R. D. WARNER.

HARVESTER-RAKE.

No. 191,743. Patented June 5, 1877.

Fig:1

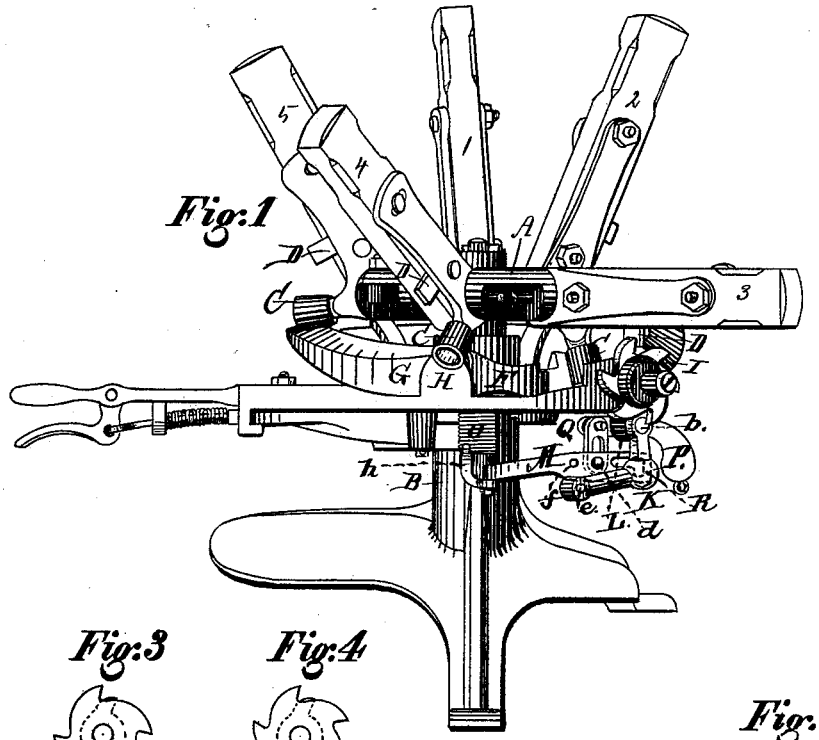

Fig:3

Fig:4

Fig:6

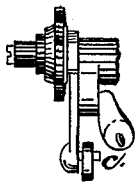

Fig:5

Fig:2

Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT D. WARNER, OF SYRACUSE, NEW YORK, ASSIGNOR TO CHRISTOPHER C. BRADLEY, OF SAME PLACE.

IMPROVEMENT IN HARVESTER-RAKES.

Specification forming part of Letters Patent No. **191,743**, dated June 5, 1877; application filed May 24, 1876.

To all whom it may concern:

Be it known that I, ROBERT D. WARNER, of Syracuse, in the State of New York, have invented a new and useful Improvement in Harvesters, of which the following is a full, clear, and precise specification, reference being had to the accompanying drawings, forming part of this specification, of which—

Figure 1 is a front elevation of my device, showing the entire mechanism; Fig. 2, a plan view of the same; Figs. 3, 4, and 5, details of modified forms of ratchet-wheels. Fig. 6 is a side elevation of a portion of the gate-controlling mechanism.

Similar letterings refer to corresponding parts in all the figures.

My invention relates to the rake-head camways of harvesters; and has for its object an automatic means of opening and closing the gates of such camways so as to permit any alternate number of the rake-arms to rake, and any alternate number to reel, in any desired succession, or all to continuously rake, or to continuously reel, or intermittently to rake and reel; to which end it consists in the mechanism hereinafter described and claimed.

With reference to the drawings, A is the rake-head pivoted to the supporting-piece B. 1 2 3 4 5 are the rake-arms; C, their friction-rollers; D, lugs upon the arms. E is the camway; F, the outlet cam-gate; G, the return cam-gate, and H a bridge connecting them.

Pivoted vertically to the camway, at a point before the outlet-gate, is a ratchet-wheel, I, so adjusted that its teeth are in the path of the lugs upon the rake-arms, and in position to be successively struck by each lug. Upon the inner face of the ratchet-wheel is a disk, J, with a series of lift-teeth, *a a a*, a cam, a reversed ratchet, or the like device. A weighted right-angled lever, K, is pivoted, at *b*, to a projection, L, of the camway, its upper free extremity coming in line and into successive contact with the teeth *a a* of the ratchet-disk J.

M is a link-piece, loosely connected, by the pin *c*, to the lever at the one end, and to a spring angle-arm, N, passing up through the camway and carrying the outlet-gate F at the other. The spring O of the angle-arm ordinarily acts to keep the gate open.

P is a balance-weight, pivoted to the back side of the projection L, controlled by the operator by means of a chain or cord, and acting by a slotted link, Q, which plays about a stud, *d*, on the link-piece M, to ordinarily hold the link-piece up in such position that the pin *c* is down in the vertical portion of a right-angular slot, R, in such link-piece; but, when the chain or cord is pulled to lift the balance-weight P up, the link Q of the balance-weight, playing down to the extent of its slot, encounters the pin *d* upon the link-piece M, and thereby allows the link-piece M itself to drop until the pin *c* of the weight-lever is in the horizontal portion of the right-angular slot R, whereupon every deflection of the weight-lever by the disk merely reciprocates the lever-pin *c*, through the horizontal portion of its slot R, without acting at all upon the link-piece to control the outlet-gate in an action hereinafter to be described.

The weighted end S of the weight-lever is provided with a hole, *e*, coincident with a hole, *f*, in the link-piece M, when the weighted end of the lever is raised, so that a pin passing through both holes will keep the free extremity of the weight-lever out of line with the lift-teeth *a* of the disk J, in which position the outlet-gate is shut.

Such being its construction, the operation of my device is as follows: The lugs D upon the arms come each successively into contact with the successive teeth of the ratchet-wheel, each arm turning it one tooth's space. The lift-teeth *a* upon the disk in the form shown are two in number, while the ratchet-teeth are six. Two successive ratchet-teeth will, therefore, simply turn the ratchet-wheel, and, the outlet-gate being open, the two arms which turned the ratchet will reel, for they will come upon the camway top of the outlet-gate, will be raised from the platform, and will travel over the bridge and upon the return-gate and thence to the camway itself again. But the third arm, in striking the third ratchet-tooth, will bring the lift-tooth *a*, which lies back of such third tooth, around, and will cause it to strike in passing, and thereby deflect the weight-lever, (the balance-weight being down and the pin *c* in the vertical portion of the slot

R,) which will throw the link-piece to the side, and, through the medium of the angle-arm, cause it to shut the outlet-gate, whereupon the roller of the third arm will remain within the camway itself, causing the arm to rake, and will travel under the bridge and lift up the return-gate in passing, the latter shutting again by its gravity. The next two arms will reel again and the third will rake, and so on in continuous succession. Any number of arms, ratchet-teeth, or lift-teeth may be employed, to vary the succession of reeling and raking arms.

When it is desired that each arm shall rake, the weighted end of the weight-lever is raised and the pin passed through the holes *f* and *e*, whereby the outlet-gate is held shut and the ratchet-wheel merely turned around, there being nothing in line to encounter the lift-teeth of the disk.

When it is desired to reel only, the balance-weight is drawn up, as before described, so as to permit the pin *c* of the weight-lever to play horizontally in the slot R at each deflection of the weight-lever, the spring O keeping the outlet-gate rigidly open, while the link-piece is not acted upon at all.

Having thus described my invention, I claim and desire to secure to me by Letters Patent of the United States—

1. The ratchet-wheel I, provided with lift-teeth *a a*, in combination with the weight-lever K, the link-piece M, angle-arm N, and the outlet-gate F, for the purpose specified.

2. The link-piece M, provided with a hole, *f*, in combination with the weight-lever K, provided with the hole *e*, so arranged that when the holes are made to coincide, and a pin passed through both, the free extremity of the lever K will be out of contact with the lift-teeth *a a*, to the end that all the arms may rake.

3. The weight-lever K, provided with the pin *c*, in combination with a link-piece, M, provided with a right-angular slot, R, for the purposes specified.

4. The combination of the balance-weight P, controlled by a cord or chain, the slotted link Q, and the link-piece M, provided with the pin *d*, for the purposes specified.

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Witnesses:

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