K. H. HANSEN.

CAR DUMPING MECHANISM.

APPLICATION FILED OCT. 30, 1911.

1,040,670.

Patented Oct. 8, 1912.

2 SHEETS—SHEET 1

FIG. 1

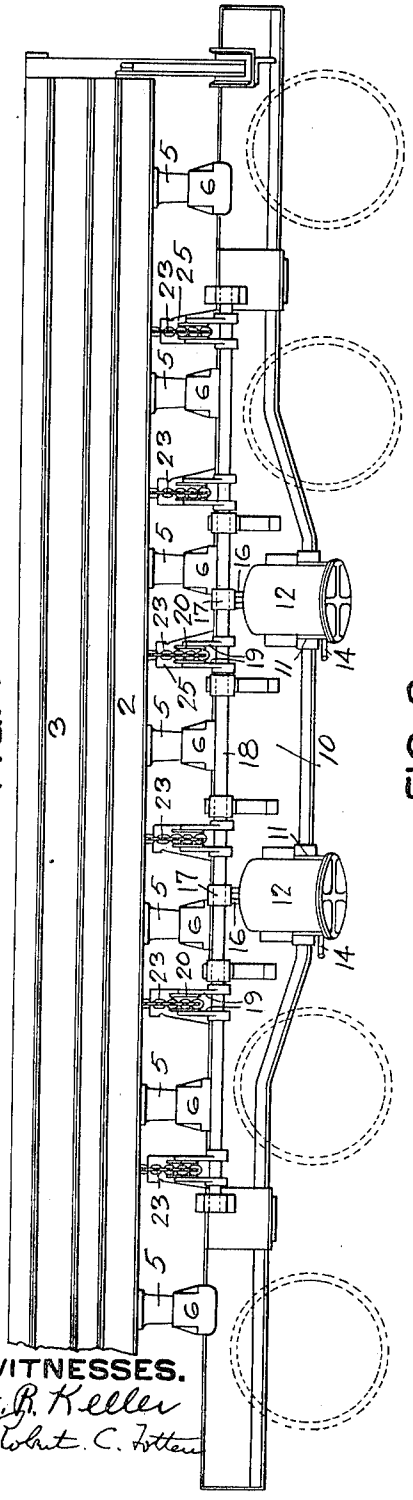
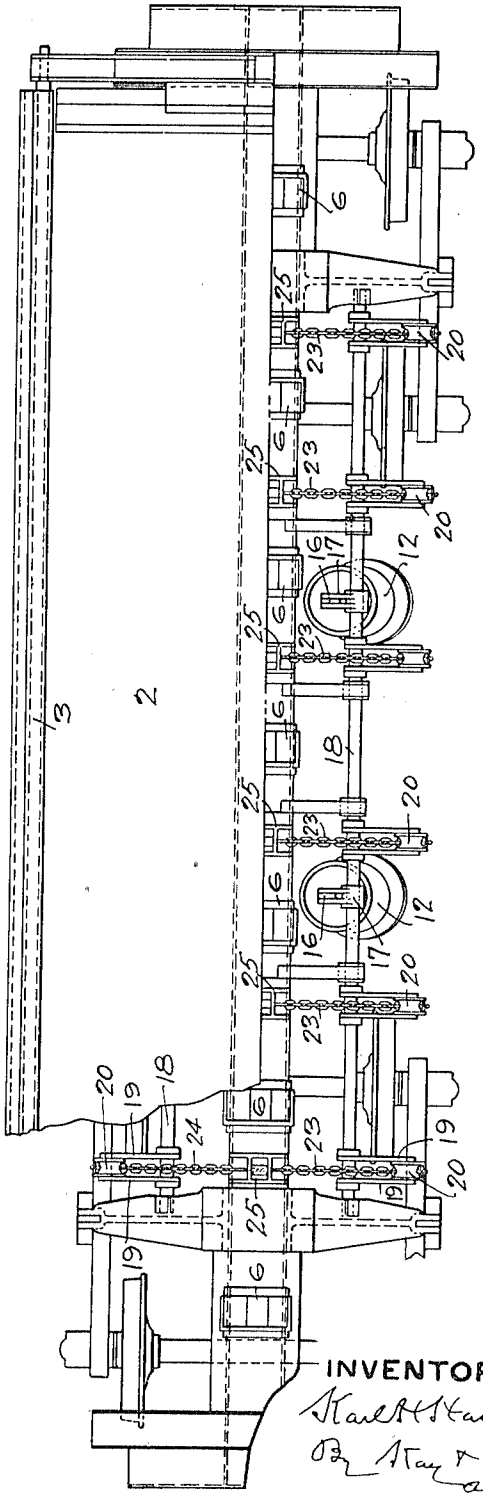


FIG. 2



WITNESSES.

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2 SHEETS—SHEET 2.

FIG. 3

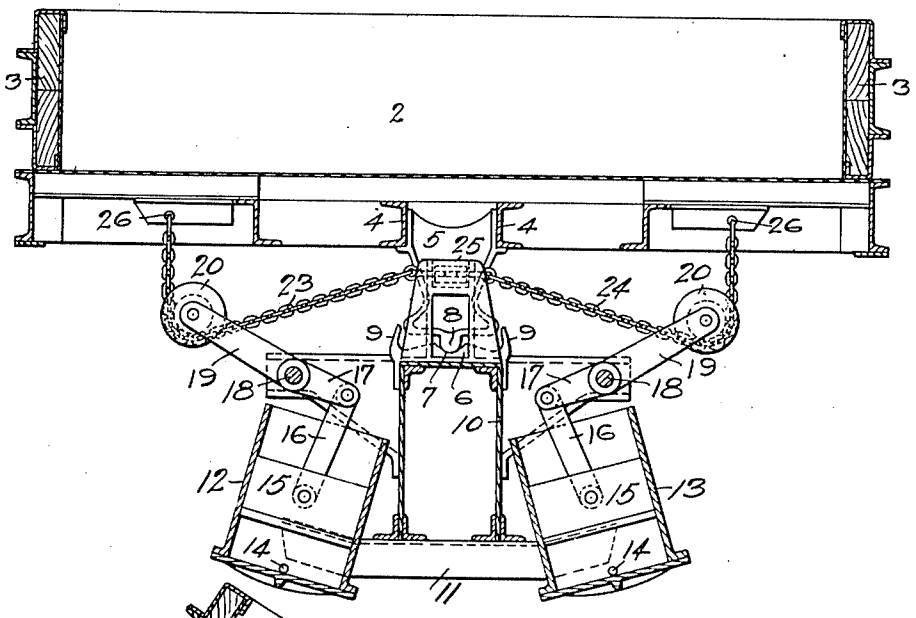
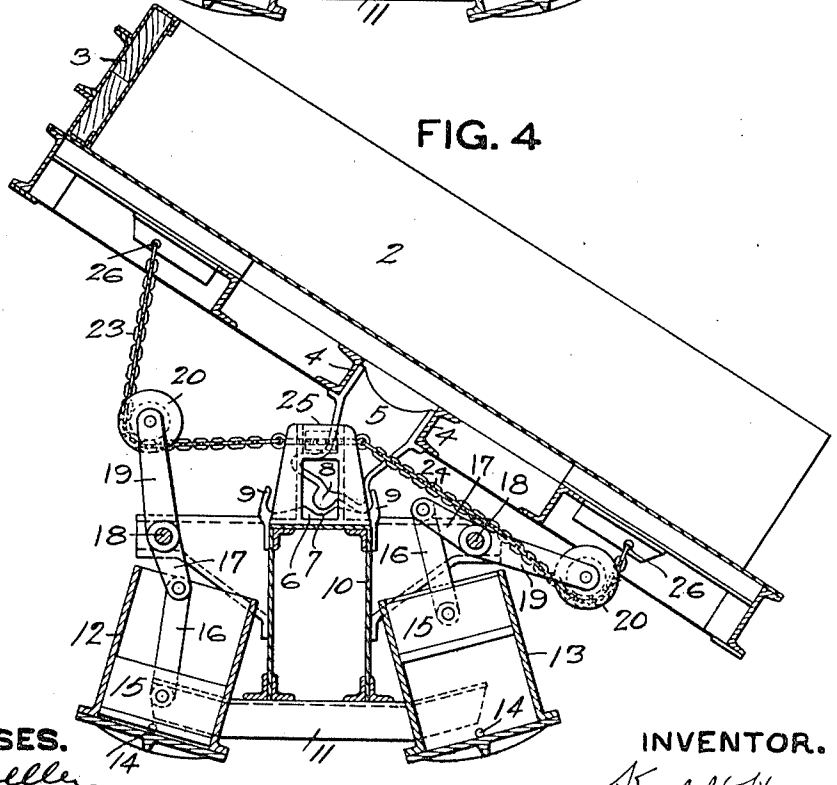


FIG. 4



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UNITED STATES PATENT OFFICE.

KARL H. HANSEN, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO ORENSTEIN-ARTHUR KOPPEL CO., A CORPORATION.

CAR-DUMPING MECHANISM.

1,040,670. Specification of Letters Patent. Patented Oct. 8, 1912.

Application filed October 30, 1911. Serial No. 657,691.

To all whom it may concern:

Be it known that I, KARL H. HANSEN, a subject of Germany, citizen of the United States, and resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Car-Dumping Mechanism; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to dump cars.

The object of my invention is to provide a dump car in which provision is made for allowing a larger travel than is ordinarily obtained of that side of the car opposite that to which the car is dumped, so that the car when dumped is brought closer to the ground and there is a greater angle of inclination in side dumping which greatly facilitates the discharge of the material from the car.

To these ends my invention comprises the novel features hereinafter set forth and claimed.

In the accompanying drawings Figure 1 is a side elevation of my improved dump car; Fig. 2 is a plan view, a portion of the car being removed; Fig. 3 is a cross section; and Fig. 4 a like view showing the car in dumping position.

Referring to the drawings, the numeral 2 designates a suitable car body with sides 3 which are removable or may be swung up out of the way when the contents are to be discharged from the car. The center-sills 4 are formed of channel-bars of the usual construction, and engaging said center-sills are the trunnion castings 5 which rest upon the castings 6 and upon which said trunnions are adapted to rock when the car is tilted to one side or the other. The castings 6 have the central depression 7 to receive the central portion 8 of the trunnion and said casting has the upwardly projecting side portions 9 which are engaged by the sides of the trunnion in dumping and prevent the trunnion from slipping from the support or casting 6. The casting 6 is carried by the pedestal 10 which is carried on the sub-structure 11 which may be of any suitable construction. This sub-structure 11 carries the cylinders 12 and 13, said cylinders having the inlets 14 for the admission of air or other motive fluid to operate the same. Within the cylinders are the pistons 15 to which the rods or links 16 are secured. The upper ends of the piston 16 are connected to the crank-arms 17. These crank-arms 17 are secured to the shaft 18 extending longitudinally of the car. The arms 19 are likewise secured to the shafts 18 and said arms carry the sheave or rollers 20. Chains 23 and 24 are secured to the stationary brackets 25 at opposite sides thereof, and the other ends of said chains are connected to the car body, as at 26, said chains engaging the sheaves 20. Cables or other flexible cords may be employed.

In the operation of my invention, when it is desired to dump the car to the position indicated in Fig. 4, air is admitted to the cylinder 13 and the piston 15 is raised therein. The arm 16 will move the crank-arm 17, and said crank-arm being secured to the shaft 18 will rock said shaft and move the arm 19 down to the position indicated in Fig. 4. This movement of the arm 19 will act to lower that side of the car, the car tilting on the trunnion-support 6. As the chain 24 is secured to the bracket 25 and to the car-body, it is apparent that the lowering of the arm 19 will cause the sheave to travel along the chain to the position indicated in Fig. 4. When the car is dumped in this manner the chain 23 at the opposite side will pull on the arm 19 and move said arm up to a substantial vertical position at the same time rocking the shaft 18 and moving the piston 15 in the cylinder 12 down to the lower end of said cylinder. The chain 23 thus provides the slack to compensate for a much larger travel on that side of the car and consequently a greater dumping angle is obtained, which increases the facility for discharging the material from the car. Furthermore the chains 23 and 24 hold the car in position against accidental dumping, and I am enabled to dispense with the rigid lever connections with the car-body which do not permit of the same flexibility of movement as I obtain by the employment of the chains arranged in the manner set forth.

The most advantageous location for the securing of the chain to the car-body, is over or substantially over the sheave 20 and the point of connection with the bracket 25 should be located as close to the center of the rotation of the dumping body as possible to get the best results. I do not, however, confine myself to the exact location of these

points of connection, as they may be varied and still come within the scope of my invention.

When the car is in the dumping position as indicated in Fig. 4, and it is desired to bring it back into its normal position, air is admitted in the cylinder 12 and the piston therein is raised whereby the shaft 13 is rotated to lower the arm 19 to the position indicated in Fig. 3 whereupon the car is brought around to its horizontal position and the parts at the opposite side also resume their normal positions with the chain in position to hold the car against accidental dumping.

By my invention, I provide a dumping mechanism which is adapted for cars of great length, as the dumping action takes place uniformly at all points and any strain or twisting action is entirely obviated.

What I claim is:

1. In a dump-car, the combination of the tilting car-body, an underframe supporting said tilting car-body, chains connected at one of their ends to the car-body and at their opposite ends to the underframe, members movably engaging said chains, and mechanism for operating said members to tilt said car-body.

2. In a dump-car, the combination of a tilting car-body, an underframe supporting same, chains connected at one of their ends to said underframe and at their opposite ends to the car-body, movable members, sheaves on said movable members engaging said chains, and means for moving said members to dump said car.

3. In a dump-car, the combination of a tilting car-body, an underframe supporting same, chains connected at one of their ends to said underframe and at their opposite ends to the car-body, pivotally mounted lever arms, sheaves on said arms engaging said chains, and mechanism for moving said arms to tilt said car.

4. In a dump-car, the combination of a tilting car-body, an underframe supporting same, chains connected at one of their ends to said underframe and at their opposite ends to the car-body, members movably engaging said chain, a fluid operated cylinder, and connections between said members and said cylinder for operating said members to dump said car-body.

5. In a dump-car, the combination of a tilting body, an underframe supporting same, chains connected at one of their ends to said underframe and at their opposite ends to the car-body, pivotally mounted lever arms, sheaves on said arms engaging with said chain, a fluid operated cylinder, and connections between said arms and said cylinder for moving the arms.

6. In a dump-car, the combination of a tilting car-body, an underframe supporting same, chains connected to said underframe and car-body, movable arms, sheaves on said arms engaging said chains, a shaft on which said arms are mounted, a fluid operated cylinder, and connections between said cylinder and said shaft to rock the same to raise and lower said arms.

7. In a dump-car, the combination of a tilting car-body, an underframe supporting same, chains connected to said underframe and car-body, arms, sheaves on said arms engaging said chain, a shaft on which said arms are mounted, crank-arms on said shaft, a fluid operated cylinder and connections between said crank arms and cylinder for operating said first named arms.

8. In a dumping car, the combination of a tilting car-body, an underframe supporting same, chains connected to said underframe and the car-body, movable arms, sheaves on said arms engaging said chains, a fluid operated cylinder, connections between said cylinder and said arms for operating same, two or more of said arms being connected to operate simultaneously.

In testimony whereof, I the said KARL H. HANSEN have hereunto set my hand.

KARL H. HANSEN.

Witnesses:
ROBERT C. TOTTEN,
JOHN F. WILL.