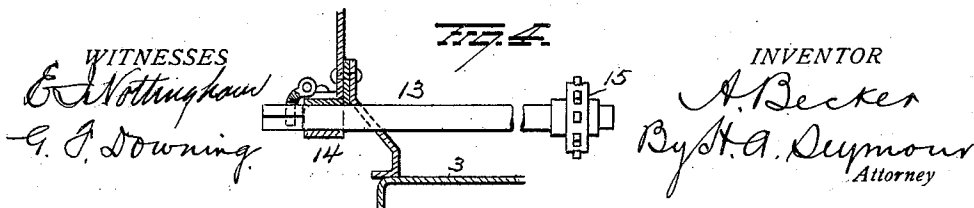
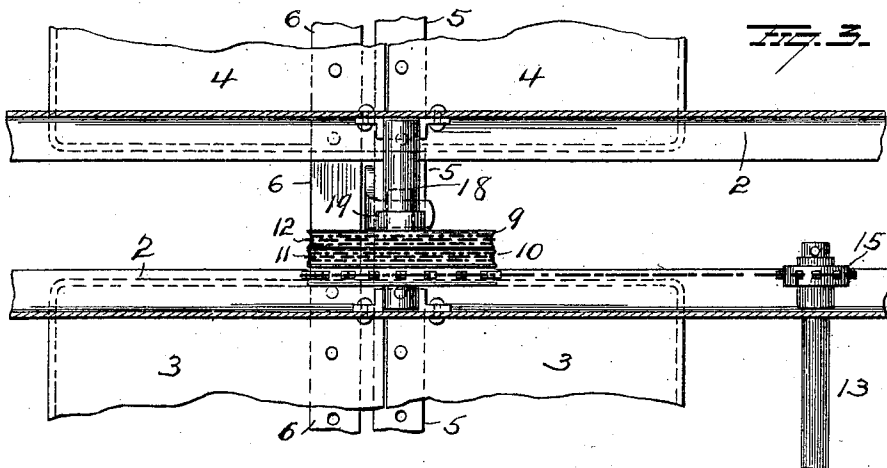
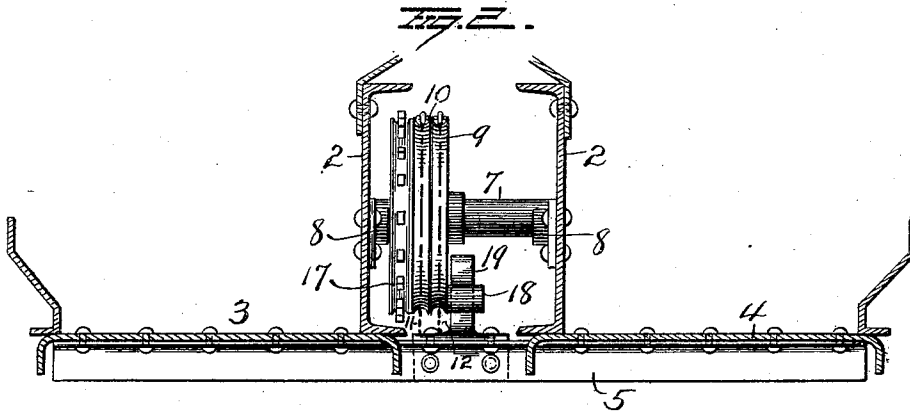
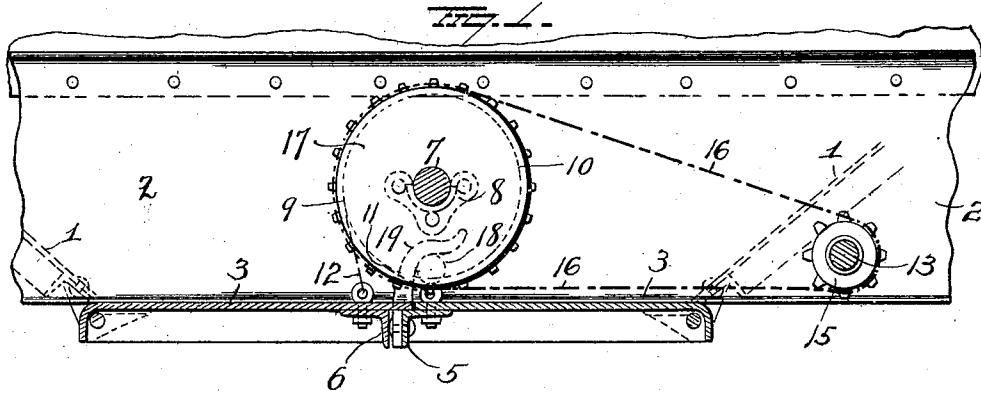


A. BECKER.
 DROP DOOR OPERATING MECHANISM FOR HOPPER BOTTOM CARS.
 APPLICATION FILED NOV. 28, 1908.

934,269.

Patented Sept. 14, 1909.



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DROP-DOOR-OPERATING MECHANISM FOR HOPPER-BOTTOM CARS.

934,269.

Specification of Letters Patent. Patented Sept. 14, 1909.

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To all whom it may concern:

Be it known that I, ANTON BECKER, of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Drop-Door-Operating Mechanism for Hopper-Bottom Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in drop-door operating mechanism for hopper bottom cars,—the object of the invention being to provide simple and efficient means which may be located between and inclosed by the center girder members of the car for operating the drop doors and supporting them in their closed position.

With this object in view the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a portion of a hopper bottom car showing the application of my improvements thereto. Fig. 2 is a transverse sectional view. Fig. 3 is a plan view. Fig. 4 is a detail view illustrating the operating shaft and sprocket thereon.

1, 1, represent the inclined portions of the hopper bottom of the car and 2, 2, the center girder members. Pairs of drop doors 3, 4, are hinged at respective sides of the center girder to the lower edges of the inclined hopper plates 1. The drop doors 3 at one side of the center girder are connected to the drop doors 4 at the other side thereof by means of angle irons 5, 6, secured to said doors and extending across the center girder members and under the same. The angle bar 5 projects somewhat beyond the free edges of the doors to which it is secured and receives the free edges of the oppositely hinged doors, as clearly shown in Fig. 1. A shaft 7 is mounted in suitable bearings 8 between the center girder members approximately in vertical alinement with the meeting edges of the doors, and to this shaft wheels 9, 10, are secured. A chain 11 secured to the angle bar 5 is wound on the wheel 10 and made fast thereto, while a chain 12 is secured to the angle bar

6, is wound on the pulley or wheel 9 and fastened thereto. The wheels 9, 10, are of such size as to permit a sufficient length of chain to allow the doors to drop to a vertical position. A shaft 13 is mounted in the center girder members beyond the hopper bottom of the car and extends to the side of the car where it is supported in a suitable bearing 14 and adapted to receive an arm or lever for rotating it. The shaft 13 is provided at a point between the center girder members with a sprocket wheel 15 for the accommodation of a sprocket chain 16 which also passes over and transmits motion to a larger sprocket 17 secured to rotate with the wheels 9, 10. The wheel 9 is provided with a laterally projecting pin or lug 18 to be engaged by a hook 19 secured to the angle bar 6 for supporting the doors when in closed position. The hook 19 is so shaped on its inside that when the doors are in their open or depending positions, no material will be permitted to lodge thereon.

When the doors are open and it is desired to close them, the operator will rotate the shaft 13 and thereby cause motion to be transmitted through the sprocket gearing to the wheels 9, 10. The rotation of these wheels will cause the chains 11 and 12 to be wound thereon and the doors to be raised. As the doors approach their closed position, the lug or pin 18 will move under the hook 19 and the engagement of these parts will constitute an effectual support for the doors in their closed position. Thus it will be seen that when the doors are closed, they will be supported by the center girder through the medium of the lug or pin 18 engaged by the hook 19, the wheel 9 and the shaft 7.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent is,—

1. The combination with a hopper bottom car provided with a center girder, of drop doors, a wheel supported by the center girder and connected with the drop doors, means for rotating said wheel, and engaging means between said wheel and the drop doors for supporting the latter in closed position.

2. The combination with a hopper bottom car provided with a center girder, of drop doors, wheels supported by the center girder, chains wound on said wheels and connected with the respective drop doors near the meet-

ing edges thereof, a projection on one of said wheels, a hook on one of the drop doors to engage said projection, means on the drop door carrying the hook for supporting the oppositely hinged drop door, and means for rotating said wheels.

3. The combination with a hopper bottom car provided with a center girder, of drop doors, wheels supported by the center girder, means connected with said wheels for raising the drop doors to closed position, an operating shaft, and gearing between said operating shaft and said wheels.

4. The combination with a hopper bottom car provided with a center girder comprising two members, of drop doors, chains connected with said drop doors, wheels mounted

between the center girder members and on which said chains are adapted to wind, a sprocket wheel rotatable with said first mentioned wheels, an operating shaft, a sprocket wheel secured thereto between the center girder members, a sprocket chain passing over said sprocket wheels and engaging devices between said wheels and the drop doors for supporting the latter in closed position.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ANTON BECKER.

Witnesses:

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T. A. LIVINGSTON.