No. 862,567.

PATENTED AUG. 6, 1907.

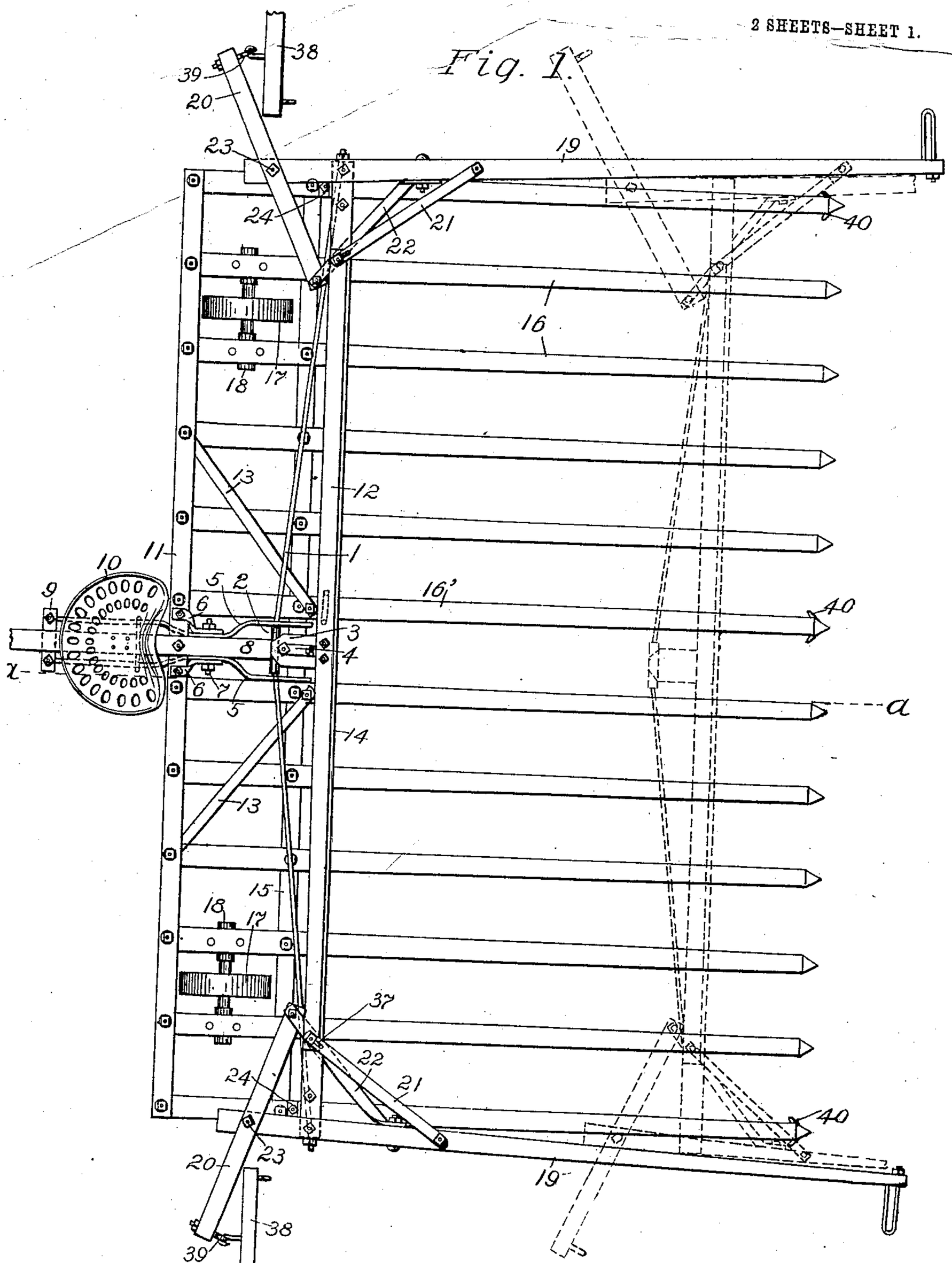
H. L. & E. C. LITCHFIELD & J. C. HARRIS.

HORSE RAKE.

APPLICATION FILED MAY 3, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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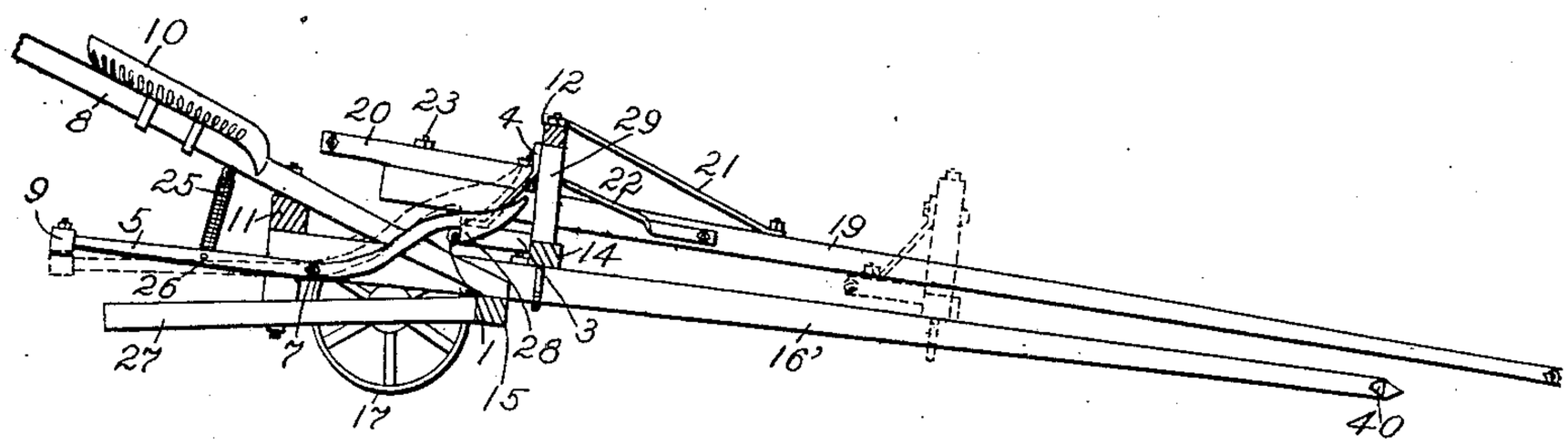
2 SHEETS—SHEET 2.

Fig. 2.



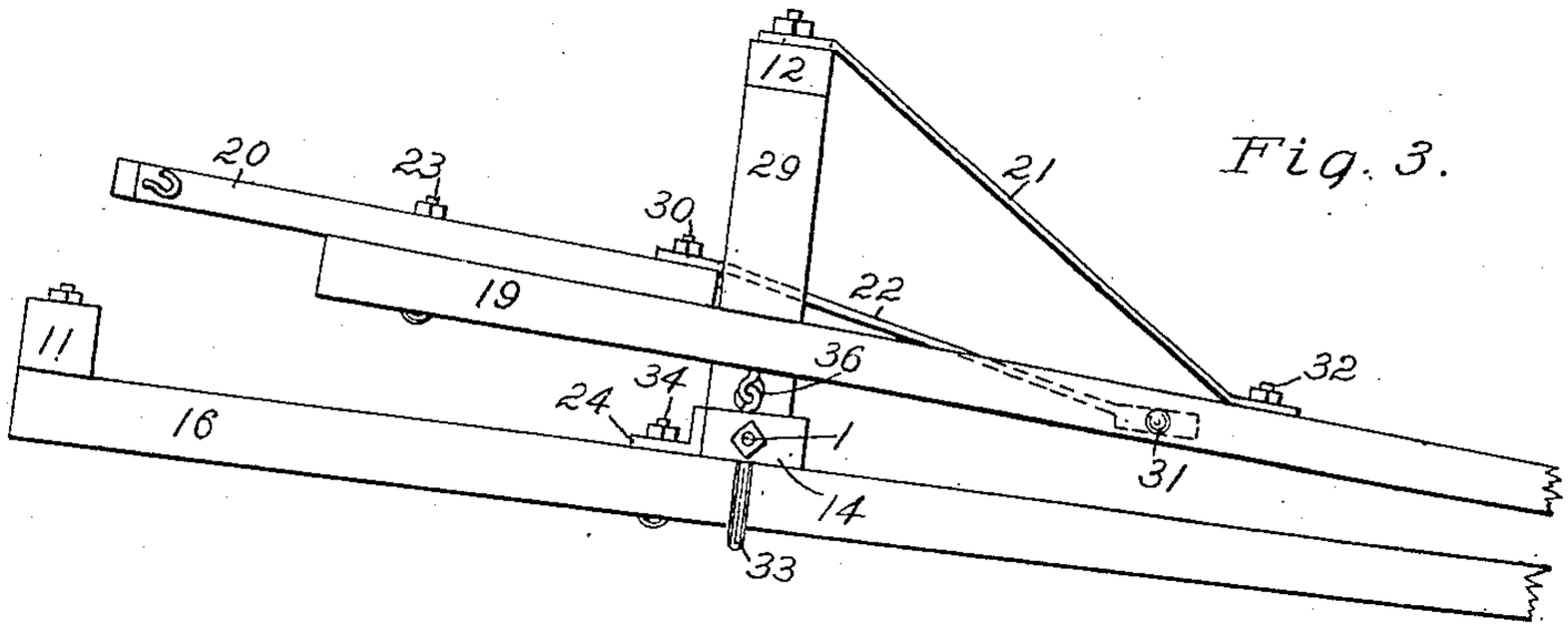


Fig. 3.

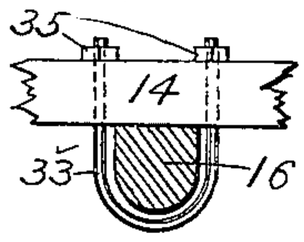


Fig. 4.

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UNITED STATES PATENT OFFICE.

HENRY L. LITCHFIELD, EDGAR C. LITCHFIELD, AND JOHN C. HARRIS, OF WATERLOO, IOWA, ASSIGNORS TO THE LITCHFIELD MANUFACTURING COMPANY, OF WATERLOO, IOWA.

HORSE-RAKE.

No. 862,567. Specification of Letters Patent. Patented Aug. 6, 1907.

Application filed May 3, 1906. Serial No. 314,958.

To all whom it may concern:

Be it known that we, HENRY L. LITCHFIELD, EDGAR C. LITCHFIELD, and JOHN C. HARRIS, citizens of the United States of America, and residents of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Horse-Rakes, of which the following is a specification.

Our invention relates to horse-rakes, and the object of our invention is to provide a detachable sweep for a horse-rake so arranged that it may be readily separated by the operator from the fastening means and then carried forward along the teeth to push the load forward. This object we have accomplished by the means which are hereinafter fully described and claimed and which are illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a horse-rake equipped with our improved detachable sweep, Fig. 2 is a transverse section taken along the line *a—a* in Fig. 1, Fig. 3 is an enlarged detail side elevation of a portion of the construction, and Fig. 4 is an enlarged detail showing the slide-yoke.

Similar reference numerals refer to similar parts throughout the several views.

The horse-rake which we illustrate is a wheeled type actuated by horse-power. It consists of a longitudinal beam 11 to which the rear ends of the rake teeth 16 are bolted. A parallel beam 15 is bolted to the under sides of the said rake teeth and spaced a sufficient distance forward from the beam 11. A short supporting beam 8 is fastened to the upper sides of the beams 11 and 15 and extending backward and serves to support the driver's seat 10. This seat is shown in the drawings as slipped down on its supporting beam toward the beam 11, but when in use is pushed back far enough to permit the weight of the driver to balance the weight of the forwardly extending teeth and to enable the driver to properly reach the pedal 9 with either foot.

27 is a drag-bar connected to and extending backward from the under surface of the beam 11 and the rear surface of the beam 15. Braces 13 are used between the beam 11 and the two middle teeth 16′.

24 represents a buffer-plate fastened by means of a bolt 34 to each end of the end teeth 16. The supporting wheels 17 have their shafts rotatably mounted in tubular bearings 18 clamped to the adjacent teeth.

14 is a longitudinal beam spaced away from the beam 11 a sufficient distance, and carries near each end vertical uprights 29 which support a parallel beam 12. A third upright 29 is placed between these two beams at their central point and secured by means of bolts. To the rear side of this central upright 29 a bracket 3 is attached by means of a hanger 4. The rear face of said bracket is recessed to provide a seat for a short tube 2. A truss rod 1 passes through said tube 2 and has its ends secured to the ends of the transverse beam 14. The levers 5 are medially pivoted on bolts 7 to brackets 6 on the frame-work of the rake and have their front ends provided with detents 28. The rear ends of the levers 5 extend backward beyond the frame of said rake and are attached to a pedal 9. The rear portions of said levers are provided with a transverse cross bar 26 between which and the beam 8 a contractile spring 25 is connected.

To each end of the beam 14 a tongue 19 is connected by means of links 36. A brace 21 connects each tongue 19 to the nearest end of the beam 12. The upper end of said brace has a slot 37, which allows some play to the tongue 19. A bolt 32 attaches the lower end of said brace 21 to the upper surface of the tongue 19. A bar 20 is at its middle point fastened to the rear end of the tongue 19 by means of a bolt 23. The inner end of each bar 20 is connected to the rear end of the brace 22 by a bolt 30, while the forward end of said brace is connected to the tongue 19 by means of the bolt 31. The outer ends of the bars 20 have hooks 39 to which are linked the swingle-trees 38. Movement rearwardly of the cross beam 14 is prevented by means of buffer blocks 24 attached to each of the end teeth 16 by means of bolts 34. The cross beam 14 is arranged to slide longitudinally along the teeth 16 upon their upper surfaces and, as shown in Fig. 4, is provided at each end and at a middle point with a yoke 33 having lock-nuts 35, said yokes loosely encompassing the end teeth 16, and center tooth 16′

When the sweep 12—14 is pushed back until its ends contact with the buffer-block 24 the truss-rod 1 passes under and engages the detents 28 on the forward ends of the levers 5, said sweep becomes firmly fastened in place and is prevented from swinging horizontally by means of said buffer-blocks. In this position the sweep with its end tongues and connections becomes practically a fixed part of the rake proper. When a load has been accumulated upon the teeth 16 and it is required to discharge same, the operator in the seat 10 can easily manipulate the levers 5 by depressing the pedal 9 thus lifting the forward members so as to disengage the detents 28 from the truss-rod 1. The sweep 12—14 may then be slid forward along the rake teeth 16 as indicated by the dotted lines in Figs. 1 and 2, becoming entirely disengaged from the rake proper except for the sliding yoke-connection 33 around said teeth, and the original devices 40 at ends of teeth 16, the said devices 40 being in the form of laterally extending spurs. The load in advance of said sweep is thereby pushed forward if necessary to the extreme forward points of said teeth. When the load is discharged, the sweep will be slid back over

the teeth 16 to its rear position by backing the horses away from the load, the truss-rod 1 then reëngaging with the teeth 28 on the levers 5, said detents being kept in engagement with the said rod through the action of the contractile spring 25. The sweep thus forms an entirely separate part of the rake, permitting the operator to release the fastening means at will, disengage the sweep and reëngage it by simple manipulation of the levers and the proper guidance of the horses. When used in connection with a hay-stacker, the sweep carries the load upon the stacker teeth and compresses same considerably permitting the stacker to be more compactly filled without the teeth of the rake extending under the hay while on the stacker.

Having described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. A hay rake having a horse hitching connection extending to the sides of said rake, said connection being movable parallel with the teeth of said rake and having a guiding tongue connected to each end.

2. A hay rake having a sweep slidably connected to said rake, with a guiding tongue and horse hitching attachment connected to each end of said sweep.

3. A hay rake having a horse hitching connection movably secured to said rake with a locking device for holding it firmly in its rearward position on said rake, and a guiding tongue attached to each end of said connection.

4. The combination with a rake having gathering teeth, of an ejecting sweep having a tongue and a horse hitching attachment at each end, said sweep being slidably secured to said rake.

5. The combination with a rake of an ejector provided at each end with a tongue.

6. The combination with a rake having gathering teeth of an ejecting sweep slidably attached to said rake and having a guiding tongue and horse hitching attachment on each end of said sweep and having suitable locking means for holding said sweep in its rearward position on said rake.

7. The combination of a wheel rake having a slidably connected sweep attached to the teeth of said rake by means of yokes extending around one or more of said teeth, said sweep having a horse hitching attachment and a guiding pole at each end.

8. The combination of a rake having a slidably connected sweep, and a tongue hinged to each end of said sweep.

9. The combination of a rake having forwardly extending teeth with a slidably connected ejector having guiding tongues hinged to each end thereof.

10. The combination of a rake having forwardly extending teeth with a slidably connected ejector, said ejector having a tongue and horse hitching attachment hinged to each end thereof and said teeth having a detaining device on the ends of one or more of them to prevent said ejector from leaving the rake.

Signed at Waterloo, Iowa, this 25th day of April 1906.

HENRY L. LITCHFIELD.
EDGAR C. LITCHFIELD.
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Witnesses:
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