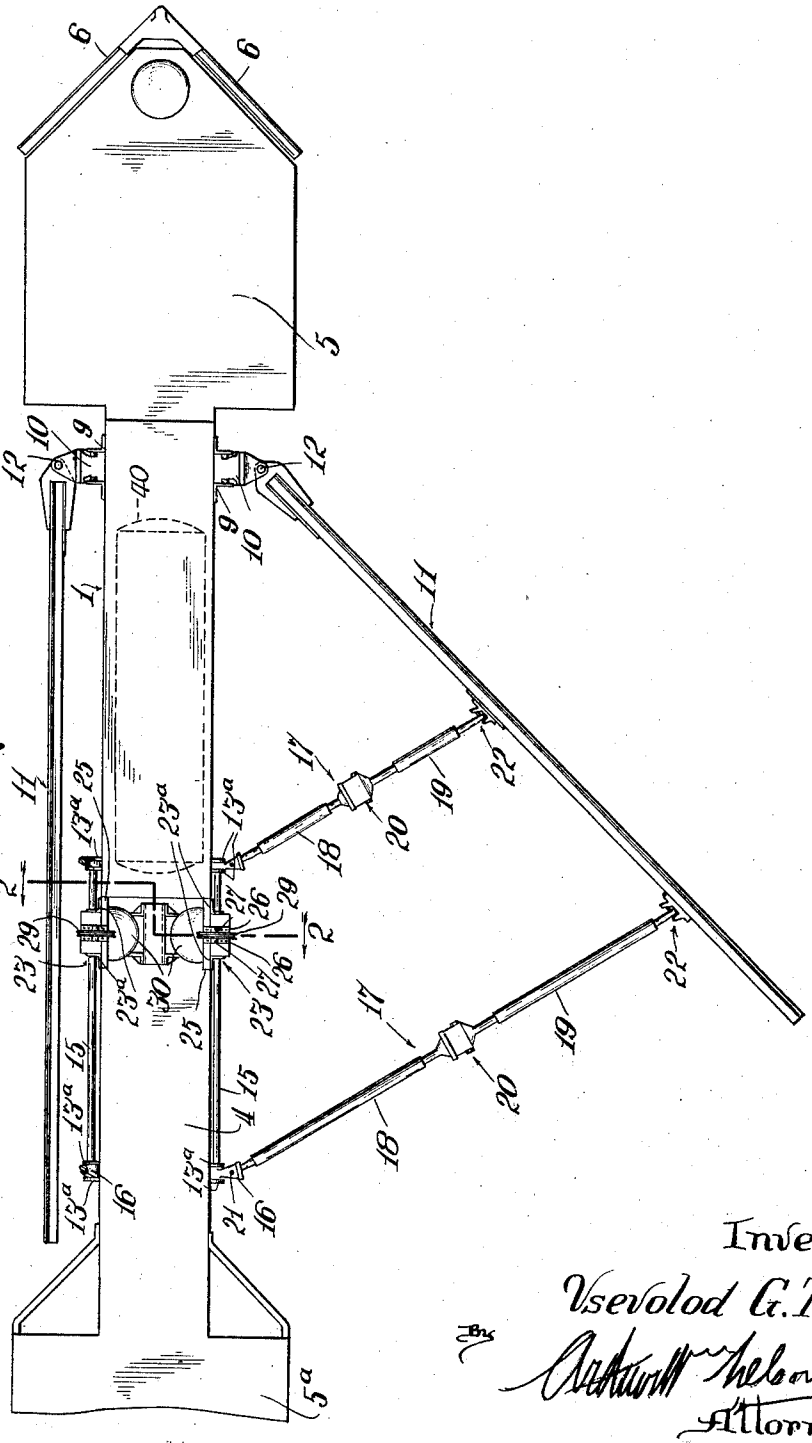
Jan. 7, 1930. V. G. TELLIS 1,742,328

WING SHAFT OPERATING MECHANISM FOR RAILROAD SPREADERS

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Fig. 1.



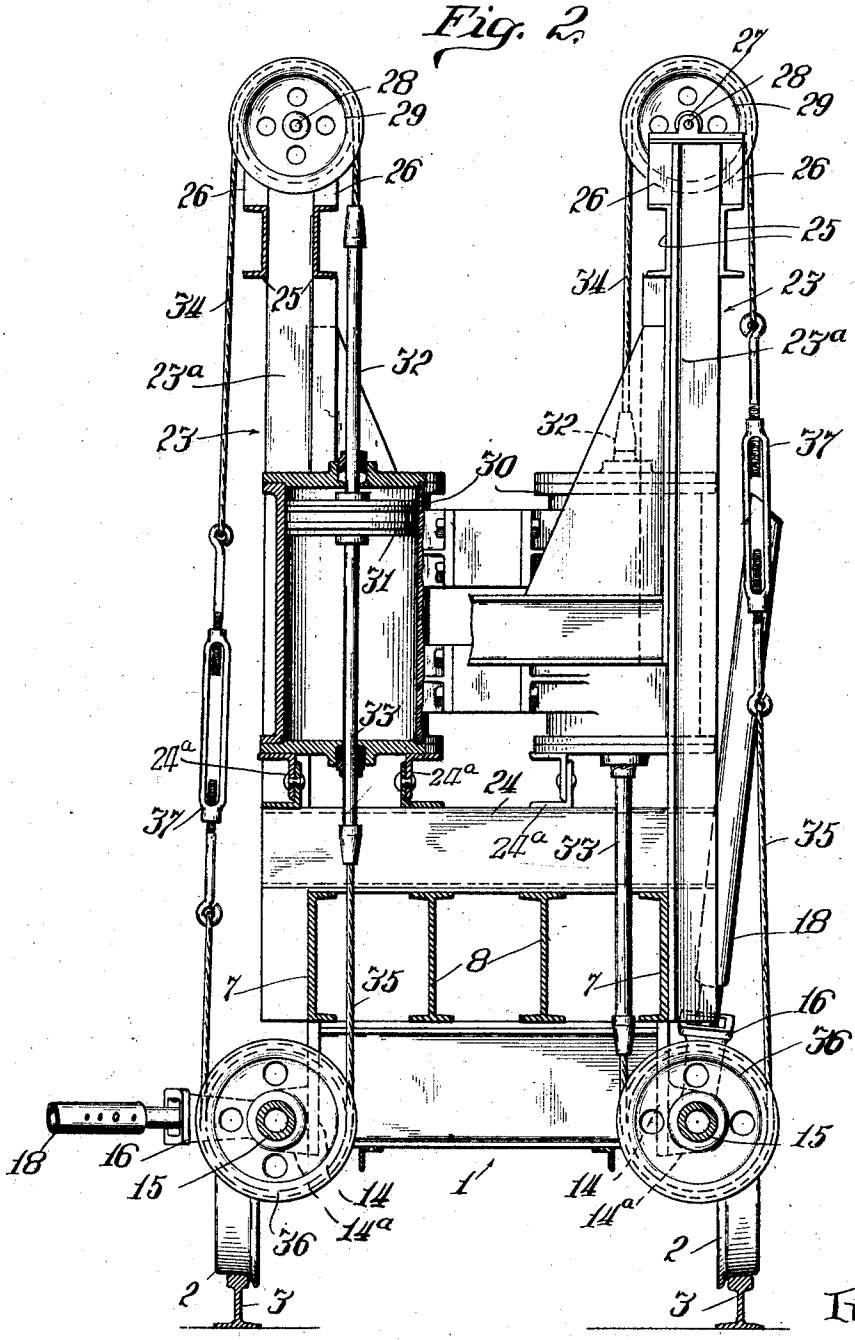
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Fig. 2.



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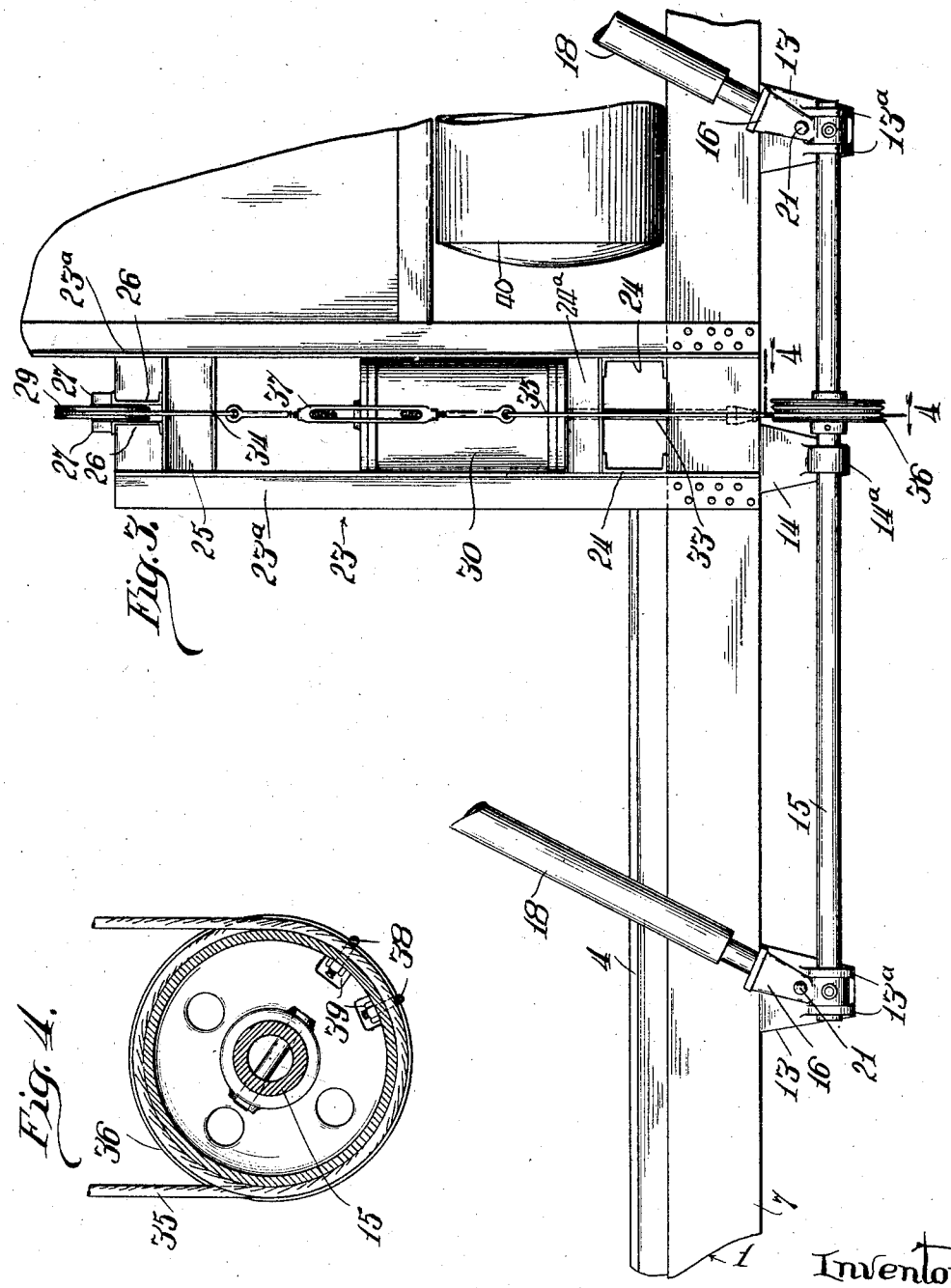


Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE

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WING-SHAFT-OPERATING MECHANISM FOR RAILROAD SPREADERS

Application filed October 14, 1926. Serial No. 141,488.

This invention relates to improvements in wing shaft operating mechanisms for railroad spreaders and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

In railroad spreaders including side wings for spreading ballast and like operations, each side wing is connected at one end by means of an upright pivot pin to a suitable sliding block arrangement in an associated side post or column. The wing is swung away from and toward the car, about said pin as an axis by folding bars connected at one end to the wing and at the other end to arms on a longitudinally extending shaft journalled on the associated side of the car. The necessary rotative rocking movement of the shaft was heretofore imparted to said shaft by fluid pressure cylinders disposed beneath the car deck and extending transversely thereof, the piston rod of the cylinder being connected to an arm on each shaft. In such a construction the leverage of said arm changed in proportion to the change in the angular position of the arm on the shaft so that the greatest load was imparted to the operating cylinder at the beginning and end of its power stroke, thus a great deal of power was absorbed at the outset of operation, which as is apparent is not a desirable condition. Again with the power cylinders arranged transversely of and on the under side of the car deck or frame, they did not readily lend themselves to a ready inspection or repair and did not permit of the best arrangement of parts of standard apparatus on such a car of the spreader.

The primary object of the present invention is to improve the means by which the wing shaft is turned or rocked and to so dispose the operating cylinders therefor that they may be arranged vertically on the top of the car deck, where they may be readily inspected and at the same time provide for a better distribution and the balance of the associated parts.

A further object of the invention is to simplify the construction of the associated parts and reduce the number thereof to a minimum whereby the cost of production is proportionately reduced and the efficiency thereof is materially increased.

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 top plan elevation of a railroad spreader embodying my invention.

Fig. 2 is a transverse vertical sectional view through the spreader, on an enlarged scale as taken on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary view in side elevation of parts shown at the right hand side of Fig. 2.

Fig. 4 is a detail vertical sectional view on a further enlarged scale, as taken on the line 4—4 of Fig. 3.

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 the usual wheels 2 to travel upon the rails 3—3 of a railroad track. The car includes a deck 4 with a wide platform 5 at the front end and a similar platform 5ª at the rear end; the deck itself being narrower than said platforms to form cut in sides of the car. The front end of the front platform is made V-shaped or pointed as best shown in Fig. 1 and is provided with front plows 6—6.

The deck and platforms are supported upon a suitable under frame which includes side sills 7 and a pair of center sills 8. To the rear of the front platform and suitably secured to the side sills 7 are upright wing posts 9 in each of which a wing carriage 10 is capable of a guided vertical adjustable movement. 11 indicates the main side wing of the spreader which is pivoted at its inner or front end to the wing carriage by means of a vertical axis pin 12 so that said wing may be swung from a position parallel with the sills as shown at the top of Fig. 1, into a position at an angle to said sills as shown at the bottom of said figure. As the parts associated with each spreader wing on each side of the car are the same, a description of the parts associated with one wing will suffice for both,

like parts on both sides of the car bearing like reference numerals.

Depending from each side sill 7, forward of the rear platform 5^a is a plurality of longitudinally spaced end and intermediate bearing brackets 13 and 14, respectively. The end brackets each include a pair of spaced bearing ears 13^a—13^a while the intermediate bracket includes a single bearing sleeve 14^a. Journalled in said ears and sleeve is a longitudinally extending tubular shaft 15 and fixed to the shaft between the ears of each bracket 13 are castings each of which includes a socket 16 extending at less than a right angle to said shaft. Operatively connecting each socket casting with spaced points on the rear side of the main spreader wing are folding brace bars 17—17 each including inner and outer brace arms 18 and 19 respectively, said brace arms being connected together by a knuckle 20. The inner ends of the brace arms 18 extend into and are pivoted within the sockets 16 by pins 21 arranged at a right angle to the associated shaft 15. The outer ends of the brace arms 19 are connected to the wing by brackets and pins 22 as best shown in Fig. 1. This last mentioned connection as well as the socket connection before described permits the brace arms to fold at the knuckles so that the wing may be swung from one position to the other as desired.

23 indicates as a whole an upright post arranged in substantially the plane of the intermediate bracket 14, there being one of such posts at each side of the car. Said post comprises a pair of longitudinally spaced upstanding angle bars 23^a—23^a which are riveted to the associated side sill. Connecting the laterally arranged flanges of the angle bars on one side of the car with the like flanges of the angle bars on the other side of the car is a pair of cross channels 24—24, said cross channels resting on and being secured to the side and center sills. The top ends of each pair of angle bars forming each post are connected together by pairs of short longitudinally arranged channels 25 upon which engage pairs of short transverse members 26 to form supports for bearing ears 27—27. In said ears are journalled the ends of a short shaft 28 to the middle of which is fixed a sheave or grooved pulley 29. Resting on the top flanges of the cross channels 24—24, to the rear of each post 23 is a pair of short angle bars 24^a. Engaged upon and upstanding from said angle bars are fluid pressure cylinders 30 each having a piston 31 therein. Said piston has top and bottom piston rods 32 and 33 respectively which extend through suitable stuffing boxes in the respective ends or heads of the cylinder. To the top piston rod 32 is connected one end of a cable section 34 which passes over the sheave 29 and to the bottom piston rod is connected a second cable section 35 which is wound or lapped more than a single turn around a grooved sheave or pulley 36 fixed to an associated shaft 15, in the plane of the pulley 29. The cable sections 34—35 are connected together by a turn-buckle 37 whereby they may be maintained taut. The cable section 35 is securely attached to the sheave 36 at one point in its length by clamps 38 arranged in the peripheral part of the sheave and having clamping nuts 39 arranged in suitable openings in the web of the sheave. The cylinders 30—30 are not only secured to the angle bars of the respective posts but are connected to each other in any suitable manner and are operatively connected to a source of fluid under pressure by the usual pipe and hose connection in the manner well known. Preferably such source of fluid under pressure is a compressed air tank 40 carried on the car deck just forward of the posts 23.

In operation, when air is admitted to one end of the cylinder, the piston moves toward the other end thereof and through the connected cable sections, one of which is attached to the sheave 36 as before described, will cause a partial rotation or turn of the associated shaft 15 the leverage on said shaft always remaining constant and in accordance with the air pressure admitted to said cylinder. When piston is moving upwardly in the cylinder, the respective arms of the wing brace are projected outwardly into alignment to cause the wing to be projected or swung away from the side of the car and when the piston is moving downwardly the brace arms are folded and the wing is swung toward the side of the car as shown at the top of Fig. 1. By the arrangement described, the action of moving the wing is positive when it is desired to swing the wing in either direction. Should the cable stretch in use, the slack may be taken up by the turn buckle.

While in describing my invention I have referred in detail to various forms and arrangements of the parts thereof, 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 a railroad spreader, a car, a wing swingably attached to the car, means for operating said wing, said means including a shaft, a folding brace bar operatively connecting said shaft and wing, a fluid pressure cylinder having a piston and oppositely disposed piston rods, a sheave fixed on said shaft, a second sheave spaced from said first sheave and a flexible member passing around said sheaves and fixed to said oppositely disposed piston rods, said flexible member also being attached to said sheave on the shaft.

2. In a railroad spreader, a car, a wing swingably attached to said car, means for operating said wing, said means including a shaft, a folding brace bar operatively connecting said shaft and wing, a fluid pressure

cylinder having a piston and oppositely disposed piston rods, a sheave fixed on said shaft, a second sheave spaced from said first sheave, a flexible member passing around said sheaves and attached to said oppositely disposed pistons, said flexible member also being attached to said sheave on said shaft and means for maintaining said flexible member taut.

3. In combination with a railroad spreader including a car body, a wing pivotally connected to one side of said car body and capable of a swinging movement toward and away from said car body about a vertical axis, a longitudinally extending rock shaft journalled on the car body, folding brace bars operatively connecting said shaft and wing, an upright post on said car body, a sheave journalled in the top end of said post, a second sheave fixed to said shaft in the plane of the first mentioned sheave, an upright cylinder on the car body to the rear of the post, a piston and oppositely disposed piston rods in said cylinder and a flexible member attached at its ends to said piston rods and passing about said sheaves and attached at one point in its length to the sheave on said shaft.

4. A railroad spreader embodying therein a car, a wing swingably attached to the car, a wing swinging brace extending between the wing and the car, an endless device carried by the car, means for positively moving said endless device in opposite directions, and means operatively connecting said endless device to said wing swinging brace as and for the purpose specified.

5. In a railroad spreader, a car, a wing swingably attached to the car, means for operating said wing, said means including a folding brace bar extending between the wing and the car, an endless device, means for operating said endless device and means operatively connecting said folding brace with said endless device whereby movement thereof causes swinging movement of said wing.

6. In a railroad spreader, a car, a wing swingably attached to the car, means for operating said wing, said means including a folding brace bar extending between the wing and the car, a vertically positioned endless device, means for operating said device, and means adjacent the lower end thereof for operatively connecting it to said folding brace whereby movement of said endless member causes swinging movement of said wing.

7. In a railroad spreader, a car, a wing swingably attached to the car, means for operating said wing, said means including a folding brace bar extending between the wing and the car, a vertically positioned endless device, means constituting an integral part of said endless member for operating it, and means adjacent the lower end thereof for operatively connecting it to said folding brace whereby movement of said endless member causes swinging movement of said wing.

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

VSEVOLOD G. TELLIS.