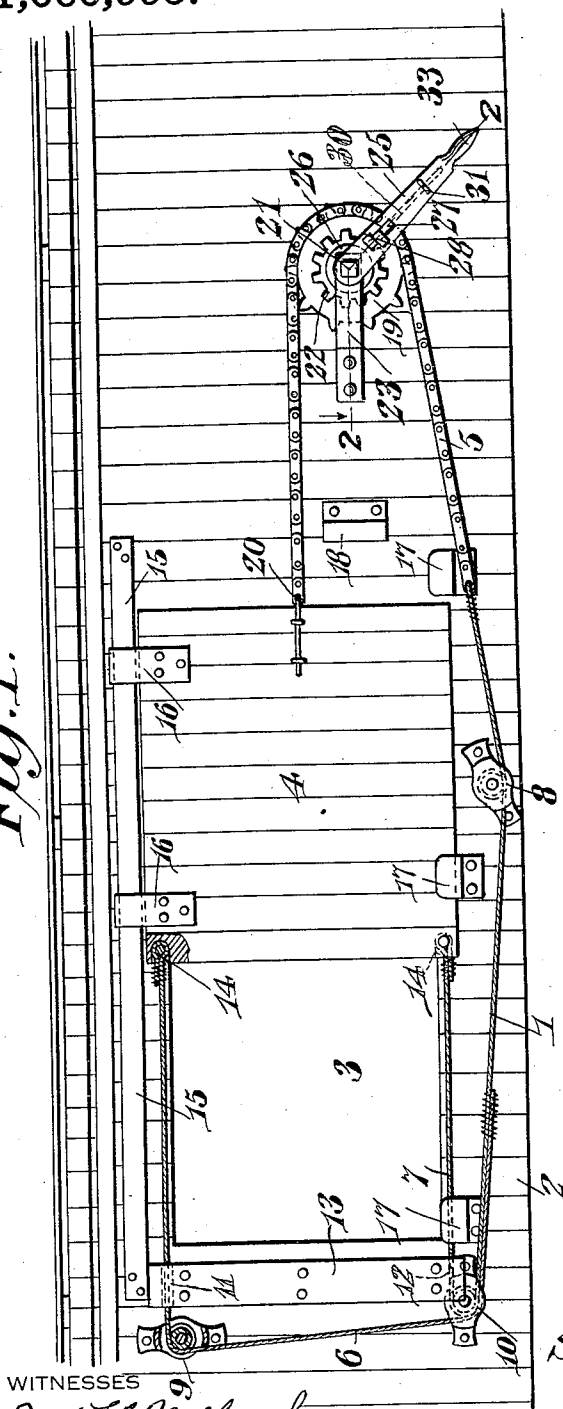


W. A. McKENNEY & S. BEATHAM.
DOOR OPERATING DEVICE.
APPLICATION FILED OCT. 28, 1912.

1,060,995.

Patented May 6, 1913.

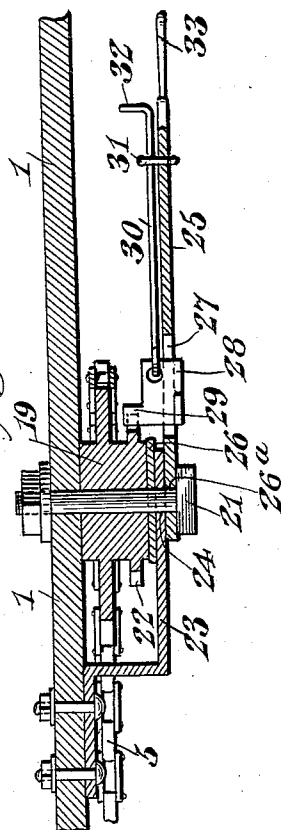
Fig. 1.



WITNESSES

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Fig. 2.



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WALTER A. McKENNEY AND STANLEY BEATHAM, OF LINCOLN, MAINE.

DOOR-OPERATING DEVICE.

1,060,995.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed October 28, 1912. Serial No. 728,307.

To all whom it may concern:

Be it known that we, WALTER A. McKENNEY and STANLEY BEATHAM, citizens of the United States, residing at Lincoln, in the county of Penobscot and State of Maine, have invented a new and useful Door-Operating Device, of which the following is a specification.

The invention relates to improvements in door operating devices.

The object of the present invention is to improve the construction of door operating devices, and to provide a simple and efficient door operating device designed for use on sliding freight car doors, and adapted to be readily applied to a freight car at a very low cost, and capable of enabling a freight car door to be easily and quickly opened by one person without injuring the door, thereby enabling a car door to last as long as any other portion of a car.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:—Figure 1 is a side elevation of a portion of a car provided with a door operating device, constructed in accordance with this invention. Fig. 2 is an enlarged sectional view on the line 2—2 of Fig. 1.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

In the accompanying drawing in which is illustrated the preferred embodiment of the invention, 1 designates a flexible connection preferably consisting of a wire cable and extending along the outer face of the side of a freight car body 2 below the plane of the door opening 3 and a sliding door 4, and connected at its rear terminal to one end of a sprocket chain 5 and provided with front branches 6 and 7, connected, respectively, with the top and bottom portion of the sliding car door 4 at the front edge thereof. The flexible connection 1, which passes beneath the guide pulley 8, is arranged beyond

the door opening 3 so as not to interfere with the loading and unloading of the car, and its front branches 6 and 7 are arranged on upper and lower guide pulleys 9 and 10.

The guide pulleys 8, 9 and 10 are mounted in suitable casings, and the upper and lower guide pulleys are located opposite and in advance of the upper and lower horizontal openings 11 and 12 in the vertical bar 13, which constitutes the door jamb and against which the door abuts. The attached terminals of the upper and lower branches 6 and 7 of the flexible connection 1 are suitably secured in sockets or openings 14 in the front edge of the sliding door 4, so that the flexible connection exerts a central horizontal pull on the door with respect to the inner and outer faces thereof to prevent the door from binding in its closing movement.

The car door, which may be of any preferred construction, is hung from an overhead track 15 by hangers 16, and suitable brackets 17 are mounted on the car to prevent the lower edge of the car door from swinging outwardly. The door is limited in its opening movement by a stop 18.

The sprocket chain 5 passes partially around and meshes with a sprocket wheel 19, and it has upper and lower portions extending forwardly from the said wheel 19, which is located in rear of the car door. The upper portion of the chain is horizontal and is located in the plane of the center of the car door, and is secured to the same by a horizontally projecting loop 20, or other suitable means, and the said sprocket chain is adapted to exert a central pull on the car door to prevent the same from binding in its opening movement. The front end of the lower portion of the sprocket chain is secured to the rear end of the flexible connection.

The sprocket wheel 19 is mounted on a horizontal bolt 21, and is provided at the front with a notched annular flange 22, formed integral with the hub of the sprocket wheel and arranged in spaced relation with the body portion of the same, as clearly illustrated in Fig. 2 of the drawing. The bolt 21 extends horizontally from the side of the car and is supported by a horizontal brace 23, bolted or otherwise secured at its front end to the outer face of the car and angularly bent at an intermediate point to offset its rear portion from the side of the car to provide a space for the sprocket wheel. The

rear portion of the brace is provided with a bearing opening 24 to receive the outer portion of the bolt, which also forms a pivot or fulcrum for an operating lever 25. A washer 26 is arranged on the bolt 21 and is interposed between the brace and the sprocket wheel.

The operating lever, which depends from the bolt 21, is provided at its upper end with an opening 26^a through which the bolt passes, the lever being arranged between the head of the bolt and the outer face of the brace 23. The lever is also provided adjacent to the sprocket wheel with a longitudinal slot 27 in which is slidably mounted a pawl or dog 28, provided with a projecting tooth or lug 29, which is arranged to engage the notched annular flange of the sprocket wheel for connecting the operating lever with the same, whereby when the pawl or dog 28 is engaged with the notched flange, the lever is adapted to be oscillated to rotate partially the sprocket wheel. The pawl or dog is operated by a rod 30, secured at its upper end to the pawl or dog and having its lower portion extending through a guide 31, which is carried by the operating lever. The lower end of the operating rod 30 is bent at an angle to form a grip 32, and is located adjacent to the grip or handle 33 of the operating lever. Any other suitable means, however, may be employed for operating the pawl or dog to move the same into and out of engagement with the notched flange of the sprocket wheel.

In opening or closing the sliding car door, the pawl or dog of the operating lever is engaged with the notched flange and the operating lever is swung in the proper direction for sliding the door. At the end of such swinging of the lever, the pawl or dog is disengaged from the notched flange and the lever is swung backward to the limit of its movement in the opposite direction, and the pawl or dog is reengaged with the notched flange and the lever operating to actuate the sprocket wheel. This operation is repeated until the sliding door is opened or closed, and the device enables a car door to be easily and quickly opened or closed.

What is claimed is:—

1. In a door operating device, the combination with a car body having a door open-

ing and provided with a sliding door, of spaced upper and lower guides located in advance of the door opening, a flexible connection extending along the car beyond the sliding door and provided at the front with upper and lower branches arranged in the said guides and extending horizontally therefrom and connected to the upper and lower portions of the sliding door at the front thereof, a sprocket wheel mounted on the car body in rear of the car door, a sprocket chain arranged on and meshing with the sprocket wheel and having upper and lower portions, one of the said portions being connected to the said flexible connection and the other of said portions extending horizontally from the sprocket wheel to the sliding door and secured to the same at the center of the rear edge thereof, and means for rotating the sprocket wheel.

2. In a door operating device, the combination with a car body having a door opening and provided with a sliding door, of spaced upper and lower guide pulleys arranged in advance of the door opening, a flexible connection extending along the car at a point below the car door and having front branches arranged on the said guide pulleys and extending horizontally from the same to the upper and lower portions of the sliding door and secured to the latter, a bottom guide mounted on the car body and receiving the said flexible connection and maintaining the same in spaced relation with the sliding door, a sprocket wheel mounted on the car body in rear of the sliding door and having a notched flange, a sprocket chain secured to the rear edge of the car door at the center thereof and extending horizontally therefrom in a rearward direction and passing around the sprocket wheel and connected to the said flexible connection, and an oscillatory operating lever having a pawl or dog arranged to engage the notched flange of the sprocket wheel.

In testimony, that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

WALTER A. McKENNEY.
STANLEY BEATHAM.

Witnesses:

A. L. MATTHEWS,
JOHN W. HASKELL.