Dec. 15, 1931. V. G. TELLIS 1,836,049

RAILROAD SPREADER

Filed July 24, 1929 3 Sheets-Sheet 1

Fig. 1.

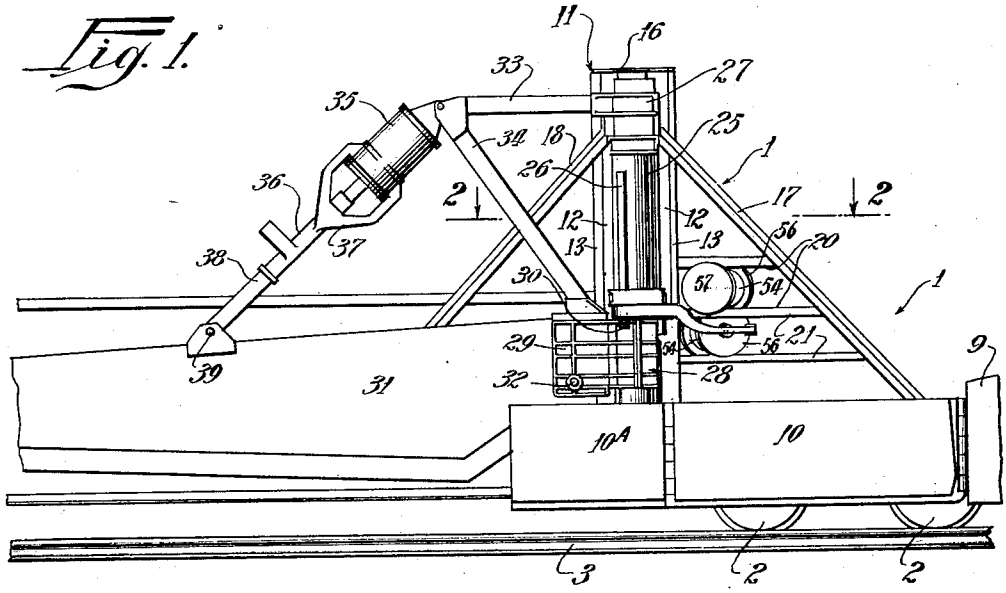
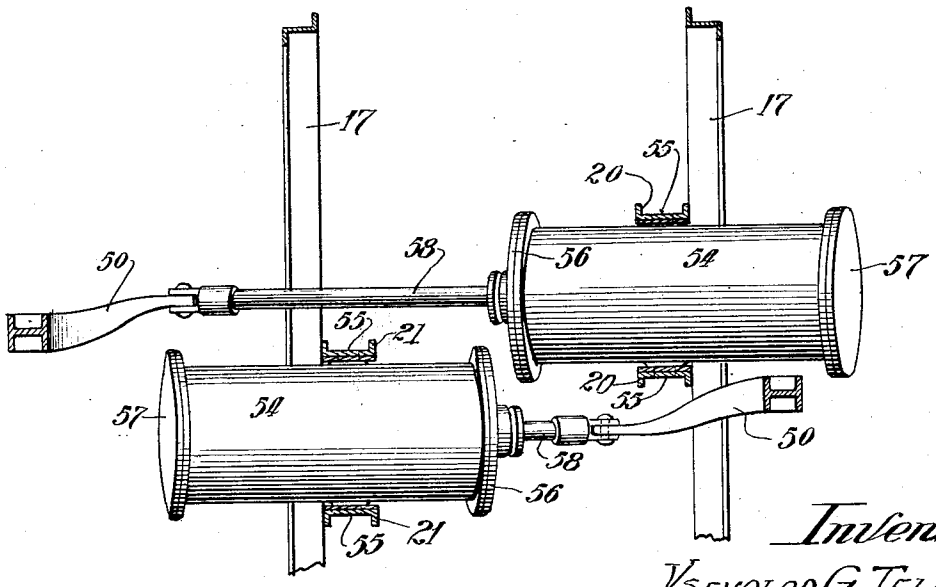


Fig. 4.



Inventor:
VSEVOLOD G. TELLIS
By: Arthur Wm. Wilcox
Attorney

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RAILROAD SPREADER

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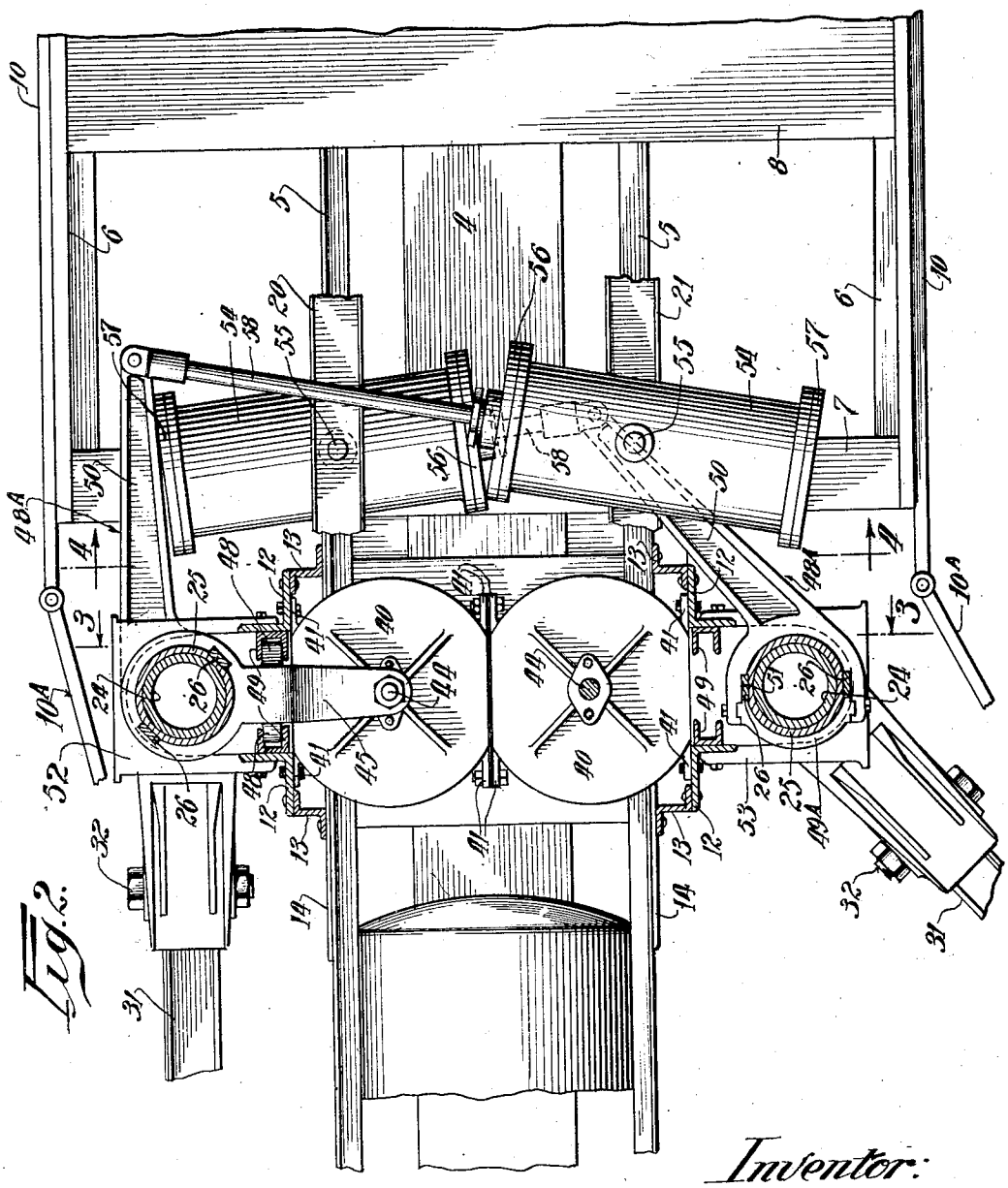


Fig. 2.

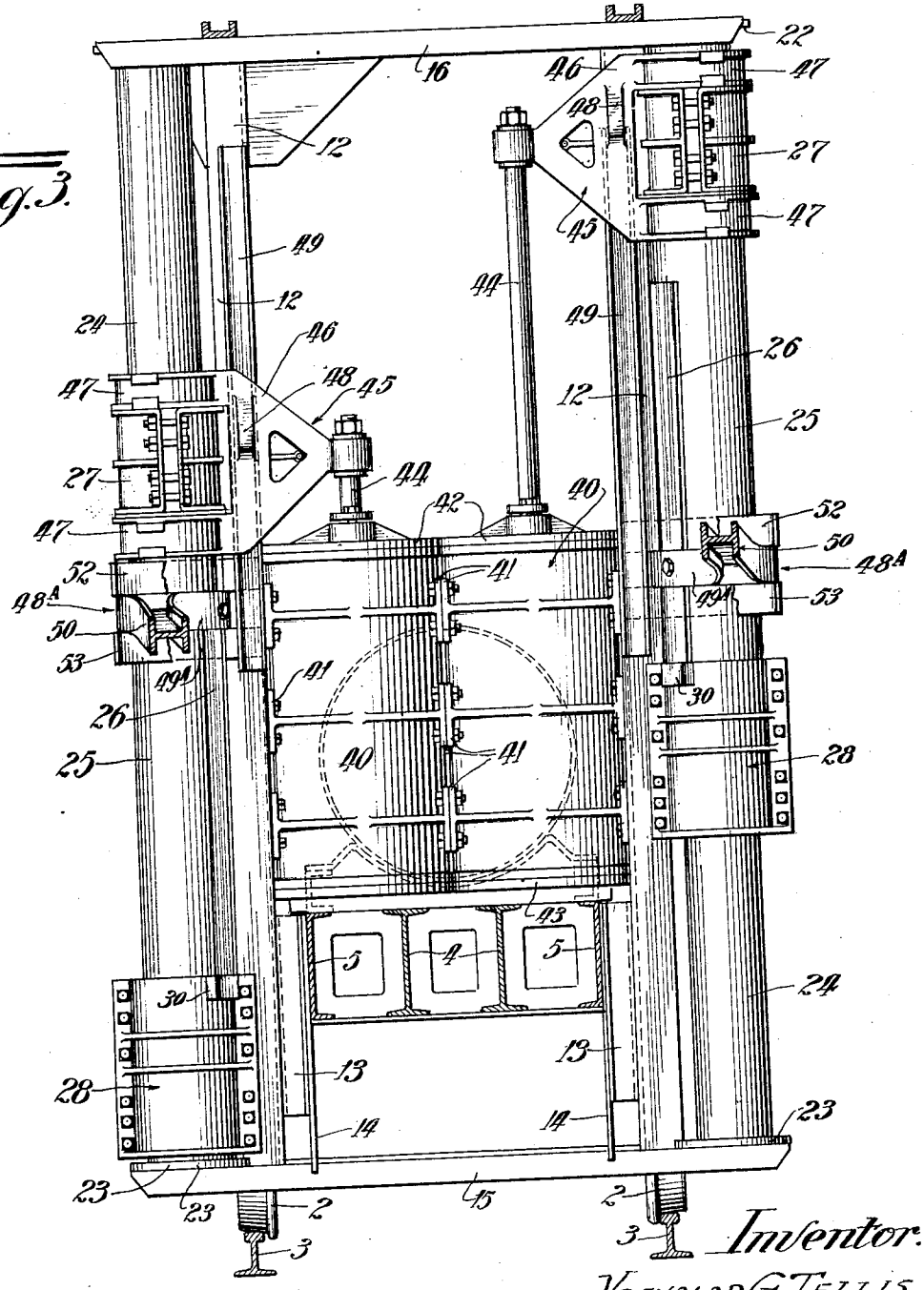
Inventor:
VSEVOLOD G. TELLIS
By: Arthur McMillen
Attorney.

Dec. 15, 1931. V. G. TELLIS 1,836,049

RAILROAD SPREADER

Filed July 24, 1929 3 Sheets-Sheet 3

Fig. 3.



Inventor:
VSEVOLOD G. TELLIS

By: Arthur Van Velsor

Attorney.

Patented Dec. 15, 1931 1,836,049

UNITED STATES PATENT OFFICE

VSEVOLOD G. TELLIS, OF EAST CHICAGO, INDIANA, ASSIGNOR TO O. F. JORDAN COMPANY, OF EAST CHICAGO, INDIANA, A CORPORATION OF INDIANA

RAILROAD SPREADER

Application filed July 24, 1929. Serial No. 380,529.

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

The main object of the invention is to provide an improved mounting and swinging mechanism for the main wings of the spreader, whereby the wings may be made easily raised and lowered and swung away from and toward the car to bring them into the desired operative and inoperative positions.

Another object of the invention is to provide a wing post capable of withstanding heavy strains and one wherein the wing is hinged with respect to a carriage tube both slidable and rotative about a cylindrical post, the carriage tube having associated therewith a power actuated arm by which the tube may be swung upon the post to bring the wing into the desired angular position with respect to the car.

These objects of the invention, as well as others 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 the main spreader wing and associated parts of a railroad spreader embodying my invention.

Fig. 2 is a horizontal plan sectional view on an enlarged scale as taken on the line 2—2 of Fig. 1.

Fig. 3 is a transverse vertical sectional view as taken on the line 3—3 of Fig. 2.

Fig. 4 is a transverse vertical detail sectional view as taken on the line 4—4 of Fig. 2.

Referring now in detail to that embodiment of the invention illustrated in the accompanying drawings, 1 indicates as a whole the car of a railroad spreader having wheels 2 for travel upon the rails 3 of a railroad track. Said car includes a suitable underframing comprising center sills 4 and side sills 5 extending the full length of the car, the former comprising I beams and the latter comprising channels. At the front end of the car, are side members 6—6 spaced laterally outward from the side sills. The rear ends of the side members are connected to the center and side sills by a transverse member 7 and resting upon said sills and side members forward of the transverse member 7 is a decking 8. The structure just described provides a wider front end for the car, the extremity of which is made V shaped in the usual manner to receive the front plow 9. Associated with said front plow, along each side of the wider front end of the car is a front plow wing 10 including a rear end apron 10A.

At each side of the car, rearwardly of the transverse member 7 is an upright wing post and supporting structure indicated as a whole by the numeral 11. The supporting structure of each post comprises a pair of upright, longitudinally spaced, front and rear angle bars 12—12 which are spaced laterally from but are connected to the side sills 5—5 by means of Z bars 13—13 and associated gusset plates 14—14, the pairs of angle bars 12—12 extending into planes above and below that of the sills 4 and 5 respectively as best shown in Fig. 3. The bottom ends of the pair of angle bars 12 at one side of the car are connected to the like ends of the pair of angle bars on the other side of the cars by means of a cross beam 15 while the top ends of said pairs of angle bars 12 are connected together by a cross beam 16. The ends of the cross beams project a considerable distance beyond the planes of the angle bars 12 of each pair thereof for a purpose to appear later. The angle bars 12 of each pair are braced from the car by means of front and rear downwardly inclined brace bars 17 and 18 respectively as best shown in Fig. 1, and each front angle bar, is further connected to the associated front brace 17 by means of horizontally disposed, longitudinally extending channel bars 20 and 21 respectively. In this respect it is pointed out that the pair of channel bars 20 on the right hand side of the car are disposed in planes above those of the channel bars 21 on the left hand side of the car.

To the projecting ends of the cross beams 15 and 16 respectively are secured top and bottom bearing plates 22 and 23 respectively and fixed to each set of bearing plates 22 and

23 respectively is an upright, non-rotative tubular post or standard 24. As best illustrated in Fig. 2 each post 24 is disposed in a plane between and is spaced outwardly from the associated angle bars 12—12.

Longitudinally movable on each tubular post as well as rotative thereon, is a wing post tube 25 of a height or length less than said post as is most apparent in Fig. 3 and secured to each tube is a pair of longitudinally extending, diametrically opposite splines 26—26.

Securely clamped to each wing post tube near its top end is a split collar 27 and securely clamped to the bottom end of each wing post tube is the two part tubular body 28 of a hinge plate 29. The two part body of each hinge plate is formed at its top end with pockets 30 to receive the bottom end of each spline 26 on the associated wing post tube. The free end of each hinge plate 29 embraces the inner end of an associated main spreader wing 31 which is pivoted thereto as at 32 to swing about a horizontal axis.

Fixed at its inner end to each split collar 27 is a horizontally disposed boom 33, the other end of which is supported from the associated hinge plate 29 by an inclined brace 34. Pivoted to the outer end of each boom is a double acting cylinder 35 which includes a guide tube 36 connected to the cylinder by a yoke 37. In the guide tube is slidably mounted a piston rod 38, one end of which is connected to a piston in said cylinder and the other end of which is pivoted as at 39 to the top edge of the wing 31. When fluid under pressure is admitted to one end of the cylinder, the rod 38 acts to swing the wing 31 upwardly about the pin 32 and when fluid under pressure is admitted to the other end of said cylinder said wing is swung downwardly. By the use of the boom and brace 33—34 the actuating cylinder can be offset a suitable distance from the wing post as a whole which permits the connection of the rod 38 with the wing at a point further outward along its top edge than has heretofore been possible with result that the wing cannot exert such a long leverage for the rod to pull against as happens to be the case when the cylinder is connected directly to the post structure. Thus the wing may be more easily swung about the pin 32 for a raising and lowering movement whereby the desired angle may be more readily attained.

Between the wing post structures 11—11 and engaging upon the side and center sills 4 and 5 is a pair of upright cylinders 40—40, one associated with each wing post. Said cylinders are provided upon opposite sides with ears 41—41, the ears on the adjacent cylinder parts being bolted together while the other ears are bolted to the angle bars 12—12 as best shown in Figs. 2 and 3. In this manner the several parts just mentioned have a mutual bracing relation so that a strong and rigid structure is afforded thereby.

The ends of the cylinders are closed by top and bottom heads 42 and 43 respectively and slidable through stuffing boxes in the top cylinder heads, are piston rods 44 operatively connected at their inner or bottom ends to pistons (not shown) within said cylinders. To the top end of each piston is secured a cross head 45 that extends laterally outward therefrom, between the angle bars 12—12 of each post supporting structure. Each cross head is in the form of a yoke including a body 46 and top and bottom bearing parts 47—47 that engage with portions of each wing post tube 25, above and below the collar 27 clamped thereon, the top and bottom ends of said collar having end bearing against said bearing parts.

Each cross head body is provided with lateral projections 48 that have a sliding guiding engagement within channels 49—49 fixed to the opposed flanges of the angle bars 12—12. The construction just mentioned prevents any lateral movement of the cross heads in the swinging movement of the wings 31—31 toward and away from the car and thus prevents any twisting of the cross heads and consequent binding thereof in the raising and lowering movements of the wing post tubes. When it is desired to raise the wing post tube, fluid under pressure is admitted into the bottom end of the desired cylinder and this through the piston thereon and its associated rod 44 and cross head 45 will exert an upward lift on the wing post tube 25 and collar and hinge plates thereon. To lower said wing post tubes, fluid is admitted to the top ends of the respective cylinders.

To turn the tubes about the associated posts 24 I provide the following construction:—48A indicates a lever including an annular body 49A that surrounds a portion of each wing post tube, and a forwardly extending lever arm 50. The annular body is made in two parts for convenience in applying it to and removing it from the tube and in said body is a pair of grooves 51 for the passage therethrough of the splines 26 associated with each post tube. On the angle bars 12—12 of each post supporting structure are top and bottom abutments 52 and 53 respectively to hold the levers against movement with respect to the associated post tube 25 when the same is raised and lowered.

Associated with each lever arm 50 to turn the tube 25 about the post 24 is a horizontally disposed power cylinder 54, the same being disposed on that side of the spreader car opposite the side upon which said lever arm is located. In other words the lever arm on one side of the car is actuated by that cylinder located upon the other side of the car and vice versa. Said cylinders are disposed substantially transversely of the

car and one cylinder is pivoted at diametrically opposite vertical points 55 midway between its ends to the brace bars 20 before mentioned and the other cylinder is likewise pivoted with respect to the brace bars 21 before mentioned. As shown, cylinders 54 are offset into different horizontal planes as shown in Figs. 1 and 4, merely to save space. In each cylinder which is closed by inner and outer end heads 56 and 57 respectively is a piston (not shown) the rod 58 of which slides through a suitable stuffing box in each inner end head to be pivotally connected to a lever arm 50.

It is apparent that when fluid under pressure is admitted to one end of each cylinder the piston rod is projected outwardly and when fluid under pressure is admitted to the other end of said cylinder the piston rod is retracted inwardly so that the wing post tube is turned upon the post in one way or the other to swing the wings away from or in toward the side sills 5—5. In the swinging movement of the lever arms connected to the wing post tubes, the cylinders 54 will swing about their pivots 55. Of course when the wing has been swung outward to the desired angular position, it is held in said position by means of telescope braces connecting the wing and car in a manner well known.

When the wing post tubes 25—25 are raised and lowered on the posts 24, the splines 26 will slide through the grooves of the associated lever body 49A which is held against perpendicular movement by the stop shoulders or abutments 52 and 53 respectively. Thus no matter what the elevated position of the wing post tubes may be with respect to the posts 24, said tubes may be turned about said posts to accurately position the main spreader wings.

With the parts constructed and arranged as described, the wing post tubes have a relatively long bearing upon the associated posts for both a longitudinal and a rotative or turning movement so that there is no binding of the tube on the post. Thus less power is required for positioning the wings and the stresses and strains are distributed over a larger area which prevents any distortion of the parts.

While in describing the invention I have referred in detail to the form, arrangement and construction of the several parts thereof the same is to be considered merely as illustrative so that I do not wish to be limited thereto except as may be specifically set forth in the appended claims.

I claim as my invention:—

1. A railroad spreader embodying therein a car, an upright post at one side of the car, a tube surrounding a portion of said post and capable of a longitudinal movement thereon as well as a turning movement about an axis coincident with that of said post, a spreader wing operatively connected at one end to said tube and wing lifting means connected to the other end of said tube.

2. A railroad spreader embodying therein a car, an upright post at one side of the car, a tube surrounding a portion of said post and capable of a longitudinal movement thereon as well as a turning movement about an axis coincident with that of said post, a spreader wing operatively connected to said tube, means for raising and lowering said tube on said post and other means for turning said tube about said axis, irrespective of the position of the tube on said post.

3. A railroad spreader embodying therein a car, an upright wing post at one side of the car, a tube surrounding a portion of said post and capable of a longitudinal as well as a turning movement about said post, a spreader wing operatively connected to one end of said tube and means for vertically swinging the wing about its connection with one end of the tube and which means includes a laterally extending boom connected to the other end of the tube.

4. A railroad spreader embodying therein a car, an upright wing post at one side of the car, a tube surrounding a portion of said post and capable of a longitudinal as well as a turning movement about said post, a spreader wing operatively connected to said tube, means for moving said tube longitudinally on said post, other means for turning said tube about said post irrespective of the position of the tube on the post, and means for vertically swinging the wing about its connection with the tube and which means includes a part mounted on the tube.

5. A railroad spreader embodying therein a car, an upright post at one side of the car, a tube surrounding a portion of the post and capable of a longitudinal as well as a turning movement about an axis coincident with that of the post, a spreader wing operatively connected to said tube, a lever embracing a portion of said tube, means providing a tongue and groove connection between said tube and lever whereby turning movement may be imparted to said tube about said axis and means for holding said lever against movement longitudinally of the post when said tube is moved longitudinally thereon.

6. A railroad spreader embodying therein a car, an upright post at one side of the car, a tube surrounding a portion of the post and capable of a longitudinal as well as a turning movement about an axis coincident with that of the post, splines on said tube, a lever embracing a portion of said tube and having grooves therein to receive said splines and means for holding said lever against movement longitudinal of the post when said tube is moved longitudinally thereon.

7. A railroad spreader embodying therein a car, an upright post structure at one side

of the car, a spreader wing, means operatively connecting said spreader wing to said post structure for a longitudinal as well as a turning movement with respect to said post structure, whereby said wing may be swung toward and away from the car, a lever operatively connected at one end to said means for imparting said turning movement to said wing, a piston rod connected at one end to said lever and a cylinder mounted on the car for a limited turning movement and with which the other end of the piston rod is operatively engaged.

8. A railroad spreader embodying therein a car, an upright wing post at one side of the car, a tube surrounding a portion of said post and capable of a longitudinal as well as a turning movement with respect to the axis of said post, a spreader wing operatively connected to said tube, a lever having a tongue and groove connection at one end with said tube, a power cylinder carried on the car and capable of a rocking movement about a vertical axis thereon and a piston rod associated with said cylinder and operatively connected to the other end of said lever.

9. A railroad spreader embodying therein a car, a post supporting structure at one side of the car, a post operatively engaged at its ends in said structure, a tube embracing a portion of said post capable of a longitudinal as well as a turning movement with respect to the axis of said post, a spreader wing operatively connected to said tube, a cylinder on said car adjacent said structure and including an associated piston rod, and a yoke connecting said tube and piston rod and having a guided engagement with a part of said post supporting structure.

10. A railroad spreader embodying therein a car, a post supporting structure at one side of the car, a post operatively engaged at its ends in said structure, a tube embracing a portion of said post and capable of a longitudinal as well as a turning movement with respect to the axis of said post, a spreader wing operatively connected to said tube, a cylinder on said car adjacent said structure and including an associated piston rod, a yoke connecting said tube and piston rod, which yoke has lateral projections thereon and means disposed in a part of said supporting structure and engaged with said projections to provide a guide for said yoke in its movement.

11. A railroad spreader embodying therein a car, an upright post at one side of the car, a tube surrounding a portion of said post and capable of a longitudinal movement thereon as well as a turning movement about an axis coincident with that of said post, a spreader wing hingedly connected with respect to said tube for a swinging movement about a horizontal axis, a boom extending laterally from the top end of said tube, and means connecting said boom with said wing for swinging the wing about said horizontal axis.

12. A railroad spreader embodying therein a car, an upright post at one side of the car, a tube surrounding a portion of said post and capable of a longitudinal movement thereon as well as a turning movement about an axis coincident with that of said post, a hinge plate fixed to the bottom end of said tube, a spreader wing pivoted to the hinge plate for a swinging movement about a horizontal axis, a boom extending laterally from the top end of said tube, a brace connecting said boom and hinge plate and means connecting said boom with the wing for swinging said wing about said horizontal axis.

13. A railroad spreader embodying therein a car, including side sills, upright structural members fixed to one of said sills at one side of the car, a cylindrical member supported by said structural members in a position spaced laterally from said side sills, and a wing post tube mounted on said cylindrical member for a longitudinal as well as a turning movement about the axis of said cylindrical member.

In testimony whereof, I have hereunto set my hand, this 16th day of July, 1929.

VSEVOLOD G. TELLIS.