3 Sheets—Sheet 1.

S. PERRY.

Hay-Tedder.

No. 204,080. Patented May 21, 1878.

Fig. 1.

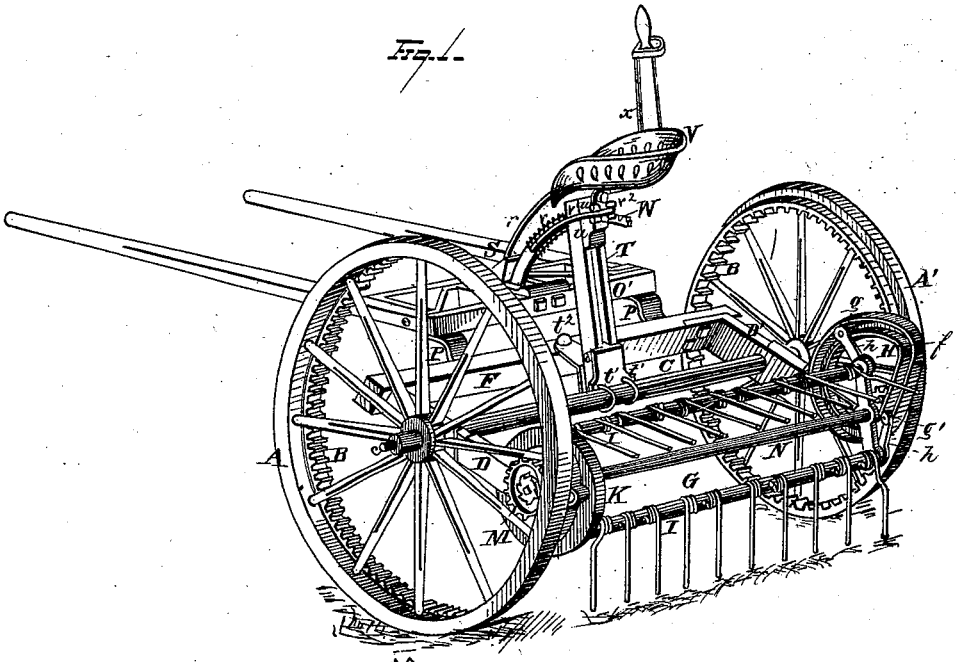
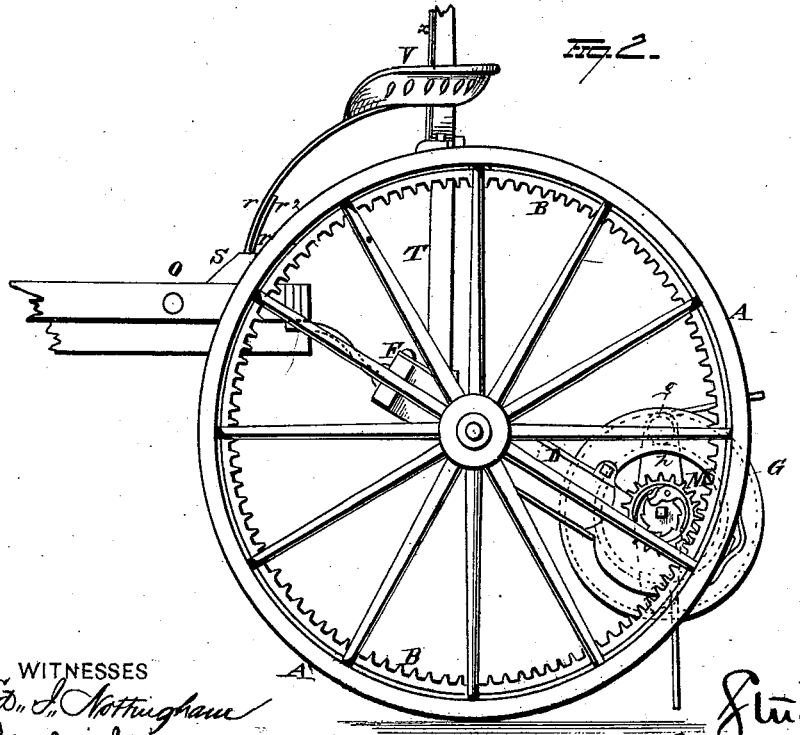


Fig. 2.



WITNESSES

Ed. L. Nottingham

A. W. Bright.

INVENTOR

Stuart Perry.

By H. A. Seymour.

ATTORNEY

S. PERRY.

Hay-Tedder.

No. 204,080. Patented May 21, 1878.

Fig. 3.

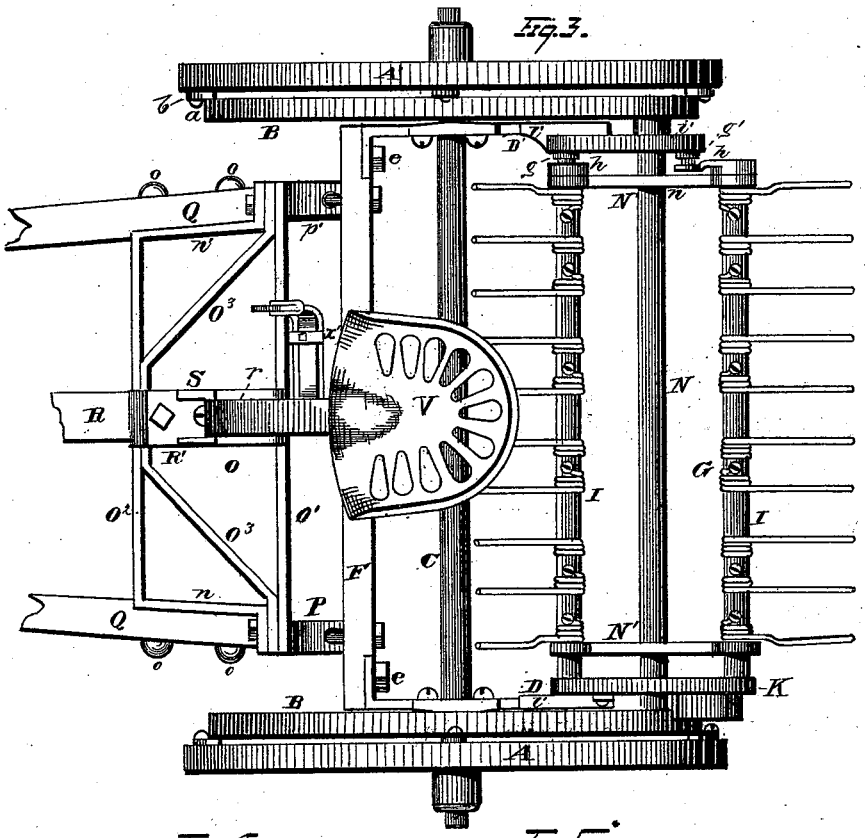


Fig. 4.

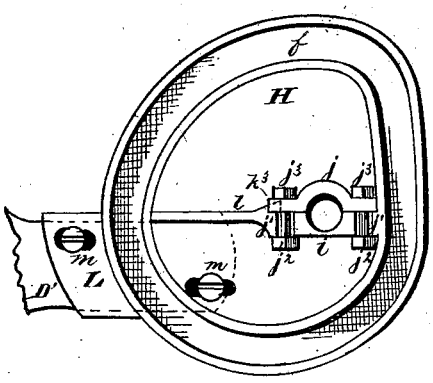
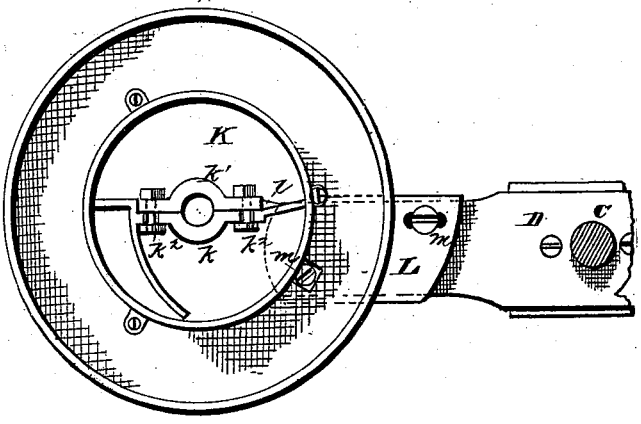


Fig. 5.



WITNESSES
Ed. L. Nottingham
A. W. Bright.

INVENTOR
Stuart Perry.
By H. A. Seymour.
ATTORNEY

3 Sheets—Sheet 3.

S. PERRY.

Hay-Tedder.

No. 204,080. Patented May 21, 1878.

Fig. 5.

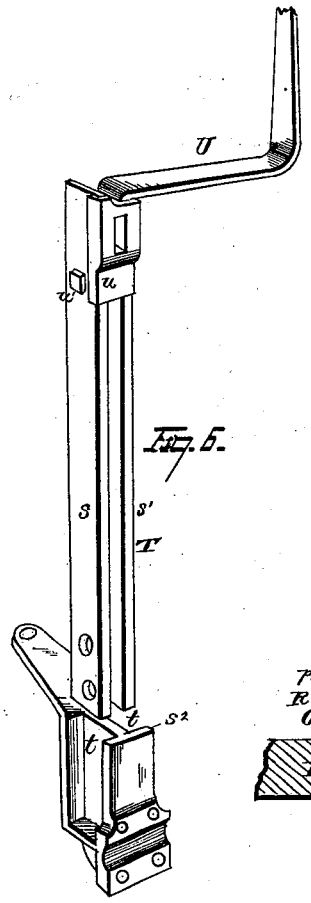


Fig. 7.

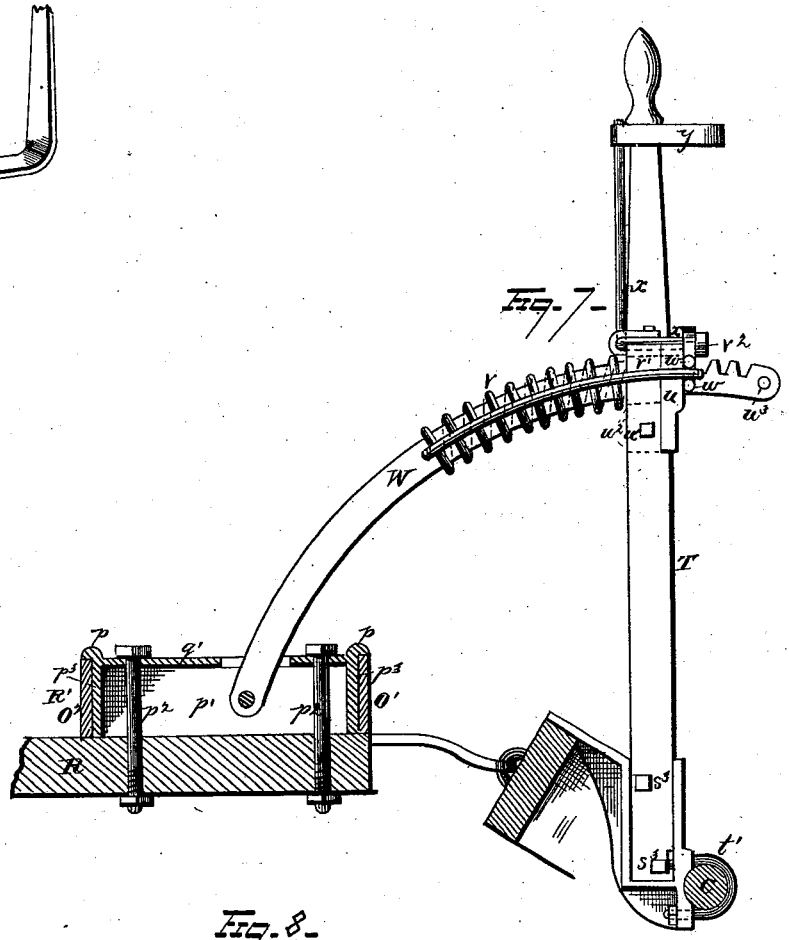
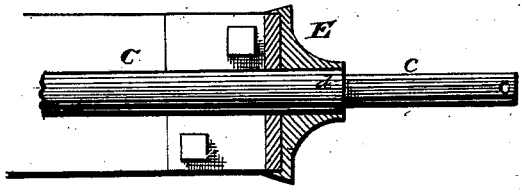


Fig. 8.



WITNESSES.
Ed. L. Nottingham
A. W. Bright.

INVENTOR
Stuart Perry.
By H. A. Seymour.
ATTORNEY

UNITED STATES PATENT OFFICE.

STUART PERRY, OF NEWPORT, NEW YORK.

IMPROVEMENT IN HAY-TEDDERS.

Specification forming part of Letters Patent No. **204,080**, dated May 21, 1878; application filed March 12, 1878.

To all whom it may concern:

Be it known that I, STUART PERRY, of Newport, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Rotary Hay-Tedders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement on the rotary hay-tedder patented by me May 16, 1876; and it consists, first, in a rotary hay-tedder having the side pieces of the tilting-frame connected with each other by means of two cross-pieces only, one of said cross-pieces serving for the attachment of the draft-frame, while the through-axle of the tedder is secured to the side pieces by means of collars surrounding the ends of the axle, whereby it serves the double purpose of an axle and a second cross-bar for the tilting-frame.

My invention further consists in a rotary hay-tedder provided with a skeleton draft-frame, which is provided with a central longitudinal brace for the attachment of a pole, and with inwardly-inclined or diagonal side pieces for the attachment of thills to the outer surfaces of said diagonal sides.

My invention further consists, in a rotary hay-tedder, of the combination, with the standard forming part of the adjusting mechanism connecting the draft and tilting frames of the machine, of the hand-lever connected with or formed as a part of the standard, and extending laterally outward at its upper end, and the driver's seat located directly over said standard, whereby the latter serves as a safeguard in case of the breakage of the seat-spring.

My invention further consists, in a rotary hay-tedder, of the combination, with the adjusting mechanism which connects the draft and tilting frames, said mechanism located at or near the longitudinal central line of the machine, of a locking device provided with a rod leading to the lever-handle, whereby said locking device may be actuated simultaneously with the lever-handle.

My invention further consists in the several details of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a view, in perspective, of my improved hay-tedder. Fig. 2 is a side elevation, and Fig. 3 a plan view, of the same. Fig. 4 is a detached view of the reel-cam or camway and side piece. Fig. 5 is a detached view of the reel-guard and side piece of the tilting-frame. Fig. 6 is a detached view of the standard and yoke. Fig. 7 is an enlarged view of the adjusting mechanism, and Fig. 8 is a longitudinal section through a portion of the through-axle side piece and wheel.

A A′ represent the road-wheels, each of which is provided with a driving-gear, B, secured to the wheel by means of screws *a* passing through perforated lugs *b*.

C is the main axle of the machine, the road-wheels A A′ being secured to journals formed on the outer ends thereof.

The side pieces D D′ of the tilting-frame are preferably made of wrought-iron, and are rigidly attached to the main axle C in the following manner: E are hubs, either of cast or malleable iron, and are secured to the side pieces D D′ by bolts, or they may be welded thereon or cast solid therewith, and thus form an increased bearing on the side pieces for strengthening the connection of the latter with the main axle. The hubs are secured to the side pieces in line with each other, and the side pieces and hubs are then bored through to snugly fit on the axle within the journals *c* and are driven onto the axle, so that the outer ends of the hubs will be flush with the shoulder *d* between the body of the axle and journals *c* formed on its ends.

Instead of boring through the side pieces and hubs after they have been secured in place, it is evident that the side pieces and hubs may be bored before they are connected with each other, and the hubs afterward clamped or bolted to the side pieces in any desired manner. The forward ends of the side pieces D D′ are secured by bolts or other means to a strong cross-bar, F, constructed of wood or metal, and, if preferred, the extreme ends of the side pieces may be bent inwardly at right angles to their length, and secured to

the ends of the cross-piece F by means of bolts *e* passing transversely through the ends of said cross-piece. The cross-piece F and main axle are secured to each other at or near their central portions by means of the hand-lever, standard, or otherwise. The rear and longer ends of side pieces D D′ have attached thereto, respectively, a camway and reel-shaft journal-box and a guard with reel-shaft journal-box, said journal-boxes supporting the shaft of the reel G of the tedder.

From the foregoing description it will be observed that the side pieces D D′ of the tilting-frame are firmly braced and secured to each other by the main axle and a single cross piece or bar. This arrangement of parts simplifies the construction of the machine and enables the frame to be made of a less number of parts than has heretofore been the case, as I cause the main axle to perform not only its usual function of supporting and carrying the several parts of the tedder, but also to perform the additional function of a cross-piece for the tilting-frame, and impart strength and rigidity thereto.

H represents the camway, which is constructed with a cam-groove, *f*, within which travel the anti-friction rollers *g g′* attached to arms *h*, which latter are secured at their opposite ends to the pivoted fork-shafts I, and thus a variable movement is given the fork-shafts, as each is carried around a complete circle, in order that the forks may assume a vertical position when they first come in contact with the hay, and after the latter has been raised a sufficient distance the cam causes the forks to dip and release the hay from contact therewith. Heretofore the reel-shaft journal-box and camway have been formed separate and secured to the tilting-frame independently of each other.

In my improved machine the journal-box *i* is rigidly secured or cast solid with the camway, so that the cam-groove and reel-shaft journal shall maintain a fixed relative position to each other. The reel-shaft journal *i′* is retained within its bearing *i* by means of the cap *j*, the ends of which rest upon horizontal flanges j^1 within the cam-groove, said cap being firmly secured in place by means of bolts j^2 and nuts j^3. The reel-guard K is constructed in this respect in like manner to the camway. The journal-box *k* is rigidly secured or formed in a single piece with the guard. k^1 is a journal-box cap or cover, which is retained in place by means of the bolts k^2. Journal-box covers or caps *j* and k^1 are formed with open slotted ends k^3, which fit over central ribs or upright flanges *l* formed solid with both camway and guard, and by means of which the caps or covers are prevented from any lateral displacement.

The reel camway and guard each have extensions L formed thereon, said extensions being provided with face flanges *l′*, which latter overlap and snugly fit the upper and lower edges of the side pieces D D′ of the tilting-frame.

The reel cam-way and guard are adapted to be adjusted to or from the main driving-gears B to vary the mesh of the driving-pinions M therewith by means of the bolts or screws *m*, which extend through the oblong or rectangular slots in the camway and guard, and are secured to the side pieces. By loosening screws *m* the entire reel may be moved toward or away from the main axle, and any desired mesh of the driving-pinions and driving-gear secured.

By the simple construction of parts as above described—namely, combining the reel-shaft journal-boxes with the camway and guard, and connecting the latter in an adjustable manner with the side pieces of the tilting-frame—the relative position of the several parts of the reel is always fixed and maintained, and also the adjustment of the entire reel toward or away from the driving-gear is readily accomplished.

The reel-shaft N is a continuous metal bar, formed with shoulders *n*, against which shoulders abut the reel-heads N′. The journals of said shaft are preferably reduced in size.

By making the reel-shaft continuous it serves to impart strength to the reel-frame, and, as the shaft is of metal throughout its length, it is not liable to warp when subjected to variable weather, as is the case when the shaft is part wood, which is the usual construction heretofore employed.

The continuous reel-shaft and self-adjusting mechanism of the reel-forks to the ground-surface co-operate in a manner to effect the most perfect results.

Heretofore, in rotary tedders provided with self-adjusting mechanism the reel-shafts have been made of two or more pieces, and the central portion of said shaft has been constructed of wood. As the shaft constructed in the manner last described is subjected to variable strains, owing to the springing or warping of the shaft, arising from the unequal strength of its different parts or from the warping of the wood, the journals could not be kept in perfect line with each other, and hence would bind in their boxes when the reel was either raised or lowered. This defect in the construction of the reel seriously impaired the efficiency of the self-adjusting mechanism, as the tension of the regulating-spring of the adjusting mechanism necessary to keep the forks in contact with the ground-surface was found in many cases to be incapable of raising or lowering the reel as the tedder passed over uneven ground-surface, and this failure resulted from the binding of the reel-shaft journals in their boxes, as heretofore stated.

By constructing the reel-shaft in a single continuous piece the defects above noted are obviated, the journals are always kept in perfect line with each other, the boxes are subjected to even and equal wear, and the reel

operates equally well in any position it may be placed. Hence the reel-forks may be subjected to any desired tension by means of the self-adjusting mechanism, and the reel is always under the perfect control of said adjusting mechanism.

O represents the draft-frame. It consists of a rear cross-bar, O^1, the front bar O^2 having inclined sides n n' and intermediate diagonal bracing-bar O^3, the ends of said pieces or bars being secured to the ends of the hinged bars P P'. All of these pieces are preferably made of wrought metal, and the diagonal or inclined sides n are formed to admit of the attachment of the thills Q to their outer surfaces by means of bolts o, or in any other desired manner. The butt-ends of the thills rest against the upturned ends of the hinged pieces or bars P P'.

When it is desired to use a pole instead of thills, the latter may be readily removed, and a pole, R, readily secured to the central longitudinal frame-piece R', which latter is provided with end flanges p, that overlap the upper edges of the front and rear pieces of the draft-frame. Frame-piece R' is of T form in cross-section, the web portion p^1 being perforated for the passage of the bolts p^2 for securing the pole in place. The ends of the frame-piece R' have plates p^3 formed thereon, which constitute firm bearings for the rear and front pieces of the draft-frame, said plates and front and rear pieces being firmly secured together by means of bolts located on opposite sides of the web portion p^1. Upon the top portion or horizontal flange q' of the frame-piece R' is secured a foot-piece, S, which extends upwardly a sufficient distance to allow the lower end of the seat-spring r to be firmly seated against and bolted to the rear wall r^1 of said foot-piece. The seat-spring may be strengthened by an extra spring, r^2, interposed between the main seat-spring and foot-piece.

T represents the standard, the body portion of which consists of the bar s and lower extremity s^1 of the hand-lever U. The lower ends of said bars are firmly secured to a yoke, s^2, by means of bolts s^3.

Yoke s^2 is constructed with rectangular recesses t for the reception of the ends of the bars, and to enable them to be rigidly secured thereto. One end of the yoke is connected to the main axle by means of the strap-bolts t^1, while the opposite end is firmly secured to the forward cross-piece F of the tilting-frames by the bolt t^2, which extends through said cross-piece. The yoke s^2 constitutes a brace, and prevents the springing of the axle or front cross-piece of the tilting-frame, and also allows the standard to be firmly secured thereto in a detachable manner.

The upper end of the hand-lever N is bent at or nearly at right angles to the vertical portion thereof, and extends in a lateral direction beyond the seat V, when it is again bent and extended upwardly, so that its upper end may be in easy reach of the operator.

W is a notched or serrated sector-bar, pivoted at its lower end within a slot formed in the frame-piece R', while its rear and free end extends through a slotted plate, u, which is secured to the upper end of the standard by means of a bolt, u^1, extending through a lug, u^2, formed on said slotted plate, and extending between the bars of the standard. The outer end of the sector-bar is provided with a stop-pin, u^3, to prevent the disengagement of the sector-bar and standard. Upon the sector-bar is placed a spiral spring, v, one end of which rests against the standard, while the other end is held by the inwardly-bent ends of a link, v^1, the opposite end of which is attached to a locking-slide, v^2.

The arrangement of the spring on the sector-bar is such that the draft and tilting frames are adjustably connected in a yielding manner, and any desired tension between such parts may be secured by varying the force of the spiral spring, as the tension of the latter remains unchanged throughout the varying degrees of adjustment between the draft and tilting frames.

The locking-slide v^2 is provided on its opposite sides with lugs w, between which the link is placed and retained either in or out of engagement with the notched sector-bar, accordingly as the locking-slide is raised or lowered. To the upper end of the slide v^2 is secured one end of a locking-bar, x, the central portion of which is supported in bearings x' attached to the horizontal portion of the hand-lever. The outer end of the locking-bar is provided with a loop or ring, y, which surrounds the hand-lever near its upper end.

It will be observed that the locking-bar is in reality a rock-shaft, and by moving the enlarged loop or ring to or from the hand-lever it operates to raise or lower the opposite end of the locking-bar, and thus actuate the slide which connects or disconnects the link and sector-bar.

The standard and sector-bar are located in the central longitudinal line of the machine, and in such position serve a double purpose.

When the adjusting mechanism which connects the draft and tilting frames of a hay-tedder is located at one side of the longitudinal center of the machine, the strain on the parts is not equally distributed, and the result is that the different parts of the frame are twisted and warped out of line with each other. This difficulty is overcome by placing the adjusting mechanism at or near the longitudinal center of the machine, as clearly shown in the accompanying drawings, illustrating my invention.

The sector-bar is pivoted at the center of the draft-frame, and the standard is secured to the yoke, which, in turn, is attached to the central portions of the main axle and front cross-bar of the tilting-frame. Again, when the standard is located at one side of the center of the machine, there is no safe-guard for the driver in case the seat-spring should break, and as this occasionally happens the

drivers are often subjected to serious injuries from the lack of any such provisions.

In a hay-tedder constructed in the manner shown and described it will be observed that the driver's seat V is located directly over the standard, and hence, should the spring break, no injury could result to the driver, as the seat would be supported on the standard and hand-lever located immediately beneath the same.

It is evident that many slight changes in the construction and arrangement of the several parts of my improved machine might be devised without departing from the spirit of my invention, and hence I do not limit myself to the exact construction shown and described; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a rotary tedder, the combination, with a reel and camway or equivalent mechanism for rocking the fork-shafts of the reel, of a cross-bar connecting the forward ends of the side pieces of the tedder and a through main axle, which is rigidly secured to said side pieces by means of collars surrounding the ends of the axle, whereby the frame is braced and strengthened by a single cross-bar and the main axle of the machine, substantially as set forth.

2. The draft-frame of a hay-tedder constructed with a central longitudinal frame for the attachment of a seat-spring, and with inclined or diagonal side pieces for the attachment of thills to the outer surfaces thereof, substantially as set forth.

3. The combination, with the standard and the hand-lever extending laterally outward therefrom, of the driver's seat, located immediately over said standard and horizontal portion of the hand-lever, substantially as set forth.

4. The combination, with the standard and segmental rack-bar, located beneath the driver's seat, of the hand-lever and locking-bar, extending laterally from beneath the driver's seat, and projecting above the same within easy reach of the driver, substantially as set forth.

5. The draft-frame of a rotary tedder provided with a central frame-piece constructed with a central perforated web for the attachment of a pole, and with end plates for bracing and securing the front and rear cross-bars of the draft-frame, substantially as set forth.

6. In a rotary hay-tedder, the combination, with the main axle and the forward cross-bar of the tilting-frame, of a yoke for supporting the standard, the ends of said yoke being removably secured to the axle and cross-piece, substantially as set forth.

7. The combination, with the standard and notched sector-bar, of a spring-pressed link and a locking-slide, having lugs formed on its opposite side, which serve as guides for retaining the link in place, substantially as set forth.

8. The combination, with two upright bars forming the standard of a hay-tedder, of a yoke secured to the axle and front cross-piece of a tilting frame, said yoke constructed with rectangular side recesses for receiving the lower ends of the parts of the standards, substantially as set forth.

9. The draft-frame of a rotary tedder, constructed with diagonal outer sides, in combination with thills which are secured to said diagonal sides, substantially as set forth.

10. The draft-frame of a rotary tedder adapted to both thills and pole, said frame constructed with diagonal sides for the attachment of the thills, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of March, 1878.

STUART PERRY.

Witnesses:
GEO. H. HURLBUT,
M. N. PEARCE.