latter revolves once with each revolution of the former; hence it is evident that, if the pinion *i* remains clutched to its shaft, at each revolution of the rake-head the switch will be opened once, so as to change the path of one of the rakes and cause it to sweep the platform, but will be held in a closed position for all the rest of the rakes.

The clutch-lever *k* is weighted at its outer end, so that it will automatically operate to engage the clutch with the pinion *i* and hold it in this position. A cord may be attached to the lever and extended within reach of the driver, so that the clutch may be disengaged at will if it is desired to skip an interval, when one of the rakes in regular order would sweep the platform. It is evident, also, that the trip-gearing may be so timed as to cause more than one of the rakes to sweep the platform during one revolution of the rake-head, or so that it will require more than one revolution of the latter to open the switch and cause a rake to sweep the platform, this arrangement being a mere matter of calculation to adapt the rake to the special interval desired.

I am aware of Letters Patent No. 186,413, granted to Orville Cooley, January 23, 1877, and No. 187,296, granted to Jacob H. Myers, February 13, 1877, and I do not claim any device or combination of devices described and shown in either of said patents.

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

1. The gear-wheel *d'*, for driving the automatic trip, arranged upon the rake-head D, substantially as described.

2. The rake-head D, bevel-gear *d*, and trip-driving gear *d'*, arranged as specified, and cast together to form a single piece, substantially as described.

3. The independent bracket H, provided with bearings for the trip-shaft and with a loop or keeper, *h*, for the latch, in combination with the rake-cam to which it is secured, substantially as described.

4. The upright trip-shaft I, in combination with a sliding clutch, K, arranged thereon, and loose pinion *i*, substantially as described.

5. The weighted lever *k*, in combination with the clutch K on trip-shaft I and loose pinion *i*, substantially as described.

6. The spring-switch *a*, in combination with the spring-latch G and loop or keeper *h*, substantially as described.

7. The upright shaft I, in combination with the loose pinion *i*, clutch K, cam-trip L, attached to the shaft, and latch G, substantially as described.

8. The latch G, connected to the switch-lever, in combination with the spring g^2, keeper *h*, and rotating cam-trip L, substantially as described.

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Witnesses:
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