Oct. 15, 1940. J. PAIEMENT 2,218,121

LOADING AND UNLOADING DEVICE

Filed June 21, 1939 2 Sheets-Sheet 1

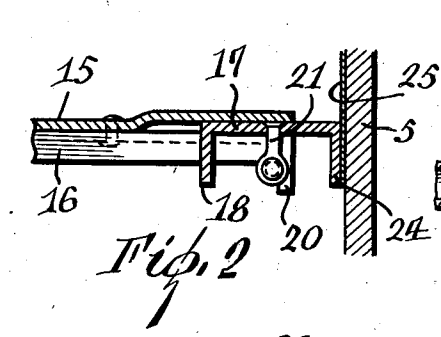


Fig. 2

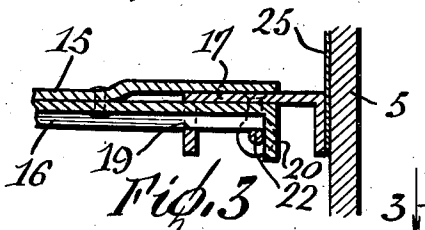


Fig. 3

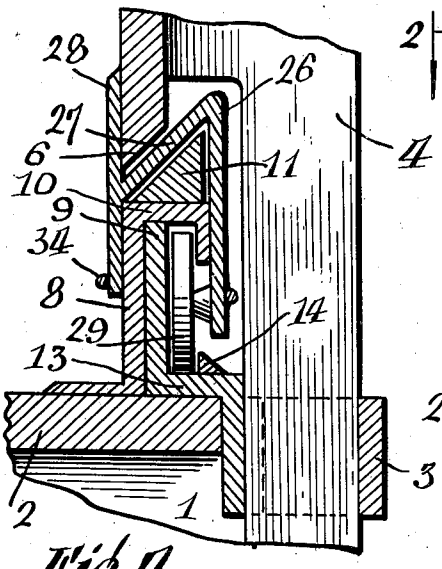


Fig. 4

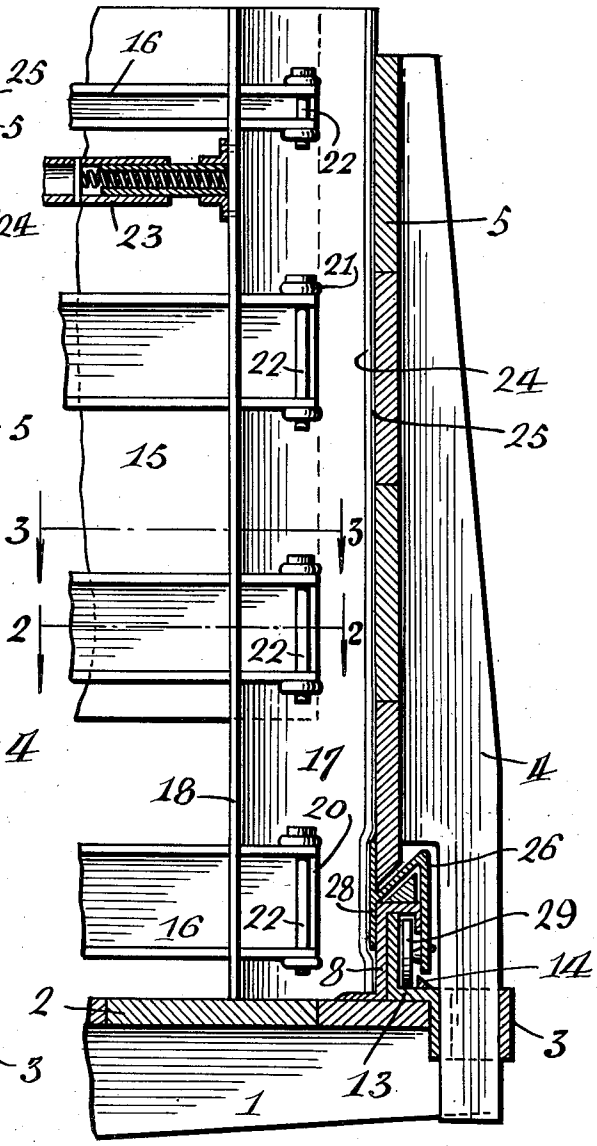


Fig. 1

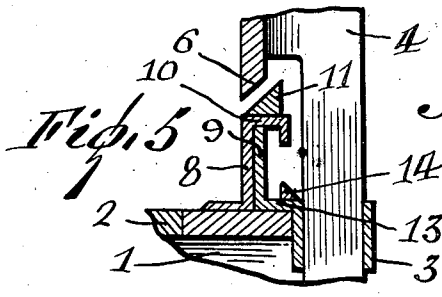


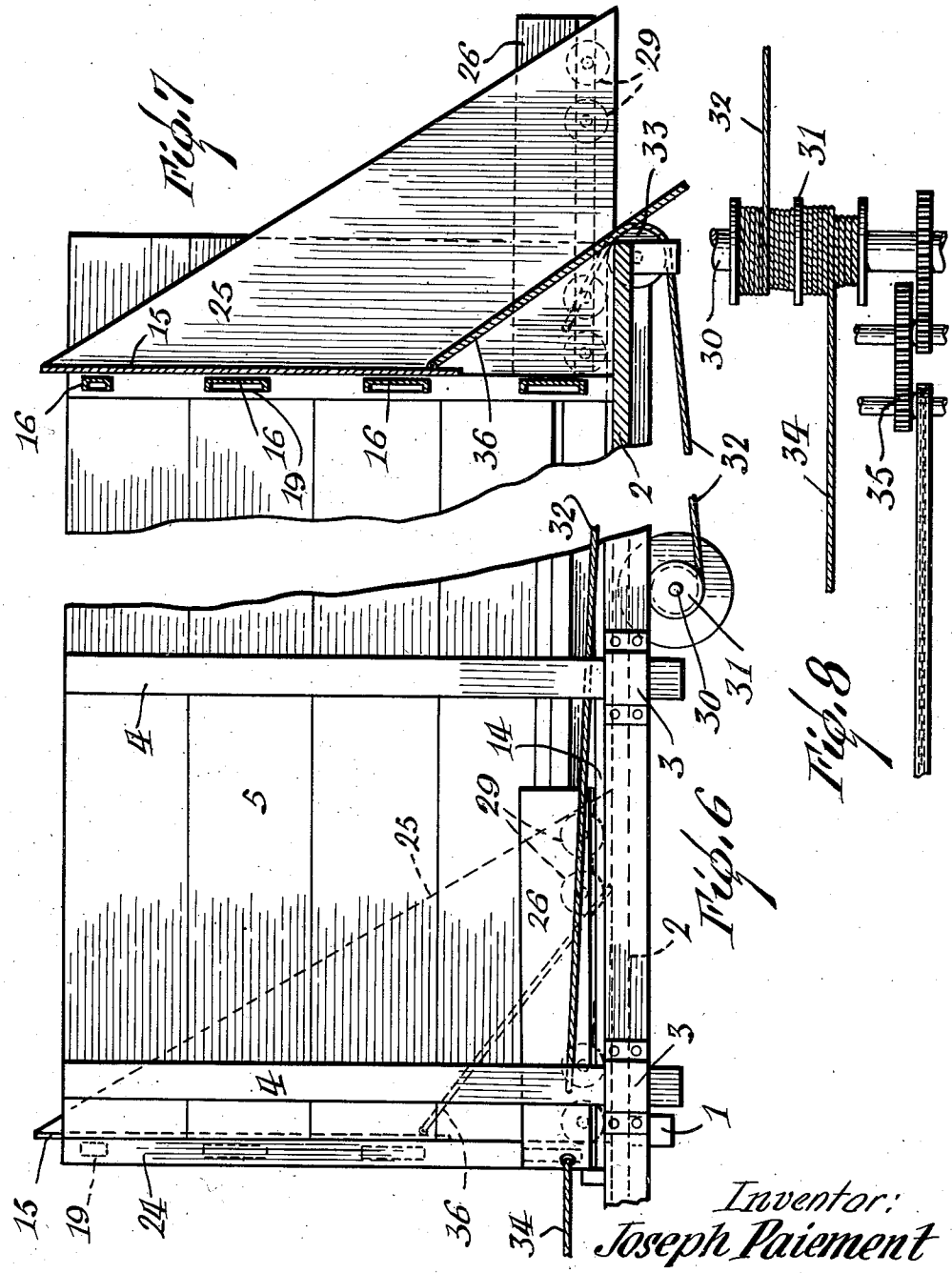
Fig. 5

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LOADING AND UNLOADING DEVICE

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Patented Oct. 15, 1940 2,218,121

UNITED STATES PATENT OFFICE

2,218,121

LOADING AND UNLOADING DEVICE

Joseph Paiement, Pointe-Claire, Quebec, Canada

Application June 21, 1939, Serial No. 280,364
In Canada April 11, 1939

7 Claims. (Cl. 214—82)

The present invention pertains to a novel loading and unloading device for trucks, railway cars and the like.

The principal object of the invention is to provide a power operated means for expelling the load from one end of the vehicle. This expelling device is in the nature of a wall movable lengthwise of the vehicle. When returned to its original position after unloading, it can also be used for loading by tying the new load thereto.

More specifically, the movable wall is mounted on rails on the floor of the vehicle. It is propelled in either direction by a cable and drum system operated by the motor of the vehicle or by any other power unit.

The unloading device is particularly useful in connection with a load of loose material such as coal, sand or the like. It is known that such loads frequently spread the side walls of the vehicle. In order to maintain the movable wall always in contact with the side walls regardless of their angle under load, the movable wall is made expansible at its vertical edges and is constructed in such a manner that the expansible parts are always maintained in contact with the side walls.

The invention also includes a novel rail structure on which the movable wall slides. In connection therewith, the rail structure and particularly the rollers thereon are guarded from interference by the material constituting the load.

The invention is fully disclosed by way of example in the following description and the accompanying drawings, in which:

Figure 1 is a fragmentary transverse section of the device;

Figure 2 is a plan section on the line 2—2 of Figure 1;

Figure 3 is a plan section on the line 3—3 of Figure 1;

Figure 4 is an enlarged detail in the same plane as Figure 1;

Figure 5 is a section in the same or a parallel plane, illustrating the track structure without the truck;

Figure 6 is a side elevation;

Figure 7 is a longitudinal section showing the movable wall in discharging position, and

Figure 8 is a plan view of the winding and pulling mechanism.

Reference to these views will now be made by use of like characters that are employed to designate corresponding parts throughout.

In Figure 6 is shown in side elevation the body of a truck or railway car without the wheel structure, which is omitted since this forms no part of the invention. The body structure includes cross beams 1 on which the floor 2 is supported. At the side edges of the floor are secured sockets 3 in which are inserted and supported a number of uprights 4. The uprights in turn carry the side walls which consist of boards 5.

The side walls do not extend downward as far as the floor 2, as shown in Figures 4 and 5. The lower longitudinal edge of each side wall, which is spaced from the floor, is bevelled at 6 for a purpose that will presently be described.

In each of the spaces between the lower edge of a side wall and the floor (Figure 5) is a rail consisting of a pair of web members 8 and 9 engaging each other to form a double thickness and secured to the floor 2 in any suitable manner. The web 8 has a head or flange 10 on which is mounted a triangular strip 11 with its oblique face 12 parallel to the bevel edge 6. The web 9 has a base 13 on which is mounted a triangular strip 14 spaced from the web proper for a purpose that will presently be described.

Between the side walls is a movable wall 15 mounted and actuated in the manner described below. This wall carries a number of horizontal metal beams 16 and vertical posts 17 at the ends of the beams. The posts 17 are of channel shape, as shown in Figures 2 and 3, and a side wall 18 of each is apertured at 19 to receive the ends of the horizontal beams 16. These ends are flanged at 20 at some distance outward from the respective parts 18. Pairs of lugs 21 are extended horizontally from the posts 17, and each such pair carries a pin 22 straddling a beam 16. Each pin is adapted to be engaged by a flange 20. The posts 17 are thus mounted slidably with relation to the beams 16 and bearing against the side walls 5, have a certain amount of play or adjustment according to the angular position taken by the side walls 5 under load. Spring expansion devices 23 may be mounted between the posts 17 to maintain them against the side walls. To the outer flange 24 of each post 17 is soldered or welded a triangular metal plate 25 engaging the side walls as shown more clearly in Figure 6.

The end walls 15 are slidably mounted on the rails 8, 9 by means of trucks 26 secured to the respective flanges 24 and plates 25. The trucks are of channel cross section straddling the rails and have an oblique back 27 passing beneath the corresponding bevelled edge 6. It will be noted in this connection that the space 7 between each beveled edge 6 and the floor is substantially taken up by the rail and truck therein. The inner wall

of each truck is extended vertically at 28 to cover the slot completely, while the bevelled edge 6 extends upwardly and outwardly to further prevent escape of loose material beyond the side walls 5 and into the rails. Each truck carries four or any other suitable number of rollers 29 riding on the corresponding base flange 13 between the web 9 and guard 14.

Beneath the floor 2 is journaled a transverse shaft 30 carrying at each end a double drum 31. Parallel cables 32 are fastened to each truck 26, passed over pulleys 33 and wound on the drums 31. Similar cables 34 are extended from the trucks 26 in the opposite direction and are wound on the remaining sections of the drums. The shaft 30 is driven from the motor or other power unit through suitable gearing 35.

In the use of the device, the movable wall 15 constitutes one of the end walls, while the opposite end wall (not shown) is of conventional construction and removable. In unloading, the latter wall is removed, and the shaft 30 started in rotation. Through the drums and cables, the movable wall is propelled towards the open end, thereby discharging the contents through said end. This operation is very satisfactory, especially in connection with such loose material as coal, sand, and the like. The wall 15 also carries a hinged scoop plate 36 which scrapes the floor and drops over the end of the floor when nearing the end of the discharge movement, as shown in section in Figure 7. By this means, the complete discharge of the contents is facilitated.

By reversing the shaft 30, the cable 34 returns the movable wall to its original position. This movement may be utilized in loading large objects such as logs, or boxes and the like by tying them to the wall so that they are pulled up on the floor by power. In this operation, a ramp can be attached to the floor at the open end if the load is taken from a level below that of the floor.

Although a specific embodiment of the invention has been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention, as indicated by the appended claims.

What I claim is:

1. A loading device comprising, in combination with the floor of a vehicle, rails at the longitudinal edges of said floor, a transverse wall slidably mounted on said rails, power means for moving said wall in either direction lengthwise of said floor, side walls at the longitudinal edges of said floor, said transverse wall having slidable end portions bearing against said side walls, and spring means holding said portions under pressure against said side walls.

2. A loading device comprising, in combination with the floor of a vehicle, rails at the longitudinal edges of said floor, side walls mounted directly over said rails and spaced slightly therefrom, a truck riding on each rail and having a portion extending between the rail and the corresponding side wall, and a transverse wall between said side walls and carried by said trucks.

3. A loading device comprising, in combination with the floor of a vehicle, rails at the longitudinal edges of said floor, side walls mounted directly over said rails and spaced slightly therefrom, a truck riding on each rail and having a portion extending between the rail and the corresponding side wall, a transverse wall between said side walls and carried by said trucks, and a guard carried by each of the last named portions and covering the space in which said portion lies.

4. A loading device comprising, in combination with the floor of a vehicle, rails at the longitudinal edges of said floor, side walls mounted directly over said rails and spaced slightly therefrom, a truck riding on each rail and having a portion extending between the rail and the corresponding side wall, and a transverse wall between said side walls and carried by said trucks, said transverse wall having slidable end portions bearing against said side walls.

5. A loading device comprising, in combination with the floor of a vehicle, a transverse wall mounted on said floor to move lengthwise thereof, power means for moving said wall in either direction lengthwise of said floor, side walls at the longitudinal edges of said floor, horizontal beams carried by said transverse wall, and vertical posts slidable along said beams at the ends thereof, and spring means normally holding said posts against said side walls.

6. A loading device comprising, in combination with the floor and side walls of a vehicle, supporting means mounted externally and lengthwise of said walls, a transverse wall between said side walls and having parts extending through the latter and slidably mounted on said means, and power means for moving said transverse wall in either direction lengthwise of said floor, said transverse wall having slidable end portions bearing against said side walls, and spring means holding said portions under pressure against said side walls.

7. A loading device comprising, in combination with the floor and side walls of a vehicle, supporting means mounted externally and lengthwise of said walls, a transverse wall between said side walls and having parts extending through the latter and slidably mounted on said means, and power means for moving said transverse wall in either direction lengthwise of said floor, horizontal beams carried by said transverse wall, and vertical posts slidable along said beams at the ends thereof and adapted to bear against said side walls.

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