No. 744,409. PATENTED NOV. 17, 1903.

D. E. ROWLAND.

HAY ELEVATOR.

APPLICATION FILED JULY 2, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

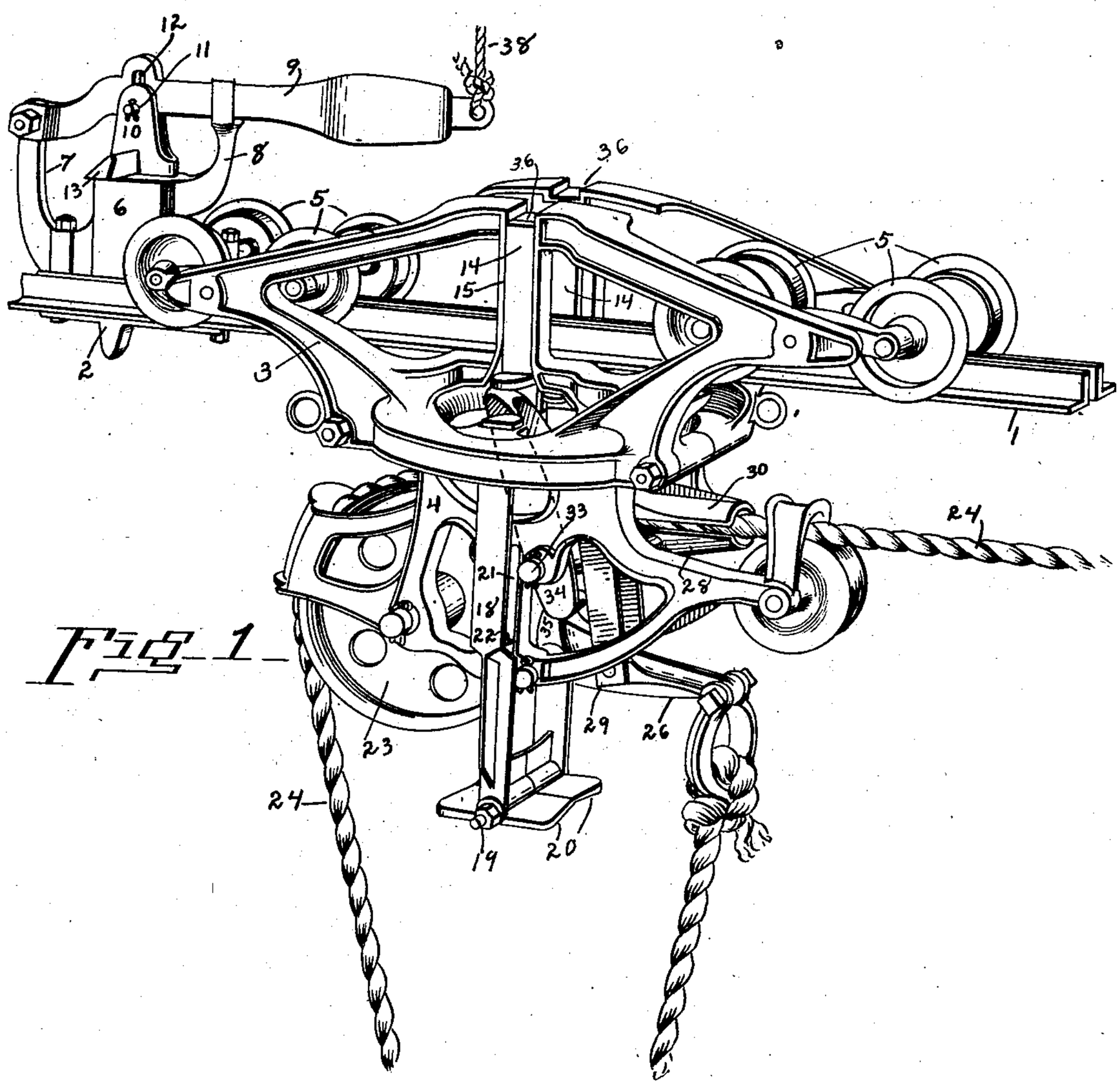

FIG. 1.

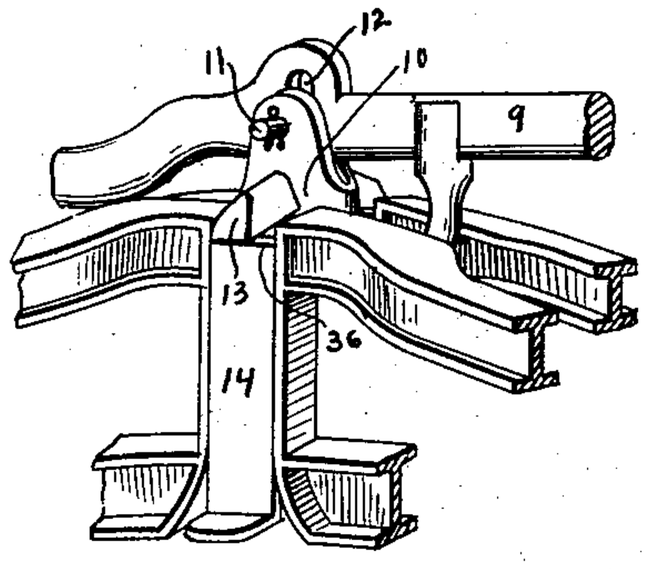

FIG. 2.

WITNESSES:

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NO MODEL. 2 SHEETS—SHEET 2.

Fig 3

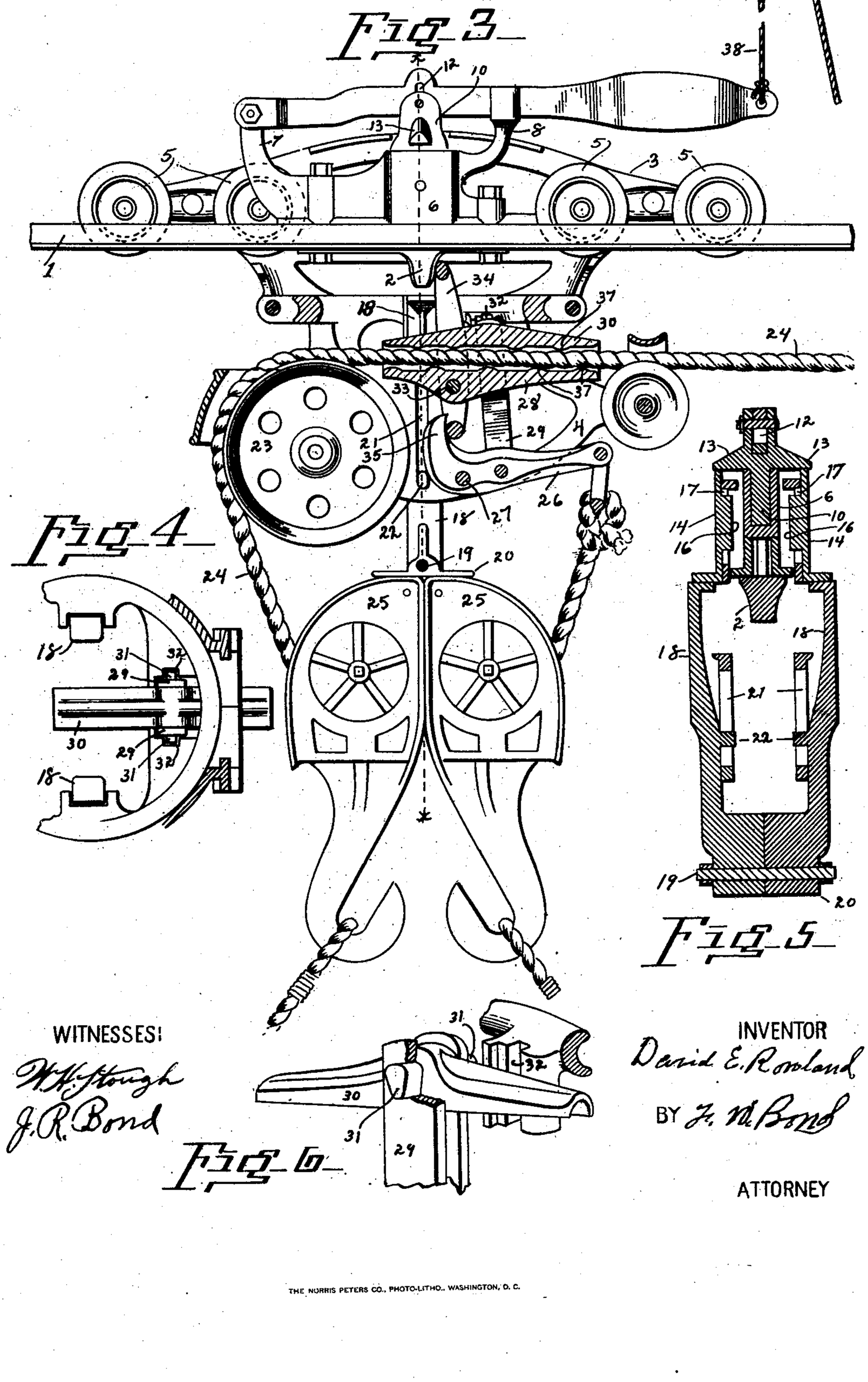

Fig 4

Fig 5

Fig 6

WITNESSES:

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No. 744,409. Patented November 17, 1903.

UNITED STATES PATENT OFFICE.

DAVID E. ROWLAND, OF CANTON, OHIO, ASSIGNOR TO THE NEY MANUFACTURING COMPANY, OF CANTON, OHIO, A CORPORATION.

HAY-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 744,409, dated November 17, 1903.

Application filed July 2, 1903. Serial No. 164,092. (No model.)

To all whom it may concern:

Be it known that I, DAVID E. ROWLAND, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Hay-Elevators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon, in which—

Figure 1 is a perspective view showing the carriage unlocked and in condition to move along the track. Fig. 2 is a view showing a portion of the upper frame and illustrating a portion of the controlling-lever. Fig. 3 is a vertical section of the carriage, showing the different parts properly arranged and the load elevated to a point to release the carriage upon the track. Fig. 4 is a view showing a portion of the top or upper end of the lower or swiveled section of the carriage, also showing a top view of the upper or movable rope-clamp. Fig. 5 is a vertical transverse section on line *x x*, Fig. 3, except in Fig. 3 the sling-head is illustrated and the line extended through the head. Fig. 6 is a perspective view of the upper or movable rope-clamp, showing the top or upper ends of the operating-links and also showing a portion of the lower or swiveled frame of the carrier.

The present invention has relation to hay-elevators designed to travel back and forth upon an elevated track and to be locked against travel upon the track during the time a load is being elevated; and it consists in the novel construction and arrangement hereinafter described, and particularly pointed out in the claims.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, 1 represents the track, which of course is formed of any desired length and is supported at the desired elevation by suitable hangers of ordinary construction, which track and hangers within themselves form no part of the present invention, except that a track and the necessary appliances for suspending the track must be employed to carry out the proper operation of the different parts of the invention, to lock the carriage upon the track, to release the carriage, so that it can travel back and forth upon the track, and at the same time hold the carriage in fixed position upon the track during the time a load is being elevated vertically.

To the track 1 is attached the stop-block 2, which stop-block is located upon the track at a point directly above the point or place from which the load is to be elevated. It will of course be understood that the stop-block need not necessarily be directly over the point from which the load is to be elevated, but substantially so.

The carriage proper is formed in two sections or parts 3 and 4, which parts 3 and 4 constitute the frame of the carriage. The part 3, which is the upper one, is provided with the traveling wheels 5, which traveling wheels are properly journaled to the upper frame 3. In the drawings eight traveling wheels are illustrated; but it will be understood that a less number may be employed without departing from the nature of my invention.

Directly above the stop-block 2 is located an upright socket 6, which upright socket is provided with the bars 7 and 8, the bar 7 being for the purpose of providing a means for pivotally attaching the controlling-lever 9 and the bar 8 being for the purpose of preventing any undue lateral movement of the controlling-lever 9 and at the same time forming a guide for said lever as it moves vertically upon its pivotal point.

Within the socket 6 is located the bottom or lower end of the sliding head 10, which sliding head is extended upward a short distance above the top or upper end of the socket 6, as illustrated in the drawings, the upper end of said sliding head being bifurcated and the controlling-lever 9 connected to the bifurcated portion of the sliding head 10 by means of a rivet 11 or its equivalent.

For the purpose of allowing the sliding head 10 to move up and down independent of the controlling-lever 9 said controlling-lever is provided with the elongated slot 12, which elongated slot allows the sliding head 10 to move up and down without moving the controlling-lever 9.

The sliding head 10 is provided with the lateral lugs 13, which lateral lugs are for the purpose hereinafter described.

To the frame-section 3 are slidably attached the bars 14, which bars move up and down in the guides 15, the bars being provided with suitable flanges 16, located in the slots 17, by which arrangement the bars 14 are held in proper operative position with reference to the lugs 13.

Directly below the sliding bars 14 and to the lowered swiveled frame 4 are attached the sliding bars 18, which sliding bars are connected together at their bottom or lower ends by means of the cross-bolt 19 or its equivalent, and the lower ends of said sliding bars 8 provided with the bump blocks or heads 20.

It will be understood that the sliding bars 18 should be so attached that they will have a limited movement up and down, and for the purpose of providing such limited movement the lower or swiveled frame 4 is provided with slots 21 and in which slots are located lugs or their equivalents 22, which lugs strike the lower ends of the slots 21 and limit the downward movement of the bars 18.

To the swiveled portion 4 of the carriage-frame proper is journaled the pulley 23, over which pulley extends the elevating-rope 24, said elevating-rope extending downward and under an elevating-head, such as 25, and thence upward and is connected to the outer end of the lever 26, which lever is pivotally attached to the swiveled frame 4 by means of the cross-bolt 27 or its equivalent.

To the swiveled frame 4 is attached the lower rope-clamping jaw 28, which is held by suitable lugs or their equivalents. It will be understood that it is immaterial as to how the rope-clamp jaw 28 is held, inasmuch as the only object in view is to provide a means for clamping the elevating-rope for the purpose hereinafter described.

To the lever 26 are attached the links 29, which links extend upward and are attached to the upper rope-clamping jaw 30 by means of the lateral lugs or ears 31, which lugs or ears are formed of sufficient length that they will enter the grooves 32, formed in the lower swiveled frame 4 and best illustrated in Fig. 4.

To the lower swiveled frame 4 is pivotally attached, by means of the cross pin or bolt 33, the rock-bar 34, which rock-bar is so formed that the rope-clamping jaws 28 and 30 can extend through said rock-bar, as illustrated in Fig. 3. The rock-bar 34 is formed of such a length that as the carriage approaches the stop-block 2 said rock-bar will strike against the stop-block 2, and any further movement of the carriage will rock the bar 34 to the right, as shown in Fig. 3, which in turn moves the lower end of the rock-bar 34 to the left or in the opposite direction, which movement elevates the outer end of the lever 26 by means of the upward-curved extension 35, formed upon the lever 26, and the lower end of the rock-bar pressing against said upward-curved extension. As the outer end of the lever 26 is moved upward its upward movement will carry with it the upper rope-clamp jaw 30 by means of the links 29, which upward movement releases the elevating-rope 24 and permits the elevating-head 25 to move up and down or to and from the traveling carriage independent of any movement of the traveling carriage upon the track. It will, however, be understood that when the upper end of the rock-bar 34 is moved away from the stop-block 2 the down-pull of the elevating-rope 24 upon the outer end of the lever 26 will lower the outer end of said lever, which in turn brings the upper clamp-jaw 30 down upon the elevating-rope and clamps said elevating-rope between the upper and lower rope-clamp jaws, at which time the carriage is moved along the track with its load.

In order to release the carriage proper, so that it may travel upon the track, the lugs 13 must be lifted from the notches 36, and in order to accomplish this the bump-heads 20 are so located and arranged that as the elevating-head 25 comes in contact with said bump-heads the bars 18 will be elevated and their tops or upper ends come in contact with the bottom or lower ends of the sliding bars 14, and the top or upper ends of said sliding bars will strike the bottom or under sides of the lugs 13 and lift them, together with the head 10, so that they will become entirely detached from the notches 36, at which time the carriage is free to move along and upon the track 1, and at the same time the down-pull of the lever 26 securely clamps the elevating-rope, so that it cannot slide or slip through the jaws 28 and 30.

It will be understood that the stop-block 2 should be so located that when the carriage proper is locked upon the track the rope-clamping jaws will be spaced from each other, so that the elevating-rope is free to move through the clamp; but the moment the carriage is moved the lever 26 comes down and clamps the rope. For the purpose of better clamping the rope and preventing the same from moving through the jaws 28 and 30 when it is desired to have the rope move the carriage upon the track said clamps are provided with the ribs 37 and said ribs so located that one will not come opposite the other, or, in other words, the ribs upon the upper clamping-jaws are located intermediate the ribs upon the lower one, so that the rope can be bound between the ribs without great injury to the rope and at the same time better clamp the rope.

In elevators of the class to which this invention pertains it is frequently desirable to move the carriage upon the track prior to the time the elevating-head 25 reaches the carriage-releasing mechanism, and in order to accomplish this the controlling-lever 9 is provided, which controlling-lever when elevated

at its free end will lift the sliding head 10 and disengage the lugs 13 from the notches 36, at which time the carriage is free to move in the same manner that it does move when released by the release mechanism carried by the swiveled frame 4.

It will be understood that a rope, such as 38, should be attached to the free end of the controlling-lever 9 and extended upward over a pulley 39, which pulley is suspended a short distance above the track 1 and the controlling-rope 38 extended down to within easy reach of a person standing on the floor or ground, as the case may be.

It will be understood that by providing the controlling-lever 9 with the elongated slot 12 when the carriage is released by means of the elevating-head 25 striking the bump-heads 20 the controlling-lever 9 will not be moved upward, but the connecting-bolt 11 will move in the elongated slot without disturbing in any manner the controlling-lever 9; but when the controlling-lever 9 is elevated it will carry with it the sliding head, and thereby release the carriage.

For the purpose of moving the sliding head 10 upward, so that the lateral lugs 13 may be dropped into the notches 36, the upper part of the frame 3 is curved, so that the lugs 13 will ride upon the upper edges of said curved portions when they come under the lugs 13.

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

1. In a hay-elevator a track or way, a carriage movable thereon, and a stop-block secured to the track, an upright socket fixed to the track, said upright socket provided with a sliding head, said sliding head provided with lateral lugs, a pivoted controlling-lever provided with a slot and said controlling-lever connected to the sliding head, a traveling carriage consisting of two frames, the lowermost one swiveled to the upper one and the upper frame provided with notches, sliding bars located directly below the notches and connected to the uppermost frame of the carriage, sliding bars located below the sliding bars of the upper or non-swiveled frame, the bottom or lower ends of which are provided with bump-heads, a rock-bar pivoted to the frame and its upper end located in the path of the stop-head upon the track, a lever provided with an upward-curved extension, rope-clamp jaws, one located above the other and the upper one movable, and links connected to the upper rope-clamp jaws and to the lever, substantially as and for the purpose specified.

2. In a hay-elevator of the class described the combination of a track or way, a stop-block fixed thereto and a controlling-lever pivotally attached at one end and provided with a slot, a sliding head controlled by the operating-lever, said sliding head capable of movement independent of the controlling-lever, lugs located upon the sliding head, a carriage provided with notches upon its upper portion, and means for clamping the elevating-rope when the carriage is released to travel upon the track or way, substantially as and for the purpose specified.

3. In a hay-elevator of the class described a track or way, and a traveling carriage located thereon, said traveling carriage provided with notches upon its upper portion, a controlling-lever held in fixed position upon the track or way, a sliding head movable independent of the controlling-lever, mechanism for operating the sliding head, rope-clamp jaws and means for moving one of the rope-clamp jaws toward the other clamp-jaw, substantially as and for the purpose specified.

4. In a hay-elevator of the class described a track or way, a stop-block secured thereto, a socket-post fixed to the track and provided with a guide-arm, and an arm adapted to pivot a controlling-lever thereto, a controlling-lever guided by the guide-arm, and a traveling carriage adapted to travel back and forth upon a track, and an elevating-rope carrying an elevating-head and mechanism for releasing the carriage independent of the controlling-lever, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DAVID E. ROWLAND.

Witnesses:
J. A. JEFFERS,
F. N. BOND.