# Nevergold and Stackhouse,

## Hay Loader.

No. 54,392. Patented. May. 1. 1866.

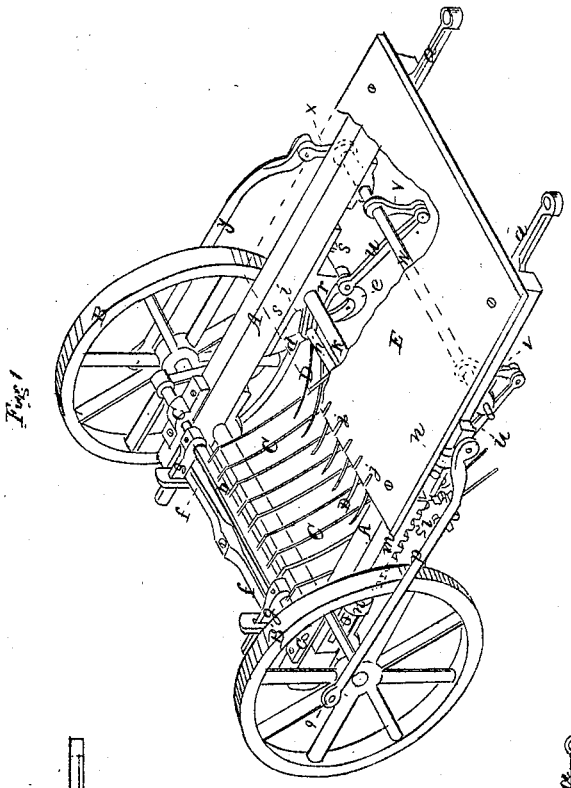

Fig. 1

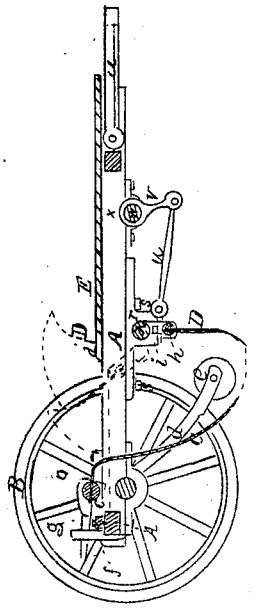

Fig. 4

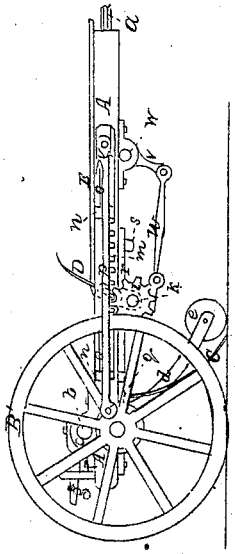

Fig. 3

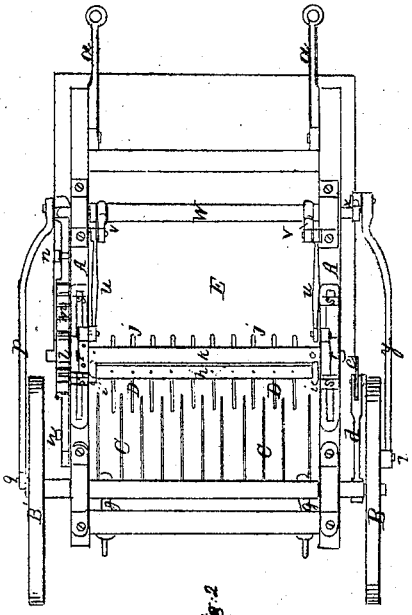

Fig. 2

Witness
Thos Overton
James Stein

Foster & Nevergold
per
Geo. Stackhouse

# UNITED STATES PATENT OFFICE.

FOSTER NEVERGOLD AND GEORGE STACKHOUSE, OF PITTSBURG, PA.

## IMPROVEMENT IN MACHINES FOR RAKING AND LOADING HAY.

Specification forming part of Letters Patent No. **54,392**, dated May 1, 1866.

*To all whom it may concern:*

Be it known that we, FOSTER NEVERGOLD and GEORGE STACKHOUSE, both of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machines for Raking and Loading Hay; and we hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view; Fig. 2, a view of the machine taken from below, and Fig. 3 a side view. Fig. 4 is a longitudinal section thereof.

The nature of our invention consists in providing, in addition to the rake which performs the gathering of the hay, another rake, arranged and operating so as to take up the hay during the progress of the machine and to deposit the same on a platform provided for the purpose, the machine being intended to be attached to a wagon for the reception of the hay, so that the hay, after being deposited on the platform, may easily be removed into the wagon.

In order to set forth the arrangement and construction of our improvement more fully, we will proceed to describe the accompanying drawings, in all the figures of which the same letters of reference are marked on like parts. In the perspective drawing, Fig. 1, a portion of the platform is represented being broken off, in order to uncover some parts which otherwise could not be seen in said figure.

A A is the frame of the machine, set on two wheels, B B′. *a a* are two arms, by means of which the machine is hitched to the wagon for the reception of the hay. C C are the prongs of the gathering-rake, fastened to a shaft, *b*, which rests on bearings *c c*. There is a lever, *d*, attached firmly to the shaft *b*, which at its lower end has a small roller, *e*, rolling on the surface of the ground, whereby the ends of the prongs C C are constantly kept in proper position in relation to the surface of the ground, so that they will neither cut into nor be raised above the surface in case of any unevenness in the same. This roller *e* is held steadily down to the ground by the action of a spring, *f*, fastened to the frame and acting against two short levers, *g g*, set firmly on the shaft *b*.

D D are the prongs of the elevating-rake, which serves to raise the hay gathered by the rake C upon a platform, E, on the front part of the frame A A of the machine. The prongs D D are secured to a bar, *h*, the ends of which are square and enter into the slotted openings of the arms *i i*, so that they cannot turn but may freely slide in the said slots. The arms *i i* are solidly secured to the shaft *k*, which rests with its journals in the bearings *r r*.

*l* is a pinion on the shaft *k*, gearing into a rack, *m*, which is made to slide, it being guided by the blocks *n n*, fastened to the frame and respective slotted openings *o o* in the rack.

*p p* is a connecting-rod or pitman, which by link-joints is attached to the rack *m*, and at its other end to the wrist or crank-pin *q* at the wheel B′.

The bearings *r r*, supporting the shaft *k*, are also made to slide, being guided by the blocks *s s*, passing through the slotted openings in the flanges of the bearings. These bearings are connected by links *u u* with the arms *v* of a rocking shaft, *w*, which, by means of its lever-arm *x* and a connecting-rod or pitman, *y*, is connected with the crank pin or wrist *z* on the wheel B.

The operation of these parts composing our improved machine is as follows: When the machine, being attached by means of the arms *a* to a wagon for the reception of the hay, moves over the ground the ends of the rake C C are kept closely down to the surface, accommodating themselves to any unevenness therein by means of the roller *e* and the action of the spring *f*. The hay spread over the ground will thereby be raked together and gathered on the prongs C C. From distance to distance the hay thus gathered will be taken up from said prongs, lifted up, and deposited on the platform E by the operation of the rake D. To accomplish this purpose this rake receives a compound motion—viz., a reciprocating (forward and backward) and at the same time a semi-rotary motion. The reciprocating motion is derived from the crank-wrist *z* of the wheel B′ by the action of the pitman *y*, lever *x*, rock-shaft *w*, arms *v v*, and the links *u u*, which connect with the sliding bearings *r r*, communicating thus a forward and backward motion to the same, and to the shaft *k*, which is carried by the said bearings, and finally to the rake D, which is connected with this shaft by

the slotted lever-arms *i i*. In order to impart to the rake D simultaneously a semi-rotary motion, the shaft *k* is provided with the pinion *l*, which meshes into the teeth of the rack *m*. If the rack were stationary, it would, without further means, cause the shaft to partially revolve in its forward and backward motion; but this motion is not so much as to produce a complete half-circular turn of the rake D, which is required to lift the hay and to deposit it on the platform. The rack is therefore arranged to have also a sliding motion in opposite direction of the motion of the rake-shaft *k* by means of the crank-wrist *q* on the wheel B and the pitman *p* connecting the wrist with the rack. By this arrangement the revolving motion of the pinion, and consequently of the rake D, is increased so as to describe the desired complete half-circle.

The ends of the prongs D of the rake are made to extend fully between, and even a little beyond, the prongs of the rake C, taking thereby all the hay gathered thereon and lifting it up; but it is evident that the prongs D, in their return or descending motion, would shove the hay gathered on the prongs C C during the ascending or forward motion of the rake D back on the ground again. To avoid this the rake D is made to yield, for which purpose the arms *i i* are made slotted, allowing thereby the bar or shaft *k* to slide in the same, or to ascend sufficiently to let the ends of the prongs, in their backward movement, ride over the hay accumulated on the prongs C C, instead of shoving it back. In advancing or ascending again the rake D will freely drop into its original position, so that its prongs will reach between the prongs of rake C again, ready to take up the hay, lifting and depositing it on the platform E. There are slots *j j* cut out of the platform, into which the prongs D D will enter when in their highest position.

The figures represent the rake D in different positions. Thus, in the section, Fig. 4, the same is shown in its lowest position, commencing its motion, which motion is indicated by dotted lines. In Fig. 3 the rake D is represented in its highest position, in which it deposits the hay on the platform. The perspective view, Fig. 1, shows an intermediate position.

We wish to remark here that the arrangement of the parts imparting to the elevating-rake D the compound motion, as herein set forth, may be modified in various ways, and the same motion may be produced by other known mechanical means arranged for the purpose. We wish it, therefore, distinctly understood that, while we consider our described arrangement as novel and forming a part of our invention, the employment in a raking machine of an elevating-rake such as herein described forms in itself, and independently of any means used for its motion, a distinct feature of novelty.

Having thus fully described our improved machine for raking and loading hay, what we clai n herein as new, and desire to secure by Letters Patent, is—

The arrangement of a pitman, *y*, rocking shaft *w*, and sliding bearings *r r*, in combination with the pinion *l*, sliding rack *m*, and pitman *p*, operating so as to impart a compound motion to the elevating-rake, substantially as herein set forth.

his
FOSTER × NEVERGOLD.
mark
GEORGE STACKHOUSE.

Witnesses:
THOS. OWSTON,
JAMES STEIN.