No. 744,660. PATENTED NOV. 17, 1903.

J. S. WILLIAMS.

CAR UNLOADER AND CARRIER FEEDER.

APPLICATION FILED AUG. 29, 1903.

NO MODEL. 4 SHEETS—SHEET 1.

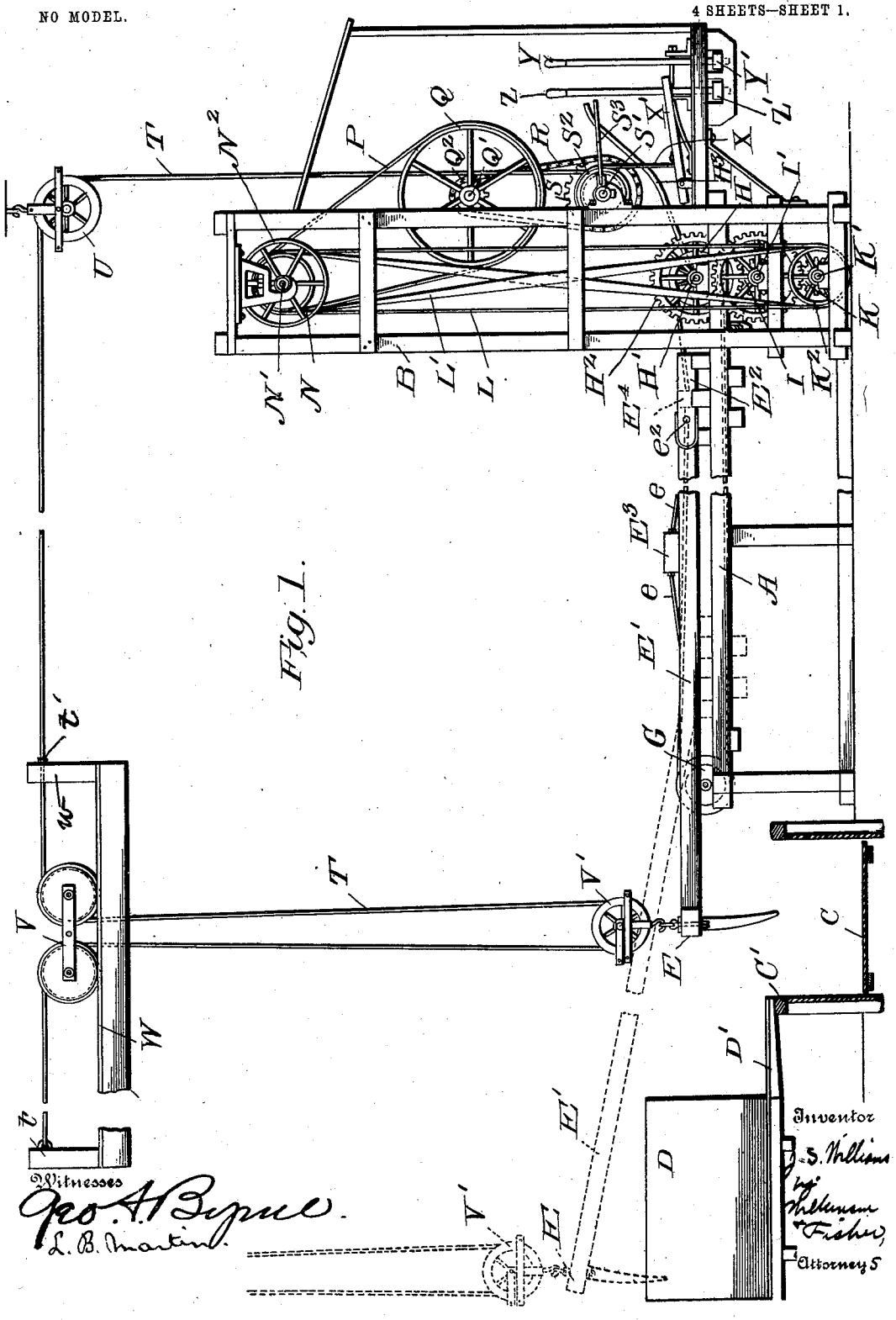

Fig. 1.

Witnesses
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NO MODEL. 4 SHEETS—SHEET 2.

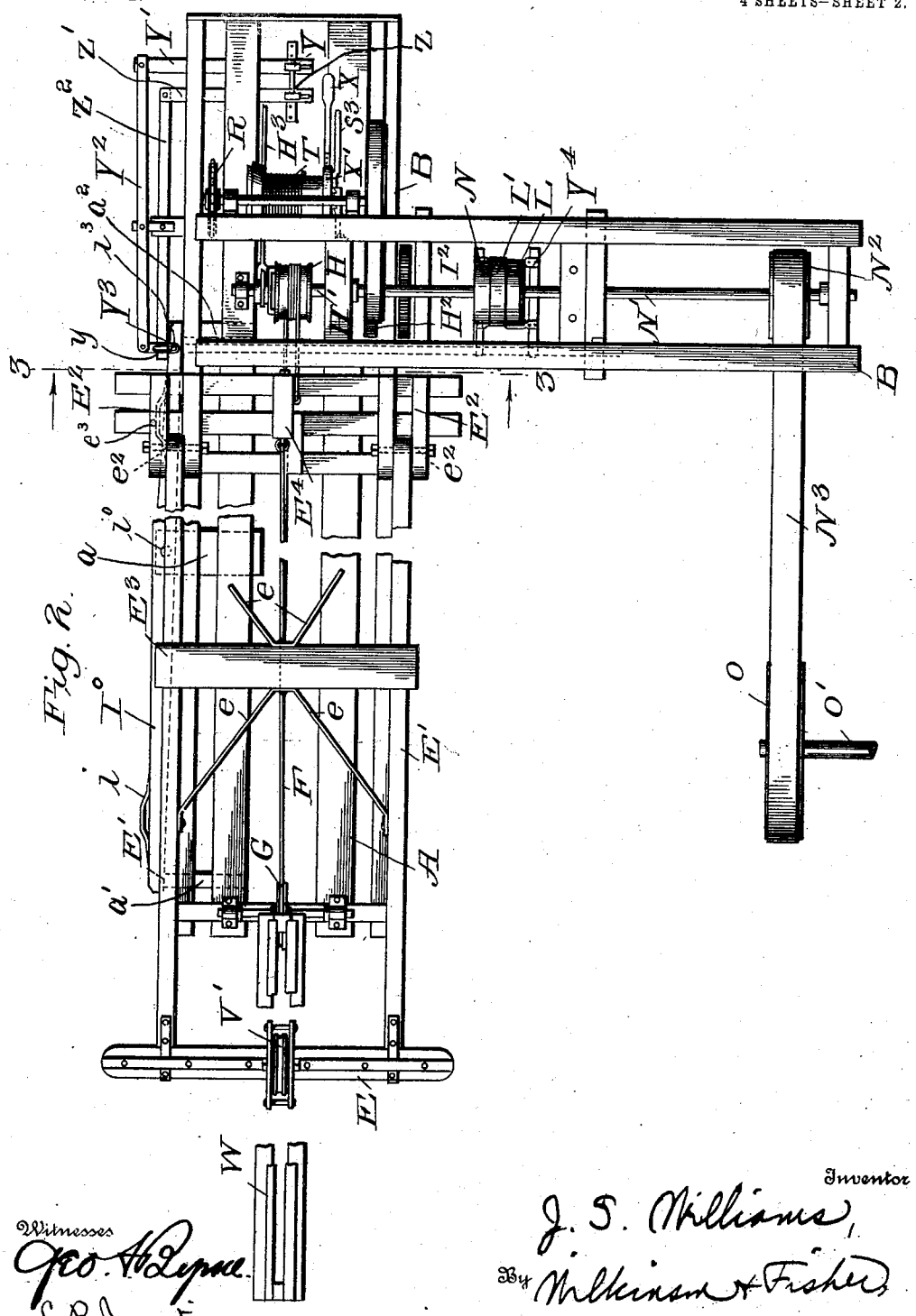

Fig. 2.

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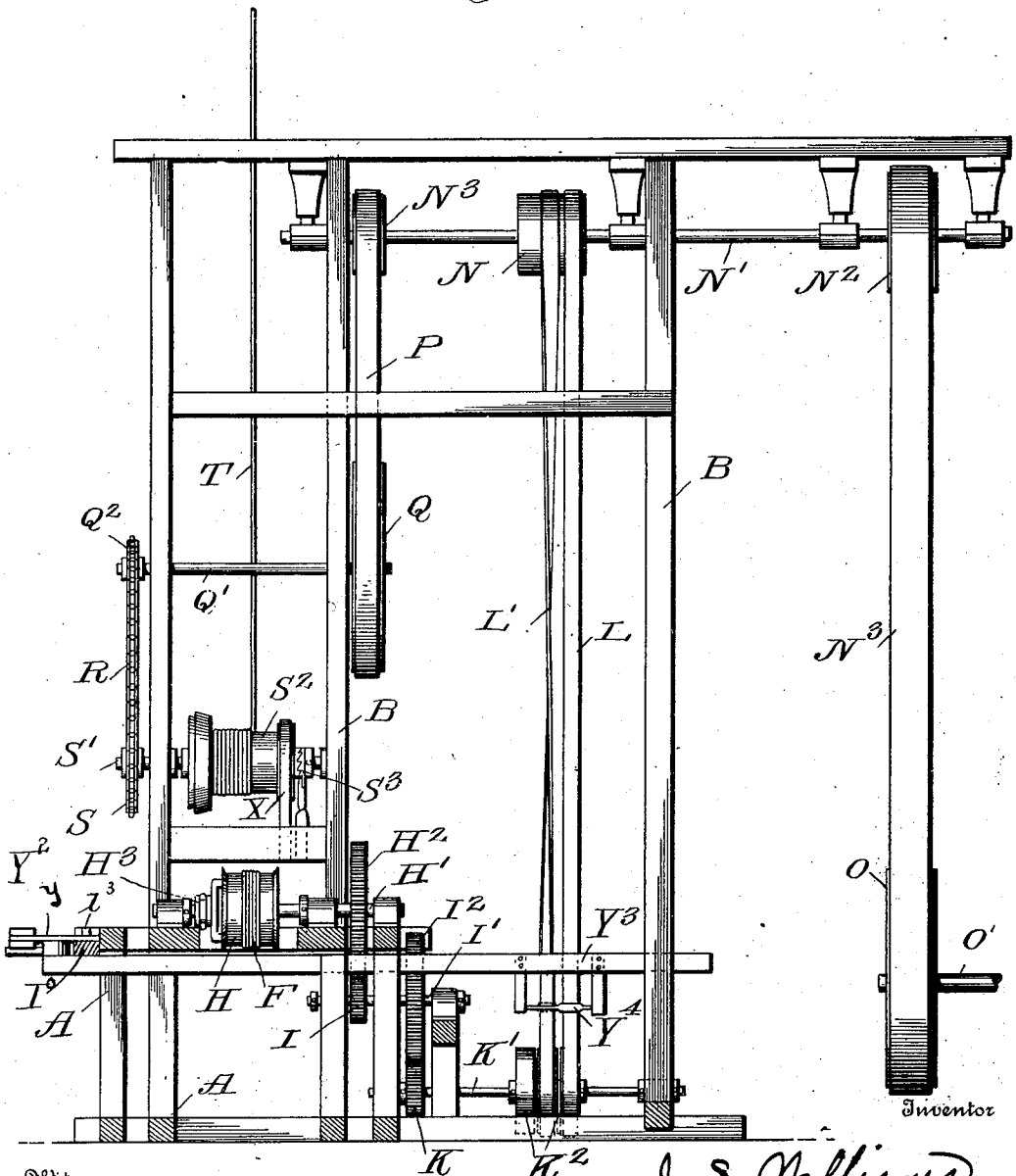
NO MODEL. 4 SHEETS—SHEET 3.

Fig. 3.



Witnesses
Geo. H. Bruce.
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NO MODEL. 4 SHEETS—SHEET 4.

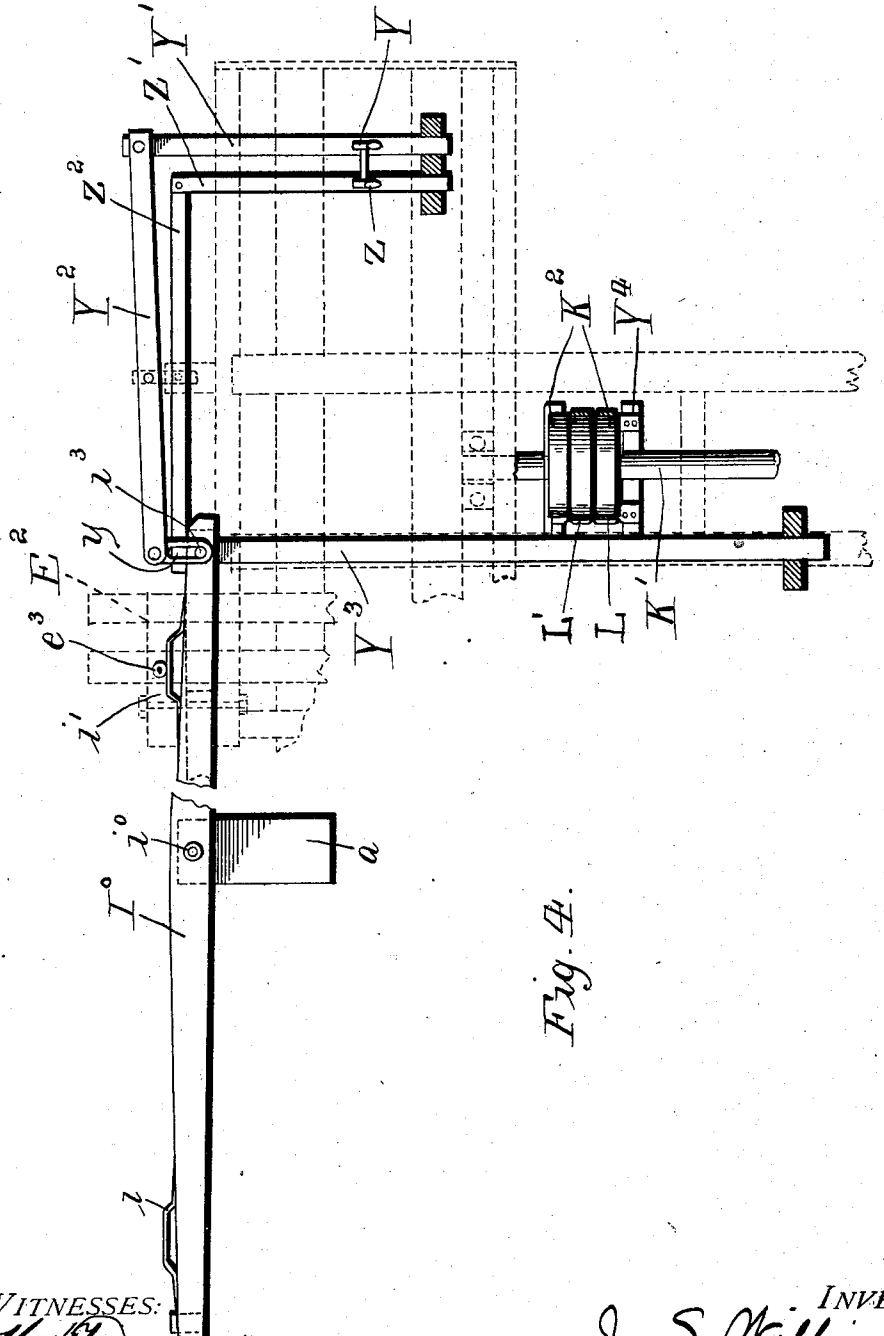

Fig. 4.

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No. 744,660. Patented November 17, 1903.

UNITED STATES PATENT OFFICE.

JAMES SCOTT WILLIAMS, OF THIBODAUX, LOUISIANA.

CAR-UNLOADER AND CARRIER-FEEDER.

SPECIFICATION forming part of Letters Patent No. 744,660, dated November 17, 1903.

Application filed August 29, 1903. Serial No. 171,275. (No model.)

To all whom it may concern:

Be it known that I, JAMES SCOTT WILLIAMS, a citizen of the United States, residing at Thibodaux, in the parish of Lafourche and State of Louisiana, have invented certain new and useful Improvements in Car-Unloaders and Carrier-Feeders; 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 appertains to make and use the same.

My invention relates to improvements in apparatus for unloading cane from cars or platforms and feeding same to the carrier.

In practice the cane is run alongside of the carrier in cars having hinged sides, which let down and form a platform extending between the car and the side of the carrier. Moreover, frequently the carriers are depressed, so that the top of the carrier is flush with the level of the ground or platform, constituting what is known as the "cane-yard," and on this cane-yard the cane is dumped from carts and dragged in various ways and fed in suitable quantities to the cane-carrier.

In order not to overtax the mill, the layer of cane on the carrier should not be excessively deep, while in order to secure the best extraction of the juice and quick work it is desirable to have the feed not only sufficiently heavy, but also as uniformly distributed on the carrier as is practicable. The herein-described apparatus has been found in practice admirably adapted to secure the desired results.

Reference is had to Figure 1, which shows a cross-section through the carrier with an end elevation of the apparatus, parts being broken away and the car being shown on a reduced scale to come within the limits of the drawings. Fig. 2 is a plan view of the apparatus, parts being broken away; and Fig. 3 shows a section along the line 3 3 of Fig. 2 and looking in the direction of the arrows. Fig. 4 shows a mechanism for automatically shifting the belts and causing the rake to automatically move backward and forward unless prevented by the attendant.

A represents a suitable horizontal platform at one side of the carrier, to which the vertical frame B is secured, as shown most clearly in Fig. 1.

C (shown only in Fig. 1) represents the top member of the endless carrier, which leads to the mill. (Not shown.) The carrier being of well-known construction and not a part of my present invention need not be illustrated further.

D represents a box-car having one side D′ hinged to lower and rest on the top rail C′ at one side of the carrier.

E represents a rake which is fast to two beams E′, which are hinged, as at e^2, to the frame E^2. The beams E′ are stiffened and braced by means of the cross-piece E^3 and the braces *e*.

Secured to the frame E^2 is a block E^4, to which the two ends of the wire rope F are secured. The bight of this rope is wound on the drum H, and rotating this drum in one direction or the other will cause the rake to move forward or be drawn backward, as may be desired. This drum H is mounted on the shaft H′, which carries a gear-wheel H^2, meshing in the pinion I on the shaft I′, which shaft I′ carries a gear-wheel I^2, meshing with the pinion K on the shaft K′. This shaft K′ carries three pulleys K^2, two of them loose to the shaft and the third, in the center, being a fast pulley, and over these pulleys pass the belt L and the crossed belt L′, which pass over a pulley N on the counter-shaft N′, (see Fig. 3,) which shaft N′ carries a drive-pulley N^2, which is driven by the belt N^3 from the pulley O on the main drive-shaft O′. This drive-shaft O′ may be driven by any suitable source of power, preferably a small steam-engine. (Not shown.) These belts L L′ are shifted by means of a suitable belt-shifter, such as Y^4, and by shifting the belts the rake is caused to move backward or forward, as the case may be. These belts are normally automatically shifted by means of a lever I^0, pivoted to a part *a* of the frame A, as at i^0, and carrying cam-plates *i* and *i′*, which engage a roller e^3 on the frame E^2, which moves backward and forward with the rake. It will be seen that this roller will ride up on these cam-plates at the forward or the rear end of the travel of the rake, which will

swing the lever about its pivot and will move the bar Y^3, to which the belt-shifter Y^4 is connected. Thus at each end of the travel of the rake the roller e^3 will cause the lever I to automatically shift the belts L and L'.

When it is desired to limit the travel of the rake, this may be done by levers Y and Z, which move the bars Y' and Z', rocking the levers Y^2 and Z^2, and moving the bar Y^3 and the belt-shifter by hand. I provide two of these levers, Y and Z, with operating parts connected thereto, one for shifting the belts to the going-ahead position and the other for shifting the belts to the withdrawing position of the rake.

In order to prevent the swaying of the levers Y and Z when the lever I is automatically rocked, I connect the levers Y^2 and Z^2 by means of slotted links, such as y, to a pin i^3 on the lever I, and thus the lever I may be rocked through the requisite angle without moving the levers Y^2 and Z^2.

I use a friction-clutch H^3, by means of which the drum H is normally caused to move with the shaft H' or may be released from engagement with said shaft when desired.

The counter-shaft N' carries a fast pulley N^3, over which passes the belt P, driving the pulley Q, fast on the shaft Q', (see Fig. 3,) which shaft carries a sprocket-wheel Q^2, meshing in the sprocket-chain R, which passes over the sprocket-wheel S on the shaft S'. This shaft carries a drum S^2, which is thrown in and out of engagement by the clutch mechanism S^3, and is also provided with a band-brake X, operated by the treadle X'. On this drum S^2 is wound a wire rope T, which is secured, as at t, to some part of the cane-shed (not shown) on the opposite side of the carrier. This rope T passes over the idler U, over the wheels V of the overhead truck mounted on the suspended tracks W, and the rope passes under the pulley V', secured above the rake E.

To prevent the rope T from paying out too far, I provide a stop t', (see Fig. 1,) which engages in the arm w of the frame W when the rake is in the lowest position, as shown in full lines in Fig. 1. By providing this stop it will not be necessary to use any great care in operating the mechanism for easing off the roller, and the rake cannot fall down too far.

The operation of the device is as follows: Suppose the rake to be in the position shown in full lines in Fig. 1 and the counter-shaft N^2 to be revolving with belts L and L' in the normal position for moving the rake outward. Now let the attendant by means of the clutch mechanism H^3 connect the drum H to the shaft H'. The rope F will be wound up, causing the outer end of the rope, which passes over the idler G, to draw the rake outward. At the same time by means of the clutch S^3 the rope T is wound up on the drum S^2, lifting the rake, the combined result of the two motions being that the rake takes the position indicated by the dotted lines in Fig. 1. As the rake moves outward the truck V will move outward on the tracks U. Now, the rake being in the outer and raised position, release the clutch S^3, and the rake will lower down on the cane in the car D. At this time the belts L and L' are automatically shifted by means of the lever I, and the rake will be drawn back to the position indicated in full lines. The slack of the rope T is controlled by means of the band-brake treadle X', and the rope is prevented from paying out too far by means of the stop t'. In case it is desired to stop the rake before it reaches the outermost limit of its travel or to stop it before it reaches the farthest inward position this may be done by the levers Y and Z. Thus it will be seen that the rake vibrates normally, but that its travel may be regulated at the will of the operator.

It will be obvious that two or more rakes may be used, located at different positions along the carrier, and that the feed on the carrier may be distributed in a substantially uniform way.

Of course the rake or rakes can be used with equal advantage while the cane is dragged along any suitable platform from which it may be delivered to the carrier, and thus this apparatus is especially adapted to be used when the sides of the carrier are flush with the ground where the cane-yard is covered either with cement or is provided with any suitable floor.

It will be obvious that various modifications might be made in the herein-described apparatus which could be used without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus of the character described, the combination with a horizontal platform at one side of the carrier, a frame mounted on said platform and adapted to slide longitudinally thereon, a rake carried by one end of said frame, means for raising and lowering said rake, and means for moving said frame in or out on said platform, substantially as described.

2. In an apparatus of the character described, the combination with a platform located at one side of the carrier, a frame mounted on said platform, and adapted to slide longitudinally thereon, a rake carried by said frame, means for raising and lowering said rake when desired, a drum, a rope secured at each end to said frame and passing over said drum and over a pulley carried by said platform, and means for rotating said drum in either direction when desired, substantially as described.

3. In an apparatus of the character described, the combination with a horizontal platform mounted at one side of the carrier, a rake mounted on said platform and extend-

ing over the carrier, a rigid frame connected to the back of said rake, a drum with means for throwing same into and out of operation, a rope connected at each end to said frame for moving said frame longitudinally on said platform, and means for raising and lowering said rake when desired, substantially as described.

4. In an apparatus of the character described, the combination with a horizontal platform at one side of the carrier, a frame mounted on said platform and adapted to slide longitudinally thereon, a rake carried by one end of said frame, a pulley secured to said rake, an overhead truck provided with pulleys, an overhead track parallel to said platform, a drum, and a rope passing over said pulleys and wound on said drum for raising and lowering said rake, and means for moving said frame in or out on said platform, substantially as described.

5. In an apparatus of the character described, the combination with a platform located at one side of the carrier, a frame mounted on said platform and adapted to slide longitudinally thereon, a rake carried by said frame, a rope and drum for raising and lowering said rake when desired, a second drum, a rope secured at each end to said frame and passing over said second drum and over a pulley carried by said platform, and means for rotating said drum in either direction when desired, substantially as described.

6. In an apparatus of the character described, the combination with a platform located at one side of the carrier, a frame mounted on said platform, and adapted to slide longitudinally thereon, a rake carried by said frame, a rope and drum for raising and lowering said rake, with means for throwing said drum into and out of operation and for reversing same when desired, a second drum, a rope secured at each end to said frame and passing over said second drum and over a pulley carried by said platform, and means for rotating said drum in either direction when desired, substantially as described.

7. In an apparatus of the character described, the combination with a horizontal platform at one side of the carrier, a frame mounted on said platform and adapted to slide longitudinally thereon, a rake carried by one end of said frame, a pulley secured to said rake, an overhead truck provided with pulleys, an overhead track parallel to said platform, a drum, and a rope passing over said pulleys and wound on said drum for raising and lowering said rake, a band-brake for checking the rotation of said drum, and means for moving said frame in or out on said platform, substantially as described.

8. In an apparatus of the character described, the combination with a horizontal platform at one side of the carrier, a frame mounted on said platform and adapted to slide longitudinally thereon, a rake carried by one end of said frame, a pulley secured to said rake, an overhead truck provided with pulleys, an overhead track parallel to said platform, a drum, and a rope passing over said pulleys and wound on said drum for raising and lowering said rake, a second drum with means for reversing same and for throwing same into and out of operation, and a rope wound on said drum and connected at each end to said frame for moving said frame longitudinally on said platform, substantially as described.

9. In an apparatus of the character described, the combination with a horizontal platform at one side of the carrier, a frame mounted on said platform and adapted to slide longitudinally thereon, a rake carried by one end of said frame, a pulley secured to said rake, an overhead truck provided with pulleys, an overhead track parallel to said platform, a drum, and a rope passing over said pulleys and wound on said drum for raising and lowering said rake, a clutch for throwing said drum into and out of operation, and a brake for checking the rotation of said drum, a second drum with means for reversing same and for throwing same into and out of operation, and a rope wound on said drum and connected at each end to said frame for moving said frame longitudinally on said platform, substantially as described.

10. In an apparatus of the character described, the combination with a platform located at one side of the carrier, a frame mounted on said platform and adapted to slide longitudinally thereon, a rake carried by said frame, a rope and drum for raising and lowering said rake when desired, a second drum, a rope wound on said second drum and secured at each end to said frame and passing over said second drum and over a pulley carried by said platform, means for rotating said drum in either direction, and means for throwing said drum out of operation when desired, substantially as described.

11. In an apparatus of the character described, the combination with a platform located at one side of the carrier, a frame mounted on said platform, and adapted to slide longitudinally thereon, a rake carried by said frame, a drum, an overhead truck, pulleys, a rope rove over said pulleys and wound on said drums, a drum for raising and lowering said rake, with means for throwing said drum into and out of operation and for reversing same when desired, a second drum, a rope secured at each end to said frame and passing over said second drum and over a pulley carried by said platform, and means for rotating said second drum in either direction and for throwing it out of operation when desired, substantially as described.

12. In an apparatus of the character described, the combination with a horizontal platform at one side of the carrier, a frame mounted on said platform and adapted to slide longitudinally thereon, a rake carried by one end of said frame, means for raising

and lowering said rake, means for moving said frame in or out on said platform, and means automatically operated for shifting the direction of said rake at predetermined points of its travel, substantially as described.

13. In an apparatus of the character described, the combination with a platform located at one side of the carrier, a frame mounted on said platform, and adapted to slide longitudinally thereon, a rake carried by said frame, means for raising and lowering said rake when desired, a drum, a rope secured at each end to said frame and passing over said drum and over a pulley carried by said platform, means for rotating said drum in either direction when desired, and means automatically operated by the motion of said rake, for reversing the direction of rotation of said drum, substantially as described.

14. In an apparatus of the character described, the combination with a horizontal platform mounted at one side of the carrier, a rake mounted on said platform and extending over the carrier, a rigid frame connected to the back of said rake, a drum with means for throwing same into and out of operation, a rope connected at each end to said frame for moving said frame and rake longitudinally on said platform, means automatically operated by the motion of said rake, for reversing the direction of rotation of said drum, and means for raising and lowering said rake when desired, substantially as described.

15. In an apparatus of the character described, the combination with a horizontal platform at one side of the carrier, a frame mounted on said platform and adapted to slide longitudinally thereon, a rake carried by one end of said frame, a pulley secured to said rake, an overhead truck provided with pulleys, an overhead track parallel to said platform, a drum, and a rope passing over said pulleys and wound on said drum for raising and lowering said rake, means for moving said frame in or out on said platform, and means automatically operated by the motion of said frame for reversing its direction, substantially as described.

16. In an apparatus of the character described, the combination with a horizontal platform mounted at one side of the carrier, a rake mounted on said platform and extending over the carrier, a rigid frame connected to the back of said rake, means for moving said frame longitudinally on said platform, a roller carried by the frame and a lever with cam-plates pivoted to said platform for automatically shifting the direction of said rake at predetermined points of its travel, and means for raising and lowering said rake when desired, substantially as described.

17. In an apparatus of the character described, the combination with a horizontal platform at one side of the carrier, a frame mounted on said platform and adapted to slide longitudinally thereon, a rake carried by one end of said frame, means for raising and lowering said rake, means for moving said frame in or out on said platform, and a lever with cam-plates thereon automatically operated by the motion of said frame, with mechanism operated by said lever for shifting the direction of said rake at predetermined points of its travel, substantially as described.

18. In an apparatus of the character described, the combination with a platform located at one side of the carrier, a frame mounted on said platform, and adapted to slide longitudinally thereon, a rake carried by said frame, means for raising and lowering said rake when desired, a drum, a rope secured at each end to said frame and passing over said drum and over a pulley carried by said platform, pulleys and belts for rotating said drum in either direction when desired, and a belt-shifter automatically operated by the motion of said rake, for reversing the direction of rotation of said drum, substantially as described.

19. In an apparatus of the character described, the combination with a platform located at one side of the carrier, a frame mounted on said platform, and adapted to slide longitudinally thereon, a rake carried by said frame, means for raising and lowering said rake when desired, a drum, a rope secured at each end to said frame and passing over said drum and over a pulley carried by said platform, pulleys and belts for rotating said drum in either direction when desired, and a belt-shifter and a lever for controlling same automatically operated by the motion of said rake, for reversing the direction of rotation of said drum, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES SCOTT WILLIAMS.

Witnesses:

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AB. BONDNAM.