(No Model.) 2 Sheets—Sheet 1.

W. F. KENDALL.

APPARATUS FOR ELEVATING AND DUMPING GRAIN.

No. 592,650. Patented Oct. 26, 1897.

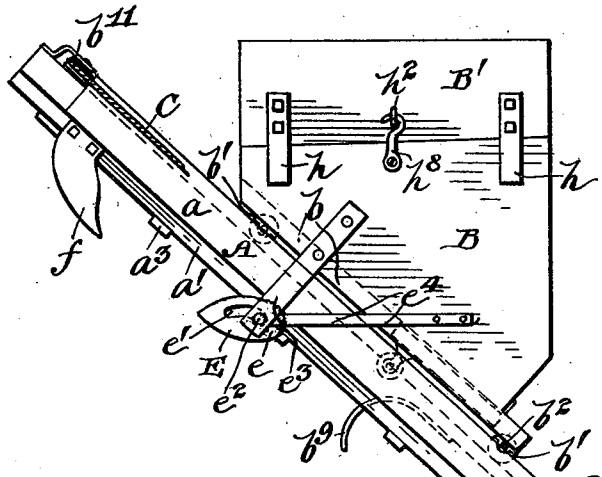


Fig. 1.

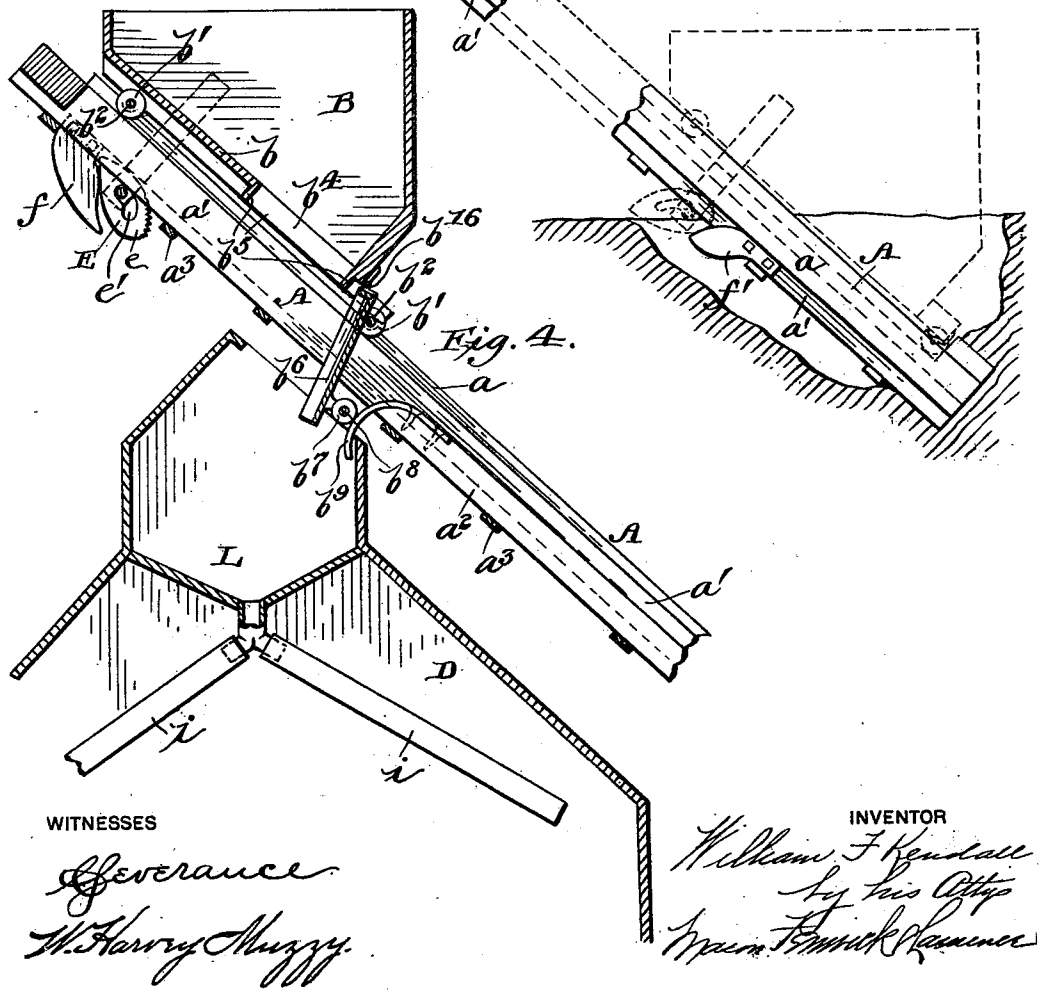


Fig. 4.

WITNESSES

Geverance

W. Harvey Muzzy.

INVENTOR

William F. Kendall

by his Attys

Myers Fennick & Lawrence

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

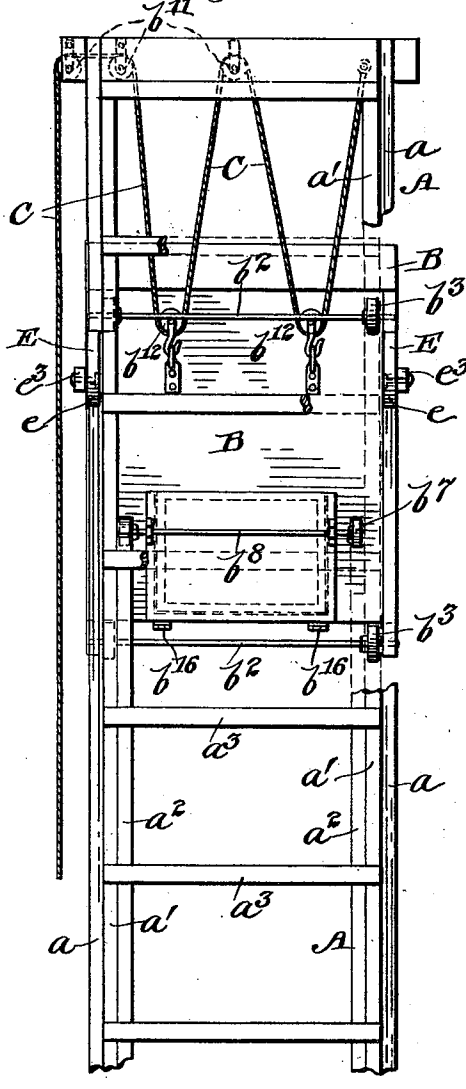


Fig. 2

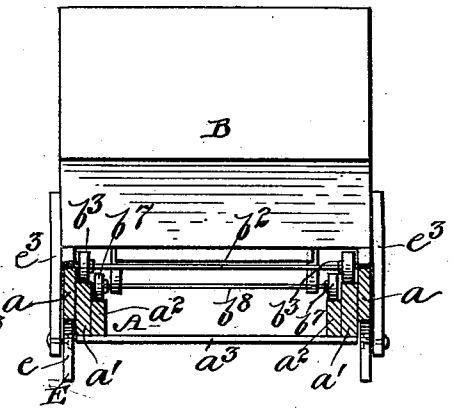
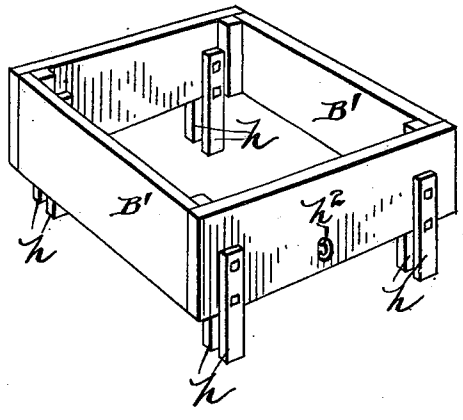


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM F. KENDALL, OF LU VERNE, MINNESOTA.

APPARATUS FOR ELEVATING OR DUMPING GRAIN.

SPECIFICATION forming part of Letters Patent No. 592,650, dated October 26, 1897.

Application filed July 2, 1896. Serial No. 597,852. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. KENDALL, a citizen of the United States, residing at Lu Verne, in the county of Rock and State of Minnesota, have invented certain new and useful Improvements in Apparatus for Elevating or Dumping Grain; 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 elevating and dumping grain, &c.

The invention consists of the combination with an inclined frame, an elevating-car mounted upon the same and provided with a discharge-opening, a door over said opening, traction-rollers on said door, a track upon said frame upon which the rollers rest for supporting said door normally in a closed position, and an inclined portion of track for permitting the rollers to descend and the door to open.

It also consists of the combination with an inclined frame, an elevating-car mounted upon the same, a cam-brake mounted upon said car and adapted to normally engage a portion of the frame to prevent the car from sliding backward during its ascent, and a projection at the upper end of the frame for tripping the cam to throw it out of engagement with the frame and permit the car to descend.

It also consists of certain other novel constructions, combinations, and arrangements of parts, all of which will be hereinafter more particularly set forth and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a side elevation, partly broken away, of the apparatus embodying my invention, the car being shown in its lower position by dotted lines. Fig. 2 represents a transverse section through my said apparatus. Fig. 3 represents a bottom plan view of my said apparatus. Fig. 4 represents a detail side elevation of the car at the upper end of the inclined track with the locking-cam in its inoperative position, and Fig. 5 represents a detail perspective view of the detachable extension for the car-body.

A in the drawings represents the frame, which is adapted to be rested in an inclined position against the storehouse or other place where the grain is to be deposited.

B represents the car or elevator; B′, the extension-top of the same; C, the operating-rope, and D the storehouse.

The frame A is composed of longitudinal timbers a, a', and a^2, arranged side by side in a stair-step manner and secured together to form the longitudinal sides of the frame. These longitudinal portions of the frame are secured together at intervals by cross-bars a^3, connecting their lower edges or rather the lower edges of the parts a' and a^2, which are on the same level. These cross-bars act as braces to hold the frame together and at the same time subserve the use of the frame as a ladder when so desired.

The car or elevator B is constructed with an inclined bottom b, so that when in position upon the frame its top edge will occupy approximately a horizontal position. This car is provided at its front and rear ends with traction rollers or wheels b'. These wheels are loosely mounted upon axles b^2, that are secured in brackets or extensions at the under side of the car. Suitable collars or nuts b^3 are applied upon the axles to prevent the wheels from moving longitudinally thereon. These traction-wheels of the car are adapted to run upon the upper surface of the timbers a' a', being guided and prevented from running off the same by the timbers a, which project above said timbers a' a'.

The car B is provided in its bottom with a discharge-opening b^4, about which is provided a pendent casing b^5. A door or trap b^6 is adapted to close over and about this casing, being hinged to the bottom of the car at its rear edge, as at b^{16}. The door is supported in position over the discharge-opening by traction-wheels b^7, loosely mounted upon a shaft b^8, that is secured to the forward free end of the door by suitable brackets. These wheels b^7 are adapted to rest upon the upper surfaces of the timbers a^2 and thus keep the door normally closed. The timbers a^2 terminate a short distance from the upper end of the frame and are provided with curved segmental castings b^9, which form downwardly-inclined continuations of the timbers a^2. When the car reaches these castings, the wheels b^7 of the door roll down the inclines

and allow the door to open and the contents of the car to be discharged. As the car moves backward again down the incline the wheels b' roll up the castings and close the door or trap again. The car is operated up and down the incline by a power-rope C. This rope is connected to any desirable source of power and passes over pulleys b^{11} b^{11} at the top of the frame and pulleys b^{12} b^{12} upon the car and has its opposite end secured to the top of the frame.

It is very desirable in an apparatus of this class to secure the car or elevator against rapid and destructive descent in the event of the breakage of any of the parts or the operating-rope. I accomplish this by my improved form of brake E, one of which is mounted upon each side of the car. Each of these brakes comprises a cam e, provided with a milled periphery and having an angular slot e'. Headed pins e^2 pass through these slots and are supported upon arms e^3, projecting from the car. Braces e^4 also extend from the car and assist in supporting the headed pins in position. The angular slot e' of each cam is in such a position within the cam that when the headed pin is in one or the other end of the slot the predominating weight of the opposite end will cause said opposite end to swing down. The cam is so constructed and mounted that when its supporting-pin is in the rear of its slot its milled periphery will engage the under side of the timber a. As the car moves up the incline the cams drag against said under side of the timbers a a without interfering with the movement of the car; but should the car attempt to move backward down the incline the cams would jam against the under sides of timbers a a and thus stop its descent. When the car reaches the upper end of its travel, each cam is thrown out of its operating position by an incline bracket f, secured to the frame so as to be engaged by the forwardly-projecting end of the cam. When the cam strikes this projection, its forward end rides up the incline, and upon the continued movement of the said cam it is forced backward upon its supporting-pin, so that the preponderance of weight will be to the rear of the pin, and thus hold the cam in this inoperative position, with its smooth side against the under side of the timber a. When the cams occupy this position, there is no obstacle to the descent of the car. When the car reaches its lowermost position, the cams are returned to their operative positions by inclined projections f' f', secured to the frame at its bottom. These projections operate in substantially the same manner as the projections at the top of the frame, pushing the cams forward until the superior weight forward of the supporting-pins causes them to drop into operative position with their milled peripheries engaging the under sides of the timbers a a. The frame A may be either set against the side of a granary, as shown in Fig. 2, or against the side of a car to be loaded, or, in fact, any desired position or place.

The extension-top B' is rectangular in form to correspond to the shape of the upper edge of the car. This top is adapted to be applied to the car to increase its capacity by means of pendent arms h, that are adapted to fit both without and within the upper edge of the car. The top is held from rising vertically by hooks h^3, applied on the car and engaging eyes h^2, secured to said top. This extension-top is of varying depth, being deeper at one end than at the other, so that when the frame is placed at different inclines it can be reversed to always keep the top of the car on an approximately horizontal line.

When my elevator is applied to a granary, as shown in Fig. 2, the segmental castings b^9 are hooked over the edge of the opening in the roof, and thus when the door of the car opens the discharge is directly in the hopper L within the granary D. From this hopper chutes i i lead to different bins within the room and thus distribute the grain evenly.

I preferably rest the lower end of the frame in a hollow, so as to bring the top of the car when in its lowest position at such a level that the grain may be readily dumped into the car.

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

1. In an apparatus adapted for elevating and dumping grain into a barn without the car passing into the barn in dumping, the combination with an inclined frame having an inner and an outer track, an elevating-car mounted upon the same and provided with a discharge-opening in its bottom, a door covering said opening and hinged at its lower end and free at its upper end, traction-rollers on the free end of said door for supporting it normally in a closed position by resting upon the inclined track, and an inclined portion of the inner track at the upper end of the same for permitting the rollers on the door to descend thereon, as the car travels up the incline independently of the car-body and without said door losing its supporting contact with the inner track, and allowing the door to open for the discharge of the contents of the car, without the body of the car descending below the inclined frame, the combination and construction being such that the car is adapted for use on an inclined plane and the car at all times, supported on wheels other than those which support the door, substantially as described.

2. In an apparatus for elevating and dumping grain, the combination with an inclined frame, an elevating-car mounted upon the same, a cam-brake mounted upon said car and adapted to normally engage a portion of the frame to prevent the car from sliding backward during its ascent, and a projection at the upper end of the frame for tripping the cam to throw it out of engagement with

the frame and permit the car to descend, substantially as described.

3. In an apparatus for elevating and dumping grain the combination with an inclined frame, a car mounted upon the same and having an automatically-opening door in its bottom, and a cam-brake mounted upon said car and adapted to prevent its descent until after it has reached the top of the inclined frame and has delivered its load, substantially as described.

4. In an elevating and dumping apparatus, the combination with an inclined frame adapted to stand at different degrees of inclination, a car mounted upon the same, a detachable extension applied at the top of the car for increasing the capacity of the same, said extension being higher upon one side than upon the other and adjustable upon the car to correspond to the inclination of the frame for maintaining the upper edge of the car level on all sides, substantially as described.

5. In an apparatus for elevating and dumping grain the combination with an inclined frame, a car mounted upon the same, a cam-brake mounted upon the car and comprising a cam having a longitudinal slot therein and so secured to the car that it may be pushed into or out of operative position, projections at the top and bottom of the inclined frame for forcing the cam into or out of operative position, substantially as described.

6. In an apparatus for elevating and dumping grain the combination with a frame, a car provided with traction-rollers and mounted thereon, a door for said car provided with traction-rollers also adapted to rest upon said frame, cam-brakes attached to the said car and adapted to engage the under side of the frame, and means for throwing said cam-brakes into or out of operative position at the opposite ends of the frame, substantially as described.

7. In an apparatus for elevating and dumping grain, the combination of an inclined frame composed of longitudinal timbers arranged in a stair-step manner, said timbers being secured together at intervals by transversely-arranged cross-braces, the construction and arrangement being such that two independent tracks are secured which prevent the car from running off laterally and the frame can be used as a ladder, and an elevating-car mounted upon the frame and provided with a discharge-opening in its bottom, a door covering said opening, and hinged at its lower end and free at its upper end, traction-rollers on the free end of said door for supporting it normally in a closed position by resting upon the inner track, and an inclined portion of the inner track at the upper end of the same for permitting the rollers on the door to descend thereon, as the car travels up the incline, independently of the car-body, and without said door losing its supporting contact with the inner track, and allowing the door to open for the discharge of the contents of the car without the body of the car descending below the inclined frame, the combination and construction being such that the car is adapted for use on an inclined plane and the car at all times supported on wheels other than those which support the door, substantially as described.

8. In an apparatus for elevating, dumping and evenly distributing grain into a barn without the car passing into the barn in dumping, a hopper, chutes beneath the hopper diverging therefrom to distribute the grain evenly, an inclined frame having an inner and an outer track, an elevating-car mounted upon the same and provided with a discharge-opening in its bottom, a door covering said opening and hinged at its lower end and free at its upper end, traction-rollers on the free end of said door for supporting it normally in a closed position by resting upon the inner track, and an inclined portion of the inner track at the upper end of the same for permitting the rollers on the door to descend thereon, as the car travels up the incline, independently of the car-body, and without said door losing its supporting contact with the inner track, and allowing the door to open for the discharge of the contents of the car without the body of the car descending below the inclined frame, the combination and construction being such that the car is adapted for use on an inclined plane and the car at all times supported on wheels other than those which support the door, substantially as described.

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

WILLIAM F. KENDALL.

Witnesses:
C. HEINZ,
MAX H. VOELZ.