T. C. LORD.

Horse Hay-Rake.

No. 199,077. Patented Jan. 8, 1878.

Fig. 1.

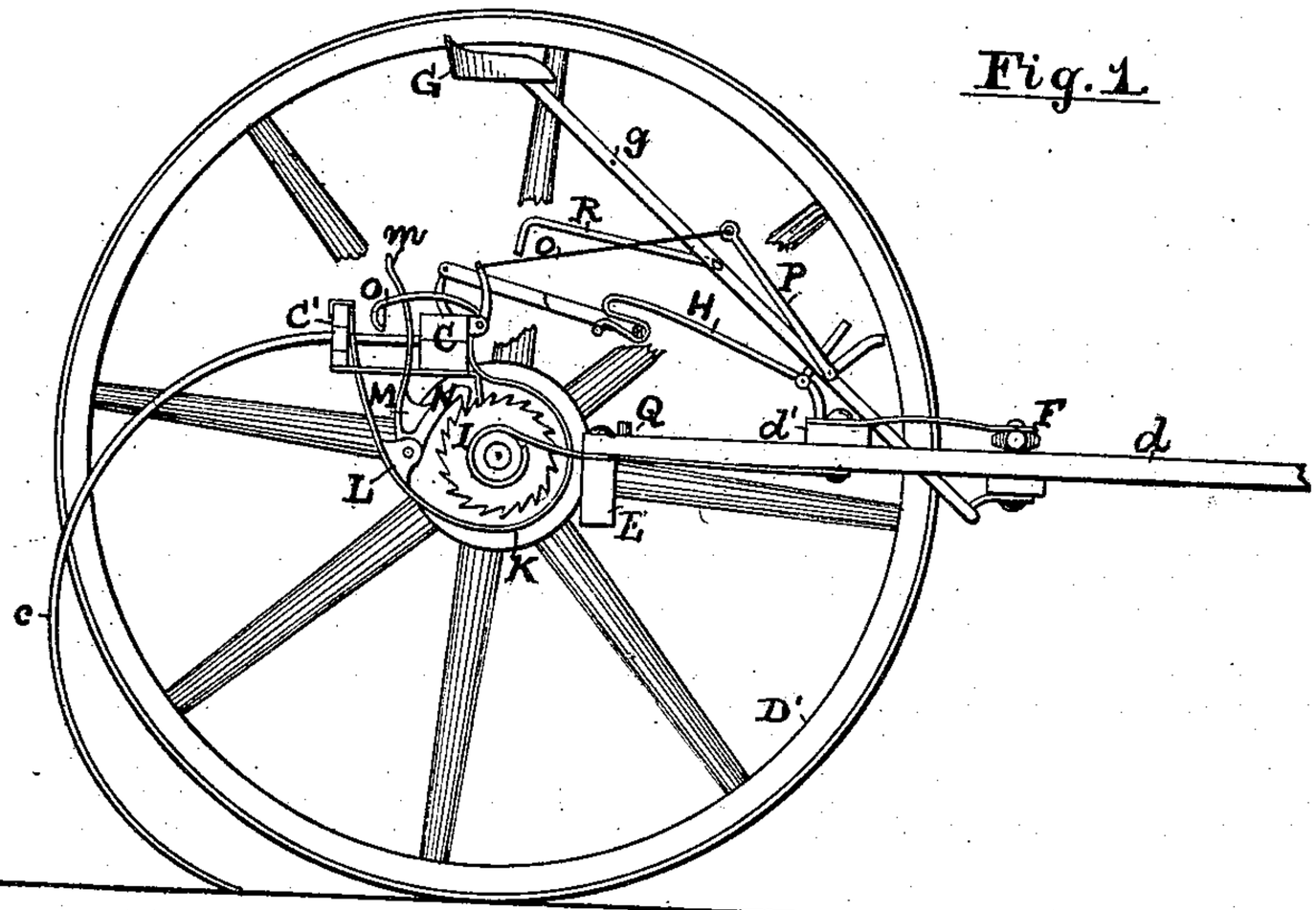
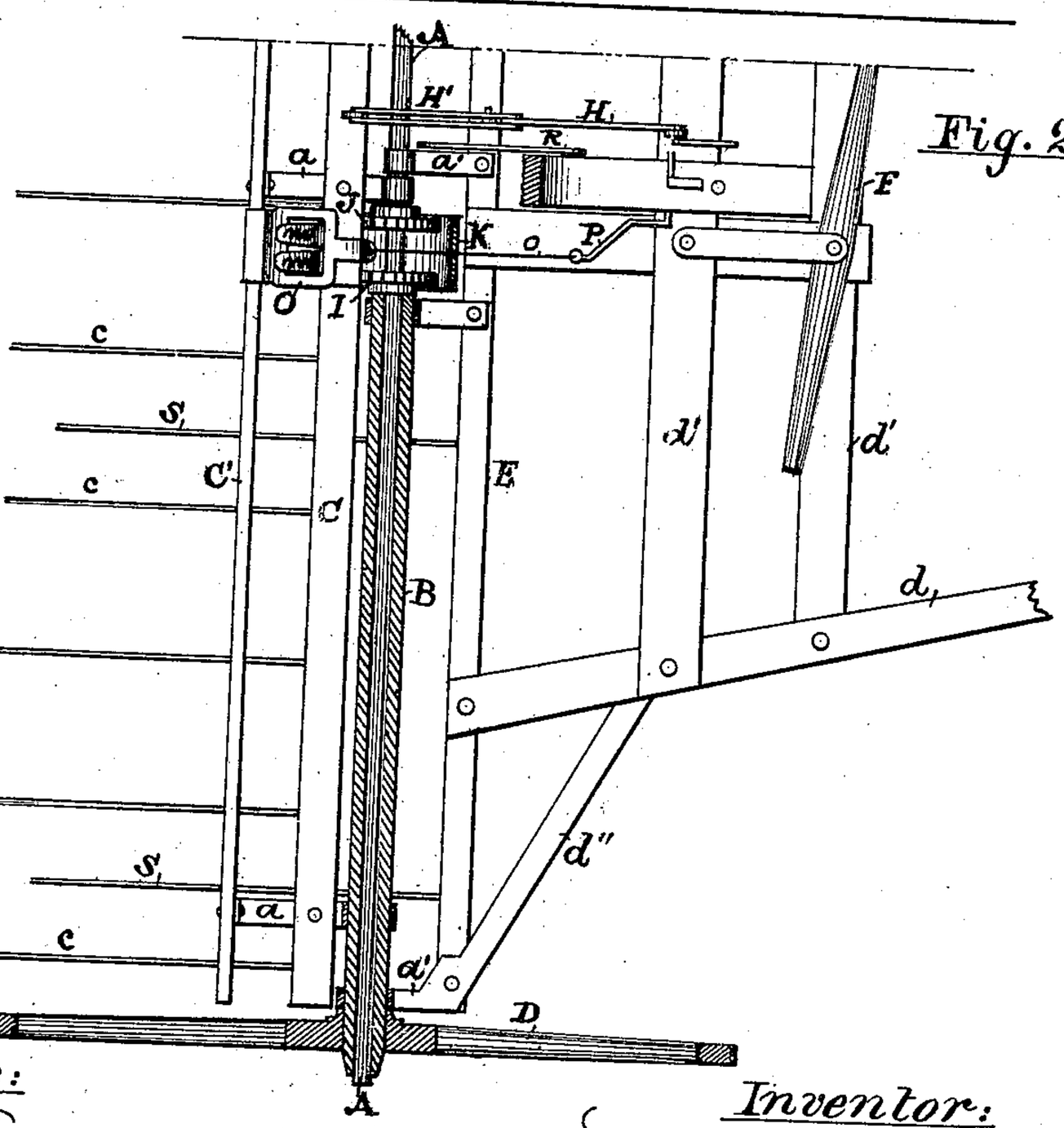


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

TYLER C. LORD, OF JOLIET, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO F. E. MARSH, OF SAME PLACE.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **199,077,** dated January 8, 1878; application filed September 11, 1877.

To all whom it may concern:

Be it known that I, TYLER C. LORD, of Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Horse Hay-Rakes; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to horse hay-rakes, more particularly to that class of implements known as "sulky-rakes," on which the driver sits and controls the operation of the machine.

The invention consists in certain new and improved devices and combinations of devices, whereby the following improved results in the operation of the machine are accomplished:

The operation of dumping the hay accumulated by the rake is performed automatically as the machine is drawn forward by the draft-animal, and so that the driver does not require to expend his strength in the operation, a child or boy who is able to drive having sufficient strength to operate the machine.

The machine can be turned within the space occupied by it, the wheels being capable of turning in opposite directions, while each wheel is keyed to its own shaft.

The operation of dumping may be performed while the machine is being turned around, or while one wheel is revolving in one direction and the other in the opposite direction.

The machine also possesses other advantages, which will be hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of the machine, with parts cut away to show the operating devices. Fig. 2 is a plan view of a portion of the machine, also partially in section.

Referring to the parts by letters, A represents an axle or shaft, a portion of which passes through, or partially through, a hollow shaft or tube, B, which may be ordinary gas-pipe. D D′ are the wheels, one of which, D′, is keyed or otherwise secured to the axle A, so as to revolve with it, while the other, D, is rigidly secured to the outer end of the hollow shaft or axle B, so as to revolve with it, but entirely independent of the shaft A, each wheel thus having its own axle, and revolving together or independently of each other as occasion requires.

C is the rake-head, in which the rake-teeth *c* are held. C′ is a guide-bar for the teeth, the latter passing through the slots formed in the bar, so that they are kept in proper working position, but have a limited motion to enable them to pass easily over the stubble or uneven ground. The rake is attached or pivoted to the axles by means of straps *a*, so as to turn freely thereon.

E is a cross-bar, to which the thills *d* are attached, said thills being suitably braced by cross-bars *d′* and diagonal braces *d″*. F is a single-tree, and G is the driver's seat, supported on a bar, *g*, which is secured to the cross-bars *d′*. The bar E is attached or pivoted to the axles by means of straps *a′*.

H is a lever pivoted to the rear cross-bar *d′*, convenient for operation by either the driver's hand or foot. Its rear end is pivoted to the slotted connecting-rod H′, which, in turn, is pivoted to the rake-head C. I is a ratchet-wheel secured to the inner end of the hollow axle or shaft B, so as to revolve with it. J is a similar ratchet-wheel, keyed or otherwise secured to the axle or shaft A in comparatively close proximity to the ratchet-wheel I.

K is a shield or guard-plate covering or inclosing the ratchet-wheels, its ends being secured, respectively, to the head C and bar C′.

L represents lugs or projections on the inner side of the shield K, to which are pivoted two levers, M M, having pawls N, which engage with the teeth of the ratchet-wheels I J.

The upper ends *m* of the pawl-levers M project through a slotted plate, O, which is of a form somewhat like a bell-crank lever. It is pivoted to the rake-head and connected by a link or cord, *o*, with the end of a treadle-lever, P, which is pivoted to the seat-support *g*, or any other part convenient for operation by the driver's foot.

Q is a stud or pin on the thill-frame, and R

is a hook-rod pivoted to the seat-support *g*. S represents the stripping-teeth, their inner ends being secured to cross-bar E.

The operation is as follows: As the machine is drawn along with the rake-teeth in contact with the ground the rake will gather up the hay until a sufficient quantity has been accumulated. In order to dump or clear the machine from the hay that has been thus gathered or raked, all that is necessary is to press momentarily and lightly on the treadle of the lever P, a half-pound of pressure being sufficient. The lever P being connected with the slotted bell-crank lever O, the latter is moved upward, carrying with it or actuating the pawl-levers M, so as to cause the pawls N to engage with the ratchet-wheels I and J, when the continued forward motion of the machine will elevate the rake-teeth through the revolution of the axles, the stripping-teeth S removing the hay from the rake-teeth *c*.

When the operation of dumping has been completed the pawl-levers are allowed to fall back, thereby disengaging the pawls from the ratchet-wheels, and allowing the rake-teeth to again fall to the ground.

In this way it will be seen the dumping is effected automatically by the rotation of the wheels and axles, all that the driver has to do being to throw the pawls into gear with the ratchet-wheel. The pawls only engage with the ratchet-wheels a sufficient length of time to dump. When the rake is elevated until the head C comes in contact with the pin Q, the pawls are no longer engaged with the ratchets, thereby leaving the wheels and axles perfectly free to revolve without operating the rake. The rake may be retained in this elevated position by passing the hook R over the bar C′.

In heavy raking, when it is desirable to keep the teeth down or in close contact with the ground, all that is necessary is to press the foot on the treadle of lever H, and, by keeping the foot on this treadle after the rake has been dumped, the teeth may be prevented from falling too suddenly or with too great a shock. By pulling on this lever H the rake may also be elevated by hand-power, if desired, so that, as will be seen, the lever H has a variety of functions.

It will also be seen that the wheels support the axle or shaft A, and the latter forms sufficient support for the tubular shaft or axle B, the other parts of the machine being supported by these axles.

By this arrangement I secure all the advantages of independent axles for the wheels, without requiring any extra bearings other than the hubs of the wheels. In turning the machine around, one wheel moves in one direction and the other in the opposite direction, so that the rake can be turned around within the space occupied by it, and the operation of dumping may be accomplished while the rake is in the act of turning, if desired.

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

1. In combination with the wheels D D′, the solid shaft or axle A, extending the full distance between the wheels, and the hollow shaft or axle B, journaled on the axle A, as described, the wheel D′ being secured to the axle A and the wheel D to the hollow axle B, so as to revolve independent of each other, substantially as and for the purpose specified.

2. In combination with the wheels D D′ and axles A B, the ratchet-wheels I J, one secured to each axle, and arranged to operate with the pawl-levers M, substantially as and for the purpose specified.

3. The lever P, connected and operating, in combination with the slotted bell-crank lever O, for the purpose of throwing the pawls into gear with the ratchet-wheels, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

TYLER C. LORD.

Witnesses:
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PERRY J. HOBBS.