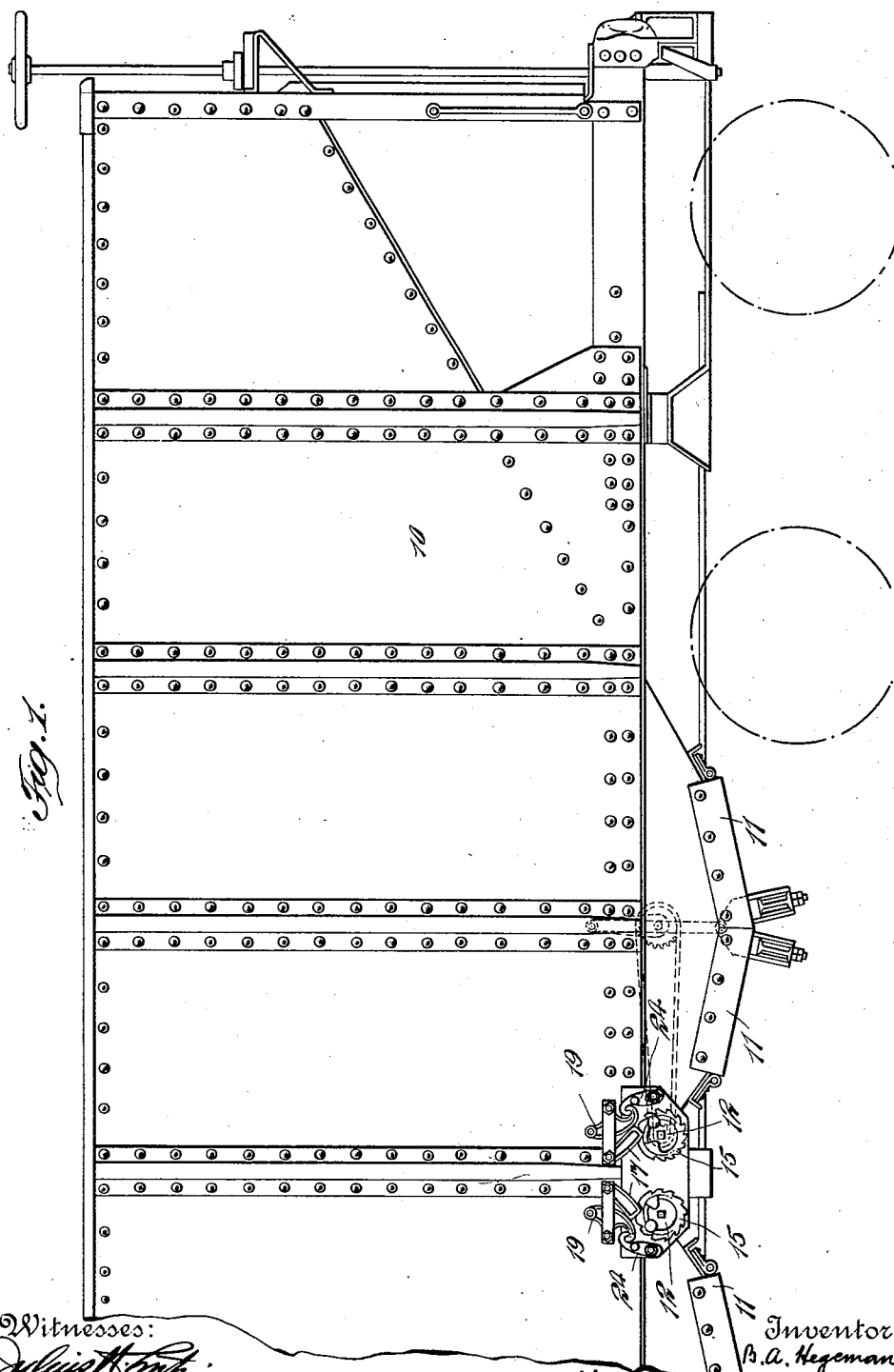


B. A. HEGEMAN, JR.
TRANSPORTATION CAR AND THE LIKE.
APPLICATION FILED AUG. 25, 1910.

1,008,033.

Patented Nov. 7, 1911.

2 SHEETS—SHEET 1.



Witnesses:
Julius H. Ink
Arthur Marion

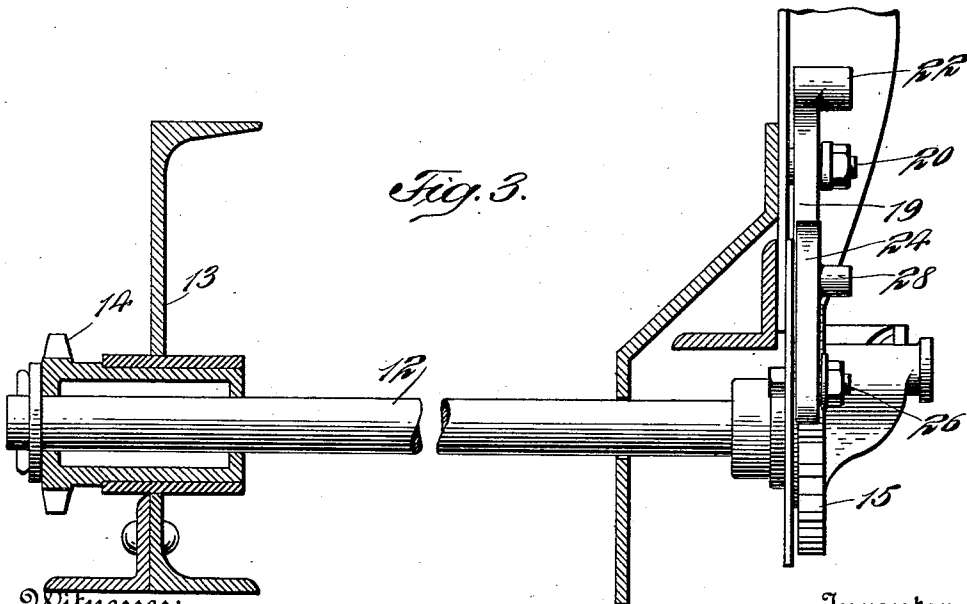
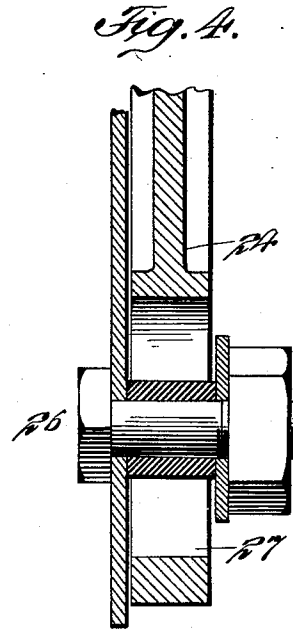
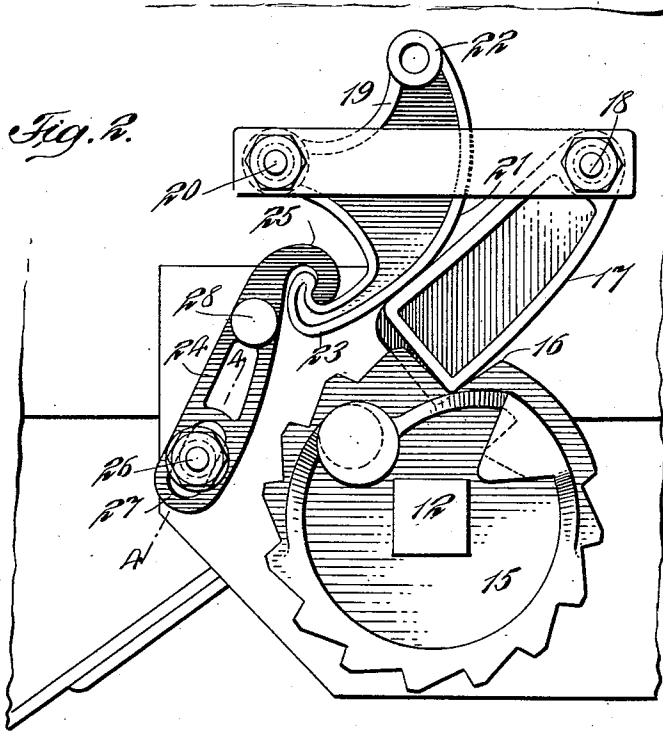
By his Attorney

Inventor
B. A. Hegeman, Jr.
Chas. C. Yell

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Witnesses:
Julius H. [Signature]
Arthur Marion.

Inventor
Benjamin A. Hegeman, Jr.
By his Attorney *Chas. C. Gill*

UNITED STATES PATENT OFFICE.

BENJAMIN A. HEGEMAN, JR., OF NORTH PLAINFIELD, NEW JERSEY.

TRANSPORTATION-CAR AND THE LIKE.

1,008,033.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed August 25, 1910. Serial No. 578,877.

To all whom it may concern:

Be it known that I, BENJAMIN A. HEGEMAN, Jr., a citizen of the United States, and a resident of North Plainfield, in the county of Somerset and State of New Jersey, have invented certain new and useful Improvements in Transportation-Cars and the Like, of which the following is a specification.

The invention relates to improvements in transportation cars and the like, and it consists in the novel mechanism hereinafter described for securely locking the bottom-door operating-gear of the car against movement tending to open or permit the opening of the door or doors during the travel of the car and also in instances in which the car may be bodily elevated and inverted for discharging its contents.

Ordinarily hopper-bottom cars have had discharge doors equipped with door-gear mechanism operable by a shaft connected by a link or links or a chain with such mechanism for opening and closing the doors, and at the side of these cars has been provided mechanism of the pawl-and-ratchet order for locking the operating shaft stationary, with the doors closed. It is, of course, of the utmost importance that the operating shaft be securely locked stationary at all times when it is not desired that the doors shall open. The jarring of a car during its travel and the weight on the doors have a strong tendency to cause the doors to open, and heretofore means reasonably adequate but not as safe as they could be made, have been provided to secure the doors in closed position. The means heretofore provided for locking the operating shaft are not efficient for their intended purposes when a car equipped with them is bodily inverted to discharge its load.

The object of my invention is to provide the car and door-gear operating-shaft with very effective means for locking said shaft stationary during the travel of the car and also during its bodily inversion.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is a side elevation of a portion of a hopper or self-clearing car provided with bottom discharge doors and door-gear operating-shaft locking mechanism embody-

ing my invention; Fig. 2 is an enlarged side elevation of a portion of the same, this figure showing more particularly the end of the operating-shaft and the locking mechanism therefor; Fig. 3 is a transverse section through a portion of the car along the line of the operating-shaft; and Fig. 4 is a transverse section on the dotted line 4-4 of Fig. 2.

In the drawings, 10 designates a portion of a self-clearing car having pairs of downwardly and outwardly opening hinged doors 11, whose opening and closing mechanism may be of varied character and is controlled, for each pair of doors, by a transverse operating-shaft 12 mounted in bearings in a center-sill 13 and in the side structure of the car, as shown in Fig. 3. The shaft 12, in the construction shown, is provided with a sprocket wheel 14 to receive the usual chain by which, when the operating shaft is located to one side of the doors, the motion of the shaft is communicated to the gear directly connected with the doors. I do not deem it necessary to specifically describe in this application any definite chain-operated door-gear, since my invention is not limited to the details of the door-gear, but as an illustration of a chain-operated door-gear that I by preference employ, I refer to that shown and described in detail in Letters-Patent No. 866,764 granted to me September 24, 1907, as assignee. An example of a door-gear operated from a direct connected transverse shaft, the chain being omitted, is shown in Letters Patent 806,763 granted to me December 12, 1906, as assignee. My invention has to do with the means located at the side of the car for locking the door-gear operating-shaft 12 and hence is not confined to the details of the gear.

The shaft 12 has on its outer end a ratchet wheel 15 provided with a deep notch 16 to receive the free end of a pawl 17 when the doors 11 reach their closed position. The wheel 15 is not in itself of unusual construction and operation and therefore requires no specific description. The pawl 17 is pivotally secured at its upper end, on a bolt 18, and when it is freed from its restraining means it may be swung over against the inclined faces of the teeth of the ratchet 15 and be thereby rendered inoperative for re-

tarding the rotation of the shaft 12. When the pawl 17 is in the position shown in Fig. 2, it locks the wheel 15, shaft 12 and doors 11, the latter being at the time closed, stationary.

For the purpose of locking the pawl 17 in the notch 16 of the ratchet wheel 15, I provide a dog 19 pivotally secured on a bolt 20 and provided with a convex outer edge 21 to engage the upper side of the pawl. The dog 19 may be turned upwardly and toward the left (looking at Fig. 2) and thus free the pawl to be swung upwardly and toward the right from operative engagement with the ratchet wheel. The dog 19 is provided with a handle 22 for convenience in manipulating it and is pivoted at one side of its center so that it may have a normal tendency to remain in a locking position against the pawl 17 when the car is in an upright position. The dog 19 would, however, unless means for preventing the same is provided, fall away from the pawl 17 and allow the latter to leave the ratchet-wheel 15 when the car is bodily inverted. There might also be some conditions under which, while in an upright position, the dog 19 might be jarred upwardly, unless means for preventing the same is provided, from the pawl 17. In accordance with my invention I construct the dog 19 with a lower hook-member 23 opening upwardly and on the side of the car I secure a slidable as well as pivoted latch-bar 24 having at its upper end a downwardly extending hook-member 25 to interlock with the hook member 23 of the dog 19, as shown in Fig. 2. The latch-bar 24 is held at its lower end upon a bolt 26, which passes through a slot 27 in said bar and allows the bar to have not only a pivotal movement but a sliding movement determined by the length of the slot 27. The latch bar 24 is also provided with a handle or knob 28 for convenience in sliding or manipulating it. The hook members 23, 25 so interlock when the parts are in their operative position, that by no possibility could the dog 19 be jarred, during the travel of the car, from engagement with the pawl 17, and likewise during any inversion of the car the hook member 25 will restrain the dog 19 from leaving the pawl 17. In the construction presented the latch-bar 24 normally inclines toward the dog 19 and pawl 17 and the engaging ends of the hook-members 23, 25 lap by and engage each other at their inner sides, with the result that any tendency of the dog 19 to turn from the pawl 17, whether during the travel or the inversion of the car, will act to pull laterally against the upper end of the latch bar 24 and cause said bar to grip the dog and restrain it from turning unduly from its locking position. The dog 19 may have some latitude of movement without permitting

the pawl 17 to lose its engagement with the deep notch 16 of the ratchet-wheel, but the latch bar 24 coacting with the dog will prevent the latter from ever losing its operative relation to the pawl 17, except when said bar is manually moved to disengage its hook-member 25 from the hook member 23 of the dog.

When it is desired to release the pawl 17 from the ratchet-wheel 15 preparatory to the dumping of the car through the doorways in the bottom thereof, the attendant will move the latch bar 24 upwardly and inwardly along the entrance edges of the hook-member 23 and then turn said latch-bar 24 outwardly or toward the left, looking at Fig. 2, so as to release the dog 19, and thereupon the dog 19 may be swung outwardly toward the left to release the pawl 17, after which the pawl 17 will be thrown upwardly and toward the right away from the notch 16 of the ratchet-wheel. This condition of the parts would leave the operating shaft 12 free to be rotated by means of a crow-bar or other tool, as usual, for causing the door-gear connected with the doors to permit the opening of the latter and the discharge of the contents of the car. After the car has been discharged of its contents, the operating shaft 12 is given a reverse motion for the purpose of effecting, through the door-gear, the closing of the doors. After the doors have been closed the pawl 17 will be returned to engagement with the ratchet 15, the dog 19 moved into position against the pawl 17 and the latch bar 24 returned to its engaging relation with the dog 19, the parts thus being restored to their condition shown in Fig. 2. In the event that the car is to be dumped by being bodily inverted, the pawl, dog and latch bar are left in their relative positions shown in Fig. 2, and during such inversion of the car the latch-bar 24 will prevent the dog from swinging from the pawl, so that upon the restoration of the car to its normal upright position, the pawl, dog and latch bar will be found to be in their operative relation to one another shown in Fig. 2, any tendency of the dog 19 during the inversion of the car to materially leave the pawl 17 being checked by the pull of the hook member 23 of the dog against the hook member 25 of the latch-bar, which will retain its grip on said dog.

During the inversion of the car, the dog 19 will, under the force of gravity, fall to the extent permitted by the reasonable clearance allowed around the bolt 20 and in so doing just clear the surface of the pawl 17 and, by means of the hook 23, draw the bar 24 with it, the slot 27 permitting this slight sliding movement of the bar with the dog. When, under the inversion of the car, the dog 19 falls slightly and draws the latch bar 24 with it, there is then not enough

clearance in the end of the slot 27 at the end of said bar to permit the bar to fall away from the hook 23 and as a consequence the latch-bar holds the dog 19 stationary, with the hooks 23, 25 firmly interlocked, in such relation to the pawl 17 that the latter could not leave the deep notch of the wheel 15 even should there be a tendency for it to do so. It is a very desirable feature of the invention that upon the restoration of the car to its upright position, the pawl, dog and latch bar are found to be in their operative relation to one another.

What I claim as my invention and desire to secure by Letters-Patent, is:

1. Car door operating gear comprising a main operating shaft having a ratchet, a pawl on the car to engage said ratchet for locking said shaft against rotation, a dog engaging said pawl for locking it against the ratchet and having a hook-member, and a latch-bar on the car having a hook-member to interlock with the hook-member on the dog; substantially as set forth.

2. Car door operating gear comprising a main operating shaft having a ratchet, a pawl on the car to engage said ratchet for locking said shaft against rotation, a dog engaging said pawl for locking it against the ratchet and having a lower upwardly projected hook-member, and a latch-bar on the car having a downwardly projected hook-member to interlock with the hook-member on the dog; substantially as set forth.

3. Car door operating gear comprising a main operating shaft having a ratchet, a pawl on the car to engage said ratchet for locking said shaft against rotation, a dog engaging said pawl for locking it against the ratchet and having a hook-member, and a latch-bar on the car having a hook-member to interlock with the hook-member on the dog, said latch-bar being pivotally

mounted on a bolt on which it is also slidable; substantially as set forth.

4. Car door operating gear comprising a main operating shaft having a ratchet, a pawl on the car to engage said ratchet for locking said shaft against rotation, a dog engaging said pawl for locking it against the ratchet and having a lower upwardly projected hook-member, and a latch-bar on the car having a downwardly projected hook-member to interlock with the hook-member on the dog, said latch-bar being slotted and mounted on a bolt extending through said slot, whereby it becomes both pivotally and slidably secured; substantially as set forth.

5. Car door operating gear comprising a main operating shaft, a gravity pawl for locking said shaft against rotation, a gravity dog for engaging said pawl and holding it in operative position when the car is normally upright, and means for preventing said dog from releasing said pawl when the car is inverted; substantially as set forth.

6. Car door operating gear comprising a main operating shaft, a gravity pawl for locking said shaft against rotation, a gravity dog for engaging said pawl and holding it in operative position when the car is normally upright, and means for preventing said dog from releasing said pawl when the car is inverted, said means comprising a hook-member on said dog and a pivoted and slidable latch bar having a hook-member to engage the hook-member on said dog; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 24th day of August A. D. 1910.

BENJAMIN A. HEGEMAN, JUNIOR.

Witnesses:

CHAS. C. GILL,
ARTHUR MARION.