No. 795,186. PATENTED JULY 18, 1905.

A. ARTER & J. D. BAKER.

HAY LOADER.

APPLICATION FILED FEB. 10, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

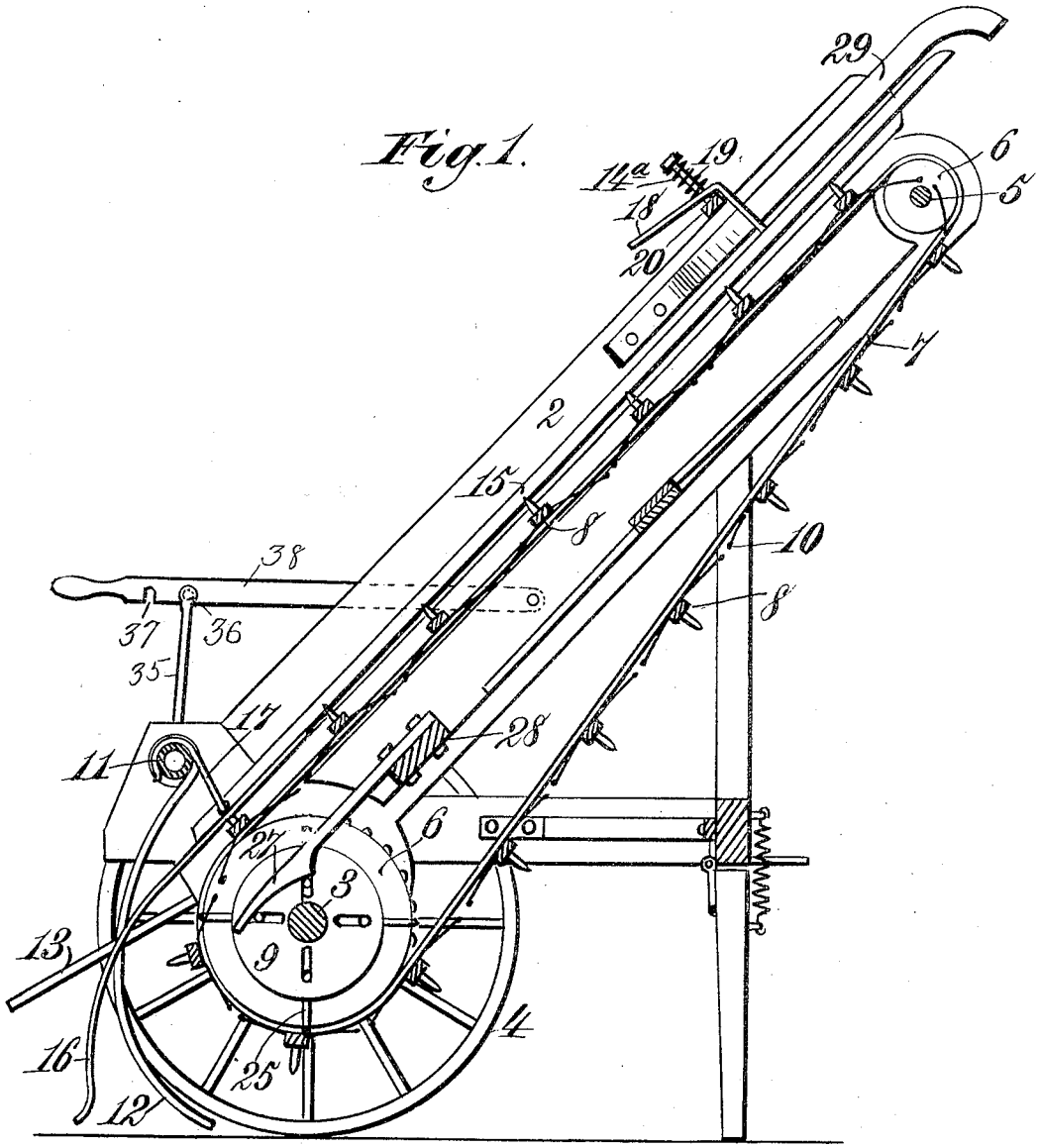
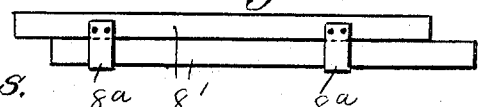


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 2.

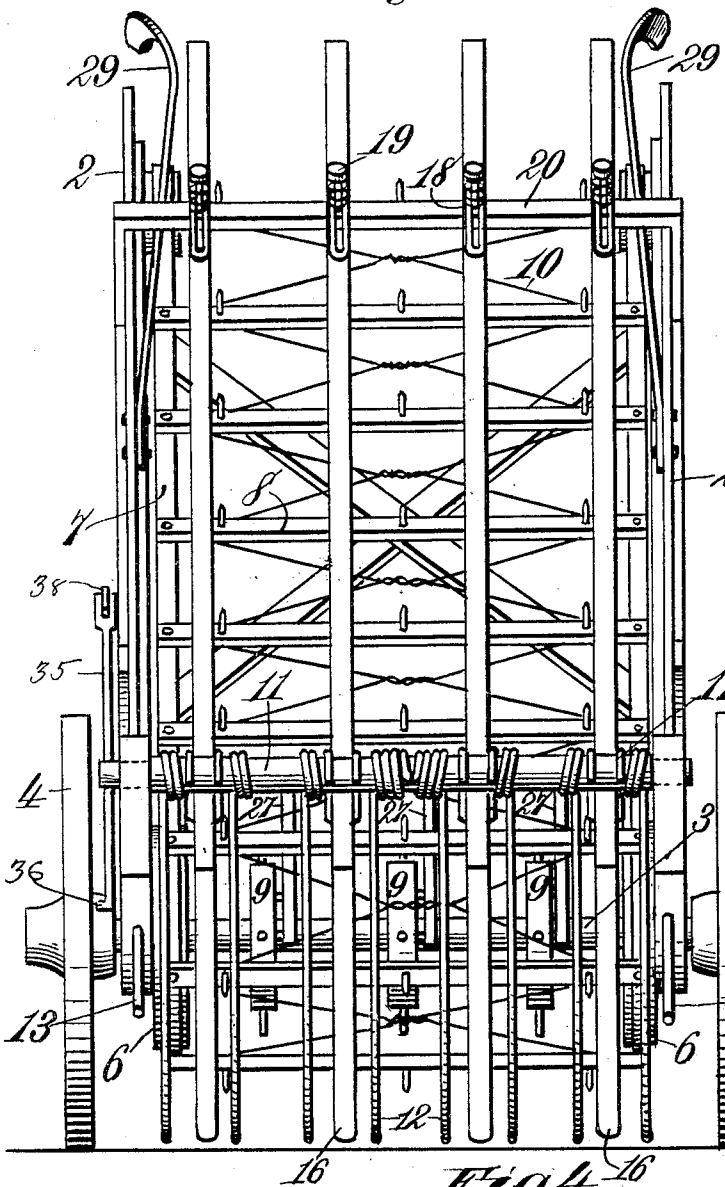


Fig. 3.

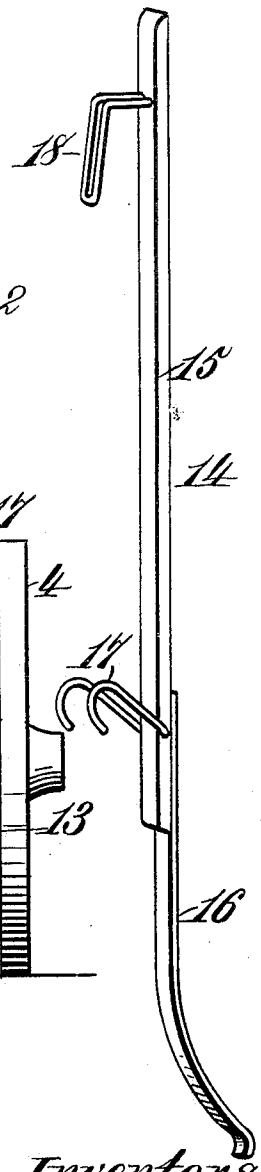
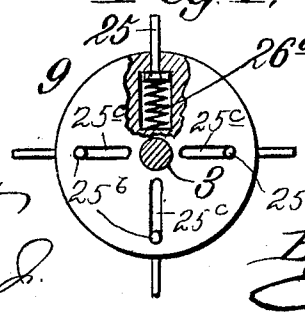


Fig. 4.



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No. 795,186. Patented July 18, 1905.

UNITED STATES PATENT OFFICE.

ALPHEUS ARTER AND JOHN D. BAKER, OF LISBON, OHIO.

HAY-LOADER.

SPECIFICATION forming part of Letters Patent No. 795,186, dated July 18, 1905.

Application filed February 10, 1905. Serial No. 245,151.

To all whom it may concern:

Be it known that we, ALPHEUS ARTER and JOHN D. BAKER, citizens of the United States, residing at Lisbon, in the county of Columbiana and State of Ohio, have invented new and useful Improvements in Hay-Loaders, of which the following is a specification.

This invention relates to hay-loaders; and the object of the invention is to provide a light, simple, and durable apparatus of this character which may be used in connection with a two-horse or other farm-wagon and which in operation takes the hay from the ground and delivers it into said wagon.

In the drawings accompanying and forming a part of this specification we illustrate a form of embodiment involving our invention which we will set forth in detail in the following description; but we do not limit ourselves to the exact construction thus disclosed, for certain variations may be adopted within the scope of our claims succeeding said description.

In said drawings, Figure 1 is a vertical sectional view of a hay-loader involving our invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a detail view of a pressure-bar and its adjuncts. Fig. 4 is a detail view of a feed-wheel. Fig. 5 is a detail showing a longitudinal extensible slat.

Like characters refer to like parts in the figures of the drawings.

The hay-loader includes in its construction a framework which may be of any suitable character. The framework illustrated comprises in its make-up two side members (each designated by 2) and which may be made of any desirable material—for example, wood. The axle of the device is designated by 3 and is provided at its opposite ends with wheels, as 4, said axle being shown as rotatably supported by the side members 2 of the framework. When the apparatus is in operative relation, the side members 2 will be positioned angularly. Rotatably supported by the side members 2 at a point above or inward from the axle 3 is a shaft 5. The axle 3 and shaft 5 are provided near their opposite ends, but between the side members of the frame, with wheels (each designated by 6) and over which are passed belts 7. The endless belts 7, which, as will be understood, travel in parallelism, are connected by slats, as 8, of wood or other suitable material, toothed or otherwise roughened on their outer faces to increase their carrying efficiency. Between the wheels 6, on the axle 3, are feed-wheels 9. The two wheels 6 and feed-wheels 9 on the axle 3 are made fast to the latter, so that when the vehicle travels forward the outer or effective run of the carrier or elevator composed of the feed-belts and slats uniting the same will be advanced in order to elevate hay. Between each pair of adjacent slats are arranged ropes or other webs (each designated by 10) diagonally disposed and crossing, the ropes being twisted or otherwise engaged where they cross. The ropes, as will be understood, are connected at their ends to the slats in some rigid manner, and they hang loosely, forming a pocket to receive hay and also serving to prevent the hay from falling down between the slats of the carrier.

At the rear end of the apparatus is a hay-rake of some suitable construction, the one represented being of a substantially familiar form and having a shaft 11 provided with teeth 12 of bowed form. The shaft 11 is shown supported for rocking motion by brackets upon the rear or outer ends of the side members 2 of the framing, so that the rake-teeth can be lifted from or moved to their operative position, means of some suitable nature in practice being provided to operate the shaft 11 to secure the results in question.

On the inside of each wheel is a hay-guard, as 13, made in the form of an elongated bar extending rearwardly or outwardly from the rear or outer ends of the side members 2. These prevent the hay from choking or lodging against the frame of the machine and also getting into the wheels.

Coöperative with the hay carrier or elevator is a wind-guard composed of a plurality of endwise-reciprocatory and inwardly and outwardly movable members, (each designated in a general way by 14.) Each of the members 14 is in the form of a bar composed of a wooden body 15 and a tooth 16, of bowed

spring metal fastened rigidly to the rear or outer end of the wooden body. The pressure bars or members 14 by overlying the outer or effective run of the carrier or elevator prevent scattering of the hay advanced by said carrier or elevator toward the wagon or other receiving device. The teeth of the pressure members or bars 14 extend between the teeth of the rake when the latter is in its operative position, by virtue of which when the loader is moved forward the two series of teeth will coöperate and direct the hay from the ground to said carrier or elevator. The members or bars 14 have, as stated, an endwise-reciprocatory and an inward and outward motion, this being to permit them to adjust themselves automatically to the amount of hay moved forward by the carrier or elevator, and said bars are supported in an advantageous manner. We will now set forth the way in which the bars are illustrated as supported, a detailed description of the supporting means for one bar or pressure member 14 sufficing for the rest.

To the rear of the member 14 is pivotally connected a hook 17, said hook being of bail form and its transverse member being adapted to extend through a hole near the lower or outer end of the wooden body 15 of the pressure member in order to secure a pivotal connection between the hook and said bar or member. The sides or branches of the hook are curved to engage over the shaft 11 of the rake. From this it will be evident that the hook can be readily disengaged from said shaft. Near the upper end of the member 14 and naturally connected with the wooden body thereof is a hook 18 of skeleton or open form and obtuse angular in shape. What might be considered the free branch of the hook 18 receives between its sides a projection or headed pin 19 upon the cross-bar 20, rigidly united with and extending across the space between the side members 2 of the framework. Any number of these pressure members or bars 14 may be provided, and it will be evident that they are supported near their opposite ends by the cross-bar 20 and shaft 11 of the rake. By virtue of their mounting they can move independently upwardly or inwardly and simultaneously outwardly as the hay is advanced along by the carrier and distances conforming to the amount of hay. When the hay passes free of the bars, they will by their weight, assisted by springs 14^a, acting against the same, be caused to automatically and instantly resume their primary positions. The springs 14^a surround the pins 19, bearing at their outer ends against the heads of said pins and at their inner ends against the hooks. As said bars resume their primary positions the outer branches of the hooks 18 traverse the cross-bar 20, and said outer branches being at an obtuse angle to the other branches the upper ends of the bars as the latter recede will be caused to move outward and away from the carrier or belt a distance sufficient to permit the free passage of the hay. The hooks 17, as will be understood, can be readily separated from shaft 11, and in like manner the hooks 18 can be readily separated from the guide projections or pins 19, so that, should the occasion require, any one of the bars or members can be readily dismounted.

It will be remembered that we have described the axle 3 as rigidly carrying three feed-wheels 9. These feed-wheels are provided with peripheral pins 25, yieldingly mounted and normally pressed outwardly by coiled springs, as 26^a, set in sockets in the respective wheels and engaging the butts of the coöperating pins. Coöperative with each feed-wheel 9 is a retracting device, as 27, for the pins carried thereby. The retracting devices 27, which correspond in number with the feed-wheels, are connected rigidly with a cross-bar, as 28, extending between and fastened to the side members or boards 2 of the framework, and they have cam-heads to engage the shanks of the pins 25 at proper points in the rotation of the several feed-wheels. The pins 25 extend through the spaces between the slats 8 and positively lift the hay onto the carrier or the working part thereof. When an alined series of pins is in the plane of the working run of the endless carrier, the pins at this time being at their highest points, the shanks of the said pins will strike the cam-heads of the pin-retracting devices 27, so as to draw the pins backward and prevent them from carrying the hay between the runs of the endless carrier. When the pins are drawn back, their springs 26^a are put under compression, so that the instant the pins pass free of the retracting devices the springs will return the pins to their original and operative positions. The yieldably-mounted pins 25 are provided near their butts (see Fig. 4) with lateral projections 25^b, which are adapted to traverse longitudinal slots 25^c in the side faces of the wheels 9 and which slots open into the sockets in the wheels that receive the coiled springs 25^a.

Between the side members or boards 2 of the framework we arrange guide-boards, as 29, bolted or otherwise suitably fixed at their lower or outer ends to said side boards. The guide-boards 29 converge toward their upper ends to provide a space narrower than and centrally of that between said side boards. The hay is discharged between the adjacent portions of the two guide-boards onto a wagon. In other words, the hay is guided into the center of the wagon. The extreme upper ends of the guide-boards 29 are outwardly rounded to prevent the hay choking at the delivery end of the apparatus.

Fixedly secured between its ends to the shaft 11 of the hay-rake is a lever 35, the branches of which are of substantially similar length, each branch having at its outer end a pin, as 36, adapted to fit notches, as 37, in the detent-lever 38, fulcrumed upon one of the side boards 2. In the drawings the forward notch 37 in the detent-lever 38 is shown as receiving the pin 36 on what might be considered the normally upper arm of the lever 35. This is the working relation of the parts or when the rake is in operative position. To move the rake to an inoperative position, so that its teeth will rest against the endless carrier hereinbefore described, the detent-lever 38 will be raised so that the pin 36 on the normally upper branch of the lever 35 will be released, whereby the rake can be also released to be swung around or until the pin 36 on the normally lower arm of the lever 35 can be engaged by the detent-lever 38 to hold the rake in its inoperative position and permit the ready movement of the apparatus from place to place.

We may, if desired and as illustrated in Fig. 5, use slats of longitudinally-adjustable form. In this case each slat will consist of two sections 8′, one laid against the other and carrying loops, as 8ª, to guide the companion section. From the statement just made it will be evident that each slat is longitudinally divided and that one section thereof has a plurality of loops suitably fixed thereto, the other section being movable through the loops to secure longitudinal adjustability. It will be evident that a slat constructed in this way may be elongated or contracted. By making a carrier with slats of longitudinally-adjustable form the said carrier will automatically adjust itself to the distance between the several wheels 6.

Having described our invention, what we claim is—

1. In a hay-loader, an endless carrier, pressure-bars coöperative with said carrier, hooks pivotally connected with the outer portions of the bars, means to support said hooks for swinging movement, other hooks of loop form connected with the inner portions of the bars, and a supporting means for the last-mentioned hooks.

2. In a hay-loader, an endless carrier, a hay-rake to deliver hay to the endless carrier and having a rock-shaft and teeth on the rock-shaft, pressure-bars coöperative with said endless carrier, hooks pivotally connected with the outer portions of the pressure-bars and engaging said shaft, other hooks of loop form connected with the inner portions of the bars, and a supporting means for the last-mentioned hooks.

3. In a hay-loader, an endless carrier, a hay-rake to deliver hay to the endless carrier and comprising a rock-shaft and rake-teeth, pressure-bars coöperative with said carrier having hooks pivotally connected with the outer portions thereof to be supported by said shafts, hooks of loop form connected with the inner portions of said bars, and a cross-bar provided with pins to enter between the sides of the loop-form hooks.

4. In a hay-loader, an endless carrier, a rake to deliver hay to the endless carrier and comprising a rock-shaft and rake-teeth connected with said rock-shaft, pressure-bars cooperative with the endless carrier, hooks of bail form, the cross-bars of the bail-form hooks being pivoted to the outer portions of the pressure-bars, and the said branches being curved to hook over said shaft, loop-form hooks connected with the inner portions of the bars, and a cross-bar provided with pins to fit between the sides of the loop-form hooks.

5. In a hay-loader, an endless carrier, a hay-rake coöperative with the carrier and serving to deliver hay thereto, pressure-bars also coöperative with said carrier, bail-form hooks, the cross parts of which are pivotally connected to the outer portions of the bars, and the sides of which are of curved form, the hay-rake having a shaft to be detachably engaged by said curved sides, obtuse-angular hooks of loop form connected with the inner portions of the bars, and a cross-bar provided with pins to fit between the sides of the said obtuse-angular hooks.

6. In a hay-loader, an endless carrier, a feed-wheel coöperative with the carrier and provided with yieldably-mounted pins to lift the hay, and means for automatically retracting the said pins at a predetermined point.

7. In a hay-loader, an endless carrier, shafts provided with wheels for carrying said endless carrier, a feed-wheel on one of the shafts provided with pins, and springs for holding the pins normally in advanced positions, and a fixed device supported independently of the feed-wheel for operating the pins to cause their retraction.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

ALPHEUS ARTER.
JOHN D. BAKER.

Witnesses:
W. S. Potts,
Mayme Marquis.