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S. E. SPAULDING.

HAY OR GRAIN LOADER.

APPLICATION FILED MAY 26, 1904.

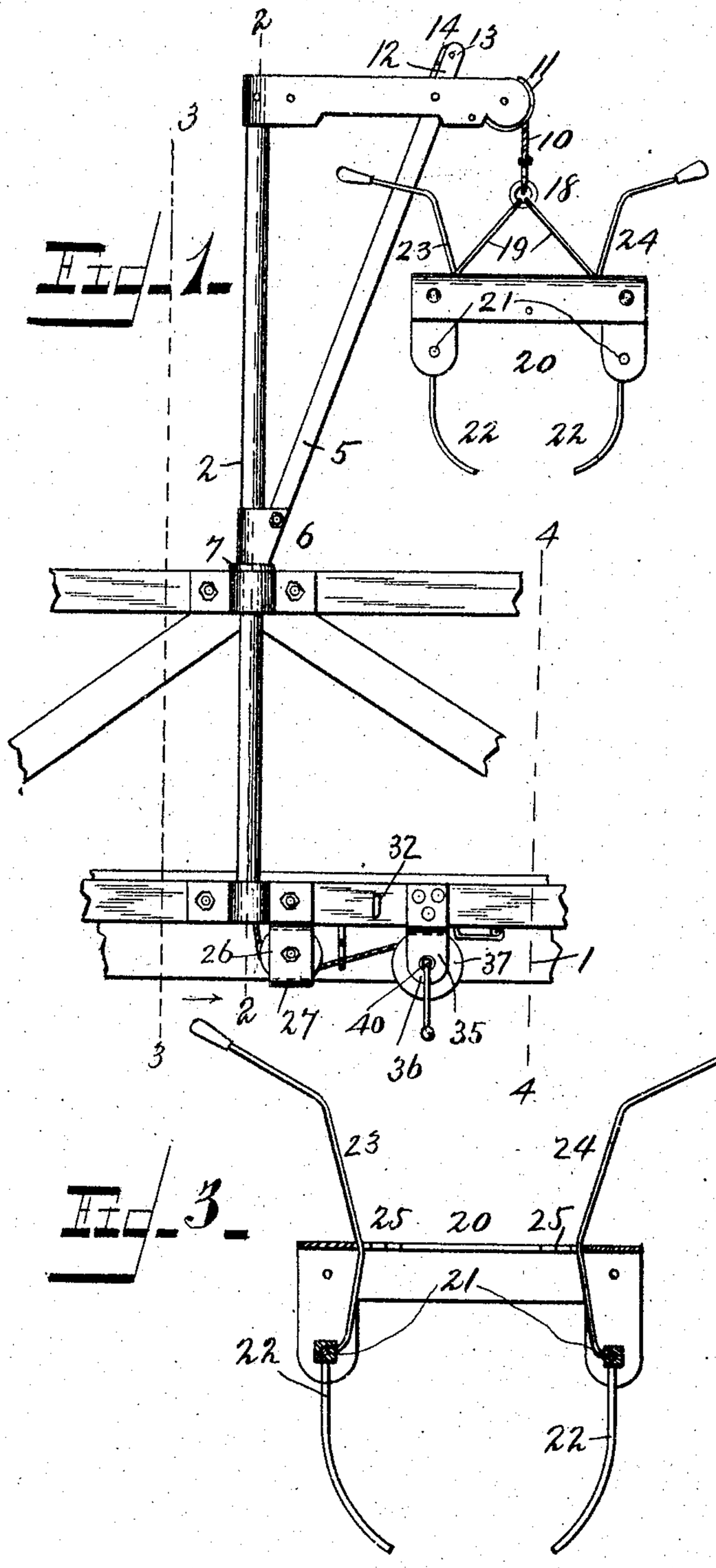

Fig. 1.

Fig. 3.

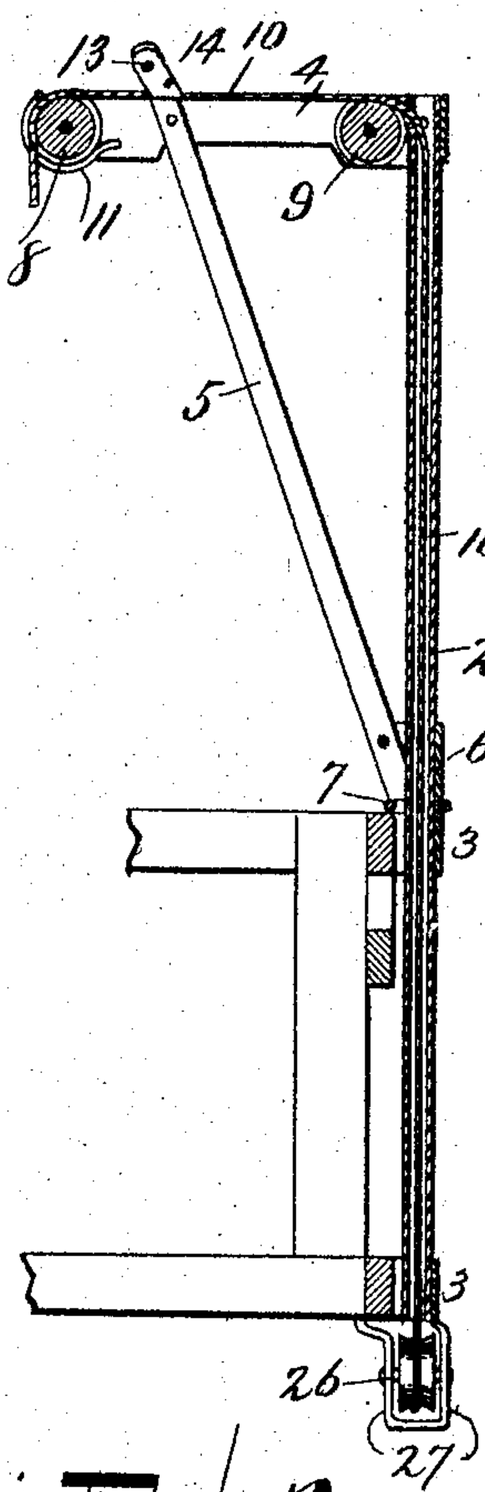

Fig. 2.

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No. 780,735. Patented January 24, 1905.

UNITED STATES PATENT OFFICE.

SOLOMON E. SPAULDING, OF NELIGH, NEBRASKA.

HAY OR GRAIN LOADER.

SPECIFICATION forming part of Letters Patent No. 780,735, dated January 24, 1905.

Application filed May 26, 1904. Serial No. 209,901.

To all whom it may concern:

Be it known that I, SOLOMON E. SPAULDING, a citizen of the United States, residing at Neligh, in the county of Antelope and State of Nebraska, have invented certain new and useful Improvements in Hay, Grain, or Fodder Loaders; and I do 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.

This invention relates to improvements in hay, grain, and fodder loaders, and particularly to loaders of that type employed upon farm wagons or racks whereby the material is hauled to the place of storage.

The object of the invention is to provide a loader of this character which is simple, durable, and efficient, may be applied to farm wagons or racks at low cost, and enables the operation of loading hay, grain, or fodder to be conveniently and expeditiously performed.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a side elevation of a hay loader and rack embodying my invention. Fig. 2 is a cross-section on line 2 2 of Fig. 1. Fig. 3 is a sectional view of the grapple.

Referring now more particularly to the drawings, the numeral 1 represents a rack or vehicle-bed which may be of any approved construction suitable for the purpose and mounted upon any preferred type of running-gear. Mounted upon one side of the said rack or bed 1 is a swinging crane comprising a hollow or tubular mast or standard 2, journaled to rotate in bearings 3 and provided at its upper end with an arm 4, extending at right angles therefrom and preferably consisting of a double strip or strap of metal suitably secured thereto and having its arms extending in spaced relation therefrom and connected to the upper end of a diagonal brace 5, secured at its lower end to a bracket 6, fixed to the mast 2 and disposed in relation to a collar or head 7, engaging one end of the bearings 3 to hold said mast against downward displacement. Journaled between the sides of the arm 4 are pulleys or sheaves 8 and 9, over which passes an operating rope or cable 10, which extends upward through the hollow mast 3 and is retained in engagement with the pulley or sheave 9 by a swinging guard and guide member 11. Secured to the upper end of the brace 5 are plates or ears 12, between which extends a pivot-pin 13, on which is mounted a friction dog or brake 14, which is provided with a cam-face adapted to coact with the upper end of the brace 5 to clamp the rope or cable 10 against movement or exert a desired frictional resistance to the movement thereof. The dog operates by gravity and the movement of the rope or cable 10 to grip the latter and may be manually released by means of a controlling-rod 15, attached to the dog 14 at one end and movable in a suitable guide 16 on the brace 5 and bent at its lower end to form an operating-handle 17. One end of the rope or cable is connected to a ring or eye 18, attached to a series of divergent rods 19, extending from the corners of a rectangular grapple-frame 20. Pivotally mounted upon this frame are bars 21, carrying grapple forks or tines 22, curved to coact to engage the material to be elevated and loaded. These bars are controlled by hand-levers 23 24, the shanks of which are adapted to engage notches 25 in one of the ends of the frame 20 to hold them from movement in engaging position. The opposite end of the cord or cable 10 passes from the lower end of the standard or mast 2 around the pulley or guide sheave 26, journaled in a bracket 27, and thence is connected by a hook 28 to a link 29, attached to a staff 30. The staff 30 has a pointed end 31, adapted to be buried in the ground and which is adapted when the staff is not in use to be passed through a guide-eye 32 on the rack 1. The opposite end of the staff is formed or provided with a handle 33, adapting it to be conveniently manipulated. This handle has a rounded end to frictionally engage a spring-loop 34, mounted on the rack 1 at a suitable distance from said guide-eye 32, whereby

when the point end of the staff is inserted in said eye 32 the handle end may be engaged with and disengaged from the loop 34 by an inward or outward movement of the staff, so that the latter may be attached to and detached from the rack at will.

In the operation of the device it will be seen that the vehicle is driven to the point where the fodder or other material is to be loaded, the grapple swung over the side thereof, and the controlling-rod 15 adjusted to allow the cable 10 to pay out to the desired extent. When the cable has reached the proper point, the controlling-rod 15 is released, and the dog or brake 14 engages the cable and holds it from further movement. The material to be elevated is then engaged by the fork or grapple by properly manipulating the levers 23 and 24, the staff 30 detached, and its point end inserted into the ground while the handle end 33 is held by the operator, and the vehicle is then run forward a suitable distance to elevate the grapple and its load to a position above the top of the bed, it being understood that in this operation such elevation is caused by reason of the fact that one end of the cable is held fixed by the staff, while under the forward movement of the vehicle the opposite end of the cable is drawn upon to elevate the grapple by a shortening of the distance between the vehicle and loading-point. The crane is then swung inwardly, thus bringing the grapple, with its load, above the bed, the brake then detached, the staff withdrawn from the ground, and the levers 23 and 24 operated to discharge the load, after which the operation may be repeated as before, or the staff may be returned to its normal position, supported on the rack while the load is being transported to a barn or storehouse.

Where a large amount of material is to be loaded at one time, it is desirable to obviate the necessity of shifting the rack to effect the elevation of the crane, and in order to obviate this I provide means whereby the use of the staff is not required in operations of this character. Mounted in the bearing-brackets 35 below the bed is a winding-shaft 36, to which is fixed a drum or windlass 37. This windlass is provided with a series of ratchet-teeth adapted to be engaged by a pawl-bar movably mounted on the bed. The outer end of the shaft 36 is rectangular, as shown at 40, to receive a suitable crank or other operating device, and the drum or windlass has a hook or eye 41, whereby the hook 28 when detached from the link 29 of the staff 30 may be connected with the windlass and the latter employed in an obvious manner to draw upon the chain or cable 10.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

In an apparatus of the character described, a rack, a crane mounted thereon, a rope or cable, a grapple suspended from said rope or cable, said grapple comprising a frame, bars pivoted therein, tines attached to the bars, handles for operating the bars, and racks for holding the handles in adjusted position, a friction-dog upon the arm of the crane to engage said rope or cable, and an operating device for controlling said dog, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SOLOMON E. SPAULDING.

Witnesses:
N. SCHROTH,
WM. CAMPBELL.