Nov. 18, 1941. E. B. McNEER ET AL 2,263,392

MINE CAR SECURING DEVICE

Filed July 6, 1940

Fig. 1

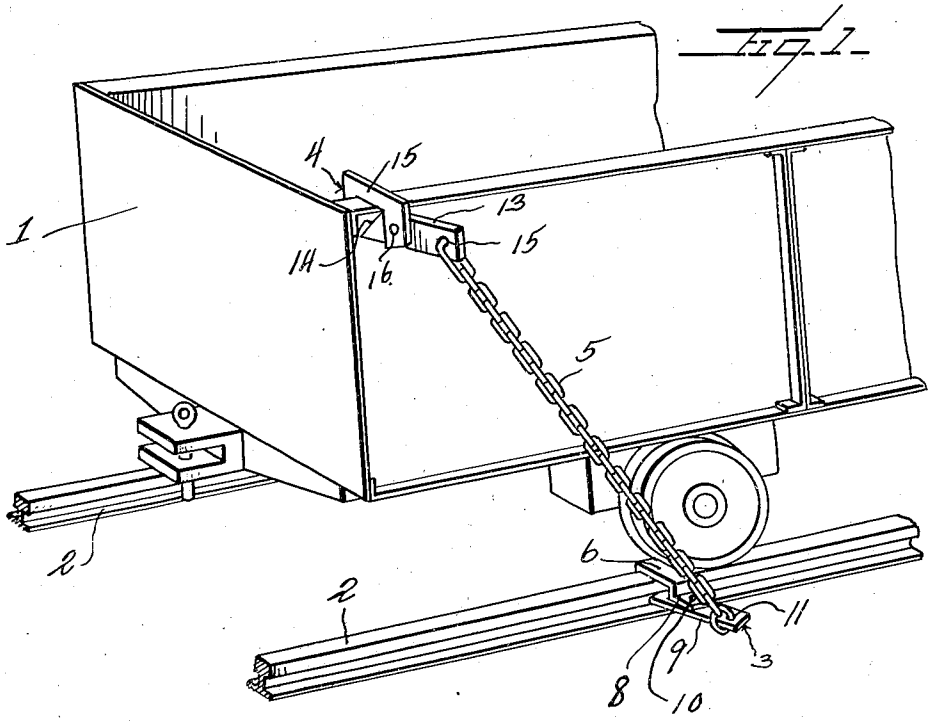


Fig. 2

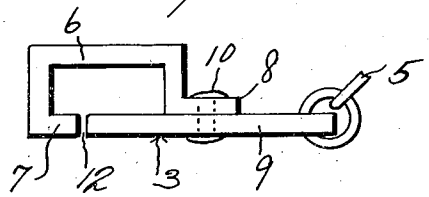


Fig. 3

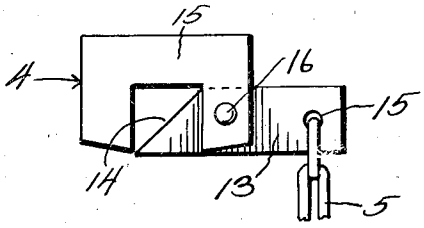
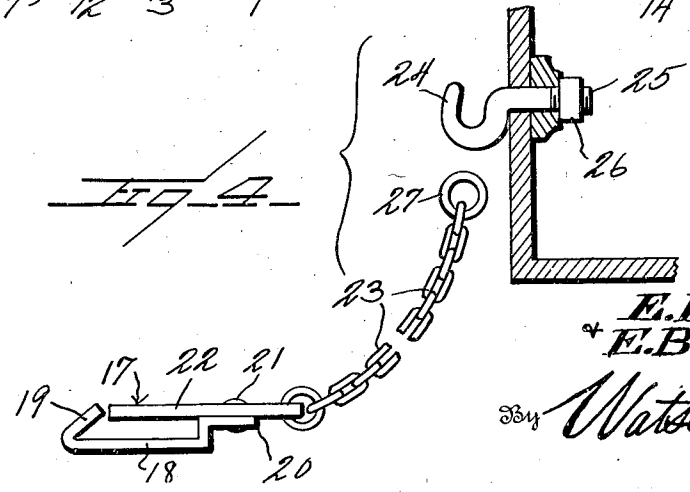


Fig. 4



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MINE CAR SECURING DEVICE

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1 Claim. (Cl. 188—43)

This invention relates to improvements in securing devices which are designed for holding wheeled structures against movement on a grade and pertains particularly to such a device which is designed for use in the mining industry particularly, for securing a car against movement when it is necessary for such car to be stopped on a slope or grade.

In mining operations, the mine cars when run into a cut or tunnel to be filled frequently are brought to a stand on an inclined portion of the supporting track and it, therefore, becomes necessary that some means be employed for securing the car against movement, and such means must be of a dependable nature as well as being of a form which makes it possible for it to be easily and quickly attached and detached, in order to avoid accidents. It is also necessary, due to the fact that one side of the trackway is usually piled up with mine trash, that the holding device be of such a character that it may always be used upon the same side of the car regardless of whether the car, when it is brought to a standstill to be filled, is heading up the grade or down the grade.

The present invention has for its primary object to provide an improved car securing device by means of which the body of the car may be securely coupled with a track rail, either at the head of the rail or at the base thereof, so that the car will be securely held against movement while standing on a sloping or graded part of the track so that it may be filled without danger to the miners.

Another object is to provide a securing device for the above described purpose which includes a rail engaging hook or clamp which is so designed that it may always be applied to a track rail on the same side of the car regardless of whether the car is headed upgrade or downgrade, and the rail engaging hook is also so designed that the pull exerted thereon by the car in its tendency to drift down the grade will only result in the tighter closing of the rail hook or clamp, on the rail so as to more securely hold the car against movement.

Another object is to provide in a device of the character described, a novel unitary structure which may be easily and quickly attached over the edge of a car body as well as being easily and quickly connected with a rail of the supporting track so that a minimum of time is taken for applying the device or removing it from working position.

A still further object is to provide in a device of the above described character, a track rail gripping clamp which is so constructed that after it has been applied to the rail and firmly closed, the car engaging portion of the device which is connected with the rail clamp by a chain or other flexible connection may be coupled with and uncoupled from any number of cars without the danger of the track engaging clamp coming loose or releasing its hold on the track.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not to be confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claim.

In the drawing:

Fig. 1 is a view in perspective of a portion of a mine car showing the application of the present invention thereto when the car is on a grade leading downwardly toward the coal wall.

Fig. 2 is a view in side elevation of the rail clamp.

Fig. 3 is a view in side elevation of the car body clamp.

Fig. 4 illustrates a modified form of the invention with means by which the same is attached to the car body.

Referring now more particularly to the drawing, the numeral 1 indicates a portion of a conventionally illustrated car body supported upon track rails 2 and showing the application of the device embodying the present invention for holding a car against drifting downgrade. This illustration shows the action of the device when the downgrade is toward the face of the coal, it being understood and it will be clearly apparent from the subsequent description, that when the grade is upwardly toward the face of the coal, the rail engaging clamp will have a reverse position.

The device embodying the present invention consists essentially of three parts which are the rail engaging clamp which is indicated generally by the numeral 3, the car body wall engaging hook which is indicated generally by the numeral 4, and the flexible connection between the hook and clamp which is here shown as a chain 5.

The rail engaging clamp consists of a hook having a top or back 6, a bill portion 7 and a

shank portion 8, the shank being in offset parallel relation with the back as shown and lying in a plane between the back and the bill portion 7. Associated with the hook is a jaw in the form of a relatively long flat plate 9 against one side of which is pivotally secured the shank portion 8 of the hook, through the medium of a pivot pin or rivet 10. One end of the jaw 9 may be, when the jaw is swung on the pivot 10, brought into opposing relation with the hook bill 7, as shown in Fig. 1, in which case the jaw plate 9 extends longitudinally of the hook and the opposite end of the jaw plate is apertured, as at 11, to facilitate the attachment thereto of an end of the chain 5. Since the back 6 of the hook is offset a substantial distance from the plane of the bill 7, which plane the jaw plate 9 also occupies, it will be readily seen that the hook may be engaged over the head or ball of the rail or across the base thereof, the web portion of the rail in either case being located in the opening 12 lying between the end of the bill and the gripping end of the jaw plate. When the rail clamp is in operative position, the jaw plate will not be in alinement with the bill 7 but will be disposed obliquely with respect to the length of the hook as is shown in Fig. 1, the direction of the angle of the plate with respect to the length of the hook depending, of course, on the direction in which the car is headed and the direction of slope of the track.

The car body hook 4 consists of a flat plate 13 cut obliquely at one end to form the gripping point 14 while at its other end it is apertured, as at 15, for connection therewith of the other end of the chain 5. Pivotally attached at the point 16 to one side of the body 13 is an end of a leg of a substantially U-shaped keeper 15, the end of the other leg of the keeper being adapted to come into position across the point 14 so that this rocking keeper 15 will coact with the point 14 of the plate to grip the side wall of a car body, the keeper 15 being disposed over or straddling the edge of the wall.

In the use of the device described, the body hook 4 is engaged over the top edge of the car wall in the manner stated and the clamp 3 is engaged either with the head of the rail or with the base thereof. In either case, the hook portion of the clamp straddles the rail, the point of the bill 7 being opposed to one side of the rail web. In putting the clamp in position, the jaw plate 9 will first be oscillated to a position where it will extend transversely of the hook body 6 and this will facilitate the application of the hook body to the rail head or base. The jaw plate will then be swung back toward the position where the gripping end of the plate will be opposed to the point of the bill so that the web of the rail will be clamped firmly between the point of the bill and the jaw plate. Where the car is on a downgrade directed toward the face of the coal, as in Fig. 1, the car wall engaging hook 4 will be located downgrade from the rail clamp so that the tendency of the car to move downgrade will exert a pull upon the clamp jaw plate 9 in a manner tending to oscillate the jaw plate farther into closed position so as to more firmly grip or clamp the rail web between it and the bill. Where the slope of the track is upwardly toward the coal so that the car would tend to drift back away from the position where it must be held for filling, the car body engaging hook 4 would still be located downgrade from the track rail clamp, but in this case it would be farther away from the front end of the car or that end of the car from which the filling operation is conducted, than in the other case where the body hook would be nearer the front end of the car than the rail clamp, as shown in Fig. 1.

In Fig. 4 the modified form of rail clamp is illustrated and there is also shown another method by which the clamp may be coupled through the medium of a chain with the body of the car. In this modification the rail clamp which is indicated generally by the numeral 17, consists of a hook portion having a back 18 which at one end is bent back upon itself to form the obliquely directed bill 19 while at its other end it is shaped to have the parallel offset shank portion 20 which is pivotally attached by the bolt or rivet 21 to the jaw plate 22. One end of the jaw plate has the chain 23 connected therewith while the other end is adapted to come into opposing relation with the bill 19, as shown.

For connecting the other end of the chain 23 with the car body, the car has a side or end wall provided with a hook 24, the shank portion 25 of which is passed through an aperture in the wall and secured by the nut and washer assembly 26. If desired, the hook 24 may have substituted for it a ring or an eye bolt and the end of the chain may be supplied with a hook for connection with such ring or eye bolt instead of the large ring 27 which is here shown for engagement over the hook 24.

From the foregoing, it will be readily apparent that in the device here described, there has been provided a novel and effective means for securing a car against drifting when it is necessary that such car be kept at a standstill on a grade and it will also be readily apparent that the rail clamp forming a part of the present device is so designed that it may always be used upon the same side of the car and track and when once applied to the track, it will firmly hold the same while car changes are being made and while the chain is being connected with or disconnected from such cars.

What is claimed is:

A device for securing a car to a supporting track rail to prevent drifting of the car, comprising a rail clamp in the form of a U-shaped yoke member having a back to extend across a rail and transversely extending portions at each end, an inturned bill integral with one portion and paralleling the back to be located in opposition to a side of the rail web, the other portion having a shank in an offset parallel plane relative to said inturned bill, a gripping jaw in the form of an elongated plate having a pivotal connection intermediate its ends with the shank of the clamp whereby an end of the jaw plate may be oscillated in the plane of said bill to grip the rail web between the jaw and bill, a flexible strand connected at one end with the other end of the jaw plate, and means connected with the other end of said strand facilitating its connection with the body of the car.

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