

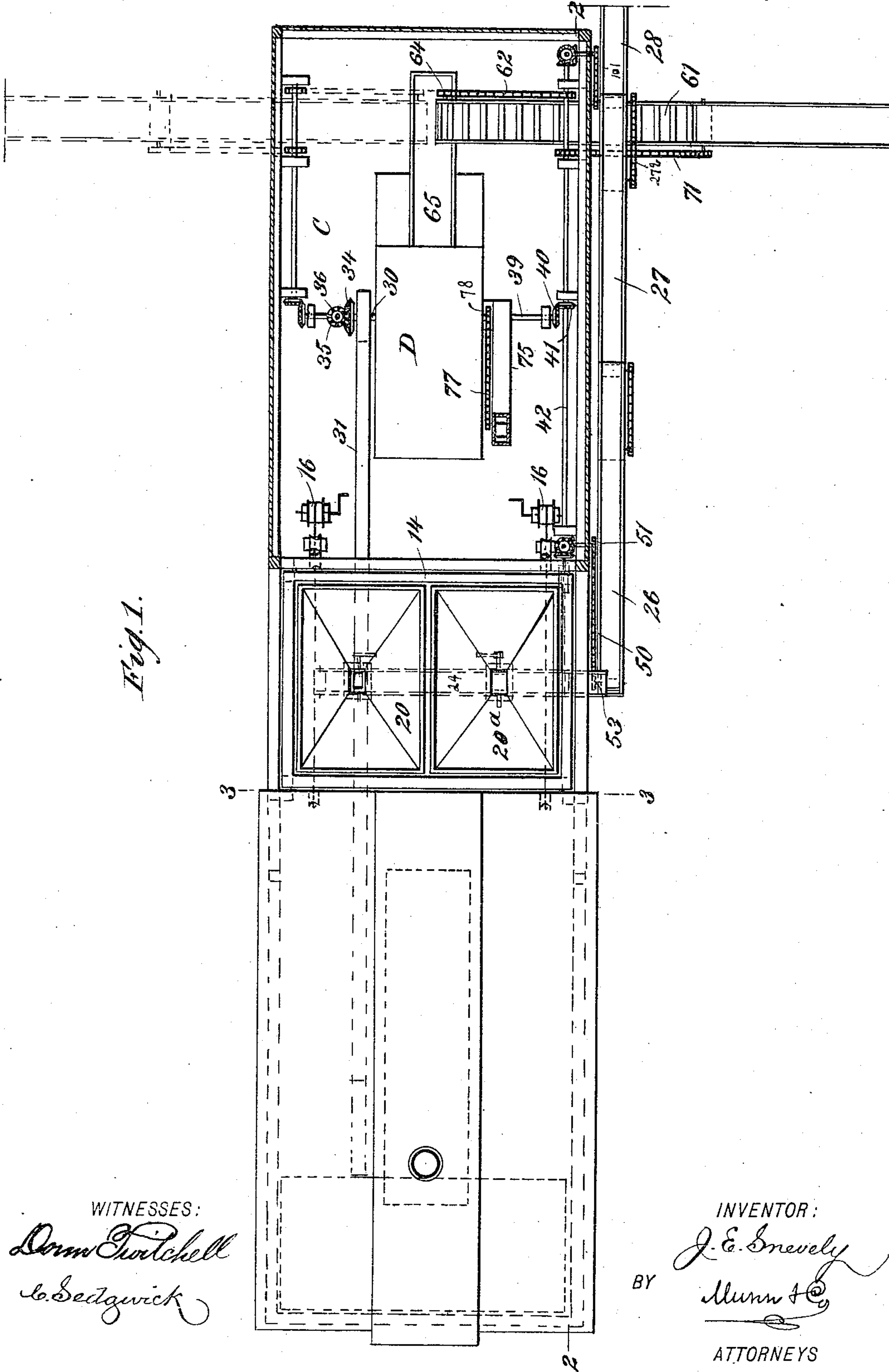
(No Model.)

4 Sheets—Sheet 1.

J. E. SNEVELY.
ELEVATOR CAR.

No. 430,354.

Patented June 17, 1890.



WITNESSES:
Donn Twitchell
L. Sedgwick

INVENTOR:
J. E. Snevely
BY *Munn & Co.*
ATTORNEYS

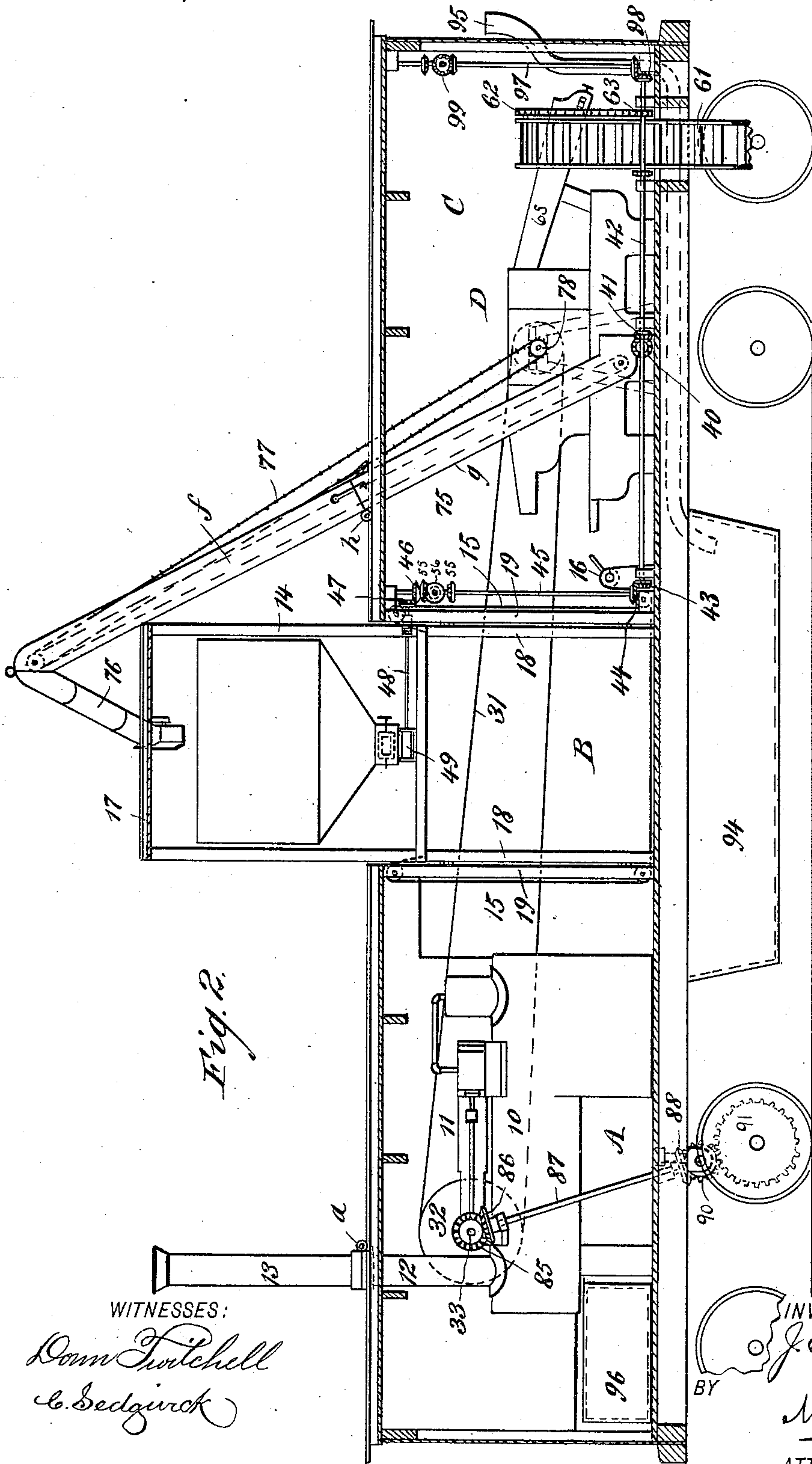
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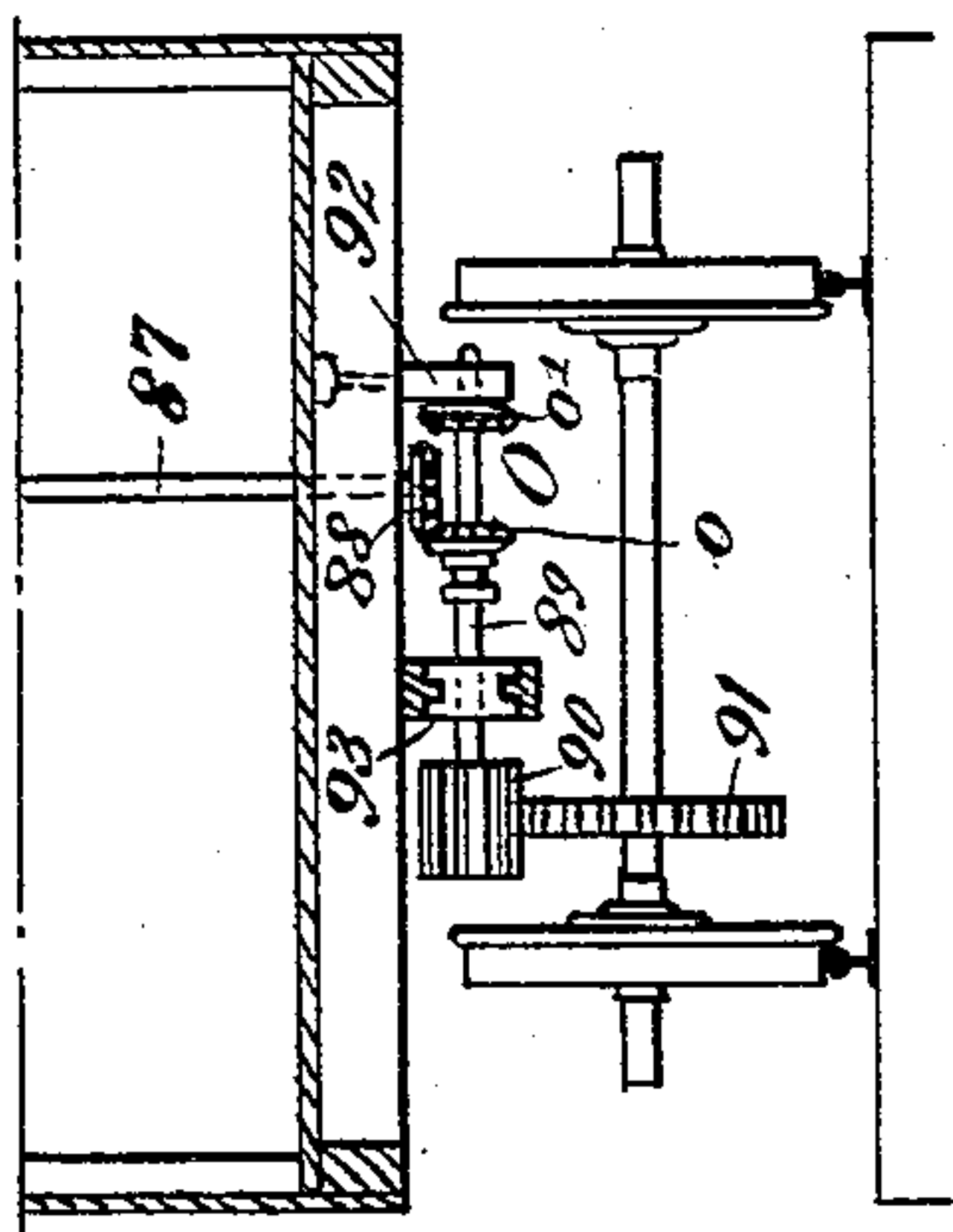


Fig. 5.

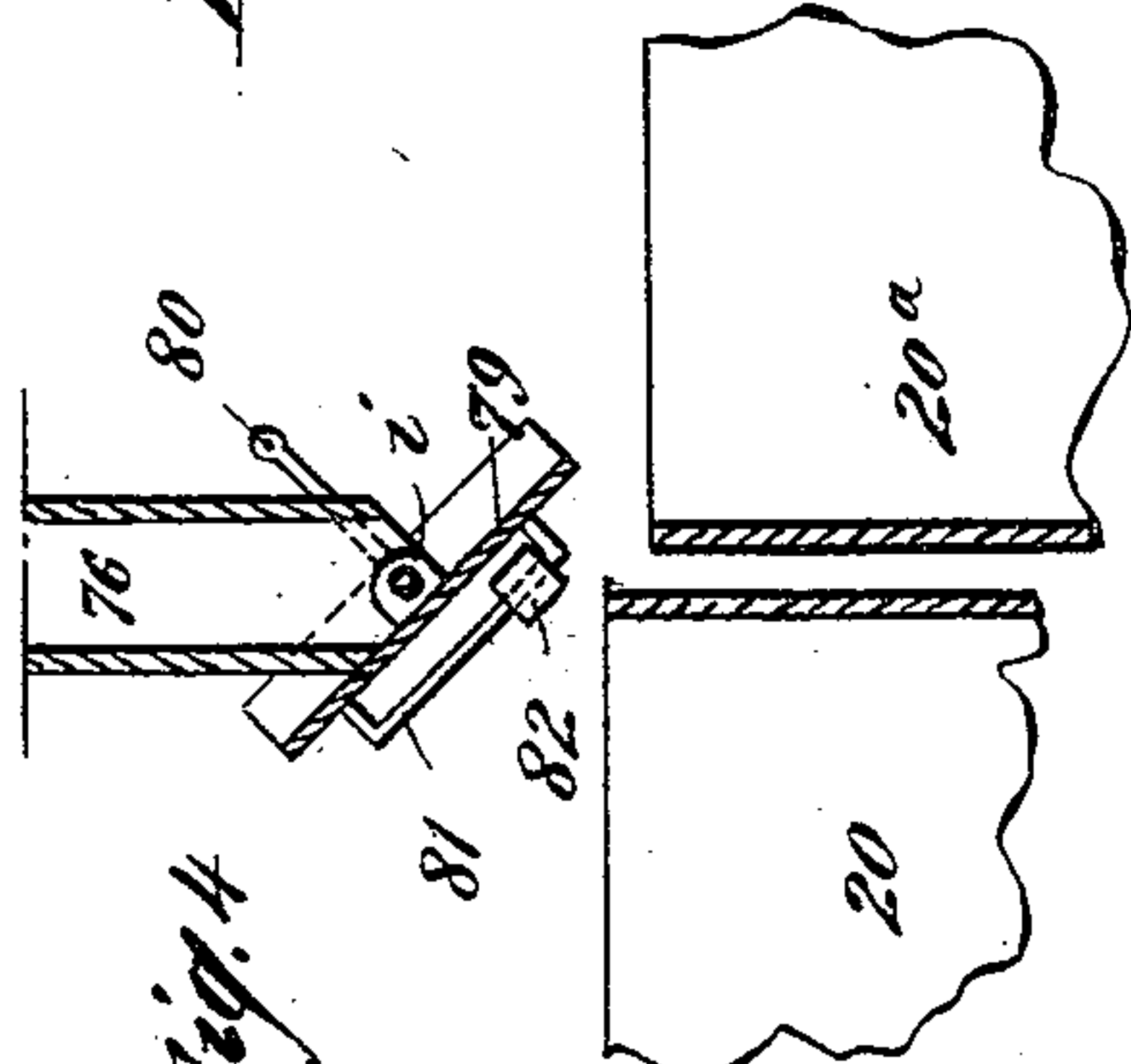


Fig. 4.

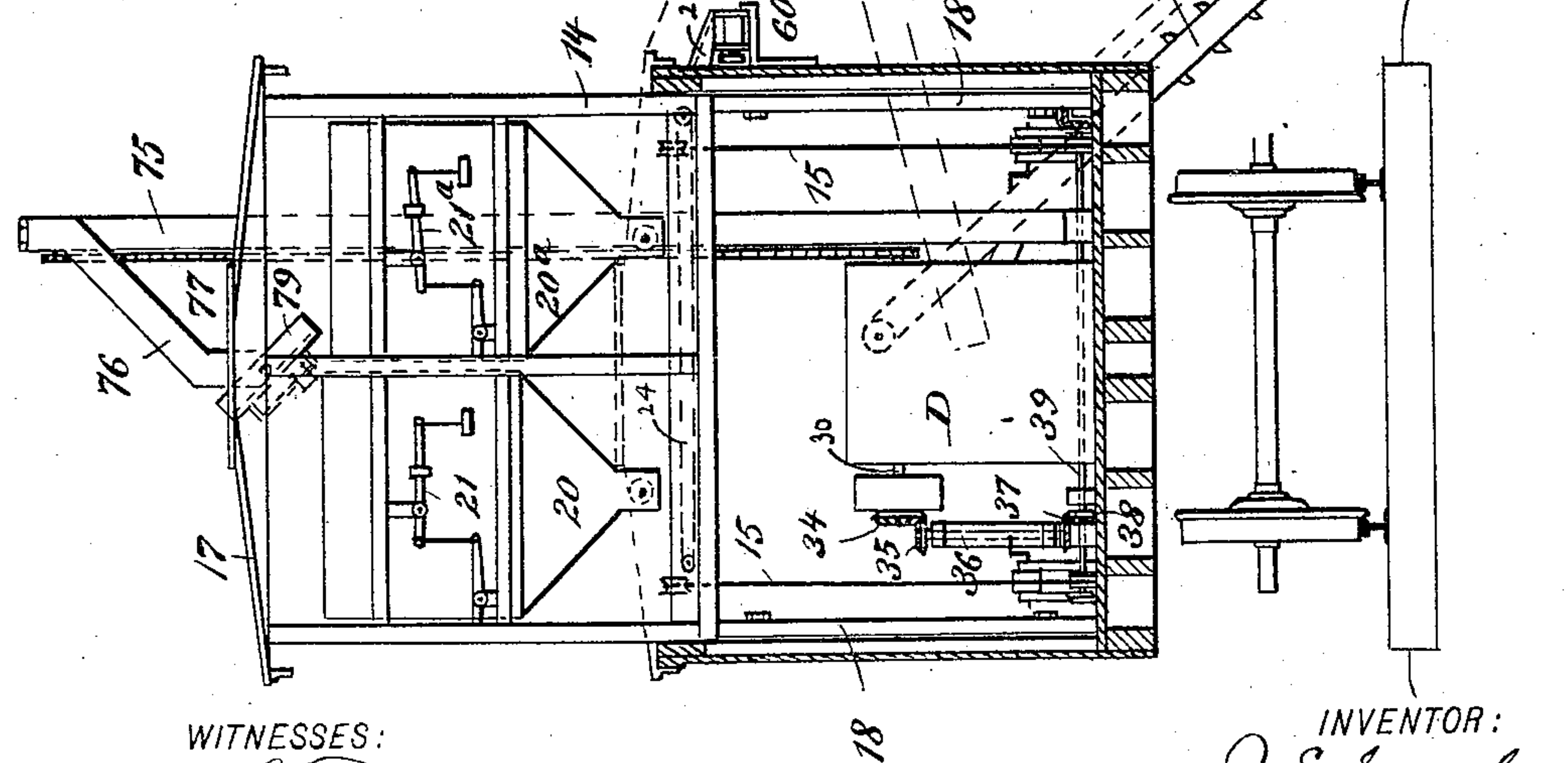


Fig. 3.

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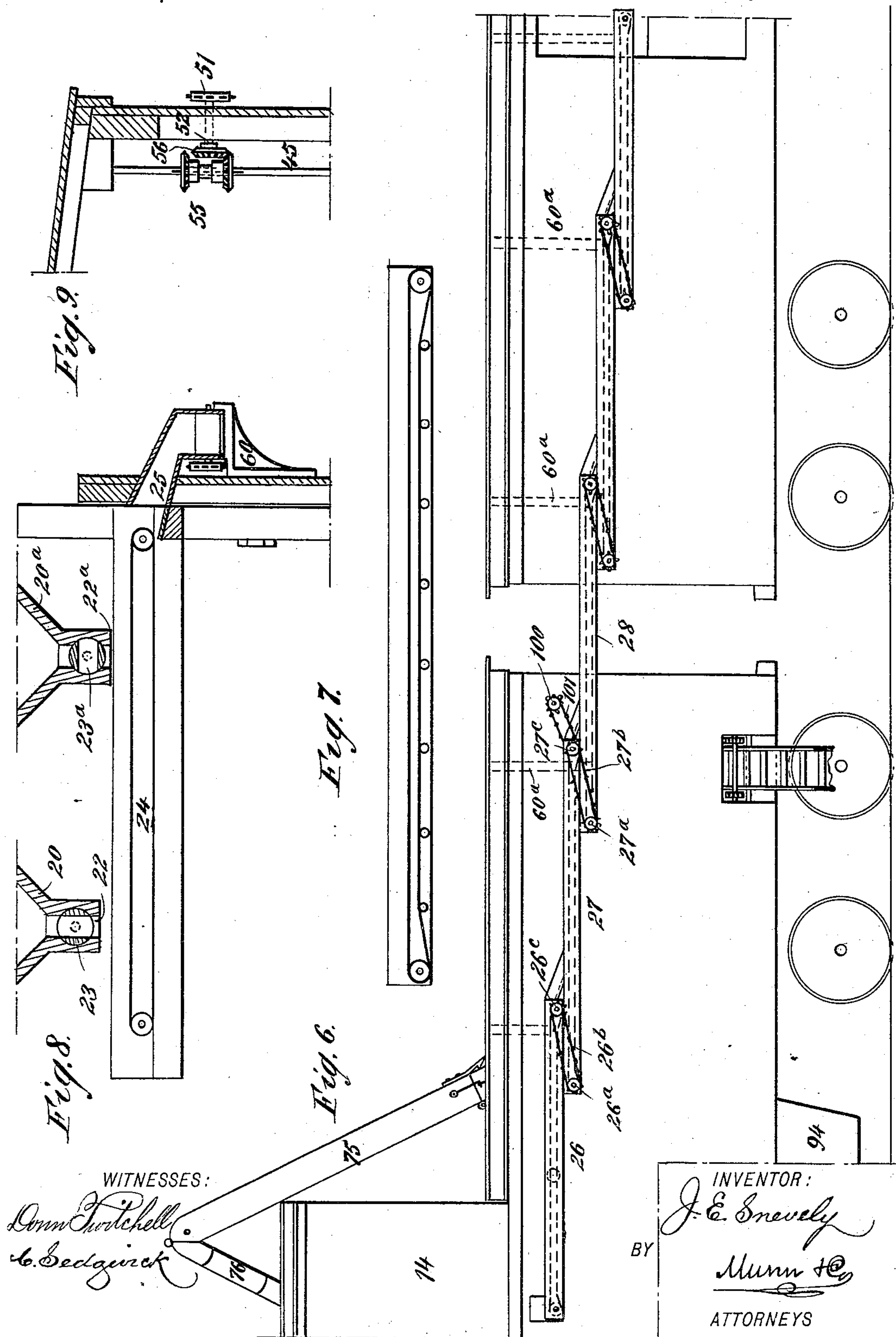
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No. 430,354.

Patented June 17, 1890.



UNITED STATES PATENT OFFICE.

JAMES E. SNEVELY, OF CHETOPA, KANSAS.

ELEVATOR-CAR.

SPECIFICATION forming part of Letters Patent No. 430,354, dated June 17, 1890.

Application filed January 18, 1890. Serial No. 337,308. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. SNEVELY, of Chetopa, in the county of Labette and State of Kansas, have invented a new and Improved Elevator-Car, of which the following is a full, clear, and exact description.

The object of this invention is to provide for the mechanical handling, transferring, and stowage into cars of grain that has been deposited in cribs or granaries along the line of a railway, whereby manual labor is dispensed with to a great extent.

To the ends above named the invention consists of an elevator-car that is provided with means for gathering the grain, means for weighing such grain, means for delivering the grain to box-cars, and if cob-corn is to be handled means for shelling and sorting such corn, all as will be hereinafter fully described, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view, in partial section, of a car embodying my invention. Fig. 2 is a longitudinal sectional view of the car, the view being taken on line 2 2 of Fig. 1. Fig. 3 is a cross-sectional view on line 3 3 of Fig. 1, the connections with the crib or granary being shown in this figure. Fig. 4 is an enlarged view of portions of the hoppers and the delivery end of the elevator-chute, the parts being shown in section. Fig. 5 is a detail view of a portion of the car-driving attachment. Fig. 6 is a side view of a portion of the elevator-car and a portion of an ordinary box-car, the view being given to illustrate the arrangement of the conveyers employed to deliver the grain to the box-car. Fig. 7 is a longitudinal sectional view of one of the conveyers, showing a series of rollers, with which the conveyer-belt is in engagement, which steady its movement and facilitate its travel. Fig. 8 is a cross-sectional view of the lower portion of the hoppers and their connections, and Fig. 9 is a detail view illustrating the connection of the conveyer driving-pulley with its driving-shaft.

In carrying out my invention I provide a car that is divided into compartments A, B, and C, the compartment A being designed to receive a boiler 10 and an engine 11 of any proper construction, the outer section 13 of the stack 12 being hinged, as shown at *a*, so that when the car is in transit the section 13 may be folded down upon the car-roof, as will be readily understood. Within the compartment B, I arrange a frame 14, to which frame there are connected chains or ropes 15, that lead to windlasses 16, such windlasses being by preference located within the compartment C, and the chains or ropes being arranged to pass over guiding-sheaves, as illustrated. In this way I provide for the hoisting of the frame-work 14 to the position in which such frame-work is shown in Figs. 2, 3, and 6, or for the lowering of the frame-work, so that its top 17 will be flush with and form a portion of the car-roof.

In order that the frame-work and the apparatus carried thereby may be firmly supported in the position in which it is shown in the figures last above referred to, I hinge auxiliary posts 18 to the door-posts 19, such posts being arranged in a manner such that they may be turned in under the frame-work 14, as clearly shown in Figs. 2 and 3; or the posts may be turned back against the inner faces of the posts 19 to a position to allow for the lowering of the frame-work 14. This frame-work 14 supports hoppers 20 and 20^a, that are connected with scale-beams 21 and 21^a, such beams being so arranged that the weight of the grain within a hopper may be read by an attendant standing upon the car-roof above the compartment A. The hoppers 20 and 20^a are provided with discharge-orifices 22 and 22^a, that are controlled by rotary valves 23 and 23^a, and beneath the hoppers there is arranged a conveyer-belt 24, that leads to a chute 25, that extends outward through the side of the car, there to deliver to a conveyer 26, which in turn delivers to a conveyer 27, the conveyer 27 delivering to a conveyer 28, and so on, as many conveyers being employed as may be necessary to reach the car that it is desired to load.

In order that the conveyers above referred to may be moved to carry the grain forward,

I arrange a shaft 30 within the compartment C, and this shaft I provide with a pulley that is driven by a belt 31, which runs in engagement with a pulley 32, mounted upon the crank-shaft 33 of the engine 11, the shaft 30 being the main driving-shaft of a combined sheller and separator D, that is arranged within the compartment C. To one end of the shaft 30 I secure a beveled gear 34, that engages a gear 35, carried by a vertical shaft 36, and this shaft 36 carries a gear 37, that engages a gear 38, carried by a transverse shaft 39, that is mounted in bearings so as to rest just above the flooring of the car. The shaft 39 carries a bevel-gear 40, that engages a similar gear 41, carried by a horizontal shaft 42, and this shaft 42 carries a gear 43, that engages a similar gear 44, carried by a vertical shaft 45, upon which there is mounted a gear 46, that engages a gear 47, carried by a shaft 48, upon which one of the drums 49 of the conveyer 24 is mounted, the arrangement being such that when the engine is running the conveyer 24 will be advanced.

The conveyer 26 is driven by a sprocket-chain 50, which runs upon a sprocket-wheel 51, carried by a short horizontal shaft 52, and also upon a sprocket-wheel 53, that is carried by one of the conveyer-drums. It is desirable that provision be made for driving the conveyer 26 in either direction, so that grain delivered thereto may be carried to the left or to the right, and to this end I mount a double gear 55 upon the shaft 45, and I provide for the shifting of this double gear 55, so that either its upper or lower section may be brought into engagement with a gear 56, carried by the inner end of the shaft 52, any proper shifting-lever being employed to change the position of the double gear 55.

In order that the conveyers 27 28, and so on, that are arranged beyond the conveyer 26 may be driven, I provide each end of the shafts of the conveyer-drums with sprocket-wheels 26^a 27^a, and so on, that are engaged by sprocket-chains 26^b 27^b, and so on, such chains engaging other sprocket-wheels 26^c 27^c, and so on. The conveyer 26 is supported by brackets 60, secured to the side of the car, as shown in Fig. 8. The conveyers 27 28, &c., are supported by suitable leather straps 60^a, that are secured to the foot-boards of the cars as shown in dotted lines in Fig. 6.

In order that the grain or corn to be handled may be transferred to the car, I provide a bucketed elevator 61, which may be passed outward through an opening formed in the car-side, this elevator being driven by a chain 62, which runs in engagement with a sprocket-wheel 63, carried by the shaft 42, and running in engagement with a sprocket-wheel 64, that is carried by the upper drum of the elevator, the elevator delivering directly to the receiving-trough 65 of the combined sheller and separator, as shown.

In connection with the elevator 61 I provide a conveyer 70, which is driven by a chain-

connection 71, such as that shown in Fig. 3, said conveyer being arranged so that it may be passed in beneath the flooring 72 of a crib or granary E, the floor of which, formed of spaced slats or boards, may be covered by short loose boards when grain and not corn is to be stored therein, which boards when taken up one by one allow the grain to gradually fall upon the conveyer 70. When necessary or desirable, the elevator 61 and conveyer 70 may be adjusted to the opposite side of the car, as shown at the upper right hand in Fig. 1.

After the corn (if corn it is that is being handled) has been shelled by the sheller D it passes downward to an elevator 75, which extends upward to a delivery-chute 76, the belt of the elevator 75 being driven by a chain 77, which runs in engagement with a wheel 78, carried by the main shaft 30, and also in engagement with a sprocket-wheel carried by the shaft of the upper drum of the elevator 75.

In connection with the sheller D, I arrange a dust-spout and cob-carrier 78^a, as shown in dotted lines at the right in Fig. 3, which will allow the dust and cobs to pass from the sheller to the side of the track. Said spout and carrier may, however, be readily removed, when desired, the cobs then falling from the sheller into the compartment B, there to be employed by the fireman as fuel for the boiler in the compartment A. When the car is in transit, the conveyers 27 28, &c., and the conveyer 70 may be raised to the top of the car and protected by a suitable housing or covering.

In order that the frame of the elevator 75 may be folded downward when the car is in transit, I form it with an upper section *f*, that is hinged to the main section *g* at the point *h*.

With such an apparatus as the one above described it is necessary that some provision be made for delivering grain alternately to the hoppers 20 and 20^a, and to this end I form the discharge end of the chute 76 V-shaped, as shown at *i* in Fig. 4, and to this discharge end I hinge or pivotally connect a plate 79, such plate being provided with an operating-handle 80 and with a traveler 81, upon which a weight 82 is mounted to slide. With this construction, after the required quantity of grain has been delivered to one hopper—say the hopper 20—and it is desired to fill the other hopper, the arm 80 is thrown so that the plate 79 will rest in the position in which it is shown in Fig. 4, the plate being held in this position by the weight 82. Then after the hopper 20^a has received its complement of grain the handle 80 is thrown so as to carry the plate to a position such that the grain passing through the chute 76 will be directed into the hopper 20. The grain falls from the respective hopper 20 or 20^a upon the conveyer 24, and thence passes to the conveyers 26 27, &c., to the box-cars.

It is desirable that provision be made for the moving of the car from place to place upon

the track, and to this end I would provide the crank-shaft of the engine with a gear 85, that engages a gear 86, carried by a shaft 87, which carries a lower gear 88, said lower gear being
 5 arranged so that it may be brought into engagement with either the section *o* or the section *o'* of a double gear *O*, that is mounted upon a horizontal shaft 89, carried beneath the car and provided with a broad-faced pin-
 10 ion 90, that engages a gear 91, carried by one of the car-axles. In this way, by bringing either the gear-section *o* or the gear-section *o'* into engagement with the gear 88, the car may be advanced or backed. With this con-
 15 nection it is necessary that some provision be made for the canting of the trucks at times when the car is passing about a curve, and to this end I would mount one end of the shaft 89 in a swiveled bearing 92, the other end of the
 20 shaft being supported in a bearing 93, that is free to slide to a certain extent upon its connection with the car, being entirely disconnected when the car is in transit.

It might frequently happen that it would
 25 be impossible to secure water in the immediate vicinity of the crib or granary from which the grain was being transferred, and consequently it is desirable that the car be provided with a water-tank. To this end I
 30 would arrange a tank 94 beneath the car, and I would provide a filling-pipe 95, arranged as shown in Fig. 2. As a further means for securing water I would provide a tank 96, of proper size, to be placed upon a wagon, this
 35 tank 96 being normally stored, as indicated.

Although not positively essential, I prefer to provide an auxiliary conveyer-driving attachment consisting of a shaft 97, which is driven through the medium of appropriate
 40 gearing 98 from the shaft 42, and in turn drives a shaft 99, that extends outward through the side of the car and there carries a sprocket-wheel 100, which wheel drives a chain 101, that runs in connection with a sprocket-wheel
 45 carried at the inner end of the shaft of one of the drums of the conveyer 27.

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

50 1. In an apparatus for handling grain, the

combination, with the grain-elevators, of a vertically-adjustable hopper, delivery-chutes arranged within the car to conduct the weighed grain without the car, and conveyers arranged
 55 upon the exterior of the car, adapted to convey the grain from one car to another, substantially as shown and described.

2. In an apparatus for transferring grain, the combination, with a car, of a hopper-carrying frame adapted to be moved vertically
 60 in said car, a means for raising such frame, and posts 18, to support the hopper in its elevated position, said posts 18 being hinged to the door-posts, substantially as shown and described.

3. In an apparatus for transferring grain, the combination, with a car, of a hopper-carrying frame vertically adjustable in said car, means for elevating said frame, and hinged
 70 stops adapted to be swung beneath the frame and support it in an elevated position, substantially as shown and described.

4. In an apparatus for handling grain, the combination, with a delivery-chute 76, of a plate 79, pivotally connected or hinged there-
 75 to, a lever to operate said plates, and a weight arranged in connection with the plate to hold it in its adjusted position, substantially as described.

5. In an apparatus for handling grain, the
 80 combination, with the grain-elevators within the car, of a conveyer for conveying the grain without the car, and a series of conveyers arranged upon the exterior of the cars adjacent to the same and communicating with other
 85 cars, substantially as shown and described, and means for operating said conveyers, substantially as shown and described.

6. The combination, with the chute 76, of the plate 79, hinged thereto, and lever 80, for
 90 operating said plate, the bar 81, attached to the under side of plate 79, and the weight 82, sliding on said bar to hold the plate in its adjusted position, substantially as shown and described.

JAMES E. SNEVELY.

Witnesses:

L. M. BIDELE,
 JNO. W. BREIDENTHAL.