

No. 713,394.

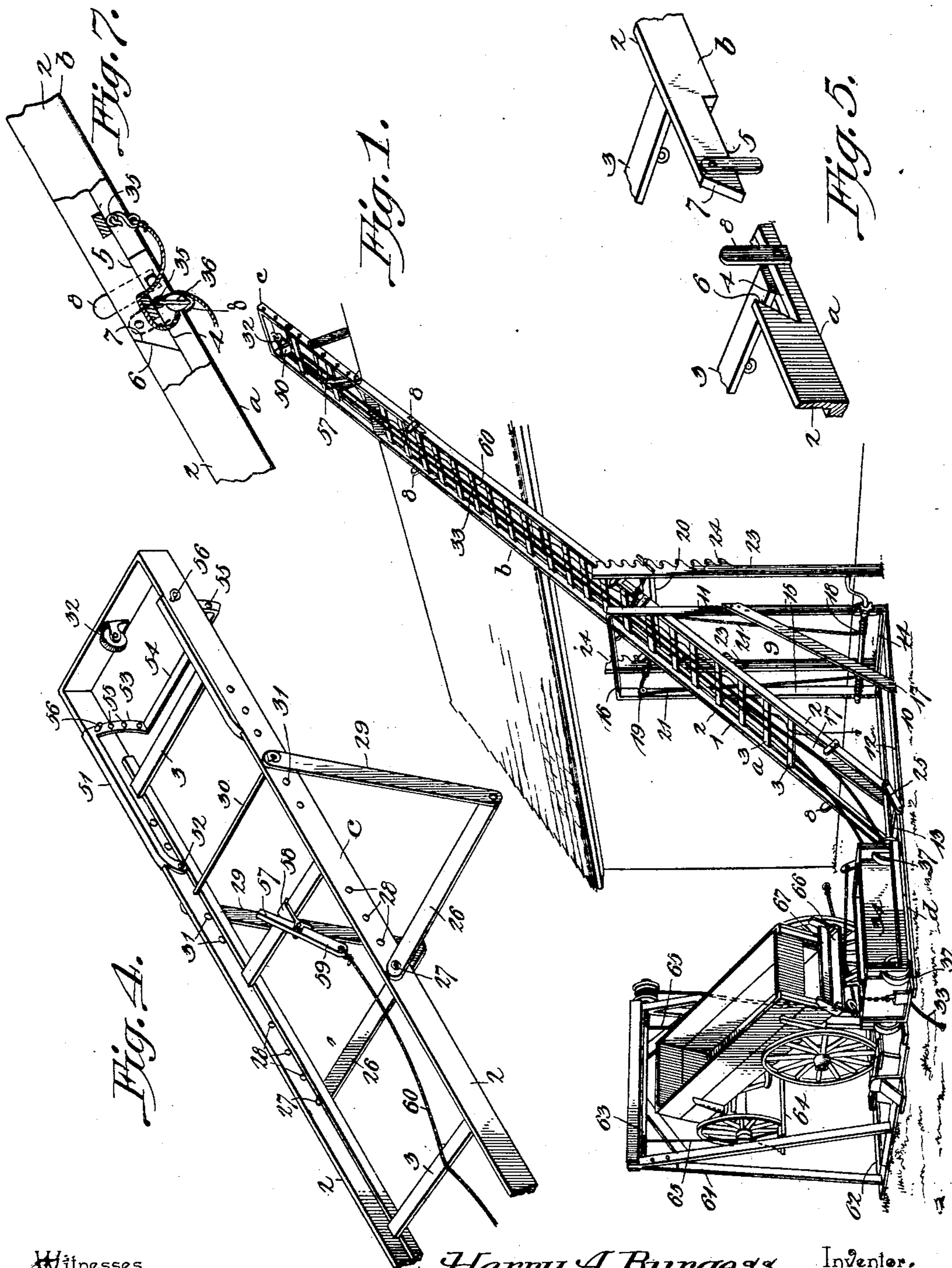
Patented Nov. 11, 1902.

H. A. BURGESS.  
GRAIN ELEVATOR AND DUMP.

(Application filed Nov. 30, 1901.)

(No Model.)

2 Sheets,—Sheet 1.



Witnesses

*Franklin C. Burwell.*  
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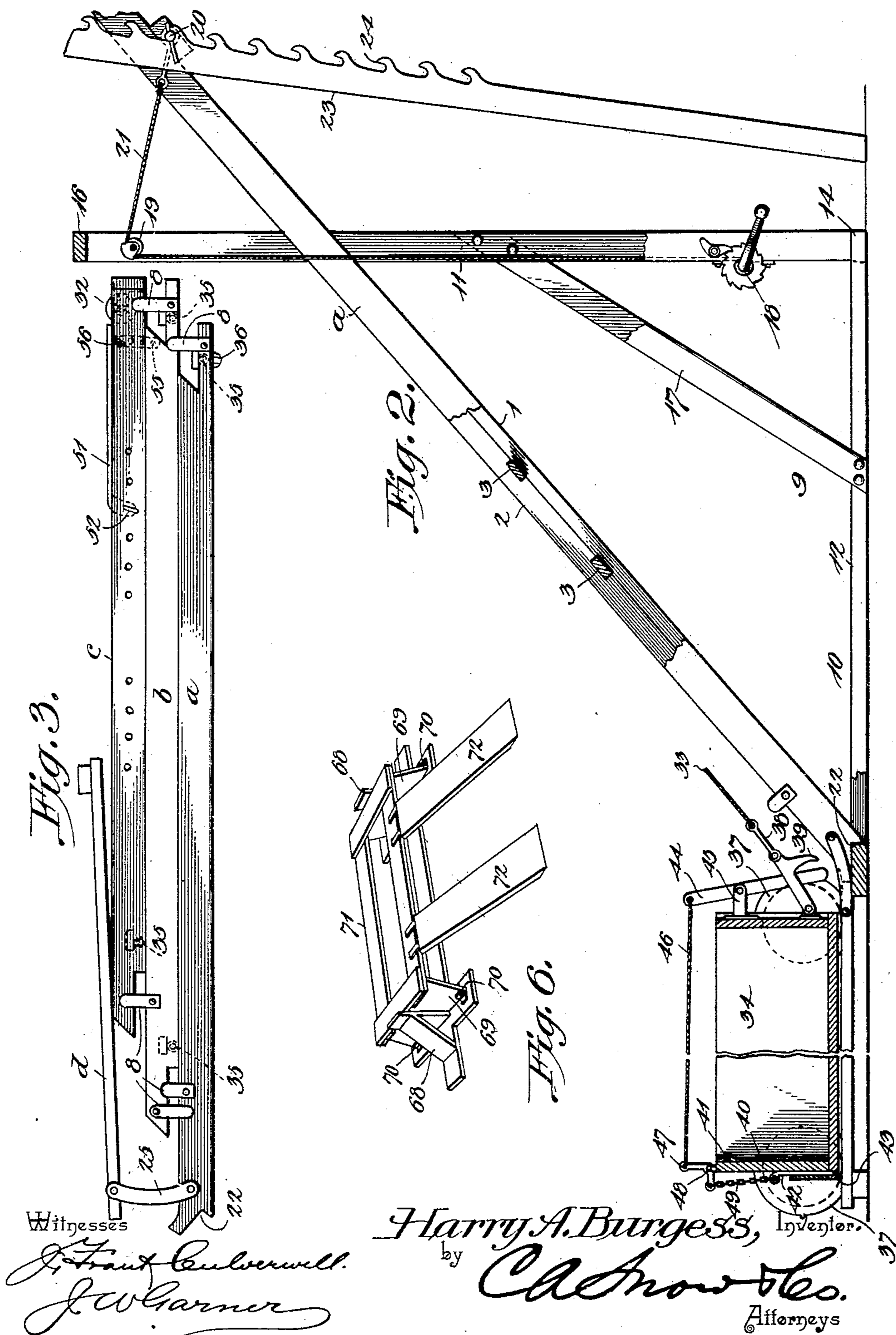
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2 Sheets—Sheet 2.



# UNITED STATES PATENT OFFICE.

HARRY A. BURGESS, OF GOODLAND, INDIANA.

## GRAIN ELEVATOR AND DUMP.

SPECIFICATION forming part of Letters Patent No. 713,394, dated November 11, 1902.

Application filed November 30, 1901. Serial No. 84,243. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY A. BURGESS, a citizen of the United States, residing at Goodland, in the county of Newton and State of Indiana, have invented a new and useful Grain Elevator and Dump, of which the following is a specification.

My invention is an improved grain elevator and dump for unloading grain from a wagon, elevating the grain, and discharging the same into a barn, granary, or bin; and my invention consists in the peculiar construction and combination of devices hereinafter fully set forth and claimed.

One object of my invention is to effect improvements in the construction of the trackway on which the car operates to elevate the grain, whereby the trackway is formed of a series of separable sections and is adapted to be lengthened or shortened, as may be required by the height of the building or bin to which the grain is to be elevated and discharged.

A further object of my invention is to effect improvements in the construction of the means for raising and lowering the said trackway and for supporting the lower section thereof at any adjustment necessary.

A further object of my invention is to effect improvements in the construction of the car and to provide means for automatically discharging the car of its contents when the car has been raised to the desired point.

In the accompanying drawings, Figure 1 is a perspective view of a grain elevator and dump embodying my improvements, showing the same arranged for operation. Fig. 2 is a detail longitudinal sectional view showing the lower portion of the elevating-trackway, the support therefor, and the elevating-car, which operates on the trackway. Fig. 3 is a detail elevation of the trackway, showing the sections thereof disposed one upon another, as when the trackway is not in use. Fig. 4 is a detail perspective view of the upper portion of the trackway. Fig. 5 is a detail perspective view showing the meeting portions of a pair of the separable sections of the trackway. Fig. 6 is a detail perspective view of the skidway for raising the wagon to the required height to enable the wagon to discharge its contents into the elevating-car.

In the embodiment of my invention I provide a trackway 1, which is formed of a plurality of separable sections *a b c*, of which there may be any desired number. Each section of the trackway comprises side rails 2 and cross bars or rungs 3, which connect said side rails together, and thereby the trackway is formed somewhat like a ladder and may be readily scaled. The upper and lower ends of the side rails of the respective track-sections are gained, as at 4 5, to form overlapping joints, whereby the said sections may be coupled together and extended in a right line. The gains 4 are provided at their lower sides with reëntrant bevels 6, and the lower ends of the rails 2 are correspondingly beveled, as at 7. The said bevels 6 overhang the bevels when the sections are coupled together. At the meeting ends of the rails 2 on the outer sides thereof are pivoted guides 8, which form cleats that bear against the outer sides of the rails of the next section above when the sections are coupled together, thus preventing the sections from becoming laterally displaced and disconnected. Said guides may be inclined so as not to project above the rails.

In connection with the trackway I employ a hoisting and supporting ground-frame 9, which comprises a horizontal portion 10, adapted to lie upon the ground, and a vertical portion 11. The horizontal portion 10 is here shown as composed of a pair of sills 12, connected together at one end, which I designate the "outer" end, by a cross-bar 13 and having their inner ends connected together by a cross-bar 14. The vertical section comprises a pair of studs or uprights 15 and a plate 16, which connects their upper ends together, the lower ends of said studs or uprights being secured to the ground-section. Suitable braces 17 connect the sills 12 to the studs 15. In practice the sills 12 may form runners or slides to enable the ground-frame to be readily drawn from place to place.

A winch 18 is mounted in bearings on the studs or uprights 15, and the latter carry direction-sheaves 19 near their upper ends. A supporting-bar 20 is secured transversely under the upper end of the lower section *a*. Hoisting-ropes 21, which are attached to and operated by the winch and are guided by the

direction-sheaves 19, are hooked or otherwise connected to the supporting-bar 20. It will be understood that by turning the winch the said lower section *a* may be raised or lowered at one end to incline the said section at any desired angle. The outer ends of the side rails of said lower section *a* are notched or gained, as at 22, to bear against the cross-bar 13, the latter thereby serving to sustain the outer end of said lower section. In connection with the supporting-bar 20 I employ a pair of supporting bars or studs 23, which are provided with racks 24, with which said supporting-bar 20 may be engaged, and hence the said rack-bars, in coaction with the said supporting-bar 20, serve to support the said lower section *a* at any desired angle.

A ground track-section *d* is here shown as having its inner end flexibly connected to the outer end of the lower inclined section *a* by links 25. Thereby the said ground-section of the trackway may be extended outwardly from the inclined portion of the trackway on the ground or may be raised to a vertical position and may also be folded over the inclined portion of the trackway when the sections thereof are disconnected from each other and are disposed one above another for transportation or storage, as shown in Fig. 3.

The upper section *c* of the inclined trackway, which section when the elevator is in operation extends over and rests upon the roof of the barn or bin, is provided with a pair of lock-bars 26, the upper ends of which are pivotally connected thereto by pins 27. The side rails 2 of said upper section *c* are provided with adjusting-openings 28 for the said pins, and hence the upper ends of the said lock-bars may be connected to the said upper section at any desired point. Said lock-bars may, as will be understood, be disposed at any angle with reference to the section *c* to bear on the opposite side of the roof from that on which the said section *c* is directly supported, hence enabling the said upper section to adapt itself to a roof of any pitch. Link-bars 29 have their lower ends pivotally connected to the lower ends of said lock-bars 26 and their upper ends adjustably connected to the rails 2 of said upper section *c* by a rod or pin 30 and adjusting-openings 31 for said rod or pin, with which said side rails 2 are provided. The said upper section *c* of the inclined trackway is provided with a sheave or block 32 for the hoisting-rope 33, which is employed for operating the elevating-car 34.

I provide the ends of the various sections of the inclined trackway with eyebolts or other suitable devices 35 for the attachment of a tackle 36, which is employed in extending the sections outwardly to increase the length of the inclined trackway and for lowering the said sections one upon another when taking down the same.

The elevating-car 34 has wheels 37, that operate on the trackway, and the operating-rope

33 is connected to the front end of the said car by a link 38 and a hook 39, the latter being pivotally connected to the car and adapted to drop by gravity in the event that the rope 33 should break and engage one of the cross-bars 3 of the inclined portion of the trackway to arrest the descent of the car, and hence avoid accidents. The said car is provided at its rear end with a gate 40, which is hinged or pivoted at its upper side, as at 41, so that the said gate is adapted to open or swing outwardly at its lower side from the said car. Said gate is provided with a bolt 42, which in coaction with a keeper 43 in the bottom of the car at the rear end thereof is adapted to lock the said gate when closed. At the front end of the car is a trip bar or lever 44, which is fulcrumed, as at 45, and the upper end of which is connected by a cord or rod 46 to a bell-crank 47, which is fulcrumed on the upper side of the said gate 40, as at 48. The said bell-crank is connected by a chain or rod 49 to the bolt 42. A trip-block 50 may be detachably secured to the inclined trackway or any section thereof at a suitable elevated point. In operation the end gate of the car having been locked and the car having been loaded, the same is then caused to ascend the trackway by means of the rope or tackle 34 until the trip-bar 44 engages with the trip-block 50, whereupon the bolt 42 will be automatically withdrawn from the keeper 43 to unlock the gate 40, and the latter will then open, owing to the pressure of the grain, and cause the latter to be discharged. It will be understood that the granary or bin will be provided with a suitable hatchway or spout, through which the grain will descend when discharged from the car.

In the event that the elevation of the trackway when the same is used on a building of slight height is not sufficient to efficiently discharge the contents of the car I provide the upper section of the inclined trackway with dump-rails 51, which are here shown as pivotally connected at their lower ends to the side rails 2 of said upper section, as at 52, and as provided at their free or upper ends with standards 53, which are connected together by a cross-bar 54. Said standards are here shown as provided with adjusting-openings 55, and I employ pins or bolts 56 in connection with said openings and with openings in the side rails 2 to secure the said dump-rails 51 at such an inclination as will cause the car when run on said dump-rails to be discharged of its contents, as hereinbefore stated.

In order to support the car when the same is raised to the point at which its contents are discharged automatically, as hereinbefore described, I provide a stop-bar 57, which is carried by and pivotally connected to a hook 58, which is adapted to be engaged with one of the cross-bars 3 at the requisite elevation. The said stop-bar has its outer end somewhat longer and heavier than its inner

end, as at 59, and thereby the said stop-bar acts by its own gravity to lock the car when the latter passes over it. A trip rope or cord 60 is connected to the said stop-bar, by means of which the latter may be disengaged after its contents has been discharged to permit the car to be lowered.

In the operation of my invention the car is loaded with grain directly from a wagon, such as is shown in Fig. 1, the grain being dumped from the wagon into the car. I will now describe means which I have invented for thus dumping the load from the wagon into the elevating-car.

A hoisting-frame 61 is carried on one end of a ground-frame 62, the latter being adapted to be readily moved from place to place. Said hoisting-frame has a winch 63, from which is suspended a frame 64, onto which the front wheels of a wagon may be run, ropes 65 connecting said frame 64 to said winch. By operating said winch the front end of the wagon may be raised to dump grain from the wagon-bed into the elevating-car, as will be understood. A suitable chute 66, having a gate 67, is provided for attachment to the rear end of the wagon-bed to regulate the discharge of grain therefrom into the car.

The ground-frame of the wagon-dump is provided at its front end with a skidway (shown in Fig. 6) for raising a low-wheeled wagon to the height required to dump grain therefrom into the car. A pair of standards 68 are provided, which are disposed on the sides of said ground-frame. On the inner sides of the said standards are boards 69, the lower sides of which are beveled and are connected to the sills of the ground-frame by hinges, as at 70. Thereby the said boards 69 may be disposed in an inclined position tilted somewhat toward each other. A frame 71, which lies on the ground-frame between the boards 69 until after the front wheels of the wagon have passed over it, is then raised. The boards 69 engage the lower side of said frame 71 and support it. The skids 72 are then placed in position, as shown in Fig. 6, and the rear wheels of the wagon pass over the skids onto the frame 71, hence raising the rear end of the wagon, as will be understood, to enable the grain to be discharged from the wagon-bed into the car.

In the practical operation of my improved grain elevator and dump the ground-section *d* of the trackway is upturned to enable the wagon to be driven onto the hoisting-frame, and the said ground-section *d* is then extended on the ground in rear of the wagon, as shown in Fig. 1, in such position that the

grain may be readily discharged from the wagon-bed into the car.

Having thus described my invention, I claim—

1. In an elevator of the class described, an extensible trackway comprising a plurality of sections, slidably related, disposed one upon another and adapted to be extended, a ground-section, and links pivotally connected to the inner end of said ground-section and to the lower of said first-mentioned sections, whereby the ground-section may be folded upon the slidably-related sections, or extended outwardly therefrom, substantially as described.

2. In an elevator of the class described, an inclined trackway adapted to lie across a roof, in combination with lock-bars and link-bars pivotally and adjustably connected to the trackway, and pivotally connected together, for the purpose set forth, substantially as described.

3. In an elevator of the class described, a trackway having dump-rails pivotally connected thereto and adjustable longitudinally thereon, and standards, adjustably connected to said trackway to support said dump-rails at any required inclination, substantially as described.

4. In an elevator of the class described, the combination with a trackway, of a ground-frame, to support the lower end of said trackway, a hoisting mechanism on said ground-frame, to incline said trackway, and a rack-bar to sustain said trackway when inclined, said trackway having an element to engage said rack-bar, substantially as described.

5. In an elevator of the class described, an inclined trackway adapted to lie across a roof and having adjustable lock-bars, for the purpose set forth, substantially as described.

6. In an elevator of the class described, the combination of an inclined trackway, having a trip device, a car on said trackway, a gate, at the rear end of said car, means to lock said gate when closed, a pivoted trip-bar at the front end of said car, said trip-bar being adapted to engage said trip device, and a bell-crank carried by the car and connected to said locking means and said trip-bar, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HARRY A. BURGESS.

Witnesses:

ADELBERT G. JAKWAY,  
LAWRENCE A. WILES.