June 24, 1930. V. G. TELLIS 1,765,854

WING POST AND CARRIAGE STRUCTURE FOR RAILROAD SPREADERS

Filed Oct. 14, 1926 2 Sheets-Sheet 1

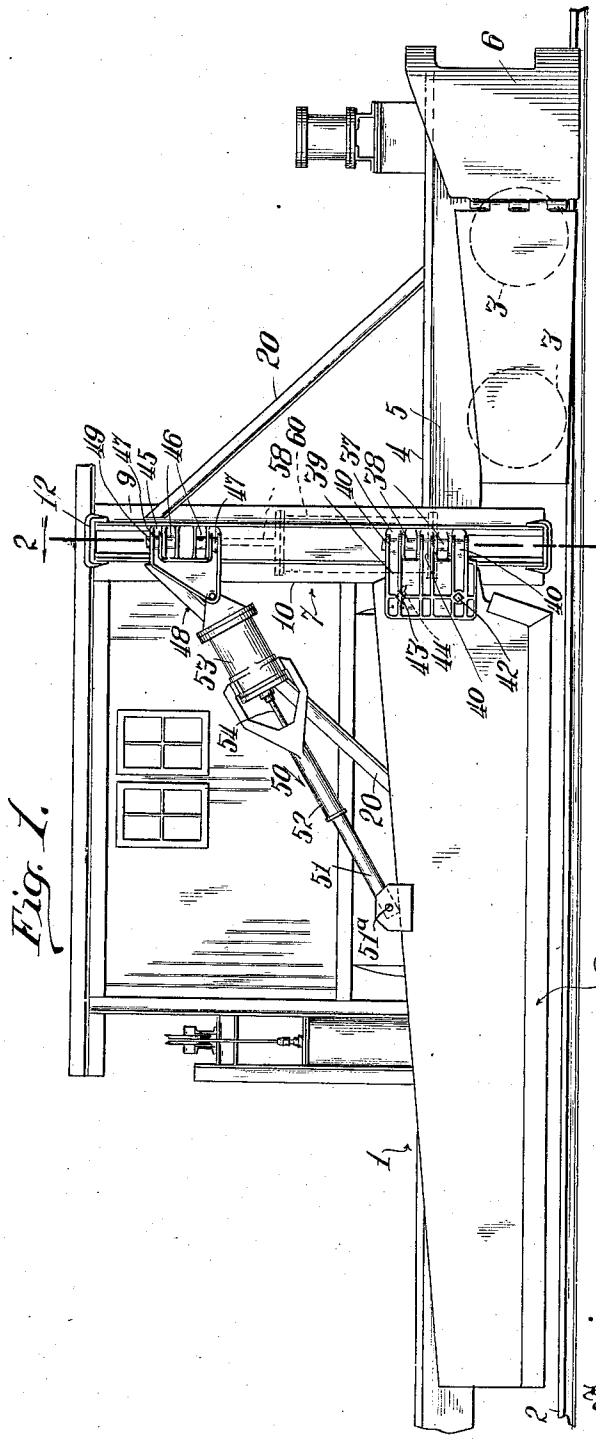


Fig. 1.

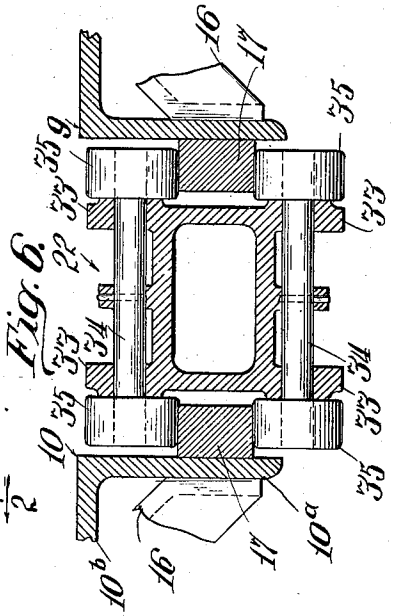


Fig. 6.

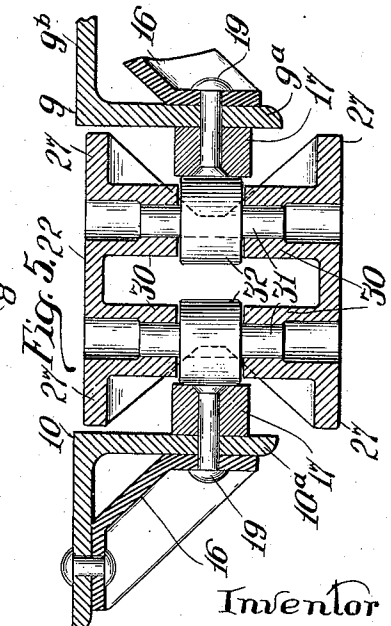


Fig. 5.

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Filed Oct. 14, 1926 2 Sheets-Sheet 2

Fig. 2.

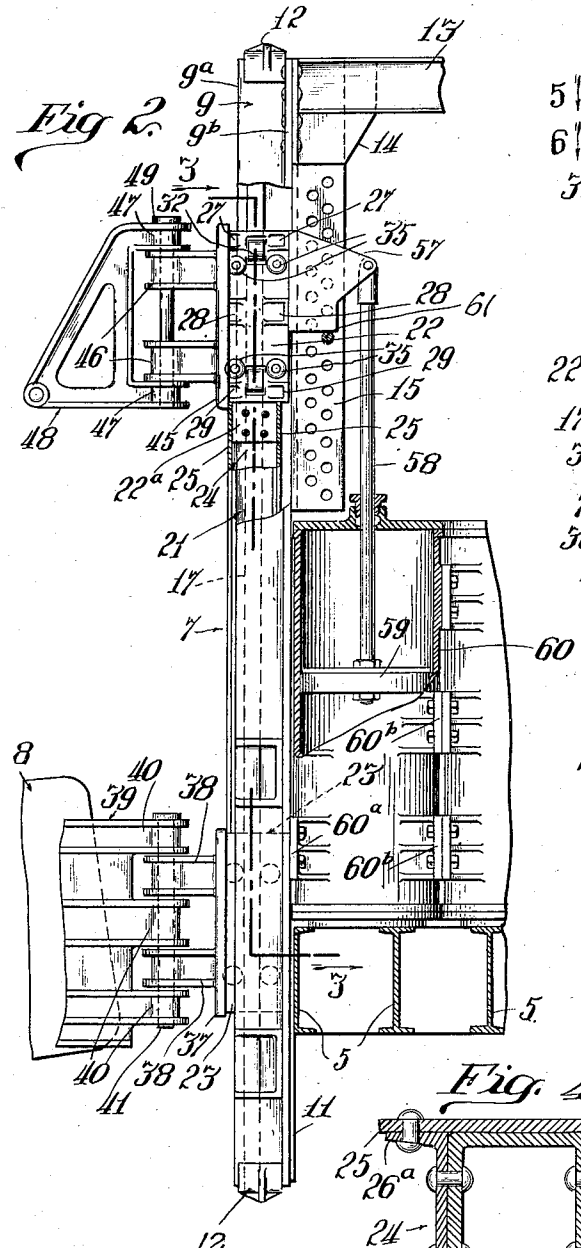


Fig. 3.

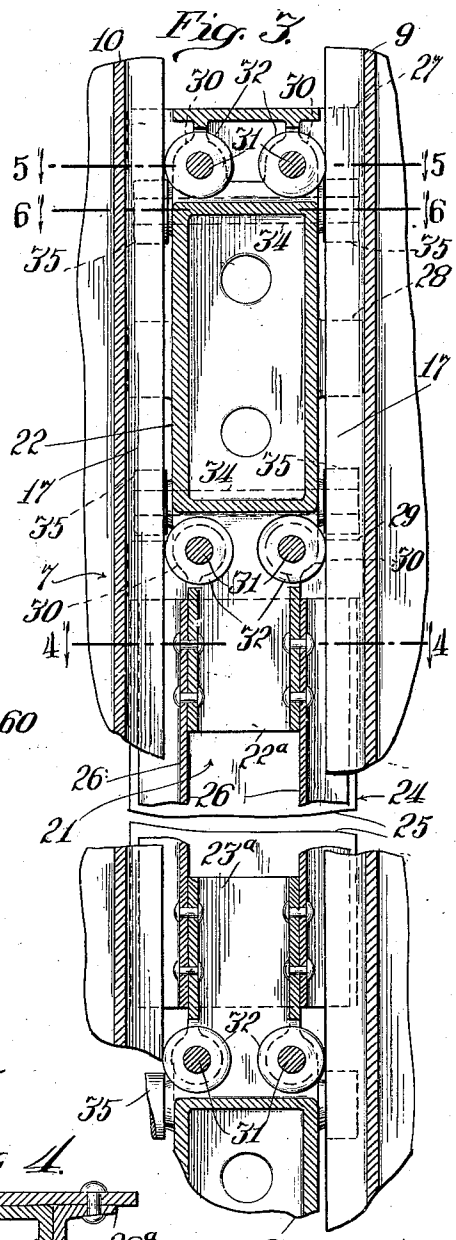
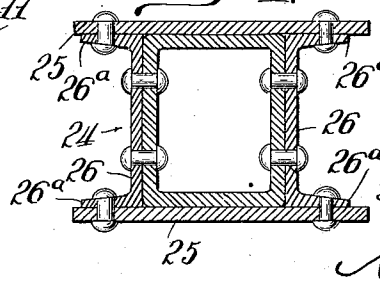


Fig. 4.



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UNITED STATES PATENT OFFICE

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WING POST AND CARRIAGE STRUCTURE FOR RAILROAD SPREADERS

Application filed October 14, 1926. Serial No. 141,487.

This invention relates to improvements in wing post and carriage structures for railroad spreaders and it consists in the matters hereinafter described and more particularly pointed out in the appended claims.

Railroad spreaders as now employed for spreading ballast and similar operations along a road bed, include a car to travel on the rails, and a main spreader wing operatively connected to the car at each side thereof through the agency of suitable posts at the side of the car. The inner end of each wing as well as its brace by which it may be brought in different vertical angular positions, are connected to hinge blocks in turn fixed to a carriage having a sliding guided bearing in said post. Such a structure in order to withstand that enormous strain imposed upon it in use must be extremely strong and rigid and the parts thereof must be so correlated and arranged that the wing block may be readily raised and lowered in the post without a binding action of the carriage in the post.

The primary object of the invention is to provide a strong and rigid post and hinge block carriage structure for railroad spreaders wherein the carriage may have a free sliding guided movement in the post without binding therein.

A further object of the invention is to provide a structure of the kind which may be readily assembled, and when assembled is easily accessible for lubrication and inspection.

These objects of the invention as well as other, together with the many advantages thereof, will more fully appear as I proceed with my specification.

In the drawings:

Fig. 1 is a view in side elevation of a railroad spreader embodying the preferred form of wing post and carriage structure made in accordance with my invention.

Fig. 2 is a vertical sectional view on an enlarged scale, as taken on the line 2—2 of Fig. 1, parts thereof being broken away to more clearly show the interior construction thereof.

Fig. 3 is a detail vertical sectional view on a further enlarged scale as taken on the line 3—3 of Fig. 2.

Fig. 4 is a detail horizontal sectional view as taken on the line 4—4 of Fig. 3.

Figs. 5 and 6 are detail horizontal sectional views on still a further enlarged scale as taken on the lines 5—5 and 6—6 respectively, of Fig. 3.

Referring now in detail to that embodiment of the invention illustrated in the accompanying drawings:—1 indicates as a whole a railroad spreader in the form of a car having wheels arranged in pairs to travel on the rails of a railroad track 2, only the front pair of wheels 3 of the car being shown in this instance in dotted lines in Fig. 1. The car has a deck 4 secured to the side and center sills 5 of the under frame which in turn is mounted at its ends in any suitable manner upon the trucks which include the wheels before mentioned. At the front end of the car is a V-shaped plow or spreader 6, for spreading laterally, ballast material previously dumped between the rails.

A suitable distance to the rear of the front plow or spreader and on each side of the car is an upright post or column 7 and an associated main spreader wing 8. As the structure on each side of the car is the same only those parts on one side thereof are herein illustrated and will be herein described. The post comprises a pair of longitudinally spaced, upright angle bars 9 and 10 respectively, with one set of flanges 9^a—10^a extending laterally from the car and with the other set of flanges 9^b—10^b extending longitudinally of the car and each facing toward opposite ends of the car. The flanges 9^b—10^b of the angle bars are secured for a suitable length at their bottom ends to a plate 11 having a top end engagement with the associated side sill 5 of the under frame of the car. Said plate is otherwise suitably secured to said side sill to depend a substantial distance below the sill, as best shown in Fig. 2. The top ends of said angle bars extend a substantial distance above the car deck and bridging and connecting the extreme respective top and bottom ends of the flanges 9^a and 10^a are U-shaped brackets 12—12, said

brackets preventing said flange ends from spreading apart. The top ends of both angle bars on one side of the car are connected to the like ends of the angle bars on the other side of the car by a cross beam 13 secured to said angle bars by suitable gusset plates 14. On the rear or inner side of each post are pairs of longitudinally spaced apertured angles 15 the purpose of which will appear later. The flanges 9^a—9^b and 10^a—10^b of each angle bar are braced at suitable intervals throughout their length by angle brackets or stiffener blocks 16 which prevent the angular displacement of said flanges and on the opposed inner face of each flange 9^a—10^a of said angle bars are secured guide rails 17 of a preferably rectangular cross section. Said rails extend from the top to the bottom of said flanges and are secured in place by rivets 19, (see Fig. 5), some of which are so disposed as to pass through portions of the angle brackets or blocks 16. The top ends of each angle bar 9 and 10 are further braced by diagonal struts 20—20 from the side sills as best shown in Fig. 1. The parts herein above described are so correlated and connected together as to provide a strong and rigid post structure which is thoroughly braced in all directions to amply withstand the service strains and shocks to which it is subjected in use.

Vertically slidable in each post is an elongated hinge block supporting member 21 comprising top and bottom roller carriages 22 and 23 respectively and a built up structural connecting member 24. The connecting member 24 (see Fig. 4) which is of a rectangular tubular formation in cross section, comprises front and rear plates 25—25, spaced a suitable distance apart by side channels 26—26, the flanges 26^a of which face outwardly from each other, and said flanges are riveted or otherwise secured to the lateral margins of said front and rear plates.

The roller carriages 22 and 23 are so substantially alike, that a detail description of one will suffice for both, like reference numerals indicating like parts or elements. The top roller carriage is in the form of an elongated, hollow, rectangular casting on the side walls of which are integral laterally extending pairs of top, bottom and intermediate angle like lugs 27—28 and 29 respectively, see Fig. 2. At the top end and near the bottom end of said casting, on the front and rear sides thereof are formed pairs of suitable ears 30—30 in which shafts 31—31 are secured and journalled on each shaft is a roller 32 each adapted to have a rolling engagement upon the inner face of an associated guide rail 17. On the front and rear sides of said casting, are top and bottom pairs of ears 33, the pairs of bottom ears being arranged above the bottom transverse shafts 31 and the pairs of top ears being arranged below the top transverse shafts 31 all as best shown in Figs. 2, 3, 5 and 6. Fixed in said ears 33 are pairs of transversely extending shafts 34—34 on the ends of which are journalled rollers 35 adapted for a rolling engagement on the front and rear sides of the guide rails 17. The top end of the bottom casting 23 and the bottom end of the top casting 22 are each formed to provide a rectangular tubular extension 23^a and 22^a, respectively which extend into and are suitably fixed in the bottom and top ends respectively of the intermediate built up structural member 24 before described. It is apparent from the foregoing description that the castings 22 and 23 and the intermediate member 24 to which they are connected, have a three side antifriction engagement with the guide rails in the post and cannot so twist as to bind therein but will always run free in a guided path of movement.

Fixed to the front face of the bottom roller casting 23 is a bracket 37 with two vertically spaced, laterally extending apertured ears 38 and associated therewith is a hinge plate 39 having top, bottom and intermediate apertured ears 40 to engage the ears 38. Said ears are adapted to receive between them, the ears 38 of the bracket 37 and a pin 41 extends through all of said ears so that the hinge plate may swing about a vertical axis. The hinge plate embraces opposite sides of the inner end of the main spreader wing 8 and a horizontally disposed pin 42 passes through said plate and associated end of the spreader wing to provide the pivotal axis about which the wing may be swung into different vertical angular positions. A second pin 43 passes through said hinge plate above the pin 42, and also passes through an arcuate slot 44 in the inner end of the spreader wing to coact with the hinge pin 42, said slot being shown in dotted lines in Fig. 1.

Fixed to the front face of the top roller carriage is a bracket 45 similar to the bracket 37. Said bracket 45 has two vertically spaced ears 46 to coact with ears 47 of a second bracket 48, a vertically arranged pin 49, in line with the pin 41 providing a pivotal connection between said brackets. 50 indicates as a whole, the telescopic actuating member having a stem 51 pivoted at 51^a to the main spreader wing and a tubular portion 52 to receive the stem. To said tubular portion is fixed a pneumatic pressure cylinder 53 containing a piston, the rod 54 of which extends through the portion 52 to be there connected to the stem 51, the top end of the cylinder being pivotally connected to the bracket 48 as best shown in Fig. 1. When fluid under pressure is admitted to one end or the other of the cylinder, the piston rod is projected or retracted to swing the main spreader wing downwardly or upwardly about the pin 42 as an axis.

Secured to the rear side of the top roller

carriage is a rearwardly extending bracket 57 to which is connected the top end of a vertically disposed piston rod 58. The bottom end of this rod carries a piston 59 operative within an upright pneumatic pressure cylinder 60 supported on the sills 5 to the rear of the post 7.

The cylinder 60 has a plurality of inner and outer vertically spaced lugs 60^a—60^b, the outer lugs 60^a of the cylinder being engaged with the rear surfaces of the flanges 9^b—10^b of the post members 9 and 10 and being riveted or otherwise secured thereto while the inner lugs 60^b are engaged with and secured to similar lugs on that cylinder 60 associated with the wing structure on the other side of the car. Thus the cylinders are not only secured together but to the wing posts whereby a mutuality of support between the posts and cylinders is attained. When fluid under pressure is admitted into the cylinder from one end or the other, the piston ascends or descends therein and through the piston rod 58 and bracket 57 causes a like movement of the roller carriages within the post. The bracket 57 is arranged between the pair of apertured angles 15 and a pin 61 is inserted through aligned apertures in said plate and upon which the bracket 57 may engage and be supported thereby. As the roller carriages are thus moved up or down in the post a similar movement is of course imparted to the spreader wing.

My improved post construction is strong and rigid and the roller carriages are guided for a free movement and connot so twist out of shape as to bind in the post.

While in describing my invention I have referred to certain details of construction as well as form and arrangement of the parts thereof, the same is to be considered as by way of illustration only and I do not wish to be limited thereto except as may be pointed out in the appended claims.

I claim as my invention:

1. In combination with a car, an upright post at one side of the car embodying therein, a pair of spaced post members, opposed guide rails carried by said spaced post members, a wing supporting member positioned between said post members and including rollers engaging three sides of each guide rail.

2. In combination with a car, an upright post at one side of the car and embodying therein, a pair of spaced post members including flanges arranged at a right angle to the car, opposed guide rails fixed to said flanges, a wing supporting member positioned between said flanges, a plurality of shafts arranged at a right angle to each other in said wing supporting member and rollers on said shaft and engaged with three sides of each guide rail.

3. In combination with a car having side sills, a post arranged at one side of the car and projecting above and below one of said side sills, said post including a pair of spaced structural members, each having a flange arranged at a right angle to said side sill, a plate interposed between the side sill and said pair of structural members and extending down to the bottom ends thereof and fixed to said sill and structural members respectively, brackets connecting the respective top and bottom ends of the flanges of said structural members together, outwardly and downwardly extending braces connecting the top ends of said members to said side sills and opposed guide rails on the inner faces of said flanges of said structural members.

4. A post for the purpose described embodying therein a pair of spaced parallel bar members, each including right angle flanges, with two of the flanges arranged in the same plane and facing outwardly from each other, stiffener blocks, secured to the right angle flanges of each bar member, at points spaced throughout the length thereof, opposite guide rails one fixed to each of the other flanges of said bar members and means connecting the respective top ends and the respective bottom ends of the last mentioned flanges together.

5. A post for the purpose described embodying therein a pair of spaced parallel bar members, each including right angle flanges, with two of the flanges arranged in the same plane and facing outwardly from each other, stiffener blocks engaged at their ends with the respective flanges of said bar members, rivets securing said guide rails to said flanges, some of which rivets pass through parts of said stiffener blocks and likewise secure the same to said last mentioned flanges and means connecting the respective top ends and the respective bottom ends of said last mentioned flanges together.

6. A wing supporting member for a railroad spreader embodying therein, an elongated rectangular tubular member, a roller carriage at each end of said tubular member having an extension arranged within and secured to the respective end of said tubular member, a plurality of shafts arranged in pairs extending at a right angle to each other in ecah roller carriage and rollers on said shafts.

In testimony whereof, I have hereunto set my hand, this 8th day of October, 1926.

VSEVOLOD G. TELLIS.