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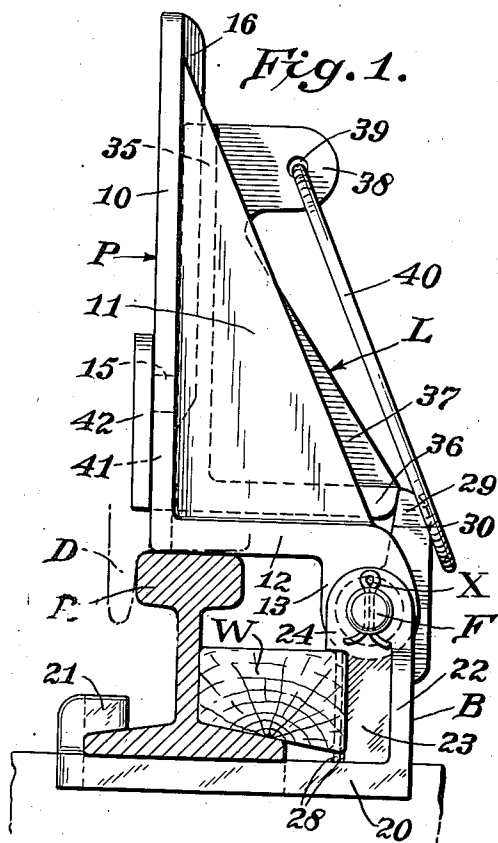
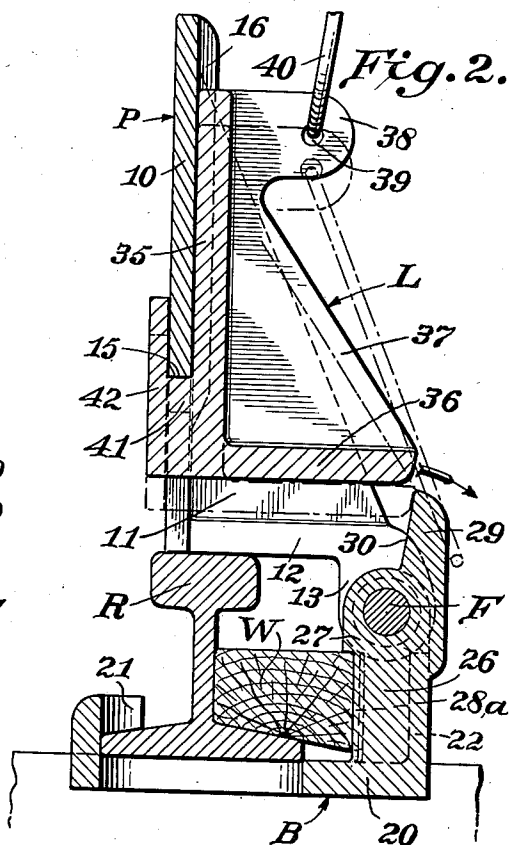
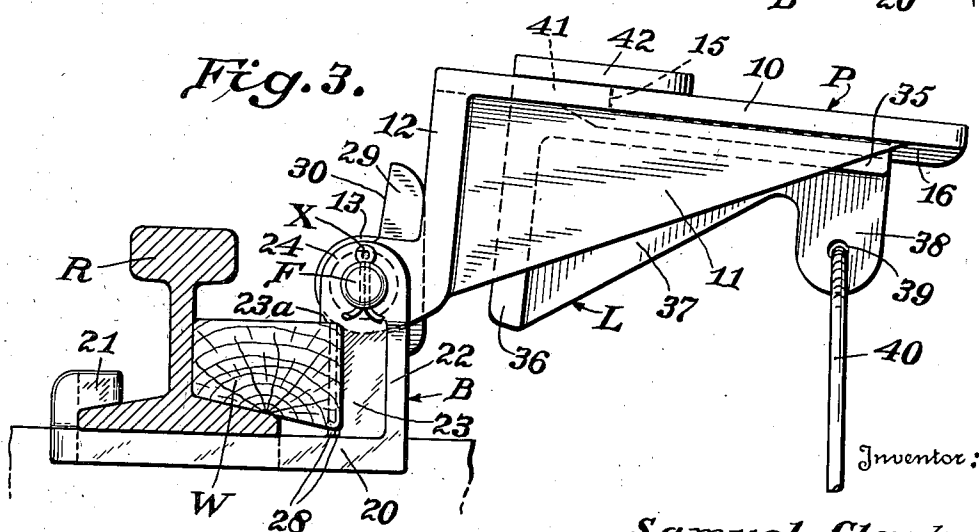
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CAR STOP

Filed Aug. 22, 1935

2 Sheets-Sheet 1



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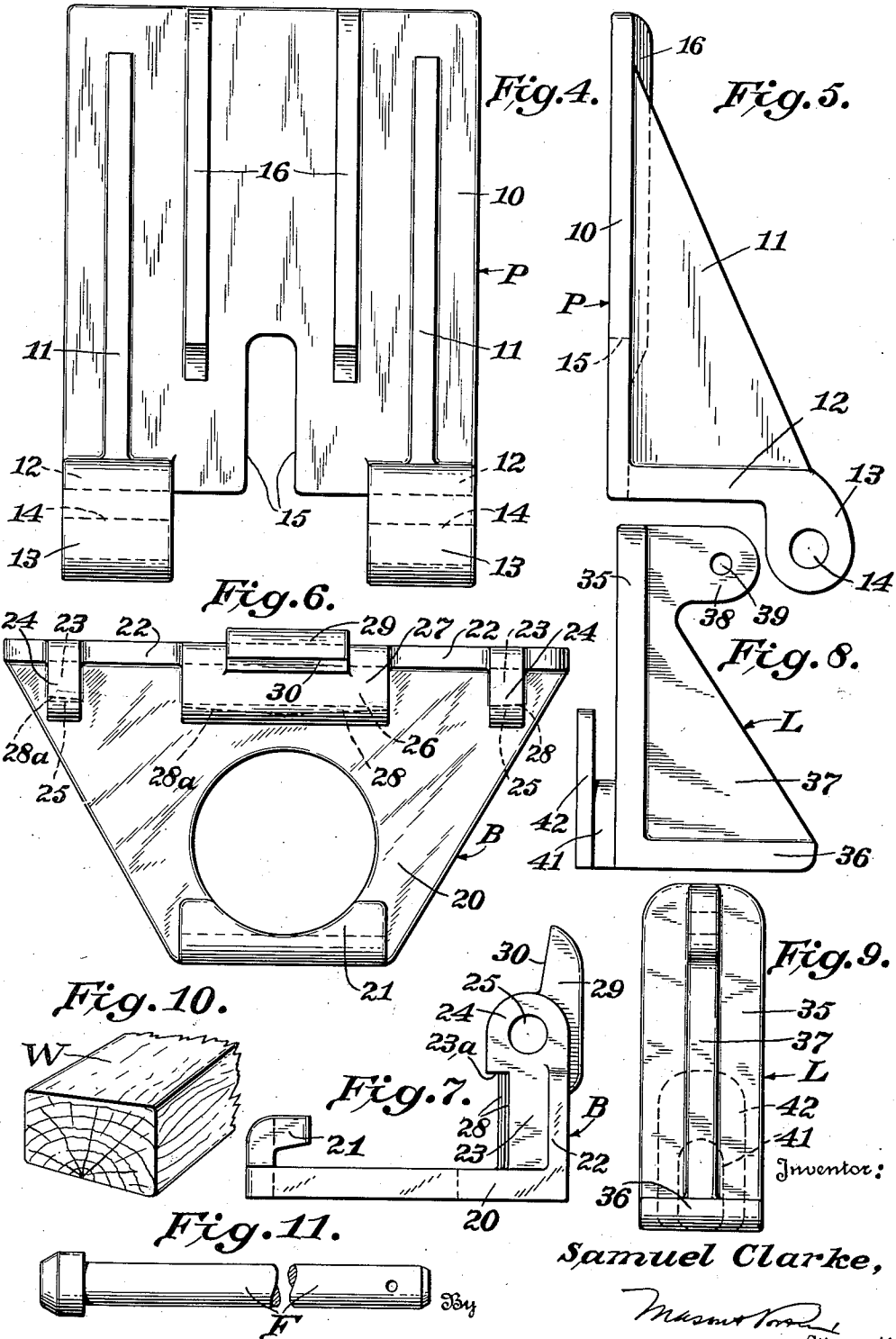
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UNITED STATES PATENT OFFICE

2,067,694

CAR STOP

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14 Claims. (Cl. 104—257)

This invention concerns a car stop of the type which is employed for blocking a car against movement along the track. Such devices are found of especial use in mines, quarries, etc., where industrial cars are "spotted" for filling or emptying, and where the track is successively changed or extended as the loading or unloading of successive cars continues.

One of the features of the present invention, therefore, is the provision of a stop of this type which can be quickly and easily removed from the path of the car, so that the car may pass the stop, and which may be easily and quickly swung into position for arresting movement of the car, together with means for preventing the displacement of the device from its arresting position.

Another feature of the present invention is the provision of a car stop including a lock member which prevents movement of the device from its arresting position as a result of contact of the miner's foot, for example, therewith, this locking device being associated with a stop structure proper so that it is easily released.

A further feature of the present invention is the provision of such a device, comprising means to be clamped to the rail itself so that it may be easily positioned and removed, and in a specific illustrative form the invention also comprises symmetrical structures so that the device may be clamped to the rail for preventing dislodgement of the device under car impact from one or another direction according to the selective clamping of the device, while permitting easy removal of the device when it is desired to shift the same along the track.

With these and other features as objects in view, as will appear in the course of the following specification and claims, an illustrative form of construction is set out on the accompanying drawings, in which:

Figure 1 is an end elevation of the device as applied to a track rail, and in its arresting position.

Figure 2 is a cross-sectional view through the rail and device showing the position of the illustrative locking element in dotted lines when ready for locking and in full lines when raised for disengagement of the stop device from its car-arresting position.

Figure 3 is a view similar to Fig. 1, showing the stop device removed from arresting position.

Figure 4 is a back view of the arresting structure or pivot block of the assembly; and Figure 5 is an end view of the same.

Figure 6 is a top elevation of the base block of

the assembly; and Figure 7 is an end view of the same.

Figure 8 is an end view of the locking block; and Figure 9 is a rear view of the same.

Figure 10 is a view indicating the shape of the wood block employed for clamping the structure on a rail.

Figure 11 is a detail view of the pivot pin employed.

In these drawings, the structure is illustrated as made of three castings which are the base block B, the pivot block P, and the locking block L, which are supported with respect to the rail R and clamped in position against longitudinal movement along the rail by a wedging wood block W. The pivot block P is mounted on the base block B by a pivot or fulcrum pin F (Fig. 1), so that the pivot block may swing to and from the positions of Figs. 1 and 3.

Specifically, the illustrative form of the construction has the pivot block P (Figs. 4 and 5) formed with a web plate 10 constituting an upright plate which is presented edgewise against the tread of the car wheel or against a low bumper thereof, etc. It will be noted from the figures that the preferred arrangement of parts, based on the shape and size of the rail, is such that the inner face (the face at the left in Fig. 1) of the plate P is located outside the plane of the car wheel flange, so that this plate is not contacted by the flange, whereby a lateral derailing pressure might be exerted upon the car and an unusual lateral pressure upon the stop device itself. In Fig. 1 the flange and tread portion of the car wheel D is shown in dotted lines for comparison.

The major portion of the structure of the stop device is located outside the plane of the wheel flanges when in arresting position (Fig. 1) and outside the rail when in non-arresting position (Fig. 3). The pivot block P also has the triangular reinforcing webs 11 which are spaced longitudinally from one another in the direction of length of the track rail and are joined to the spaced foot portions 12 which rest upon the rail (Fig. 1) when the device is in arresting position. These foot portions 12 have downwardly directed ears 13 with apertures 14 for receiving the fulcrum pin F. The web plate 10 has a notch 15 extending upwardly from its lower edge so that the notch is closed, so to speak, by the rail R when the device is in arresting position. Extending parallel to this notch are a pair of ribs 16 which operate as stiffening and reinforcing structures for the web plate 10, and also as guides

for the sliding movement of the locking block L, as will be described hereinafter.

The base block B is shown in detail in Figs. 6 and 7 as having a bottom plate 20 which may be apertured or cut away for lightness. The plate 20 is shown as being in the form of a trapezoid having at its lower base an upwardly and inwardly extending lug structure 21 for engaging over one edge of the base of the rail R (Fig. 1), being appropriately shaped for that purpose. At the major base of the trapezoidal form, the plate 20 is joined to an upstanding wall 22 having thereon two end posts 23, each surmounted by an ear 24 having an aperture 25 for the fulcrum pin F. A central post structure 26 is much wider than either of the posts 23 and is located symmetrically with respect to the transverse plane through the base block B, and is similarly provided with an upper structure 27 having an aperture aligned with the apertures 25 for receiving the fulcrum pin F. It will be noted that the surfaces of the posts 23, 26 which are directed toward the lug structure 21 are inclined with respect to the wall 22, in a horizontal plane, to provide wedging surfaces 28, 28a for the wood block W. Preferably the surfaces meet at a ridge of large angle at the transverse plane of symmetry, so that the wood block W may be driven in from either direction, whereby the device is capable of employment for resisting car impact from the opposite direction, and the device may be employed upon either rail without any change in its arrangement or structure. The base block also includes the locking lug 29 which is located above the pivot F and preferably has an inclined face 30 toward the rail.

The locking block L is shown in detail in Figs. 8 and 9 as comprising a plate structure 35 of a width to be closely received for guided sliding movement between the ribs 16 of the pivot block P. The locking block L also has a foot 36 and a triangular stiffening web section 37 which is joined at its top to an outstanding lug 38 having an aperture 39 to receive the manually operable ring 40 (Figs. 1, 2, and 3) by which a miner, for example, may quickly and easily place or remove the device with respect to its arresting position. The locking block L has a relatively thin connecting web 41 joined to a wider retaining plate 42. The web 41 slides guidedly within the notch 15, while the plate 42 is received against the outer surface of the pivot block P (see Fig. 2) for holding the locking block in position.

It will be noted that the base block B, the pivot block P and the locking block L may be easily and strongly constructed as castings, so that the device is stiff and rigid against wear and shock and against the severe conditions of use in mines or quarries.

The device is assembled together by slipping the locking block into position with respect to the pivot block P by engaging the web 41 in notch 15. The ears 13, 24, and 27 are aligned, the fulcrum pin F introduced, and a cotter X inserted to hold it in position. The hand ring 40 may be positioned at any time. It is preferred to have this ring of a sufficient size to rest against the base block for easy grasping by hand, whereby the operation of removing the stop device may be quickly and easily effected, if so desired.

The structure thus assembled is easily clamped at a desired point on the rail. This is done by engaging the lug structure 21 over the inner edge of the foot flange of the rail and slipping the tapered wood block W into the space between the rail web and the posts 23, 26, the block being

introduced from a direction opposite to that in which the car is to be held. The wood block is then driven tightly into position by an axe or hammer. It will be noted that the heads 24, 27 have overhung shoulders 23a for engaging the upper outer edge of the wood block and preventing its rocking during the driving, or contact with the surfaces of the ears 13; and further it will be noted that the block itself is preferably conformed to fit the base of the rail.

With the device thus secured to the rail, and located in the position of Fig. 3, for example, the operation of moving it into arresting position comprises merely raising it by grasping any available structure, or even by kicking it with the foot, and moving it toward the position of Fig. 1. The pivot block P with the locking block L thereon moves about the axis of the fulcrum pin F toward the position of Fig. 1. If the locking block L slides downward by gravity until its foot 36 rests on the locking lug 29, it is guided by the curved upper surface of this locking lug 29 until the structure attains substantially the position of Fig. 1, at which time the locking block L slides downward along the inclined inner surface 30 of the lug 29 and thus establishes tight wedging fit thereon. It will be noted that it is preferred to have this fit occur, when the device is new, without engagement of the foot 36 with the rail R. This provides for a considerable wear of the structures before any looseness develops in the locking arrangement.

The device is now in locking position and any contact of the car wheel or other portion of the car therewith occurs against the edge of the web plate 10, and the car is brought to a standstill, the forward effort of the car being absorbed in the device, and any tendency of movement of the base block B is in a direction tending to move it up onto the wood block W to a greater extent, this wood block serving as a resilient clamping device which may be easily knocked out at any time it is desired to remove and reposition the structure.

In order to remove the locking device to a non-arresting position, it is merely required to pull upward and outward on the ring 40. The initial upward pull raises the locking block L until the curved outer end of its foot 36 is free of the locking lug 29 (full line position of Fig. 2), and then the continued upward and outward pull on ring 40 causes the pivot block P with the locking block L thereon to swing in a clockwise direction (arrow in Fig. 2) into the position shown in Fig. 3 in which it is free of the rail R. It will be noted in the position of Fig. 3 that the locking lug 29 and the central portion 27 of the base block B are positioned in the path of sliding movement of the locking lug L, and more particularly with respect to the foot 36 thereof, so that the parts cannot become disassembled in this position.

It will be noted that this car stop can be easily and quickly fixed to the rail against movement therealong by the use of the wooden wedge. Such wedges are easily manufactured for replacement purposes at the mine, and can be shaped and formed by the miner himself, as he has an axe as a part of his tool equipment for trimming cap pieces and making wedges for timbers. In the illustrative form, substantially all parts of the device are located outside of the rail when in non-arresting position, and by reason of the provision of the surfaces 28, 28a, the wedge may be driven into the device from either direction, so that the device may be secured to

either rail by a wedge which is introduced into the same from the direction opposite to that of approach of a car, so that the impact of the car against the stop members merely serves to drive the base member more tightly against its wedge. Hence the device may be used on either rail and for the approach of the car in either direction.

As the device has its operating parts located outside the rail, it may be brought into position and removed without the exposure of any part of the miner's body in the path of the car and without danger of mutilation. In particular, it will be noted that the upright edges of the stop member P, in the form illustrated in Fig. 4, permit engagement with the car wheel at a point in the horizontal plane through the wheel axis, and hence a pull on the ring 40 in this illustrative device permits the release of the lock and then a disengagement of the stop block P, even when the car is fully loaded and resting against the device; and in particular, that this operation can be performed without the miner exposing any part of his body in the path of the car.

The miner can position the stop upon the rail by swinging it by a pull upon the ring 40, the locking member L then being engaged with and riding on the projection 29 of the base block, and then the miner can quickly place the stop in position by giving the pivoted parts a sufficient momentum to carry the locking member over into engagement with the top of the rail, whereupon a gravitational downward movement of the locking block L will cause it to engage and hold the parts firmly.

When the device is disengaged and brought to non-arresting position, it is located outside the rail and below the clearance of the car and of mining machines—a matter of importance, as mining machines ordinarily have parts extending lower than the cars, particularly between the rails. Hence the device may be used as an end stop at the end of the rail.

It is obvious that the invention is not limited solely to the illustrative form shown, but that it may be employed in many ways within the scope of the appended claims.

I claim:

1. A car stop comprising a base member, a stop member pivotally mounted on the base member for movement to and from arresting position, and gravity-operated locking means for maintaining the stop member in arresting position.

2. A car stop comprising a base member, a stop member pivotally mounted on the base member for movement to and from arresting position, and locking means including a sliding member operated by gravity into locking position during the movement of the stop member into arresting position for maintaining the stop member in such arresting position.

3. A car stop comprising a base member and means for securing the same to a rail, a horizontal pivot supported by said base member parallel to the rail, a stop member mounted on the pivot for movement to and from arresting position on said rail, and a lock member carried by said stop member and operated by gravity when the stop member is in arresting position for maintaining it therein.

4. A car stop comprising a base member having a rail-engaging portion and wedging surfaces thereon opposite the rail engaged with said portion, a wooden wedging member engageable with the rail and surfaces for securing the base mem-

ber to the rail, a stop member pivotally mounted on said base member, locking means carried by said stop member for maintaining the same in arresting position and movable between locking and non-locking position in a direction substantially at right angles to the axis of the pivot mounting, and manually engageable means connected with the locking means for retracting the same from locking to non-locking position and thereafter effecting a movement of the stop member toward non-arresting position.

5. A car stop comprising a base member, a stop member pivoted thereto, and a wedging device; said base member having a structure extending parallel to the rail and opposite to the same in a horizontal plane, said structure having a pair of wedging surfaces having a small angle of convergence toward the rail from one end of the structure and the other surface having a small angle of convergence toward the rail from the other end of the structure so that the wedging device may be employed between said surfaces and the rail by introduction at the end remote from the direction of approach of the car.

6. A car stop comprising a base member having a part extending beneath the rail and upstanding parts inside and outside the rail, wedging means engaged with the rail and with at least one said upstanding part for fixing the base member against movement along the rail, said upstanding parts including overhanging portions extending toward the rail and engaged when the wedging means is in position whereby to prevent the base member from dropping, and a stop member movably connected with the base member and movable to and from arresting position.

7. A car stop comprising a base member, a stop member pivoted on the base member, and a locking member carried by the stop member and gravitationally movable with respect thereto when the stop member is in arresting position, said base member having a part engaged by the locking member when so moved, whereby the locking member operates to prevent disengagement of the stop member from arresting position.

8. A car stop as in claim 7, and including a manually engageable member connected with the locking member for moving the same against gravity to release it from locking engagement and thereafter operating for moving the locking and stop members about the pivotal connection with the base member and into the non-arresting position of the stop member.

9. A car stop comprising a base member, a stop member pivoted on the base member, a locking member, interengaging means on the stop and locking members for guided gravitational movement of the locking member, when the stop member is in arresting position, into locking position between the stop and base members, and interengaging means on the base and locking members for raising the locking member as the stop member moves toward arresting position.

10. A car stop as in claim 9, in which said latter interengaging means is constructed and arranged to prevent separation of the stop and locking members when the stop member is in non-arresting position.

11. A car stop comprising a base member engaged with the inside of a rail and extending beneath the rail and upwardly outside the rail, a stop member pivotally mounted on the base member outside the rail, and wooden wedging means

engaged with the rail and with the upwardly extending part of the base member, said upwardly extending part including a portion projecting toward the rail and spaced above the base of the rail, a part of said wedging means engaging between said portion and said rail base for holding said base member in position against the bottom of the rail, said stop member including a part resting on the rail when in arresting position and extending upwardly into the path of a car for stopping the same, said stop member when in non-arresting position being located wholly outside the rail and below the clearance of the car and of mining machines.

12. A car stop for a track rail comprising a base member, a stop member pivotally mounted on the base member for movement to and from arresting position, said base member including an upstanding portion above the pivot mounting, and locking means connected to the stop member and movable relative thereto between a position in which it bears against said upstanding portion for holding the stop member in arresting position

and a position free of the said upstanding portion for permitting the stop member to be moved to and from arresting position.

13. A car stop as in claim 12, in which the locking means is movable in a plane substantially at right angles to the axis of the pivot mounting, and in which said upstanding portion has a surface for moving said locking means into position for movement into holding position while the stop member is being moved to arresting position.

14. A car stop comprising a base member, a stop member pivotally mounted on the base member for movement to and from arresting position, an upstanding portion on the base member having the surface toward the rail convergent downwardly toward the rail, and gravity-operated locking means engaging with said surface for maintaining the stop member in arresting position, said convergent surface being effective to assure tight engagement of the locking means.

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