S. I. LYND & E. M. TOUSLEY.

Improvement in Horse Hay-Rakes.

No. 129,742. Patented July 23, 1872.

Fig 1.

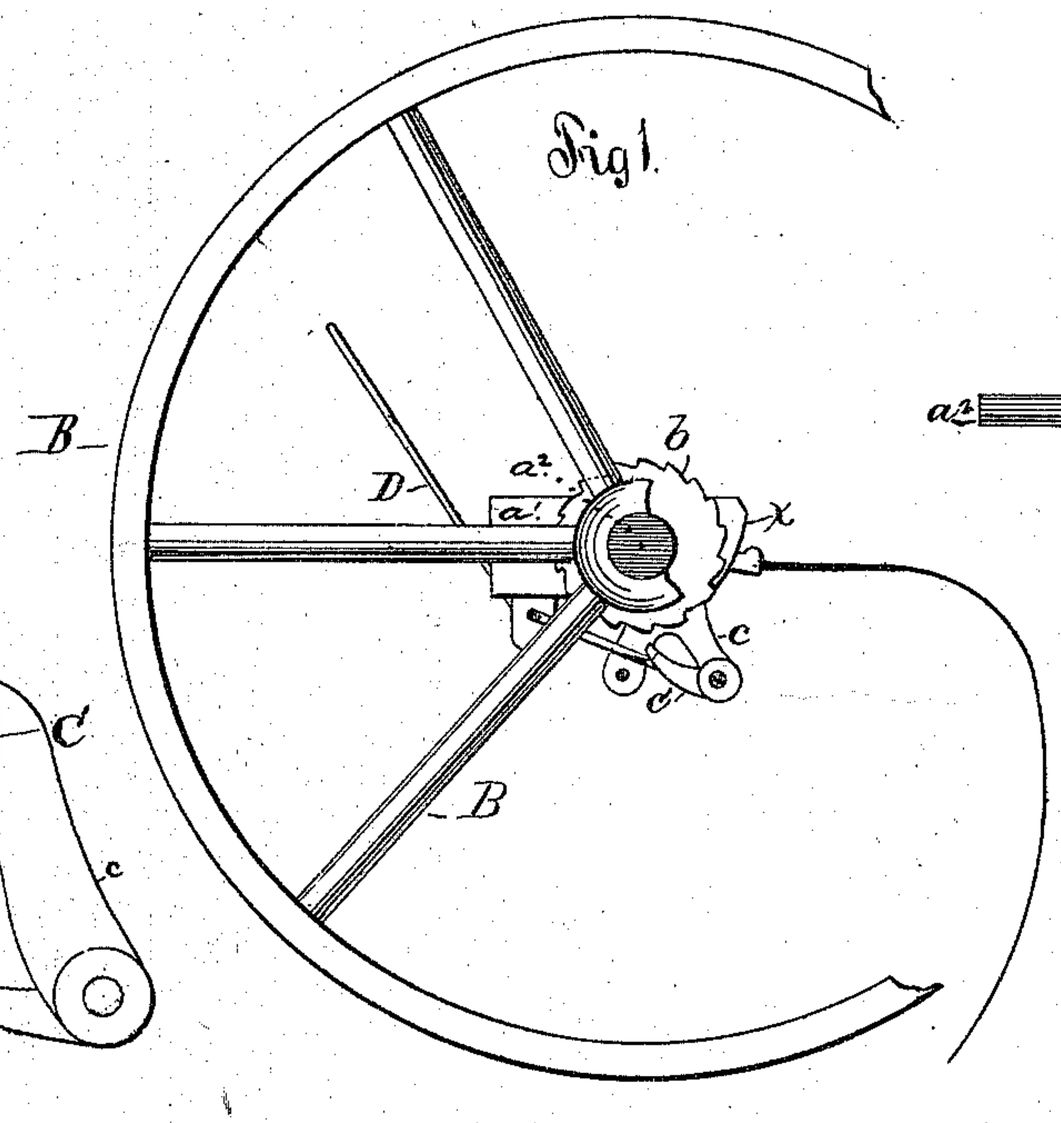

Fig 6.

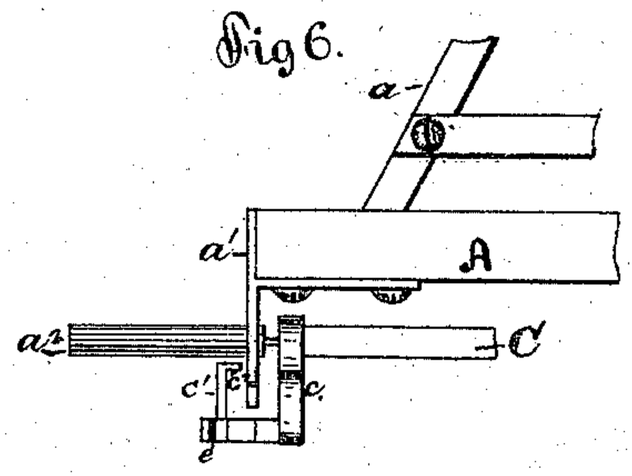

Fig 3.

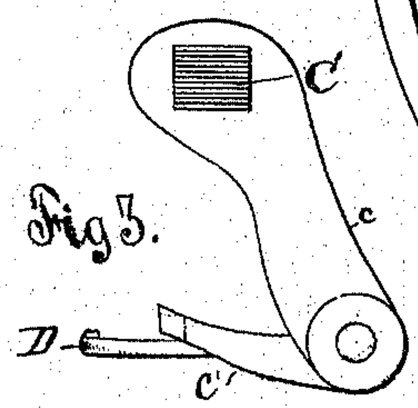

Fig 5.

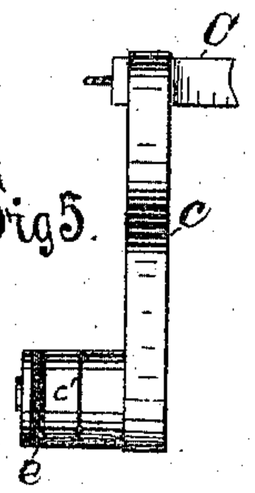

Fig 2

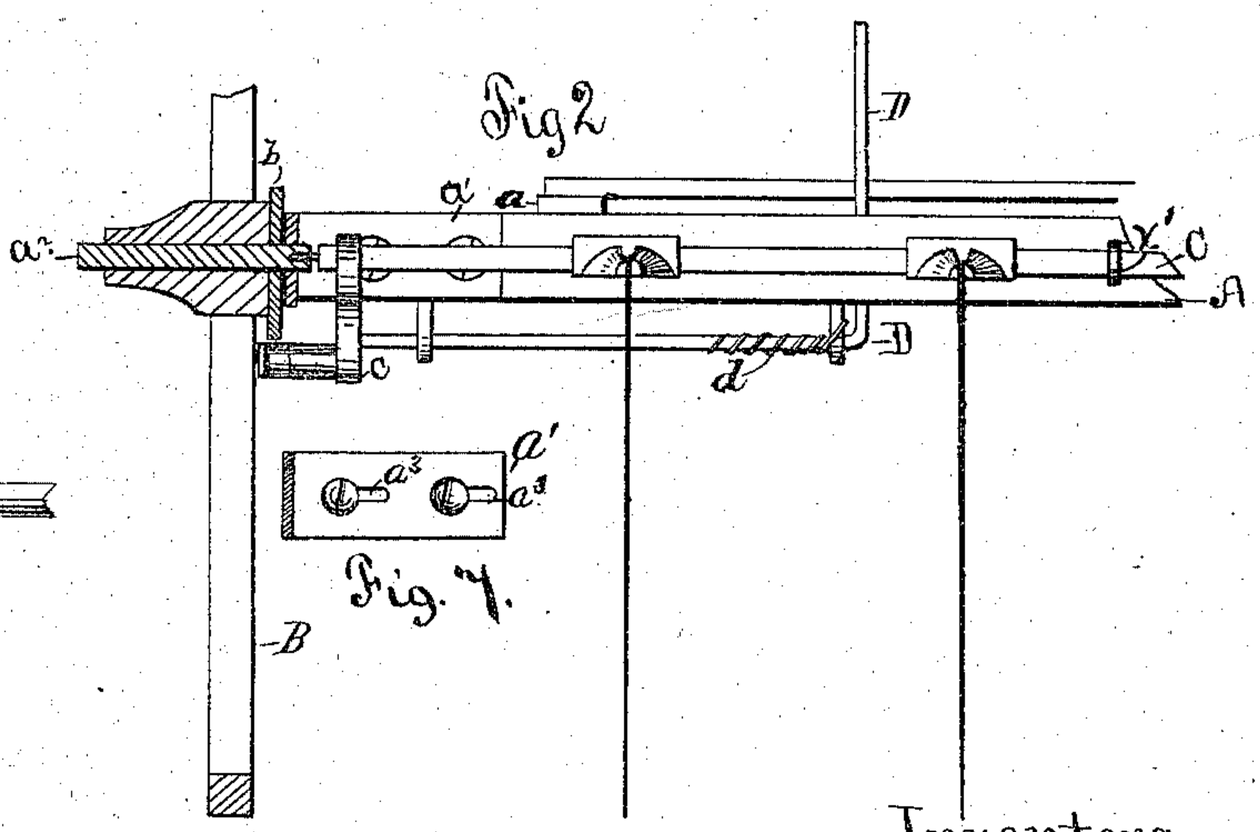

Fig 4.

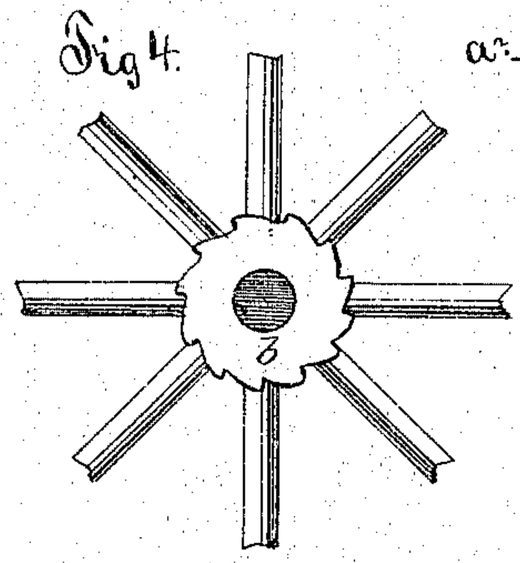

Fig. 7.

Witnesses
Hezekiah Clark
J. F. Noyes.

Inventors
Stephen S. Lynd
Edgar M. Tousley

UNITED STATES PATENT OFFICE.

STEPHEN I. LYND AND EDGAR M. TOUSLEY, OF ALBION, NEW YORK.

IMPROVEMENT IN HORSE HAY-RAKES.

Specification forming part of Letters Patent No. **129,742**, dated July 23, 1872.

Specification describing certain Improvements in Horse Hay-Rakes, invented by STEPHEN I. LYND and EDGAR M. TOUSLEY, of Albion, in the county of Orleans and State of New York.

This invention relates mainly to the special mechanism for elevating the rake; its novelty consisting in an improved combination of parts, in which combination the pawl, which engages with the revolving ratchet-wheel common to this class of rakes, is attached, by means of an arm, directly to the rake-head, instead of being attached to an independent plate or sleeve; the result of the improved construction being to produce a much more simple mechanism for operating the rake, and to make a more effective machine.

The details of construction and manner of operation will be fully described hereinafter.

In the drawing, Figure 1 represents a side elevation of our improved mechanism for elevating the rake-head; Fig. 2, an end elevation, partially in section; Figs. 3, 4, and 5, views of detached parts; Fig. 6, a partial plan view; and Fig. 7, an elevation, partially in section, of one of the angle-irons detached.

To enable others skilled in the art to make and use our invention, we will now proceed to describe fully its construction and manner of operation.

A represents the main beam of the rake, to which are attached in any proper manner the shafts *a*. a^1 a^1 represent right-angled castings, rigidly attached one to each end of the main beam by proper fastenings, which castings are each provided with an arm having the short journals a^2 a^2, upon which revolve the supporting-wheels B B, as shown. One of the castings a^1 has the end of its arm curved, as shown at *x*, Fig. 1, for a special purpose, as will be fully described hereinafter, and it is preferably provided with slots a^3 a^3, Fig. 7, by means of which it is made capable of adjustment upon the beam within certain limits. The main beam A, the castings a^1, and the journals a^2 form, in fact, a bent axle, the purpose of which will be described hereinafter. *b* represents a ratchet-wheel, of any suitable size, which is rigidly secured to one of the wheels B, as shown. C represents the rake-head, consisting of a wrought bar of suitable size, provided with journals at each end, which rest in bearings in the inner ends of the journals a^2 for wheels B B, as shown in Figs. 2 and 6. By means of this arrangement of parts the center of the rake-head C is located in line with the center of the ratchet-wheel *b*, so that when the rake-head is revolved it turns in perfect harmony with the ratchet-wheel. *c* represents an arm, rigidly attached to the rake-head C at the end contiguous to the ratchet-wheel *b*, which bar has a stud extending outward over the ratchet-wheel, upon which is pivoted a pawl, c^1, having a projection, c^2, as shown. D represents a bent lever, the main portion of which is hung in bearings below the main beam, its inner end being bent upward in such manner as to be conveniently reached by the driver, and its outer end being bent rearward in such manner as to rest, when in its natural position, just beneath the projection c^2 of the pawl c^1. *d*, Fig. 2, represents a spring, which is placed about the lever for the purpose of causing it to return properly to place after it has been released. If desired, the rake-arm may be provided with an extension having a projecting stud to limit the movement of the pawl, and to prevent it from falling down too far; but we preferably employ, instead of this arrangement, the following device: *e*, Fig. 5, represents a rubber washer, located upon the end of the stud which holds the pawl, which washer is pressed against the pawl with more or less force, as may be necessary, by means of a nut, as shown. By means of this construction the pawl may be set, the nut being first unscrewed, in any desired position, in which it will be securely held by the pressure of the washer, the rubber yielding sufficiently, however, to permit it to perform the functions for which it is designed.

The operation of our improved machine is as follows: It is drawn across the field in the usual manner, the teeth raking the hay together similarly to other rakes of this class. When the operator desires to elevate the teeth for the purpose of discharging the load he throws forward the long arm of the actuating-lever, which is within convenient reach, by which means the short arm is caused to raise the pawl c^1 and bring it into contact with the revolving ratchet-wheel. By means of this operation the movement of the ratchet-wheel is communicated directly to the rake-head,

and, the latter being revolved, the teeth are consequently raised and the load discharged. When the rake-head has been carried upward far enough to insure the discharge of the load the projection c^2 of the pawl comes in contact with the curved arm x of the casting a^1, which curve forms, in fact, a cam, which disengages the pawl from the ratchet-wheel and permits the teeth to fall. The lever D, being released by the operator after the engagement of the pawl with the ratchet, is returned by its spring to its natural position, ready for a new movement.

The described construction possesses many marked advantages. The pawl being connected by means of an arm directly to the rake-head, the intermediate devices usually employed are dispensed with, and great simplicity is obtained, with increased effectiveness of action. The construction is such, also, that the rake may be produced at a small cost. The angle-iron, the thimbles or boxes which hold the teeth, the ratchet-wheel, arm, and pawl are all cast, and the rake-head and the actuating-lever are made of bar-iron. The manner of journaling the rake-head in line with the center of the ratchet-wheel is specially advantageous. The location is desirable as giving the best effect with the least expenditure of power; and, by making the rake-head independent of the axles, a small bar can be used without weakening the machine, and the friction of its movement is also much less than when it forms the axle. The position of the rake-head, also, when thus arranged, is never affected by the position of the shafts a a, as is the case in many other machines. The angle-iron, by means of its slots a^3, is made capable of adjustment upon the beam for the purpose of holding the rake-head properly, and also for the purpose of permitting the latter to be readily removed, whenever necessary, without taking the machine to pieces. The removal of the rake-head, it will be readily understood, is accomplished by moving the angle-iron outward upon the beam, its securing-screws being loosened sufficiently far to permit the journal of the rake-head to slip out of its bearing. The central fastening x', Fig. 2, which consists of a ring-bolt or plate provided with a proper opening, secured by a nut, then being unloosed, the rake-head is entirely detached from the machine.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The angle-iron a^1, having its arm provided with a journal, a^2, and with a curved end, forming a cam, in combination with the pawl, substantially as described.

2. The independent rake-head, journaled in line with the center of the journals a^2, as described.

3. The combination of the main beam A, angle-irons a^1 a^1, journals a^2, wheel B with ratchet b, rake-head C with arms c and pawl c^1, and lever D, combined and arranged as described.

4. The angle-iron a^1, having the slots a^3, in combination with the beam A and independent rake-head C, as described, for the purpose set forth.

STEPHEN I. LYND.
EDGAR M. TOUSLEY.

Witnesses:
SETH S. SPENCER,
S. B. RICH.