

Jan. 6, 1953

L. A. PERIER

2,624,130

PLOW ADJUSTMENT FOR RAILWAY BALLAST REMOVING MACHINES

Filed July 26, 1950

2 SHEETS—SHEET 1

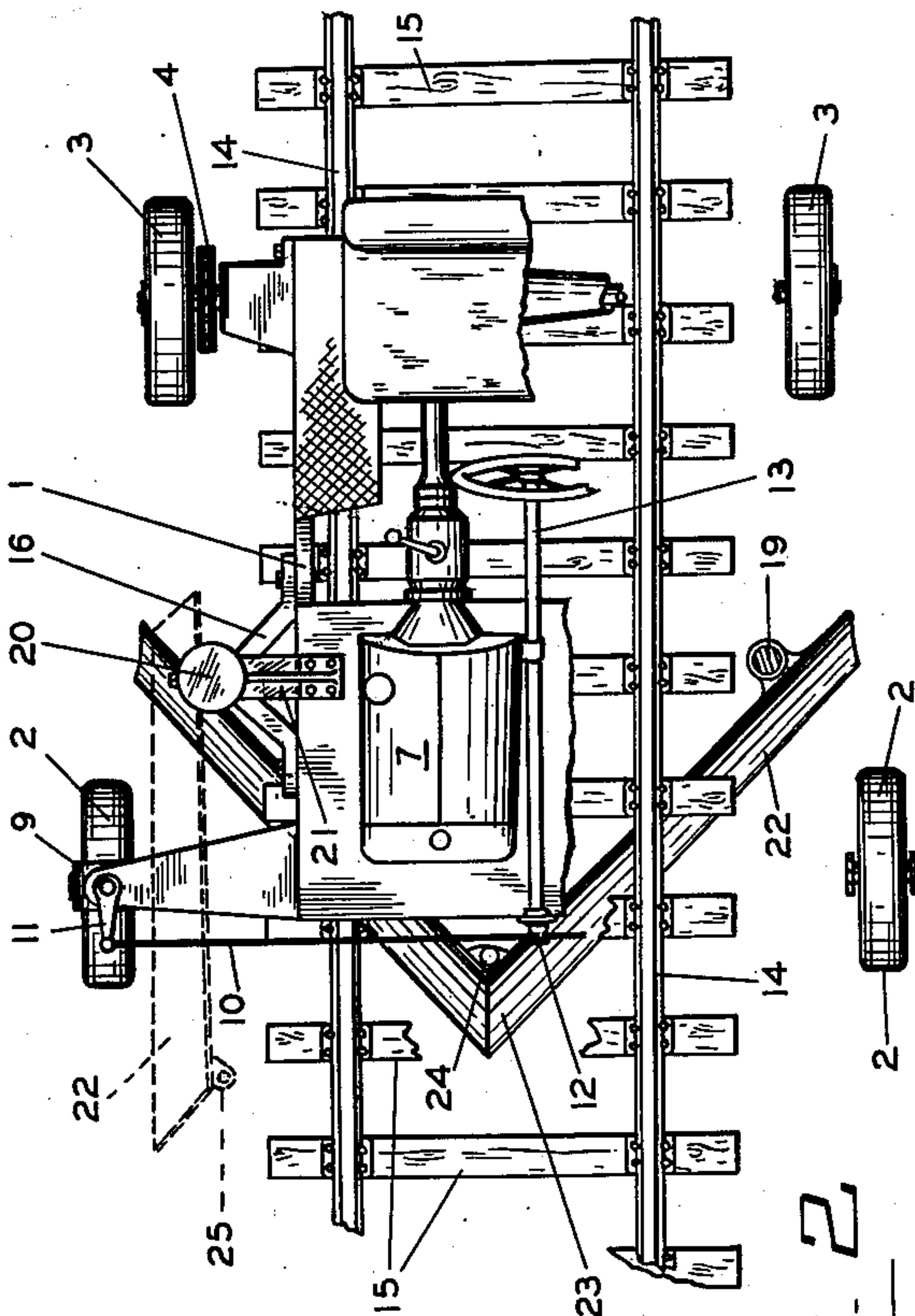
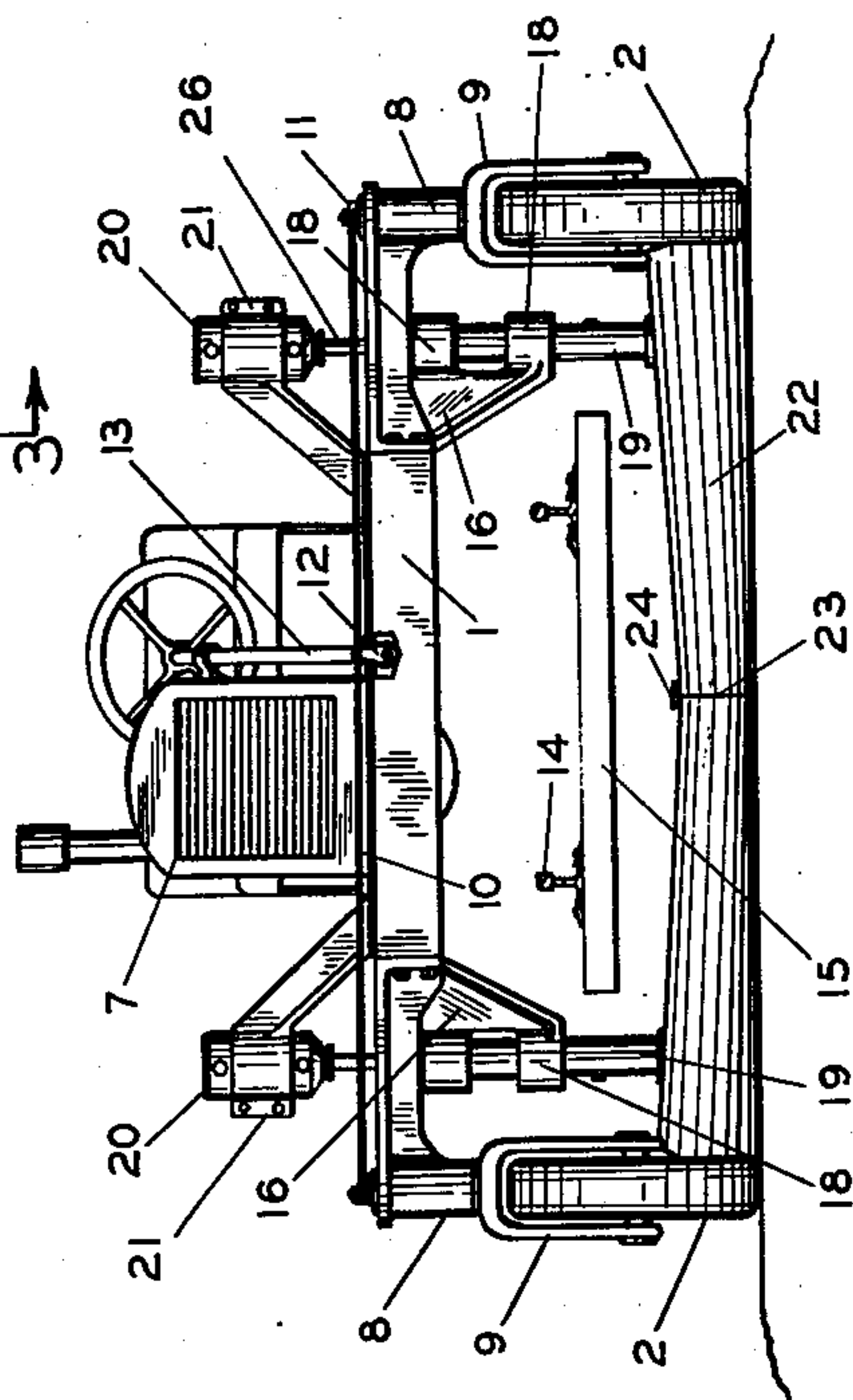
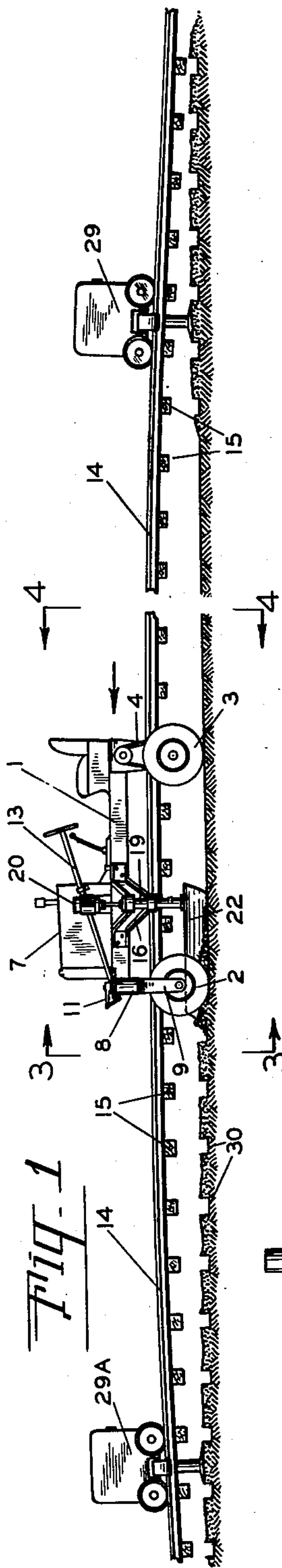


Fig. 2

Fig. 3

INVENTOR.  
LEE A. PERIER  
BY *[Signature]*  
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2 SHEETS—SHEET 2

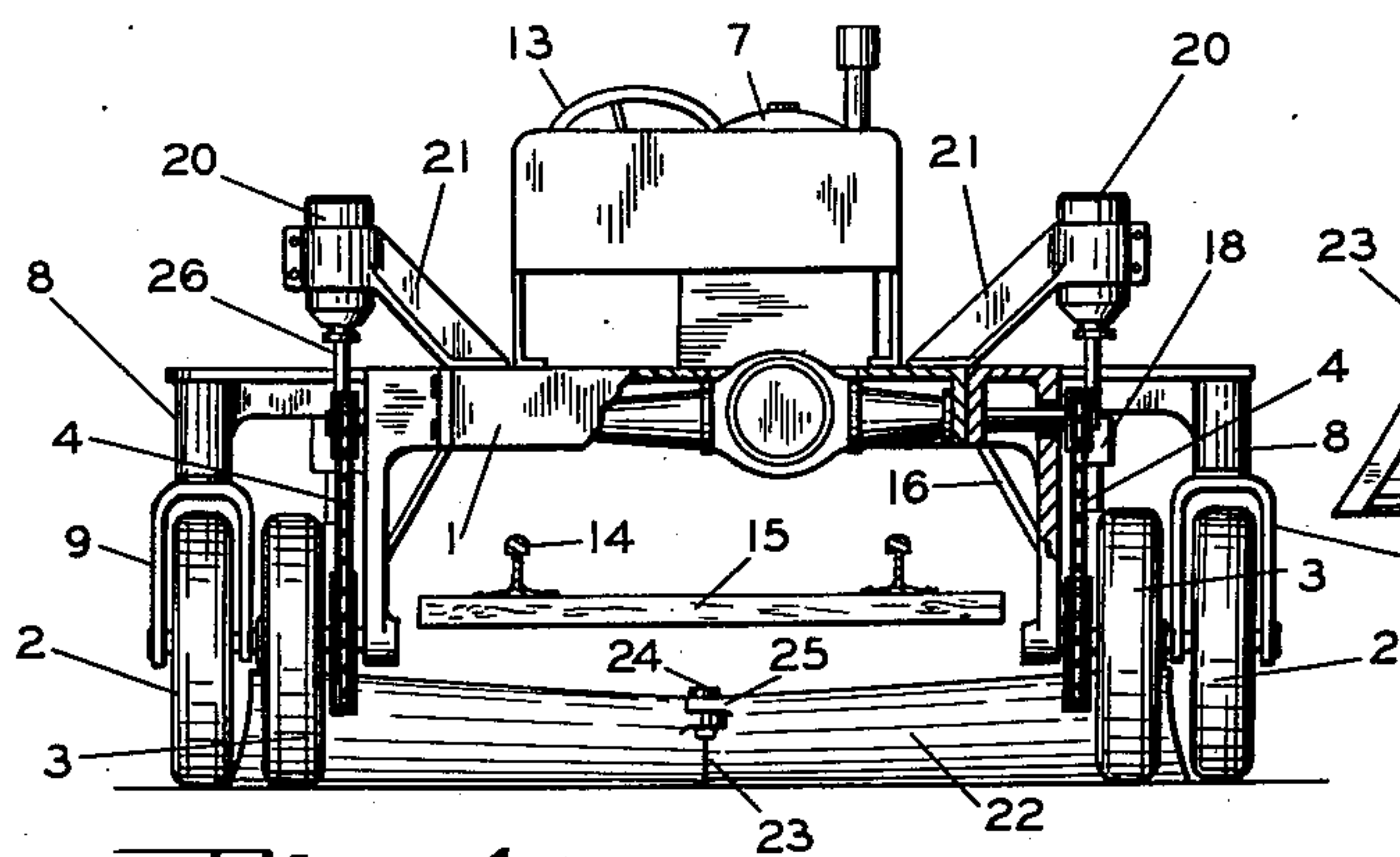


Fig. 4

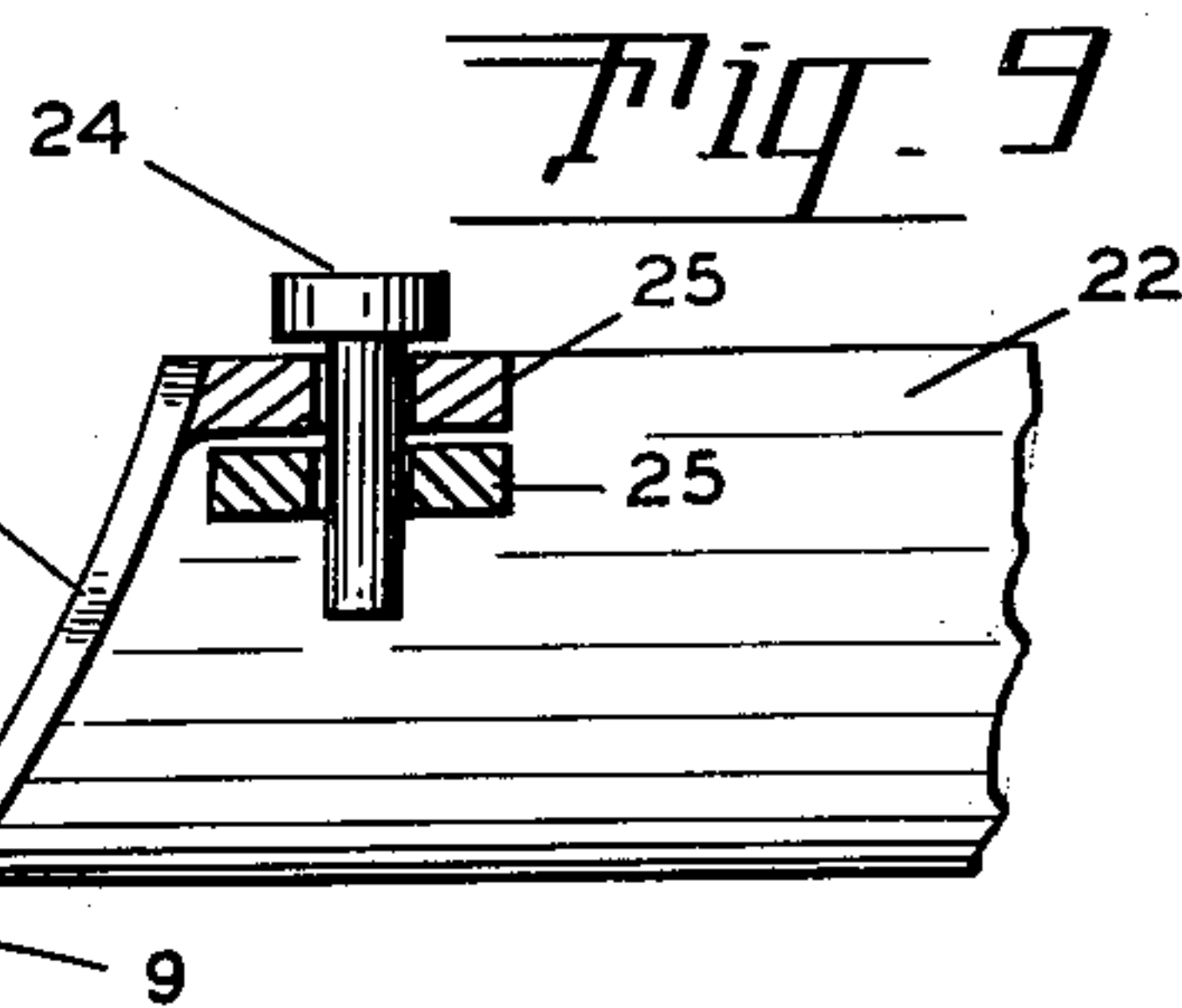


Fig. 9

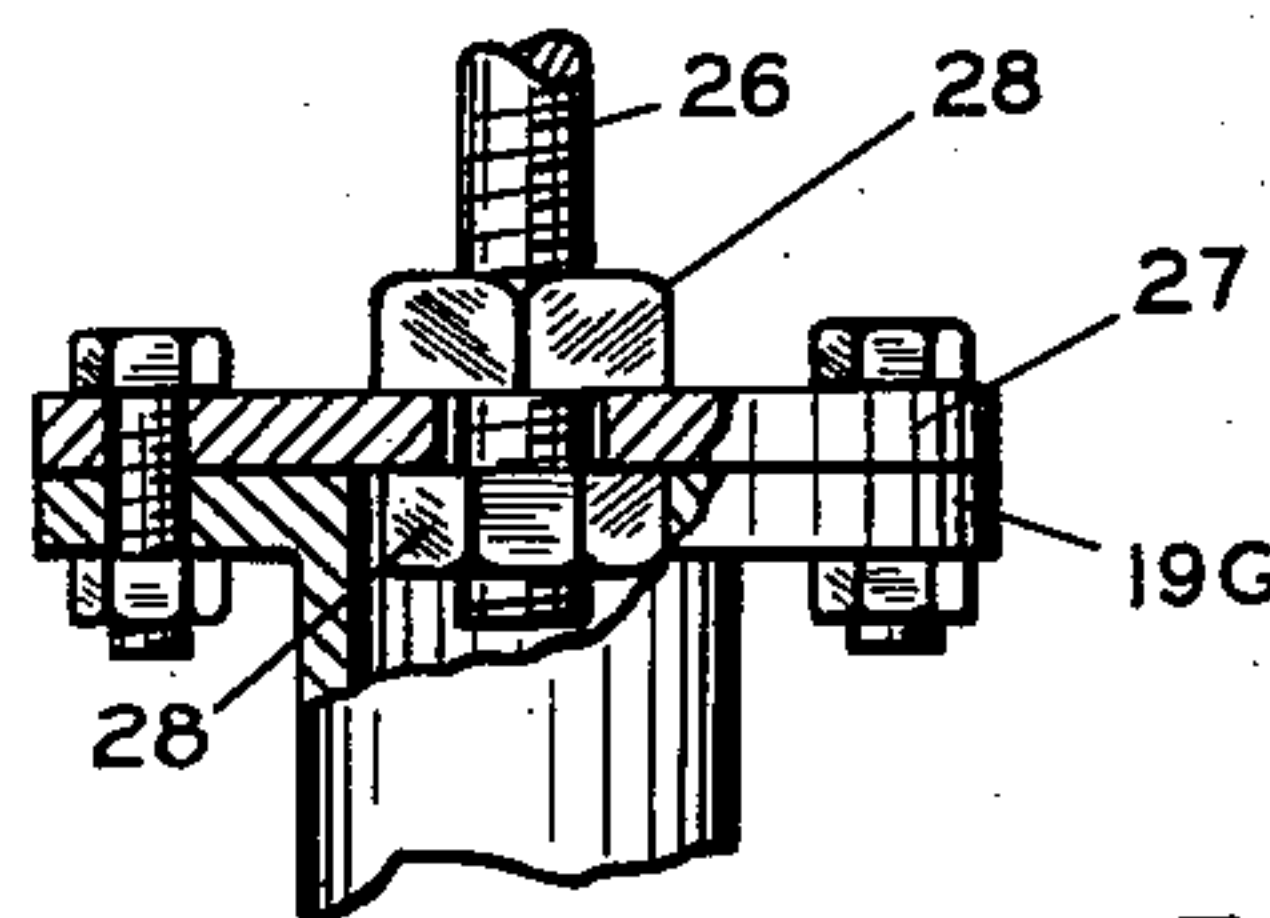


Fig. 10

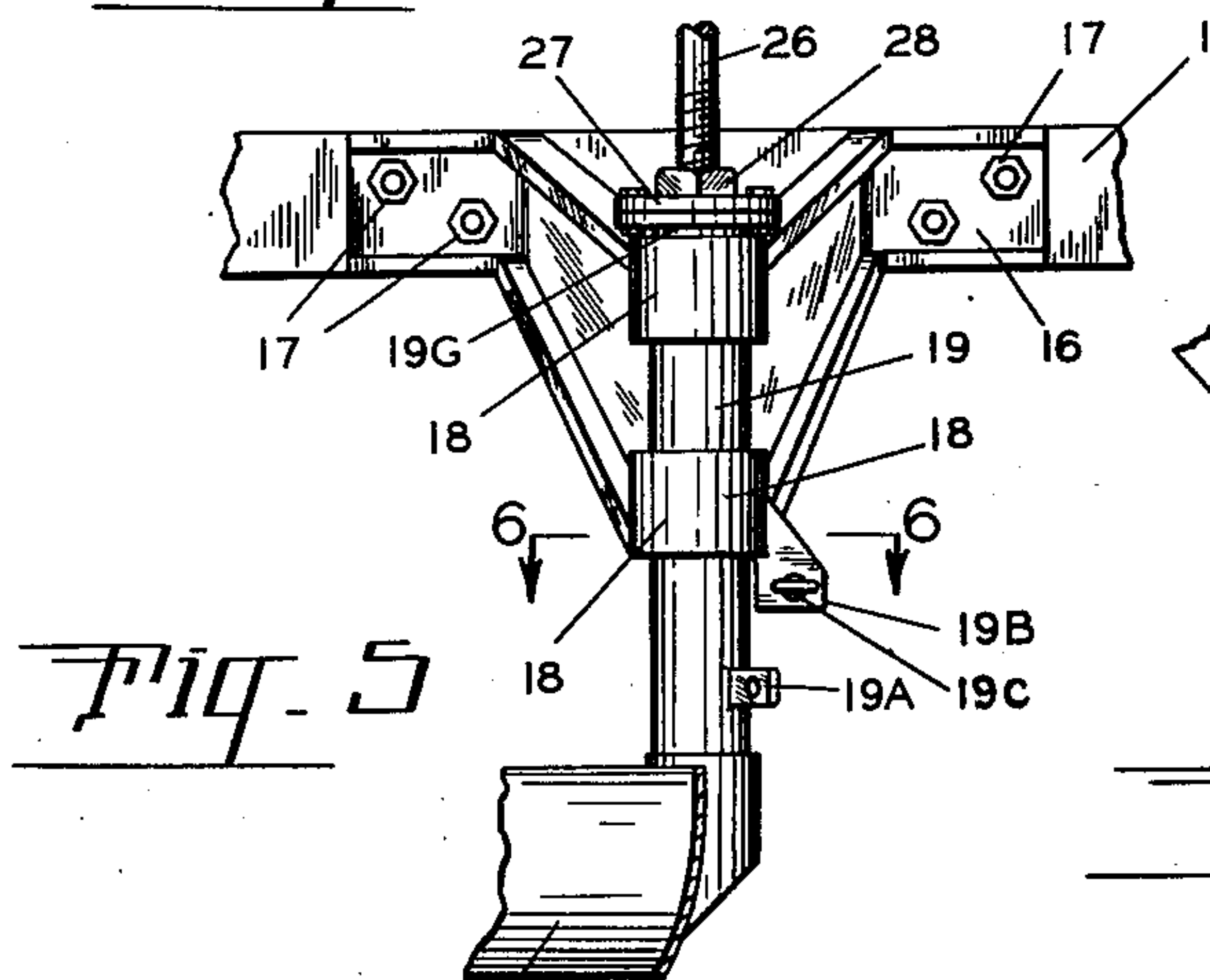


Fig. 5

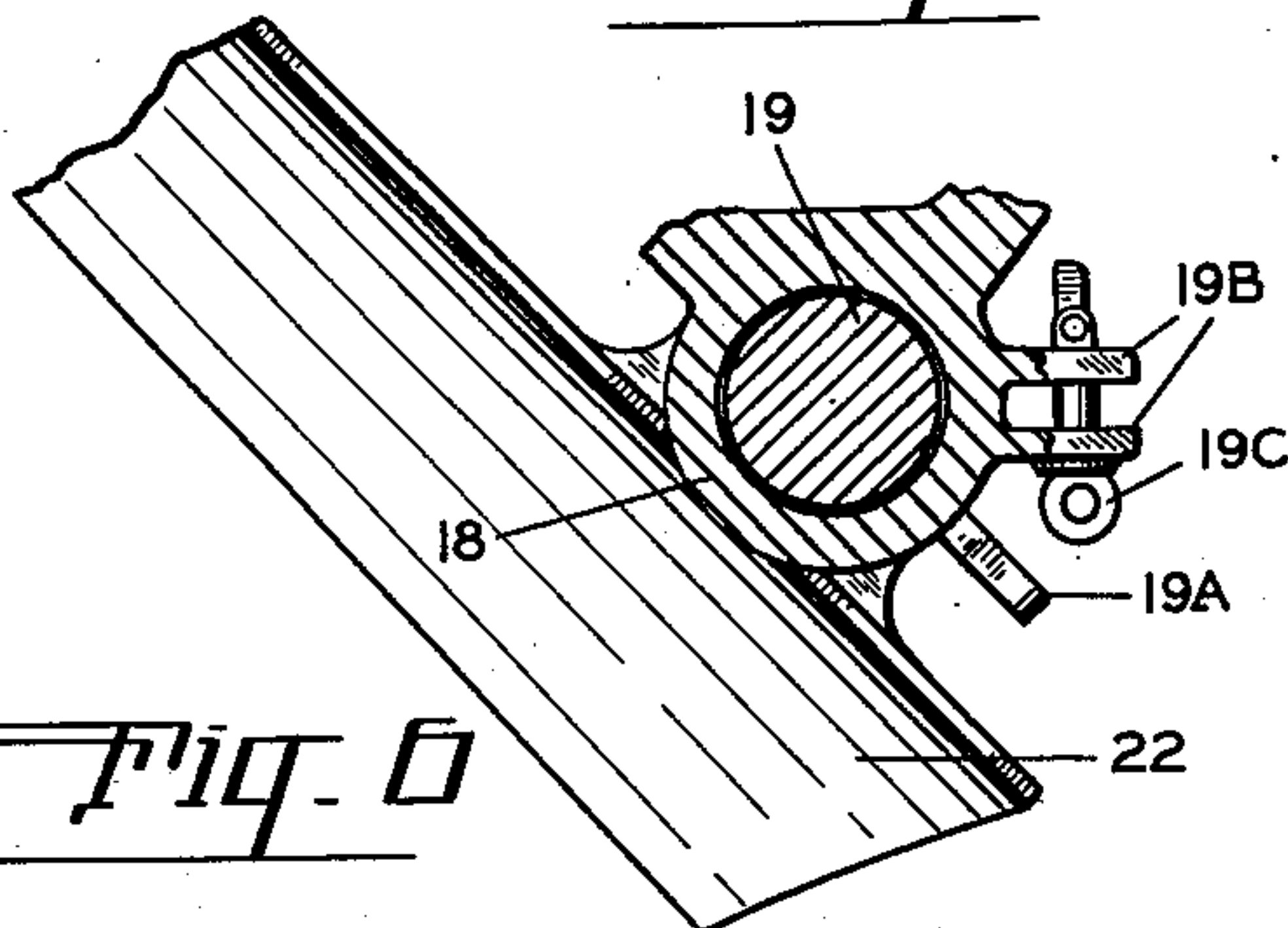


Fig. 6

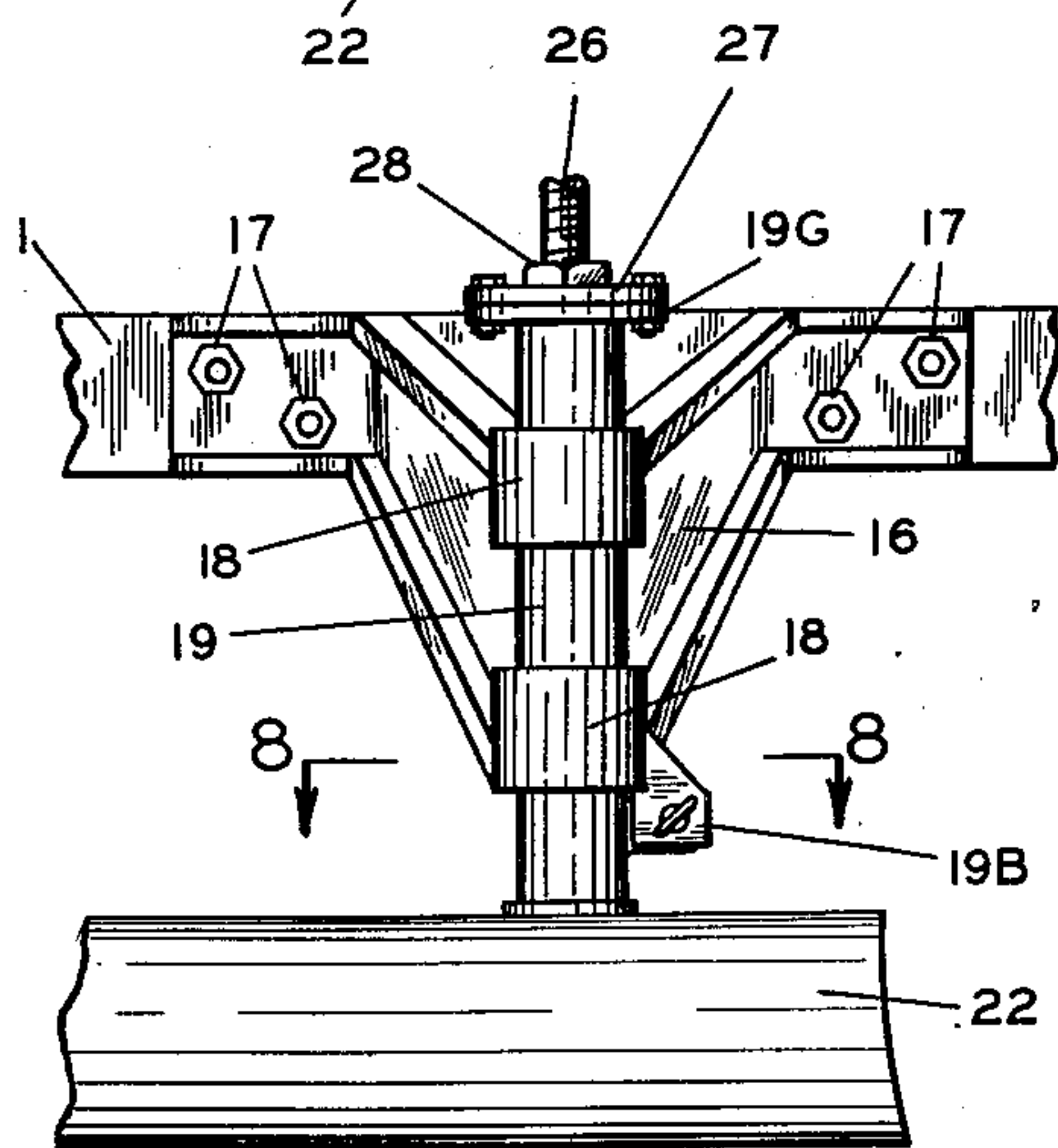


Fig. 7

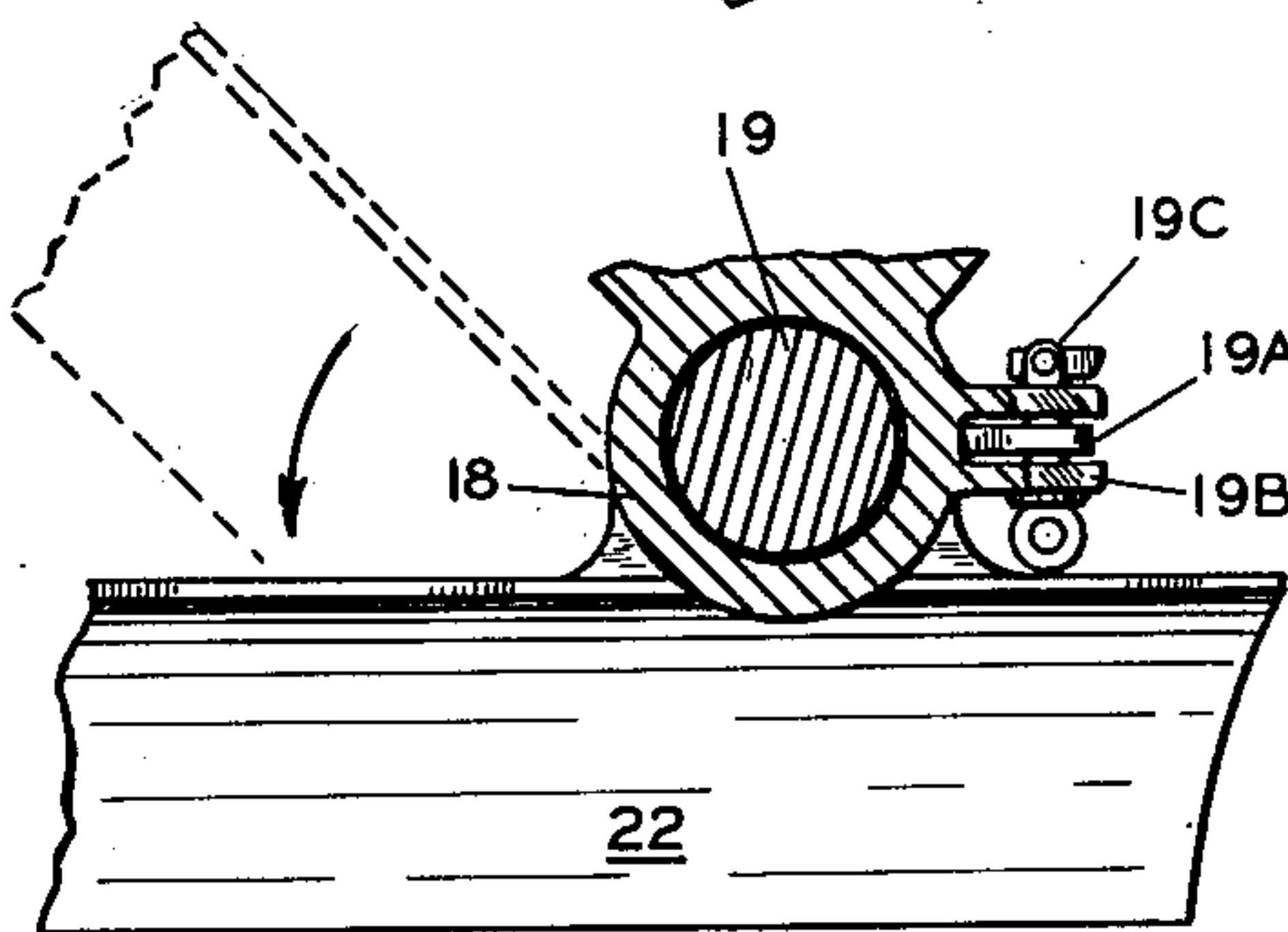


Fig. 8

INVENTOR.  
LEE A. PERIER

BY *[Signature]*

ATTORNEY



# UNITED STATES PATENT OFFICE

2,624,130

## PLOW ADJUSTMENT FOR RAILWAY BALLAST REMOVING MACHINES

Lee A. Perier, Sunnyside, Wash.

Application July 26, 1950, Serial No. 175,965

2 Claims. (Cl. 37—104)

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This invention relates to railroad ballasting machines and is particularly adapted for the removing of foul ballast from between and under the ties to a predetermined level.

The primary object of this invention is to provide a machine that will remove the foul ballast from under the ties of the railroad without dismantling the rails from the ties.

Another object of the invention is to provide a machine that is not supported by the rails of the track, but runs and operates on the shoulders of the road bed.

These and other incidental objects will be apparent in the drawings, specification and claims.

Referring to the drawings:

Figure 1 is a side view of my new and improved ballasting machine straddling the rails and ties of the railroad which have previously been raised and in position for removing the ballast formally surrounding the ties.

Figure 2 is a plan view of Figure 1, parts broken away for convenience of illustration.

Figure 3 is an end view, taken on line 3—3 of Figure 1.

Figure 4 is a rear end view of the machine, taken on line 4—4 of Figure 1.

Figure 5 is an enlarged detail fragmentary view of the special bracket employed to support the blade employed for removing the ballast, showing the blade in lowered and operating position.

Figure 6 is a plan view, taken on line 6—6 of Figure 5.

Figure 7 is a view similar to Figure 5 but showing the blade in raised and inoperative position.

Figure 8 is a plan view, taken on line 8—8 of Figure 7, illustrating a preferred form of holding the blade out of operative position, or in the position illustrated in broken line in Figure 2.

Figure 9 is an enlarged detail view illustrating how the points of the blades are secured together by a king pin while in scraping operation.

Figure 10 is a fragmentary detail illustrating how the hydraulic piston rod is secured to the blade supporting pedestal.

Referring more specifically to the drawings:

My new and improved ballasting machine consists of a frame 1, mounted upon front wheels 2 and rear wheels 3. The rear wheels are driven by the chains 4, operated by a motor supported on the frame. The front wheels are pivotally mounted in the vertical bearings 8 by way of the forks 9 and are connected together by the tie rod 10, which is pivotally connected to the cranks 11 in the usual manner, the said tie rod being pivotally connected to the steering crank 12 of a conventional steering assembly 13.

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The front and rear wheels are adapted to run upon the shoulders of the road bed straddling the rails 14 and the ties 15 as best illustrated in Figures 1 and 2. Special brackets 16 are fixedly secured to the frame 1 by any suitable means, as bolts 17. These brackets have vertical bearings 18 forming part thereof and are adapted to receive the vertical columns 19, which are slidably mounted therein, and adapted to be raised and lowered by hydraulic or pneumatic cylinders 20, the said cylinders being supported by the brackets 21 forming part of the frame 1.

Fixedly secured to the lower end of the columns 19 are scraper blades 22. When the ballasting machine is in operation the tips 23 of the blades 22 are connected together by the king bolt 24 passing through the lugs or ears 25 which are formed integral with the ends of the blades as best illustrated in Figures 2 and 9.

When the machine is not in operation the king bolt is withdrawn from the ears 25 and the blades and columns 19 are revolved to the position illustrated by the broken lines in Figure 2 and full lines in Figures 7 and 8. After the blades have been rotated to this position the blades and columns are raised by the action of a hydraulic or pneumatic piston.

A lug 19A is formed integral with each column 19 and is adapted to enter between the lugs or ears 19B forming part of each bracket 16, and a locking pin 19C is passed therethrough holding the said blade 22 in a raised position above the ground surface while the machine is not in use. The piston rod 26 is secured to the column 19 by way of the cap plate 27 which is secured to the piston rod 26 by the lock nuts 28, referring to Fig. 10. The plate 27 is in turn removably secured to the flange 19G of the column 19.

I will now describe the operation of my new and improved foul ballasting machine. The machine is wheeled over the rails and ties, as illustrated in Figures 1, 2, 3 and 4, the supporting wheels running upon the shoulder of the road bed. Suitable jacks 29 and 29A of standard manufacture are brought in to place as illustrated in Figure 1. These jacks raise the rails 14 and ties 15 as illustrated.

The ends 23 of the scraper blades 22 are brought together and locked in the position illustrated, particularly in Figure 2 by the king bolt 24. The blades 22, by way of the columns 19, are lowered to the desired depth as below the foul ballast, usually on a line with the bottom 30 of the tie beds. The machine is then moved forward by its own power forcing the ballast by way of the blades 22 beyond the ends of the ties



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on to the shoulders of the road bed or slightly beyond said shoulders, thereby removing the said foul ballast so that the ties may be re-bedded with new ballast.

In some cases the blades may cut the ballast away somewhat below the old tie beds so that new ballast can be put completely under the ties providing a new tie bed under the said ties.

When the ballast has been removed or levelled off, the jacks 29 and 29A are moved to raise another section of the track and ties for levelling the ballast.

When it is desired to move the ballast machine from the track, the king pin 24 is removed, the blades are swung outwardly as shown in the broken lines in Figure 2, and fluid is then applied to the hydraulic cylinders raising the said blades to the position as indicated in Figures 7 and 8 where they are locked by the bolts 19C inserted in the lugs 19A and 19B and thereby supporting the weight of the said columns 19 and blades 22. The machine then can be moved over and along the track and turned off the same by its own power.

Although certain specific embodiments of the invention have been shown and described, it is obvious that many modifications thereof are possible. The invention, therefore, is not to be restricted except in so far as is necessitated by the prior art and by the spirit of the appended claims.

What I claim is:

1. A ballast removing machine, comprising a frame supported on wheels located beyond the sides of the railroad tracks, brackets formed with bearings on each side the frame, bars depending from and rotatably mounted in the bearings, scrapers secured to the lower ends of the bars,

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hydraulic motors including depending piston rods on the frame in alignment with the bars, the upper end of each bar having a plate formed with an opening, the lower ends of the piston rods being threaded and passed through the openings in the plates, nuts on the threaded ends of the piston rods to engage the upper and lower surfaces of the plates to clamp the piston rods to the bars, the piston rods and bars being rotatable in the associated bracket bearing, detachable means at the forward ends of the scrapers to lock the scrapers together when said scrapers are swung into V formation for scraping, and means between the bars and the brackets to secure the scrapers in elevated position when the detachable means between the scrapers is released and the scrapers swung outwardly to a position parallel with the frame.

2. A ballast moving machine, as defined in claim 1, wherein the means between the bars and the brackets to secure the brackets in elevated position consists of a lug on the rear ends of each bar, flanges on the brackets, and bolts engaging the lugs and flanges.

LEE A. PERIER.

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