

(No Model.)

3 Sheets—Sheet 1.

A. J. REYNOLDS.
SELF LOADING DUMPING CAR.

No. 335,623.

Patented Feb. 9, 1886.

Fig. 2.

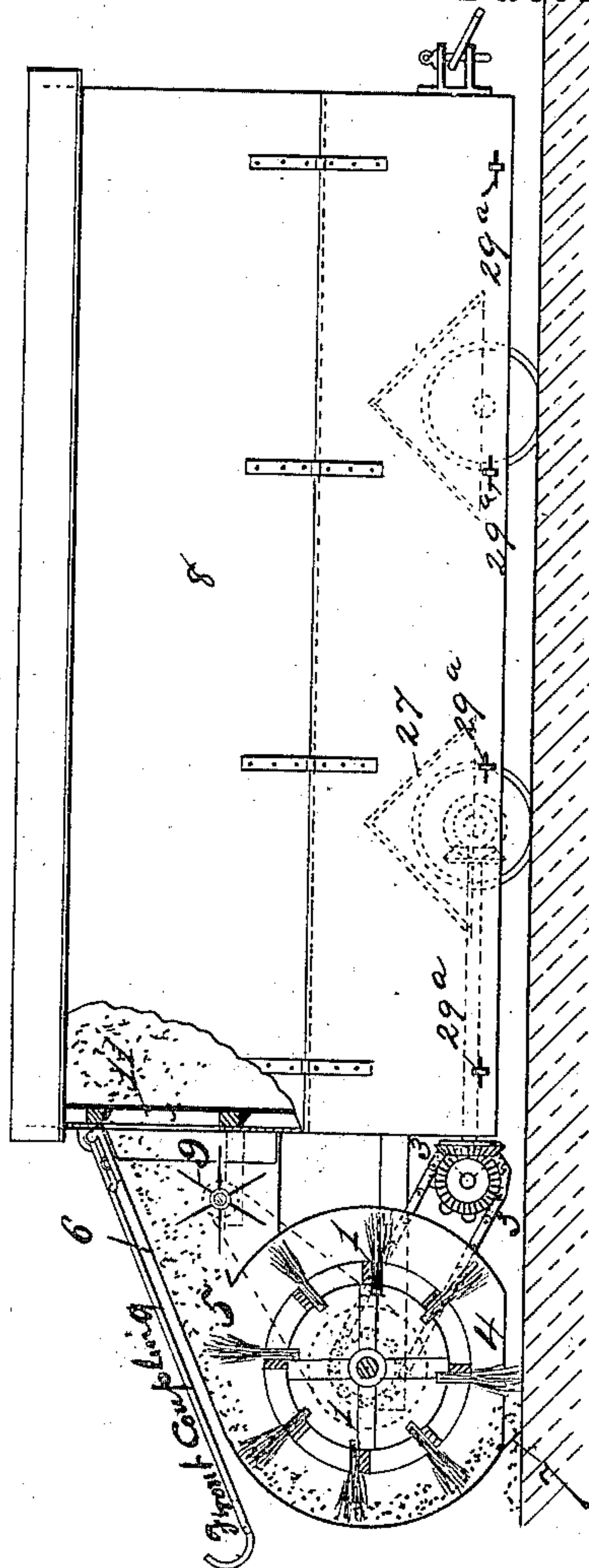
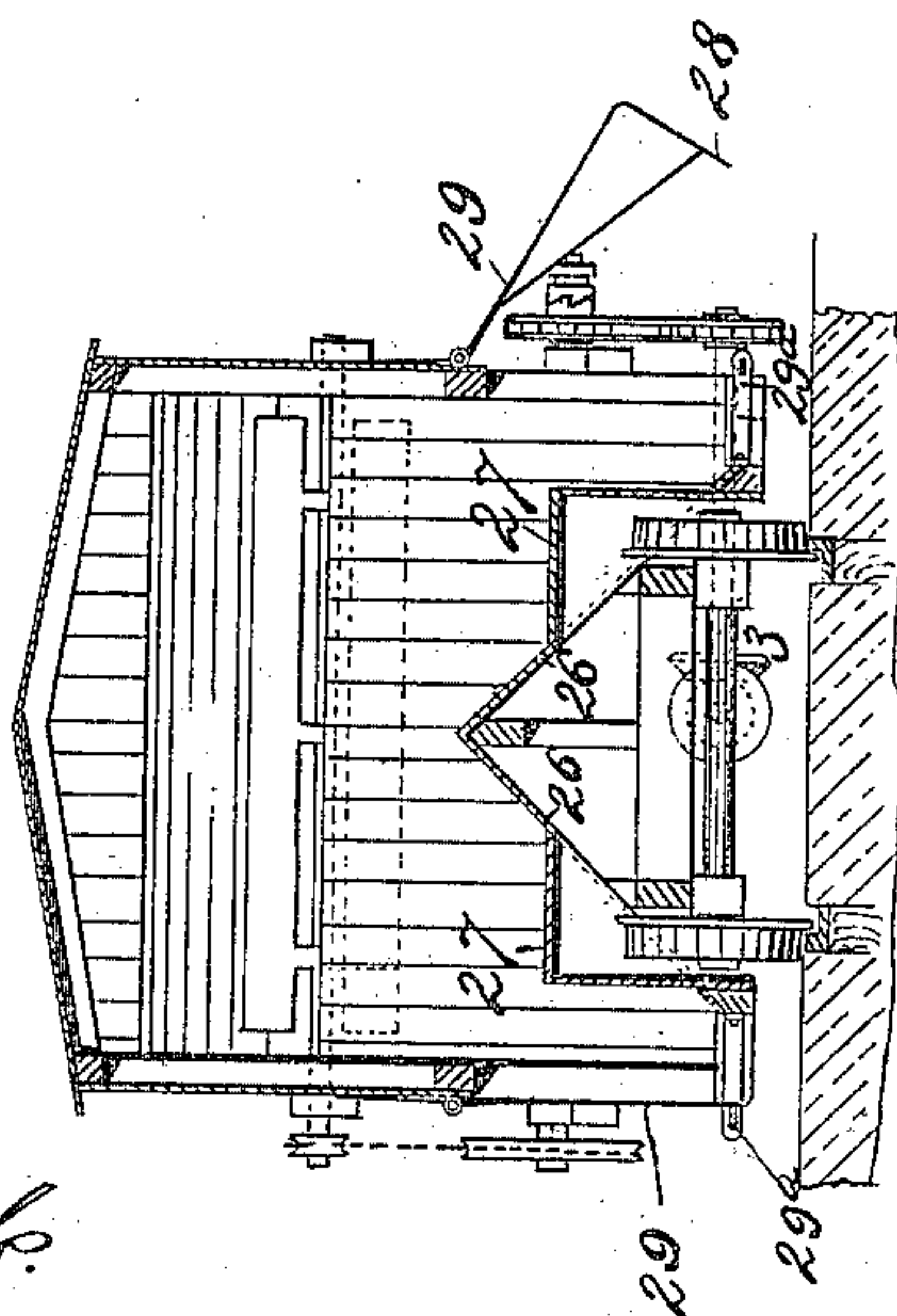


Fig. 1.



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Octavius Knight

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Fig. 3.

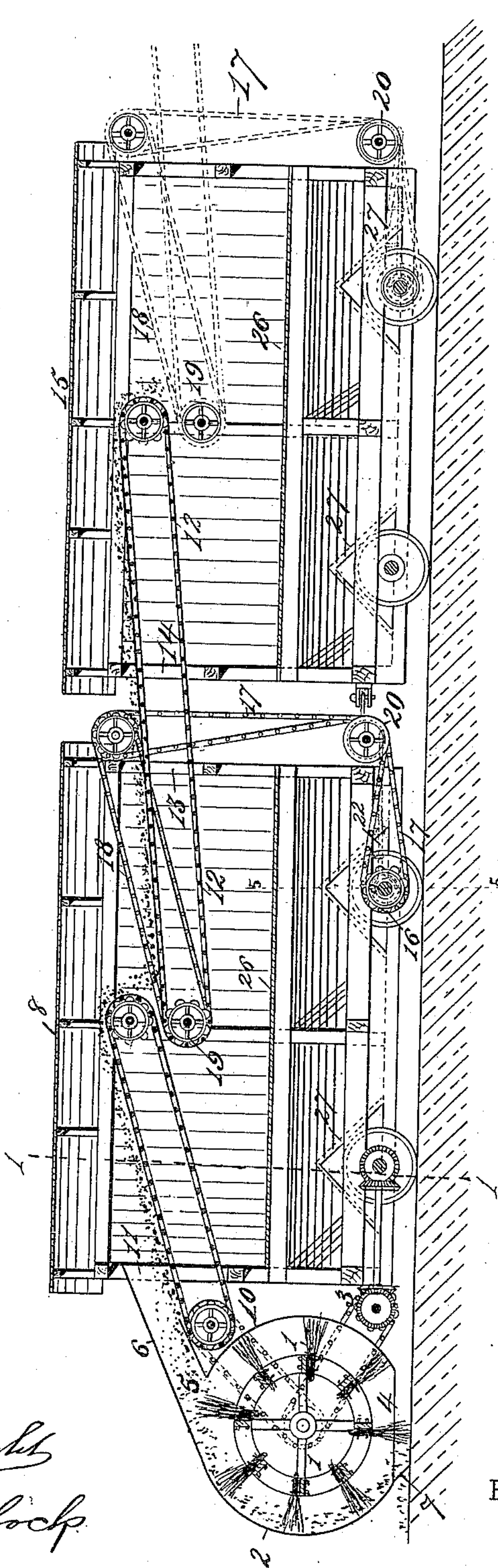
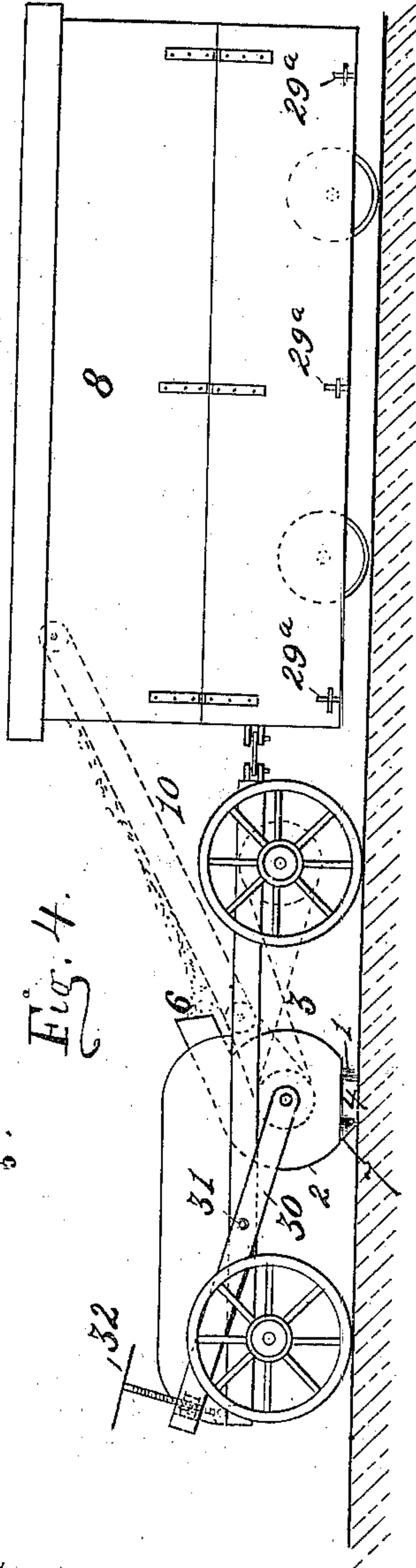


Fig. 4.



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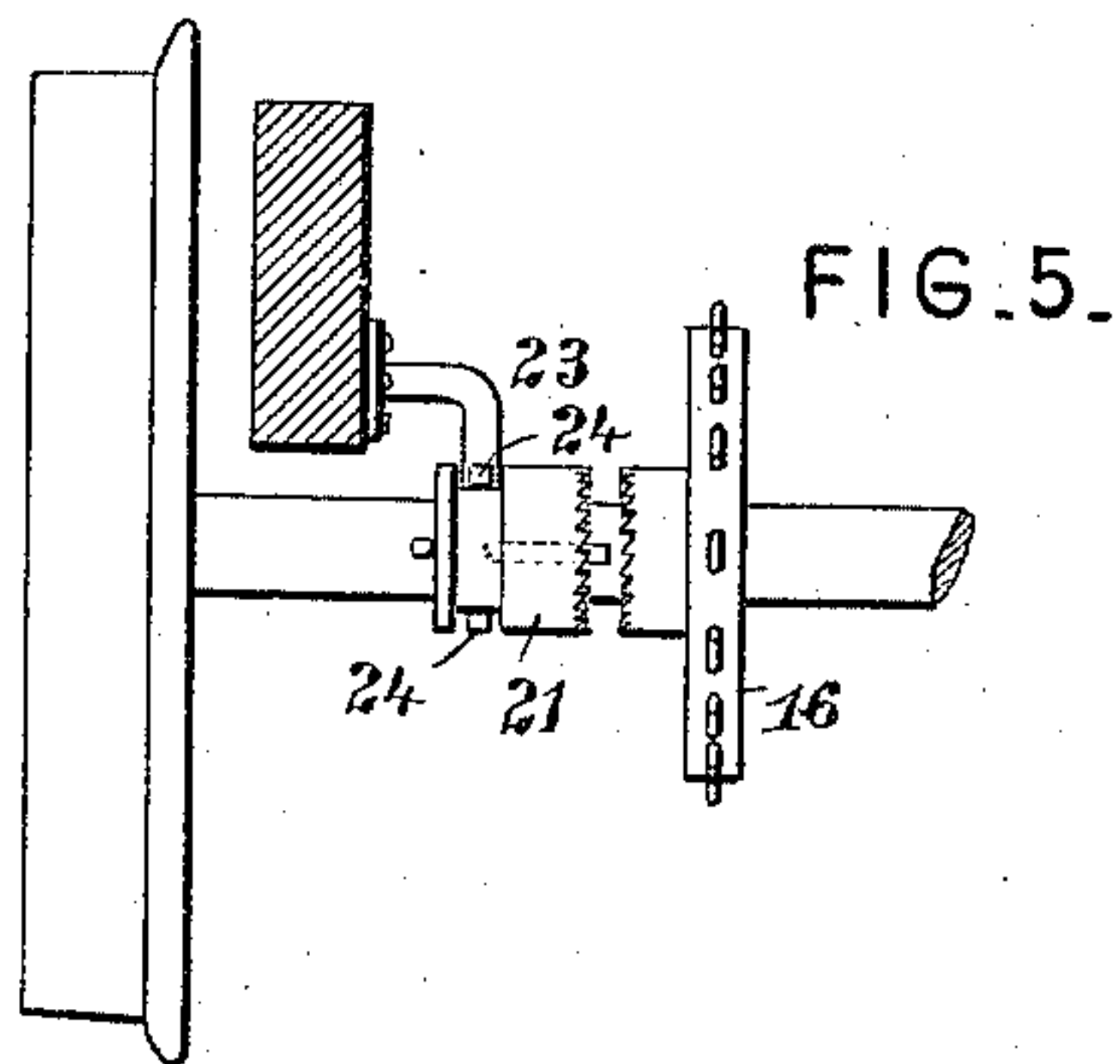


FIG. 5.

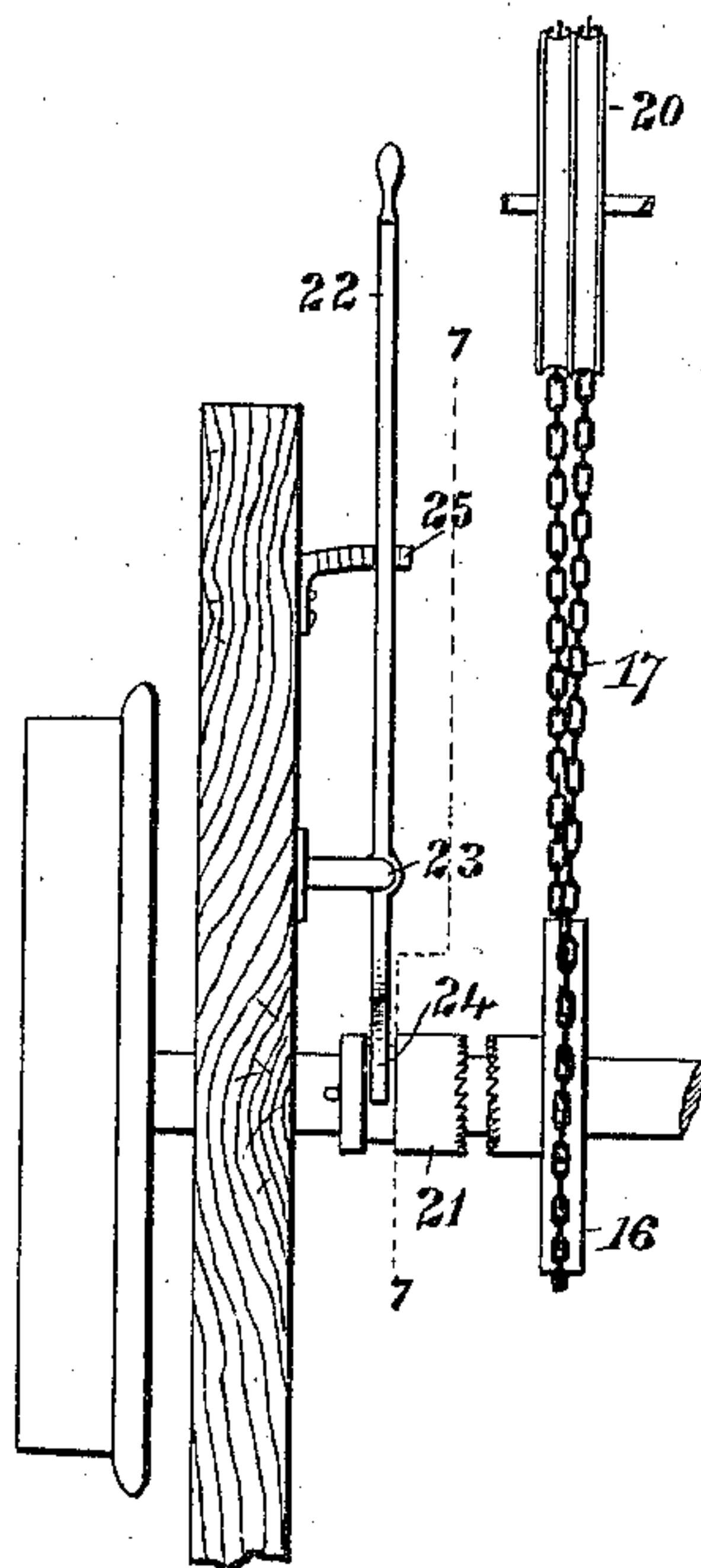


FIG. 6.

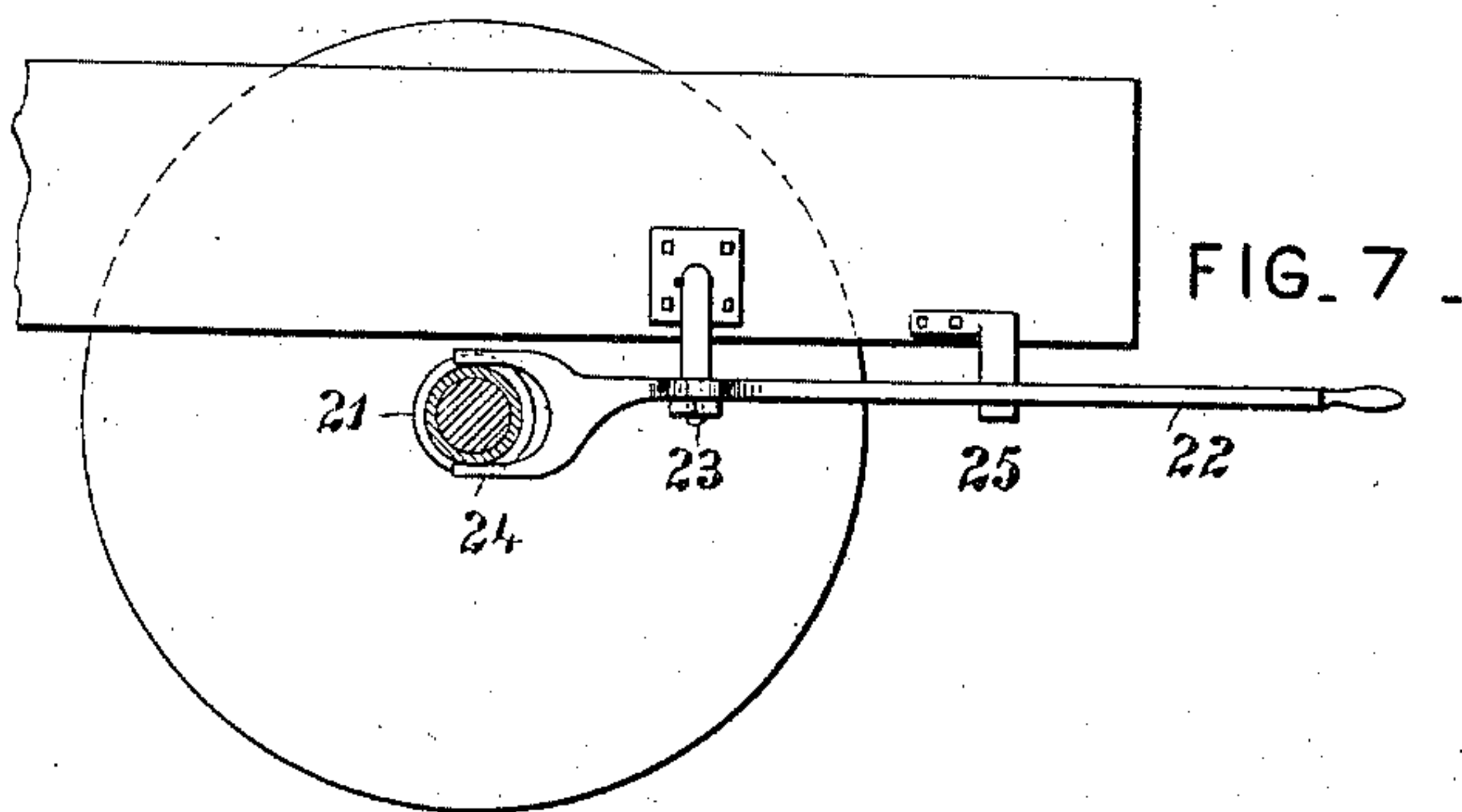


FIG. 7.

Attest:
Geo. P. Smallwood,
[Signature]

Inventor:
Andrew J. Reynolds.
By *[Signature]* Knight Bros.
attys.

UNITED STATES PATENT OFFICE.

ANDREW JACKSON REYNOLDS, OF CHICAGO, ILLINOIS.

SELF-LOADING DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 335,623, dated February 9, 1886.

Application filed February 27, 1885. Serial No. 157,236. (No model.)

To all whom it may concern:

Be it known that I, ANDREW JACKSON REYNOLDS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Self-Loading Dumping-Cars, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, and in which—

Figure 1 is a vertical transverse section of one of my improved cars, the line I I, Fig. 3, indicating the cutting-plane. Fig. 2 is a side elevation of one of said cars with my improved self-loader attached to the front end thereof, a portion of the loader casing or drum and of the car being broken away to expose the contained parts. Fig. 3 is a vertical longitudinal section of a train of cars and of the self-loader, a series of endless carriers for conveying the dirt from the said loader to any one of a train of cars in the rear thereof being shown in elevation. Fig. 4 is an elevation showing my improved loader mounted upon a separate truck and an endless carrier for conveying the dirt taken up thereby rearward and emptying it into the dirt-receptacle. Fig. 5 is a vertical transverse section on the line 55, Fig. 3, showing a clutch mechanism, whereby the endless carriers may be connected to and disconnected from the axle of the car, from which they derive their motion, at the will of the operator. Fig. 6 is a plan view of the same; and Fig. 7 is a section on the line 77, Fig. 6.

My invention consists of certain improvements, which will be hereinafter fully described, and more particularly pointed out in the claims.

The loading-machine consists of a rotary broom, 1, which is incased within a drum, 2, and driven or rotated by any suitable mechanism, but preferably by means of gearing 3, with the axle of the ground or track wheels of the truck by which it is carried. It may be secured to the front end of one of the dirt cars or receptacles, as shown in Figs. 2 and 3, or it may be mounted upon a separate truck, as represented in Fig. 4.

In order to secure the proper operation of the broom, the drum or casing should follow the contour of said broom as closely as possi-

ble and extend at its front portion very near to the ground or surface being cleaned. To this end I make the broom circular and the drum concentric therewith, said drum being provided with a small opening, 4, at bottom, through which the broom is allowed contact with the surface to be swept, and another, 5, at top, from which extends a chute or nozzle, 6.

7 is an apron hinged at top to the lower edge of the front wall of the drum 2 in such a manner as to drag along the surface, as shown in Figs. 2, 3, and 4. This construction is such that the dirt entering the drum at the opening 4 will be carried by the centrifugal action of the broom 1 up the curved front wall of the drum 2 and thrown off at the opening 5 and into the nozzle or chute 6. By completely enclosing the broom at its front, back, and ends it is made to produce a suction at the opening 4, which serves to pick up the dust and dirt, even though said dust and dirt should not come within reach of the broom itself.

I am aware that a machine for loading snow has been constructed of a number of scoops or paddles projecting radially from a rotary shaft and a casing at the front end of the car within which they are contained, said casing being open in front for a considerable distance up, and provided at top with a chute or nozzle substantially like the one employed by me; but this device is not the equivalent of mine.

I am also aware that it is not new to place a rigid depending apron in advance of a rotary broom for the purpose of catching the dirt as it is thrown up by said broom and guiding it to an endless conveyer, by which it is carried to the dirt-receptacle. In this device the casing for the broom is not concentric, and does not fit closely enough to produce the suction necessary for taking up dust from the crevices in the pavement. As the dirt passes through the opening 5, it is carried through the chute 6, and into the car or dirt-receptacle 8, either by the action of a fan-wheel, 9, as represented in Fig. 2, or an endless conveyer, 10, as represented in Figs. 3 and 4, the car being provided in either case with an opening, 11, near the top thereof. The fan 9 is preferably employed where but one car or receptacle is to be loaded, and the conveyer 10 where a train

of two or more cars is to be loaded, as represented in Fig. 3, or where the loader is carried by a truck independent of the car, as shown in Fig. 4, said conveyer 10 being driven by a sprocket-wheel from the shaft of the broom. Where two or more cars are to be loaded, the first conveyer, 10, extends through the opening 11 in the first car, and preferably to a point a little beyond the center thereof, as shown in Fig. 3. At this point it dumps the dirt thrown upon it by the fan onto a second endless conveyer, 12, which passes rearwardly through an opening, 13, in the rear of the front car, 8, thence through an opening, 14, in the front wall of the next car, 15, and terminates in the same relative place as does the conveyer 10—*i. e.*, a little to the rear of the center of the car. By this means the dirt may be carried rearwardly from the loading-machine through a train of any number of cars and dumped into any one of them. When the rear car is full, the conveyer which brings the material into it from the car immediately in advance of it is disconnected from the car-axle from which it derives its motion, by means of the clutch mechanism now to be described.

16 is a sprocket-wheel, which runs loosely upon the axle of the car, and is connected through the medium of sprocket-chains 17 and 18 with the shaft or drum 19, over which the endless carrier or apron is stretched. The sprocket-chain 17 extends horizontally and then vertically, as represented in Fig. 3, its oppositely-moving parts being guided by a pair of grooved pulleys, 20 20, running loosely on a shaft at the end platform of the car.

21 is the sleeve of the clutch, which is connected to the axle of the car by a spline and groove, and is adapted to move longitudinally thereon for connecting or disconnecting the sprocket-wheel 16 by means of a hand-lever, 22, fulcrumed at 23, and having a bifurcated end, 24, for engaging a groove in the sleeve 21.

25 is a toothed rack for engaging the lever 22 and holding it in any position in which it may be set.

I have here described one simple means for connecting and disconnecting each of the endless carriers with the running-gear of the car at the will of the operator; but I desire to have it understood that I do not limit myself thereto, as it is obvious that there are many other methods which might be employed.

I am aware that a series of overlapping endless conveyers is not new, *per se*, and do not claim such as my invention.

The dumping-car is constructed with a floor, a portion whereof is stationary and a portion movable, as now to be described.

26 represents the stationary portion, which is of inverted-V shape, and extends longitudinally from end to end of the car and laterally over and beyond the wheels thereof, as represented in Fig. 1. The sloping floor is cut away over each wheel of the car and provided with boxes 27, within which said wheels ro-

tate, said boxes being also of an inverted-V shape, but located transversely to the car. By this means no impediment is placed in the way of the dirt when the doors are opened for its discharge. Letting the wheels into the floor of the car in this manner enables the building of the floor of the car very much lower than would otherwise be possible, which is quite a desideratum where the cars are to be loaded by the centrifugal action of a loading-broom.

28 represents the movable portions of the floor, which are connected to and carried by the movable or hinged parts or doors 29 of the sides of the car, as represented in Fig. 1. These portions 28 of the floor, when the doors 29 are closed, underlie the lower edges of the inverted-V-shaped floor 26, and thereby form a tight joint, said doors being kept closed by any desired means—such, for example, as hasps and pins 29^a—which latter, when removed, will permit the said doors to be opened by the superincumbent pressure of material in the car.

I am aware that it is not broadly new to form the floors of self-loading dumping-cars of inverted-V shape and to provide said cars with sides which swing upon horizontal hinges, and also that it is not new to so mount a box on a truck or frame that it can be tilted to one side for the purpose of dumping its contents.

In Fig. 4 the loading-broom 1 and its inclosing-drum 2, instead of being secured directly to the front end of one of the dirt cars or receptacles, are carried by a separate truck and driven by gearing 3 with either one of the axles of said truck, as may be desired. In the said figure it is shown driven from the rear axle; but this may be changed at pleasure. In this device the broom is journaled at one end of a frame, 30, which is fulcrumed at an intermediate point, 31, to the frame of the car, and provided at the other with a hand-screw, 32, by which it may be rocked on its fulcrum 31, for the purpose of raising or lowering the broom 1 and its inclosing-drum 2. A device in some respects similar to this is shown and described in my application No. 149,998, filed on December 10, 1884, the two devices differing only in the location of the broom relatively to the supporting-wheels of the truck by which it is carried. In the present device the broom is located between the front and rear wheels of the truck.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination, with a rotary broom, of an inclosing-drum concentric therewith and fitting closely thereto at the front and top, an opening in the bottom of said drum for the admission of the dirt and air, and a chute leading from the rear, through which the dirt and air are discharged by the centrifugal action of the said broom, as set forth.

2. The combination, with a rotary broom, of an inclosing-drum concentric therewith and fitting closely thereto on all sides, an opening in the bottom of said drum for the admission of the dirt and air, and a second opening in the rear portion, through which said dirt and air are discharged by the centrifugal action of the broom.

3. The combination, with a rotary broom, of an inclosing-case concentric therewith and fitting closely thereto at the front and top, a flexible apron depending from the lower edge of the front wall of the case, and a chute leading from the rear, through which the dirt and air are discharged, as set forth.

4. In a dumping-car, the combination, with the stationary floor of inverted-V shape, of the hinged sides or doors and the movable sections of the floor secured thereto, substantially as set forth.

5. The combination, in a car, of the floor of inverted-V shape extending below the tops of the wheels, and having the transverse boxes of inverted-V shape, for the purpose set forth.

6. The combination, with a rotary broom, of a concentric drum inclosing said broom and fitting closely thereto, an opening in the bottom of said drum for the admission of the dirt and air, a flexible apron depending from the front edge of said opening, and a second opening in the upper rear portion of said casing, through which the dirt is discharged rearwardly by the centrifugal action of said broom, as set forth.

7. The combination, with a train of two (or

more) cars, of a self-loading device attached to the foremost car of the train, and an endless conveyer arranged between the cars of the train, for receiving the material as it is delivered from the loading device and conveying it rearward through the train, substantially as set forth.

8. The combination, with a train of cars, of an endless conveyer arranged between each two cars of the train, and a connection between said conveyer and the running-gear of the car, whereby it is operated, substantially as set forth.

9. The combination, with a train of cars, of a series of overlapping endless conveyers extending throughout the train, and independent mechanism for operating each at the will of the operator, substantially as set forth.

10. The combination, with the truck, of a loading device located between the front and rear axles of said truck, a vertically-adjustable frame, by which said loading device is supported, and gearing between said loading device and one of the axles of the truck, as and for the purpose set forth.

11. The combination, with a rotary broom and a casing therefor, of a flexible apron depending from said casing immediately in front of said broom, as and for the purpose set forth.

ANDREW JACKSON REYNOLDS.

Witnesses:

DANIEL M. GRAHAM,
WM. H. MYERS.