

No. 609,054.

Patented Aug. 16, 1898.

J. SIMPSON.
COAL POCKET.

(Application filed Sept. 21, 1897.)

(No Model.)

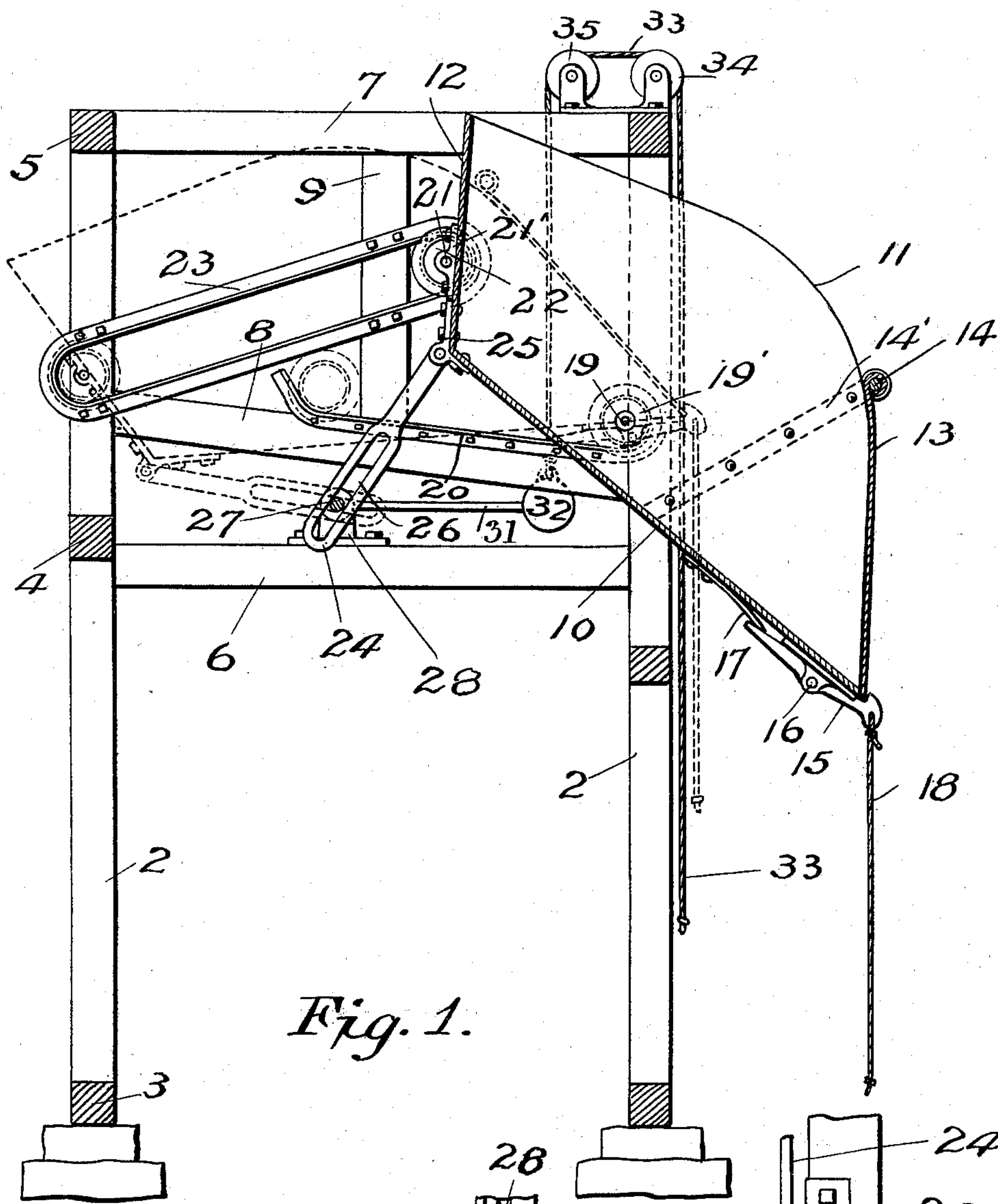


Fig. 1.

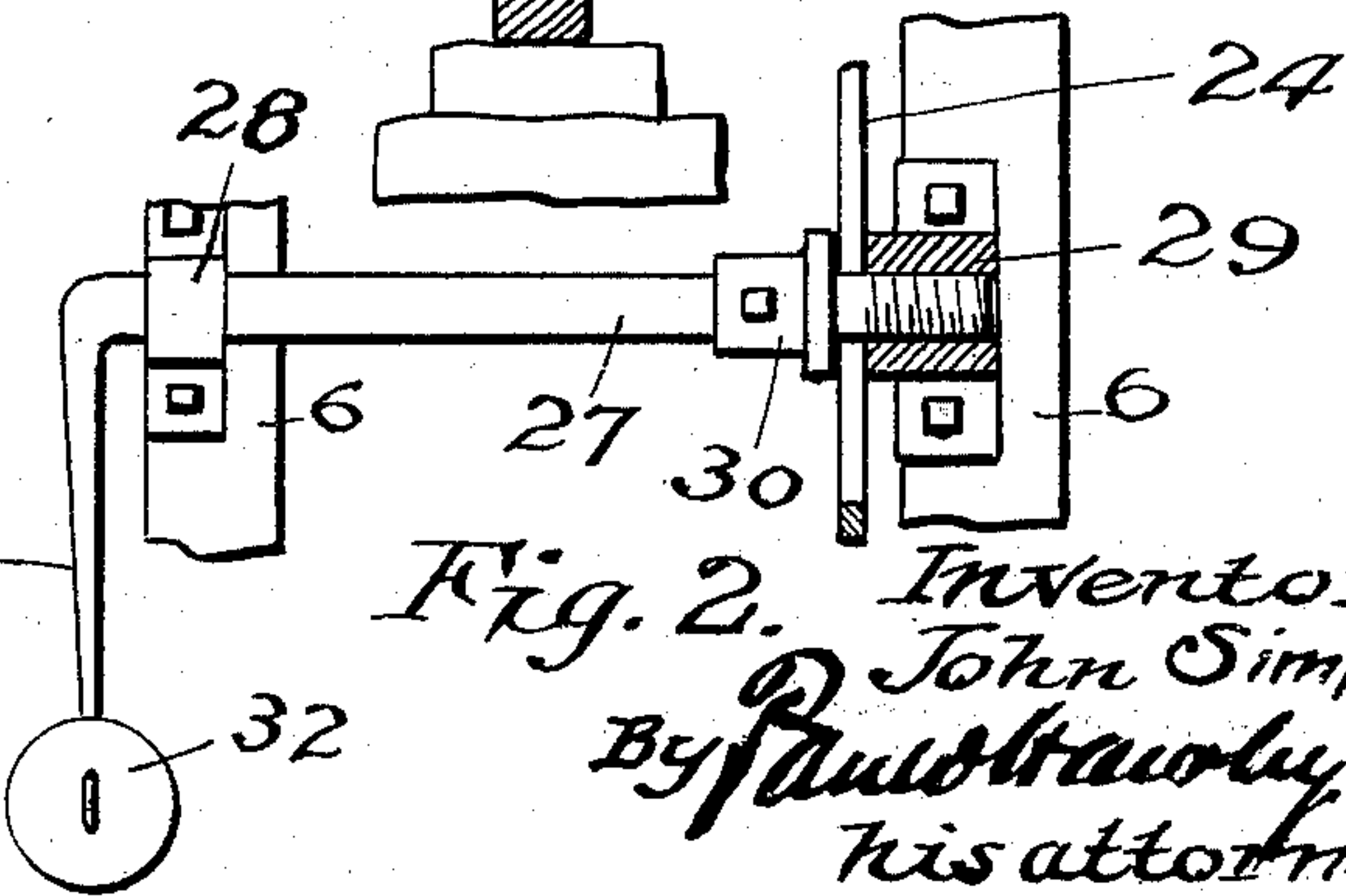


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN SIMPSON, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO
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COAL-POCKET.

SPECIFICATION forming part of Letters Patent No. 609,054, dated August 16, 1898.

Application filed September 21, 1897. Serial No. 652,417. (No model.)

To all whom it may concern:

Be it known that I, JOHN SIMPSON, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Coal-Pockets, of which the following is a specification.

My invention relates particularly to devices designed for handling coal, although applicable for handling other articles, such as ore or any kind of grain.

The object of the invention is to provide a pocket or receptacle for coal or other material which when empty or only partially filled will be held by its own gravity in what may be termed its "normal" or "retracted" position and which when filled with material will tend to move forward into position to discharge its contents into a locomotive-tender, the hold of a vessel, a car, or other receptacle and which after its contents have been partially or entirely emptied into such tender, hold of a vessel, car, or other receptacle will automatically return by gravity to its normal or retracted position.

A further object of the invention is to provide a suitable locking mechanism adapted to hold the pocket either in its retracted or forward position and which, when desired, may be released to permit the pocket to travel forward to bring it in position for dumping its contents or to travel backward to return to its normal position.

The invention consists generally in a suitable pocket or receptacle mounted upon suitable supports and capable of a limited forward and backward movement and tending when filled with material to move forward to the limit of its forward movement and when empty or only partially filled with material to move backward to the extent of its backward movement.

The invention consists, further, in a locking mechanism by means of which the pocket may be held either in its forward position or in its retracted or normal position.

The invention consists, further, in the constructions and combinations hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a trans-

verse vertical section of the car or pocket and framework supporting the same. Fig. 2 is a detail view of the locking mechanism.

In the drawings, 2 represents the upright timbers, resting upon a suitable foundation and supporting the car or pocket and the mechanism for operating the same.

3, 4, and 5 are the horizontal timbers of the framework, and 6 and 7 are cross-timbers connecting the upright timbers 2.

8 is a transverse brace connecting the timbers 2 and arranged at an incline from the rear to the front of the framework.

9 is a short upright brace connecting the transverse timbers 7 and 8 near the middle portions of the same.

It will be understood, however, that any othersuitably-constructed frame may be substituted for that herein shown and described.

The pocket or car I prefer to construct of steel plates securely bolted together, comprising the bottom 10, the sides 11, and the back 12. At the front of the pocket I provide a swinging gate or door 13, pivotally supported by the rod 14, having its ends secured to the sides 11. The sides are strengthened by straps or bands 14', which extend from the bottom of the pocket up to a point near the ends of the rod 14. The lower edge of the gate or door 13 is substantially flush with the bottom edge thereof, and a latch 15, pivoted to the lugs 16 on the bottom of the pocket, is held in engagement with the lower edge of the door 13 by a spring 17, having one end bolted to the bottom 10 and its other in engagement with the inner end of the latch 15. A cord 18, attached to the outer edge of the latch, permits the operator to disengage the latch from the door and allow the coal or other material, or any desired amount thereof, to pass out of the pocket. In place of the cord 18 I may provide any other suitable device to engage and trip the latch 15, and I may use any other suitable latch in place of the latch 15.

Mounted in bearings upon the pocket or car and preferably near the middle thereof I provide a shaft 19, which either extends through the pocket or is in the form of two stub-shafts upon the outside of the pocket and is provided with the flanged trucks or

rollers 19', which rest upon guides 20, secured to the cross bars or braces 8 or to other suitable parts of the frame. These guides 20 are preferably constructed of angle-iron turned upwardly at each end, their upper surfaces projecting sufficiently above the braces 8 to permit the flanges on the trucks 19' to extend down over the surfaces of the guides and thereby hold the trucks in position thereon. In the drawings I have shown these guides inclined slightly from the rear to the front of the frame; but they may be arranged horizontally, if desired.

Upon the rear end 12 of the pocket I provide a shaft 21, mounted in bearings 21' and projecting beyond each side of the pocket and provided with the trucks or rollers 22, which move in guides 23, secured to the braces 9 and the upright timbers 2 upon each side of the pocket. These guides are preferably substantially elliptical in form, are made of angle-iron, and inclined backwardly, their forward ends projecting over the guides 20, heretofore described. The trucks 22 are preferably arranged upon the shaft 21 so that their flanges will bear upon the inner edges of the guides 23, and as the trucks 19' are arranged so that their flanges bear upon the outer edges of the guides 20 the pocket will be held against lateral movement but will be permitted to move back and forth freely on the guides 20 and 23.

The rear end of the pocket is considerably heavier than the forward portion of the same, and the weight of the rear end is further increased by the shaft 21 and the trucks thereon, so that when the pocket is empty or only partially filled with material the weight of the rear of the pocket will cause the trucks to roll back over the guides to the rear end of the same and the pocket to assume the position indicated by dotted lines in Fig. 1. There is, however, considerable more space in the pocket in front of the shaft 19 than there is behind the same, so that when the pocket is filled with coal or other material the forward end will be considerably heavier than the rear end and will overbalance the extra weight of the rear end of the pocket.

At the rear of the pocket I provide an arm 24, pivotally secured at one end to the bracket 25 in the rear of the pocket, and provided at its other end with a longitudinal slot 26 to receive one end of a horizontal shaft 27, which is mounted in bearings 28 upon the cross-timbers 6. One end of the shaft 27 is threaded to enter a threaded opening provided in the block 29, between which and a collar 30 the arm 24 is arranged to slide. The opposite end of the shaft 27 is provided with a lever 31, formed integrally therewith and having a weight 32 at its outer end and connected to a cord 33, which passes over pulleys 34 and 35 and extends down beside the upright timbers 2 outside of the framework that supports the pocket.

When the weight 32 is lowered, the face of

the collar 30 will be brought into engagement with the surface of the arm 24, securely clamping the same against the face of the block 29. When the weight is raised, the shaft 27 will be rotated in the opposite direction and the collar disengaged from the arm 24, permitting it to slide freely on the shaft.

The operation of the device is as follows: The car or pocket when in its normal position, as indicated by dotted lines in Fig. 1, is filled with coal or other material, the locking mechanism preventing it from moving until such time as the operator desires to fill a locomotive-tender or other receptacle. At such time the operator pulls the cord 33, lifting the weight 32 and the lever 31 and rotating the shaft 27, which disengages the end of the collar 30 from the lever 24 and permits the same to slide freely on the shaft. The weight of the coal or other material in its forward end will cause the car or pocket to move forward on the guides 20 and 23 until it has reached the forward limit of its travel and is in the position indicated by full lines in Fig. 1. When in this position, its forward end will project out beyond the front of the framework and overhang the locomotive tender or other receptacle beneath. The operator then releases the cord 33, permitting the weight 32 to drop back to its normal position and the collar 30 to engage the arm 24 and lock the same securely between its surface and the end of the block 29. The pocket is now in position to discharge the coal or other material into the tender or other receptacle, and as soon as the operator pulls the cord 18 and releases the door 13 the material will flow out of the pocket.

As soon as the material or any desired amount thereof has passed out of the pocket the door 13 will close automatically, and as soon as the operator raises the weight 32 and releases the arm 24 the pocket or car will move along the guides 20 and 23 to its normal position, the tracks 19 being arranged upon the sides 11 in such a position that the heavier end of the pocket or car is in the rear of said trucks, and the return of the car to its normal position being further aided by the trucks 21, mounted upon its rear end.

I do not confine myself to the use of this device in filling locomotive-tenders with coal, as it is equally applicable for loading coal, ore, or grain upon cars or into the holds of vessels or for any other purpose where it is desired to provide a car or pocket that will automatically discharge its contents or any desired portion thereof and then automatically return to its normal position; nor do I confine myself to the specific form of locking device shown and described, as other suitable mechanisms may be used to lock the pocket in its forward and retracted positions.

I claim as my invention—

1. The combination, with a coal-pocket provided with a suitable door at its forward end, and with one set of wheels or trucks located

at or near the rear end of said pocket, and a second set of wheels or trucks located near the longitudinal center of said pocket, of separate tracks upon which said wheels or trucks rest and are adapted to move, the tracks for the rear wheels being backwardly inclined, whereby when the pocket is filled with material it tends to move forward upon said tracks and when the pocket is empty or when the material has been partially discharged therefrom it tends to move back upon said tracks, for the purpose set forth.

2. The combination, with a coal-pocket provided with a suitable door at its forward end, and with one set of wheels or trucks located at or near the rear end of said pocket, and a second set of wheels or trucks located near the longitudinal center of said pocket, of separate tracks upon which said wheels or trucks rest and are adapted to move, the tracks for the rear wheels being backwardly inclined, whereby when the pocket is filled with material it tends to move forward upon said tracks and when the pocket is empty or when the material has been partially discharged therefrom it tends to move back upon said tracks, and a locking mechanism arranged to hold said pocket at either limit of its movement, for the purpose set forth.

3. The combination, with a coal-pocket provided with a suitable door at its forward end, of means for supporting said pocket, and permitting a limited forward and backward movement thereto, the rear portion of the pocket being heavier than the forward portion and the forward portion being of greater capacity than the rear portion, whereby when

the pocket is filled with material it tends to move to the limit of its forward movement, and when the pocket is empty or the material has been partially discharged therefrom, it tends to move to the limit of its backward movement, for the purpose set forth.

4. The combination, with a coal-pocket provided with a suitable door at its forward end, of means for supporting said pocket and permitting a limited forward and backward movement thereto, the rear portion of the pocket being heavier than the forward portion and the forward portion having a greater capacity than the rear portion, whereby when the pocket is filled with material it tends to move to the limit of its forward movement and when the pocket is empty or the material has been partially discharged therefrom it tends to move to the limit of its backward movement, and locking means for holding said pocket at either limit of its movement, for the purpose set forth.

5. The combination, with the dumping-pocket, and the trucks therefor, of the guides or tracks supporting said trucks, the frame whereunto said guides are secured, a slotted arm at the rear of said pocket, a shaft to enter said slot, a friction device upon said shaft to engage said arm, and means for rotating said shaft, substantially as described.

In testimony whereof I have hereunto set my hand this 15th day of September, A. D. 1897.

JOHN SIMPSON.

In presence of—

I. N. WALKER,
R. M. RUND.