2 Sheets--Sheet 1.

M. GIBBS.

Harvester-Rakes.

No. 154,662. Patented Sept. 1, 1874.

Fig. 1.

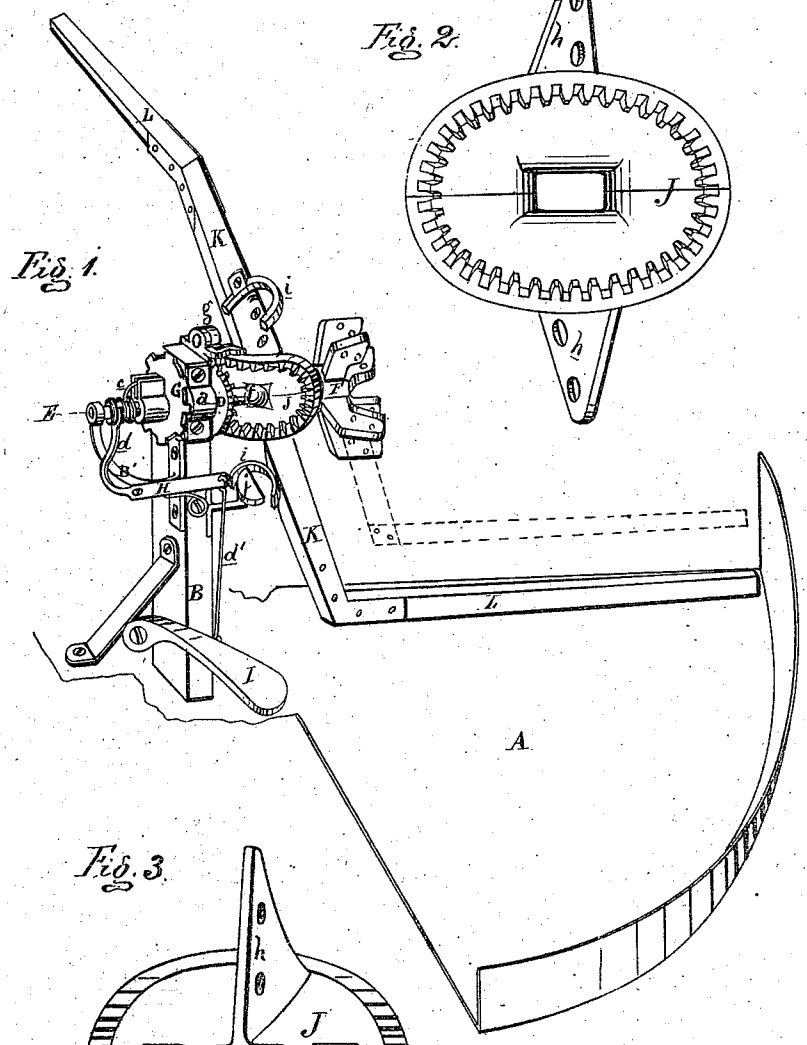
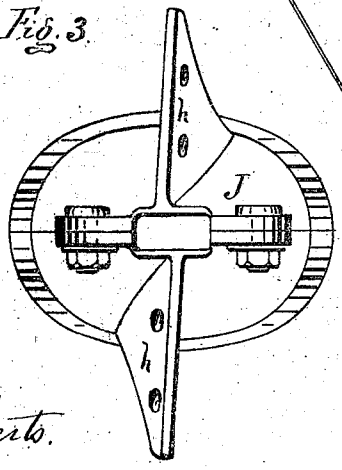


Fig. 2.

Fig. 3.



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2 Sheets--Sheet 2.

M. GIBBS.

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Fig. 4.

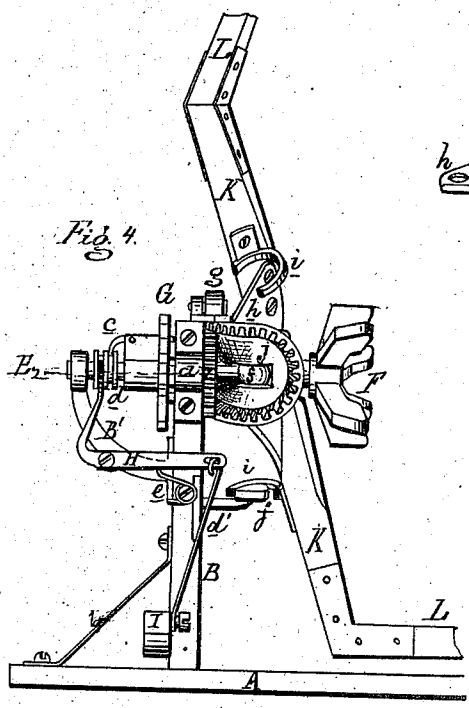


Fig. 6.

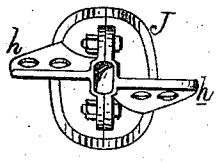


Fig. 7.



Fig. 8.

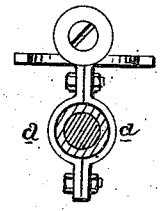


Fig. 9

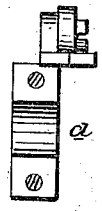


Fig. 5.

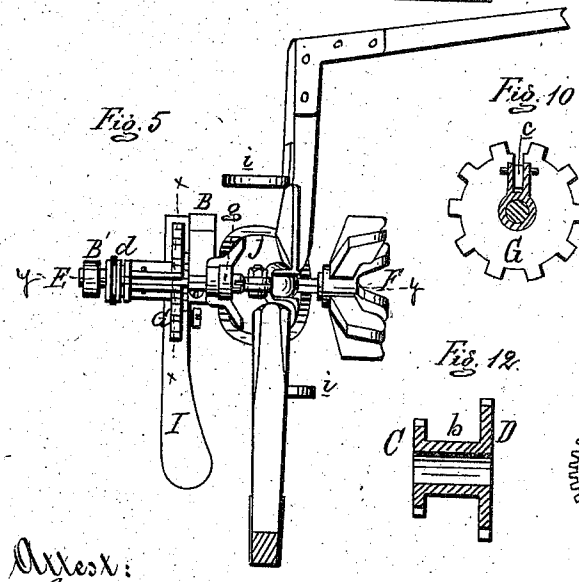


Fig. 10

Fig. 11

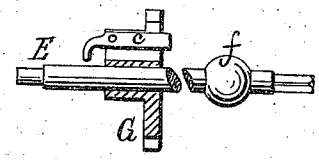
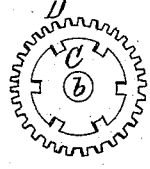


Fig. 12.

Fig. 13.



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UNITED STATES PATENT OFFICE

MASON GIBBS, OF HOMER, MICHIGAN.

IMPROVEMENT IN HARVESTER-RAKES.

Specification forming part of Letters Patent No. **154,662**, dated September 1, 1874; application filed May 22, 1874.

To all whom it may concern:

Be it known that I, MASON GIBBS, of Homer, in the county of Calhoun and State of Michigan, have invented a new and useful Harvester-Rake, of which the following is a specification:

The nature of this invention relates to the combination, with a reel, of a pair of harvester-rakes mounted on a peculiar gear, having a rotation in the axis of the reel-shaft about the reel, and a vibratory or oscillatory movement on an axis perpendicular to that of the reel-shaft, but with a much slower motion, to prevent any scattering or "flirting" of the grain off the platform. The rake-gearing is also so arranged as to be either continuously driven, to discharge the grain in very small gavels, or intermittently, at the will of the driver, to discharge the grain in gavels of any required size. The invention consists, first, in a peculiar internally-toothed eccentric gear, carrying a pair of rakes and journaled upon a spherical enlargement upon the reel-shaft; secondly, in the peculiar construction and arrangement of the devices for operating the said rakes, and for throwing the same in and out of gear with the actuating mechanism, as more fully hereinafter set forth.

Figure 1, Sheet 1, is a perspective view of the platform, standard, and reel of a harvester fitted with my improved rakes. Fig. 2 is a perspective view of my peculiar eccentric gear, which carries the rakes, looking at its face. Fig. 3 is a similar view of the back of the said gear. Fig. 4, Sheet 2, is an elevation of the platform and rakes from the rear. Fig. 5 is a plan of the standard, reel, and rakes. Fig. 6 is a rear elevation of the eccentric gear, showing its construction in two halves bolted together. Fig. 7 is a side elevation of the inner face of one-half of the gear. Fig. 8 is a face view of the reel-shaft box at the top of the standard, showing the shaft in cross-section of the same. Fig. 9 is a side elevation of the same. Fig. 10 is a cross-section of the chain-wheel at *x x*. Fig. 11 is a sectional side elevation of the reel-shaft and the chain-wheel at *y y*. Fig. 12 is a longitudinal section of the pinion and ratchet on *z z* in Fig. 4. Fig. 13 is an end elevation of the same.

In the drawing, A represents the platform, and B the reel-standard, of a harvester, in the top of which, in a box, *a*, is journaled the sleeve, *b*, which is cast with a notched ratchet, C, at one end, and a pinion, D, at the other. Through this sleeve is journaled the reel-shaft, E, supported at the inboard end by a bracket, B′, from the standard. The outer end of the reel-shaft carries a reel-head, F, to which the reel-arms (not shown) are to be bolted. On the inner end of the shaft, which is squared, is a chain-wheel, G, through which the reel-shaft may be driven by an endless chain from the mechanism of the reaper, or it may be driven by gearing. The hub of the chain-wheel has a slotted longitudinal rib, in which is pivoted a bell-crank latch, *c*, whose long arm projects through a slot in the face of the chain-wheel and over the rim of the ratchet, while the short arm engages with a spool, *d*, sliding on the shaft, and grooved to receive the forked upper end of a bell-crank lever, H, pivoted on the bracket, with its long arm connected by a rod, *d′*, to a treadle, I, pivoted to the rear side of the standard, by depressing which the spool is moved forward on the shaft to lift the latch out of the ratchet. The treadle being released, a spring, *e*, acting on the under side of the lever H, retracts the spool and keeps the latch in engagement with the ratchet, which is thus rotated with the chain-wheel. The shaft is continuously rotated, while the ratchet and pinion C D may be thus rotated therewith, or not, as desired. Between the pinion D and the reel-head F, a spherical enlargement or bulb, *f*, is formed on the reel-shaft. J is a peculiar elliptic gear, made in two parts, which are flanged at the back and bolted together, the division being longitudinal, as seen in Figs. 6 and 7. The shape of this gear may be described as that of a disk of a given diameter that has been bent over a cylinder of a lesser diameter, to approximate the form of a saddle, and provided with a bevel-rim internally toothed to engage with the teeth of the pinion D, being kept in mesh by a roller, *g*, journaled above the rim on a stud projecting horizontally from a vertical prolongation of the box *a*. On the back of each half of the gear is cast a plate, *h*, to which is bolted the arm K, to whose extremity is secured the heel of a rake, L, as shown. In the axis of

each half is a hemispherical socket, to embrace the bulb *f*. To the back of each arm K is bolted a metallic segment, *i*, and in the path of these a semicircular plate, *j*, is formed on the end of a bracket, bolted to and projecting horizontally from the standard B, with which plate the opening in each segment engages as it is swung past, turning the rake-arm on the plate *j* as the lower end of a vertical axis, the upper end of which axis is the ball on the reel-shaft, embraced by the gear-socket.

Thus it will be seen that the reel rotates continuously at the proper speed, while the rakes revolve with a slower motion, describing at each revolution an oscillation upon an axis at a right angle with the axis of revolution, to cause each rake to sweep the face of the platform and remove the grain lying on it. If the rakes be allowed to operate continuously the grain will be discharged in small gavels; but by throwing the rakes out of gear grain may be allowed to accumulate on the platform to form a gavel of any desired size, when, by releasing the treadle, the rakes will again be thrown into gear and discharge it, the advantage of which is apparent.

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

1. The combination of the reel-shaft E and pinion D with the gear J, made in two parts, as described, each part having a plate, *h*, to bolt the rake-arms to, and a hemispherical socket to embrace the bulb *f* of the reel-shaft E, substantially as described.

2. The combination, with the standard B and reel-shaft E, of the ratchet C and pinion D, connected by the sleeve *b*, the chain-wheel G, latch *c*, spool *d*, rod *d'*, lever H, treadle I, and spring *e*, substantially as and for the purposes set forth.

3. In combination with the gear J, made in two parts and supported upon the bulb *f* of the reel-shaft, and arms K K, the segment *i*, and plate *j*, substantially as described and shown.

Witnesses: MASON GIBBS.

BYRON SMITH,

EDWARD HENDERSON.