

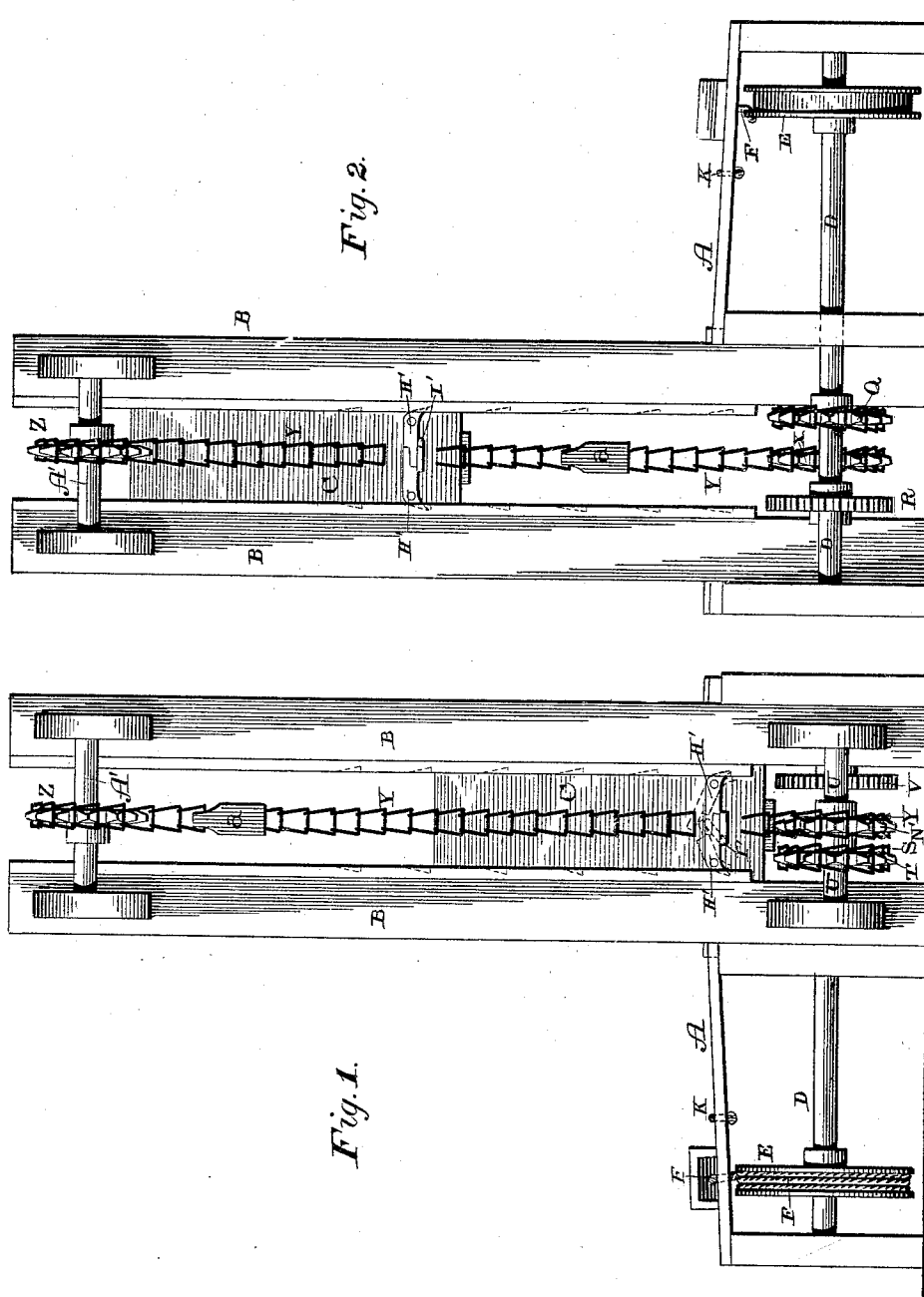
(No Model.)

3 Sheets—Sheet 1.

M. T. ROSE.
COAL OR GRAIN ELEVATOR.

No. 449,495.

Patented Mar. 31, 1891.



Witnesses:

E. Phelps,
J. M. Nesbit

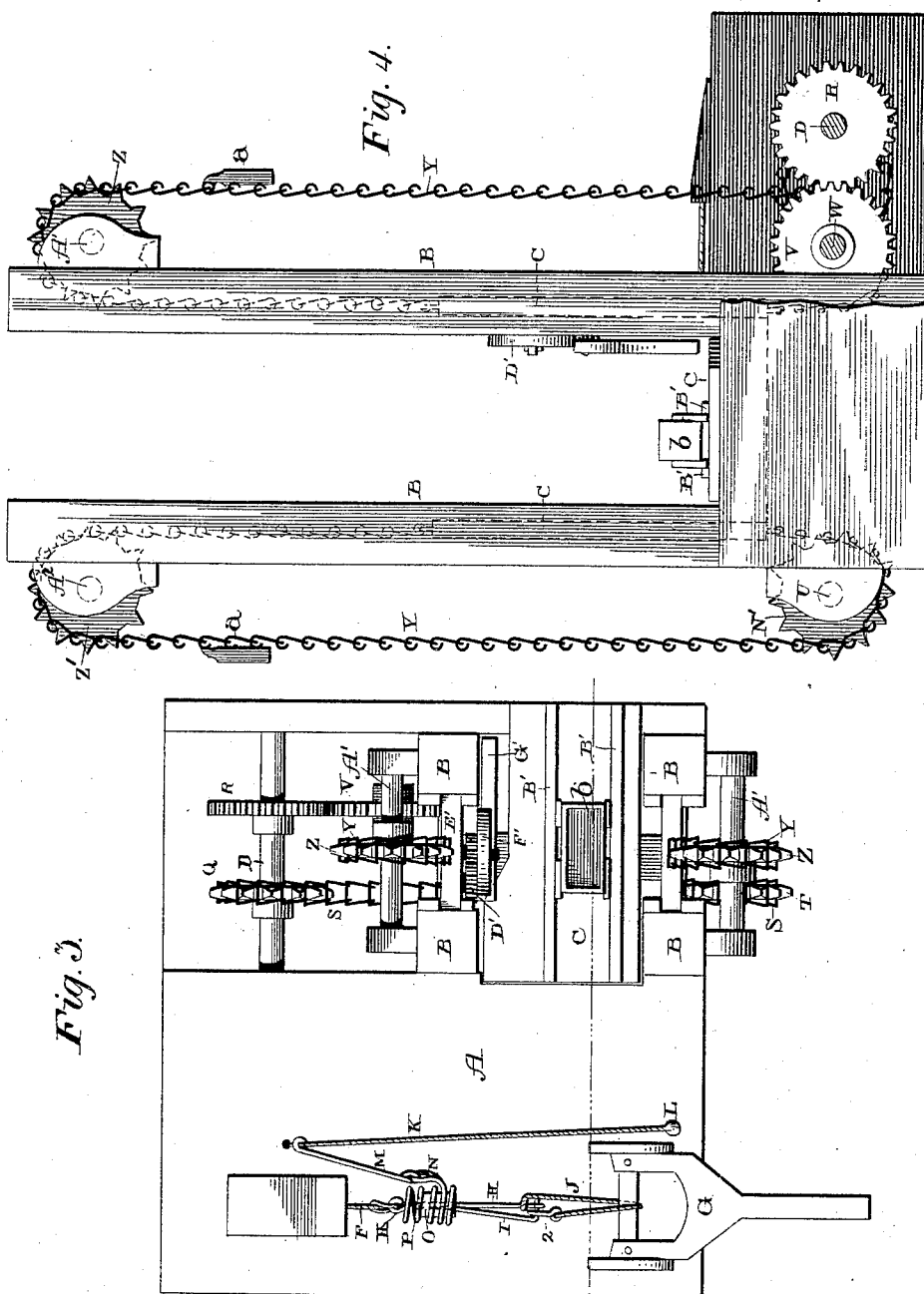
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Fig. 5.

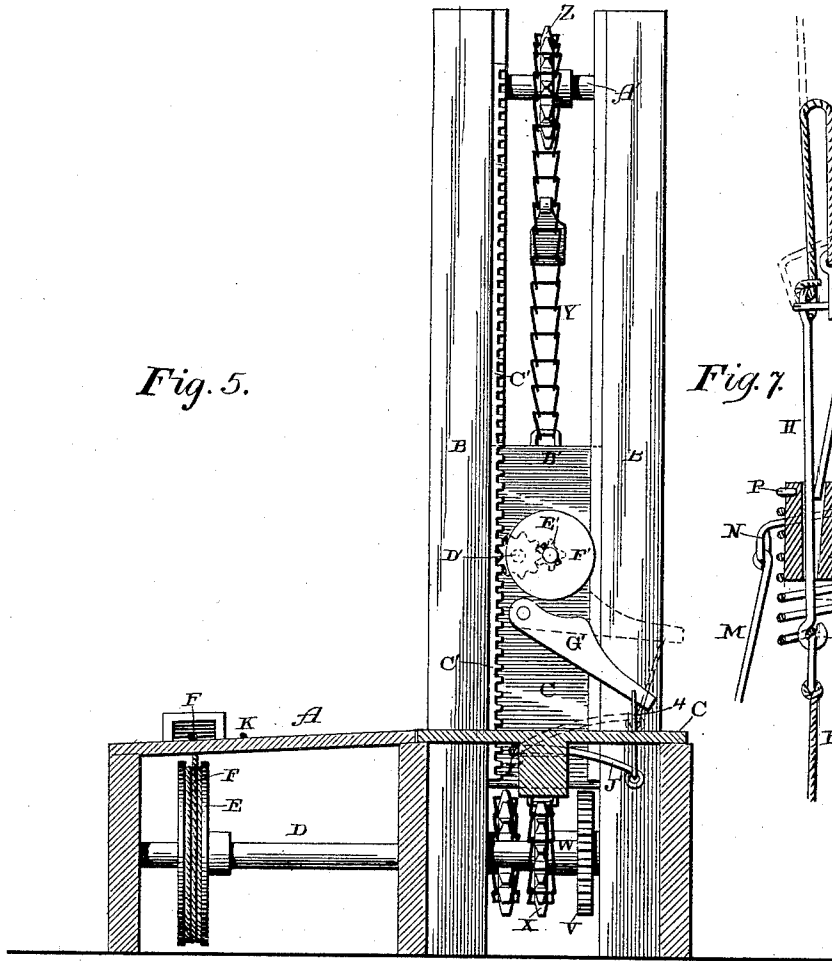


Fig. 7.

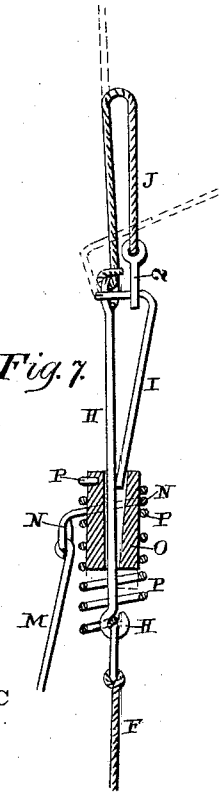


Fig. 6.

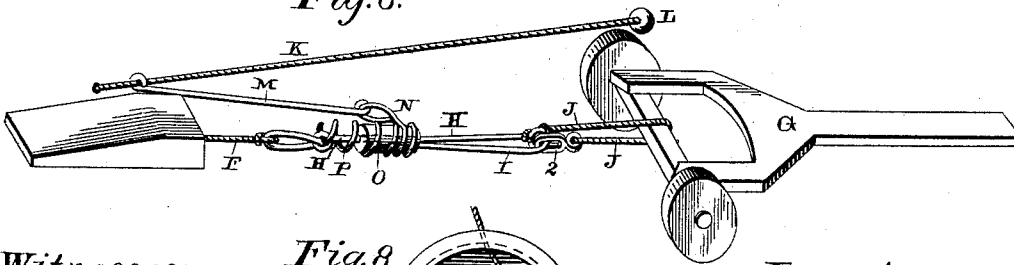
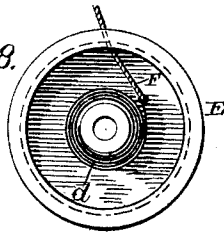


Fig. 8.



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UNITED STATES PATENT OFFICE.

MILTON T. ROSE, OF ORLAND, INDIANA.

COAL OR GRAIN ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 449,495, dated March 31, 1891.

Application filed October 14, 1890. Serial No. 368,133. (No model.)

To all whom it may concern:

Be it known that I, MILTON T. ROSE, of Orland, in the county of Steuben and State of Indiana, have invented certain new and useful
5 Improvements in Coal or Grain Elevators; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in grain or coal elevators; and it consists in the arrangement and combination of parts,
15 which will be more fully described hereinafter.

The objects of my invention are to provide an elevator apparatus for raising the car or hopper in which the article to be elevated is
20 placed, so that the article can be emptied in bulk directly into the top of the bin; to use the same team which hauled the article to the elevator to raise it to the desired elevation; to attach to the operating rope or chain an
25 automatically-acting device for releasing the team as soon as the car is raised to the desired height, and to connect the catches which prevent the descent of the elevator-car to the lever which controls its descent, so
30 that the catches will be thrown out of gear only when the elevator-car is descending.

Figures 1 and 2 are side elevations taken from opposite sides of the elevator apparatus. Fig. 3 is a plan view. Fig. 4 is a side elevation taken at right angles to Figs. 1 and 2.
35 Fig. 5 is a vertical section taken through the elevator. Fig. 6 is an enlarged view of the detaching apparatus. Fig. 7 is a detached view of the detaching mechanism. Fig. 8 is
40 detached side elevation of the operating-drum.

A represents the platform or frame-work upon which the loaded wagon is drawn, and B the four vertical uprights, which serve as
45 guides for the elevator car or cage C in its vertical movements.

Journalled in the frame-work is the operating-shaft D, to which the operating-drum E is secured, and to which drum the rope or
50 chain F is fastened at one end. As the elevator car or cage C descends from its own

weight this rope or chain is wound around the drum, and then when the elevator car or cage is to be raised the same team which drew the load to the elevator car or cage is
55 attached to the rope F by passing the rope J around the rear axle of the wagon G, coupling the link on end of rope J to angular catch I. Leaving the elevator, the team draws the rope F, operating the drum E. 60

In order to automatically detach the team from the rope or chain F as soon as the elevator car or cage C has reached the desired height, there is secured to the outer end of the rope or chain F a rod H, and to the outer end
65 of this rod is loosely connected the angular catch I and the rope J. To the free end of the rope J is secured a link or eye 2, which, after the rope J has been passed around the axle of the vehicle G, is made to catch over
70 the angular catch I.

In order to regulate the exact distance that the team shall move, a rope, wire, or chain K is used, and this rope, wire, or chain is fast-
75 ened to the platform A at one end and has its outer free end provided with a knot, ball, or stop L of any kind, and this outer end of the rope is passed through a loop in a rod M, which has its other end attached to a wire loop N, fastened to a sliding block O, which is placed
80 upon the rod H. This block O is rigidly secured to the outer end of a spiral spring P, which spring has its inner end fastened to the inner end of the rod H. The spring keeps the block O forced outward upon the rod H
85 until the length of the rope or chain K is reached, and then this rope or chain exerts a backward pull through the rod connected to its outer end upon the block, and thus draws the block back upon the rod H against the
90 tension of the spring, so as to cause the block to release the rear end of the angular catch I and allow it to spring outward, as shown by dotted lines. When the ring or loop 2 slips
95 off the triangular catch, it releases the vehicle G. The rear end of the angular catch I is made to catch in a recess in the outer end of the block, and hence when this block is drawn back the end of the angular lever is released.

In attaching the rope F to the drum E there
100 is a spring d, to which the lower end of the rope F is attached to enable the revolution to

cease just at the right time, and yet give the chain a little more forward motion to insure the automatic detachment.

Upon the shaft D are secured the sprocket-wheel Q and spur-wheel R. Around the sprocket-wheel Q is passed a sprocket-chain S, which extends across between the uprights B and around a second sprocket-wheel T upon the shaft U for the purpose of conveying the motion of the operating-shaft D to the shaft U. The spur-wheel R meshes with a similar wheel V upon the shaft W, and upon this shaft W is placed a sprocket-wheel X.

Around the two sprocket-wheels N' X pass the two sprocket-chains Y, which also pass over the sprocket-wheels Z Z' upon the shafts A' A², journaled upon the upper ends of the uprights B, both ends of the chains being fastened to the elevator car or cage C, which moves in suitable grooves prepared for it between the uprights. On the outside of the uprights B and attached to the sprocket-chains Y are two weights *a*, one on each side of the elevator, of suitable weight to prevent the elevator car or cage C from dropping too rapidly.

The elevator car or cage C is provided with guides B' upon its top, so that the car or hopper *b* upon it will be guided in its movements back and forth.

In order to regulate the descent of the car, there is secured to one of the uprights B a rack C', and secured to the elevator car or cage is a gear-wheel D', which meshes with a pinion E' upon the shaft of the friction-wheel F'. Pivoted to the elevator-car is a friction-lever G', which by being raised forcibly in contact with the wheel F' regulates the speed at which the elevator-car shall descend, and in descending operates the shaft D in such a manner as to cause the chain or rope F to be wound upon the drum. Secured to the outer side of each of the ends of the elevator car or cage C are the two catches H', which are long enough at their inner ends to overlap each other, and which at their outer ends catch in recesses or notches made in the inner sides of the uprights B, for the purpose of checking the descent of the elevator car or cage. Projecting across and through the elevator car or cage is a rock-shaft I', which has its ends turned at an angle, and which bent ends catch under the catches H', for the purpose of raising them at their inner ends and withdrawing their shorter pointed ends from the recesses or notches in the inner sides of the uprights. In order to operate this shaft I', so as to cause it to detach the catch H' at just the proper time there is secured to this shaft I' an arm or lever J', and this arm or lever J' is connected to the lever G' by means of a cord, wire, or chain. When the lever G' is forced against the wheel F', the arm or lever J' causes the shaft I' to partially revolve and thus raise the catches H', so as to leave the elevator-car free to descend. Should the elevator-car at any time begin to descend of its

own gravity before it is desired, the catches H' would arrest its descent, and thus prevent any possibility of the car falling. The inner ends of the catches are sufficiently heavy to force the outer pointed ends against the uprights; and hence the greater the pressure upon the car the stronger the hold the catches take upon the uprights. The elevator-car is raised to the height of the plane of the top of the bins into which the coal, grain, or other article is to be emptied. The car or hopper is run off from the elevator-platform and to a position over the bins in which the contents of the car or hopper is to be deposited. After the deposit the car is run back upon the elevator-platform and descends with it to the platform A.

By means of the construction here shown it will be seen that the team which drew the load is used to elevate it upon the elevator-platform.

Having thus described my invention, I claim—

1. The combination, with an operating-shaft of an elevator apparatus having a drum and a rope which passes around the drum, of a catch connected to the outer end of the said rope and a stop which trips the said catch at a predetermined point, for the purpose shown and described.

2. The combination of the drum, a rope which passes around the drum, a catch connected to the outer end of the rope, a vehicle with which the catch is connected, and a tripping-rope rigidly connected at one end and its opposite end connected with a trip for releasing the catch when the end of the rope is reached, substantially as described.

3. A detaching device for the purpose described, connected to the end of an elevator-rope, consisting of a rod, which is connected at one end to the outer end of the said rope, a lever loosely connected at one end to the outer end of the said rod, a sliding spring-actuated block placed upon the said rod, which engages the free end of the said lever, and a tripping-stop, which operates the said block for releasing the free end of the lever, substantially as shown and described.

4. The combination of the uprights, the car which is placed between them, the mechanism for raising and lowering the car, the automatically-acting catches, which support the elevator at any desired height, and which overlap each other at their inner ends, a lever for operating the catches, a friction wheel and lever for regulating the descent of the car, and a rod connecting the friction-lever and the lever which operates the catches, combined to operate in the manner substantially as described.

5. In an elevator, the combination of the operating-shaft D, the uprights, the car, wheels at the upper ends of the uprights, a sprocket and a gear wheel upon the shaft D, a shaft at the lower end of the uprights adjacent to the said operating-shaft having a

gear-wheel, which engages the gear on the
operating-shaft, and a sprocket-wheel, a shaft
at the opposite lower end of the uprights car-
rying sprocket-wheels, vertical chains, which
5 pass around the said wheels and are secured
to the car, and a horizontal chain, which con-
nects the lower sprocket-wheel and the said
operating-shaft sprocket-wheel, substantially
as shown and described.

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

MILTON T. ROSE.

Witnesses:

E. CLAY,
P. E. SPERRY.