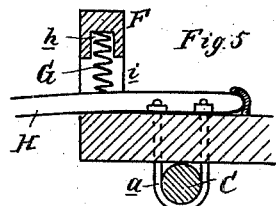
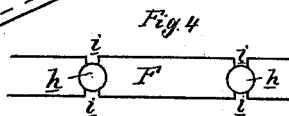
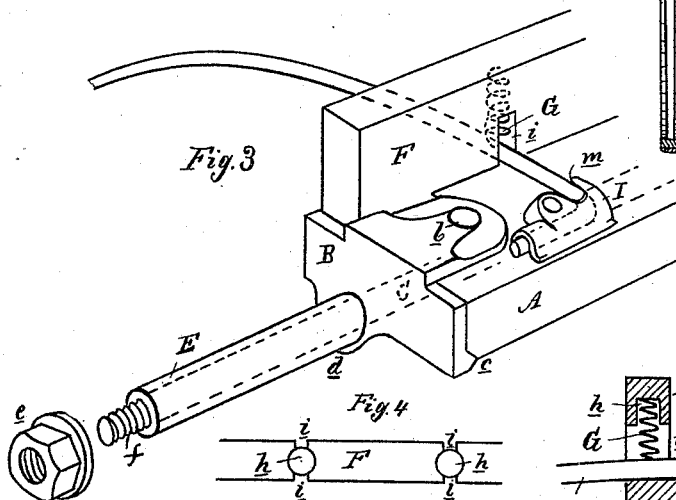
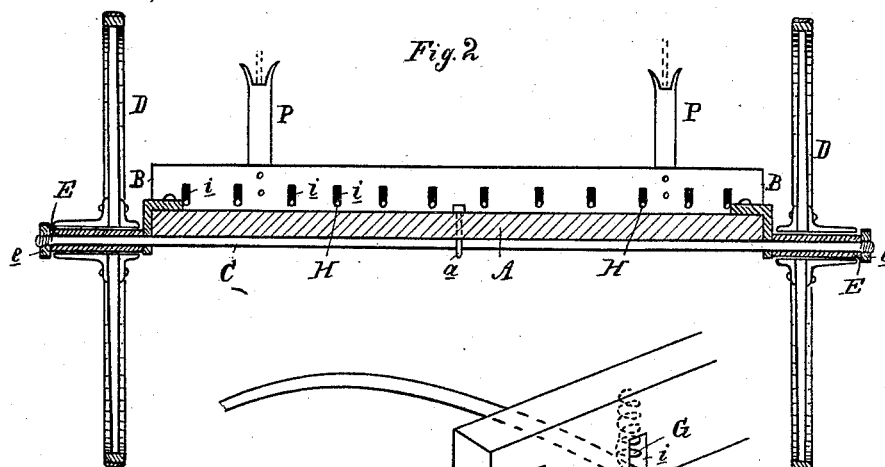
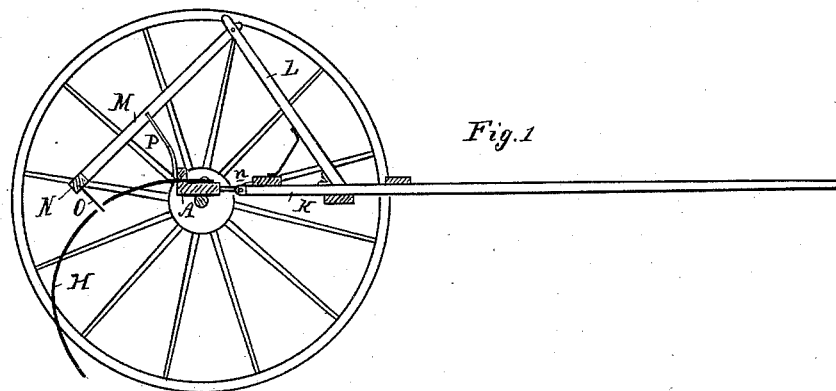


(No Model.)

H. GALE.  
HORSE HAY RAKE.

No. 342,084.

Patented May 18, 1886.



Attest:  
John Schuman.  
Edmond S. Seully

Inventor:  
Horatio Gale.  
By his Atty  
Thos. S. Sprague

# UNITED STATES PATENT OFFICE.

HORATIO GALE, OF ALBION, MICHIGAN.

## HORSE HAY-RAKE.

SPECIFICATION forming part of Letters Patent No. 342,084, dated May 18, 1886.

Application filed September 10, 1885. Serial No. 176,687. (No model.)

### *To all whom it may concern:*

Be it known that I, HORATIO GALE, of Albion, in the county of Calhoun and State of Michigan, have invented new and useful Improvements in Horse Hay-Rakes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 This invention relates to certain new and useful improvements in horse hay-rakes, by means of which great strength is obtained and a light and easily-handled device is secured.

15 The invention consists in the peculiar construction of the parts and their various combinations, as more fully hereinafter set forth.

Figure 1 is a vertical horizontal section of my improved horse hay-rake. Fig. 2 is a vertical central longitudinal section of the same through the axle. Fig. 3 is an enlarged sectional perspective, showing one end of the rake-head and one of the arms. Fig. 4 is a bottom plan of the back piece of the head. Fig. 5 is a vertical section showing the construction of the rake-head.

25 In the accompanying drawings, which form a part of this specification, A represents the rake-head, made of a light piece of rectangular-shaped timber of suitable length, and underneath which is secured, by means of one or more clamping-bolts, *a*, the rod C. To each end of this rake-head is secured the cast-metal plate B, somewhat in the form of an angle-iron, one part of which rests upon the top of the head, where it is secured by means of a bolt, *b*, while the other part rests against the end of the head, and has a rib, *c*, to rest against the under face of such head, and it has also a projection, *d*, below the rib, through a suitable round hole in which passes the rod C, which projects at either end of the head sufficiently far to form an arm for the wheels D. Each end of this rod has a thread, *f*, cut thereon, and is provided with a nut, *e*. A metal thimble, E, is sleeved on each end of this rod, and this sleeve is sufficiently long that when the nuts are screwed to place such sleeve is crowded against the overhanging end of the plate B, so as to convert the rod C into a tension-rod to support the rake-head in a horizontal position so stiffly as to prevent

its springing when in ordinary use. The hub of the wheel D is sleeved upon the thimble and revolves thereon, such hub being a trifle shorter than the thimble, so as to play easily 55 between the plate B and the nut *e*, which prevents the wheel from running off.

F is a back piece secured upon the top of the head at its rear edge. At proper distances apart there are bored into this back piece from the bottom and before it is secured in place a series of round holes, *h*, and transversely to these holes and along the bottom edge of this back piece there are bored or cut slots *i*. Into each one of the vertical bores *h* 65 is inserted a coil-spring, G, from the bottom, the slots *i* being too narrow to allow the springs to pass through them.

H are the spring-teeth of the rake, which are passed through the slots *i*, so that the springs 70 G will rest upon and above them.

The front end of each tooth is bent at right angles to itself, as shown in dotted lines in Fig. 3, and this bent end is pivotally secured to the top of the head A by means of a 75 box, I, which is cut away, as at *m*, to allow the tooth to partially rotate in its box, and to allow a vertically-radial movement to that part which forms the tooth proper, such latter movement being limited by the compressibility and expansibility of the spring G.

K is the frame and shafts of the rake, pivotally secured at *n* to the rake-head A. Supports L are rigidly secured to this frame, to the upper ends of which are pivotally secured 85 the arms M, at the free ends of which is secured the clearer-beam N, which has a series of teeth, O, secured thereto which project between the rake-teeth.

P are supports for the arms M, which are secured to the back piece, F, and their upper ends are forked, as shown in Fig. 2, to embrace the arms, and allow them to slide therein whenever the rake is dumped by any of the known and ordinary methods and force the 95 load off from the teeth.

What I claim as my invention is—

1. In a sulky hay-rake, a rake-head, A, provided with a tension-rod, C, secured to the under side of said head, an overhanging 100 plate, B, a thimble, E, and nut *e*, and the wheel turning on said thimble, the parts be-

ing constructed, combined, and operating substantially as and for the purposes described.

2. In a sulky hay-rake, the combination, with the rake-head A, of the overhanging plates B, secured to said head and having each a downwardly-extended lug, *d*, and the rod C, supported by said lugs, the thimbles E, sleeved on said rod, the wheels D, turning on said thimbles, the hubs of said wheels being shorter than said thimbles, and the nuts *e* on the outer ends of said rod, substantially as described.

3. In a sulky hay-rake, the combination, with the rake-head A, of the angular plate B, one part of which rests upon the top of said head and is secured thereto, and the other part bearing against the end of said head, and provided with rib *c* and projection *d*, and the rod C, supported by said lugs and secured to said head, substantially as and for the purpose specified.

HORATIO GALE.

Witnesses:

H. S. SPRAGUE,  
EDMOND I. SCULLY.