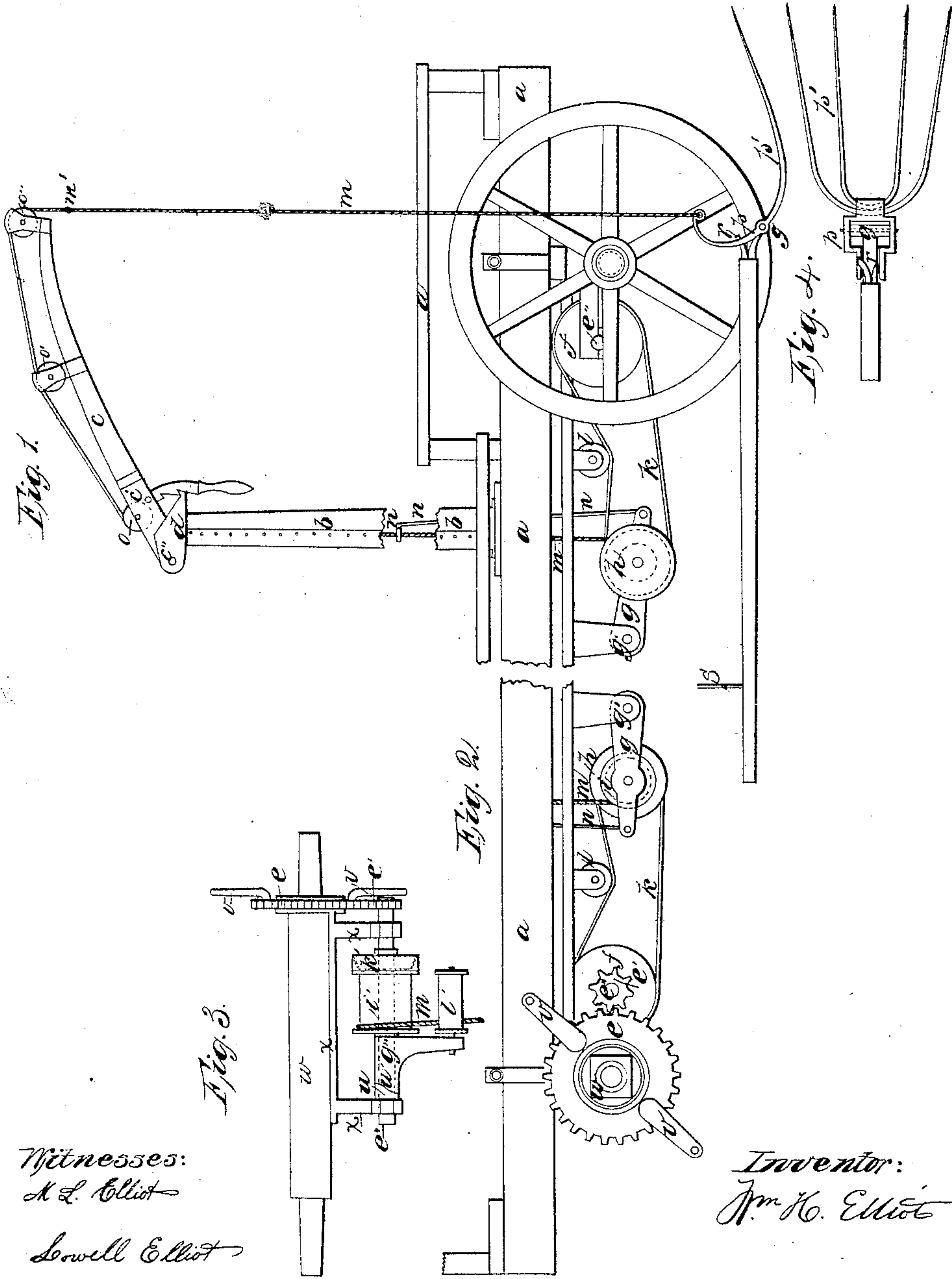


HAY LOADER.

No. 65,478.

Patented June 4, 1867.



Witnesses:

N. L. Elliot

Lowell Elliot

Inventor:

Wm H. Elliott

United States Patent Office.

WILLIAM H. ELLIOT, OF NEW YORK, N. Y., ASSIGNOR TO LOWELL L. JOHNSON, OF BINGHAMTON, NEW YORK.

Letters Patent No. 65,478, dated June 4, 1867.

IMPROVEMENT IN HAY-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 I, WILLIAM H. ELLIOT, of the city, county, and State of New York, have invented a new and improved Machine for Loading Hay; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Similar letters of reference indicate the same devices in all the figures.

To enable others skilled in the arts to comprehend, make and use my invention, I will proceed to describe its nature, construction, and operation.

The nature of my invention consists in the employment of friction as a means of communicating power in combination with a crane and fork, for the purpose of loading hay from the field on to the cart or hay-rack, and by suitable automatic machinery so applying the friction that when the fork is loaded it will be carried up to a proper height, held there suspended by friction until the hay has been discharged, and then allowed to fall gently to the ground. It also consists in the employment of elevating devices which are propelled by the wheels of the cart, in combination with a fork which is so constructed as to trip and discharge the hay.

Figure 1 is an elevation of a portion of a hay-rack or cart showing my improved loading devices.

Figure 2 is an elevation of a portion of the opposite side of the same, showing the gearing with the wheel removed.

Figure 3 is a modification of the same invention, showing the use of friction cones instead of belts for producing the necessary friction.

Figure 4 is a plan of the fork, with a portion of the head and handle broken away.

a, hay-rack, upon which stands *b*, the standard of the crane, bolted to the bed-piece *b'*, which in its turn is bolted to the hay-rack. This standard is tapering, tubular, and composed of boiler-plate. *c*, arm of the crane. *c'*, casting making a part of the arm, and having upon it the joint *c''*, pawl, pulley, &c. *d*, head of the crane, with a tubular portion projecting down into the standard, upon which it turns as upon a pivot. To this head the arm is pivoted at *c''*. *e*, gear which is attached to or has a bearing around the hub of a rear wheel. This gear meshes into pinion *e'*, which is upon the shaft *e''*, with pulley *f*. *g*, swinging frame, which swings upon its joint at *g'*, and supports pulley *h* and rope cylinder *i* on the same shaft. *k*, belt connecting pulley *f* with pulley *h*. *l*, tightening pulley attached to the hay-rack, against which belt *k* is tightened when the frame *g* is raised by the lifting rope *m*. *n*, rod standing upon frame *g*. This rod has a ring, *n'*, upon its upper end, through which the lifting rope *m* passes. *m'*, an enlargement on the lifting rope which will not pass through the ring *n'*. The lifting rope is attached to the cylinder *i*, passes up through the standard and head *d*, over the pulleys *o* *o'* *o''*, and then down to the fork. *p*, head of the fork; *p'*, tines; *q*, joint which allows the tines to turn down or trip to discharge the hay. This joint is made loose enough so that the catch *r* may have sufficient lateral motion to disengage it from the head *p*. *s*, lever by which the handle is rolled to disengage catch *r*, so as to dump the hay. *v*, arms on gear *e*, which are lashed to the spokes of the wheel. *w*, axle. *x*, casting which supports the driving-gear *e*, and the other elevating devices of the modified invention, shown in fig. 2. *g''*, arm swinging upon the shaft with the rope cylinder *i''*, and supporting tightening pulley *l'*. *k'*, friction cones, shown by dotted lines, the hollow cone making a part of the rope cylinder *i''*, which is loose upon the shaft, while the inner half of the friction cone is attached permanently to the shaft. *u*, sleeve projecting from the box or bearing of the shaft. *u'*, sleeve making a part of arm *g''*. These sleeves are so shaped that when the arm *g''* is raised by the lifting rope acting upon tightening pulley *l'*, it slides longitudinally upon the shaft *e''*, crowding the two halves of the friction cone together, thus producing the necessary friction for winding up the lifting rope.

The operation of my improved hay-loader is as follows: As the team passes a cock of hay the fork is thrust into it, and as soon as the motion of the team tightens the rope, the frame *g* is raised, bringing belt *k* against the tightening pulley, when the rope-cylinder immediately begins to turn, drawing the fork with its load of hay nearly up to the end of the arm. When the enlargement *m'* reaches the ring *n'* it depresses frame *g*, and loosens the belt so that it slips but holds the hay suspended. The hay may now be swung over the load; then, by turning the fork handle by means of lever *s*, the catch *r* is disengaged, the tines drop down, and the hay is discharged.

The fork is now swung away from over the load and drawn down to the ground, there not being friction enough produced by the weight of the fork alone to keep it up.

Having described my invention, what I desire to have secured to me by Letters Patent of the United States, is—

1. The combination of the swinging frame *g* or its equivalents, a lifting rope *m*, and an elevating fork, so arranged that the loaded fork will operate the frame to produce the necessary friction to raise the load, while said frame will drop and the elevating mechanism cease to act when the fork is unloaded.
2. The combination of the lifting rope *m*, swinging frame *g*, pulley *h*, belt *k*, and tightening pulley *i*, arranged and operating substantially as described.
3. The stop *m'* upon the rope *m*, in combination with ring *n'*, and swinging frame *g*, for the purpose of decreasing the friction at the proper moment, so as to hold the fork suspended, as set forth.
4. Constructing a tripping fork so that it may be released for the discharge of the load by simply turning its handle and pressing against the same.
5. The combination of the spring-catch *r*, head *p*, and handle of the fork, substantially as and for the purpose set forth.

WM. H. ELLIOT.

Witnesses:

LOWELL ELLIOT,
M. L. ELLIOT.