

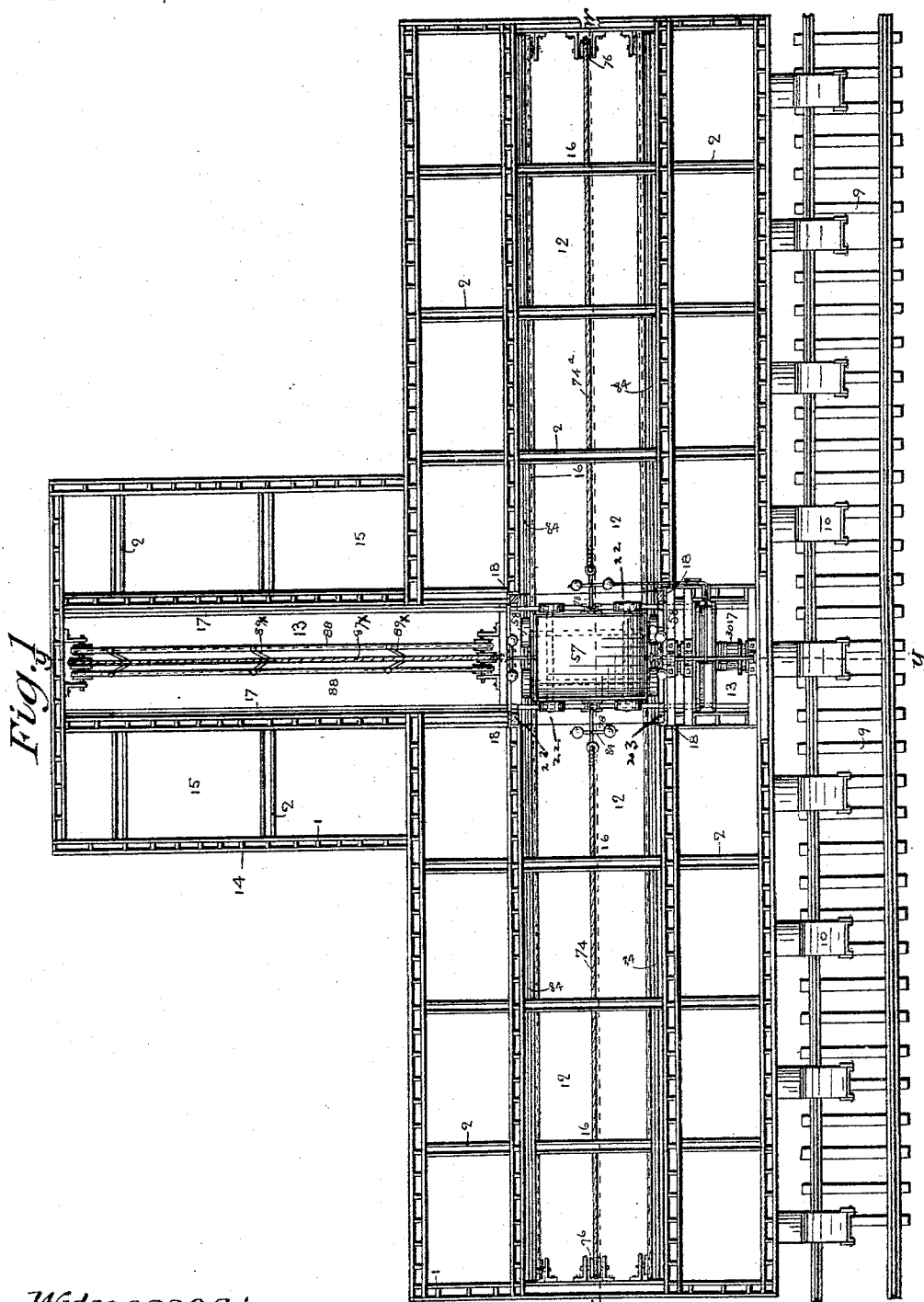
(No Model.)

8 Sheets—Sheet 1.

G. WENZELMANN.
ELEVATOR AND DUMP.

No. 569,697.

Patented Oct. 20, 1896.



Witnesses:

W. H. Rowe.
A. H. Schafer.

Inventor:-

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By his Atty. O. B. Reichelt.

(No Model.)

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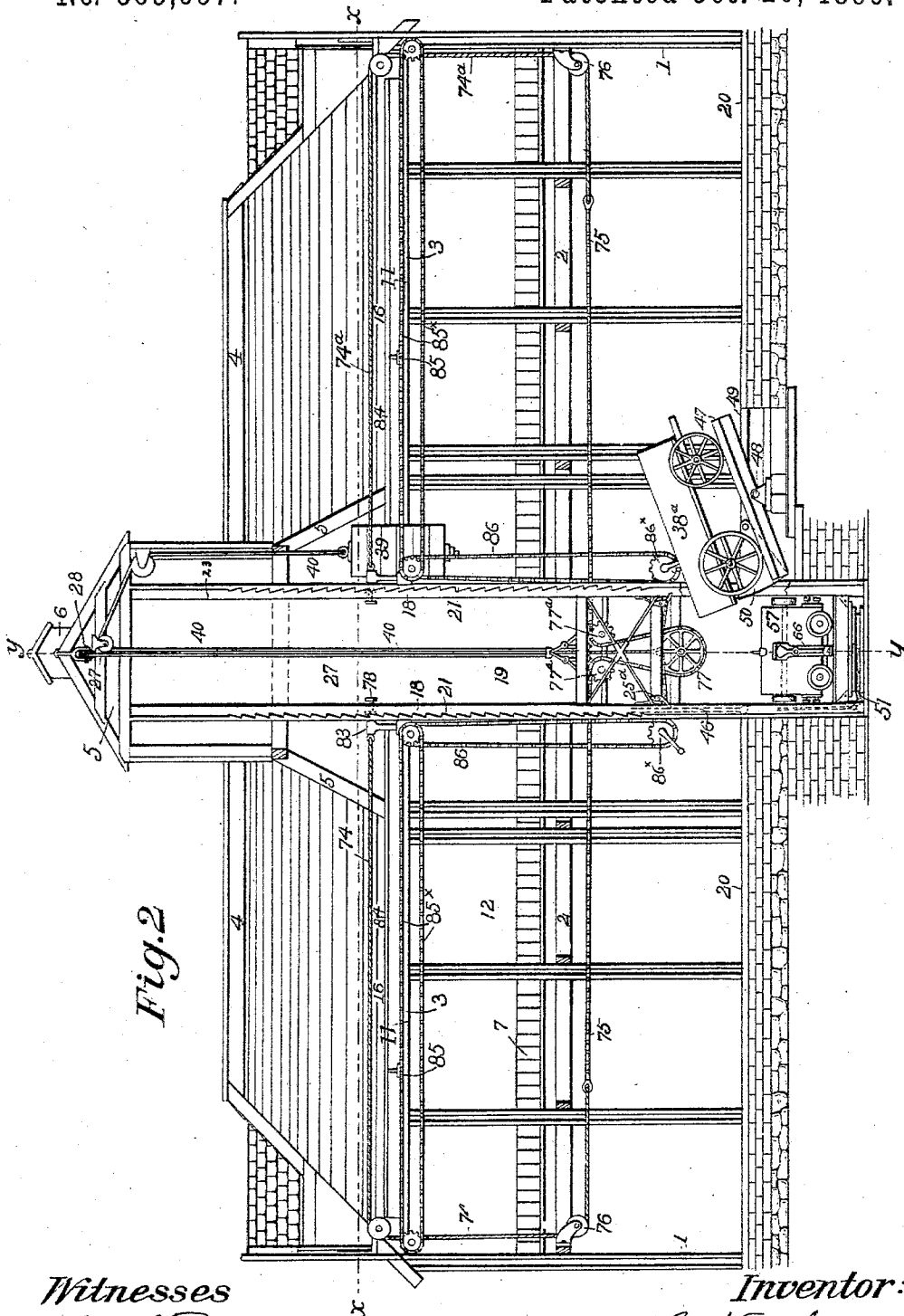


Fig. 2

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(No Model.)

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Fig. 18

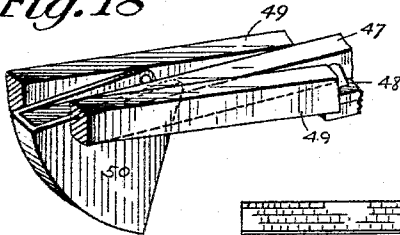
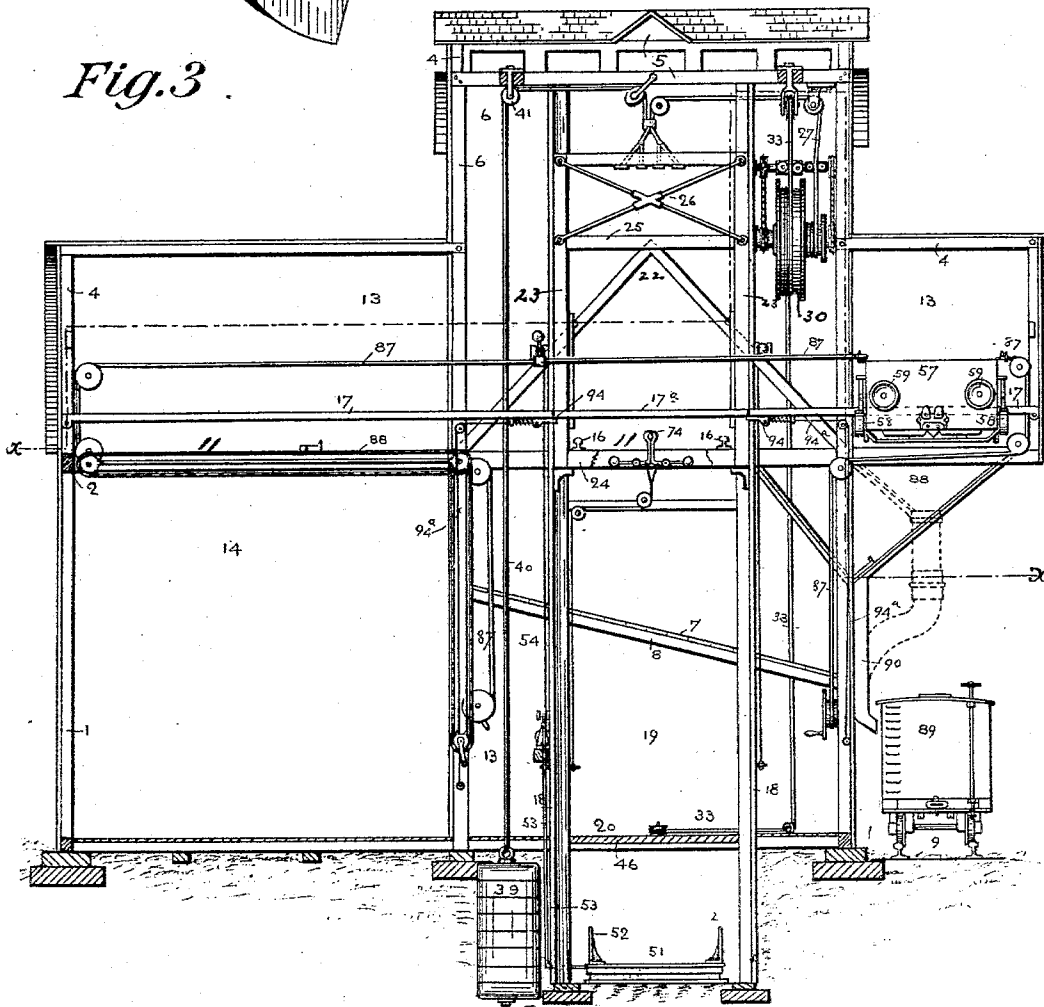


Fig. 3



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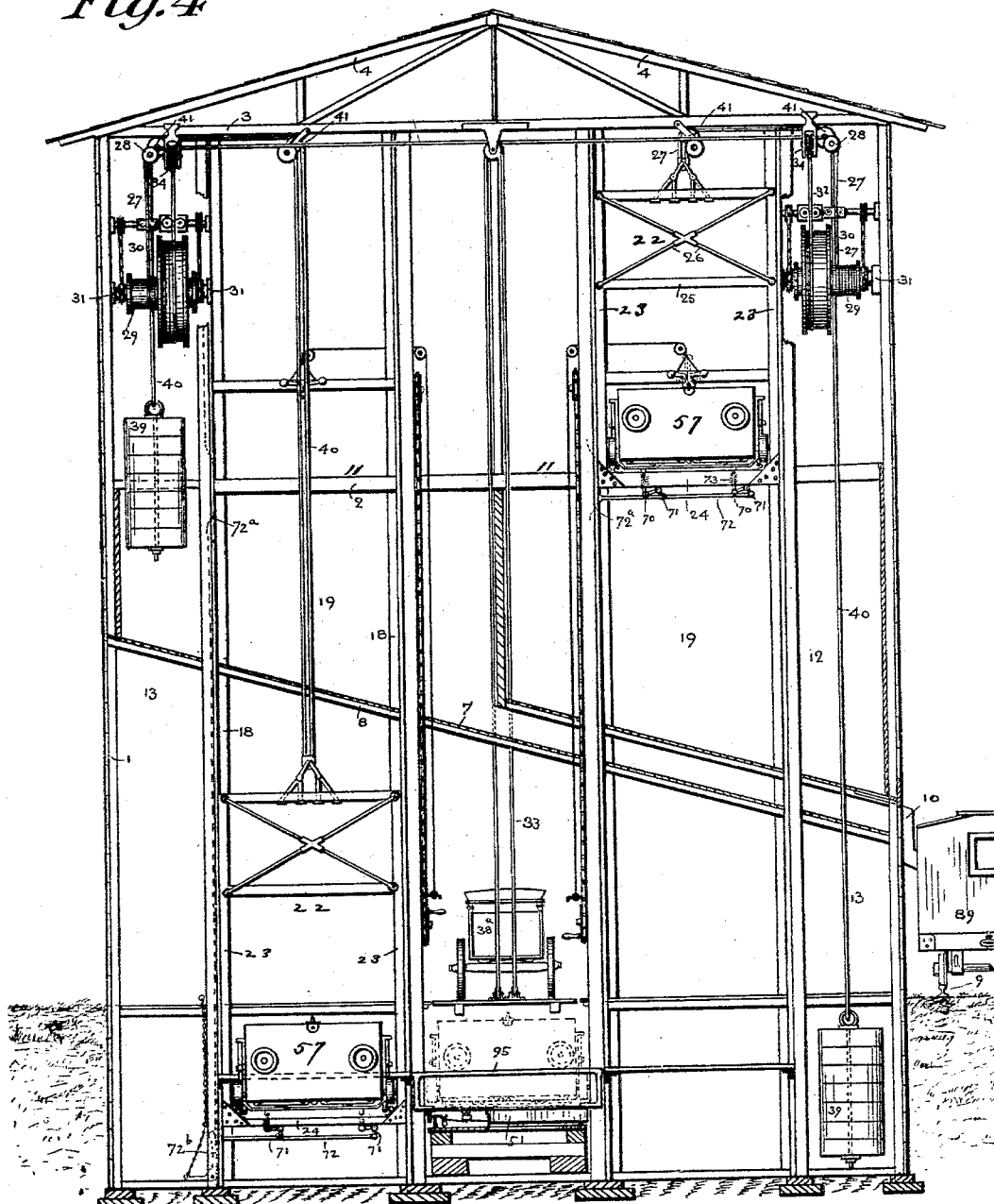
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Fig. 4



Witnesses:-

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Fig. 5

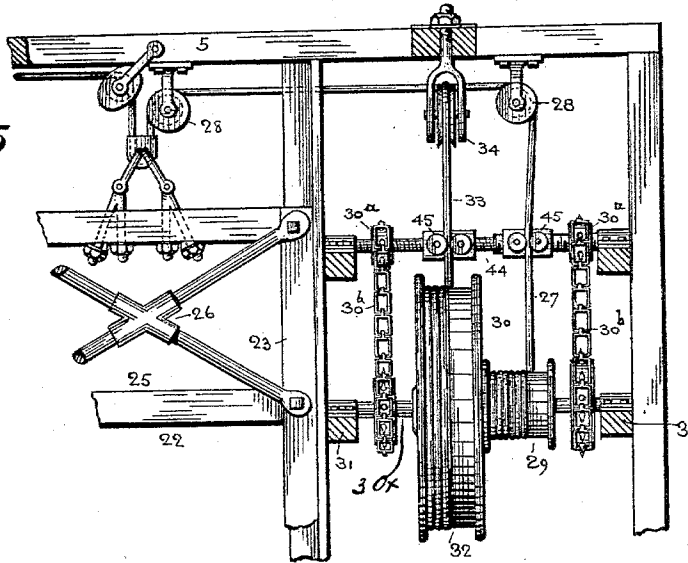


Fig. 7

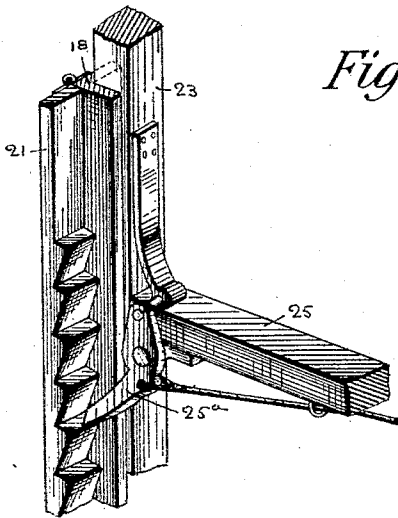


Fig. 6

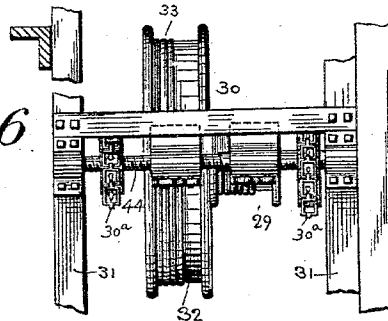
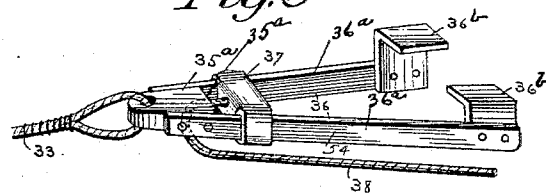


Fig. 8



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(No Model.)

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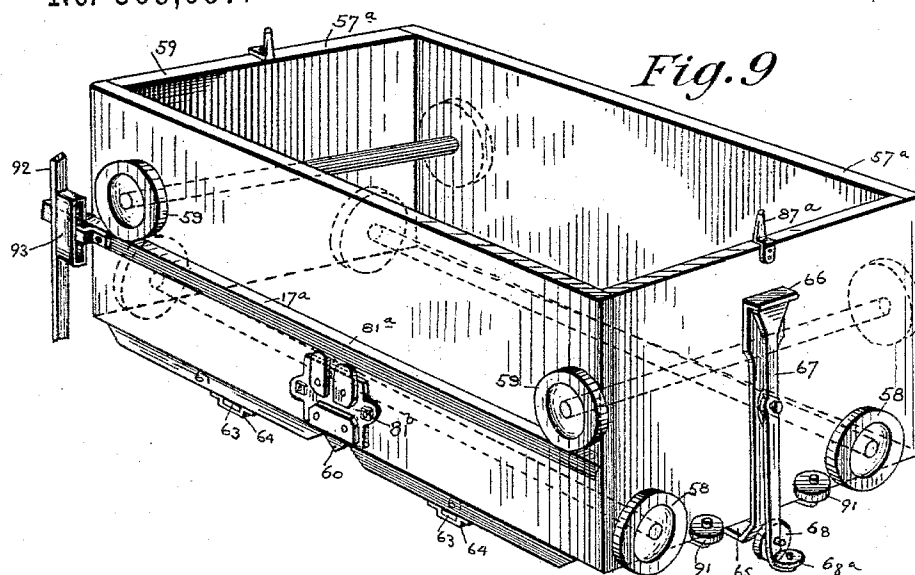


Fig. 9

Fig. 10

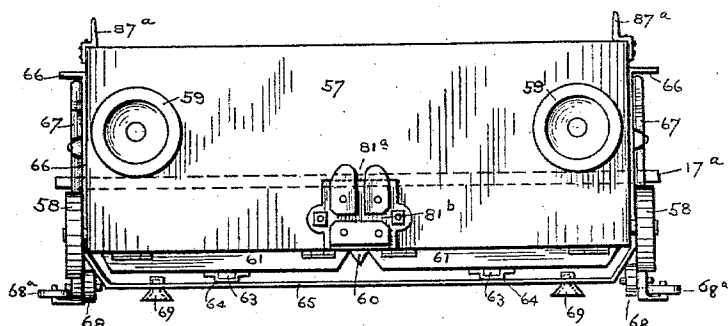
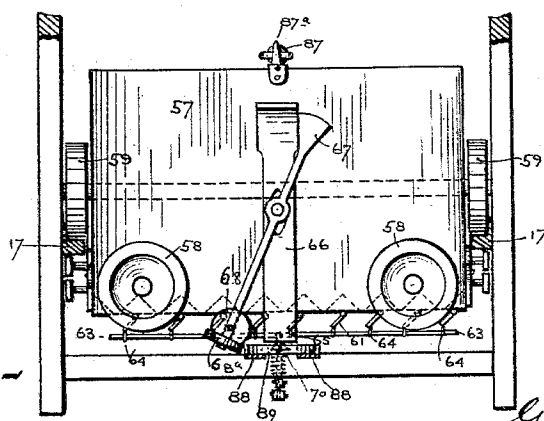


Fig. 11



Witnesses:-

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(No Model.)

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Fig. 12

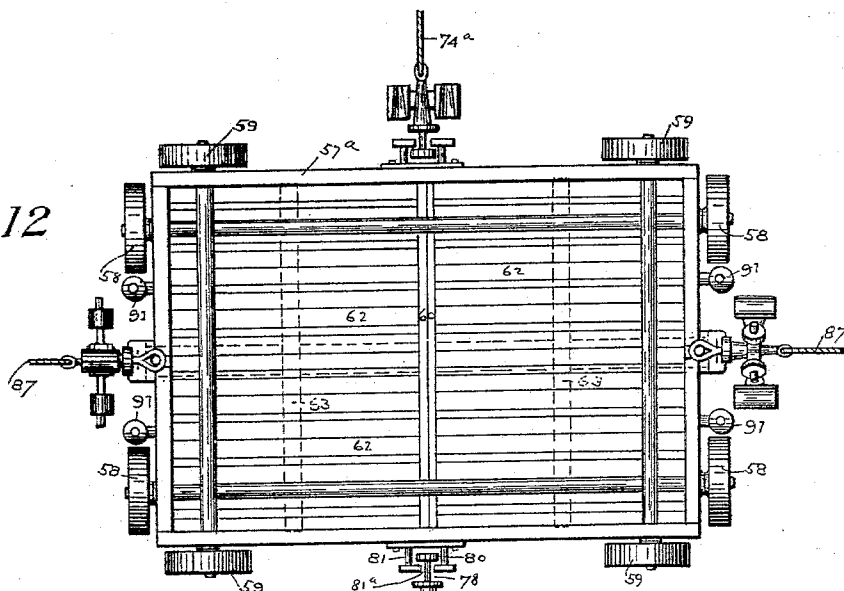


Fig. 16

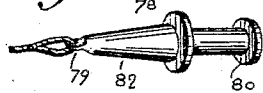


Fig. 15

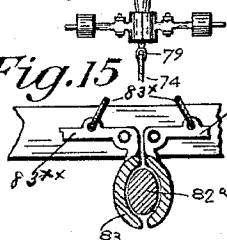


Fig. 14

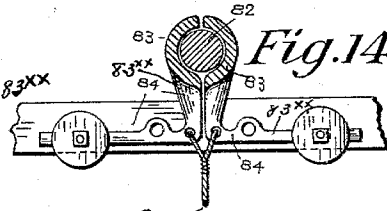


Fig. 13

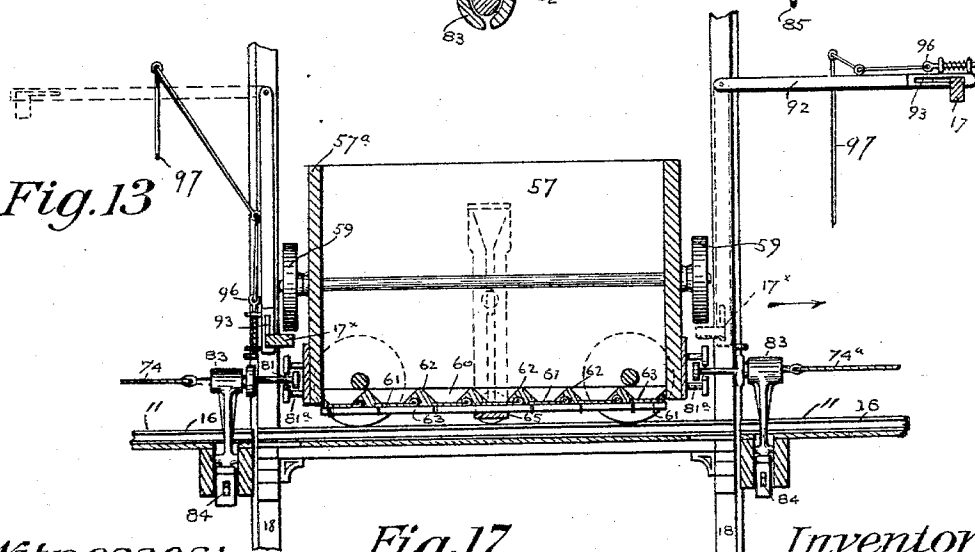
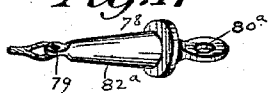


Fig. 17



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(No Model.)

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Fig. 21

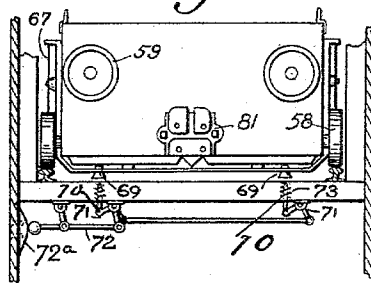


Fig. 19

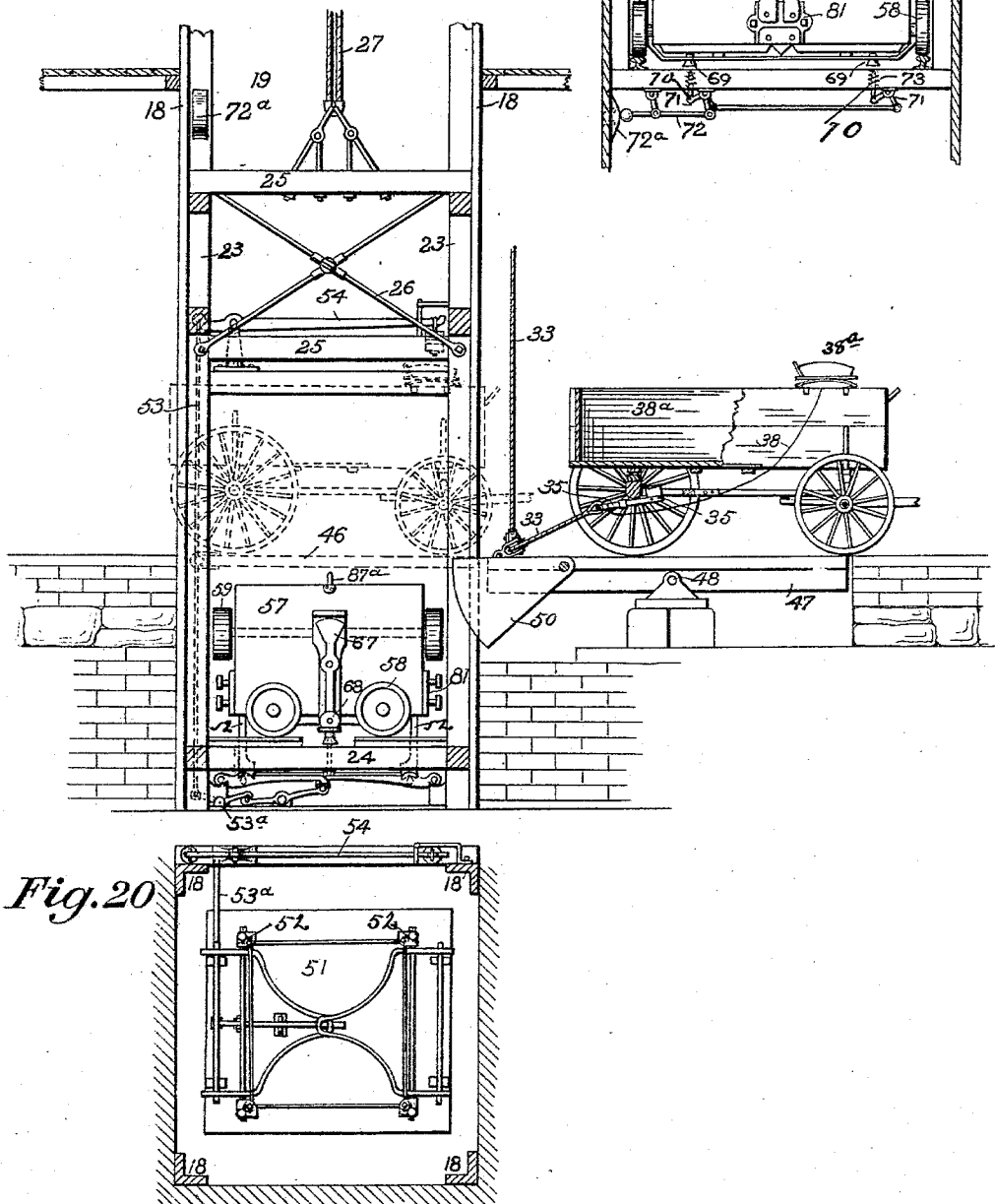
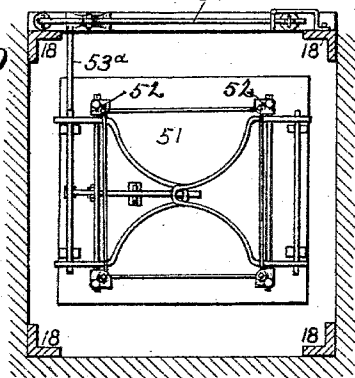


Fig. 20



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UNITED STATES PATENT OFFICE.

GUSTAVE WENZELMANN, OF MISSAL, ILLINOIS.

ELEVATOR AND DUMP.

SPECIFICATION forming part of Letters Patent No. 569,697, dated October 20, 1896.

Application filed July 27, 1895. Serial No. 557,309. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVE WENZELMANN, a citizen of the United States, and a resident of Missal, in the county of Livingston and State of Illinois, have invented certain new and useful Improvements in Elevators and Dumps, of which the following is a specification.

My invention relates especially to elevators for storing and handling grain, although some of the devices herein claimed may be used upon other forms of elevators and for storing and handling other commodities than grain.

The invention consists generally in special combinations and arrangements of parts whereby the loaded wagon may be driven through a central longitudinal passage beneath the storage-bin, the contents unloaded into a dumping-car by a tilting floor-beam and grain-shield to be connected in a novel manner with and to be raised and lowered upon an elevator-cage by means of the grain-wagon and team when the latter is driven from the elevator, the car being adapted to move upon either of two tracks placed at right angles one to the other and dumped into any one of a series of bins suitably arranged either for a single or a double elevator either carried at right angles to a storage-bin or dumped directly from the elevator-car into a railroad grain-car outside the building, a novel mechanism for placing and steadying the car upon the elevator-cage, for weighing the car independently of the cage, for closing, locking, and releasing the doors of the dumping-car, for moving the car to any position upon the upper or dumping floor from one side or from the other side of the elevator; and my invention further consists in certain other devices involving details of construction particularly hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a horizontal sectional plan of my improved elevator in line *x x* of Fig. 2; Fig. 2, a central longitudinal section thereof with the elevator-car at the bottom of the shaft while being loaded. Fig. 3 is a transverse vertical section in line *y y* of Fig. 2, showing a single-elevator system; Fig. 4, a similar view of a double-elevator system in the same line of section; Fig. 5, an enlarged elevation of the winding mechanism for the elevator-cage;

Fig. 6, a similar plan view thereof; Fig. 7, an enlarged perspective of a safety rack-bar hinged to the elevator guide-rails; Fig. 8, a perspective view of a detachable grip at the end of the hoisting-cable to be attached to the wagon; Fig. 9, a perspective view of an elevator-car, and Fig. 10 a longitudinal elevation thereof with the grain-doors open; Fig. 11, an end elevation of a car on the elevated transverse track with the grain-doors open; Fig. 12, a plan of a car, showing the double cable-carrier connections; Fig. 13, a longitudinal section thereof, showing one set of cable-carrier connections and the lower part of the elevator-cage with one of the side-track gates lifted ready to move the car in the direction of the arrow; Fig. 14, a sectional elevation of one of the cable-bolt holders; Fig. 15, a similar view showing a modification thereof; Fig. 16, a perspective of one of the cable-bolts; Fig. 17, a similar view of a modified form of cable-bolt; Fig. 18, a perspective view of the grain-shield to be connected with the floor near the end of one of the tilting beams; Fig. 19, an enlarged sectional elevation of the lower part of the elevator-shaft with the cage therein and of the wagon with the rear portion of the box broken away, showing the grip-block of the elevator-cage cable attached thereto ready to hoist, and the wagon shown by dotted lines as just passing through the cage when the car is in the pit; Fig. 20, a diagrammatic view of a scale-platform, showing its location in the elevator-shaft and the connection with the weight-beam; and Fig. 21, a transverse section through the car and floor of the cage when the latter is opposite the dumping-floor and showing the steady-pins and means for holding the car from rolling on the cage.

The elevator-building is framed in any preferred manner, the studding 1, joists 2, caps 3, rafters 4, cupola 5, and ventilator-framing 6 all joined together and covered with suitable material, a grain-bin floor 7, supported upon inclined beams 8, extending entirely across the building at such height as to leave head-room for a team and driver at its middle point and inclined at a suitable angle to discharge the grain at one side of the building adjacent to the railroad-track 9 through discharge-spouts 10, and a dumping-floor 11 (see

Figs. 2, 3, and 4) extends across to the caps 3 of the framing, the building being divided lengthwise into an equal number of compartments or bins 12 at each end thereof, with an intermediate transverse passage 13, which extends from the bottom to the roof of the cupola and ventilator-framing 6. A lateral wing 14 provides a large storage bin or bins 15, the roof of which is coextensive with that of the main building, and also carries an extension of the transverse cupola and ventilator, and the transverse passage 13 of the main building extends through it at the top or dumping floor of the building. A dumping-track 16, as shown in Figs. 1, 2, and 3 of the drawings, passes centrally through the length of the building and intersects a slightly-elevated cross-track 17 in the transverse passage 13, the planes of intersection being fitted with vertical corner-posts 18 of an elevator-shaft 19. The elevator-shaft at the first floor is located in the line of a longitudinal hauling track or floor 20, which extends through the building beneath the dumping-track and is open at each end to allow grain-wagons to pass into the building at one end and out at the other. Two of the corner-posts 18 have longitudinal ratchet-plates 21 hinged thereto at their ends, as shown in Fig. 7, to fold from one side to the adjacent side of the said posts and engage with spring-actuated dogs 25^a, secured to the cage-frame 25 of the elevator in a well-known manner, to provide a safety attachment to prevent the accidental fall of the loaded car while being lifted in the shaft, the said plates 21 being folded to the adjacent side of the posts to be out of the way of the cage-dogs when the unloaded car is lowered. This is a great advantage and safeguard when the grain is elevated by the wagon-team and windlass, as the car may be stopped at any required height without pulling back upon the hoisting apparatus and team should it be convenient to stop at any time.

The elevator-cage 22 has a frame formed of corner-posts 23, a set of cross end bracing 24 below, and a double set of similar cross-bracing 25 at the upper end of the cage connected by diagonal bracing 26, thus forming a trussed box-frame of great strength at the upper end of the elevator-cage, which will allow the cage when heavily loaded to be lifted with perfect security.

The cable 27 passes over pulleys 28 in the roof-framing and extends downwardly to a small barrel 29 of a differential hoisting-drum 30, and is wound thereon to raise and lower the elevator-cage. The drum 30 is secured to a shaft 30^x, supported in cross-pieces in the frame, and a larger barrel 32, upon the end of said drum 30, carries a second cable 33, which passes around it, then over an overhead pulley 34, down to the floor at one side, and thence crosswise to a pulley at the central line of the hauling-track.

The end of cable 33 is attached to a grip-block 35, provided with jaws 36, which are

made to engage with the reach at the forward side of the rear wagon-axle. The jaws 36 comprise spring-steel plates 36^a and heads 36^b, which latter are normally pressed out by the action of the said spring-plates. A sleeve 37 embraces the plates 36^a and is adapted to slide thereon toward the heads 36^b to draw them together or to slide toward the block 35 to allow the heads to be spread apart by the pressure of the said spring-plates and thus release the grip-block from engagement with the wagon reach or axle. A cord 38, attached to the sleeve 37, passes through a hole 35^a, formed in the block 35, to freely move therein, and is carried forward to the teamster upon the seat of the wagon 38^a, whereby the teamster may release the grip-block from the wagon by pulling upon the said cord 38 when the car has been raised to its full height in the elevator without the teamster leaving his seat, as shown in Fig. 19.

The cage and elevator-car and cable are balanced by counterbalance-weights 39 upon the end of a cable 40, which is attached to the upper end of the cage and passes over pulleys 41 on the roof-frame and moves with the weight up and down in the transverse passage 13 of the elevator.

A safety attachment of well-known construction, consisting of ratchet-bars 21 on the elevator-posts and spring-actuated dogs 25^a on the cage near the upper end thereof, as shown in Figs. 2 and 7, prevents the cage-frame and car from falling in the shaft should the counterbalance-supporting cable 40 be accidentally broken.

The cables 27 and 33 for raising and lowering the cage are guided by a simple device located above the hoisting-drum 30, consisting of screw-shafts 44, carrying pulley-blocks 45 to lay the cables in regular coils upon the barrels 29 and 32, respectively. Sprocket-wheels 30^a and chains 30^b upon the said shafts 44 gear with sprocket-wheels upon the ends of the said drum-shafts to give to each of them and to their pulley-blocks 45 their required speed.

When the cage is at the bottom of the elevator-shaft and the car below the level of the hauling track or floor 20, a trap-door 46, hinged to one side of the pit at the said floor-level, is dropped down to cover the pit and allow the loaded wagon to be drawn through the upper part of the elevator-cage and over the trap-door and pit, as shown by dotted lines in Fig. 19. The trap-door is then raised, as shown in Fig. 2, and the load is emptied into the car held upon the cage within the pit. The wagon is preferably dumped, as shown in Fig. 2, by means of tilting beams 47, fitted in the hauling-floor 20, to be flush therewith when ready to receive the wagon, and journalled at 48 to parallel floor-beams 49, which hold the tilting beams truly in place while they are allowed to swing down at the end nearest the pit and carry with them the wagon, which is thus caused to dump its load into

the car within the pit. A sheet-metal shield 50, having triangular sides and a connecting end piece, is pivoted at the free ends or angles to the sides of the floor-beams 49 to completely envelop the end of the tilting beam 47, and are adapted to be lifted up from below the hauling-floor 20 and held around the wheels and around the sides of the opening in the floor caused by the tilting of the beams 47 to prevent the grain from falling through said opening instead of into the car. (See Figs. 2 and 18.)

A scale 51 is placed in the bottom of the pit to fill the space in the floor of the elevator-cage between the side bracing, and pins 52 upon the scale-platform pass up through holes in the floor of the elevator-cage a suitable distance to bear against the bottom and four corners of the car during the last few inches of movement of the elevator-cage within the pit and lift the car from the floor of the cage and transfer the weight thereof onto the scales.

The details of construction of the scale shown in Figs. 19 and 20 are immaterial, as any ordinary platform-scale will answer the purpose. A rocking shaft 53^a, having one arm connected with the weighing-levers of the scale and also having an arm connected by a rod 53 with the short arm of the weight-beam 54, which latter may thus be located at one side of the elevator within convenient access of the elevator attendant, is clearly shown by diagram Fig. 20.

After the grain has been weighed the wagon and tilting beams are pulled down to a level with the floor. The hoisting-cable 33 is then attached to the axle or to the reach in advance of the axle of the empty wagon by means of a coupling, consisting of spring-actuated jaws 36, attached to an eye-block 35, the normal position of the jaws being open, and a sliding sleeve 37 to embrace the jaws 36 to pull and hold them together when attached to the reach, as shown in Fig. 8. A cord 38, secured to the sleeve, passes through the eye-block 35 and forward to the driver on his seat, as shown in Figs. 8 and 19, and when pulled tightly will draw the sleeve back from the jaws toward the eye-block and allow the coupling to be disengaged and the wagon driven on without the driver having to leave his seat.

The dumping-car 57, carried by the elevator-cage, is constructed in a novel manner and is provided with wheels 58 upon its short sides, which project slightly beneath the bottom of the car, and also with wheels 59 at the longer sides thereof, which are placed above the wheels 58 a suitable distance, the wheels 58 to be used upon the main dumping-track and the wheels 59 upon the longer side to be used upon the transverse tracks, as will hereinafter appear. The body of the car 57 is preferably made of sheet-iron, and the wheels are supported upon tubular iron axles, which extend through the body of the car. The car is pulled with its longer side toward the main dumping-track, and the bottom of the car is

divided in the middle by a strip 60, in order that the dumping-doors may be conveniently arranged for operating from the ends of the car, and which will also be reduced one-half the length otherwise required. The doors 61 are supported at their ends upon separating triangular slats 62, connecting the division-strip 60 with the short sides of the car-body. The slats have two of their sides sloping upwardly into the body of the car and the remaining side flat and flush with the bottom of the car, the doors being hinged thereto in such manner that they will swing up against the bottom of the said slats 62 when said doors are closed and hang vertically when open to provide a clear unobstructed space between each door for the free passage of the grain from the car when it is dumped.

The doors are arranged in two sets, extending from side to side, and are each connected at the bottom with a cross-strip 63, held thereto by a staple 64, and a latch-bar 65 extends the entire width of the car beneath the cross-strips 63 to lift and hold the cross-strips 63 closed. A side latch-plate 66 is secured to and extends up each of the sides of the car and is flanged outwardly at its ends to engage with swinging latch-levers 67, which are immediately pivoted at each of the shorter sides of the car and at the central line thereof. The upper end of the latch-levers engage beneath the flange of plates 66, and the lower end of said levers is provided with a friction-roller 68, which strikes against an adjustable stop to dump the car, as will hereinafter appear. The doors are all thus held firmly against the slatted bottom of the car by the upper end of the latch-lever, and when the latter is removed the doors will drop clear of the openings by the weight of the grain in the cars. The weight of the rollers 68 and 68^a at the lower end of the latch-lever tends to keep the upper end or latch of said lever pressing tightly against the under side of the flange of the side latch-plates 66. The latch-bar 65 extends across the full width of the car and has cup-shaped socket-plates 69, near each of its ends, opening downwardly, which receive upwardly-pressing spring-pins 70, supported on bell-crank levers 71, attached to a push-bar 72, which projects slightly beyond the floor of the elevator-cage. The pins 70 hold the car steady on the elevator-cage while it is being raised and lowered, and the end of the bar 72 will strike against a projection 72^a at the bottom of the dumping-floor when the car has been raised to this height, and the pins 70 will be withdrawn from their sockets to permit the car to be rolled off from the elevator-cage. The bar 72 may be pushed in by an obstruction in the pit similar to the projection 72^a at the bottom of the dumping-floor to withdraw the pins 70 from their sockets when the car is in the pit.

The bell-crank levers 71 and push-bar 72 are secured to the bottom of the floor of the cage and pass up through holes in the floor

thereof, and the pins are drawn down to clear the car by the movement of the push-bar and may be lifted again by the action of spiral springs 73, secured in the floor to surround the said pins.

When the elevator-cage is lifted to the level of the dumping-track, the car is coupled to the free ends of cables 74 74^a, respectively, upon each side thereof and extending the full length of the dumping-track in opposite direction to the full length of the building, the opposite ends of said cables being wound around drums at the ends of said floor which extend across the track and are connected at one of their ends with a sprocket-chain 75, which passes over pulley-wheels 76 and extends beneath the floor of the grain-bins at one side of the hauling-track to the transverse passageway, and then around suitable sprocket-pulleys 77^a and a crank-operated sprocket-wheel 77, located opposite the elevator-shaft, the said chains extending from opposite ends of the building to thus operate or move the car upon the dumping-track backward and forward in either direction.

The ends of the cables 74 74^a, respectively, are secured to coupling-links 78, one end of which has an eye 79 to receive the rope, and the other end of which has a head 80 to engage with the coupling-block 81 of the car, and an intermediate conical portion 82 upon the link 78 is caught between jaws 83 upon weighted bell-crank arms 84, which serve to hold the end of the cable in position to be coupled with the car when the coupling-block 81 is brought in proper relation thereto. The coupling-block 81 has a vertical groove 81^a and a horizontal transverse groove 81^b, the former to pass up over the head of the link 78 to engage with the same when the cars are to be operated by cables 74 74^a and the latter to allow the head of the link 78 to be disengaged from said coupling-block 81 when a transverse cable is to be connected with the car, as will hereinafter appear. Cords 83^{xx}, connected to the crank-arms 83^{xx}, are carried down to the attendant on the lower floor and are used to open the jaws 83 and draw them down below the level of the floor, release the cable, and permit the car to pass freely over the adjacent dumping-track. The jaws upon the opposite dumping-track remain closed and permit the link and cable to be drawn endwise between them and serve to hold the said cable up and allow it to be drawn freely across the elevator-shaft with the car, and the neck portion 82 of the link is made larger at the coupling end than at the rope end to facilitate this operation. The car may thus be moved to either side of the elevator-shaft therefrom by releasing the jaws 83 upon the side to which the car is to be removed and allowing the opposite corresponding jaws to remain closed.

Endless belts 85^x below the floor at each end of the dumping-tracks, supported upon rollers and arranged closely to the inner sides

of the rails 84 of said track, carry stop-plates 85, which intercept the rollers 68 on the latching-levers and serve to release the dumping-doors of the car to empty it. The horizontal endless belts 85^x are operated by vertical belts 86, which are carried down to a crank-handled sprocket-wheel 86^x within convenient reach of the attendant, as shown in Fig. 2, and enable him from the lower floor to adjust the stop-plates 85 to any required position to dump the car when it shall come opposite the bin into which it is to be dumped. A similar operating-cable 87^x and endless belts 88, carrying stop-plates 89^x, for moving and dumping the car at any point upon the transverse storage-bin dumping-track are employed. The cables 87^x, however, overhang the car and have eyes 80^a upon the coupling-links to engage with pins 87^a, projecting upward from the sides of the car, and also have flattened or oval necks 82^a, which, together with the clamping-jaws, hold the eyes of the links truly in position to engage with the pins of the car. The clamping-jaws are also overhung and are pivoted to a cross-beam secured at its ends to the elevator-shaft guide-posts and are operated by a cord reaching to the lower floor, as in the jaws first described, as shown in Figs. 12, 15, and 17. The clamping-jaws, couplings, and cables are also connected with the opposite side of the car in the same manner and are used not only to draw the car back transversely to the elevator from the storage-bin, but also to move the car to the opposite side of the elevator, where it can be dumped into a chute 88, leading directly to a top opening of a grain-car 89 on the track or to a side spout 90, which will direct the grain through the ordinary car-door.

In order that the car may be transferred from the main track to the cross or transverse track, it is necessary that the wheels 59 at the short sides of the car be lifted above the rails of the main track sufficiently to clear them and transfer the weight of the car onto the elevated wheels and rails at the ends of said car. This is done first by providing side rollers 91 on the car, which bear against side rails along the track and thus obviate the use of flanges upon the supporting-wheels. The elevator-cage is also provided with a lifting cross-rail 17^x at each end thereof, which meets the slightly-elevated rail of the transverse track when said cross-rail is lifted upon the elevator-cage. This is done by supporting the lifting-rail upon two plates 92, hinged at their upper ends to the cage-frame and having loops 93 at their lower ends to receive the ends of said lifting-rail, and allow the latter to be moved up and down in said loops. This movement of the lifting-rail is effected by spring-bolts 94 upon the fixed transverse track, which are pushed aside by the projecting ends of the lifting-rail as it ascends to a sufficient height to meet the transverse rail and to lift the side wheels and car sufficiently

above the main rails, and the bolts are then pressed by their springs beneath the lifting-rail. The cage is then caused to descend slightly and the weight of the car will rest upon the lifting-rail and the wheels will run upon the transverse track. A cord 94, attached to the spring-bolts, will admit of their being withdrawn to release the lifting-rail and allow the cage to descend.

- 10 When an increased storage capacity is required, two or more elevators may be employed which communicate with a side pit by means of a subway and track similar to the transverse dumping-track and arranged crosswise of the main dumping-track and of the hauling-track below the rails, being elevated in a similar manner above the main or direct rails upon the elevator-cage to engage with the transverse lifting-rail of the cage when the elevator-cage descends to the bottom of the elevator-pit. The lifting-rail is brought in contact with a transverse rail 95, supported upon arms projecting upwardly from a scale at the bottom of the pit, which lifts the rail and car when the cage descends the last few inches of its movement and throws the weight upon the scale.

The lifting-rail hereinbefore described is suspended by hinged slotted plates from a rod located above the car and supported on the corner-posts of the elevator-cage, and a spring-actuated locking-bolt 96 is connected to a cord 97, which passes through an eye 98 on the lifting-rail plate 92, and through a fixed eye 97, fastened to the building, and extends to the lower floor of the elevator. By this means the swinging plates and lifting-rail may be first released by drawing the bolt and then swung up out of the way of the car when the latter is to be moved by the cable upon the main dumping-track.

The car is first placed in the dumping-pit when two or more elevators are connected therewith, and after being filled it is rolled through the subway onto one of the elevators and hoisted to the dumping-floor and handled as hereinbefore described.

When a double elevator is employed, the bins may be arranged as shown in Fig. 4, a double floor being employed at sufficient angle to allow the grain to move freely over both floors to the discharge-pipe at the side of the elevator building.

By means of my improved appliances an elevator may be operated with less expense than where either separate horse or steam power is employed for operating it, as one man may handle the entire apparatus with the assistance of the driver who hauls the grain to the elevator.

The weighing, transferring, and distributing facilities are so arranged that they are all reached from a central point, and the grain may be continually weighed separately in a car or box under constant and never-varying conditions, which will insure great accuracy in handling the grain.

The various bins and cross-bins, reached by direct and cross tracks and by subways and double elevators, will admit of unlimited extension in any preferred or convenient direction from the central hoisting-shaft and haulway and the greatest possible advantage is obtainable for handling and separately storing every kind of grain brought to the elevator.

I claim as my invention and desire to secure by Letters Patent—

1. An elevator and dump comprising a hauling-track running lengthwise the building, an elevator and pit intermediately located therewith, a dumping-track located overhead in the direction of the hauling-track, a trap-door to cover the pit and a differential lifting-drum, a cable connecting the elevator and drum, and a cable adapted to connect the drum with the grain-wagon, substantially as described.

2. An elevator and dump comprising a hauling-track running lengthwise the building, an intermediately-arranged elevator shaft and pit, a dumping-track located overhead and extending from both sides of the elevator-shaft, a cable-carrier having its extremities terminating upon opposite sides of said shaft, an elevator-cage and car carried thereby, and the latter adapted to connect with said cable-carrier, substantially as described.

3. An elevator and dump comprising a hauling-track, an overhead dumping-track, an elevator connecting the same, a dumping-car to fit the elevator and track, a cable-carrier adapted to the overhead track to engage the car and an adjustable dumping-car-operating device upon the overhead track, substantially as described.

4. An elevator and dump comprising a hauling-track, an overhead distributing dumping-track, a cross-track intersecting the latter, an elevator connecting said tracks, a dumping-car to fit the elevator and tracks, a divided cable with coupling-links to engage the car on the main track when desired and a similar cable also adapted to engage with said car when desired to move the car upon the cross-track, substantially as described.

5. An elevator and dump comprising a storage-warehouse, having a plurality of bins to hold separate kinds of material, a hauling-track, and an overhead distributing-track, leading to and accessible to each of said bins, an elevator and dumping car having a set of wheels upon each of its four sides, an elevated cross-track connected therewith and a chute located beneath said cross-track to empty into the grain-cars, substantially as described.

6. An elevator and dump comprising a hauling-track, an intermediately-located dumping-pit and track-rails leading from the said dumping-pit, an elevator at one end of the said track-rails, and an elevator-cage having hinged doors carrying rails leading to said track-rails, substantially as described.

7. An elevator and dump comprising an elevator shaft and cage, an overhead distributing dumping-track, and a cross-track having rails elevated above the distributing-track, a dumping-car having two sets of wheels, each set to engage respectively with one of said tracks, vertically-movable rails upon the cage to be intercepted and lift the car from the lower set of rails in the cage, substantially as described.

8. The combination with the vertical shaft, timbers of an elevator with ratchet-bars hinged thereto to fold from one side to the other thereof and an elevator-cage having a spring-dog to engage with said rack when the latter is folded in the same plane therewith and to move free thereof when folded *per contra*, substantially as described.

9. An elevator and dump comprising a hauling-track, a pit, a trap-door, tilting dump-beams to support the wagon-wheels, and grain-fenders hinged to the track-framing to fold over the ends of said beams, substantially as described.

10. The hoisting device for elevators and dumps consisting of the elevator-shaft and hauling-track, a cable attachable to the wagon, pulleys, a large drum at the top of the elevator-shaft connected to said cable, a smaller drum forming part of the larger one, a cable connecting the same with an elevator-cage, and cable-guiding pulleys supported upon a counter-shaft to direct the running of both cables, substantially as described.

11. In an elevator and dump, the combination with the elevator-cage, of the longitudinal bottom bar fitted beneath the dump-doors of the car to close them, steady-pin sockets upon said bar, and spring-actuated steady-pins upon the cage to engage with said sockets, substantially as described.

12. A dumping-car comprising a box or shell, bars of triangular cross-section secured to the bottom sides of the shell to provide

parallel intervening spaces between the oppositely-inclined walls of the bars, hinged door-slats fitted to the bars to close said spaces, a cross-bar adapted to lift said doors and a latch for holding the cross-bars, substantially as described.

13. In a dumping-car, the combination with box of an intermediate division-bar, a series of transverse bars of triangular cross-section connecting the division-bar with the ends of the car with intervening spaces, doors hinged to said transverse bars to close said spaces, vertically-moving cross-bars for lifting the doors, and a longitudinal bar to lift and hold the cross-bars, substantially as described.

14. In a dumping-car for elevators, the combination with the box, of the slatted bottom, the hinged doors, the door-lifting cross-bar, vertical side bars secured to said cross-bar, and supported to reciprocate upon the car-box, and a latch-lever pivoted to the box and adapted to swing either beneath or from beneath projections upon said side bars, substantially as described.

15. In a dumping-car for elevators, the combination of a box a series of triangular slats a series of doors a cross-bar a latch-bar the vertical slide-plates and a swinging latch-lever to engage said plates, substantially as described.

16. A dumping-car comprising a box or shell, a plurality of triangular cross-bars with intervening spaces between them, and a corresponding series of doors adapted to cover and uncover said spaces, and a cross-bar to connect said doors and operate them conjointly, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in the presence of two subscribing witnesses.

GUSTAVE WENZELMANN.

Witnesses:

A. B. MOON,
W. G. TAIT.