Jan. 7, 1930. V. G. TELLIS 1,742,327

WING LIFTING BRACE FOR RAILROAD SPREADERS

Filed Oct. 14, 1926 2 Sheets-Sheet 1

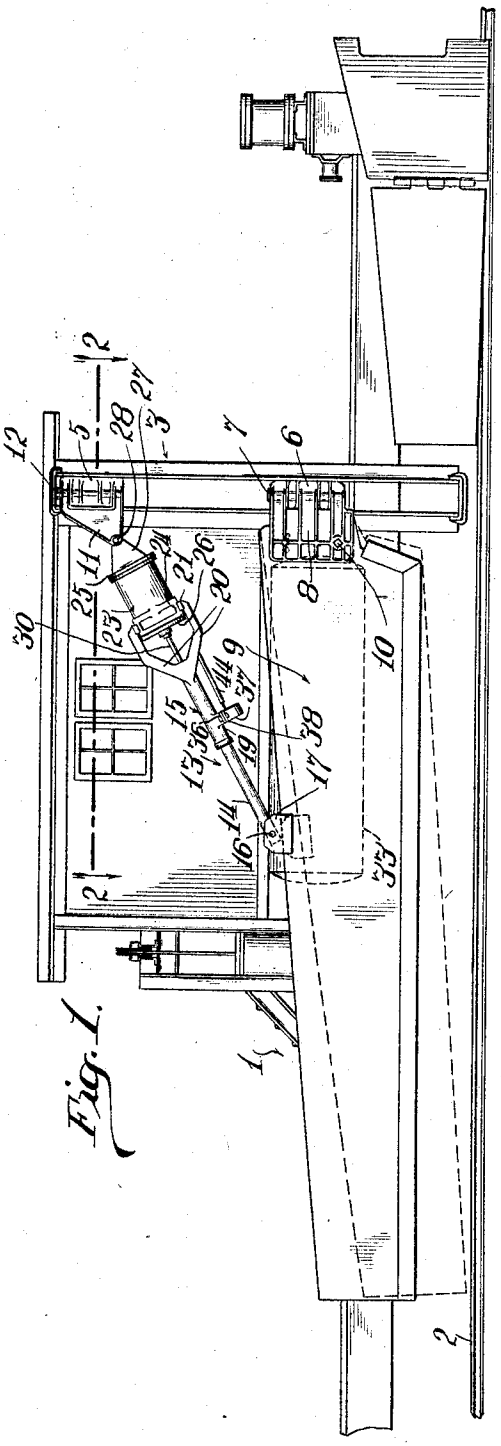


Fig. 1.

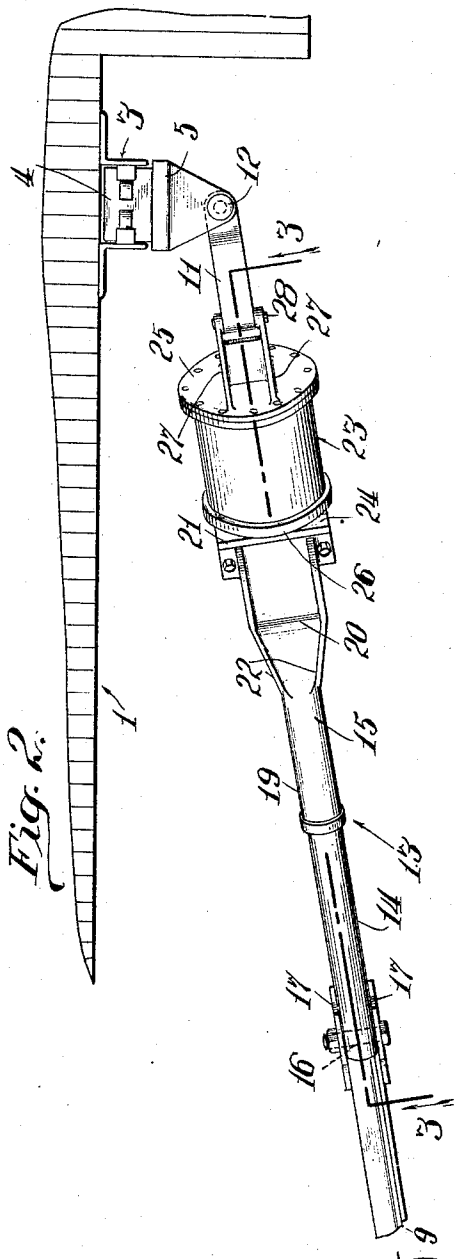


Fig. 2.

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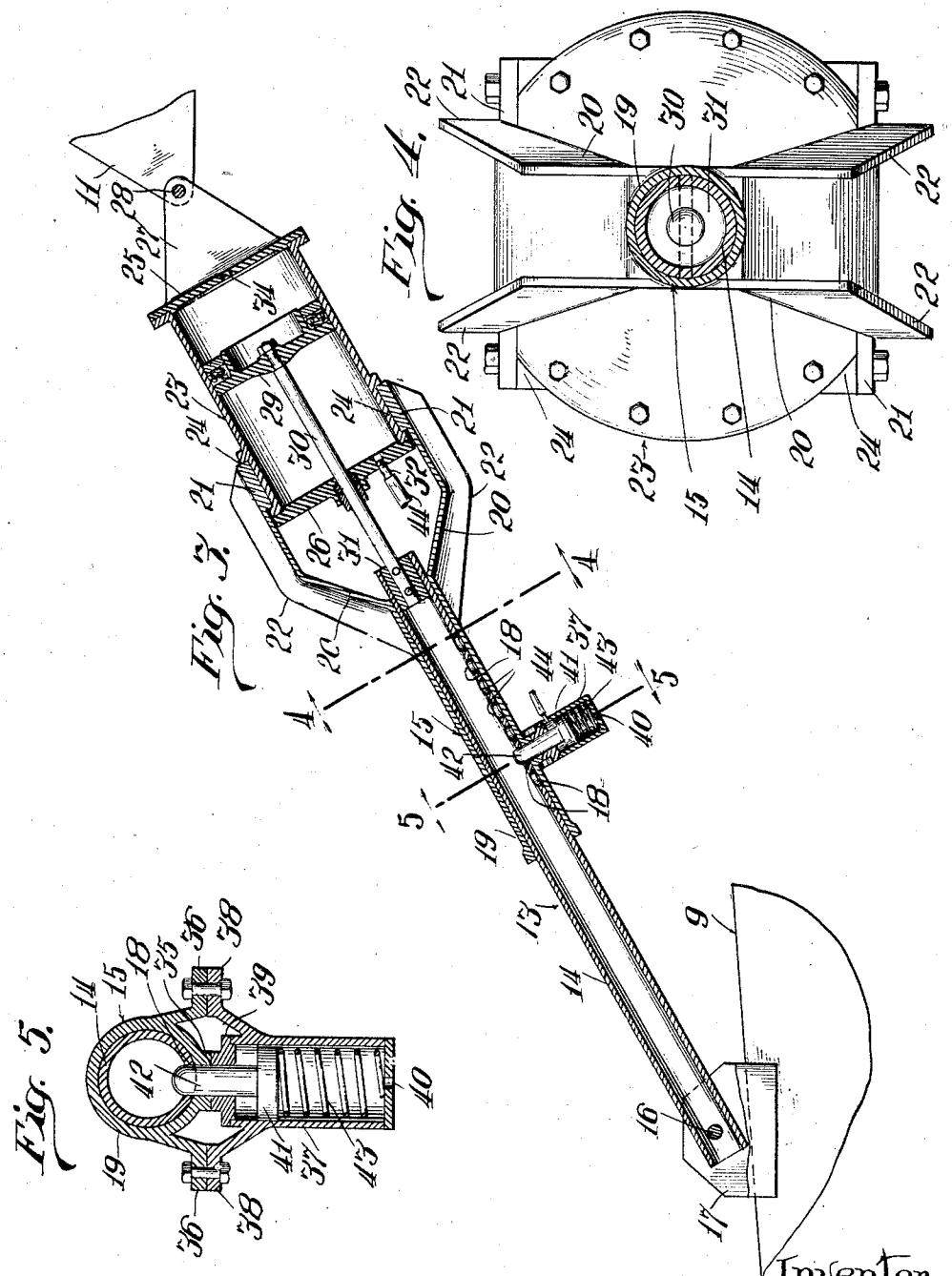


Fig. 4.

Fig. 3.

Fig. 5.

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UNITED STATES PATENT OFFICE

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WING-LIFTING BRACE FOR RAILROAD SPREADERS

Application filed October 14, 1926. Serial No. 141,485.

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

The primary object of the present invention is to provide an improved construction of wing lifting brace for railroad spreaders including a power cylinder located directly in the line of pull instead of being offset to one side thereof as in constructions heretofore employed.

A further object of the invention is to provide a brace of the kind including telescopic tubular members one of which has a portion so formed as to directly engage the cylinder which forms an effective part of the brace.

Still another object of the invention is to provide a brace of the kind, which is more simple to manufacture and is more efficient in operation than those heretofore employed.

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 a railroad spreader embodying my improved wing lifting brace.

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

Fig. 3 is a longitudinal vertical sectional view through the improved brace on a further enlarged scale as taken on the line 3—3 of Fig. 2.

Figs. 4 and 5 are transverse vertical and detail sectional views as taken on the lines 4—4 and 5—5 respectively 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 adapted to travel on the rails 2 of a railroad track. On each side of the car, a suitable distance from the front end thereof is an upright wing post 3 suitably fixed to and braced from the underframe of the car. A hinge block carriage 4 is arranged in said post for a vertical sliding guiding movement and said carriage includes laterally extending, top and bottom hinge blocks 5 and 6 respectively. Operatively connected to the bottom hinge block by a vertical pin 7 is a hinge plate 8 embracing the inner end of the main spreader or side wing 9 which is connected to said hinge plate by a horizontally arranged pin 10. Associated with the top hinge block 5 is a hinge bracket or plate 11 connected thereto by a vertical pin 12 in line with the pin 7 before mentioned.

Interposed between the hinge bracket or plate 11 and the top edge of the side wing 9 at a point spaced a suitable distance from its inner or front end is a wing lifting brace indicated as a whole as at 13. It is the construction of the parts and their relative arrangement in said brace which forms the essence of the present invention. Said brace includes an outer end tubular member 14 in the form of a pipe and an inner end tubular member 15 of peculiar construction, in which the inner end of the tubular member 14 has a telescopic engagement. The outer end of the member 14 is operatively connected to the top edge of the wing 9 by a horizontal pin 16 extending transversely of the wing and fixed at its ends in upright flanges 17—17 on said wing. On one side of said tubular member near its inner end is a plurality of longitudinally spaced holes 18—18. The member 15 includes an outer tubular portion 19 to telescopically receive the inner end of the member 14 and the inner end of said member 15 is formed to provide oppositely disposed diverging arms 20—20 each terminating at its free end in a transversely disposed plate 21. Said arms are duly reinforced by pairs of ribs or flanges 22—22 which extend from the tubular portion 19 to the respective transverse plates 21. The plates 21—21 of said arms are of course parallel and are spaced a suitable distance apart to receive between them the outer end of a cylinder 23 arranged coaxially with the tubular members 14 and 19, respectively. The cylinder is provided on opposite sides with flattened bosses 24—24 with which the arm plates 21 are directly engaged and bolted thereto. Said cylinder has inner and outer heads 25

and 26 respectively and the inner head has a triangular extension 27 which is pivotally connected to the hinge block 11 by a horizontally disposed pin 28. Within the cylinder is a piston 29 the associated piston rod 30 of which extends through a suitable stuffing box in the outer head and into the inner end of the tubular member 14 to which it is detachably connected by a pin and sleeve arrangement 31 as best shown in Fig. 3. Motive fluid under pressure is admitted to the outer end of the cylinder by a conduit 32 extending through the head 26 and leading from a suitable source of supply under pressure such as a tank 33 on the car 1. In the cylinder head 25 is a port or opening 34.

The tubular portion 19 of the member 15 is formed with an apertured seat 35 and laterally spaced ears 36 upon which engages a small transversely disposed cylinder 37. Said cylinder has integral spaced ears 38 bolted to the ears 36 and an apertured head plate 39 is engaged between said seat 35 and the inner end of the cylinder. The outer or head end of the cylinder is formed with a port or opening 40. Within the cylinder is a piston 41 carrying a pin 42 adapted to extend through the plate 39 and seat 35 and to enter any one of the openings 18 in the pipe member 14. A spring 43 located in the cylinder normally urges the piston 41 upwardly toward said member 14. A conduit 44 is operatively connected to the inner end of the cylinder and said conduit leads off from the tank 33. Of course there are suitable controlling valves (not shown) arranged in the conduits 32 and 44 for controlling the passage of motive fluid from the tank 33 to the respective cylinders.

In operation, assume that it is desired to change the vertical angular position of the wing 9 from the position indicated in dotted lines in Fig. 1 to the one shown in full lines in said figure. Motive fluid under pressure is admitted from the tank 33 through the conduit 44 to the inner end of the cylinder 37 thus moving the piston 41 outwardly against the action of the spring 43 which is thereby compressed, the cylinder venting through the port or opening 40. In this movement of the piston, the pin 42 is withdrawn from its locked position in one of the holes 18 in the member 14, after which motive fluid under pressure is admitted to the outer end of the cylinder 23 to move the piston 29 toward the cylinder head 25, the air in advance of the piston passing out through the port or vent 34. When the desired hole 18 comes into line with the piston pin 42, motive fluid is cut off from the cylinder 37 and the spring 43 then acts to force the pin 42 into the hole 18 and thus lock the two parts of the brace together. Of course when the piston 29 moves as before described, the effective entire length of the brace arm is shortened, thus swinging the wing upwardly into the full line position shown in Fig. 1, about the pin 10 connecting the wing 9 to the hinge plate 8. When it is desired to permit a downward swing to the wing, the pin 42 is withdrawn as before mentioned thus unlocking the two brace parts 14 and 15 after which enough motive fluid is admitted to the cylinder 23 to prevent the too rapid downward swing of the wing about the pin 10 under the action of gravity due to the weight of the wing and when the proper hole 18 lines up with the pin 42, motive fluid is cut off from the cylinder 37 and the pin 42 enters the said hole 18 and again locks the parts together.

It is apparent that the "pull" of the cylinder is in line with the axis of the wing brace 13 and that the cylinder forms an effective part of the wing brace as a whole. With such a construction, a greater angle of elevation may be imparted to the wing without any binding action between the parts thereof. Again the number of parts are materially reduced with a corresponding reduction in cost of manufacture.

While in describing my invention I have referred to numerous details of mechanical construction as well as to form and arrangement 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. A railroad spreader comprising a car, a wing swingably connected thereto, a brace connecting the car and wing and embodying therein a plurality of telescopic parts one connected to the car and the other connected to the wing, means for locking said parts together, a cylinder mounted on one of said parts coaxially with the other part and a piston and piston rod in said cylinder with the piston rod connected to said other part.

2. A railroad spreader comprising a car, a wing swingably connected thereto, a brace connecting the car and wing and embodying therein two tubular telescopic members, one connected to the car and the other connected to the wing, means for locking said members together, a cylinder connected to one of said tubular telescopic members and in axial alignment with both of said members, a piston in said cylinder and a rod connecting said piston with said other tubular telescopic members.

3. A wing swinging brace of the kind described embodying therein two tubular members, the one telescopic in the other, one of said members including opposed arm extensions, a cylinder operatively secured to said extensions in coaxial alignment with said tubular members, a piston in said cylinder, a rod connecting the piston and the other of said tubular telescopic members and means on one of said tubular telescopic members for locking them both together.

4. A mechanism of the kind described in

combination with a car, a post thereon, a carriage slidable in the post, top and bottom wing blocks mounted on the carriage, a spreader wing operatively connected to the bottom wing block, a wing lifting brace including inner and outer telescopic tubular members, means connecting the outer telescopic member to the wing, a cylinder connected to the inner telescopic member in coaxial alignment therewith, and also pivotally connected to the top wing block, a piston in said cylinder, a rod engaged at one end with the piston and at the other end connected to the inner end of said outer telescopic tubular member, and means carried by said inner telescopic member to engage in one of a plurality of holes in the outer telescopic member to lock said members together.

5. A wing swinging brace of the kind described embodying therein, a tubular member having oppositely disposed diverging arms at one end, a second tubular member telescopic in the first tubular member, a power cylinder arranged between and fixed to said arms, in axial alignment with both of said tubular telescopic members, a piston in said cylinder, a rod connected to said piston at one end and at its other end to said second mentioned tubular member and means carried by said first mentioned tubular member for locking both of them together.

6. A railroad spreader comprising a car, a wing swingably attached thereto, a brace extending between the wing and the car, said brace comprising a plurality of tubular telescopic parts, a wing actuating motor connected to one of said telescopic parts as an extension of an end thereof, and means disposed axially with respect to said tubular telescopic parts for connecting said motor and the other of said telescopic parts.

7. A wing lifting brace of the kind described embodying therein a plurality of tubular telescopic parts, a cylinder mounted upon and forming an extension of one of said telescopic parts, and a piston and piston rod in said cylinder, said piston rod being disposed axially of said tubular telescopic parts and operatively connected to said other telescopic part.

8. A wing lifting brace of the kind described embodying therein a plurality of tubular telescopic parts, a cylinder removably mounted upon and forming an extension of one end of one of said telescopic parts, and a piston and piston rod in said cylinder, said piston rod being disposed axially of said telescopic parts and operatively connected to said other telescopic part.

9. A wing swinging brace of the wind described embodying therein two tubular members one telescopic with respect to the other, one of said telescopic members including laterally offset arms at one end, a motor secured to said offset arms, and means disposed axially of said telescopic members and operatively connecting said motor to said other telescopic member.

10. A wing swinging brace of the kind described embodying therein two tubular members one telescopic with respect to the other, one of said telescopic members including laterally offset arms at one end, a motor secured to said offset arms and forming an extension of said brace member, and means disposed axially of said telescopic members and operatively connecting said motor to said other telescopic member.

11. A wing lifting brace embodying therein two members one telescopic with respect to the other, one of said members including a pair of laterally offset arms extending beyond one end of said member, a motor including a cylinder arranged at one end between and secured to said offset arms and forming an extension of said brace member and means arranged axially of said telescopic members and operatively connecting said motor to said other telescopic member.

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

VSEVOLOD G. TELLIS.