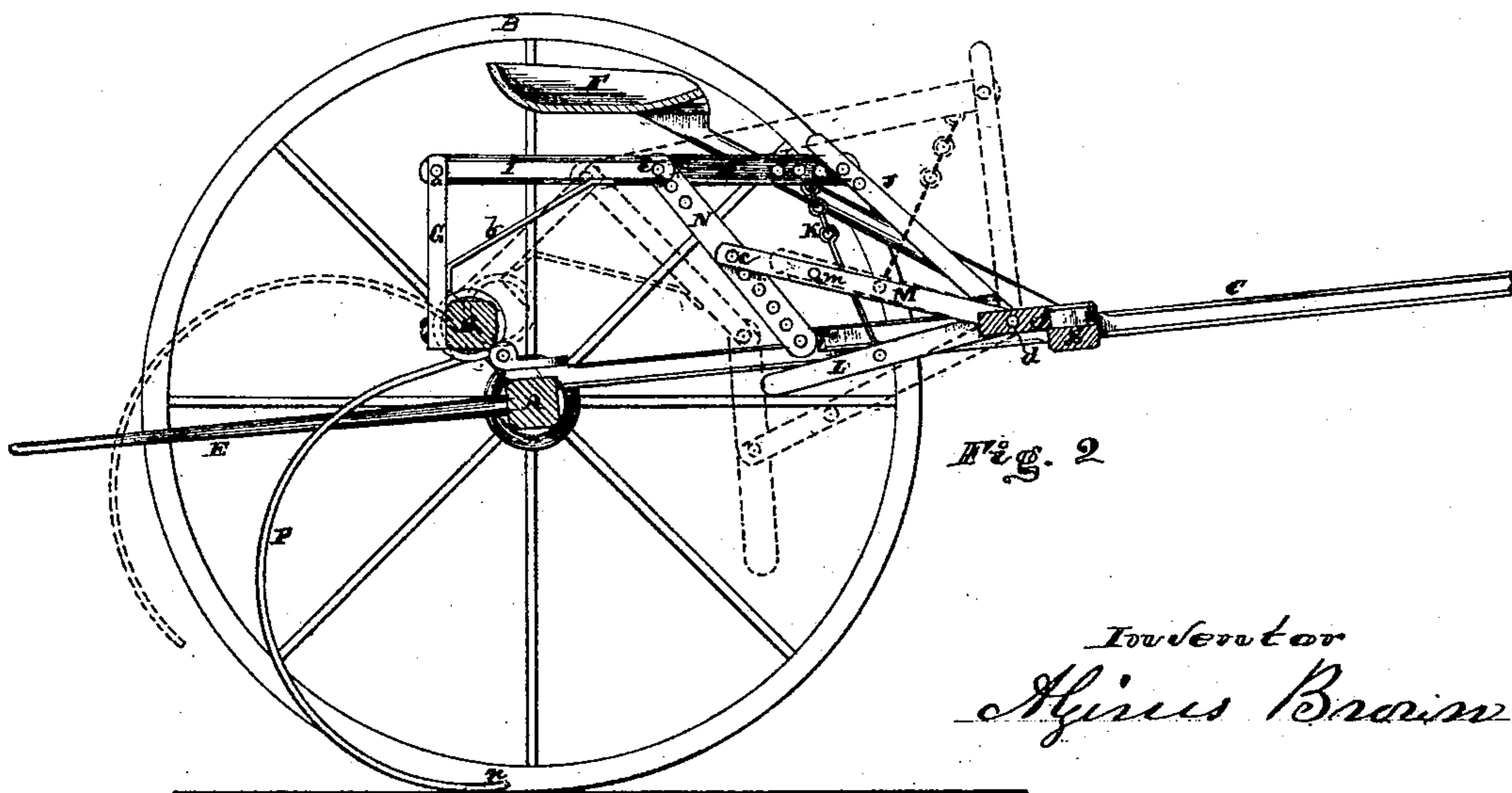
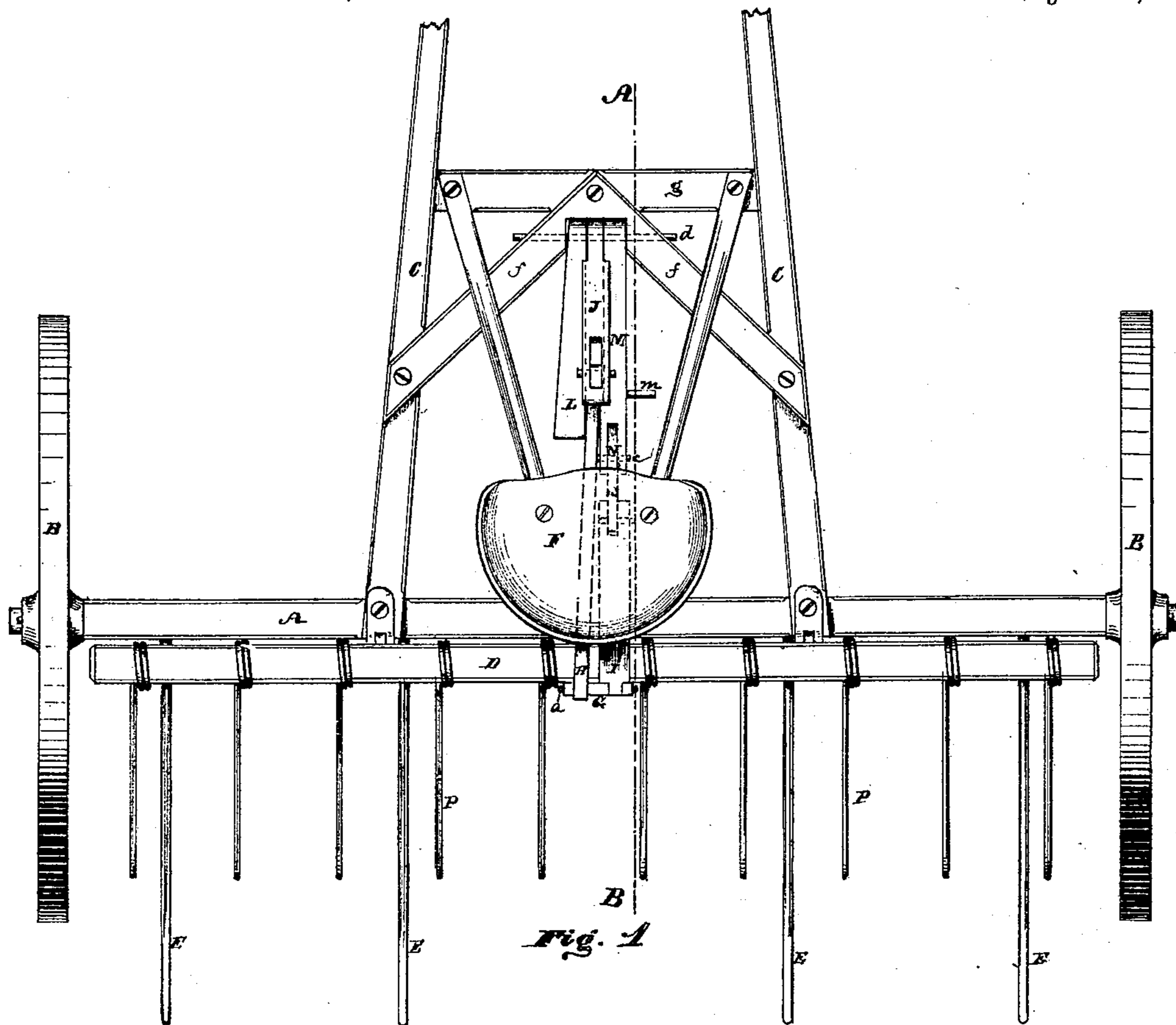


A. BROWN.  
Horse Hay-Rake.

No. 105,165.

Patented July 12, 1870.



Inventor  
*Alvin Brown*

Witnesses  
*Thos. H. Dodge*  
*Albert C. Pierce*

# United States Patent Office.

ALZIRUS BROWN, OF WORCESTER, MASSACHUSETTS.

Letters Patent No. 105,165, dated July 12, 1870.

## IMPROVEMENT IN HORSE HAY-RAKES.

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, ALZIRUS BROWN, of the city and county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Horse Hay-Rakes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, and in which—

Figure 1 represents a plan view of my improved horse-rake, and

Figure 2 represents a section on line A B, fig. 1. The shafts are shown broken off in both cases.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

My invention relates to certain improvements upon the horse-rake for which Letters Patent, No. 21,712, were granted to George Whitcomb on the 5th of October, 1858; and

It consists in the peculiar arrangement of a foot-treadle, and their connections with the rake-head, for elevating the head to discharge the hay from the rake-teeth, and for depressing and holding down the teeth during the operation of raking as hereafter explained.

In the drawing—

The part marked A is the axle;

B B, the supporting and traveling-wheels;

C C, the thills;

D, the rake-head;

E, the clearing-fingers; and

F, the driver's seat, all of which are constructed in the usual manner, and therefore need not be more fully described.

The rake-head, which is of the usual rectangular form, in cross-section, is placed so that, when the rake-teeth P are depressed, its under side will be parallel, or thereabouts, with the ground, the object of this arrangement being to afford a bearing to prevent the excessive yielding of the teeth.

Each tooth is wound around the head in a score, formed therein for its reception, and begins to curve downward at the lower forward edge of the rake-head nearest the hinge. There is thus enough space left between the teeth and the under side of the head to allow sufficient spring to the teeth, in order to yield to slight obstructions, but they are prevented from yielding too far, and from working around on the rake-head, by bringing up, after springing back a certain distance, against the lower face or under side of the head, which thus stiffens the teeth, causing them to offer more resistance, and prevents them from being sprung out of place.

Secured to the vertical rear side of the rake-head D, at its central part, is an upright dumping-piece, G,

provided, at its upper end, with slots, to receive the ends of the connecting-bar H and arm I, which are held therein by a bolt, *a*, that extends through the upper end of the dumping-piece G, from side to side.

The connecting-bar H is allowed free action upon the bolt *a*, but the arm I is rigidly attached to the piece G at a right angle or nearly so thereto, and is firmly supported in that position by a brace, *b*, from the dumping-piece, as shown in fig. 2 of the drawing.

The connecting-bar H is pivoted, at its front end, in the slotted upper end of a swinging arm or lever, J, and it is also attached, by a chain or rod, K, to a depressing-treadle, L, which latter, together with the swing-arm J, is pivoted upon the bolt *d*, at the junction of the braces *f f*, just back of the cross-bar *g*, on the thills C.

The dumping-arm I is joined to the rear end of an elevating-treadle, M, by means of an intermediate connecting-piece, N, slots being formed at the front end of arm I and rear end of treadle M to receive said piece N.

A series of holes is formed through the connecting-piece N, so that, by changing the pivot-pins *c* and *e* to different holes therein, the adjustment of the part can be varied.

The elevating-treadle M is pivoted, at its front end, upon the bolt *d*, and it is provided with a foot-pin, *m*, projecting from its side, upon which the operator may place his foot when operating said treadle M, if preferred.

The teeth P of the rake are formed of such length and curvature that their points *n* extend forward of a vertical line dropped from the axis of the rake-head D, when said teeth are depressed, so that their extreme points are turned up a little from the ground, as indicated in fig. 2 of the drawing.

With the arrangement of the rake-head above described it is necessary to employ a vertical post, G, for it could not be inclined forward without either cutting the rake-head away, or curving and bending the arm, or making it of metal, all of which methods would involve expense and would detract from the practical value of the machine. And, again, its employment admits of the use of the horizontal dumping-arm I, which can be made of any length desired, so as to carry forward the pivotal point *e* of the treadle-connection, and thus increase the leverage to any extent needed, in order to operate the rake-head with perfect ease by the treadle alone, and without the aid of hand-levers, and this is effected without interference with the driver's seat or other portions of the mechanism, which would not be practicable were not the arm I employed.

And, moreover, the use of the upright post G renders it easier to operate the depressing mechanism,

as will be seen by reference to the drawing, for when the teeth are raised the piece G and connecting-bar H still stand at a considerable angle to each other, as shown in dotted lines in fig. 2, the pivot which connects the piece G and the bar being considerably outside of and above a straight line drawn from the point at which the post G is attached to the rake-head to the point at which the connecting-bar is pivoted to the swinging-arm J, so that less power is required to operate the treadle L than would be the case if the three points were in or nearly in the same straight line, which they would be were the arm G to be inclined forward instead of being vertical.

Having now described my invention,

What I claim, and desire to secure by Letters Patent, as an improvement upon the horse-rake for which Letters Patent, No. 21,712, were issued to George Whitcomb on the 5th of October, 1858, is—

The relative arrangement of the rake-head D, the vertical piece G, horizontal arm I, connecting-bar H, treadles L M, and connections N, K, and J, as herein shown and specified.

ALZIRUS BROWN.

Witnesses:

THOS. H. DODGE,  
ALBERT E. PEIRCE.