(No Model.) 2 Sheets—Sheet 1.

# J. H. THOMAS.

## HAY TEDDER.

No. 304,374. Patented Sept. 2, 1884.

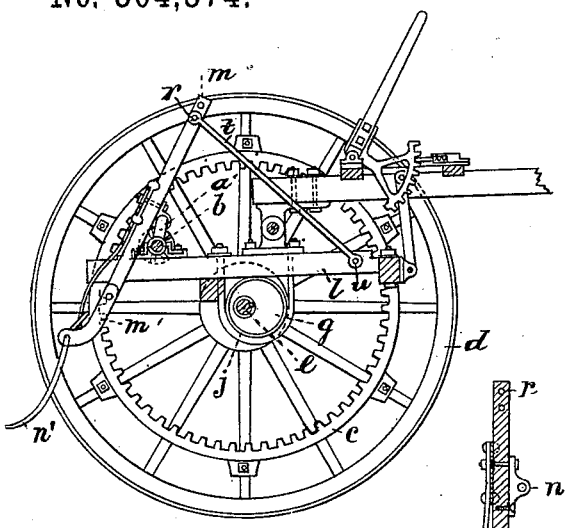

Fig. 1.

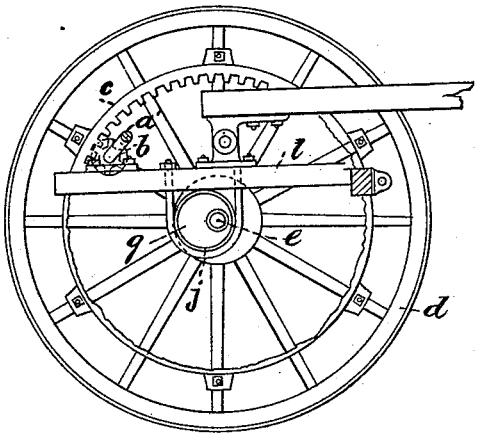

Fig. 2.

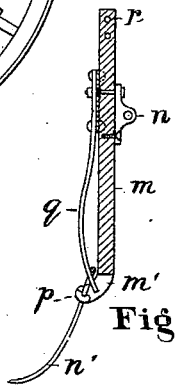

Fig. 3

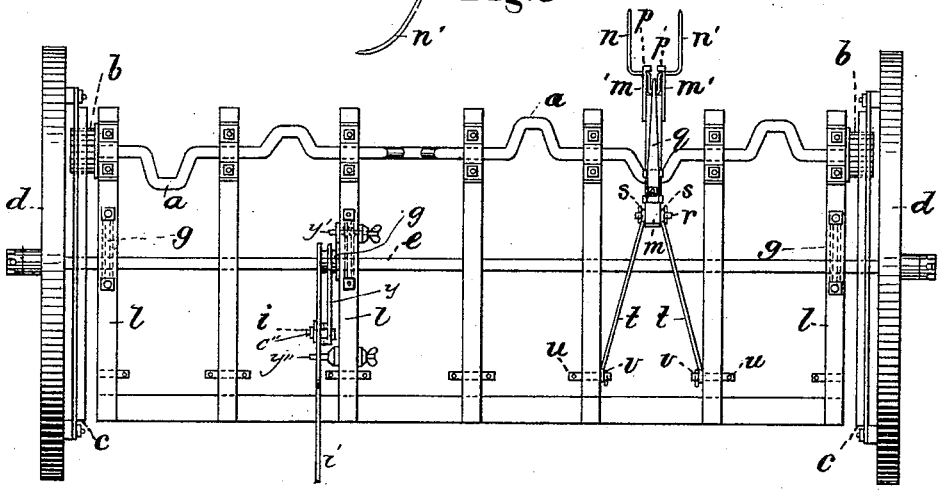

Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

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## HAY TEDDER.

No. 304,374. Patented Sept. 2, 1884.

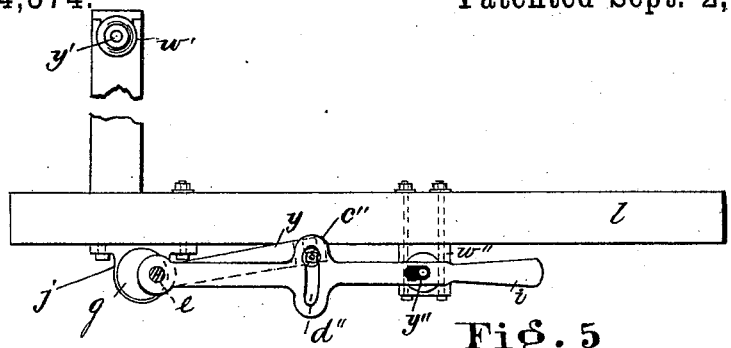


Fig. 5

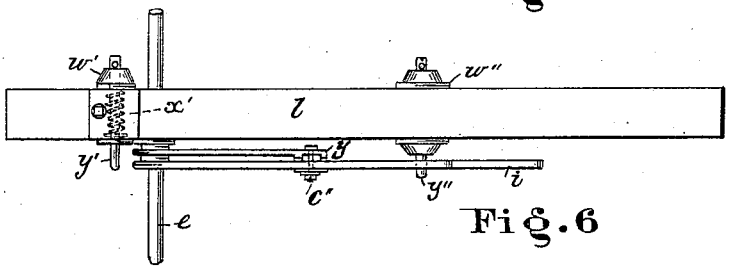


Fig. 6

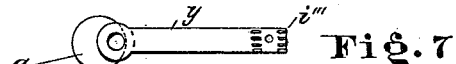


Fig. 7


Fig. 8

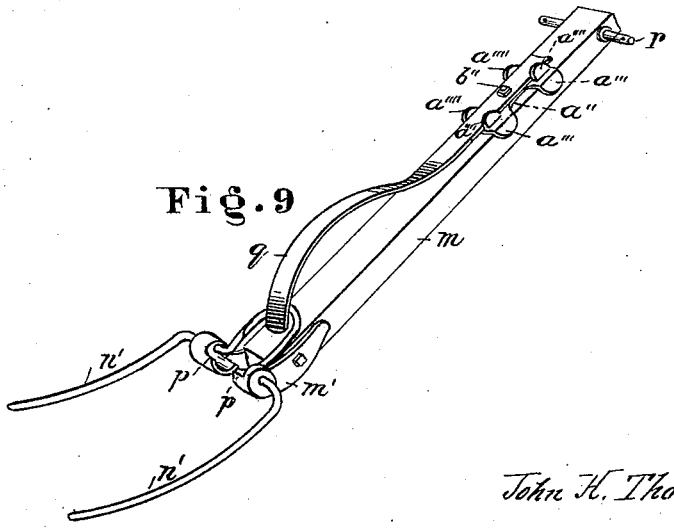


Fig. 9

Attest
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# UNITED STATES PATENT OFFICE.

JOHN H. THOMAS, OF SPRINGFIELD, OHIO.

## HAY-TEDDER.

SPECIFICATION forming part of Letters Patent No. 304,374, dated September 2, 1884.

Application filed September 12, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. THOMAS, of Springfield, county of Clark, State of Ohio, have invented a new and useful Improvement in Hay-Tedders, of which the following is a specification.

In the accompanying drawings, Figure 1 is a sectional elevation of a hay-tedder embodying my improvements, illustrating the crank-shaft as out of gear and inoperative. Fig. 2 is a similar view of a portion of the same, illustrating the crank-shaft in gear ready for action. Fig. 3 is a side elevation, partly in section, of one of my improved tedder-teeth. Fig. 4 is a plan view of a sufficient portion of a hay-tedder to illustrate my improvements therein. Fig. 5 is a side elevation of the lever and stops that regulate the cam-shaft. Fig. 6 is a plan view of the same. Fig. 7 is a side elevation of a portion of a lever. Fig. 8 is a side elevation of another portion of said lever, and Fig. 9 is a perspective view of a tedder-tooth.

In all of these figures letters of like character indicate corresponding parts.

The invention consists in the combination and arrangement of parts hereinafter fully specified, and pointed out in the claims.

The crank-shaft *a* is provided with the pinions *b*, that mesh into the internal gear-wheels, *c c*, that are attached to the ground-wheels *d d* when the tedder is arranged for work. This crank-shaft is carried on a frame, *l*, mounted upon the axle *e*, that is provided with the eccentrics, through whose agency the aforesaid pinions can be thrown into or out of mesh with the wheels *c c* as the axle *e* is oscillated by the lever *i*. The eccentrics are rigidly secured to the axle, and work in bearings *j*, that are secured to the framing *l* of the machine, to which the pinion-shaft *a* is also attached. Consequently, by moving the eccentrics, the pinions *b b* and framing *l* are moved bodily to or from the teeth of gear-wheels *c c*, thereby causing said pinions to engage with or disengage from said wheels at the will of the operator. By use of eccentrics for this purpose I am enabled to obtain an intermediate support for the frame upon the axle *e*, which makes the axle more rigid where the lever *i* is attached, thereby rendering said lever more positive in its action. Each of the tedder-teeth, only one of which is shown, is constructed with a conveying-arm, *m*, having a bearing, *n*, that works on a journal formed upon a crank, and the tedder-teeth *n n'* are formed of one piece of metal, and are journaled to the conveying-arm *m* at the lower end thereof by means of bearing brackets or straps *m'*, that are provided with partial circumferential projecting pieces *p p*, that serve as positive stops for the teeth *n' n'* to rest against when they have been forced backward by the resistance of any obstruction. By the use of these stops I am enabled to limit said teeth to a movement independent of that imparted to them by the carrying-arm *m*. I am enabled to use a spring, *q*, almost straight in its configuration, thereby dispensing with a hook at its end, which is liable to break and otherwise get deranged. The arms *m* are provided with pins *r*, securely fastened to them, over which the loops *s s* of radius-rods *t t* pass. In the framing *l* I securely fasten pins *u u*, over which pass loops *v v* of the aforesaid radius-rods. It will be observed that I employ two radius-rods for each carrying-arm, and spread them to suit the framing of the machine. By the use of two radius-rods, as above described, for each carrying-arm, I can keep the aforesaid arms in a more positive course of travel, and by inserting the pins *u u* in a rigid manner into the framing *l*, instead of permitting them to rock in perforations formed in said wood framing, and by the same construction in relation to the pin *r*, I am enabled to obviate speedy derangement of the parts caused by the wear due to the movement of the aforesaid pins.

It will be seen by reference to Fig. 4 of the drawings that there are longitudinal frame-timbers *l l* on each side of each crank of the shaft actuating the tedder-forks, and that said shaft has bearings on both sides of each crank in said timbers, thereby giving greater steadiness of movement to the shaft, preventing its springing relatively to the axle and insuring the even adjustment of the two ends of the shaft with the frame in throwing said shaft into or out of gear.

The lever *i* is constructed of the parts *i y*, the part *y* rigidly secured to the axle, and having teeth *i'''*, and the part *i* loosely mounted on the axle, and having the teeth *i''*. The

part *i* has a slot, *d''*, through which a bolt, *c''*, passes to secure the two parts together to any adjustment in the aforesaid slot. This adjustment is desirable, in order that the eccentrics may be set to suit the wheels *c c* and pinions *b b* when the machine is put together. The part *i* is also provided with a perforation, *y'''*, into which the spring-bolt *y''* enters when the eccentrics have been turned to throw the gearing into mesh, and into which the spring-bolt *y'* enters when the eccentrics are set to throw said gearing out of mesh. The spring-bolts *y' y''* are pressed or pulled back by hand or in any suitable manner to release or permit the movement by it of the lever *i*.

To hold the spring *q* from twisting out of place when only one bolt is used to secure it to the arm *m*, I use a plate, *a''*, provided with lugs *a'''* and *a''''*. (See Fig. 9.)

The drawings show in Figs. 1 and 2 an arrangement of eccentrics adapted to be adjusted or rocked through one hundred and eighty degrees, while, as shown in Figs. 4, 5, and 6, an adjustment of ninety degrees only is required. It will be apparent that either of these, or an adjustment through any other suitable number of degrees, may be provided for.

Having thus described my invention, what I claim is—

1. In a hay-tedder, the combination, with the through or common axle, of eccentric journals mounted in bearings in the side bars of the frame, and an intermediate eccentric journal, also mounted in a bearing in the frame, for stiffening the axle and adapting it to be adjusted for throwing the crank-shaft into or out of gear, substantially as described.

2. The combination, in a hay-tedder, of the through or common axle, eccentric journals fast on said axle, and mounted in bearings at the sides of the frame, an intermediate eccentric journal, also fast on said axle, and a lever for rocking said eccentric journals and axle and throwing the crank-shaft into or out of gear, substantially as described.

3. In a hay-tedder, the teeth *n'*, pivoted in bearings on the carrying-arms *m*, in combination with stops *p*, formed on the bearing-brackets, for limiting the backward throw of the fork, substantially as described.

4. In a hay-tedder, the teeth *n'*, pivoted in bearings on the carrying-arms *m*, in combination with stops *p*, formed on the bearing-brackets, for limiting the backward throw of the fork, and the spring *q* for retracting said teeth, all substantially as described.

5. In a hay-tedder, the combination of the frame *l*, the carrying-arms *m*, provided with bearings *n*, springs *q*, straps *m' m'*, having stops *p p*, teeth *n' n'*, and radius-rods *t t*, substantially as described.

6. In a hay-tedder, the carrying-arms *m*, provided with stops *p p*, teeth *n' n'*, bearings *n*, springs *q*, held by plates, and suitable radius-rods, substantially as described.

7. In a hay-tedder, the eccentrics fast on the axle, in combination with an arm or lever rigidly secured to one of said eccentrics, and a lever for rocking said eccentric, adjustably connected with said arm, substantially as and for the purpose described.

8. In a hay-tedder, the axle provided with eccentrics adapted to be rocked in bearings on the frame, in combination with an arm fast on one of the eccentrics, an adjusting-lever adjustably secured to said arm, and means, substantially as described, for holding said arm and lever at the desired adjustment.

In testimony whereof I have hereunto set my hand this 6th day of September, 1883.

JOHN H. THOMAS.

Witnesses:
HENRY MILLWARD,
CHASE STEWART.