Feb. 8, 1927. 1,616,573

H. P. FIELD

MINE CAR

Filed Jan. 14, 1926 2 Sheets-Sheet 1

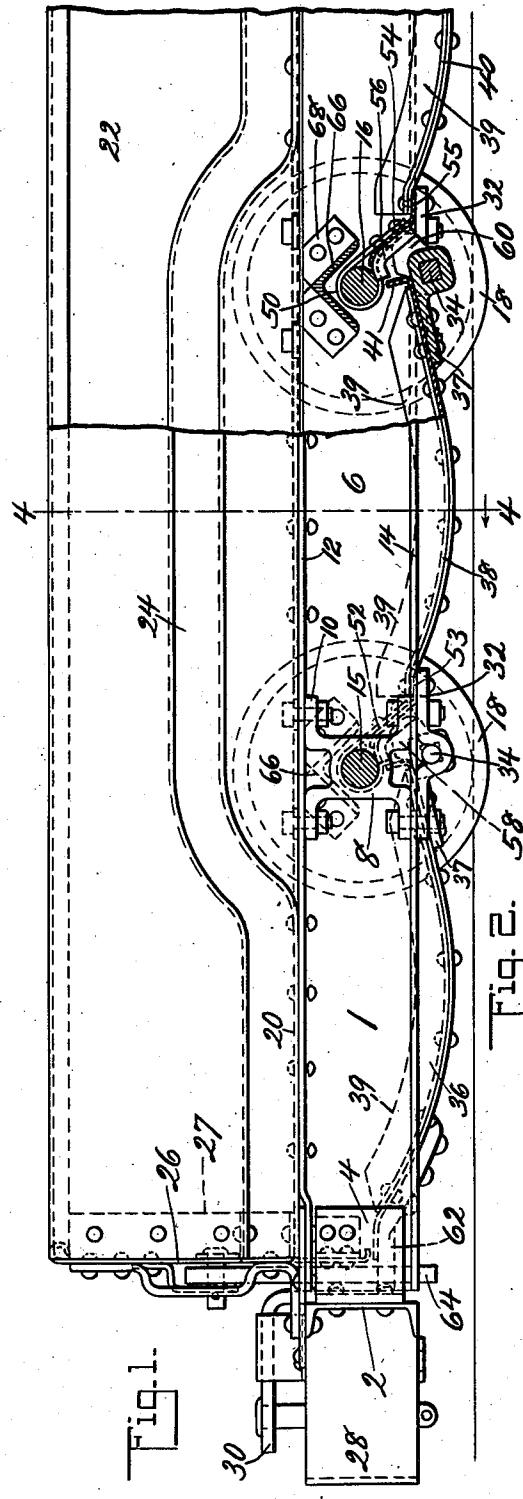


Fig. 1.

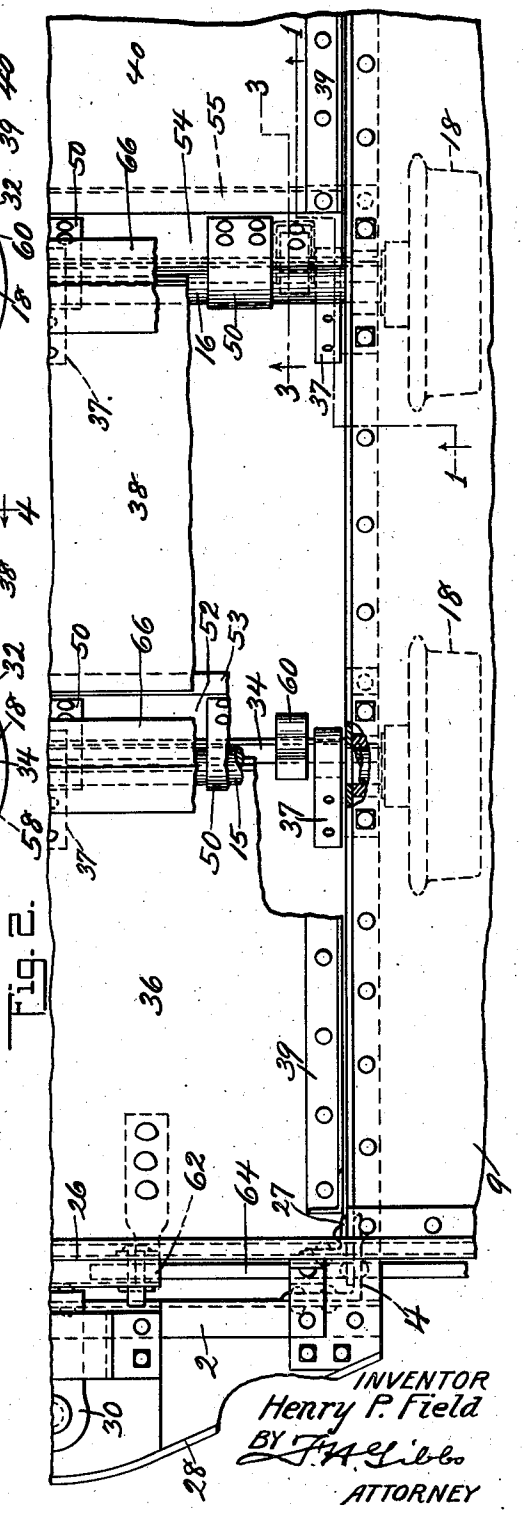


Fig. 2.

INVENTOR
Henry P. Field
BY T. H. Gibbs
ATTORNEY

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Fig. 3.

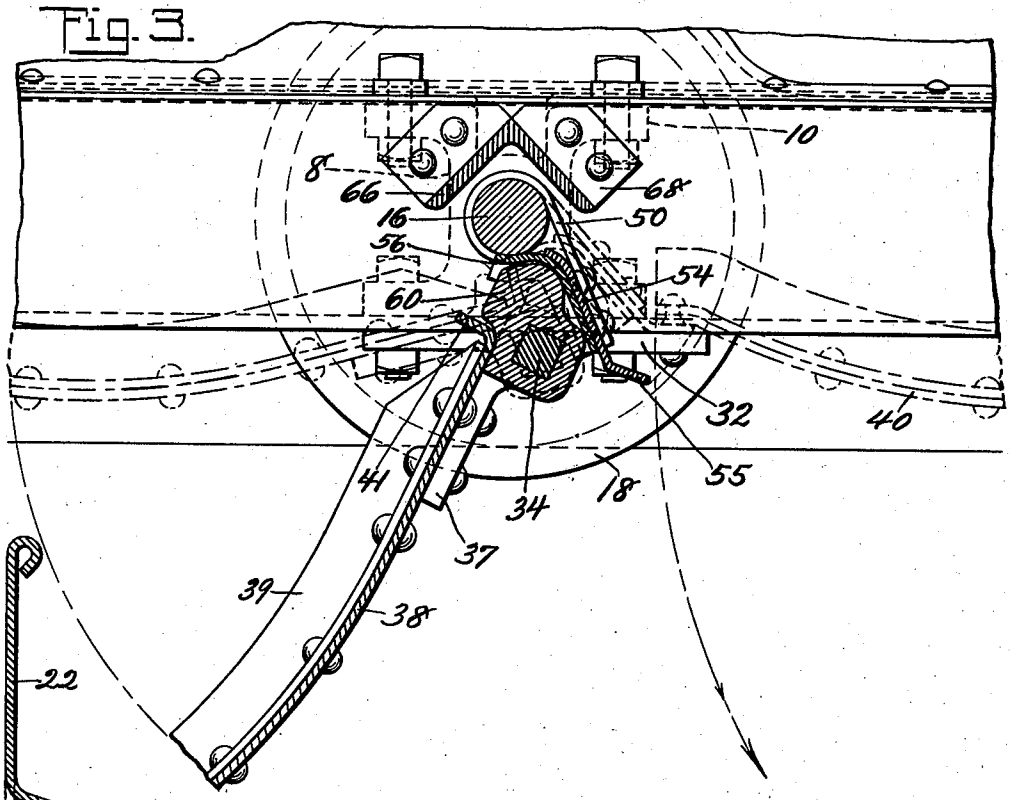
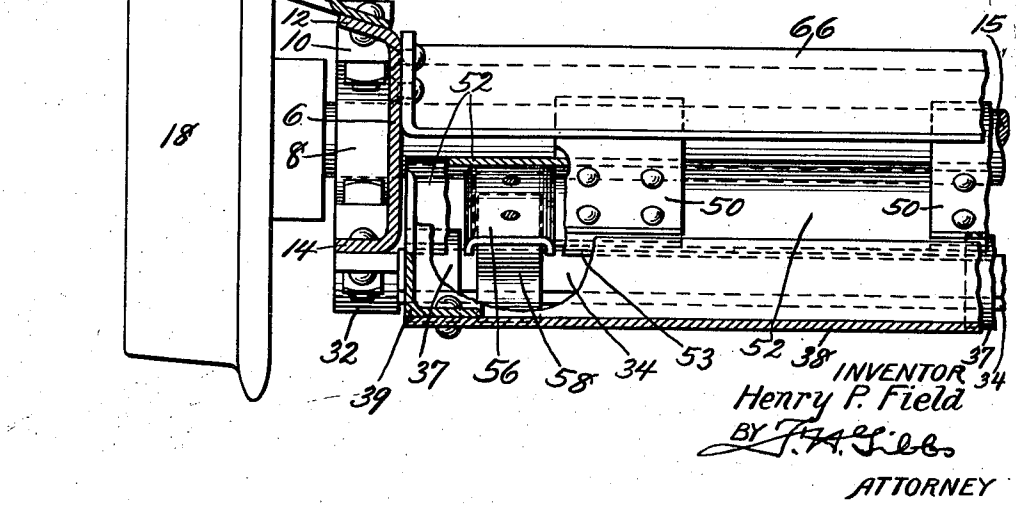


Fig. 4.



INVENTOR
Henry P. Field
BY J. A. Gibbs
ATTORNEY

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UNITED STATES PATENT OFFICE.

HENRY P. FIELD, OF BERWICK, PENNSYLVANIA, ASSIGNOR TO AMERICAN CAR AND FOUNDRY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

MINE CAR.

Application filed January 14, 1926. Serial No. 81,256.

Fig. 1 is a partial view partly in side elevation and partly in vertical section taken on the line 1—1 of Fig. 2 of a mine car constructed in accordance with this invention, one of the wheels being removed to show a journal box more clearly;

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

Fig. 3 is a partial vertical section taken on the line 3—3 of Fig. 2 and showing in full lines a door in dropped position and the locking means operated thereby in the released position and showing in broken lines the doors closed and the locking means in locking position, and

Fig. 4 is a partial transverse vertical section taken on the line 4—4 of Fig. 1, parts being broken away to show other parts more clearly.

This invention relates to mine cars of the type having floors composed of dumping doors so arranged that the dumping operation of one door automatically controls the dumping operation of an adjacent door and the return of one door to its normal position automatically locks an adjacent door in its normal position and it is an object of this invention to provide an improved locking means to be operated by the opening and closing movement of one door of a car of the type described to release and lock, respectively, an adjacent door of the car.

In the drawings the invention is shown applied to a mine car having longitudinal sills 1 connected at their ends by end sills 2 which are secured thereto by the angles 4, both the longitudinal sills 1 and end sills 2 being formed of channel members and positioned with their flanges projecting outwardly. Against the outer faces of the webs 6 of the longitudinal sills 1 are placed journal boxes 8 having flanges 10 by which they are secured to the upper flanges 12 and lower flanges 14 of the longtitudinal sills 1. The journal boxes are provided with openings which aline with openings in the webs 6 of the sills 1 and which receive therein the axles 15 and 16 upon which are mounted the wheels 18. The upper flanges 12 of the longitudinal sills 1 extend outwardly and upwardly and have secured thereto plates 9 which are bent to form upwardly and outwardly inclined side floor portions 20 and vertical sides 22, the side floor portions 20 being pressed upwardly at their centers to form housings 24 over the wheels 18. The side sheets 9 are connected at their ends by end sheets 26 secured thereto by flanges 27, the end sheets projecting between the longitudinal sills 1 in back of the end sills 2, being spaced from the end sills a short distance. The end sills 2 are provided with bumpers 28 and coupling members 30 of any usual or desired construction.

Secured to the lower flanges 14 of the sills 1 adjacent one end sill and beneath the journal boxes 8 are brackets 32 in which are pivotally mounted angular shafts 34. To the shafts 34 hinges 37 secure curved drop doors 36, 38 and 40 having reinforcing angles 39 along their side edges and flanges 41 along their hinge edges, the flanges 41 lying substantially in planes through the axes of the shafts 34. The door 36 is mounted on a shaft 34 beneath one pair of journal boxes and has its free edge adjacent one end sill; the door 38 is pivotally mounted on a shaft 34 beneath the other pair of journal boxes and having its free edge adjacent the first shaft 34; and the door 40 is mounted on a shaft 34 (not shown) adjacent the other end sill and has its free edge adjacent the second shaft 34.

Pivotally mounted on the axles 15 and 16 by the hinge straps 50 are the angle locking plates 52 and 54 having door engaging portions 53 and 55, respectively, and flanged wear plates 56 which are engaged by cams 58 and 60 fixed on the door supporting shafts 34. The plates 52, 54 serve as aprons to exclude the car lading from between adjacent doors 36, 38, 40, and to protect the lock or latch actuating cams 58, 60. The free edge of the door 36 is provided with longitudinally projecting lugs 62 which are engaged by locking means 64 pivotally mounted on the end plate 26 and projecting between the end plate 26 and the end sill 2. Extending from side to side of the car and secured to the webs 6 of the sills 1 are angle ties 66 having flanges 68 by which they are secured to the webs 6, the ties 66 serving as hoods over the axles 15, 16 and the upper edges of the aprons 52 and 54 to exclude the car lading from between adjacent doors and

to protect the locking means from the car lading.

In the operation of this device, considering the doors locked in closed position and the car moving towards the right, the locking means 64 will be operated by means of operating cams placed at the side of the track, as in Patent No. 1,534,135, Nichols, Apr. 21, 1925, to disengage the lugs 62 on the door 36 and permit the door 36 to drop and operate the cams 58 to release the locking means 52. Withdrawing the cams 58 from in back of the locking means 52 will permit the locking means 52 to be operated by the load on the door 38 causing the locking means 52 to be disengaged from the door 38 and allow the door to drop and operate the cams 60, withdrawing the cams 60 from in back of the locking means 54. Withdrawing the cams from in back of the locking means 54 will permit the load on the door 40 to operate the locking means 54 to release position permitting the door 40 to drop. Continued movement of the car in the same direction causes the door 40 to engage a track obstruction as in the patent mentioned above which raises the door to its normal position. Further movement of the car in the same direction causes the door 38 to engage the same obstruction bringing the door 38 to its normal position and operating the cams 60 to engage the locking means 54 and force the locking means into door retaining position beneath the free edge of the door 40. Further movement of the car in the same direction causes the door 36 to engage the same obstruction raising the door to its normal or closed position and operating the cams 58 to engage the locking means 52 and force the locking means to its door supporting position beneath the free edge of the door 38. The door 36 when raised to its normal position brings the lugs 62 into engagement with the locking means 64 where they are retained until the locking means 64 is again operated.

What is claimed is:

1. In a mine car, longitudinal sills, a shaft rotatably mounted on said sills, a door fixed on said shaft, a second door, locking means for said second door and cams mounted on said shaft and engaging said locking means to hold said locking means in supporting relation to said second door.

2. In a mine car, longitudinal sills, a shaft rotatably mounted on said sills, a drop door, hinges connecting said door and shaft and operating said shaft with said door, a second door, locking means for said second door and cams mounted on said shaft between said hinges to operate said locking means.

3. In a mine car, longitudinal sills, axles supporting said sills, a shaft rotatably mounted on said sills, a drop door, hinges connecting said door and shaft and operating said shaft with said door, a second door pivotally mounted on said sills, locking means for said second door pivotally mounted on an axle and projecting between said doors and a cam mounted on said shaft between said hinges and operating said locking means to hold said second door in closed position when said first door is closed.

4. In a mine car, longitudinal sills, axles supporting said sills, a shaft rotatably mounted on said sills, a drop door, hinges connecting said door and shaft and operating said shaft with said door, a second door pivotally mounted on said sills, locking means for said second door pivotally mounted on an axle and cams fixed on said shaft and engaging said locking means.

5. In a mine car, longitudinal sills, a shaft rotatably mounted on said sills, a drop door, hinges connecting said door and shaft and operating said shaft with said door, a second door, pivotally mounted locking means for holding said second door in closed position and a cam fixed on said shaft and operating said locking means to holding position.

6. In a mine car, longitudinal sills, a shaft rotatably mounted on said sills, a door fixed on said shaft, a second door, locking means for said second door and cams mounted on said shaft and projecting beyond said first door for operatively engaging said locking means.

7. In a mine car, longitudinal sills, a shaft rotatably mounted on said sills, a door fixed on said shaft, a second pivotally mounted door, pivotally mounted locking means for said second door projecting between said doors and a cam rotating with said shaft and operatively engaging said locking means.

8. In a mine car, longitudinal sills, a door supporting shaft rotatably mounted on said sills, a drop door having an upwardly projecting flange at its hinge edge, hinges projecting beyond said door to connect said door and shaft and rotate said shaft with said door, a second pivotally mounted door having its free edge adjacent the hinge shaft of said first door, a pivotally mounted locking means for said second door projecting between the free edge of said second door and said door supporting shaft and cams fixed on said shaft and projecting beyond said first door to operatively engage said locking means and hold said locking means in supporting engagement with said second door when said first door is in the closed position.

9. In a mine car, a rotatably mounted shaft, a drop door fixed on said shaft, a second drop door, locking means for said second door and means rotating with said shaft to operate said locking means.

10. In a mine car, a drop door, a shaft supporting said door and rotating there-

with, a second drop door and locking means for said second door, said shaft operatively engaging said locking means.

11. In a mine car, a drop door, a shaft supporting said door and rotating therewith, a second drop door and locking means for said second door, said locking means being operated to engage said second door by the rotation of said shaft.

12. In a mine car, a rotatably mounted shaft, a drop door fixed on said shaft, a second drop door, and locking means, said shaft having projecting means for engaging said locking means with said second door.

13. In a mine car, a drop door, a shaft across the car supporting said door, a second drop door, and locking means for said second door operated by rotation of said shaft, but mounted separately therefrom.

In witness whereof I have hereunto set my hand.

HENRY P. FIELD.