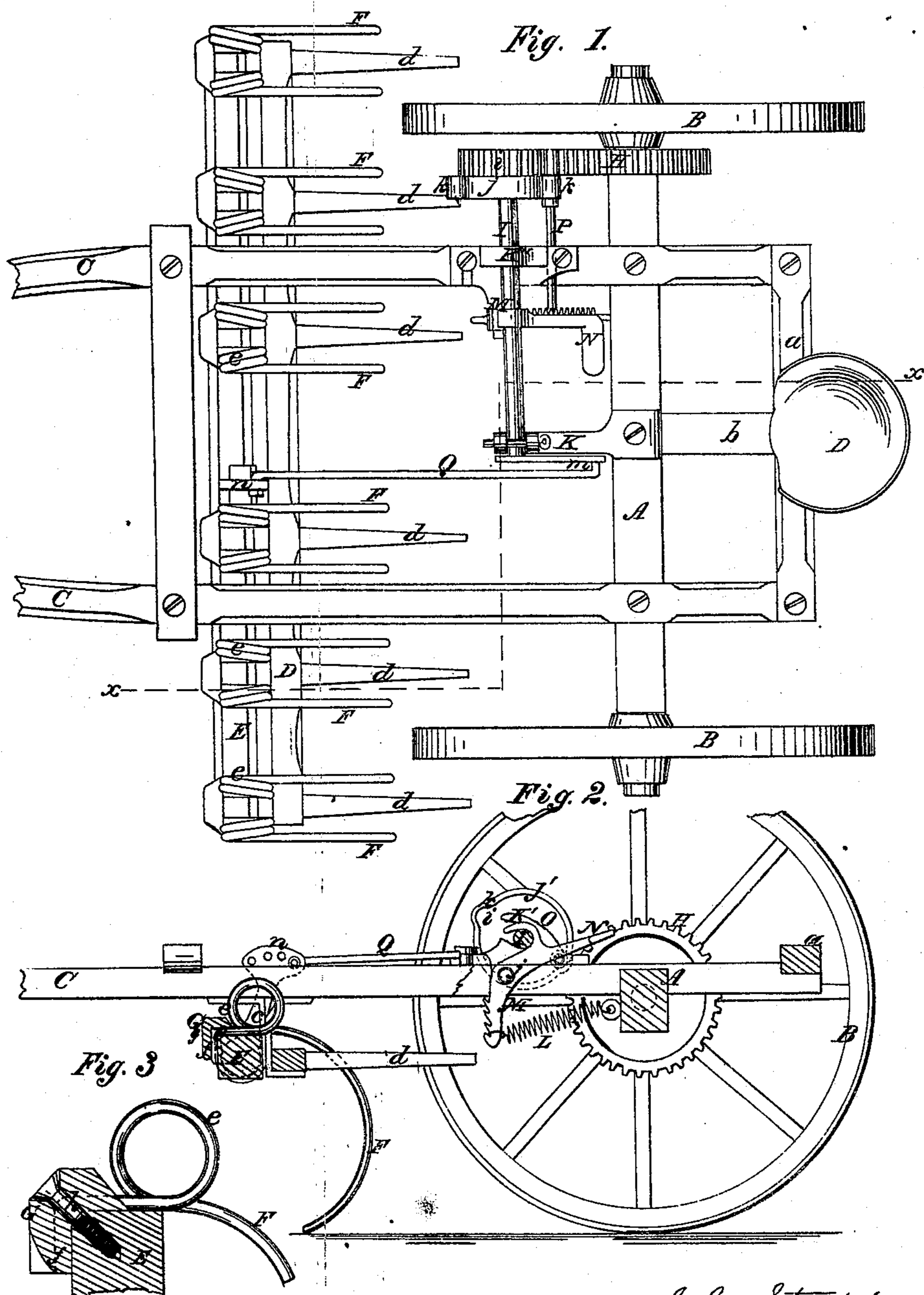


J. C. Stoddard.

Horse Rake.

N^o 85620

Patented Jan. 5, 1869



Witnesses,

W. C. Ashkettle

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UNITED STATES PATENT OFFICE.

J. C. STODDARD, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN HORSE-RAKES.

Specification forming part of Letters Patent No. 85,620, dated January 5, 1869; antedated December 26, 1868.

To all whom it may concern:

Be it known that I, J. C. STODDARD, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and Improved Horse-Rake; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and improved horse-rake, and is a modification of and an improvement upon a horse-rake for which Letters Patent were granted to me September 11, 1860.

The object of the present invention is to simplify the original patented device as regards the means employed for operating, raising, and lowering the rake, and also to secure the teeth to the rake-head in such a manner that they may, by a very simple manipulation, be kept firmly secured to the head in the event of the shrinking of the latter.

In the accompanying sheet of drawings, Figure 1 is a plan or top view of my invention; Fig. 2, a side sectional view of the same, taken in the line *x x*, Fig. 1; Fig. 3, an enlarged transverse section of the rake-head, the line of section being the same as in Fig. 2.

Similar letters of reference indicate corresponding parts.

A represents an axle, having a wheel, B, on each end of it; and C represents the thills, which are attached to the axle, and extend a short distance beyond its rear side, and are connected at their rear ends by a cross-bar, *a*. D is the driver's seat, which is attached to a bar, *b*, the lower end of the latter being connected to the axle A, and the bar, at about its center, resting on the cross-bar *a* at the rear ends of the thills. E is the rake-head, which is fitted in pendent bearings *e*, attached to the under sides of the thills C C, the rake-head being allowed to rise and fall in its bearings to a certain extent.

To the bearings *e* of the rake-head a bar, D, is permanently attached, said bar having arms *d* projecting from it at right angles in a direction toward the axle A. These arms *d* serve as clearers, and insure the discharge of the hay or grain each time the rake-teeth are raised.

F represents the rake-teeth, which are of steel wire, curved in the usual form at their

main portions or parts, and their upper parts curved or bent in circular form, and so as to have one or more convolutions, *e*, which give the necessary degree of elasticity to the teeth.

The upper ends of the teeth F are bent, as shown at *f* in Fig. 2, the parts *f* being at right angles with the adjoining parts of the teeth, so that the upper ends of the latter may be fitted snugly over the upper front angle of the rake-head, as shown in Fig. 2.

The teeth are secured to the rake-head E by means of metal plates G, which are of right-angular form in their transverse section, so that they may fit over the upper front angle of the rake-head E. These plates G are formed with recesses *g* in their inner surfaces, two in each, to receive the upper ends of the teeth, each plate G securing two teeth to the rake-head, and the plates are secured to the rake-head by screws *h*, as shown clearly in Fig. 3.

By this arrangement it will be seen that the rake-teeth may be firmly clamped to the rake-head, and in case of the shrinking of the latter, and the teeth consequently becoming loose, the latter may be tightened by simply screwing up the screws *h*.

On the hub of one of the wheels B of the machine there is secured a toothed wheel, H; and I is a movable or adjustable shaft, the inner end of which is fitted in a bearing, K, attached to the axle A, the other bearing, K', being on one of the thills C, and being of oblong or hook form, as shown in Fig. 2, to admit of a lateral movement of the shaft I.

On the outer end of this shaft I there is keyed a pinion, *i*, which is in line with the wheel H, and said pinion *i* is kept out of gear with wheel H by means of a spring, L, one end of which is attached to the axle A and the other end to the lower part of a lever, M, which works on a fulcrum-pin, *j*, attached to one of the thills, the spring L having a tendency to keep the shaft I in an outward position as the upper end of the lever M hooks over the shaft I, as shown in Fig. 2.

The upper end of the lever M is provided with a treadle or foot-lever, N, which extends back within convenient reach of the foot of the driver on seat D.

On the shaft I, adjoining the pinion *i*, there is secured a plate, O, which is provided with a rim, *j*, at its edge, said rim projecting at right angles from the plate. The plate O may

be described as being circular, with two projecting points, *k k*, at opposite sides of its center, as shown clearly in Fig. 2.

The rim *j* corresponds in form to the edge or periphery of the plate *O*; and the projecting parts *k k*, in connection with the portion of the rim *j* which passes around them, form pockets *l*, to receive the outer end of a shaft, *P*, which projects from one of the thills *C*, and has a trifling degree of elasticity or spring. This shaft *P* serves as a lock or fastening, to hold the pinion *i* in gear with the wheel *H* after the former has been thrown in gear with the latter by pressing down the treadle or foot-lever *D*. The shaft *P*, however, will hold *i* in gear with *H* while *i* is making a half-revolution only, as a pocket, *l*, comes in line with *P* at each half-revolution, and the spring *L* will then throw *i* out of gear with *H* unless the driver keeps the treadle or foot-lever *N* down.

The inner end of the shaft *I* has a crank, *m*, attached, and this crank is connected by a rod, *Q*, with an arm, *n*, on the rake-head *E*.

By this means an up-and-down movement is given the rake whenever the pinion *i* is thrown in gear with the wheel *H*, the rake rising and falling each time the pinion *i* makes one revolution.

Hence it will be seen that when it is necessary for the rake to discharge its load the driver simply depresses the foot-lever *N*, and thereby throws the pinion *i* in gear with the wheel *H*, the lever *N* being kept down until the pocket *l* which was opposite the one in which the shaft *P* fitted previous to throwing *i* in gear with *H* has passed the shaft *P*, when

the lever *N* may be released, and the rake, when it reaches its lowest point of descent, which is its working position, is held in that position by the shaft *P*, when, in consequence of a pocket, *l*, coming in line with it, it, as the pinion *i* is forced out from the wheel *H*, enters said pocket, which, in consequence of being in line with *P*, admits of the pinion being thrown out of gear with *H*.

The shaft *P*, it will be seen, and pockets *l* hold the rake-teeth in a working position, and will also hold them in an elevated position when they are not required to operate, as in drawing the device from place to place; and the shaft *P* and circular part of the rim hold the pinion *i* in gear with the wheel *H* until a pocket, *l*, comes in line with the shaft *P*.

This device is extremely simple and efficient, operates well, and may be manufactured at a moderate cost.

I claim as new and desire to secure by Letters Patent—

The securing of the rake-teeth *F* to their head *E* by having the upper parts of the teeth bent in right-angular form to fit over the upper front angle of the head, and securing plates or sockets *G* to the head over the bent or right-angular ends of the teeth by means of screws or screw-bolts, substantially as shown and described.

The above specification of my invention signed by me this 15th day of January, 1868.
J. C. STODDARD.

Witnesses:

WM. F. MCNAMARA,
ALEX. F. ROBERTS.