Sept. 10, 1929. L. ALMQUIST 1,727,689

MINE CAR

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Fig. 1.

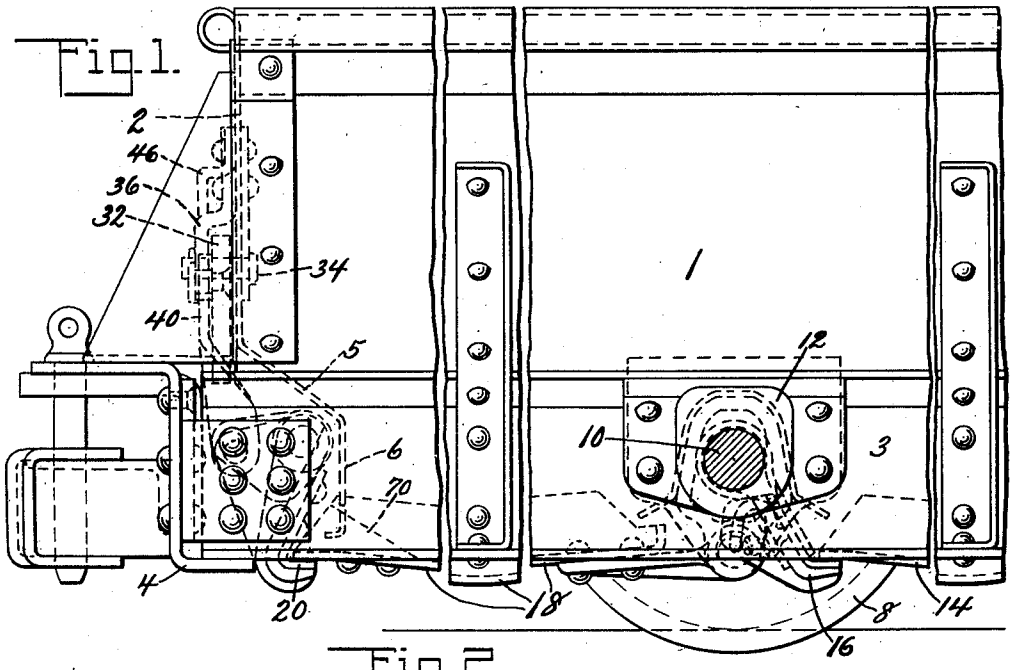
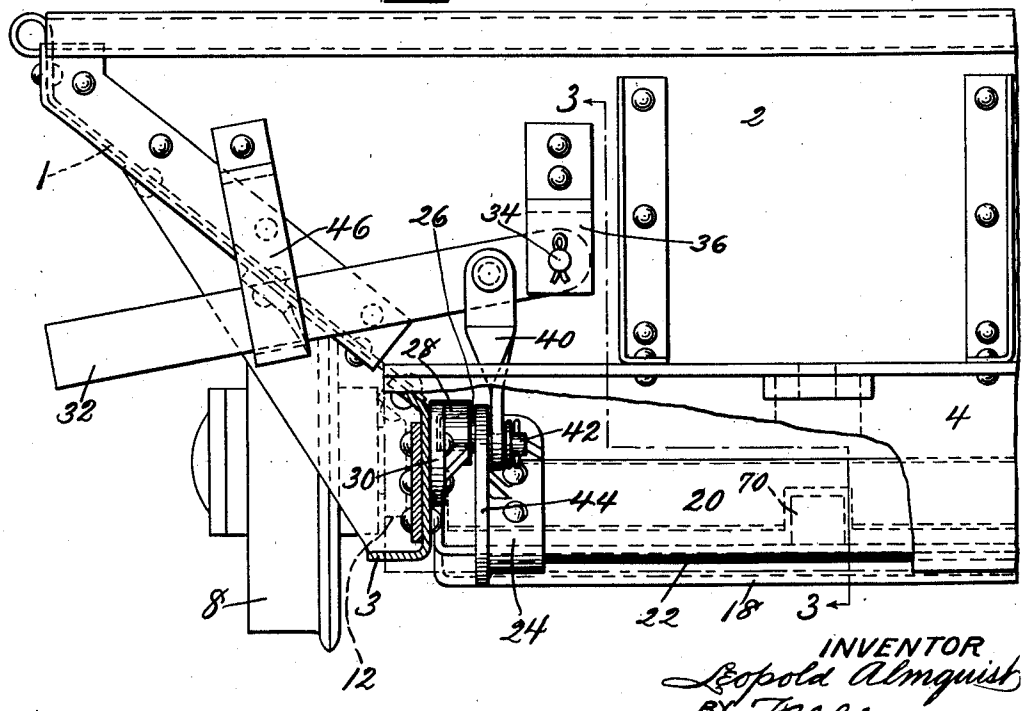


Fig. 2.



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Fig. 5.

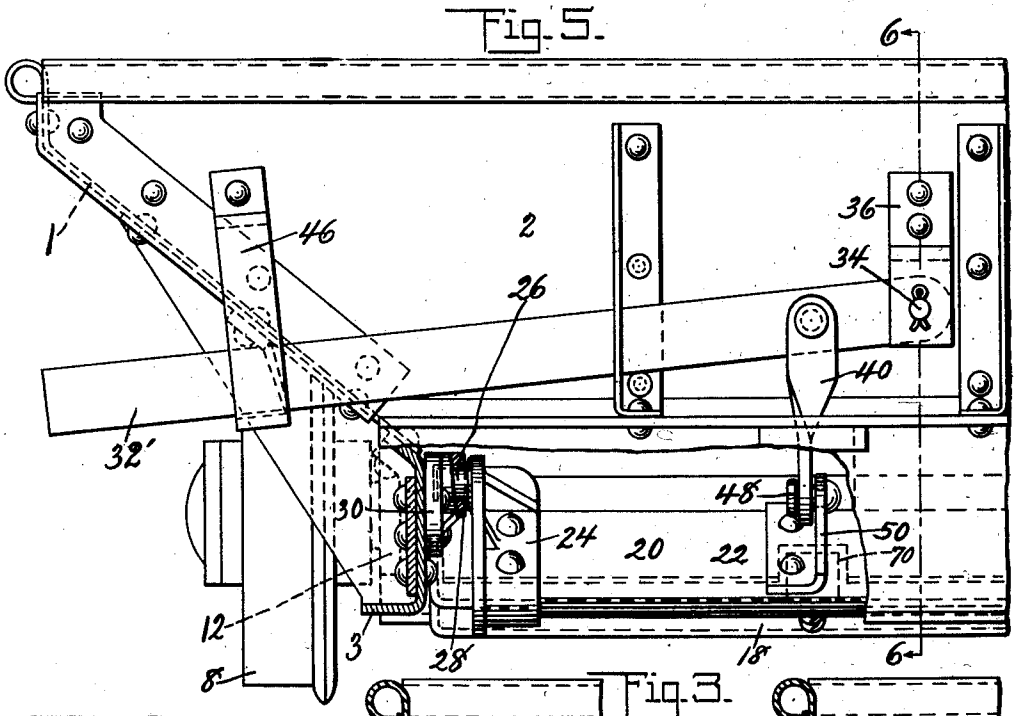


Fig. 8.

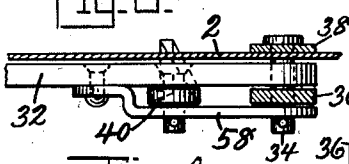


Fig. 3.

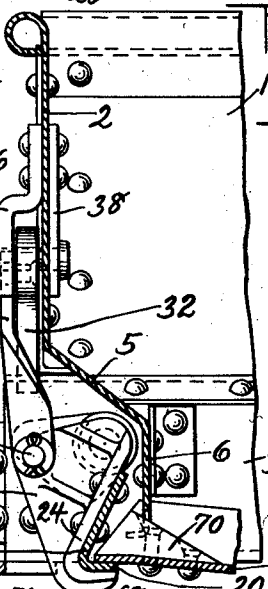


Fig. 6.

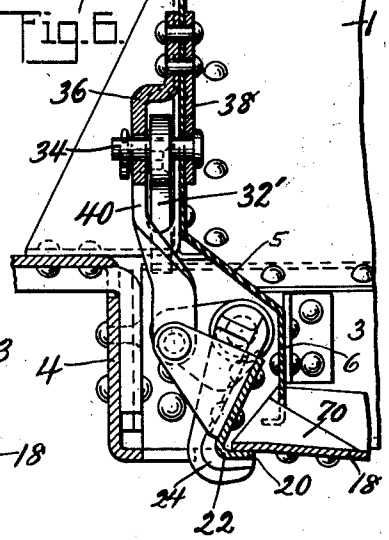


Fig. 4.

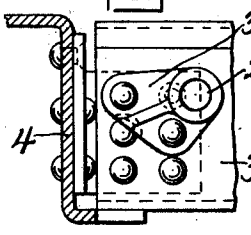
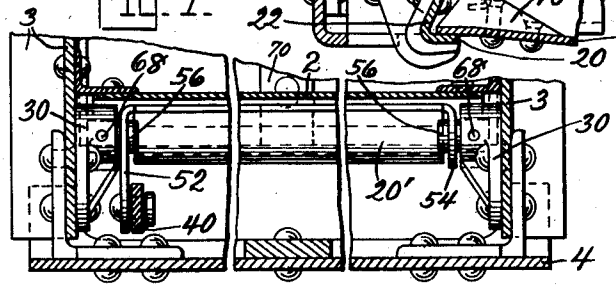


Fig. 7.



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Patented Sept. 10, 1929. 1,727,689

UNITED STATES PATENT OFFICE.

LEOPOLD ALMQUIST, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO AMERICAN CAR AND FOUNDRY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

MINE CAR.

Application filed October 5, 1928. Serial No. 310,657.

This invention relates to drop bottom mine cars and it is an object of this invention to provide an improved latching means for the dumping doors of mine cars of the type described which will be of simple and rugged construction, readily manufactured and applied and reliable in operation without requiring constant maintenance.

Other objects and advantages of this invention will be apparent from the following description taken with the accompanying drawings in which:

Figure 1 is a partial broken side elevation of a mine car constructed in accordance with this invention;

Fig. 2 is a partial end elevation of the structure shown in Fig. 1, parts being broken away to show other parts more clearly;

Fig. 3 is a partial vertical longitudinal section taken on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary section showing the bracket in which the door latch is journaled;

Fig. 5 is a view similar to Fig. 2 of a modified construction;

Fig. 6 is a partial vertical longitudinal section taken on the line 6—6 of Fig. 5;

Fig. 7 is a broken partial horizontal longitudinal section of a modified construction; and

Fig. 8 is a fragmentary section showing a modified construction at the latch operating lever.

In the drawings, the invention is shown applied to a mine car having side sheets 1 and an end sheet 2 connected together and attached to longitudinal or side sills 3 and end sill 4, the end sheet 2 being inwardly deflected as at 5 so that the lower end portion 6 of the end sheet is spaced inwardly some distance from the end sill 4. The body is carried upon wheels 8 mounted on axles 10 which extend through openings in longitudinal sills 3 and are journaled in boxes 12 attached to the sills 3. The body shown is of the bottom dumping type and the floor portion comprises, in part, a drop door 14 held in closed position by a latch 16 which is operated by the door 18. To secure the door 18 in closed position, there is provided a latch 20 comprising an angle plate 22 which extends between the sills 3 across the body of the car and is braced at its ends by flanged hinge straps 24. The hinge straps 24 are formed with trunnions 26 integral therewith which are mounted in bearing openings 28 formed in bearing brackets 30 attached to the longitudinal sills 3 adjacent the end sill 4. It will be noted that the position of the bearing brackets 30 places the latch 20 beneath the inwardly deflected portion of the end sheet 2 and in the space between the end sheet 2 and the end sill 4 so that the latch is shielded by the sills and end sheet.

In the structure shown in Figs. 1 to 4, inclusive, the latch 20 is operated by means of an operating arm 32 pivotally mounted on a pin 34 inserted in openings in the bracket 36, end sheet 2 and reinforcing strap 38. To the arm 32 there is pivotally connected the upper end of a link 40, the lower end of which is pivotally connected to a lug 42 formed integrally with the flange 44 of one of the hinge straps 24 of the latch 20. The lever arm 32 is provided with a guide and stop 46 attached to the end sheet 2 and extends beyond the car so as to be operated by a suitable track ramp (not shown).

In the modification shown in Figs. 5 and 6, the lever arm 32′ is of greater length and is mounted on the pin 34 carried by bracket 36, sheet 2 and strap 38 and is connected to a link 40 as in the prior construction, but the link 40 is connected to a pin or bolt 48 mounted in a bracket 50 attached to the angle plate 22 adjacent the center of the angle plate. In the construction shown in Fig. 7, the angle plate 20′ is provided with flanges 52 and 54 at its opposite ends having openings to receive bearing pins 56 by which the angle plate is attached to the bearing brackets 30, and the flange 52 is extended in order to permit of attaching an operating link 40 which has its other end connected to an operating arm 32 (not shown). The bearing pins 56 are held in place by cotters inserted in openings 68 in the bearing brackets 30 and engaging in openings in the pins 56. In the construction shown in Fig. 8, there is attached to the operating arm 32 a strap 58 in which is mounted the

outer ends of the pins which connect the arm 32 to the end sheet 2 and the link 40 to the arm 32. This construction may be used in connection with any of the other constructions described.

In the operation of the device, the arm 32 is engaged by a track ramp as the car runs forward; that is, to the right in Fig. 1, thus raising the arm 32 and disengaging the latch 20 from the free end of the door 18. This permits the door 18 to drop and operate the latch 16 to release the door 14. The door restoring device will return the door 14 to its raised position prior to raising the door 18. When the door 18 is raised, the latch 16 is operated to engage the free edge of the door 14 locking the door 14 in closed position. Raising the door 18 will cause the door 18 and lug 70 attached thereto to engage the latch 20, moving the latch sufficiently to permit the door 18 to pass above it whereupon the latch 20 will be returned by gravity or by a suitable yielding means (not shown) to the locking position as shown in Figs. 3 and 6.

From the above description, the construction and operation of the device of the present invention will be fully apparent to those skilled in the art when taken with the accompanying drawings, but I desire it understood that the drawings are merely by way of example and, while illustrating the preferred form of the invention, various changes in the form and proportions of the device may be made within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:

1. In a mine car, a frame comprising side and end sills, an end sheet extending between said side sills inwardly of the end sill, said end sheet having an inwardly deflected portion adjacent its lower end, a drop door pivotally mounted on the side sills, a latch for said door mounted on said side sills and extending beneath the inwardly deflected portion of the end sheet and operating means for said latch mounted on said end sheet.

2. In a mine car, a frame comprising side and end sills, an end sheet extending between said side sills inwardly of the end sill, said end sheet having an inwardly deflected portion adjacent its lower end, a drop door pivotally mounted on the car, a latch for said door beneath the inwardly deflected portion of the end sheet and operating means for said latch.

3. In a mine car, a frame comprising side and end sills, an end sheet extending between said side sills inwardly of the end sill, said end sheet having an inwardly deflected portion adjacent its lower end, a drop door pivotally mounted on the car, a latch for said door extending between the side sills and beneath the inwardly deflected portion of the end sheet and operating means for said latch.

4. In a mine car, a frame comprising side and end sills, an end sheet extending between said side sills inwardly of the end sill, said end sheet having an inwardly deflected portion adjacent its lower end, a drop door pivotally mounted on the car, a latch engaging the free edge of said door and extending between the side sills beneath the inwardly deflected portion of the end sheet and operating means for said latch.

5. In a mine car, a frame comprising side and end sills, an end sheet extending between said side sills inwardly of the end sill, said end sheet having an inwardly deflected portion adjacent its lower end, a drop door pivotally mounted on the car, a latch mounted on the side sills and engaging the free edge of said door, said latch extending between the side sills beneath the inwardly deflected portion of the end sheet and operating means for said latch.

6. In a mine car, longitudinal and end sills, an end sheet extending between said longitudinal sills inwardly of an end sill, said end sheet having an inwardly deflected portion adjacent its lower end, a drop door pivotally mounted on the car, a latch for said door comprising an angle plate engaging the free edge of said door and flanged hinge straps bracing said plate, hinge brackets mounted on said longitudinal sills, means pivotally connecting said hinge straps and brackets and operating means for said latch mounted on said end sheet.

7. In a mine car, longitudinal and end sills, an end sheet extending between said longitudinal sills inwardly of an end sill, said end sheet having an inwardly deflected portion adjacent its lower end, a drop door pivotally mounted on the car, a latch for said door comprising an angle plate extending between the longitudinal sills beneath the inwardly deflected portion of the end plate and engaging the free edge of the door and flanged hinge straps bracing said plate, hinge brackets mounted on said longitudinal sills, means pivotally connecting said hinge straps and brackets and operating means for said latch mounted on said end sheet.

8. In a mine car, a frame comprising longitudinal sills, a drop door pivotally mounted on said sills, a latch for said door comprising an angle plate engaging the free edge of said door and flanged hinge straps bracing said plate, hinge brackets mounted on said sills, trunnions on said hinge straps engaging said brackets and operating means for said latch.

In witness whereof I have hereunto set my hand.

LEOPOLD ALMQUIST.