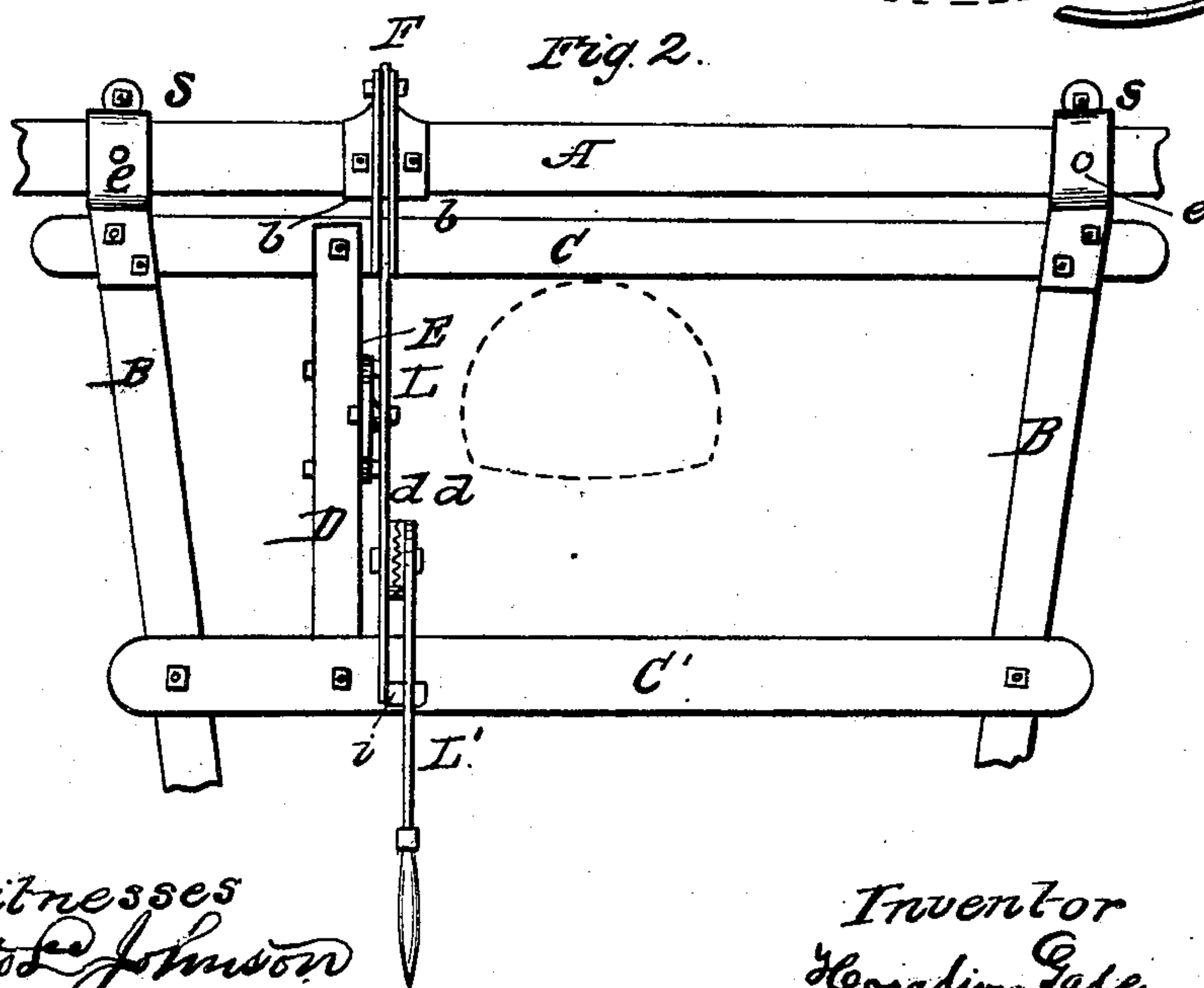
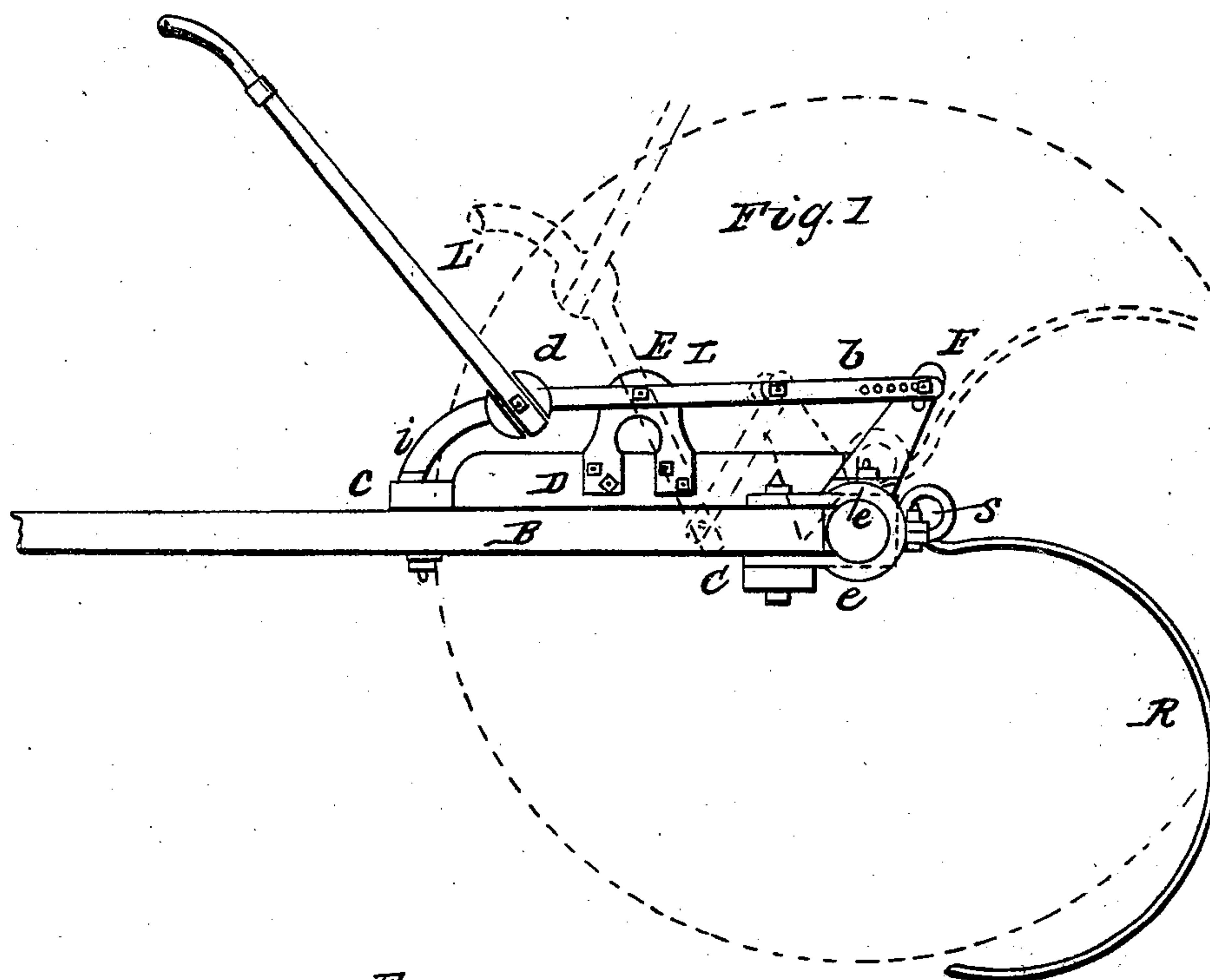


H. GALE  
Horse Hay-Rake.

No. 96,576.

Patented Nov. 9, 1869.



Witnesses  
Otto Johnson  
Marshall & Yalcott.

Inventor  
Horatio Gale

# UNITED STATES PATENT OFFICE.

HORATIO GALE, OF ALBION, MICHIGAN.

## HORSE HAY-RAKE.

Specification forming part of Letters Patent No. **96,576**, dated November 9, 1869.

*To all whom it may concern:*

Be it known that I, HORATIO GALE, of the village of Albion, in the county of Calhoun and State of Michigan, have invented a new and useful Improvement in Horse Hay-Rakes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side elevation, and Fig. 2 a plan or top view, of a part of the rake.

Similar letters of reference indicate corresponding parts in both figures.

My invention consists in providing the dumping-lever with a hand-lever adjustable by means of disks having interlocking surfaces, and connecting said dumping-lever with an arm attached to the rake-head by pivoted adjustable links, in such a manner that the rake-teeth can be held down either by the pressure of the foot on a projection of the dumping-lever or by carrying the connecting-links out of line with the dumping-lever, the parts being operated and arranged relatively with each other, as hereinafter described.

To enable those who are skilled in the mechanical branch to which it belongs fully to understand and construct my invention, I will now proceed to describe it.

My invention applies to that class of horse-rakes which discharges its accumulated load by the driver unlocking and partially rotating the carriage-axle, thereby tilting upward the rake-teeth and dumping the hay in windrows.

A represents the central portion of the wooden axle-tree of the carriage, the traction-wheels not being shown, except by dotted lines in Fig. 1; and B B exhibit the shaft-bars, broken short. C C' are two wooden cross-bars, which connect the shafts and support the seat, (see broken lines, Fig. 2;) and D is a girt, which supports the fulcrum-pin of the operating-lever, as will hereinafter more fully appear.

I turn a journal, *j*, in the axle A, opposite the hind end of each shaft-bar, and hang each journal in a pair of strap-bearings, *e*, of cast metal, secured to the shaft, the overhang of said straps being so shaped that, bolted together at *s*, they form a box-bearing, in which the axle-journals partially revolve. One or

more through-bolts at each point of connection secure the cross-bars, strap-bearings, and shafts firmly together.

E represents an arched standard, bolted to the side of the girt D, to which I pivot a lever-bar, L, nearly centrally. The bar L extends forward and downward beyond where its function as a lever ceases, and rests on top of the cross-bar C', its extreme forward end being bent laterally, as at *i*, to serve as a pedal. The hind end of the lever L is pivoted between two link-bars, *b*, which bars connect it in line (the rake-teeth being on the ground) with the top of a bracket-arm, F, bolted on the upper side of the wheel-axle.

The ends of the links connecting with the arm F have a series of pivot-holes, as shown, to lengthen or shorten the connection, and so adjust the rake-teeth R in proper relation with the ground surface, and an extra pivot-hole is made at *o* to drop the link-bars out of line with the lever L, so as to lock it against the cross-bars C', to prevent the upward motion of the teeth when raking.

L' represents the main operating hand-lever, which I connect adjustably with the lever-bar L, in the following manner:

Two thin cast-metal disks, having their inner faces corrugated to match, and provided with ribs *r* across their outer faces, to form grooves for the reception of the levers, are placed together, and between the said levers, as seen, and the whole are firmly secured by a central bolt.

These disks are shown at *d*, and, changing the interlock of the corrugated faces, furnish a means of perfect adjustment of the angle, or forward set of the hand-lever L, to suit the reaching capacity or other convenience of the driver, on his stationary seat.

My arrangement furnishes two distinct modes of locking the axle and rake-teeth. The one is by a simple pressure of the driver's foot, so as to resist the lifting tendency; the other consists in blocking the levers, as it were, against the cross-bar C', by dropping the ends of link-bar connection with the axle-arm F, and changing the pivot-bolt to the lower hole.

As will be readily seen, by removing the foot-pressure the levers will be unlocked, and



the operator can (in either mode of locking) tilt upward the rake-teeth and dump the load, by pulling (with slight effort) the hand-lever  $L'$  toward him, when the several parts will assume the relative positions as approximately shown by the broken lines in Fig. 1.

On releasing the hold of the lever the rake-teeth quickly descend to the ground by their superior gravity, and do not require to be forced slowly down against the weight of the operator, as in many other arrangements.

I do not claim that it is new to partially rotate the wheel-axle in its hub or other bearings, and tilt upward rake-teeth connected to said axle, by the means of lever-power in the hand of the operator; neither do I claim any novelty, separately considered, in locking the levers by foot-pressure, or by placing said levers either in or out of the rectilinear, to effect a similar purpose.

I know of no rake, however, except mine, that locks in either way at discretion, nor any in which adjustability is effected in so extended, ready, and inexpensive a manner.

My mode of connecting the shaft and cross-

bars with each other and with the wheel-axle, also the non-requirement of expensive forging, owing to the arrangement of the adjusting and operating devices, while reducing the cost of construction, enables any good mechanic to construct and repair my rake by the use of only ordinary tools.

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

The lever  $L$ , having the stirrup  $i$ , and pivoted to the standard  $E$ , as shown, when provided with the hand-lever  $L'$ , adjustable by means of the disks  $d d$ , and when adjustably connected, by means of the pivoted perforated links  $b b$ , with the arm  $F$  attached to the rake-head, all being constructed and arranged substantially as herein described, whereby the rake-teeth are held down, either by the pressure of the foot at  $i$  or by carrying the links  $b$  out of line with the lever  $L$ , as set forth.

HORATIO GALE.

Witnesses:

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MARSHALL D. TALCOTT.