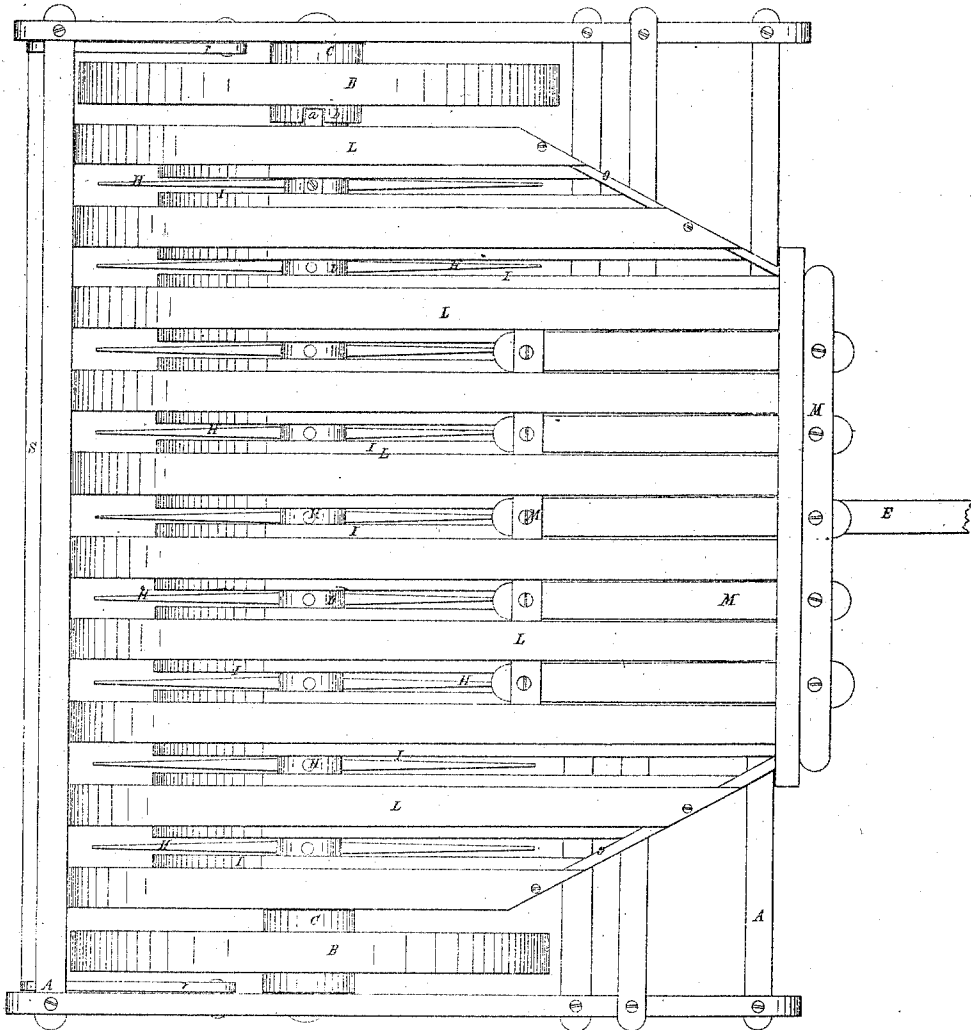


Brown & Smith.
Hay Raker or Loader.

N^o 71577

Patented Dec. 3, 1867

Fig. 1.



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Fig. 2.

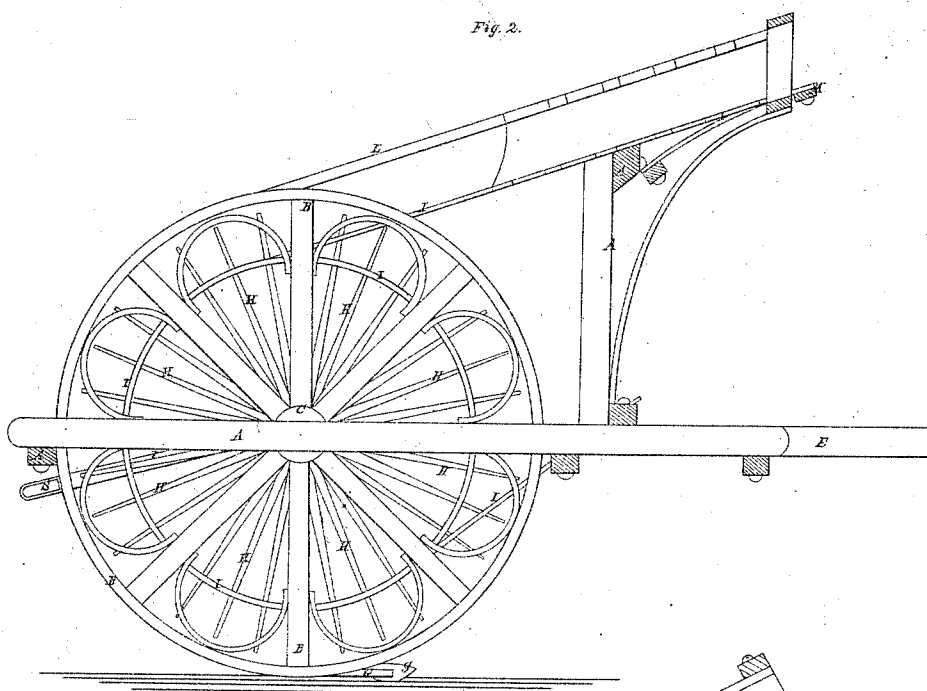
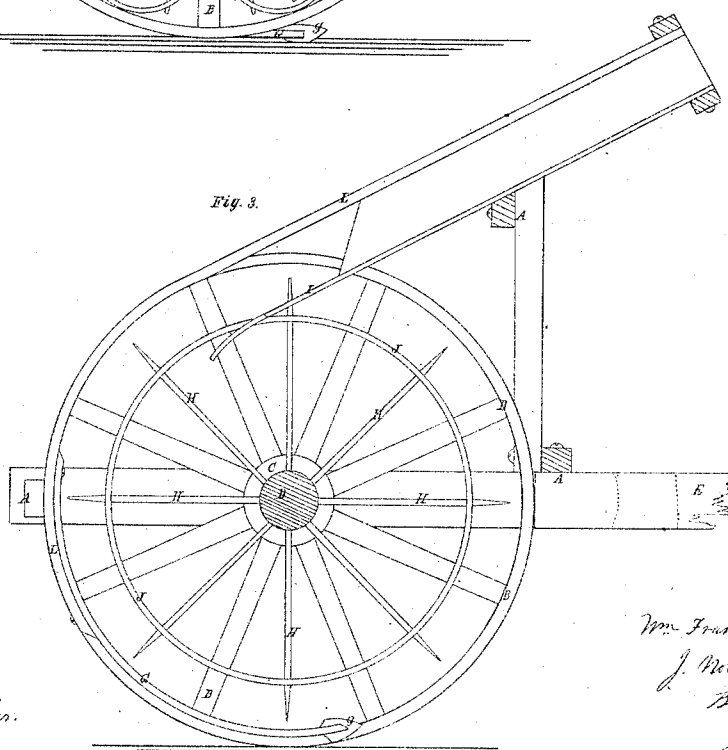


Fig. 3.



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Sheet 3.
3 Sheets.

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Fig. 4.

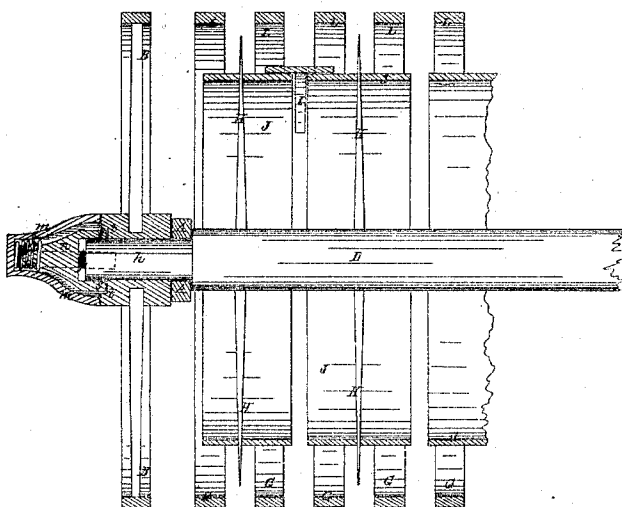
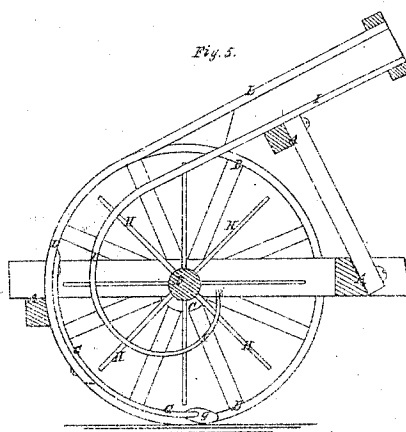


Fig. 5.



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United States Patent Office.

WILLIAM F. BROWN, OF WASHINGTON, DISTRICT OF COLUMBIA, AND
J. NOTTINGHAM SMITH, OF JERSEY CITY, NEW JERSEY.

Letters Patent No. 71,577, dated December 3, 1867; antedated November 28, 1867.

IMPROVEMENT IN HAY-RAKERS AND LOADERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, WILLIAM FRANK BROWN, of Washington, in the county of Washington, and District of Columbia, and J. NOTTINGHAM SMITH, of Jersey City, in the county of Hudson, and State of New Jersey, have invented an Improved Machine for Raking and Loading Hay; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a top view of the machine.

Figure 2, a side elevation thereof.

Figure 3, a longitudinal-vertical section, showing a modification of the construction.

Figure 4, a transverse vertical section of one side, in the line of the centre of the axle, showing the same construction as in fig. 3.

Figure 5, a longitudinal vertical section, showing another modification.

Like letters designate corresponding parts in all of the figures.

The essential features on which our invention is based are a set of gathering-rake teeth, G G, running flatwise on the ground, beneath the machine; a series of radial lifting-teeth, H H, attached to the axle of, and revolving with the driving-wheels B B; and a partially concentric and partially tangential conveying-passage, enclosed between an outer and upper set, L L, and an inner and under set I I, of parallel slats, like a grate. The first of these elements gathers the hay, the second raises it, and the third conducts it to the cart or wagon.

This machine is connected with the cart by any suitable means, as the draught-pole E, so as to follow the cart. The frame A unites the parts, and is generally located inside of the wheels B B. The wheels are attached to the axle D, so as to turn the same as they revolve. They may have a coupling-arrangement, as represented by the cap m, sliding clutch n, spring c, guide-pin p, projections s s, and notches t t, whereby the wheel is coupled to the journal k of the axle, in fig. 4. By this the wheel may be uncoupled at any time, so as to run loose on the axle or be coupled to it; or a self-acting coupling may be used, which causes the axle to turn when the wheels go forward, but it does not turn when the wheels go backward. The rake-teeth G G may form continuations of the outer slats L L, but we couple or splice the teeth to them, as shown in figs. 3 and 4, so that they can be renewed at pleasure, without taking off the slats. There are shoes, g g, attached to the ends of the rake-teeth, to prevent their running into the ground. We employ a transverse eccentric swinging bar, S, figs. 1 and 2, secured to arms r r, which are pivoted to the frame A, a little back of the axle D, for the purpose of raising all the rake-teeth G G from the ground, when they are not to operate. This bar is ordinarily kept raised, as shown in the drawings; but when the rake-teeth are to be lifted, the bar is swung down under them, and thus, by the eccentricity of its movement, raises the teeth from the ground. The axle D is generally made of wood, as well as nearly all the other parts of the machine, and the revolving teeth H H are passed radially into or through it. Instead of the inner slats I I, extending down and concentrically around the axle in a fixed position, as shown in fig. 1, there may be a concentric drum, J, of slats or hoops, secured to the teeth H H, (which extend out through the separate concentric hoops composing it,) so as to revolve with the axle; and thus diminish the friction of the hay in passing, as shown in figs. 3 and 4. In this case, the slats I I are short, and only extend back far enough to reach down between the hoops of the drum, as shown; and instead of this arrangement, a still preferable construction is shown in fig. 5, in which the lower ends of the slats I I extend down around the axle, and then upward and forward, centripetally, in scroll-form, as shown, and do not reach all the way up around the axle. This construction opens a wide passage at the start, gradually narrowing upward. It is both cheap in construction and simple and efficient in action. The lifting-teeth H H pass between the inner slats I I, but do not reach out to the slats L L. Just or about at the tangent, where the elevating-teeth descend below the slats I I, and cease to act on the hay, the spout or passage enclosed within the slats is narrowed by side pieces O O, as shown in fig. 1, so as to bring the discharge part or spout of the passage within the width of the cart or wagon. By means of this device, the machine may be made to rake eight, ten, or twelve feet in width at a time, if desired, and still gather it into the cart. As the spout narrows horizontally, it may flare in a vertical direction forward, so as not to compress the hay in moving forward. There may be only two

or three slats L L in this part of the passage—just enough to keep the hay in place. In order to deposit the hay on different parts of the cart, we employ an extension-grate or platform, M, figs. 1 and 2, which slides out and in the end of the passage or spout, and forms a continuation of the under or supporting-slats I I.

This machine may be made very light by the construction described, say not to exceed three hundred pounds in weight. It is very simple in action, and works without failure. It rakes the hay from the ground without any previous gathering together, or it may be made to pass over a windrow of hay, and convey the same to the cart very expeditiously. If made for this special mode of loading, the machine should be made narrower, and the elevating-passage should be more spacious vertically.

What we claim as our invention, and desire to secure by Letters Patent, is—

The conveying-passage, enclosed between the slats L L and I I, and narrowing in the upper portion thereof, in combination with the gathering-rake teeth G G, and the elevating-teeth H H, revolving with the driving-wheels, whether the under slats I I are fixed or revolve in that portion encircling the axle, substantially as and for the purpose herein specified.

The above specification of our invention signed by us, this 18th day of October, 1866.

WM. FRANK BROWN,
J. NOTTINGHAM SMITH.

Witnesses:

H. A. ESTES,
WILLIAM ALLEN.