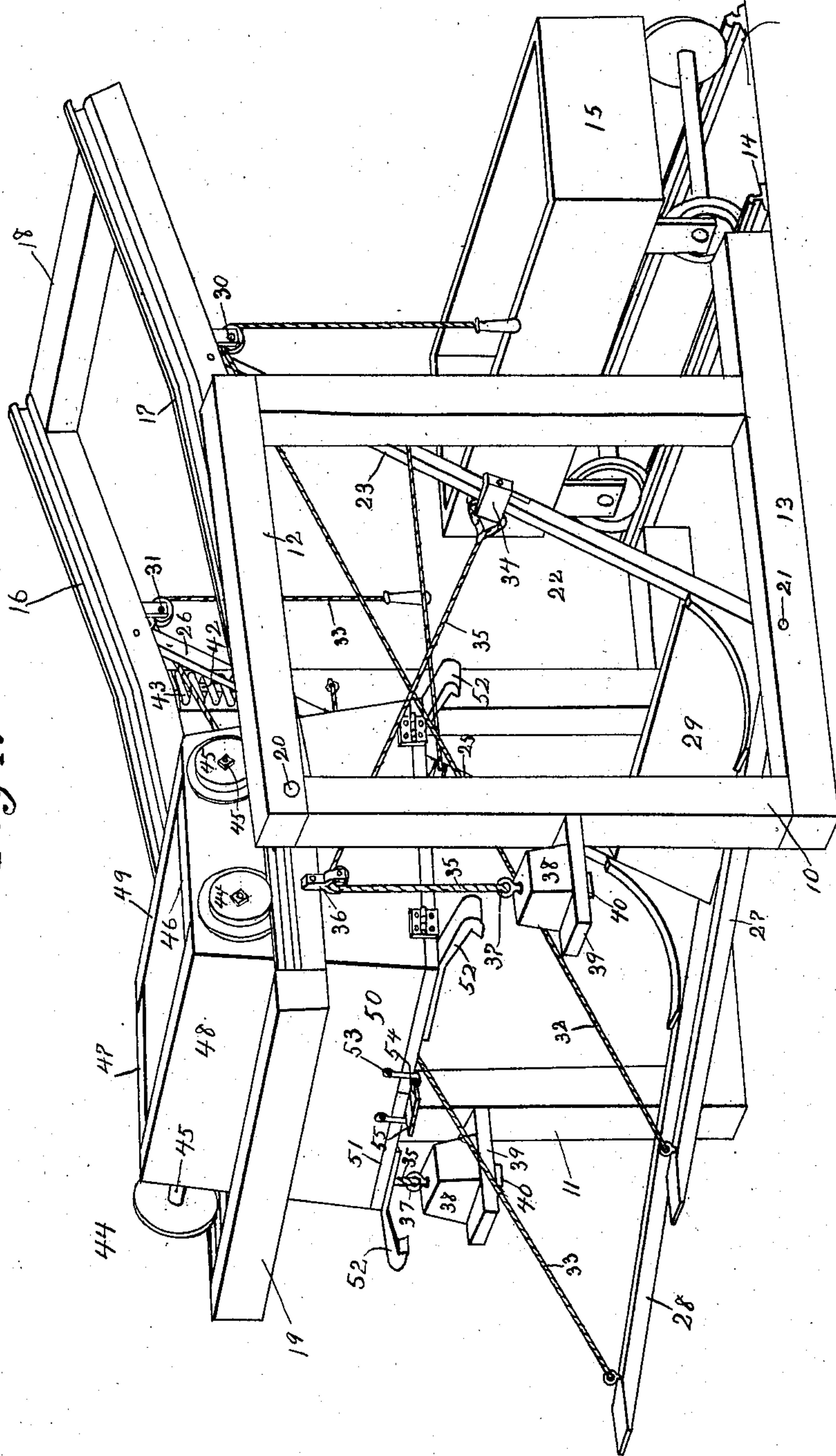


F. J. McCALMONT.  
COALING DEVICE FOR ENGINE TENDERS.  
APPLICATION FILED OCT. 22, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses,  
L. L. Leibrock  
H. Wedgwood

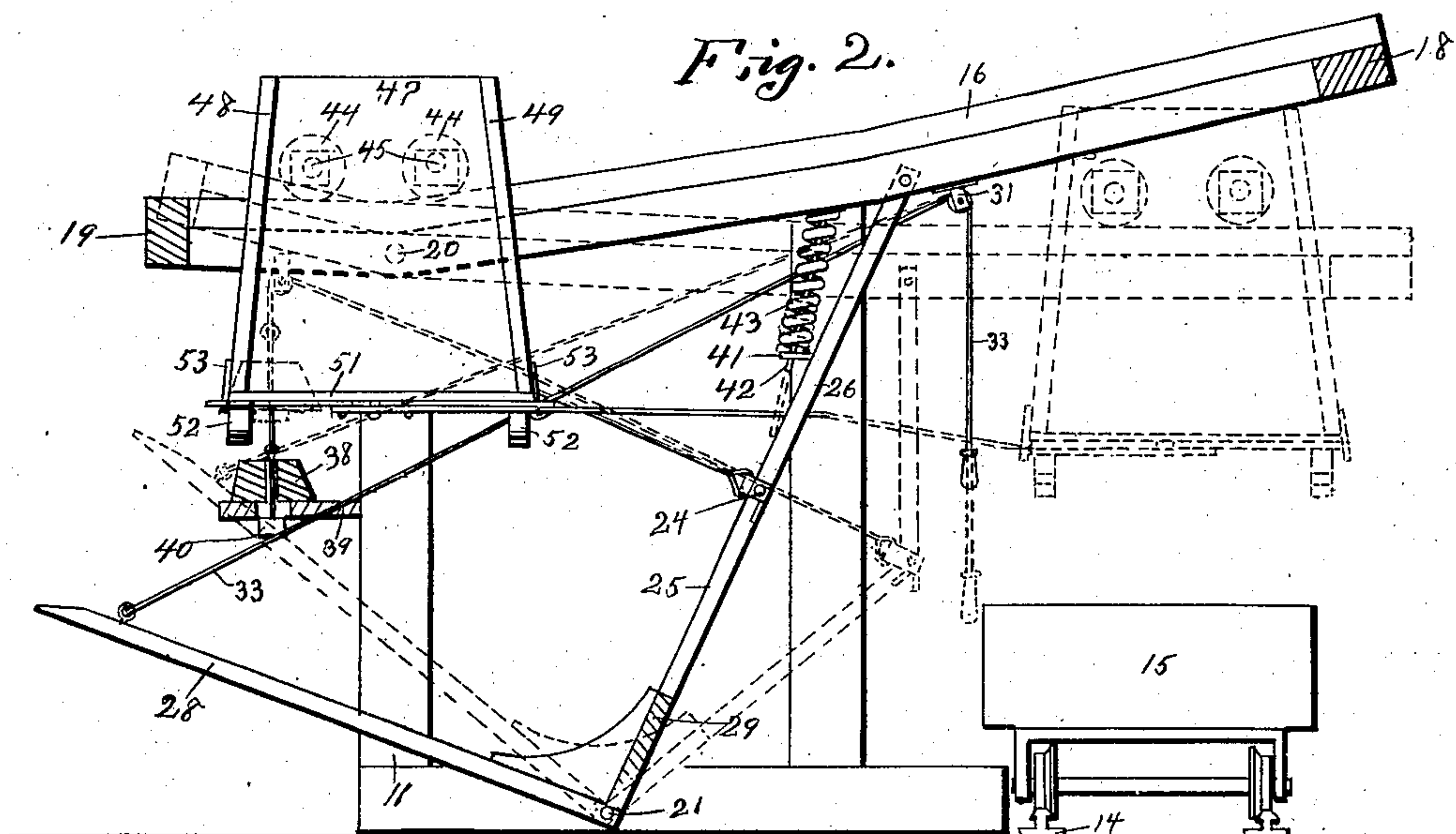
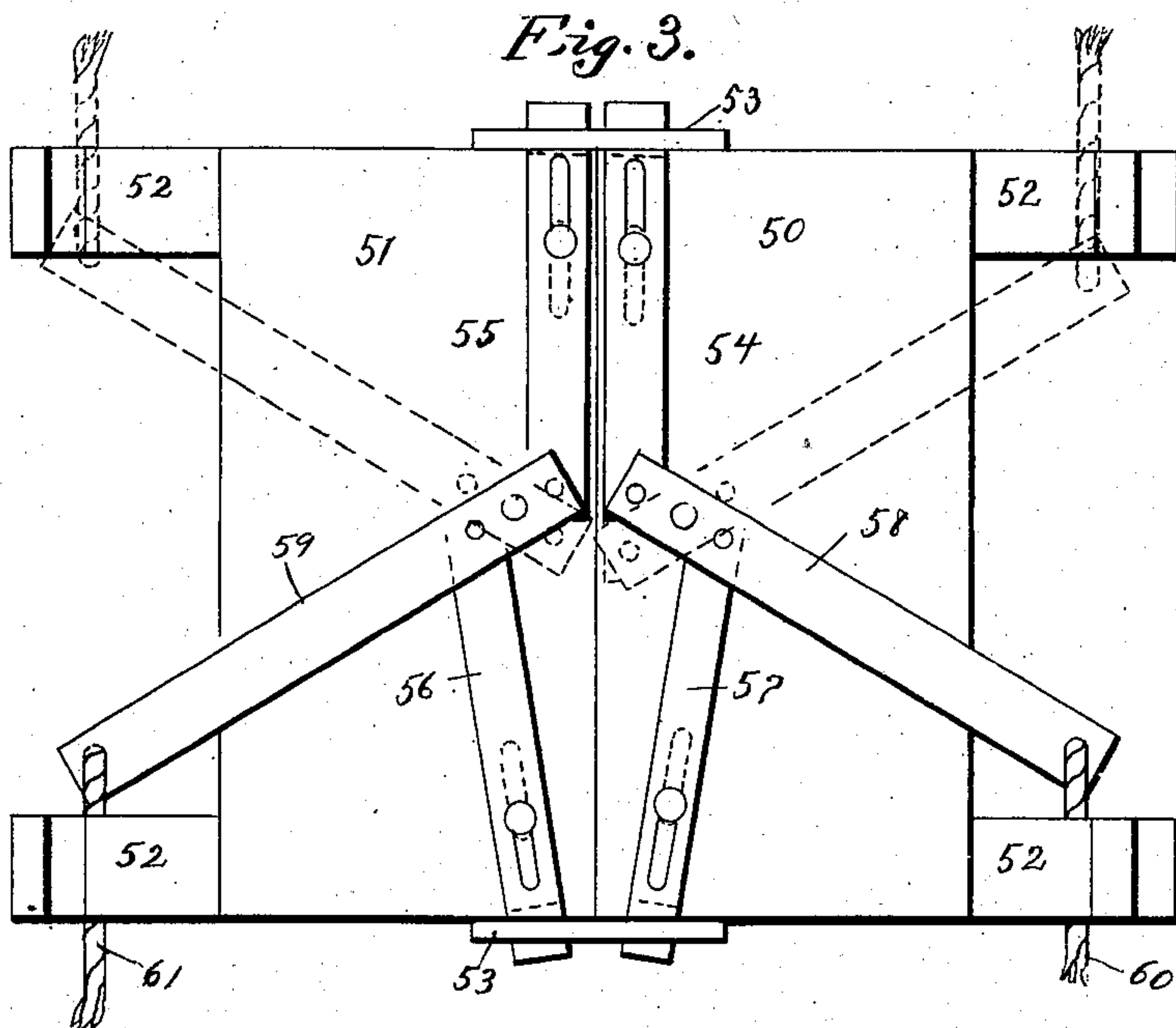
Inventor:—Frederick J. McCalmont.  
by *Quig & Lane*  
Att'ys.

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2 SHEETS—SHEET 2.



Witnesses,  
L. L. Leebrock,  
H. Wedgwood.

Inventor: Frederick J. McCalmont.  
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# UNITED STATES PATENT OFFICE.

FREDERICK J. McCALMONT, OF BOONE, IOWA.

## COALING DEVICE FOR ENGINE-TENDERS.

SPECIFICATION forming part of Letters Patent No. 737,131, dated August 25, 1903.

Application filed October 22, 1902. Serial No. 128,367. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK J. McCALMONT, a citizen of the United States, residing at Boone, county of Boone, State of Iowa, have  
5 invented a certain new and useful Coaling Device for Engine-Tenders, of which the following is a specification.

The objects of my invention are to provide a coaling device for engine-tenders which is  
10 mounted in a coal-shed and so arranged that the conveying-car will when the tracks are lowered run out on these tracks and provide a momentum of its own enough to carry it to the outer end of these tracks.

15 A further object is to provide a coal-car the bottom of which will be automatically swung downwardly on the hinges which hold it to the body portion of the car, thus dropping the coal contained in the car into a tender which  
20 is designed to be standing beneath the outer end of the tracks at the front portion of my device.

A further object is to provide means attached to my device whereby an operator  
25 standing in the engine-tender into which the coal is to be delivered can by pulling a rope throw the supporting-arms into such position that the outer end of the rails which form a portion of my device will swing downwardly.  
30 From this statement it will be seen that the rails are pivoted near their rear ends to the supporting-frame of the coal-shed.

A further object is to provide weights and springs connected with the framework of my  
35 device and so arranged that the outer ends of the rails will be supported by these weights and springs against the weight of the coal-car when it is loaded, and when this coal-car is at its outer limit of movement these weights and  
40 springs also force the outer ends of the rails upwardly when the coal-car is empty to such a position that the front ends of these rails are higher than the rear ends of said rails, so that the car will move backwardly as soon as  
45 the coal on the interior of the car has dropped out.

A further object is to provide a simple inexpensive device for conveying the coal from the coal-shed to a position directly over a rail-  
50 road-track adjacent to the coal-shed and dropping the coal into the tender of an engine on said railroad-track. The coal-car will then

return to its position inside of the coal-shed without anything being done by the operator, the springs and weights working automatic-  
55 ally to throw the outer ends of the conveying-rails upwardly, and thus allow the coal-car to move rearwardly into the interior of the coal-sheds. The only thing which the operator has to do in operating my device is to  
60 pull the operating-rope downwardly and thus set the device into operation.

It will be seen from the above that the tender of the engine will be much more easily filled and filled to much better advantage than  
65 with any of the devices now in common use.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as  
70 hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows in perspective the complete device with a tender of an engine in position  
75 at the front thereof. Fig. 2 shows a longitudinal sectional view of the device and shows in dotted line the position of the operative parts when the outer ends of the rails are at their lower limit of movement. Fig. 3 is an  
80 inverted plan view of the coal-car, showing the mechanism for supporting the bottom of the car when in position to be filled.

Referring to the accompanying drawings, I have used the numerals 10 and 11 to design-  
85 nate the sides of the frame of my device, which form a portion of the interior of a coal-shed. These sides 10 and 11 have two up-rights substantially parallel to each other, having connecting portions 12 and 13 at the  
90 top and bottom of the uprights. The top connecting-pieces I have designated by the numeral 12 and the lower connecting-piece by the numeral 13. This frame, comprising the sides 10 and 11, has in front of it the  
95 ordinary railroad-track 14, over which the tender 15 into which the coal is to be deposited is designed to run. Pivotaly attached to the upper rear portion of the frame and between the sides 10 and 11 thereon I have  
100 mounted a tilting track, comprising the side rails 16 and 17 and the forward connecting-piece 18, between the rails and the rear connecting-piece 19, connecting the rear ends of



these rails 16 and 17. The central portions of these rails 16 and 17 are straight, and they are bent upwardly a slight distance at their rear ends and also at their forward ends for purposes hereinafter maintained. The rails 16 and 17 are substantially parallel throughout their entire length to enable the coal-car to move longitudinally of them. These rails are pivoted to the top portions 12 of the sides 10 and 11 by means of the pivots 20. These pivots are so arranged that the forward ends of the rails can move upwardly and downwardly.

Pivotally attached to the bottoms 13 of the sides 10 and 11 of the frame are the supporting-arms. These arms are mounted between the sides 10 and 11, and their pivotal points 21 are slightly in front of the pivots 20. These supporting-arms are constructed as follows: Extending upwardly and forwardly from the pivotal point 21 is the support 22, having pivoted to its upper forward end the support 23, which is pivoted at its other and extreme upper end to the track 17. There is a pivotal point 24 between the supports 22 and 23, so constructed that the upper end of the support 22 and the lower end of the support 23 move only a slight distance rearwardly past a dead-center of these supports; but they are allowed to move a considerable distance outwardly and downwardly past their dead-center. The opposite supporting-arm has the portions 25 and 26 pivotally attached to the bottom portion of the side 11 and the upper portion thereof attached to the track 16 and are constructed exactly like the arms 22 and 23 and pivoted in the same way.

Extending rearwardly from support 22 and substantially at right angles to it is the tilting-lever 27-formed integral with the support 22. The tilting-lever 28 is made integral with support 25 and substantially at right angles to it. Thus the supporting-arms are made exactly alike throughout their whole construction. There is a connecting-piece 29 between the lower portions of the supports 22 and 25 and the extreme forward ends of the tilting-levers 27 and 28, so arranged that these levers will work together, as they are both designed to operate the supports of the supporting-arms; and as these arms are designed to operate at the same time the tilting-levers must, of course, also work at the same time.

Attached to the upper portions of the rails 16 and 17 and extending downwardly therefrom are the pulleys 30 and 31, the pulley 30 being attached to the rail 17 and pulley 31 being attached to the rail 16. These pulleys are fixed to the rails designated some distance in front of the most forwardly portion of the frame.

Attached to the rear upper ends of the levers 27 and 28 are the ropes 32 and 33. The rope 32 is designed to pass forwardly and over the pulley 30 and hang downwardly therefrom, so that a person in the tender could readily grasp the lower forward end of this

rope for purposes hereinafter made clear. The rope 33 is attached to the tilting-lever 28 and passes over the pulley 31 and depends therefrom at its forward end, so that a person in the tender could easily grasp the lower forward end of this rope 33. It will be seen that if one of these ropes 32 or 33 is grasped at its forward lower end the tilting-levers 27 and 28 will be drawn upwardly and thus force the supports of the supporting-arms forwardly at their central portion and cause them to take the position shown in dotted lines in Fig. 2 of the drawings.

Attached outside of the elbow-joint 24, which joint is between the supports 22 and 23 of the supporting-arms, is the V-shaped supporting-piece 34. Said V-shaped supporting-piece is also designed to have the rope 35 attached to it. This rope 35 extends upwardly and rearwardly from the support-piece 34 and over the pulley 36, which is attached to the rear lower portion of the track 17 and downwardly therefrom to the pin 37, said pin being mounted as follows: This pin 37 passes downwardly through the weight 38 and also through the supporting-platform 39, which is attached to the most rearwardly of the uprights in the side of the frame 10 and has weight 40 at its lower end. The size of the opening in the platform 39 through which the pin 37 passes is sufficient to allow the weight 40 to pass upwardly through it. The opening through the weight 38 through which the pin 37 passes is only of sufficient size to freely admit the pin, but not of such size to allow the weight 40 to pass through it. The construction of the pin and weights is thus arranged so that the weight 40 will hold the supports 22 and 23 at their inner limit of movement, and when it is desired to start these supports 22 and 23 forwardly past the dead-center only the weight 40 will have to be raised until these supports pass their dead-center, and as soon as these supports pass their dead-center the upper portion of the weight 40 will engage the lower portion of the weight 38 and thus cause that weight to be raised and on account of the rope 35 being attached as it is will prevent the too rapid downward movement of the outer ends of the rails 16 and 17.

On the opposite side of the frame from that just described I have attached to the elbow-joint between the supports 25 and 26 a rope corresponding to the rope 35 and also a pulley, a pin, a platform, and two weights corresponding to the pulley 36, the chain 37, the weight 38, the platform 39, and the weight 40. The object of this is clearly obvious.

Extending rearwardly from the most forwardly upright of the side 11 in the frame is the platform 41, having an opening extending through it. This opening is designed to admit the rod 42. This rod 42 is attached at its upper end to the under portion of the rail 16. Passing around the rod 42 and between the upper portion of the platform 41 and the



lower portion of the rail 16 is the extensible coil-spring 42, designed to partially support the rail 16 after the supports of the supporting-arms have passed their dead-center and the central portion of them is moved forwardly and downwardly relative to the frame. There may be also a similar platform on the opposite side of the frame from the platform 41 referred to, and also a rod 42, attached to the rail 17 in a manner corresponding to the way in which the rod 42 is attached to the rail 16, and also a coil-spring arranged corresponding to the coil-spring 43, designed to assist in supporting said rails 16 and 17.

Mounted on the track comprising the rails 16 and 17 and between these rails and also between the portions 18 and 19 of said track is a coal-conveying car, said car being supported on the rails 16 and 17 by means of wheels 44 and the axles 45. Depending from these axles 45 is the body portion of the car, comprising the sides 46 and 47 and the end portions 48 and 49. Said sides are substantially parallel throughout their entire length; but the end portions 48 and 49 are slightly nearer together at their top portions than at the bottom portions thereof. Hinged to the lower portions of the sides 46 and 47 are the doors 50 and 51, said doors being capable of swinging downwardly and meeting at their inner portions when in a closed position. Attached to and extending outwardly and downwardly from the doors 50 and 51 when these doors are in their closed position are the weights 52. Said weights are so arranged that the doors will be held in their closed position when there is no coal on the interior of the car or any other weight on said interior, so that when the coal which is in the car has been allowed to drop out from it, these doors will close automatically. Attached to the outside portions of the ends 48 and 49 of the car are the loops 53, said loops extending a slight distance below the lower face of the doors 50 and 51 when these doors are in their closed position. Slidingly mounted on the under portion of the doors 50 and 51 are the supporting-levers 54, 55, 56, and 57. These levers are so arranged that as they are moved outwardly from their points of attachment to the operating-levers 58 and 59 they will enter the loop 53—that is, the levers 54 and 55 will enter one of the loops 53 and the levers 56 and 57 will enter one of the loops 53. The operating-levers 58 and 59 are pivoted to the under surface of the doors 50 and 51, respectively, and lever 58 is also pivotally attached to the lever 54 and the lever 57. The lever 59 is pivotally attached to the lever 55 and the lever 56. These levers are so arranged that upon pulling the outer end of the operating-levers 58 and 59 in one direction the levers 54, 55, 56, and 57 will enter the loop 53, and when these levers are drawn in the opposite direction the levers 54, 55, 56, and 57 will be drawn out of engagement with these loops 53.

Attached to the outer ends of the operating-

levers 58 and 59 are the ropes 60 and 61, said ropes being attached firmly to the most forwardly uprights of the sides 10 and 11. These ropes are of such length that as the coal-car is at its rearwardly limit of movement on the track-rails 16 and 17 and when the doors 50 and 51 are closed the levers 58 and 59 will cause the levers 54, 55, 56, and 57 to enter the loops 53, as indicated above, and as the car at its forward limit of movement is on the tracks 15 and 16 the ropes will cause the levers 58 and 59 to be drawn at their outer ends rearwardly, and thus release the levers 54, 55, 56, and 57 from the loop 53, and thus allow the doors to swing downwardly on their hinges and permit coal or other substance on the interior of the coal-car to drop downwardly. It will be seen that these ropes 60 and 61 can be made any desirable length, so that the coal can be dropped a considerable distance beyond the front of the frame whose sides are 10 and 11, or they may be dropped very nearly in front of said frame.

In practical use the coal-car is in the position shown in Fig. 1 of the drawings, which is presumed to be on the interior of a coal-shed filled when in that position with the coal to be delivered into an engine-tender. The doors 50 and 51 are also in the position shown in Fig. 1 as well as the rest of the parts of the device. The tender then takes the position on the track 14 shown in Fig. 1 of the drawings. The operator grasps the forward lower end of the rope 32, and thus causes the rear-end levers 27 and 28 to be drawn upwardly, and thus force the forward upper ends of the supports 22 and 23 forwardly, causing the lower rear ends of the supports 23 and 26 to be forced forwardly and downwardly, thus permitting the forward ends of the rails 16 and 17 to be drawn downwardly and the extreme ends of these rails to be forced upwardly, causing the rails to assume the position shown in dotted lines in Fig. 2 of the drawings—that is, the rear ends of the rails are at their upper extreme limit of movement and the forward ends of the rails 16 and 17 are at their downward limit of movement. This will cause the coal-car to move on its wheels 44 forwardly, and as this car moves forward it will be seen there is considerable weight placed on the forward ends of the rails 16 and 17, and this weight is designed to be counteracted in the manner above designated by the springs 43 and the weights 38 and 40. When the coal-car has reached a predetermined outer limit of movement, the levers 54, 55, 56, and 57 will be drawn out of engagement with the loops 53, and thus cause the coal to be dropped into the tender, which is supposed to be directly beneath it when this car is at its outer limit of movement. As soon as the coal has been delivered and the main portion of the weight in the car has been taken away the forward end of the track will be forced upwardly by means of the springs 43 and the weights 38 and 40, so that the forward



ends of the rails 16 and 17 assume the position shown in Fig. 1—that is, the forward ends of these rails are higher than the rear ends of said rails. The doors 51 at the bottom of the coal-car will swing upwardly and against the lower extremities of the coal-car and be held in that position by means of the weights 52. The car will then move rearwardly to its rearward limit of movement on its supporting-wheels 44, and when the rearward limit of movement is reached the levers 54, 55, 56, and 57 will be drawn into the loops 53 and maintain that position. The car is then ready for a new load of coal and the device is in position for further operation.

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

1. In a device of the class described, the combination of a frame, track-rails pivotally mounted in said frame, a car mounted on said track-rails and capable of longitudinal movement thereof, jointed supporting-arms pivotally attached to said frame and to said track-rails for the purposes stated.

2. In a device of the class described, the combination of a frame, track-rails pivotally mounted in said frame, a car mounted on said track-rails and capable of longitudinal movement thereof, a jointed supporting-arm attached to said frame and to said track-rails, means for holding the jointed arms at or just beyond a dead-center.

3. In a device of the class described, the combination of a frame, track-rails pivotally mounted in said frame and extending longitudinally of it, supports pivoted to the frame, to the track-rails and to each other, means for holding said supports at their inner upward limit of movement, means for throwing the central portions of the said supports forwardly and downwardly, substantially as and for the purposes stated.

4. In a device of the class described, the combination of a frame, track-rails pivotally mounted in said frame and firmly attached to each other, a car mounted between said rails, doors at the bottom of said car, means for moving said track-rails pivotally on this pivot, means attached to said doors for holding them in a closed position and means for operating said means as the car moves longitudinally of the track-rails, for the purposes stated.

5. In a device of the class described, the combination of a frame, track-rails pivotally mounted in said frame having their forward ends extending some distance in front of the frame, a car mounted on said track-rails, a connecting-piece between the forward end of said track-rails for limiting the forward movement of said car, a connecting-piece between the rear end of said track-rails for limiting the rearward movement of said car, jointed supporting-arms pivoted to said frame and to said track-rails, means attached to said track-rails and to said jointed supporting-arms for holding the jointed arms up

to or just beyond the dead-center of the movement of these arms.

6. In a device of the class described, the combination of a frame, track-rails pivoted near the rear end of said frame, said track-rails being firmly connected with each other at their forward and rear ends, a car mounted on said track-rails and depending therefrom, a bottom portion hinged to said car, loops attached to said car, levers operatively connected with said bottom portion, means for operating said levers as the car moves longitudinally over the track-rails, for the purposes stated.

7. In a device of the class described, the combination of a frame, track-rails pivoted near the rear end of said frame, said track-rails being firmly connected with each other at their forward and rear ends, a car mounted on said track-rails, and depending therefrom, a bottom portion hanging to said car, loops attached to said car, levers operatively connected with said bottom portion, means for operating said levers as the car moves longitudinally over the track-rails, supports pivoted to the forward end of said track-rails and to the frame, an elbow-joint in said supports, said supports being capable of movement at their central portion, downwardly and forwardly, for the purposes stated.

8. A device of the class described, the combination of a frame, track-rails pivoted near the rear end of said track-rails and depending therefrom, a bottom portion hanging to said car, loops attached to said car, levers operatively connected with said bottom portion, means for operating said levers as the car moves longitudinally over the track-rails, supports pivoted to the forward end of said track-rails and to the frame, an elbow-joint in said supports, said supports being capable of movement at their central portion, downwardly and forwardly, weights connected with said supports for limiting said downward and forward movement, one of said weights being designed to hold the central portion of said supports at their upward inward limit of movement, for the purposes stated.

9. A device of the class described, the combination of a frame, track-rails pivoted near the rear end of said frame, said track-rails being firmly connected with each other at their forward and rearward ends, car mounted on said track-rails and depending therefrom, a bottom portion hanging to said car, loops attached to said car, levers operatively connected with said bottom portion, means for operating said levers as the car moves longitudinally over the track-rails, supports pivoted to the forward end of said track-rails and to the frame, an elbow-joint in said supports, said supports being capable of movement at their central portion, downwardly and forwardly, weights connected with said supports for limiting said downward and forward movement, one of said weights being designed to hold the central portion of said supports at their upper inward limit of movement, coil-



springs for partially supporting the outer ends of said track-rails as the loaded coal-car passes over said rails; for the purposes stated.

10. A device of the class described, the  
5 combination of a frame, track-rails pivoted near the rear end of said frame, said track-rails being firmly connected with each other at their forward and rearward ends, car mounted on said track-rails and depending  
10 therefrom, a bottom portion hanging to said car, loops attached to said car, levers operatively connected with said bottom portion, means for operating said levers as the car moves longitudinally over the track-rails,  
15 supports pivoted to the forward end of said track-rails and to the frame, an elbow-joint in said supports, said supports being capable of movement at their central portion downwardly and forwardly, weights connected with  
20 said supports for limiting said downward and forward movement, one of said weights being designed to hold the central portion of said supports at their upper inward limit of movement, tilting-levers attached to the lower  
25 ends of the lower said supports, a rope attached to the rear end of said tilting-levers for starting the device into operation, for the purposes stated.

11. In a device of the class described, a combination of a frame, track-rails mounted in  
30 said frame, a car mounted between said track-rails, supports pivoted to the forward end of said track-rails and to the frame, an elbow-joint in said supports, said supports being  
35 capable of movement at their central portion downwardly and forwardly, for the purposes stated.

12. In a device of the class described, a combination of a frame, track-rails mounted in  
40 said frame, a car mounted between said track-rails, supports pivoted to the forward end of said track-rails and to the frame, an elbow-joint in said supports, said supports being  
45 capable of movement at their central portion downwardly and forwardly, weights connect-

ed with said supports for limiting said downward-and-forward movement, one of said weights being designed to hold the central portion of said supports at their upper inward limit of movement for the purposes stated. 50

13. In a device of the class described, a combination of a frame, track-rails mounted in  
said frame, a car mounted between said track-rails, supports pivoted to the forward end of  
55 said track-rails and to the frame, an elbow-joint in said supports, said supports being capable of movement at their central portion downwardly and forwardly, weights connected with said supports for limiting said downward-and-forward movement, one of said  
60 weights being designed to hold the central portion of said supports at their upper inward limit of movement, coil-springs for partially supporting the outer ends of said track-rails as the loaded coal-car passes over said rails, 65  
for the purposes stated.

14. In a device of the class described, a combination of a frame, track-rails mounted in  
said frame, a car mounted between said track-rails, supports pivoted to the forward end of  
70 said track-rails and to the frame, an elbow-joint in said supports, said supports being capable of movement at their central portion downwardly and forwardly, weights connected with said supports for limiting said downward-and-forward movement, one of said  
75 weights being designed to hold the central portion of said supports at their upper inward limit of movement, coil-springs for partially supporting the outer ends of said track-rails 80  
as the loaded coal-car passes over said rails, tilting levers attached to the lower ends of the lower said supports, a rope attached to the rear end of said tilting levers for starting the device into operation, for the purposes 85  
stated.

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