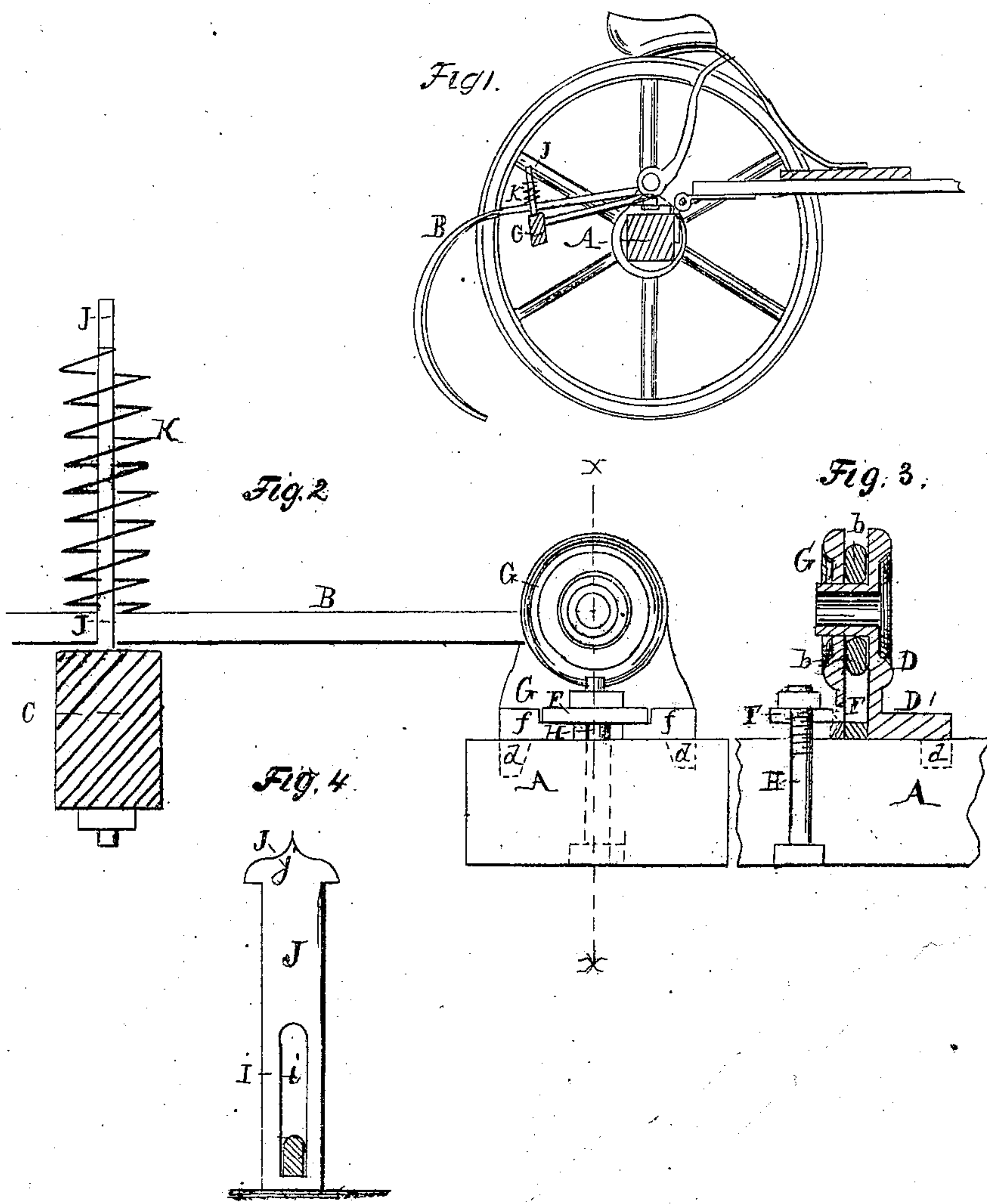


G. M. L. McMillen.

Horse Rake.

No. 82972

Patented Oct. 13. 1868.



WITNESSES:

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G. M. L. McMILLEN, OF DAYTON, OHIO.

Letters Patent No. 82,972, dated October 13, 1868.

IMPROVEMENT IN HORSE-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, G. M. L. McMILLEN, of Dayton, in the county of Montgomery, and State of Ohio, have invented a new and improved Horse Hay-Rake; and I do 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 longitudinal vertical section.

Figure 2 is a detached view of the joint spring and adjusting-apparatus.

Figure 3 is a section through line *xx* of fig. 2.

Figure 4 is a detached view of the slotted guide for the teeth.

The object of this invention is to improve the manner of fastening the wire teeth of horse hay-rakes to the axle, and of arranging the spring-bar, and the springs and guides that operate in connection with the rake-teeth.

In the drawings, A is the axle, B B are the rake-teeth, and C is the spring-bar. The axle is not intended to be rocked, or to be used in connection with the rocking-bar, for the purpose of raising and lowering the teeth, but each tooth is jointed to the axle, independently of all the others, and all are raised or lowered together, by means of the spring-bar and a lever connected therewith, having its fulcrum on or attached to the axle.

The joint by which the teeth are attached to the axle, is fully shown in figs. 2 and 3. It consists of a lug, D, bolted to the axle through a base-flange, D', and having the bolt reinforced by means of teeth or projections *d d*, extending down into the substance of the axle, the lug being provided with a hollow arm, E, on the side opposite to that on which the flange extends, and a flat, wide, horizontal, slotted arm, F, below the arm E, and somewhat longer than that arm, but extending in the same direction with it. In connection with this lug, is another, G, through the centre of which the arm E extends, as shown in fig. 3. This lug slides in towards and out from the other, and its position is adjustable by means of a screw-bolt, H, passing down through the slot in arm F, into or through the axle. The arm F extends through the lower end of lug G, and projects beyond its side. In order to steady and support the lug, and render the connection between it and arm F firmer, I provide it with base-flanges *f f'*, which rest upon the axle, and which are rebated along their upper inner edge, to form a bed to receive and accommodate the arm E, as the two lugs are brought together or moved apart.

The forward end of the rake-teeth is formed with an eye, *b*, and the teeth are attached to the axle by removing the lug G, and slipping the eye upon the arm E, and then replacing lug G, and fixing it, by means of the bolt and nut H, in such a position that it will safely confine the teeth in place, and yet allow them to swing upon the arm E as a pivot.

The teeth extending from the joint thus formed, in a direction backward and downward, pass over the spring-bar I, each tooth extending through a slotted guide-standard, J, provided with a spring, K, and a head, *j*, to keep the spring in position. I know it is common to pass the teeth through guide-slots, and to use a spring to press them down into place after they have been raised by any obstacle; but in every rake heretofore in use, the slots have extended to the upper end of the spring, and when the teeth were lifted too far, the spring would be so compressed as to be injured, thrown out of order in some way, or even destroyed. By making my slots *i i* about half the length of the standard J, and having the spring coiled around the whole length of such standard, I effectually prevent any such accident to the spring. Besides, I make my guide-standard in such a manner that its lower end extends through the spring-bar, and is provided with a screw-thread and nut under the bar, by which the tension of the spring K, or the length of slot *i* above the spring-bar, and as a consequence, the "play" of the rake-teeth up and down in passing over rough ground, can be adjusted at pleasure.

Inasmuch as I attach the ends of the teeth directly to the axle, and not to a bar considerably above the axle, it will not do to have the spring-bar above the teeth, and the guide-standards projecting downwards, for the reason that, in such case, the latter would be continually catching the hay and dragging it along, while the hay itself would work in among the convolutions of the springs, perhaps, and thus prevent their action. I accordingly arrange the several parts as shown in fig. 1, which effectually obviates the difficulty. The lever that operates the spring-bar, can be pivoted to the axle in a similar manner to the teeth, if preferred.

The whole apparatus is simple, cheap, and easily applied and adjusted. Any tooth can easily be removed, whenever it is desired to do so, or its "spring" can be regulated at pleasure, as above described.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The adjustable fastening for the rake-teeth, consisting essentially of the lugs D and G, and screw-bolt and nut H, the lugs being constructed with the flanges and arms as described, and the whole operating together in the manner and for the purpose set forth.

2. The guide-standards J J, when constructed with the head *j*, and the slot *i*, extending about half way from the spring-bar to the head *j*, and when made adjustable in relation to the spring-bar by means of the screw-thread and nut, or any equivalent device, and operating in connection with the spring K and the rake-teeth, substantially as described.

G. M. L. McMILLEN.

Witnesses:

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