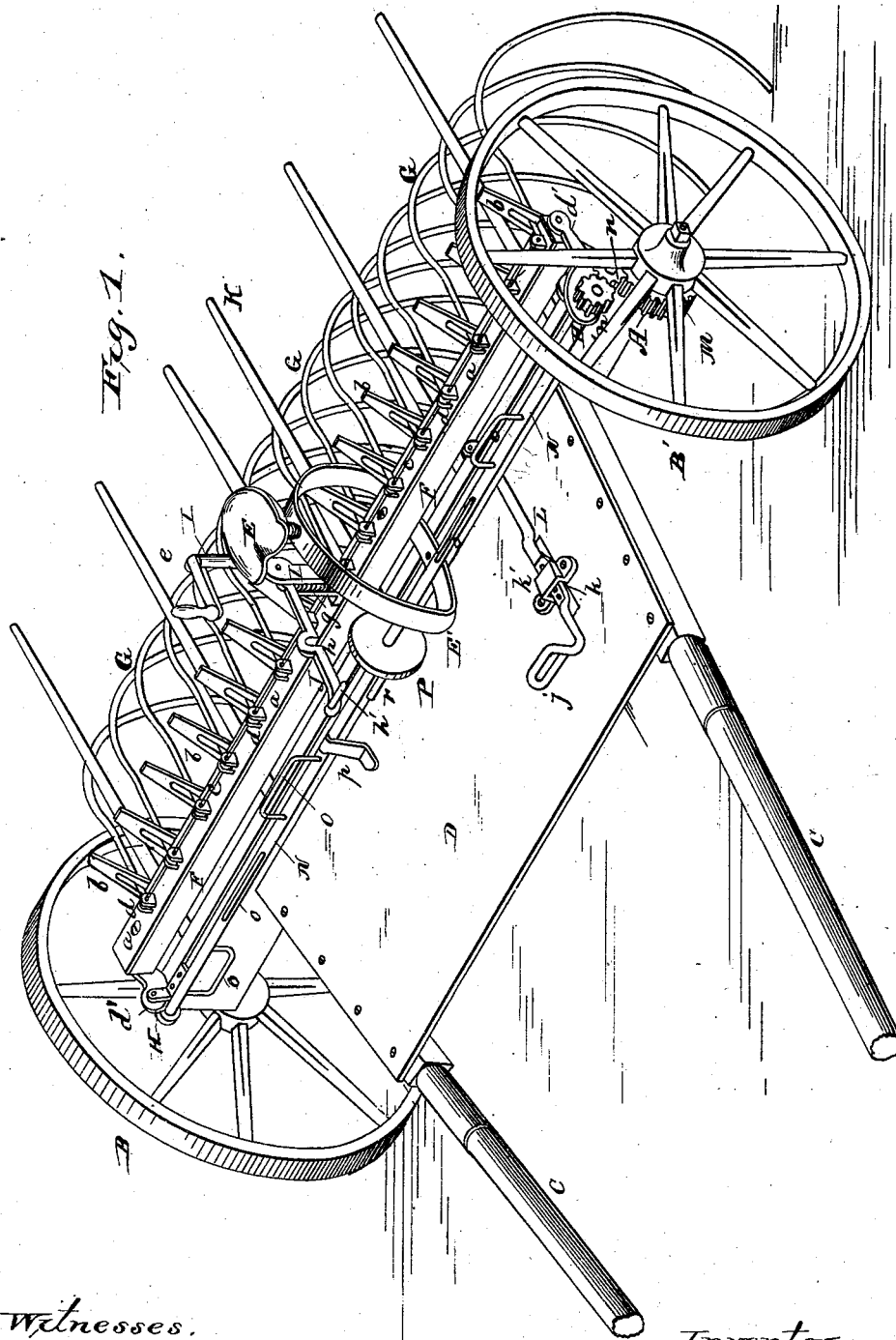


(No Model.)

3 Sheets—Sheet 1.

I. L. LANDIS.
COMBINED HAY RAKE AND TEDDER.
No. 260,301. Patented June 27, 1882.



Witnesses.
Edwin L. Jewell.
J. J. McCarthy.

Inventor.
Israel L. Landis.
by C. M. Alexander
his Attorney.

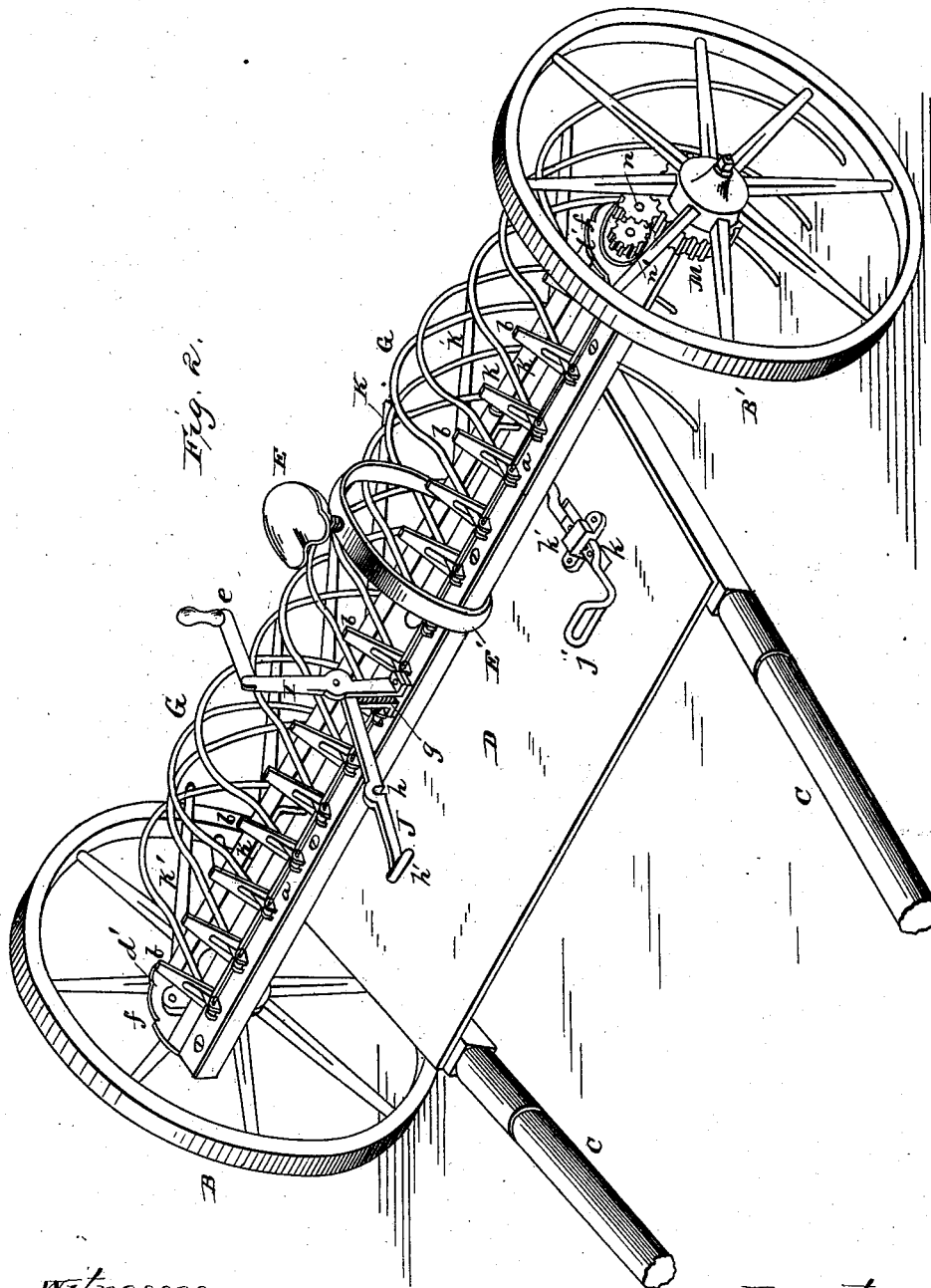
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3 Sheets—Sheet 2.

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COMBINED HAY RAKE AND TEDDER.

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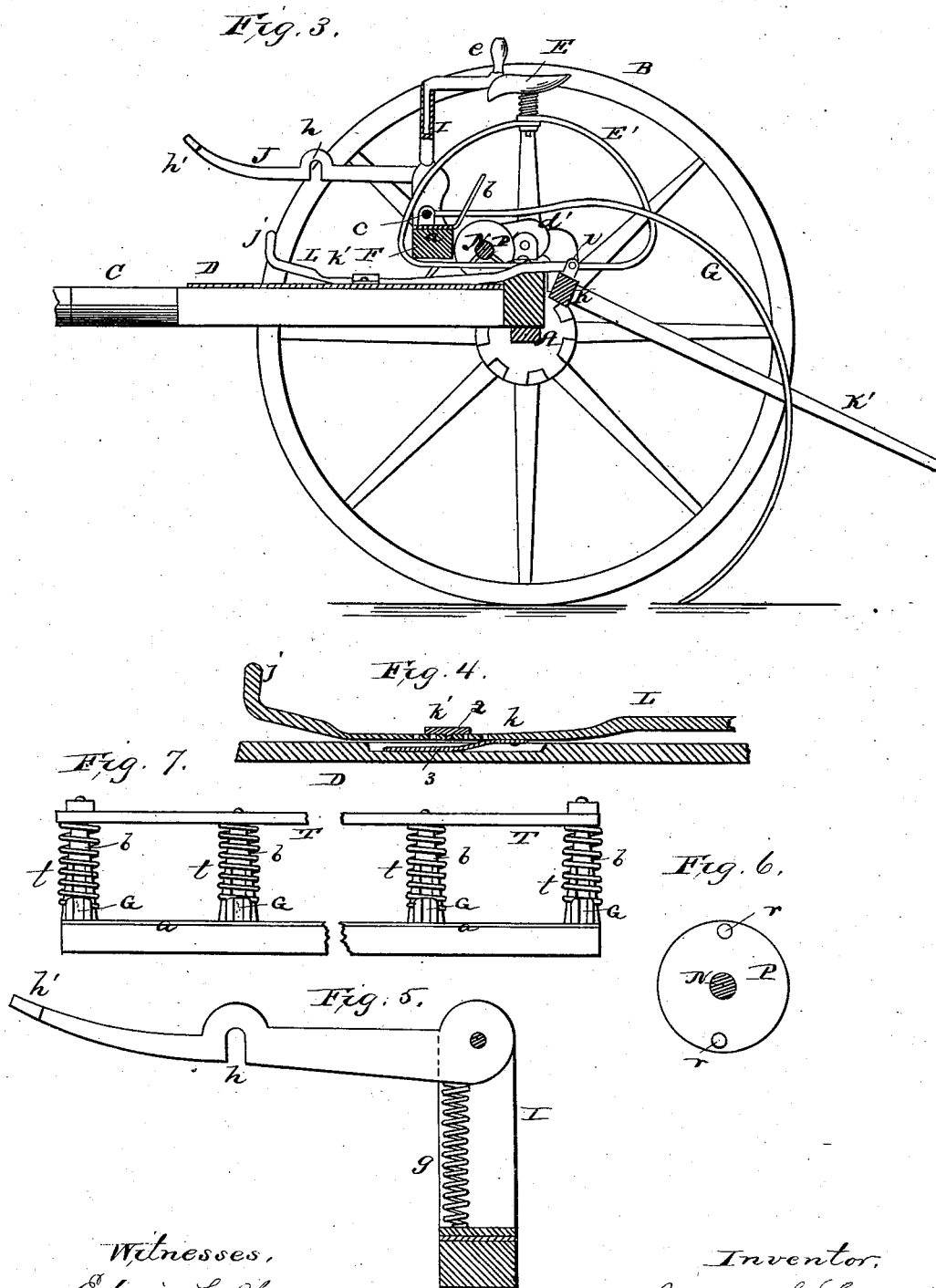
Witnesses,
Edwin L. Yewell.
J. J. M^r. Carthy.

Inventor,
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UNITED STATES PATENT OFFICE.

ISRAEL L. LANDIS, OF LANCASTER, PENNSYLVANIA.

COMBINED HAY RAKE AND TEDDER.

SPECIFICATION forming part of Letters Patent No. 260,301, dated June 27, 1882.

Application filed January 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, ISRAEL L. LANDIS, of Lancaster, in the county of Lancaster, and in the State of Pennsylvania, have invented certain new and useful Improvements in Hay Rakes and Tedders Combined; 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, making a part of this specification.

This invention relates to improvements in combined horse hay rakes and tedders of the sulky kind.

In the annexed drawings, Figure 1 is a perspective view, showing the machine adjusted for raking. Fig. 2 is a similar view of the same parts, showing the machine adjusted for tedding. Fig. 3 is a vertical section through the machine from front to rear when the parts are adjusted for tedding. Figs. 4, 5, 6, and 7 are details.

Similar letters of reference indicate corresponding parts.

A designates the axle of two transporting-wheels, B B', one, B', of which is also a driving-wheel.

C C are the thills, secured rigidly to the axle, or the bolster thereof, and D is the platform, which is secured upon the thills.

E is the driver's seat, which is mounted on an arched spring-support, E', fixed rigidly to the bolster of the axle, on one side of the middle of the length thereof. The seat E is allowed to swivel horizontally about a post that is free to play through the support E', and which is surrounded by a coiled spring. This allows the driver perfect freedom to turn to the right or left, and it affords a comfortable seat for him.

F designates the rake-head, which is greatly strengthened by a metal facing, a, from the rear edge of which rise slotted guides b, through which the rake-teeth G pass freely. These guides b are formed on the strengthening-plate a, and while they allow the rake-teeth freedom to rise and fall they stiffen the teeth in rear of their pivots against lateral strain. In short, the guides serve as braces to keep the rake-teeth parallel to each other. The front ends of the rake-teeth have eyes formed on them, through which a rod, c, passes, that also passes

through posts d, fixed to the rake head and its plate a.

To the extremities of the rake-head curved arms d' d' are pivoted, which arms are again pivoted to vertical bearings H H, secured rigidly to the ends of the axle-bolster. The rake-head F can thus be moved forward of the axle or back of the axle, and in either position supported upon the extended base of the arched seat-support E'; but to support the rake-head firmly, when it is in the position shown in Fig. 1, I form shoulders f (shown in Fig. 2) on the arms d' d', which bear against extensions of the metal bearings H.

At the middle of the length of the rake-head F is rigidly secured a slotted standard, I, having an upper tubular extension, the extremity of which is notched fore and aft. This tubular extension detachably receives a reversible cranked handle, e, a flat portion of which enters the notch, and a right-angular extension of which extends down into the tubular portion, as shown in Fig. 3, and holds the handle rigidly, whether it be set backward, as in Figs. 2 and 3, or forward, as in Fig. 1.

To the standard I is pivoted an arm, J, which is held up by a coiled spring, g, and which is notched at h, and provided with an angular pedal, h', on its free extremity. The office of this arm J will be presently explained. The bearings H H have also pivoted to ears formed on them the head K of the clearing-teeth K', which extend back between the rake-teeth and clear the hay from them as they are raised to discharge a load. These clearers K' also serve, when adjusted well down, as shown in Figs. 2 and 3, to prevent the hay or grass from scattering too freely while tedding.

To a short post, i, fixed to the head K of the clearers, a rod, L, is pivoted, which extends forward and terminates in an upturned stirrup or toe-loop, j, which is in a convenient position for the reception of the toe of the driver's boot. This rod L is flattened and perforated at k, and over this flattened portion is a strap, k', which is secured upon the platform D, and which has a pin, 2, adapted to receive one or the other of the said perforations. A spring, 3, which is secured to the said rod, and which is free to slide in a recess in the platform, will lift the rod L, so that the pin 2 engages with said rod. These parts are all clearly shown in Figs. 2

and 4 of the annexed drawings. By depressing the looped end of the rod L, and thus freeing the same from the pin 2, it can be moved forward or backward and the clearing-teeth 5 adjusted at any desired inclination, and by releasing the rod it will be caught and held by the pin 2, thus fixing the clearers in the desired position.

On the inner end of the hub of transporting-wheel B' is rigidly secured a spur-wheel, M, which transmits rotation to a horizontal transverse rod, N, through the medium of pinion spur-wheels *n n'*. The spur-wheel *n* turns on a stud fixed to one of the bearings H, and the 15 wheel *n'* is keyed on the end of the rod N. This rod N is provided with a number of rectangular loops or tappets, *o*, arranged alternately at right angles to each other, so that when the rake is arranged as a tedder they will strike and lift the rake-teeth in pairs, giving to them 20 such motions, when the machine is moved forward, as are found best adapted for turning and loosening up the cut product.

The rod N may be sustained at intervals along its line by stools *p*. (Shown in Fig. 1.) 25 It is obvious that the rod N might be driven by both transporting-wheels, but I deem one driver sufficient.

P designates a wheel, having studs *r r* fixed into one face diametrically opposite each other. 30 This wheel is rigidly secured on the tappet-rod N in such relation to the pivoted arm J that when the machine is used as a rake, as shown in Fig. 1, by depressing this arm J its notch *h* will engage with one of the studs *r* of revolving wheel P, and thus cause the rake-teeth to be lifted and the gathered load to be discharged by the power of the horse. The 35 act of releasing the rake-teeth takes place when the free end of the arm J is arrested by the platform D, and the continued motion of the wheel P removes the pin *r* from the notch in arm J. It will thus be seen that the driver can cause the discharge of a gathered load by 40 simply depressing arm J with his foot, and after this arm is engaged with one of the pins *r* remove his foot from the arm.

If the driver desires to effect the discharge of the load without using the power of the 50 horse, he adjusts the hand-crank *e* forward, as in Fig. 1, and by grasping this handle he can effect his object; and if at any time he desires to hold the rake up free from the ground he can do so by putting his foot on the handle 55 portion of the hand-crank *e* and depressing it as far as it is allowed to go. In this last-named position of the parts the arm J is free to yield when struck by the pins *r r* on wheel P. The hand-crank *e* may be turned back, as shown

in Figs. 2 and 3, when the machine is used as 60 a tedder. It will thus be seen that without taking from or adding to the machine it is convertible into a tedder or a hay-rake.

For the purpose of holding down the rake-teeth with an elastic pressure I suitably se- 65 cure on the upper ends of the guides *b* a bar, T, and apply coiled springs *t* on these guides, which press upon the backs of the teeth and allow the latter to yield upward when pressed on the ground while raking. The springs *t*, 70 thus arranged, will yield and allow any one or all of the teeth to rise and pass over obstructions.

When the machine is used as a tedder the clearing-teeth are required to be depressed 75 more or less, especially when the wind is blowing hard, for the purpose of preventing an undue scattering of the grass. These teeth thus serve as guards or shields. It frequently happens that in tedding wet grass the teeth G 80 will gather the grass. In such cases the teeth K' and the devices for operating them have to be brought into play by the attendant for the purpose of clearing the rake or tedding teeth.

Having described my invention, I claim— 85

1. The combination of the rake-head, the standard secured thereto, and the reversible cranked handle, substantially as and for the purposes described.

2. In a combined convertible rake and ted- 90 der, the rake-head adjustable forward and back of the axle, the rotary shaft N, provided with tappets, the standard I, fixed to the rake-head, and the reversible handle *e*, applied to this standard, substantially in the manner de- 95 scribed.

3. In a convertible rake and tedder, the combination of the vibrating clearer, the endwise-movable rod L pivoted thereto, provided with a toe-loop or stirrup and perforations, the 100 strap *h'*, provided with a pin, 2, and the spring, all substantially in the manner and for the purpose described.

4. The combination, with the rake-head, which is hung and supported as described, of 105 the notched spring-actuated arm J, the wheel P, provided with pins *r*, the tappet-shaft N, bearing wheel P, the standard I on the rake-head, and a reversible handle *e*, all arranged and operating substantially as described. 110

In testimony whereof I affix my signature, in presence of two witnesses, this 15th day of December, 1881.

ISRAEL L. LANDIS.

Witnesses:

J. J. MCCARTHY,
H. J. ENNIS.