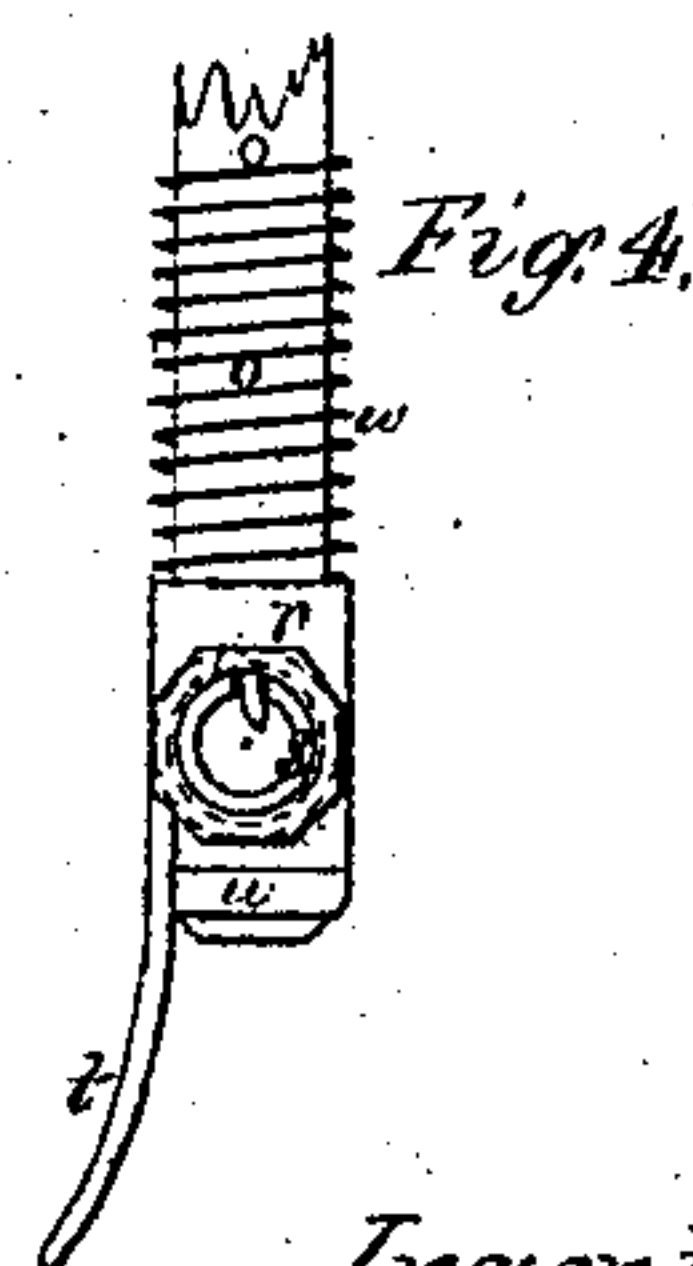
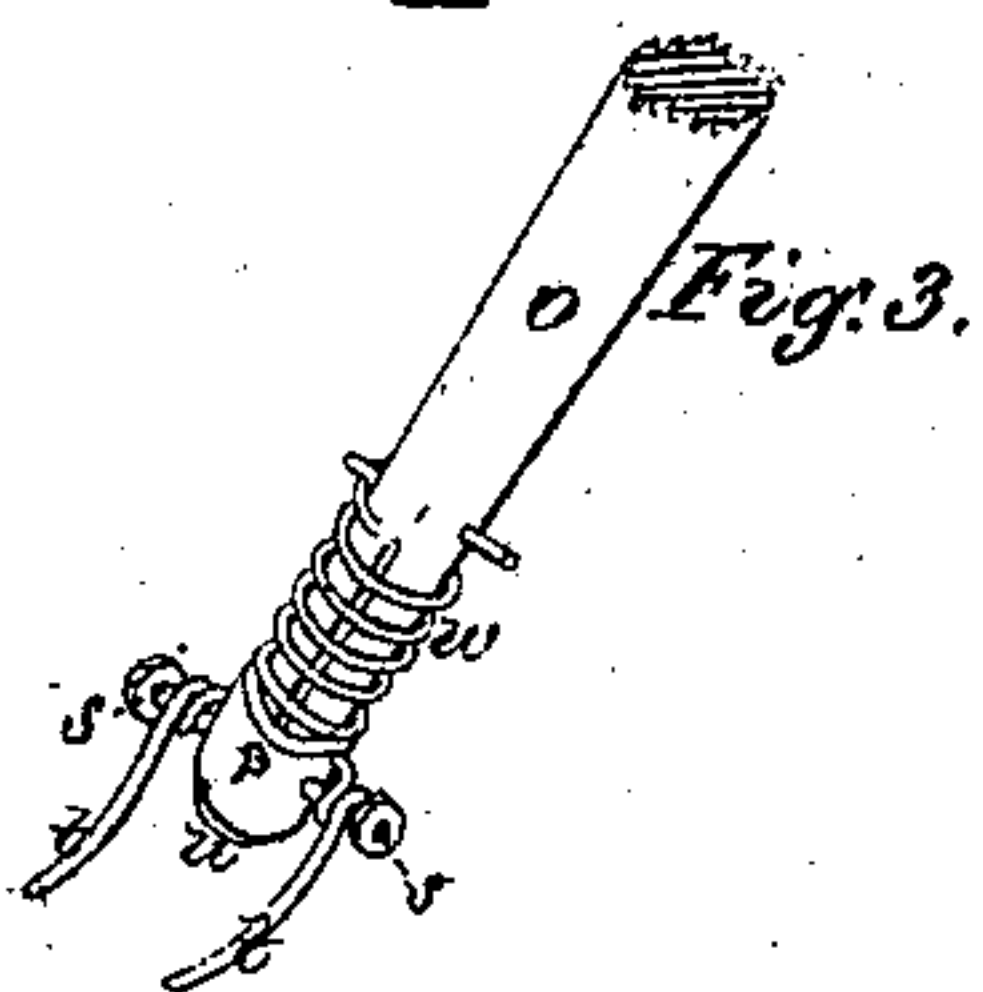
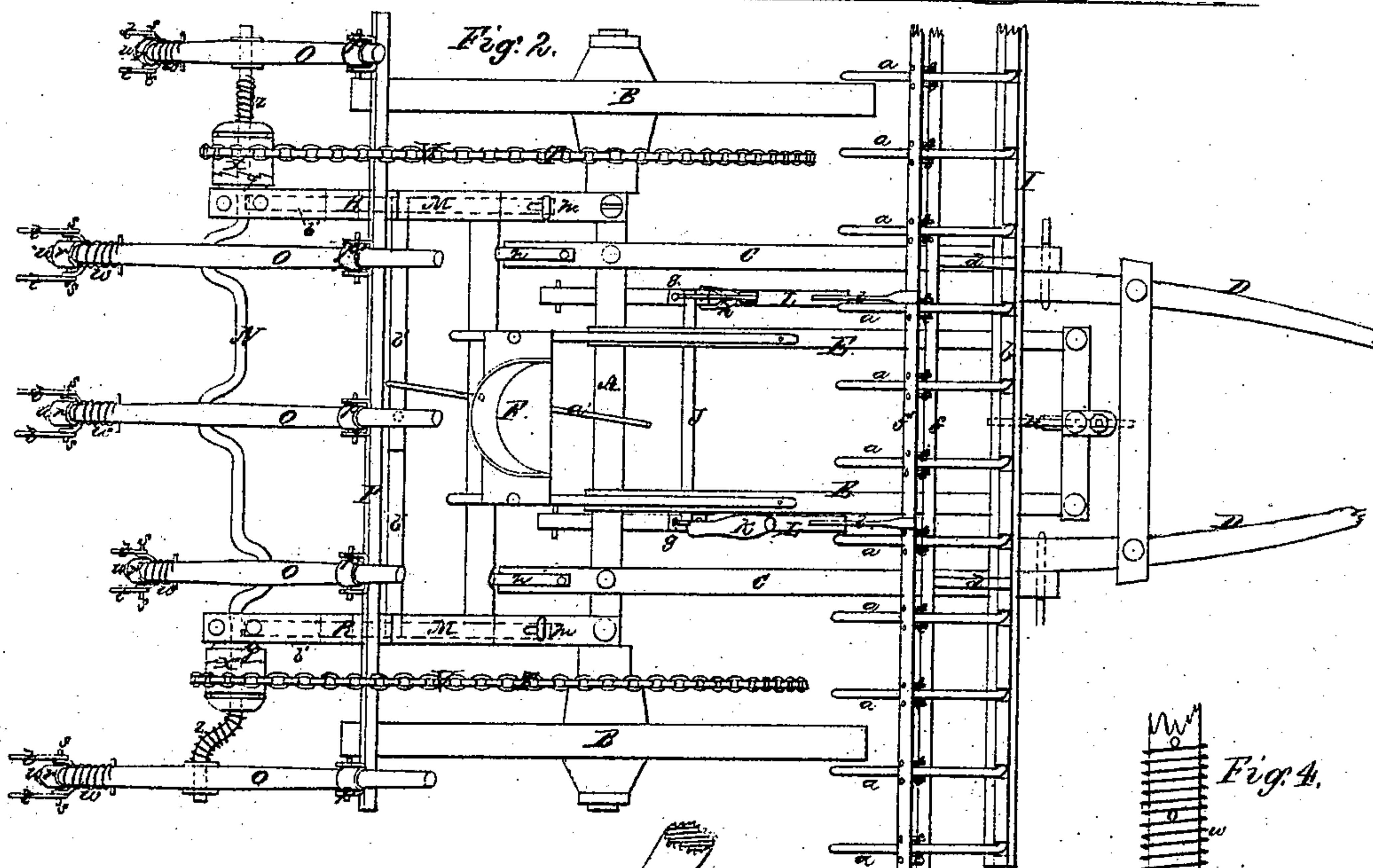
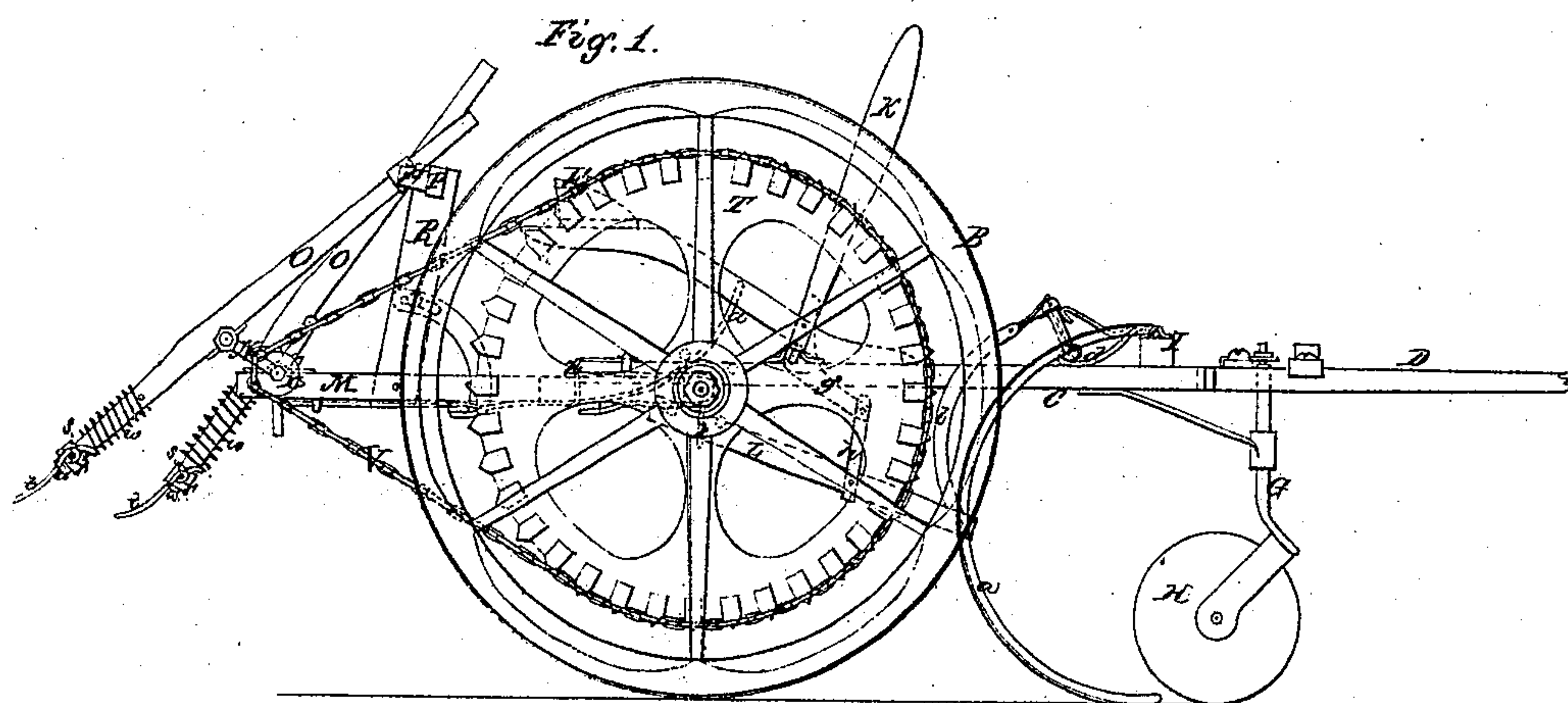


J. M. Low,
Comb-Rake & Tedder.

No. 99,923.

Patented Feb. 15, 1870.



Witnesses:

Jno. A. Ellis.

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United States Patent Office.

JOSEPH M. LOW, OF PORTLANDVILLE, NEW YORK.

Letters Patent No. 99,923, dated February 15, 1870.

IMPROVEMENT IN RAKE AND TEDDER COMBINED.

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, JOSEPH M. LOW, of Portlandville, in the county of Otsego, and State of New York, have invented certain new and useful Improvements in Combined Hay-Rakes and Tedders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and general arrangement of a hay-rake and spreader, as will be hereinafter fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation of my machine;

Figure 2 is a plan view of the same; and

Figure 3 is an enlarged perspective view of the fork or tedder, showing the manner in which I propose to attach the same to the arm.

Figure 4 is a side elevation of the tedder-arm.

A represents the axle of my machine mounted upon wheels B B.

Upon the axle are placed two beams C C at suitable distance apart, and extending the desired distance in front of the axle, so as to attach the shafts D D to their front ends.

Between the beams C C on the axle A is secured a frame, E, which supports the seat F. The front end of the frame E and of the entire machine is supported by an adjustable vertical rod, G, forked at its lower end, and carrying the wheel H. By adjusting this rod and wheel by means of screws and nuts, the depth at which the rake is to operate is readily regulated.

Across the front ends of the beams C C, parallel with the axle, is secured a bar, I, to which the rake-teeth *a a* are attached, said bar forming the rake-head.

In the drawing, I have shown the teeth *a a* attached to the bar I by means of one continuous plate, *b*, extending the whole length of the bar, and secured to its upper side. This plate is grooved longitudinally in the center from the under side, and provided with slots, through which the ends of the teeth are inserted, and bent so as to follow the groove in the plate, each tooth being thus, as it were, hinged separately and independently of the rest to the rake-head.

In a full-sized machine I shall, however, not employ one continuous plate, but a smaller plate, of similar construction, to each tooth, so that any one of them can be removed, if desired, without disturbing the rest.

From the bar I, extending toward the rear, are two metal straps *d d*, which form hinges for a bar, *f*, said bar running under the rake-teeth *a a*, parallel with the rake-head, the teeth resting upon the same.

On each side of each of the rake-teeth on the bar *f* is a wooden pin, *e*, which pins connect said bar with another similar bar, *f'*, placed above the teeth, and form guides between which the teeth are allowed to vibrate. The bars *f* and *f'* are also used to lock the teeth and to raise them up from the ground in the following manner:

On the frame E, in suitable journal-boxes, is laid a shaft, J, having at one end a lever, K, so arranged that the driver from his seat at F can easily reach and operate the same.

At each end of the shaft J is an arm, *g*, to the front end of which is pivoted another arm, *h*, and this latter arm is in turn pivoted to a bar, L, the rear end of which passes through a loop, *k*, on the under side of the axle A. The front end of the bar L is forked, and in the same is pivoted a bent lever, *l*, the upper end of which forms a loop surrounding the bar *f'*.

It will be seen that by turning the lever K forward, the bar *f'* is drawn down so as to bear against the upper side of the rake-teeth, holding them down and preventing them from vibrating. By moving the lever K so that the bar *f'* will bear against the upper portion of the stops *d*, the rake-teeth are allowed to vibrate between the pins *e e* the entire distance between the bars *f* and *f'*. By moving the lever K toward the rear, the curved levers *l l* raise the bars *f f'*, and with them the rake-teeth entirely from the ground.

The bars L L and curved levers *l l* are so arranged that when the rake is raised from the ground, as above mentioned, they lock themselves, and do not require any additional device for holding the rake up when moving to or from the field.

A frame, M, is hinged to the rear side of the axle A by means of strap-hinges *m m* passed around the axle on the outside of the bars C C.

The frame M is supported by means of two bent spring-supports, *n n*, secured to the rear end of the bars C.

In suitable journal-boxes on the rear end of the frame M is placed a crank-shaft, N, provided with any desired number of cranks, upon each of which is pivoted an arm, O, having at its lower end the fork for spreading the hay.

The upper ends of the arms O O pass through pivoted boxes *p p* upon the side of a bar, P, supported by means of adjustable standards R R from the frame M. By moving the standards R R so as to move the bar P further forward or toward the rear, the action of the forks or tedders is readily regulated, and the frame M being hinged to the axle, as above described, the frame can readily, by means of a lever or other suitable device, be raised and lowered at will, so as to accommodate the forks to any ground the machine may have to pass over.

Upon the lower end of each arm O is placed a col-

ar, *r*, having a pin, *s*, projecting on each side. The collar with its pins are cast together, the pins being hollow.

The fork *t* being now placed on the pin *s*, and its upper end inserted in a slot, a nut is placed upon the end of the pin, which firmly secures the fork in place. By this means if one fork should break it can readily be removed without disturbing the other.

Upon the end of the arm *O* is a nut, *u*, of such diameter as to prevent the collar *r* from falling off, and above said collar, on the arm, is a spiral spring, *w*, bearing against the upper end of the collar, allowing it, when necessary, to yield sufficiently, sliding up on the arm *O*, the spring always bringing the collar back again to the end of the arm.

The crank-shaft *N*, with arms *O O* and forks, are operated in the following manner:

Upon the inner sides of the wheels *B B* are placed toothed wheels *T T*, which, by means of chains *V V*, are connected with sprocket-pinions *x x* on the crank-shaft. The inner sides of these pinions are toothed, and gear with toothed collars *y y* secured to the crank-shaft, the pinions being placed loosely on the same, and pressed inward to the collars by means of spiral springs *z z*, as shown in the drawing.

It will be seen that when the machine moves forward, the pinions *x x* will gear with the collars *y y*, and operate the forks, but as soon as the machine backs up, the pinions will slide away from the collars, and not turn the crank-shaft.

The operator, from his seat at *F*, can throw the pinions out of gear by a lever, *a'*, pivoted on the under side of the frame *M*. This lever is forked at its rear end, and operates two T-shaped levers, *b' b'*, which are pivoted together, and also one on the under side of

each of the side beams of the frame *M*. The levers *b' b'* are connected with the pinions *x x*, so as to move them away from the collars *y y* whenever so desired.

Having thus fully described my invention,

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

1. The bars *f f'*, stops *a a*, and stationary head *I*, combined substantially as and for the purpose described.

2. The combination and arrangement of the shaft *J*, lever *K*, arms *g g* and *h h*, bars *L L*, and curved levers *l l*, all substantially as and for the purposes herein set forth.

3. The frame *M*, provided with strap-hinges *m m* for fastening to the axle *A*, and supported by the supports *n n*, substantially as shown and described.

4. The adjustable standards *R R*, with cross-bar *P*, provided with swivel-boxes *p p* for the upper ends of the fork-arms to pass through, substantially as and for the purposes herein set forth.

5. The collar *r*, provided on each side with a hollow pin, *s*, and nut for securing the fork *t*, substantially as herein set forth.

6. In combination with the collar *r*, constructed as described, the nut *u* and spring *w*, substantially as and for the purposes herein set forth.

7. The sprocket-pinion *x*, toothed collar *y*, spring *z*, in combination with the T-shaped levers *b' b'*, all arranged to operate as and for the purposes set forth.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

J. M. LOW.

Witnesses:

T. F. ALEXANDER,
JOHN A. ELLIS.