(No Model.) 2 Sheets—Sheet 1.

W. R. FITCHIT.

RACK ELEVATOR.

No. 379,693. Patented Mar. 20, 1888.

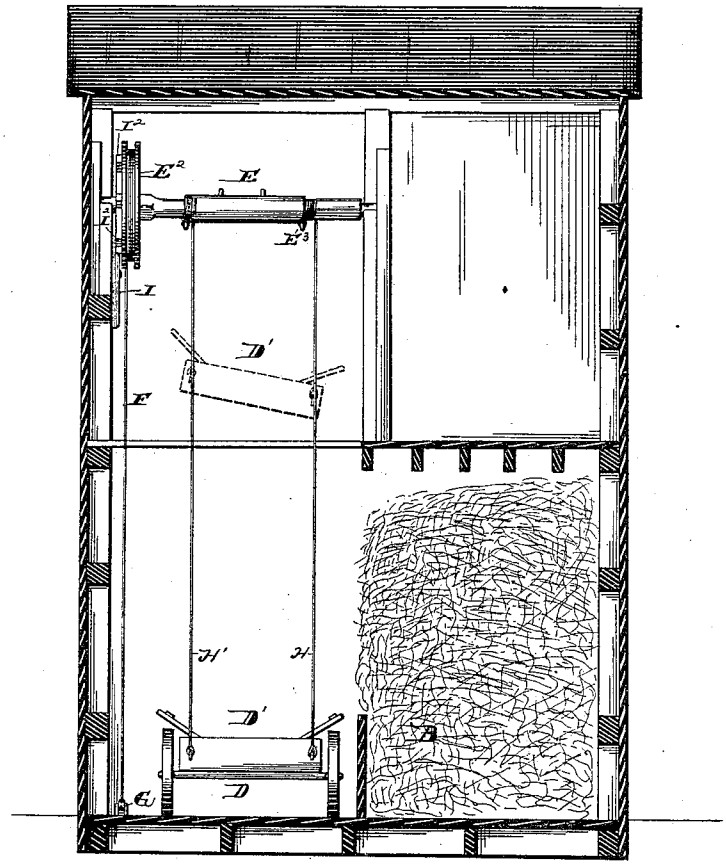


Fig. 1.

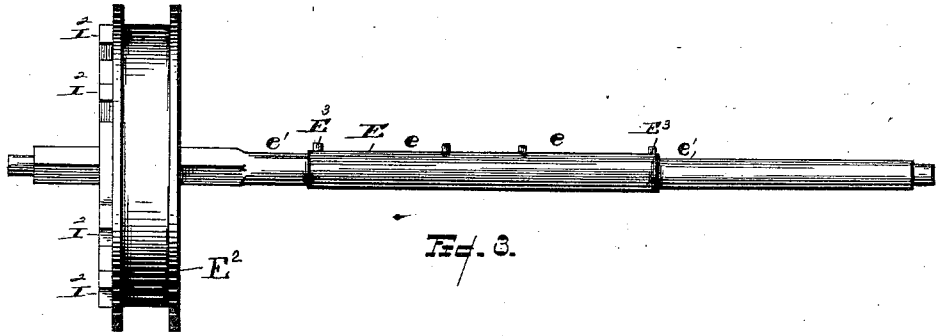


Fig. 3.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

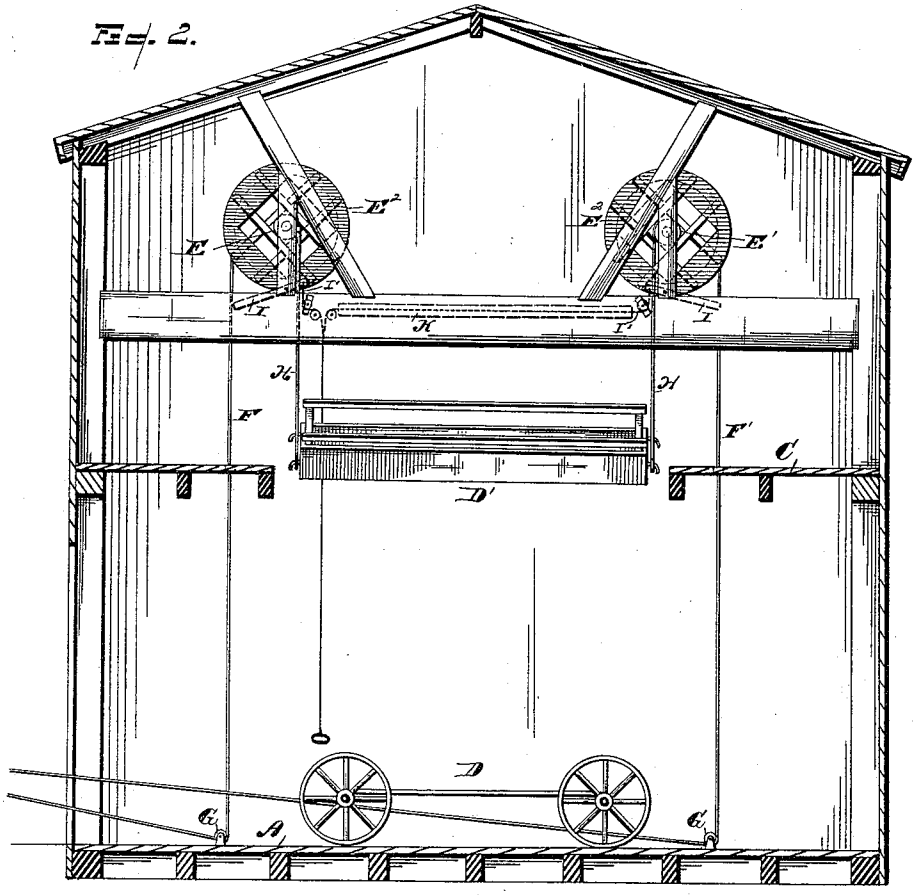
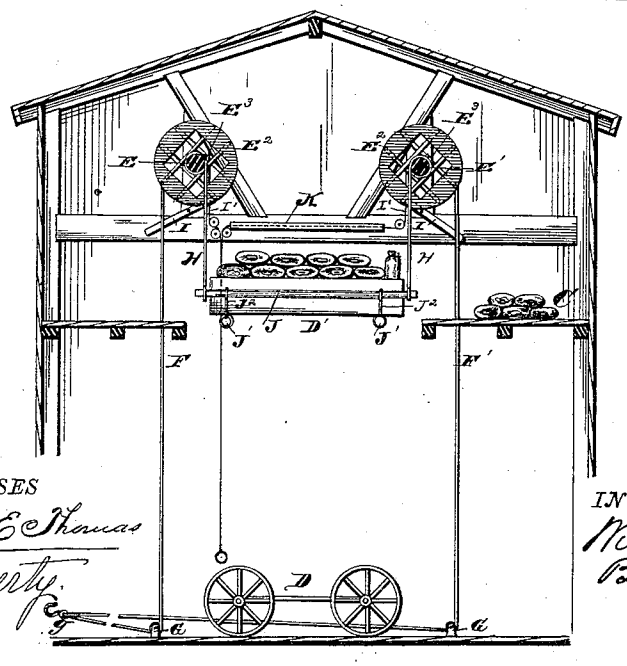


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM R. FITCHIT, OF PINNEBOG, MICHIGAN.

RACK-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 379,693, dated March 20, 1888.

Application filed November 7, 1887. Serial No. 254,551. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. FITCHIT, a citizen of the United States, residing at Pinnebog, county of Huron, State of Michigan, have invented a certain new and useful Improvement in Rack-Elevators; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists of the combinations of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a view in front elevation, and Fig. 2 a view in side elevation, of an apparatus embodying my invention. Fig. 3 is a separate view of one of the wheel-shafts. Fig. 4 is a variation in which the device is adapted for hoisting a wagon-box—as, for instance, a load of grain-bags.

It is the purpose of my invention to produce an elevator which will lift the rack itself, with its entire load, from the wagon and hoist it to the level where the same is to be stowed away. In this way the power is applied but once for hoisting the entire load, whereas by the former appliances power had to be applied each time a forkful or fraction of load was raised, thus requiring the constant labor of a hand with the horse or horses, and the consequent loss of the workman's time in unloading and stowing away, whereas by my invention the entire load is lifted at one operation, and the hand employed to drive the team for lifting the load is at once released, and may be employed on the rack or in stowing away the load.

In carrying out my invention, A represents a barn-floor; B, a hay-mow; C, an upper grain-floor.

D is a wagon, and D′ its rack.

E and E′ represent shafts, each having a winding-drum, E^2.

F F′ are cables or chains passing over the drums, and after passing about pulleys G, to give them direction, they are united at *g*, at which point provision is made to attach a horse or team, or other power, for lifting the rack.

H H′ represent chains or cables, which project down to and are adapted for connection with the wagon body or rack by means of eyes at their ends, which engage with suitable projections on the wagon body or rack. If the wagon-body has no special means for ready connection of the cables, I propose to employ two bars, J, one on each side of the wagon-body, as shown in Fig. 4. Cross-pieces J′ are then placed beneath the wagon-body and connected by hooks or cables J^2 with the bars J. These chains or cables H H′ extend upward, and are wound about the shafts E and E′, respectively.

The operation of the device will now be understood. We will suppose a wagon to have driven into the barn loaded with sheaves of grain. The chains or cables H H′ are engaged with the rack, and the team is engaged to the hoisting-cables at *g*. Now by driving the team forward the cables F F′ operate to turn the drums E^2. This results in winding the cables H H′ upon the shafts E E′, thus hoisting the rack, with its load, to any desired level where it is wanted to discharge the load.

I I represent dogs in the nature of pawls, which are adapted to set into suitable notches or ratchets, I^2, to stop the drums against a reverse movement, and cords or other connections, I′, are provided to enable the operator to disengage said pawls at will. I prefer, also, to provide the shafts E E′ with sections *e* and *e′*, of different diameters, so that if the operator so desires he may cause the chains or cables to wind on that portion having a smaller diameter, while the chains H′ wind upon sections having a larger diameter. By this means it is apparent that as the load ascends the cables H′ will wind up more rapidly than the cables H, and so gradually tilt the rack in the direction toward the side where it is to be unloaded, as shown by dotted lines in Fig. 1 of the drawings. On the other hand, when it is desired to lift a load of grain-bags, or other load in which it is desired to lift the wagon box or rack and hold it level throughout, as shown in Fig. 4, the cables H H′ may

all be caused to wind upon those portions of the shafts E E′ that are of the same diameter—that is to say, both cables may wind upon the portions *e* or both may wind upon the portion *e′*. (Shown in Fig. 3.)

E³ represents lugs or staples, or any other equivalent means, for engaging the ropes and cables and preventing them from slipping upon the shaft.

In case of a barn with a double floor there may be two sets of these winding drums and shafts, or the same set may be shifted from one place to another, and for this purpose suitable journal-bearings may be provided at these different points.

K is a shield, which may be employed, if necessary, to prevent the projecting hay or grain from catching on the cable which operates the pawls or dogs I I.

I prefer to make the drum-wheels of wood, the frame consisting of pieces crossing each other at right angles, so as to form a square hub or box to engage the square portion of the shaft. The ends of these timbers serve as ratchets to engage the pawls by which the wheels are dogged in any position.

The cables should each be wound two or three turns on the shaft when at their lowest point to engage the rack, in order that they may subsequently wind in the proper direction and have a firm hold on the shaft. As one cable winds a little more rapidly than the other, it is necessary that that one should be slightly longer, that they may be at a level where they engage the rack, and by changing the short cables to the position of the longer cables the rack will have so much tilt at the start that it may dump the load when at its upper point.

What I claim is—

1. In a rack-elevator, the combination, with the horizontal shafts provided with lifting-cables depending from said shafts and engaging with a wagon rack or body, of winding-drums whose frames consist of pieces crossing each other at right angles, the ends of which engage with pawls for preventing backward movement of the shafts, and cables extending from said drums for operating the same, substantially as described.

2. A rack-elevator provided with shafts and lifting-cables, said shafts each having a central section, *e*, and sections *e′* on each side of the central section, of smaller diameter, whereby the rack or wagon-body may be tilted to either side at will as it is elevated, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIAM R. FITCHIT.

Witnesses:
GEORGE KERR,
JAMES H. WAGONER.