2 Sheets--Sheet 1.

W. H. HARTLEY.

Horse Hay-Rakes.

No. 143,572. Patented Oct. 14, 1873.

Fig. 1.

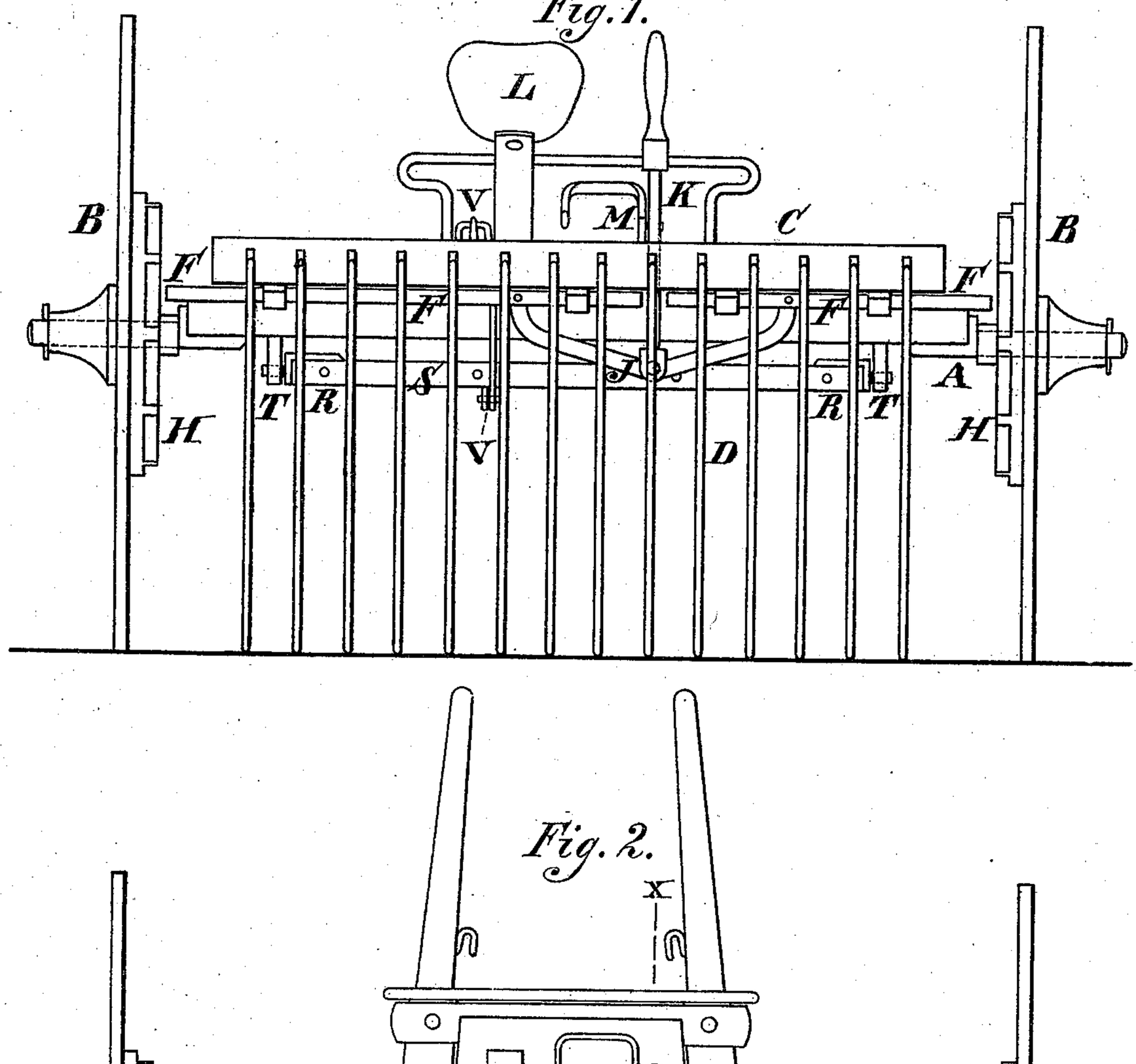
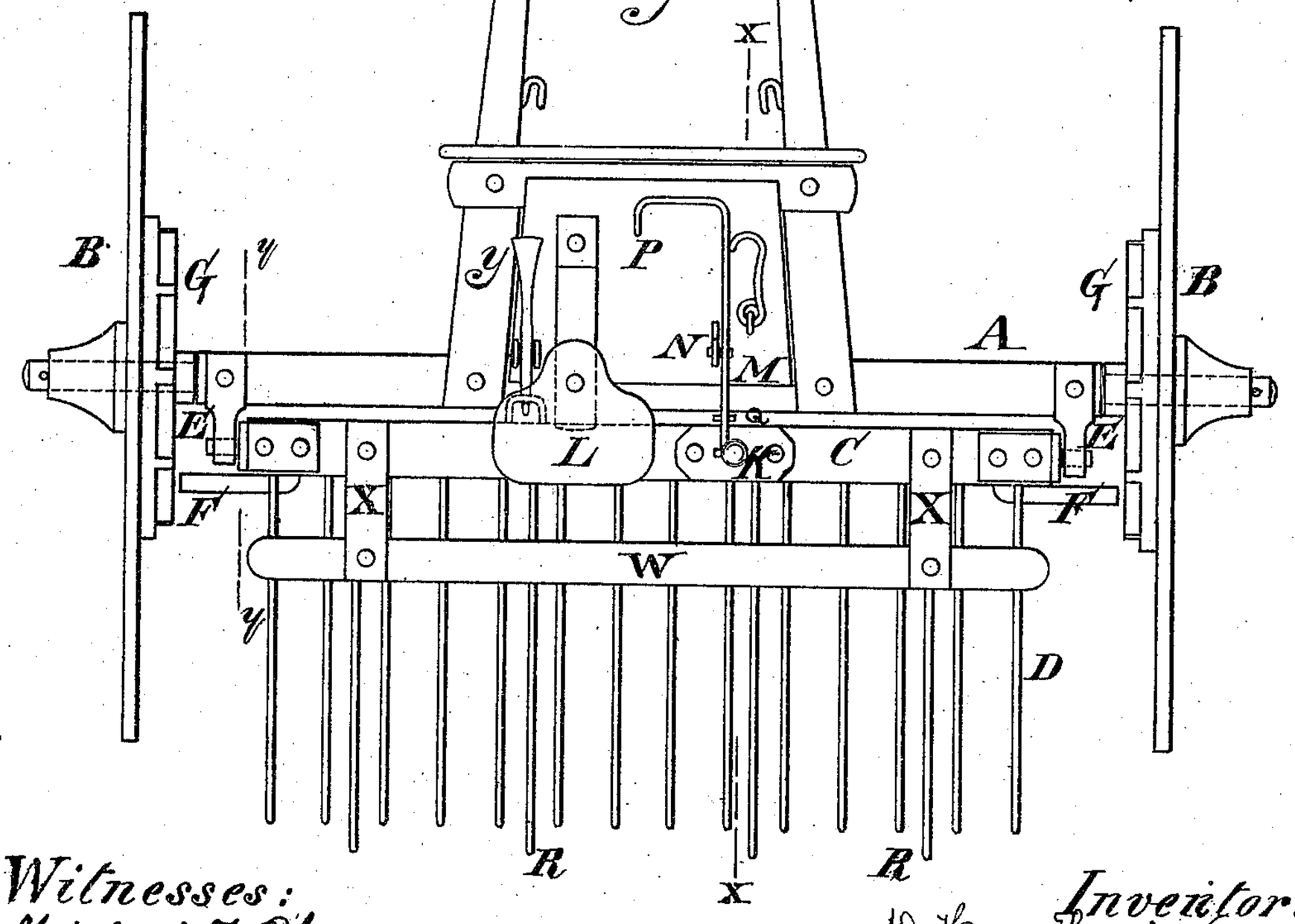


Fig. 2.



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2 Sheets--Sheet 2.

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Fig. 3.

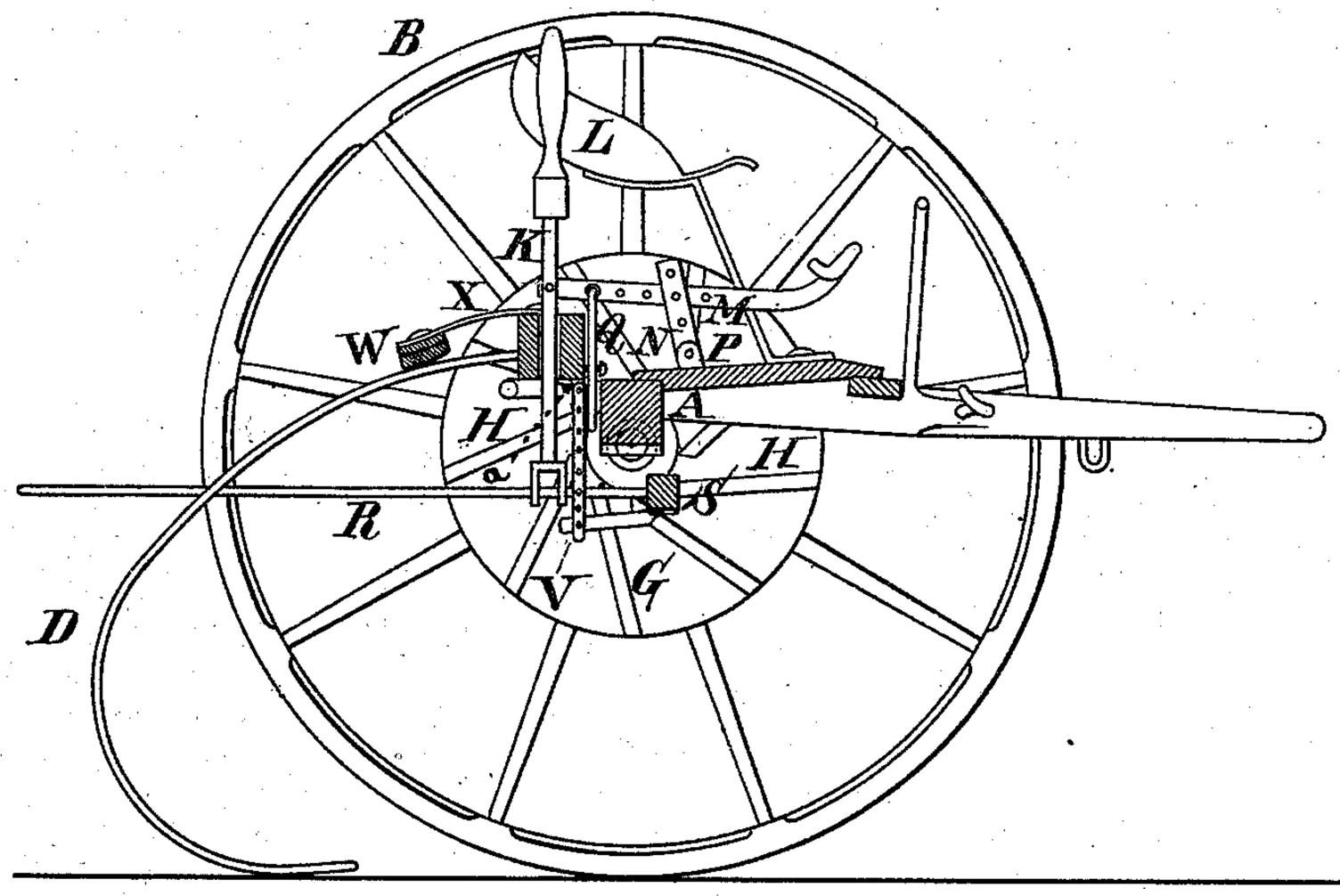
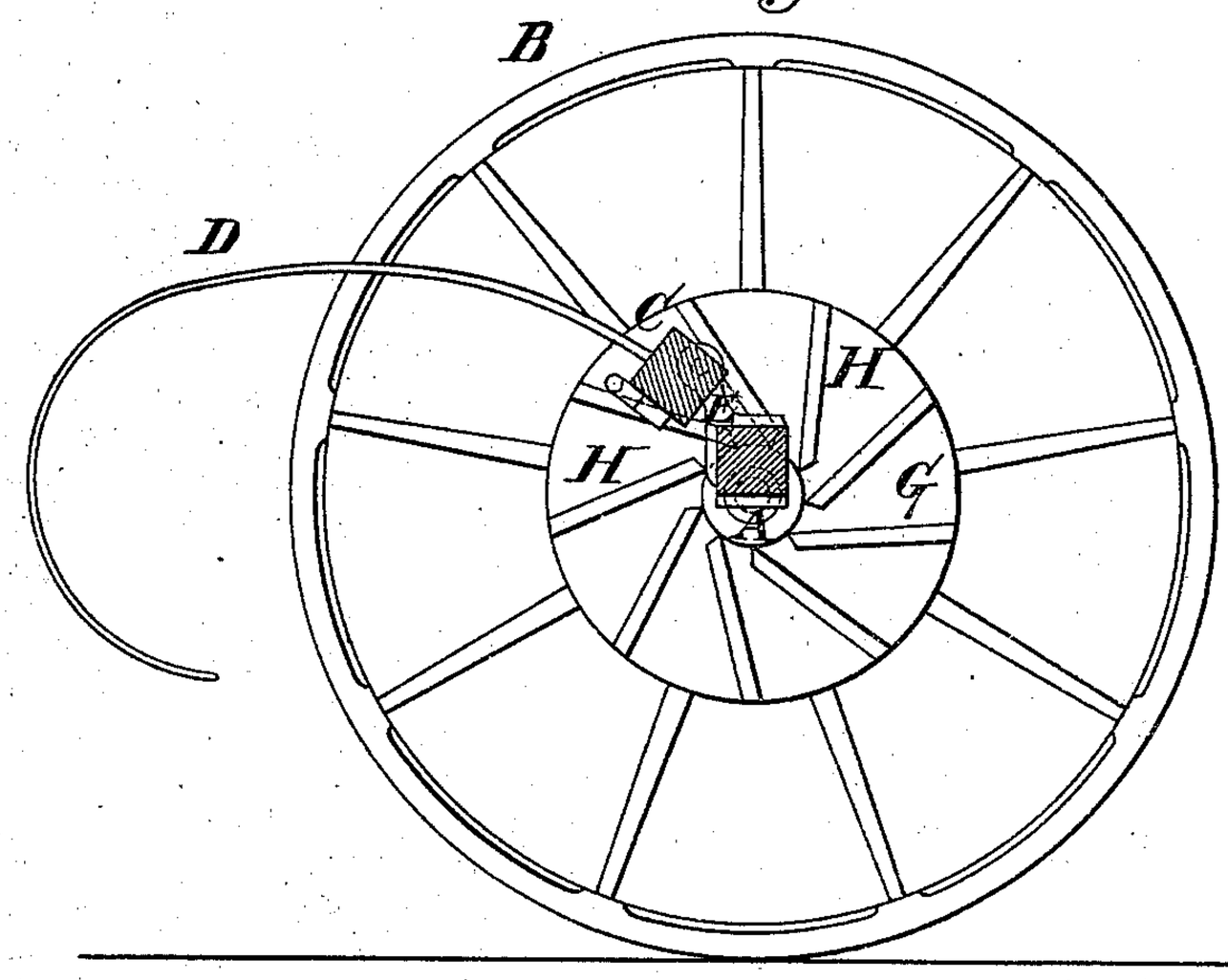


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. HARTLEY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **143,572**, dated October 14, 1873; application filed July 18, 1873.

To all whom it may concern:

Be it known that I, WM. HENRY HARTLEY, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Horse Hay-Rakes; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains, to fully understand, make and use the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a rear view of the device embodying my invention. Fig. 2 is a top or plan view thereof. Fig. 3 is a longitudinal section in line *x x*, Fig. 2. Fig. 4 is a longitudinal section in line *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in means for automatically returning to their first position the levers which engage with the ribs on the wheels. It also consists in connecting the rake-head with the clearers by means of two arms, one of which is attached to the clearer-head, and the other jointed to the lower inner angle of the rake-head, for the purpose of first lowering the clearers and then elevating them without passing beyond the ends of the teeth, besides being elevated with the teeth when the device is not required for use. It also consists in the combination of parts.

Referring to the drawings, A represents the axle, which is supported on wheels B B. C represents the rake-head, to which is connected a series of rake-teeth, D D, and which is hinged to the axle A by brackets E, secured to the latter. On the under side of the rake-head D there are arranged levers F, which slide transversely in opposite directions, and their outer ends are adapted to approach the wheels B and recede therefrom. A disk, G, is secured centrally on the inner face of the wheels, and from the inner face of the disk there project tangentially-arranged ribs H, against which the outer ends of the levers F come in contact when said levers are caused to approach the wheels. The levers F are connected by a toggle, J, to a rod, K, which passes vertically through the rake-head, and has at its upper end a suitable handle, which is within convenient reach of the driver, who occupies the seat L. M represents a lever, which is hinged to a swinging arm, N, whose fulcrum is on the platform P of the device, said lever being within convenient reach of the driver's feet. This lever is hinged to the rod K at a point above the rake-head C, and has attached to it a link, Q, whose lower end is connected to the rake-head at or near the bottom thereof. The clearers R are constructed in any well-known manner, and arranged between the rake-teeth, as usual, and said clearers are secured to a head, S, which is jointed to brackets T, attached to the axle A, and connected to the rake-head by adjustable arms V, which are jointed to each other, one of the arms being fixed to the clearer-head, and the other arm jointed to the lower inner angle *a* of the rake-head. A bar, W, is suspended from the rake-head by spring-pieces X, and bears against all of the teeth near the upper end thereof, in order to keep the teeth to the work, and yet yield sufficiently in cases of obstructions, for preventing the destruction of the teeth.

The operation is as follows: The device being properly propelled, when the load is collected the driver raises the rod K, either by hand, or depressing the lever M with his foot. This throws each of the sliding levers F in contact with one of the tangentially-arranged ribs H, thus connecting the wheels and rake-head, and causing the ends of the levers to move out or slide on the ribs H to the ends of said ribs, or the periphery of the disk G, whereby the rake-head is carried forward on its axis, and the teeth are elevated. During this motion the jointed arms V are operated, and thus the clearers are first lowered so as to clear the hay, and then elevated to about the line of the bottom of the rake-teeth, without passing beyond them, so that the load will be reliably cleared of the teeth, and the clearers occupy positions not to interfere with the subsequent lowering of the teeth.

When the rake is not required for use it is elevated, the operation of which also raises the clearer-teeth.

When the ends of the levers F reach the extreme ends of the ribs H, the former are thrown off, and the teeth thus lower or return

to their normal position. The movements of the rake-head now operate the levers V, so that the clearers are lowered, and again occupy their proper position.

When the teeth have been thus elevated, the ribs which are engaged by the levers F do not assume truly vertical positions until after the levers have been thrown off, but remain inclined during the engagement, whereby binding of the levers, or strain thereon or on the rake-head, and the carrying of the said rake-head forward beyond its destination, are entirely prevented.

As soon as the levers are thrown off of the ribs, and consequently lowered, their tendency is to immediately engage with the ribs next to those just released; but this is prevented by the operation of the lever M, whose fulcrum and that of the arm N are so disposed that, as the rake-head swings forward, the inner end of the lever M, assisted by the link Q, is caused to move downward, and, being connected to the rod K, the latter is forced to its lowermost position, thus closing the toggle J, and drawing in the levers F, whereby the engagement with the ribs H is ended until again necessitated.

A foot-lever, Y, is secured to the platform P, and freely jointed to the rake-head in such a manner that the said head will be forced rearward on its axis, and the teeth thus kept down to their work; but this lever, when the foot is released therefrom in nowise interferes with the operations hereinbefore stated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The lever M, lever N, and link Q, in combination with the rake-head C, levers F, and ribs H, substantially as and for the purpose set forth.

2. The two arms V jointed to each other, and one attached to the clearer-head S, and the other jointed to the lower inner angle *a* of the rake-head C, and operating as set forth, and for the purpose described.

3. The ribs H, sliding levers F, toggles J, hand-rod K, and foot-lever M, combined and operating substantially as set forth.

The above signed by me this 24th day of January, 1873.

WM. H. HARTLEY.

Witnesses:

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