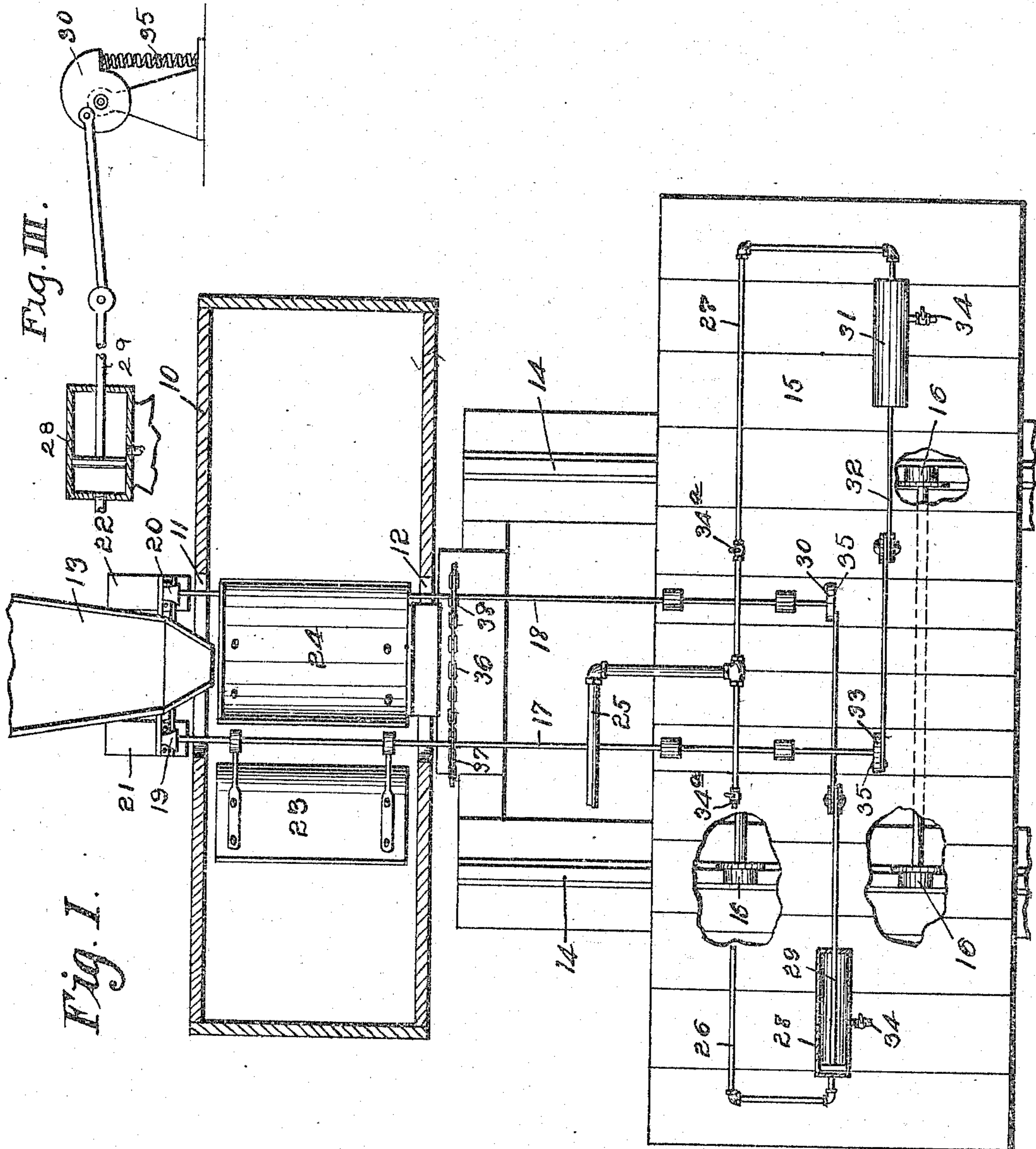


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RAILROAD BOX CAR LOADER.
APPLICATION FILED SEPT. 14, 1908.

Patented May 17, 1910.
2 SHEETS—SHEET 1.



Witnesses.

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Fig. 4.

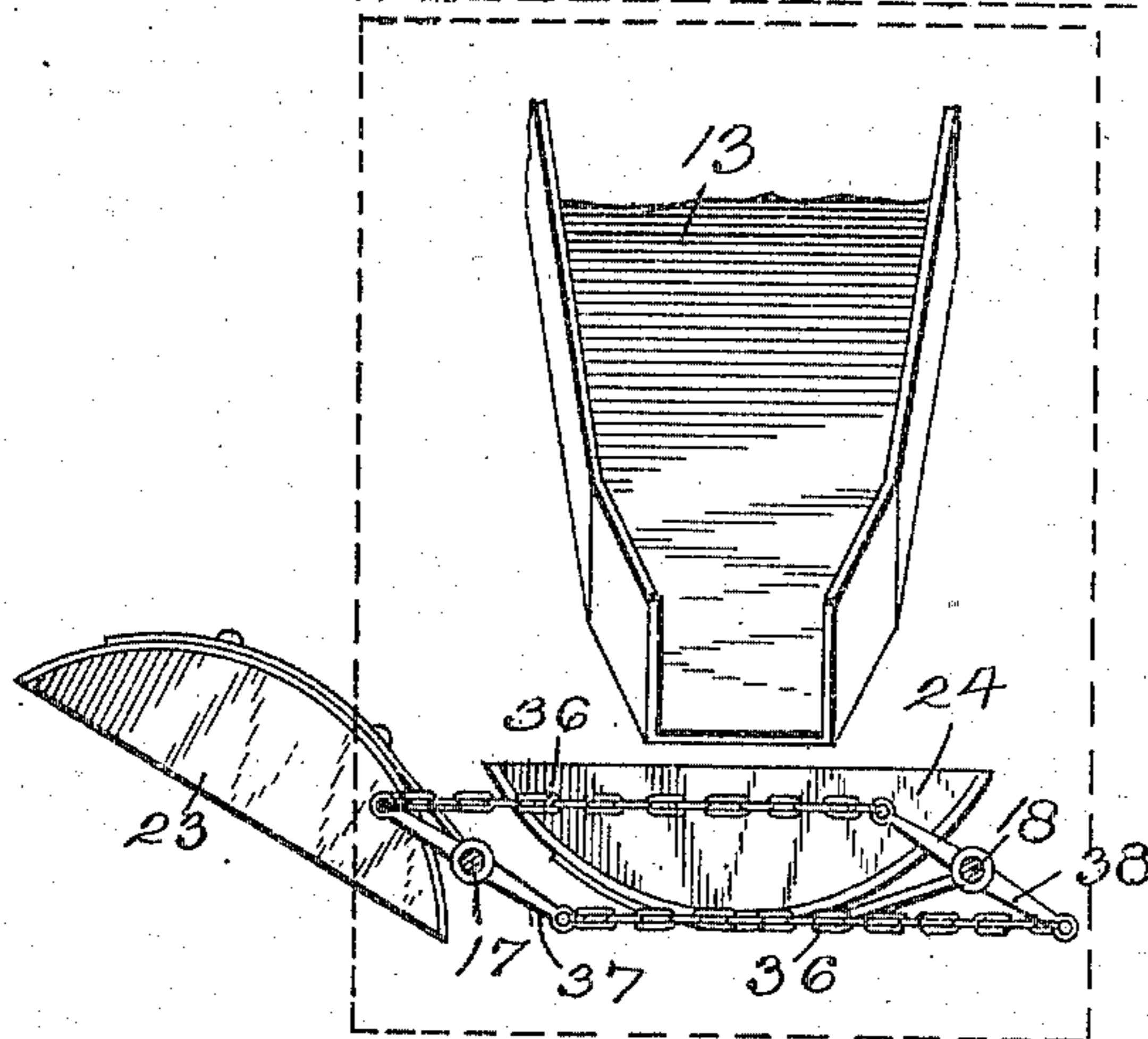
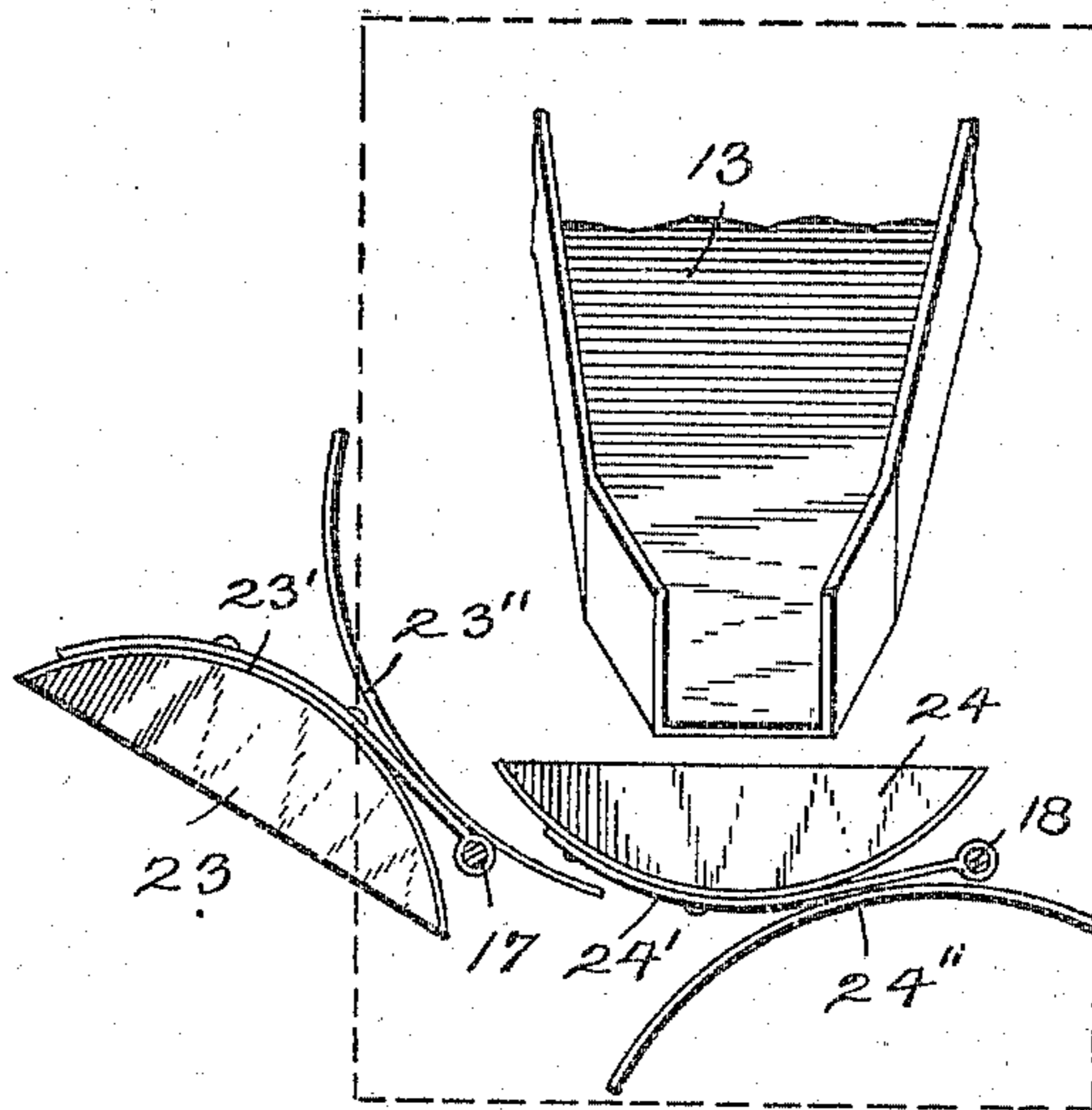


Fig. 2.



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UNITED STATES PATENT OFFICE.

HIRAM L. JACKSON, OF COLFAX, IOWA.

RAILROAD-BOX-CAR LOADER.

957,885.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed September 14, 1908. Serial No. 452,819.

To all whom it may concern:

Be it known that I, HIRAM L. JACKSON, a citizen of the United States, residing in Colfax, county of Jasper, and State of Iowa, have invented a new and useful Improvement in Railroad-Box-Car Loaders, of which the following is a specification.

The object of my invention is to provide a means, consisting of concaved circular shovels designed to be projected into a box car and to be operated simultaneously, delivering loads alternately by mechanical means adapted to operate in conjunction with a coal or other delivery chute designed to deliver coal or other material within the car.

My primary object is to provide such a means for receiving the coal or other material from the delivery chute and to distribute it equally throughout the box car, the moving shovels being adapted to throw the coal or other material into each end of the car.

I am aware that many other means have been employed, prior to this time, but without the desired success, on account of their complications in construction or their inability to perform the functions demanded economically. Hence, I have for an object, the constructing of such a means in a simple, strong, durable and practically inexpensive construction.

My invention consists of certain details of construction hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure I shows a portion of the delivery chute projected into a box car, shown in longitudinal section, and my improved device being shown in plan, a portion of same being in section and other parts being broken away; Fig. II shows a modified form, in side elevation, of the shovels which I employ; and Fig. III shows a detail view of the eccentric I employ for operating the shovels with its connections to the driving mechanism. Fig. IV is a detail view showing the shovels in coupled relation.

Referring to the accompanying drawings the reference numeral 10 is used to indicate a box car, provided with doors 11 and 12, centrally located in each of its longitudinal sides.

The numeral 13, indicates the coal delivery chute which, obviously, is station-

ary with but removable from the supply reservoir. The box car 10 is moved along the rail-road track until the door, in the longitudinal side thereof, is in line with the said chute 13, and there the car is permitted to stand until filled. Immediately opposite, and on the other side of the track to the chute 13, I have provided another track 14, which is at right angles to the rail-road track, and on the said track 14, a platform 15, containing the mechanism designed to drive the shovels of my device, is designed to move and be operated by means of a truck 16.

The numerals 17 and 18, indicate shafts projecting forwardly from the longitudinal side of the platform 15, said shafts being mounted, one on each side of the central line of the platform, and equi-distant therefrom. The distance between the shafts is less than the width of the door 12, and they are designed to project through the door 12, through the car, and through the door 11, into bearings 19 and 20 respectively, in standards 21 and 22 respectively, located on the other side of the railroad track, as clearly shown in Fig. I, the box car being left free from any bearing from said loading device.

On that portion of each of the shafts 17 and 18, which assume position within the car 10, when my device is ready for operation, I have mounted shovels 23 and 24 respectively, which are concaved and partially circular in conformation, and like unto each other in every respect. These shovels are designed to be mounted in any ordinary manner, so as to be designed for uniform and simultaneous movement, each shovel moving in the same direction at the same time, in response to the rotary or partial rotary movement of their respective shafts, each receiving and discharging its load alternately. The normal position of these shovels is, as shown by the shovel 24 in Fig. I, such that the concaved surface thereof is uppermost for the purpose of receiving the coal or other material from the chute. When the shovel 24 is filled, by admitting steam or air into cylinder 28, the mechanism operates so as to throw the shovel toward its respective end of the car thus, obviously, delivering the coal or other material to that end of the car, and while this shovel is being operated to eject its load, the shovel 23 is

being moved in the same direction as the shovel 24, until it assumes a position under the delivery chute 13. When this shovel is filled, by admitting steam or air into cylinder 31, the mechanism causes it to move toward its respective end of the car, for the purpose of ejecting and distributing its load. Thus, it is obvious, that while the two shovels 23 and 24 move uniformly and simultaneously, their action is, in effect, an alternate action for the delivery of the coal or other material. Hence the meaning of the prior statement of the alternate moving of the shovels.

The shafts, 17 and 18, are designed to be operated by air pressure or steam, and to this end I have provided an intake pipe 25, leading from an air or steam reservoir, to the central portion of the platform 15, where the air or steam is designed to be divided, and pass through pipes 26 and 27, respectively; the pipe 26, leading to an air or steam cylinder 28, provided with a piston 29, said piston being connected to an eccentric 30, on the end of the shaft 18. The air or steam passing through the pipe 27, is designed to enter the air or steam cylinder 31 and to operate the piston 32, the rod of which is connected with the eccentric 33, secured to the end of the shaft 17. By construction of parts, the pistons 29 and 32, are designed to operate uniformly and simultaneously, so that the shafts 17 and 18 will be operated in the same direction and to the same extent, simultaneously and uniformly. The steam or air is applied to cylinders 28 and 31 alternately and the chain 36, connected to lugs 37 and 38 is designed to operate to bring the pistons, where steam or air is not applied, into position for the next movement, and so on alternately. Said lugs 37 and 38 comprise arms fixed on shafts 17 and 18 in parallel lines, and connected by parallel chains 36, so that, as one of said lugs or arms is oscillated the other will be swung therewith, to simultaneously swing the shovels 23 and 24. Thus, it is obvious, that the movement of the shafts 17 and 18 is not a completely rotary movement, but only a partially rotary movement, the limit of movement each way being about 90 degrees and determined by the adjustment of the pistons 29 and 32 and exhaust ports 34 in each cylinder. Each movement is controlled by throttles 34^A located in the pipes 26 and 27 respectively.

I have provided exhaust ports 34, at various places in my cylinders 28 and 31, for the purpose of letting out the air or steam, at any point desired. The numeral 35 indicates a spring or rubber of any kind, against which the eccentric is designed to strike, when the limit of movement of the shafts, 17 and 18 respectively, has been reached, and this spring is for the purpose of form-

ing a cushion for receiving the eccentric. One of these springs is provided for each of the eccentrics 30 and 33.

The shovels 23 and 24, are each designed to be drawn inwardly in the position of shovel 24, as shown, when my device is being projected into, or withdrawn from, the box car. It is obvious that the movement of the truck 16, on the track 14, will project the shovels into the car, or withdraw them therefrom.

My device may be operated by steam, air or by any mechanical power which the operator may desire, to give the shafts carrying the shovels a 90 degree turn or more, the equipment for utilizing the power being mounted on the platform.

Various means for propelling the shovels 23 and 24 may be employed, or shovels of different styles of construction may be utilized without changing my invention, the principal feature of which is to provide, a means for oscillating, moving, or partially rotating a pair of shovels within a box car, giving the coal or other material an upward and outward throw, the said shovels assuming positions alternately to receive loads from the chute, and then being moved toward their respective ends of the box car so as to throw the coal or other material to the end thereof.

In Fig. II is shown another form of shovel which I may use in my distributing apparatus. The concaved shovels 23 and 24, supported by arms or brackets 23' and 24', on shafts 17 and 18, are also provided, on their rear faces with similar concaved plates 23'' and 24'', disposed oppositely to the shovel members 23 and 24, and are suitably secured, as to the arms 23' and 24'. When this type of shovel is used, the members 23'' and 24'' are adapted to lie in front of, and form a front side to the shovel which is being loaded. This permits a large load to be taken on, and when the shovel as 24 in Fig. II begins its upward movement, member 23'' acts as a movable front guard and prevents the coal from flying off the shovel by centrifugal force. When the shovel has reached the point where member 23'' no longer covers the front edge the coal does not need its protection, and also the opposite shovel 23 is being lowered to position for loading.

Having thus described my invention, what I claim and desire to secure by Letters Patent, of the United States, is:

1. In a box car loader comprising shafts mounted for partial rotary movement, a shovel secured to each of said shafts, said shovel having a concaved upper surface, and a concaved base; all arranged and combined substantially as shown and described.

2. A loader for cars embodying a pair of vertical standards, a bearing carried by each

standard, a platform movable toward and away from said standards, a pair of horizontal shafts arranged in spaced relation on said platform, the outer ends of said shafts being adapted to be removably engaged in said bearings, shovels on the shafts, a lug carried by each shaft, a chain connecting said lugs and extending transversely across the space between said shafts, a concentric connected to each shaft, a coil spring for each eccentric which underlies the same and acts as a cushion therefor, and means for actuating each of said concentrics.

3. A loader for cars embodying a pair of standards, a bearing carried by each, a platform movable toward and away from said standards, a pair of spaced shafts carried by said platform adapted to have their outer ends removably engaged in said bearings,

shovels on the shafts, means to operate the inner ends of the shafts, a lug on each shaft, and a flexible connection between said lugs.

4. A loader for cars embodying a pair of standards, a chute mounted above said standards a bearing carried by each, a platform movable toward and away from said standards and facing said standards, a pair of spaced shafts carried by said platform, adapted to have their outer ends removably engaged in said bearings, shovels on the shafts, means to operate the inner ends of the shafts, and means connecting said shafts whereby oscillatory movement imparted to one will be imparted to the other.

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