

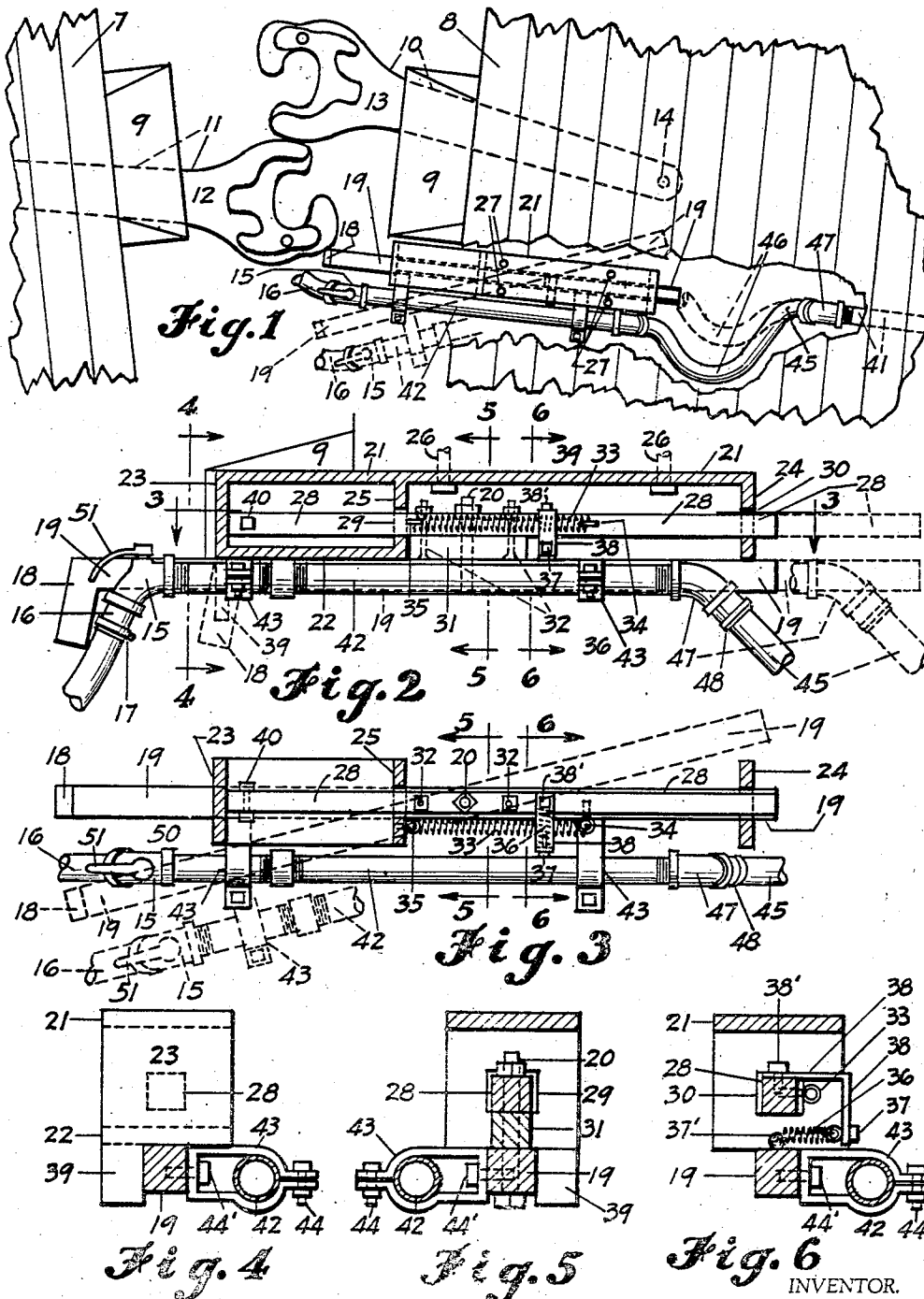
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GUARD FOR ANGLE COCKS FOR TRAIN LINES

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GUARD FOR ANGLE COCKS FOR TRAIN LINES

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This invention relates to improvements in air-brake lines of railway cars and particularly to means for preventing damage to the angle cocks and hose when the car couplers fail to properly meet.

In railway equipment it is the practice to provide each car with an air brake line, or train line, as it is usually designated, which extends longitudinally from one end of the car to the other, and which includes an angle cock at each end for closing the line and short sectional hose thereon for connecting with another car to complete the line through a train. These angle cocks are usually located adjacent to the left side of the draw bar coupler head at each end of the car. In the past such angle cocks and hose have been subject to damage through collision with coupler heads from a meeting car. This occurs most frequently on curved tracks because of the angular relation thereby imposed upon the coupler head, and also occurs when cars are uncoupled on a curve leaving the heads in a slanting position, and in such position to pass by similar coupler head on another car and thus strike the cock and hose.

In order to prevent the short hose with a coupling on the outer end thereof known as a "Glad Hand" from dragging on the track when disconnected between cars, they must be relatively short, and in order to permit them to be connected between the drawheads, with sufficient slack for curves, the ends of the line pipes and cocks must be extended beyond the ends of the cars, and in such position they frequently receive the damage from other drawheads as stated.

In practice the hose so struck becomes broken more frequently than the cocks and when broken must be usually entirely replaced and when so broken or the cocks are damaged on a car, such car must be removed from the train until necessary repairs can be made and such delays are frequently very material and costly particularly when the cars are used for materials such as for war purposes and other emergencies. Attempts have been proposed to permit the cocks and hose to move downward when struck by a drawhead, but no operative structure has been provided for such purpose and the plan cannot be effective because the impacts from the drawheads are of such velocity and violence that the concussions either break or damage the cocks or hose before the natural inertia of the static condition can be overcome and movement created. Furthermore if the hose could be depressed the coupling on the lower end thereof would strike the rails or drag along the track and be damaged thereby.

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It is therefore a primary object of this invention to provide a guard projected in forward position beyond the cock and hose, to meet the impacts of any drawhead. A further object is to make such guards movable backward and sidewise, and to connect the cocks and hose thereto, whereby the guards will effectively prevent damage to the cocks and hose. A still further object is to provide resilient means for automatically returning the guard, cock and hose to normal position after being moved by a drawhead.

A further and important object of the present invention is the provision of means whereby the angle cock is prevented from direct contact with the non-aligned car coupler, and whereby the hose section of the angle cock assembly is prevented from moving downward in any use of the guard to thereby prevent contact with the road bed with consequent injury of such hose section.

With these and other objects hereinafter shown I have illustratively exemplified my invention by the accompanying drawing of which:

Figure 1 is a diagrammatic top plan of the meeting ends of two flatcars, with parts broken away, and with coupler heads extended from the cars in slanting positions, together with a train line angle cock and hose in usual positions.

Figure 2 is an enlarged side elevation view with parts removed and Figure 3 is an enlarged plan view of the mechanism taken on line 3—3 of Figure 2. Figures 4, 5 and 6 are cross section views taken on lines 4—4, 5—5, and 6—6, respectively on Figure 2. Like numerals on the different figures represent like parts.

Numerals 7 and 8 indicate the meeting ends of two flat freight cars to be coupled together by the usual drawheads 10 and 11 which are positioned on the ends of drawbars 12 and 13. The bars slidably disposed through ends 9 of the usual center sills of the cars, and adapted to slide or swing on the usual pins indicated as 14, through their inner ends to permit the heads when coupled to swing as the cars travel around the curves. If either or both of the couplings should be left slanting when disconnected and then be advanced to couple with another car such slanting drawhead as indicated in Figure 1 would strike and damage one or both of the angle cocks shown as 15 and the hose connected indicated as 16 on the end of the cock and attached thereto as by clamp 17.

In order to prevent all such accidents I provide a buffer or guard 18 which is preferably supported on the outer end of a suitable bar 19 which may be a part thereof. Such guard and bar are

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projected forward from the end of the car to meet the on coming drawheads when misaligned and concussions therefrom, and such bar being adapted to move backward and sidewise when struck and to so move the cock and hose from danger. The bar is pivotally supported on a bolt or pin 20 within a frame formed by a cap plate 21 and a base 22 connected by a front end 23 rear end 24 and a central partition 25 suitably spaced apart. The frame is connected with the under side of the car as by any suitable means such as bolts 26 through holes 27 or by brackets not shown from the center sill, or in case of steel bodied cars the cap may be welded thereto. The front end of the frame may be flush with the front end of the car or it may be projected a short distance beyond the same in position to meet an oncoming slanting drawhead after the cock has been moved away by the movement of the bar.

A guide rod 28 is slidably disposed over the frame base and through ports 29 and 30 through the partition and rear end and is connected to and supports the bar by the pivot bolt 20. A spacing bolster 31 is attached to the rod as by small bolts 32, and the rod is sustained in former position against the front end of the frame by any substantial retracting spring 33 connected with the rod as by an eye bolt 34 on the rod and at the front end to the partition by a bolt 35. The bar is normally retained with its front end extended in front of the car to a position beyond the cock and by its connection with the rod. A cross retracting spring 36 attached to an eye 37' on the bar at one end and the other end attached by bolt 37 to a bracket 38 extended from the rod and bolt 38' normally retains the bar in parallel position beneath the rod. A stop 39 below the front end 23 prevents the front end of the bar from swinging too far toward the drawhead. The backward travel of the rod is limited by a cross-head 40 on the front end of the rod in front of the partition.

In former practice the main air pipe or train line indicated as 41 extended unbroken to each end of the car, but in order to permit the cock 13 to be pressed back or sidewise it is necessary to provide a short section of the pipe indicated as 42 upon which the cock 15 is mounted and to extend this short section under the car to the rear end of the bar to which it is attached as by suitable clamps indicated as 43 and bolts 44 and 44' and thus the forward section of the pipe will be carried back or sidewise as the bar so moves.

The forward end of the main section of the train line 41 is terminated for this construction at a point spaced back from the rear of the short front section and connected thereto by a flexible tube or hose 45 as by an elbow 47. This connecting hose is longer than the space between opposing ends of the pipes and so provides a side loop 46 to permit the free movement of the front section 42. The front section is preferably attached to the bar but in spaced relation therefrom to leave room for an operator to turn the lever 51 of the cock, such space indicated as 50, without danger.

In operation the forward end section of the pipe with the angle cock and hose thereon are normally sustained by the bar and rod a suitable distance in front of the car for connecting a like hose on another car, being resiliently so sustained as by the spring 33. The bar is also sustained normally parallel with the rod by the spring 36. In event the coupler head of another

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car should strike the guard or front end of the bar, the bar is thereby driven back against a spring 33 or carried sidewise on the pivot against the spring 36, according to the direction in which the drawhead strikes; thus protecting the attached angle cock and end hose from all damage or injury.

It is important to note that certain well defined advantages follow the described construction. In the trainline assembly the angle cock has a predetermined relation to the car coupler when in operative position, and the advance hose section depends for a proper length to permit connection with the similar hose section of the adjacent car, without being of a length to touch the road bed. This relation is standard practice and cannot be changed.

If for any reason the approaching car couplers are out of coupling line, as when coupling on curves or by reason of uncoupling previously on curves, the non-aligned car coupler of one car will generally contact with the angle cock or advanced hose section, and unless such installation is yielding, material damage to these parts is practically certain. It will be appreciated that the cars approaching for coupling are moving slowly but under the weight of the cars the force is considerable, and if the angle cock or advanced hose connection are directly contacted and as this installation is moving with the car in a direction opposite the offending car coupler, at least relatively, an appreciable interval will occur before the force and movement of the offending car coupler will force the angle cock and advance hose section to start and move in the same direction as the contacting car coupler, even if the installation is yielding.

Therefore, as the present invention provides, it is absolutely necessary that the offending car coupler be prevented from direct contact with the angle cock or advanced hose section under any circumstances, and that means be provided to receive the impact of the car coupler and under such impact compel a movement of the angle-cock installation.

Again, the relative short length of the hose section in advance of the angle cock proper must have a length to permit its coupling with the similar hose length on the adjacent car, but in any relation such hose length must not be sufficient to reach the road bed, for damage to the hose or its end coupling is otherwise certain. Therefore, as the present invention provides the yielding movement of the angle cock installation be so controlled that the hose section in advance of the angle cock will not contact with the road bed under any circumstances.

While I have described certain detailed forms of construction and operation of the parts I desire and intend to make any necessary changes therein as occasion arises and without departing from the scope of my invention as defined by my claims as broadly interpreted.

Having described my invention I claim as new for patent:

1. A guard for preventing injury to an angle-cock installation of a car during coupling attempt of adjacent cars with car couplings out of coupling alignment, said guard comprising a guide rod mounted for sliding movement on and longitudinally of the car, and a bar for connecting the angle cock installation to said guide rod to permit movement of the installation in the plane of movement of said guide rod, said bar being connected to the guide rod to permit movement of the bar and angle-cock installation in a direction

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at an angle to the plane of movement of said guide rod, said bar having a guard-forming end arranged in the path of movement of the non-aligned car coupler and between said car coupler and angle cock and completely protecting the angle cock installation against car-coupler contact in attempted coupling of the cars.

2. A guard for preventing injury to an angle cock installation of a car during coupling attempt of adjacent cars with car couplings out of coupling alignment, said guard comprising a housing secured to the car, a guide rod slidable in and longitudinally of the housing in one plane only, a bar carrying the angle cock installation and connected to the guide rod for swinging in a plane at a direct right angle to the plane of movement of the guide rod, and a guard carried by the bar to guard the angle cock installation against possible contact with the car coupler of the adjacent car.

3. A guard for preventing injury to an angle cock installation under coupling attempt of cars with non-aligned car couplers, said guard including a bar to which the angle cock installation is connected, said bar having an end arranged in advance of the angle cock of said installation in a position to be directly engaged by the approaching non-aligned car coupler and preventing angle cock installation contact by such car coupler, a guide rod mounted for sliding movement in the horizontal plane of the car, and a pivot con-

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necting the bar and rod for horizontal swinging movement only of the bar and angle cock installation under car coupler impact with the guard.

5 4. A construction as provided in claim 2, wherein means are provided for returning the guide rod and bar to normal positions after release by the non-aligned car coupler.

5. A construction as defined in claim 2, wherein the means carried by the end of the bar to protect the angle cock installation against car coupler impact includes a depending end portion of such bar to in part protect the hose section of the angle cock installation in advance of the
10 angle cock.

6. A construction as defined in claim 2, wherein a direct impact of the car coupler and bar compels a sliding movement of the angle cock installation through movement of the rod, and wherein lateral
15 impact of the car coupler with the bar compels a swinging movement of the angle cock installation.

7. A construction for guarding an angle cock installation against injury under movement of a non-aligned car coupler during a car coupling relation, comprising means for supporting the angle
20 cock installation for sliding and swinging movement under car coupler contact, said means preventing any lowering of the advance hose section of the angle cock installation relative to its normal position.
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