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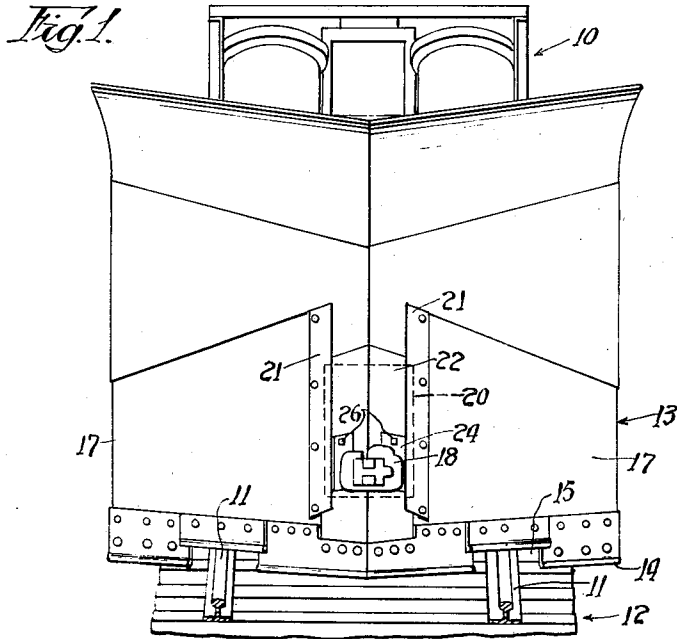
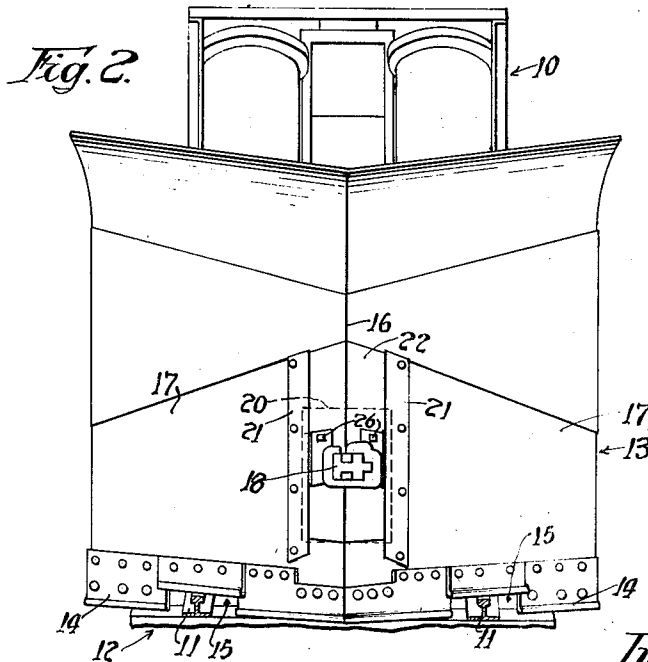
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2,214,207

RAILROAD SPREADER

Filed Oct. 7, 1939

2 Sheets-Sheet 1



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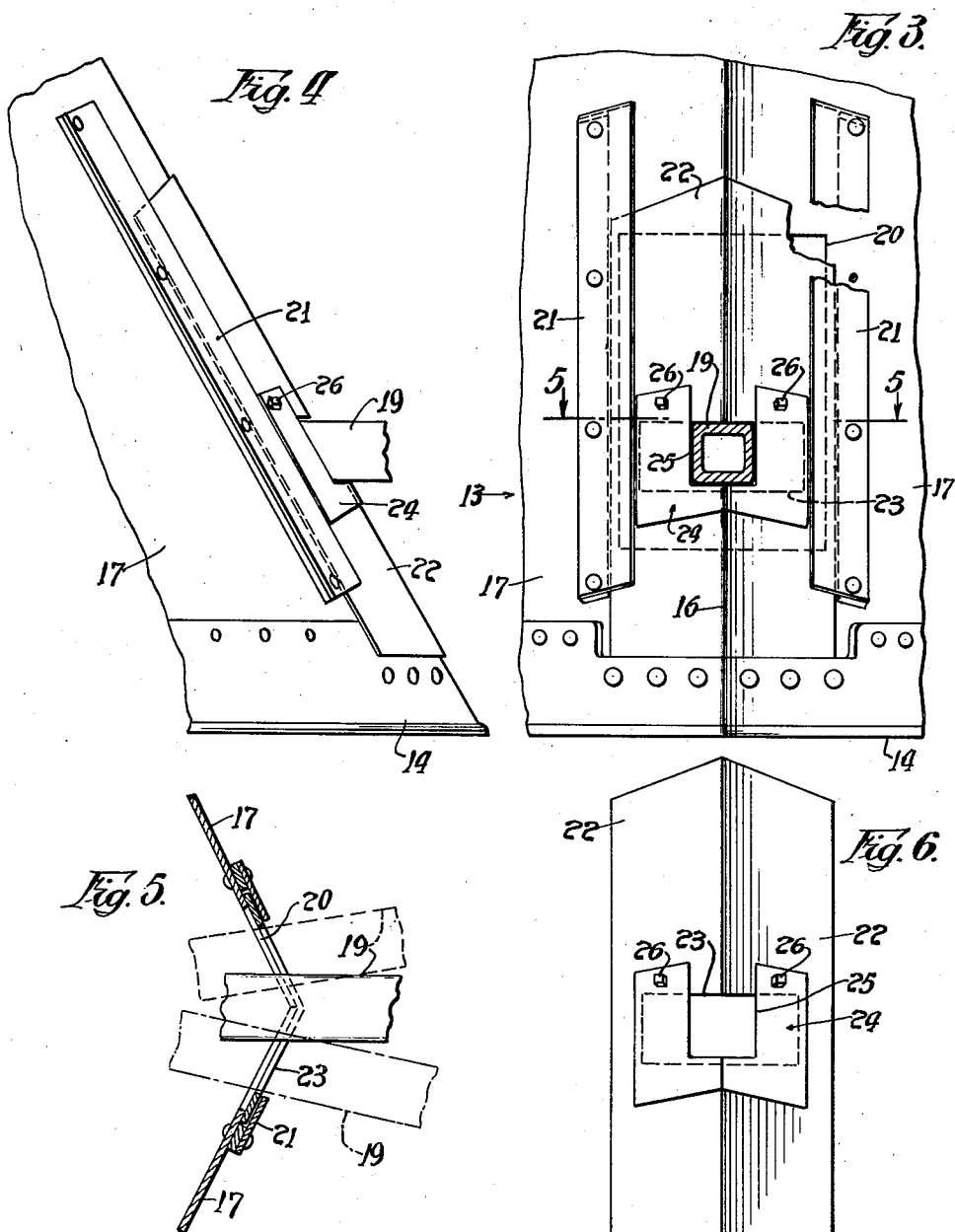
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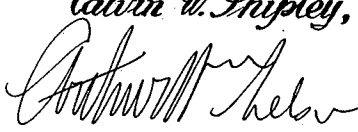
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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RAILROAD SPREADER

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11 Claims. (Cl. 37—30)

This invention relates to improvements in railroad spreaders and the like and it consists of the matters hereinafter described and more particularly pointed out in the appended claims. The term "railroad spreaders" as used herein is intended to include railroad plows for snow and ice.

The spreader with which the present invention is especially concerned is in the form of a railway car adapted to be pushed by a locomotive when spreading ballast material or when plowing snow, ice and the like. It includes a plow at the front end, mounted for movement toward and away from the rails so that the plow may be lowered into working position with respect to the rails or raised into a position above the same so as to pass over road crossings, switches, frogs, guard rails and the like. A spreader of this kind when plowing snow and ice is equipped with a coupler, whereby it may be incorporated into a train for transport purposes and whereby it may be coupled to the end car of a train stalled in a snow bank so that said train may be pulled therefrom.

The plow has a centrally disposed opening for the passage of the shank of the associated coupler therethrough. As the coupler maintains a fixed vertical position but is capable of a lateral swing when the spreader is incorporated in a train and as the plow is capable of being raised and lowered for the purposes before mentioned, it is apparent that said opening has vertical and horizontal dimensions considerably greater than the cross-sectional dimensions of the shank of the coupler passing through said opening.

Heretofore such plow openings remained uncovered with the result that in bucking a snow drift, snow would pass through said opening to pack up back of the plow as a tight ice-like mass which prevented the raising and lowering movement of the plow so that the spreader became inoperative.

One of the objects of the present invention is to provide simple and efficient means in connection with the coupler opening in the plow of a spreader of this kind, which prevents snow, ice and the like from passing through the opening to pack up as a mass in back of the plow in a manner making it inoperative.

Another object of the invention is to provide means for closing the coupler opening in the plow that requires no manual manipulation when the plow is raised or lowered but which moves relatively to the plow automatically to keep that part of the opening around the coupler shank closed

so that snow or other material being operated thereon cannot pass therethrough.

Again, it is an object of the invention to provide means of this kind, which include parts that may be removed to permit a lateral swing of the coupler when the spreader is incorporated in a train taking a curve in track.

A further object of the invention is to provide means of this kind which is simple in construction, is strong to resist stresses that might cause the same to bind and at the same time may be applied to the plows of spreaders already in use, as well as incorporated in the plows of new spreaders under construction.

The above mentioned objects of the invention, as well as others, together with the advantages thereof, will more fully appear as the specification proceeds.

In the drawings:

Fig. 1 is a front end perspective view of a railroad spreader embodying the preferred form of the invention and shows the plow in a raised position to permit the plow to pass over roadways, switches and the like in track.

Fig. 2 is a view similar to Fig. 1 and shows the plow in its lowered position to remove ice from the track below the top of the rails.

Fig. 3 is a detail view in front elevation of a fragment of the plow and parts adjacent the coupler opening therein, on a scale enlarged over that appearing in Figs. 1 and 2.

Fig. 4 is a view in side elevation of parts appearing in Fig. 3.

Fig. 5 is a horizontal detail sectional view through a part of the plow and parts adjacent the coupler opening as taken on the line 5—5 of Fig. 3.

Fig. 6 is a view in elevation of a coupler opening closure plate and a part carried thereby, embodied in the improved railroad spreader.

Referring now in detail to that embodiment of the invention illustrated in the drawings, it indicates, as a whole, a railroad spreader car adapted to run on the rails 11 of a railway track 12. The spreader includes a plow 13 of a V-shape which is so mounted at the front end of the car as to be movable toward and away from the rails.

In one operative position of the plow, it is lowered into a position to bring the bottom edge of its shoes 14 into a plane below the head of the rails 11 as when plowing ice, snow and the like, from the track. For this reason recesses 15 are provided in the bottom margin of the plow to accommodate the rails, the lowered position appearing in Fig. 2. Of course, with the plow in this

position, the plow cannot clear road crossings, guards and the like found in the track and therefore, the plow has to be raised into such a position that its bottom edge is disposed in a plane above the tread of the rails and this position appears in Fig. 1.

As the mechanism whereby raising and lowering movement is imparted to the plow forms no particular part of the present invention, it is neither illustrated nor described herein.

As the plow is of the V-type, it includes a central ridge 16 and sides 17-17 that diverge laterally and rearwardly from the ridge.

A railroad spreader is often incorporated in a train and is coupled to the cars thereof as when in transport and the spreader is often operatively connected to the rear car or to the locomotive of a train that has been stalled in a snow drift. Therefore, said spreader is provided at each end with a standard coupler that includes a head 18 and a shank 19, which is rigged to the underframing of the spreader for a limited lateral swing so that the spreader may take curves and switches in track. As the point of operative connection of the front end coupler shank is back of the plow, the coupler shank must necessarily extend through the plow. Therefore, the plow is provided on its median line with a relatively large opening 20, having a vertical dimension greater than the length of the travel of the plow and having a horizontal dimension less than the vertical but sufficient to accommodate the lateral swing of the coupler shank as is necessary. With the opening disposed in the vertical median line of the plow and which line is coincident with the ridge, said opening extends laterally from said ridge into the respective sides of the plow as appears in Fig. 1.

At each side of said openings are flanged guides 21 and between said guides is a cover plate 22 of a length and width somewhat greater than that of opening 20. An opening 23 is formed in said cover plate through which the shank 19 of the coupler extends. Said opening has a vertical height approximating the vertical dimension of the coupler shank and has a horizontal width approximating the distance between opposed edges of the guides 21. With said opening 23 having the relative dimensions mentioned, the top and bottom edges thereof substantially engage upon the top and bottom surfaces of that part of the coupler shank extending therethrough.

When the plow is raised or lowered, the cover plate which has only a limited vertical movement with respect to the coupler shank, is relatively movable with respect to the plow because the lateral margins of said cover plate, which are engaged under the flanges of said guide rails, will slide in the engagement with the guides 21-21.

When the spreader is employed as a snow plow, bucking into high drifts, to prevent snow from entering the opening in the cover plate, the following arrangement is provided:—

24 indicates a substantially U-shaped plate of a width approximating the distance between said guides 21-21 and a trifle wider than the opening 23 and of a height greater than the height of said opening. In the central portion of said plate is a recess 25 of a width approximating the width of the coupler shank. This plate is detachably secured to the cover plate by cap screws or bolts 26 and when it is so secured in place the bottom edge of the recess engages the bottom edge of the coupler shank. Thus when said plate is secured in place, the central side portions thereof

close those portions of the opening 23 in the cover plate to each side of the coupler shank. Therefore, no snow can enter the opening 23 in the cover plate to accumulate back of the plow for forming into a mass that would prevent relative movement between the plow and the cover plate.

The plate 24 may be applied to and removed from the cover plate from below the coupler shank and when so applied holds the coupler shank centrally in place. It is to be understood that this plate is applied to the cover plate only when plowing snow or when spreading piles of ballast deposited on the track and having a height that extends above the coupler head 18.

Assume that heavy snow drifts are to be plowed. The plate 24 is applied to the cover plate as before described and this not only centers the coupler shank but closes off both sides of the opening 23 in the cover plate laterally of said shank. With the parts in this condition the cover plate is relatively stationary with the coupler shank which can now move only in an endwise direction if such movement is necessary.

When the plow is lowered into the operative position shown in Fig. 2, the guides 21-21 slide with respect to the margins of the cover plate 22 which they overlap. As this movement of the plow does not bring the bottom edge of the plow opening 20 below the bottom edge of the cover plate, said opening is maintained closed by the cover plate.

Should a roadway crossing, a switch or the like be approached, the plow is raised into a position wherein its bottom edge is in the position shown in Fig. 1 so as to clear said crossing or the like. In this raising movement of the plow, the guides slide upwardly along the margins of the cover plate they overlap but this does not bring the top edge of the opening 20 in the plow into a plane above the top edge of the cover plate. As the plate 24 keeps those parts of the opening 23 in the cover plate at each side of the coupler shank closed and as said cover plate closes the opening 20 in the plow, no snow can pass through the plow to pile up as a hard mass behind the same to interfere with the raising and lowering thereof.

Of course as the plow is pushed into the snow, a pressure is imposed upon the cover plate and this pressure acts to hold the plate tightly against the plow so that snow cannot pass about the exposed edges of the cover plate to enter between the plow and cover plate.

If the spreader is to be placed in between the cars of a train for transport purpose, the plow is raised as before described so as to clear roadway crossings and the like. The plate 24 is removed after withdrawing the screws or bolts 26 after which said plate is moved in a downward direction. This exposes the opening 23 in the cover plate. Thus should the spreader in transport take a curve or a switch with the other cars of the train, the necessary lateral swing of the coupler is accommodated because said opening in the cover plate is considerably wider than the width of that part of the shank passing therethrough. This lateral movement of the coupler shank is indicated in dotted lines in Fig. 5.

The improved construction is indeed simple for low cost production and it functions efficiently for its intended purpose.

While in describing the invention, I have referred in detail to that embodiment of the invention illustrated in the drawings, the same is

to be considered only in the illustrative sense and therefore, I do not wish to be limited thereto except as may be specifically set forth in the appended claims.

5 I claim as my invention:

1. In combination with a railway car adapted for travel upon the rails of a railway track and having a coupler at one end thereof, a plow mounted on said end of the car for movement toward and away from said rails and having an opening therein through which the shank of the coupler extends, and means operatively engaged with the coupler and relatively movable with respect to the plow for maintaining said opening in the plow closed in the movement of the plow toward and away from said rails.

2. In combination with a railway car adapted for travel upon the rails of a railway track and having a coupler at one end thereof, a plow mounted on said end of the car for movement toward and away from said rails and having an opening therein through which the shank of the coupler extends, and means on the front face of and relatively movable with respect to the plow and operatively engaged with the coupler for maintaining said opening in the plow closed in the movement of the plow toward and away from said plow.

3. In combination with a railway car adapted for travel upon the rails of a railway track and having a coupler at one end thereof, a plow mounted on said end of the car for movement toward and away from said rails and having an opening therein through which the shank of the coupler extends, guide means carried by the plow, and means mounted in said guide means for movement relative to said plow and operatively engaged with the coupler for maintaining said opening in the plow closed in the movement of the plow toward and away from said rails.

4. In combination with a railway car adapted for travel upon the rails of a railway track and having a coupler at one end thereof, a plow mounted on said end of the car for movement toward and away from said rails and having an opening therein through which the shank of the coupler extends, guide means on said plow at each side of the opening therein, and means engaged at its lateral margins in said guide means for movement relative to said plow and operatively engaged with said coupler for maintaining said opening in the plow closed in the movement of the plow toward and away from said rails.

5. In combination with a railway car adapted for travel upon the rails of a railway track and having a coupler at one end thereof, a plow mounted on said end of the car for movement toward and away from said rails and having an opening therein through which the shank of the coupler extends, means on the front face of the plow at each side of the opening therein providing guides, and means arranged to the front of the plow and having marginal engagement in the guides and operatively engaged with said coupler for maintaining said opening in the plow closed in the movement of the plow toward and away from the rails.

6. In combination with a railway car adapted to travel upon the rails of a railway track and having a coupler at one end thereof, a V-type of plow having sides that diverge laterally and rearwardly from a central ridge, mounted on said end of the car for movement toward and away from the rails, said plow having an opening in said ridge and in portions of both of its sides

and through which the shank of said coupler extends, guide means arranged on said sides of the plow, and means operatively engaged with the coupler and slidable in said guides for maintaining said opening in the plow closed in the movement of the plow toward and away from said rails.

7. In combination with a railway car adapted for travel upon the rails of a railway track and having a coupler at one end thereof, a V-type of plow having sides that diverge laterally and rearwardly from a central ridge, mounted on said end of the car for movement toward and away from the rails, said plow having an opening in said ridge and in portions of both of its sides and through which the shank of said coupler extends, guide means arranged on said sides of the plow and a plate-like member operatively engaged with said shank and including a central ridge and lateral sides engaged upon said plow with its side margins engaged in said guides for maintaining the opening in the plow closed in the movement of the plow toward or away from said rails.

8. In combination with a railway car adapted to travel upon the rails of a railway track and having a coupler connected thereto for a lateral swinging movement, a plow mounted on said end of the car for movement toward and away from said rails and having an opening therein through which the shank of the coupler extends, said opening having vertical and horizontal dimensions greater than the cross sectional dimensions of the coupler shank, means movably mounted on said plow and having an opening therein through which the coupler shank extends for closing said opening in the plow in the movement thereof toward and away from the rails, said last mentioned means including removable parts for defining the effective width of said opening therein, said parts when removed from said means permitting the coupler shank to swing laterally in the opening in the plow as the car travels over a curve in said track.

9. In combination with a plow of a railroad spreader having an opening therein for the passage of a coupler shank therethrough, means capable of a guided movement vertically of said plow and having a smaller opening for the passage of said coupler shank therethrough, and means for modifying the size of said last mentioned opening laterally.

10. In combination with the plow of a railroad spreader having an opening therein for the passage of a coupler shank therethrough and having vertical and horizontal dimensions greater than the cross sectional dimensions of the coupler shank, means capable of a guided movement vertically of said plow and having an opening for the passage of the coupler shank therethrough, said last mentioned opening having a vertical dimension approximating the like dimension of the coupler shank and having a horizontal dimension greater than the like dimension of the coupler shank, and means removably secured to said first mentioned means for reducing the effective horizontal dimension of the opening thereof to one approximating the like dimension of the coupler shank.

11. In combination with the plow of a railroad spreader having an opening therein for the passage of a coupler shank therethrough and having vertical and horizontal dimensions greater than the cross sectional dimensions of the coupler shank, means capable of a guided movement

vertically of said plow and having an opening for the passage of the coupler shank there-through, said last mentioned opening having a vertical dimension approximating the like dimension of the coupler shank and having a horizontal dimension greater than the like dimension of the coupler shank, and means adapted to be

detachably secured to said first mentioned means to close side portions of the opening therein to reduce the effective horizontal dimension thereof to one approximating the like dimension of the coupler shank.

CALVIN W. SHIPLEY.