

No. 717,224.

Patented Dec. 30, 1902.

W. L. LE MAITRE, F. G. W. PARKER & E. RHODES.

APPLIANCE FOR FIXING THE UPPER OR WEARING PORTIONS OF COMPOUND  
TRAMWAY RAILS ONTO THEIR BASES, &c.

(No Model.)

(Application filed July 22, 1902.)

2 Sheets—Sheet 1.

FIG. 1.

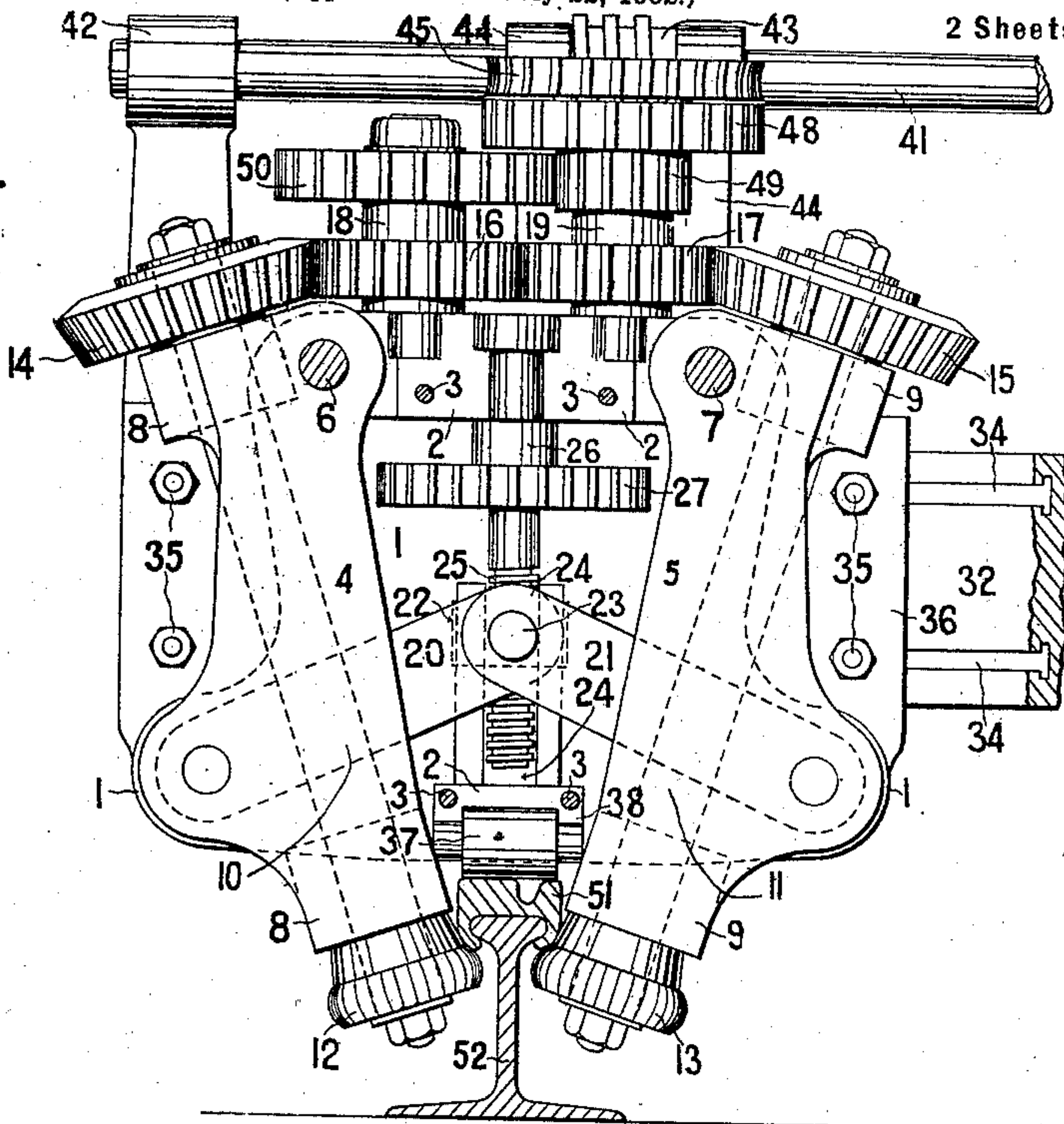
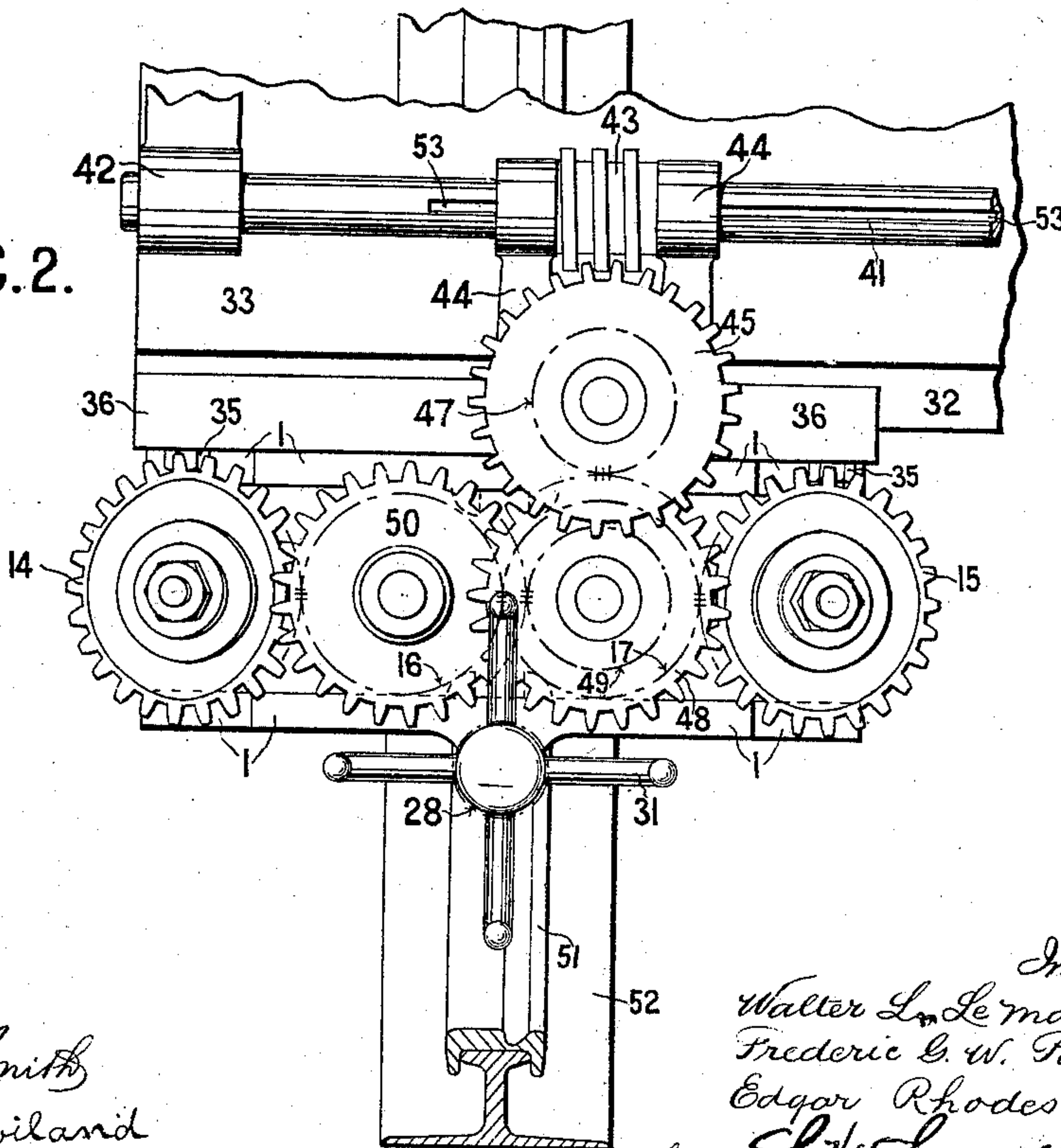


FIG. 2.



Witnesses

Chas. H. Smith

S. T. Haviland

Inventors

Walter L. Le Maitre

Frederic G. W. Parker

Edgar Rhodes

for L. W. Surrell & Co. atty

No. 717,224.

Patented Dec. 30, 1902.

W. L. LE MAITRE, F. G. W. PARKER & E. RHODES.

APPLIANCE FOR FIXING THE UPPER OR WEARING PORTIONS OF COMPOUND  
TRAMWAY RAILS ONTO THEIR BASES, &c.

(No Model.)

(Application filed July 22, 1902.)

2 Sheets—Sheet 2.

FIG. 4.

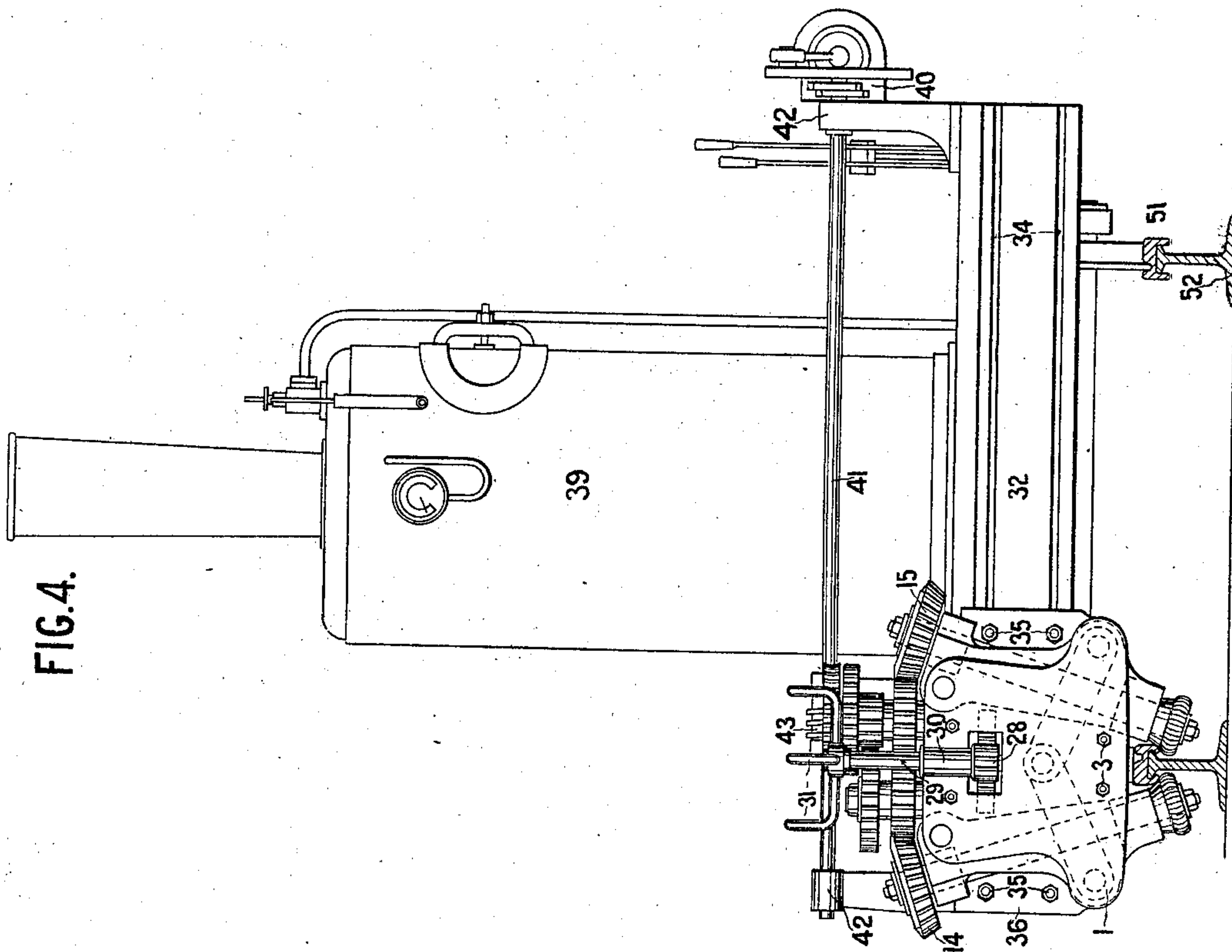
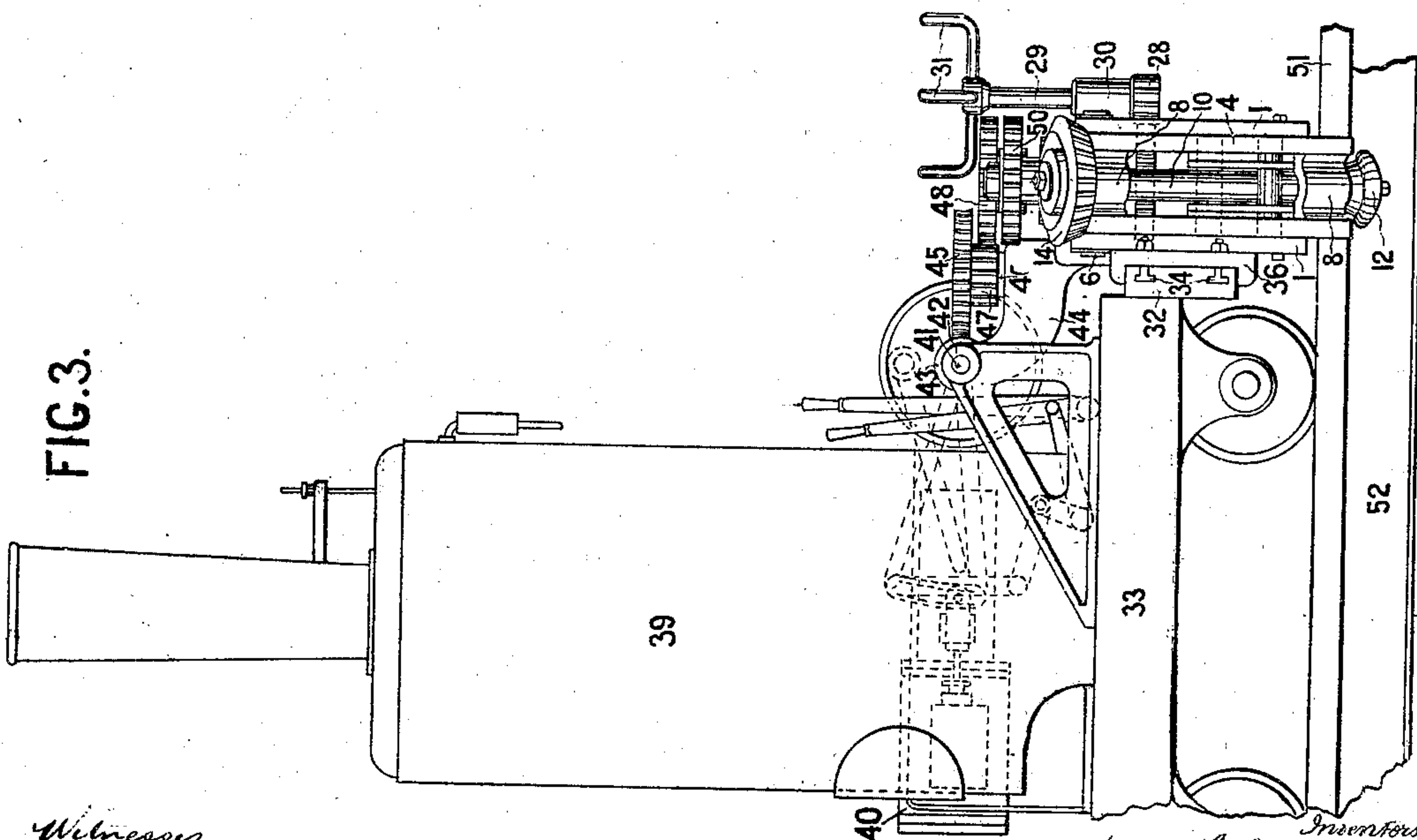


FIG. 3.



Witnesses

Chas. A. Smith

S. J. Harland

Inventors  
Walter L. Le Maître  
Frederic G. W. Parker  
Edgar Rhodes

for L. W. Serrell & Son atty.



# UNITED STATES PATENT OFFICE.

WALTER LORD LE MAITRE, FREDERIC GEORGE WILLIAM PARKER, AND  
EDGAR RHODES, OF LEEDS, ENGLAND.

APPLIANCE FOR FIXING THE UPPER OR WEARING PORTIONS OF COMPOUND TRAMWAY-RAILS ONTO THEIR  
BASES, &c.

SPECIFICATION forming part of Letters Patent No. 717,224, dated December 30, 1902.

Application filed July 22, 1902. Serial No. 116,498. (No model.)

*To all whom it may concern:*

Be it known that we, WALTER LORD LE MAITRE, FREDERIC GEORGE WILLIAM PARKER, and EDGAR RHODES, subjects of the King  
5 of Great Britain and Ireland, residing at Greek Street Chambers, Leeds, in the county of York, England, have invented a certain new and useful Appliance for Fixing the Upper or Wearing Portions of Compound Tramway-Rails onto their Base or Girder Portions,  
10 (for which we have made application for a patent in Great Britain, No. 9,175, bearing date April 21, 1902,) of which the following is a specification.

15 This invention relates to a new or improved appliance for fixing the upper or wearing portions of compound tramway-rails onto their base or girder portions in a speedy and efficient manner.

20 The appliance consists, essentially, of a carrying-frame in which two oppositely-situated arms are pivoted, each arm carrying a shaft provided with a serrated or roughened roller, located one on each side of the rail, which  
25 rollers are rotated against the depending flanges of the upper portion of the rail in such a manner as to force the said flanges inward around the head of the base or foundation portion, whereby the two portions of the rail  
30 are firmly connected together or mechanically welded.

In the drawings, Figure 1 is a sectional elevation, the front part of the frame having been removed, of an appliance constructed  
35 according to our invention applied to a compound tramway-rail; and Fig. 2 is a plan view of the same with the front part of the frame in position. Figs. 3 and 4 show in side and front elevations, respectively, to a reduced  
40 scale, an example of the general application of our appliance to compound tramway-rails.

The carrying-frame consists of two members 1 1, provided with internal projecting faces 2 2, which meet in the center and so re-  
45 tain the members 1 1 at the required distance apart, the said members constituting the frame being connected together by means of bolts 3 3 3 3. Between the frame and on opposite sides thereof two arms 4 5 are pivoted

on studs 6 7, and the said arms 4 5 are pro- 50  
vided with top and bottom bearings 8 8 9 9, in which are mounted shafts 10 11, respectively, carrying rollers 12 13 at their lower ends, which rollers are serrated or roughened on their peripheries, while the upper ends of 55  
the shafts 10 11 are respectively provided with gear-wheels 14 15. These wheels 14 15 engage intermediate gear-wheels 16 17, mounted on studs 18 19, respectively, the said gear-  
wheels 14 15 16 17 being driven by suitable 60  
speed-gearing, as hereinafter described, whereby the roller-shafts 10 11 are caused to rotate inward toward each other.

The pivoted arms 4 5 are connected by means of toggle-levers 20 21 to a central nut 65  
22, which latter is provided with exterior steadying-pins 23, which work in grooves 24, formed on the interior faces of the members 1 1 of the frame, and through the nut 22 is passed a screw 25, formed on a central shaft 26, the 70  
latter being provided with a spur-wheel 27, which gears with a spur-pinion 28, mounted on a shaft 29, carried in a bearing 30, provided on the front member 1 of the frame, and the said shaft 29 is formed with a hand 75  
operating-handle 31, through which and the connecting mechanism just described the arms 4 5 are drawn inward or forced outward at will on their pivots 6 7.

The appliance is mounted upon a face- 80  
plate 32 of a traveling bogie 33, the said face-plate having slots 34, provided with T-headed bolts 35, which pass through projecting flanges 36, formed on the back member 1 of the carrying-frame, whereby the latter is secured in 85  
position, and a guide-roller 37, mounted in stationary bearings 38, is provided at the base of the carrying-frame between its members 1 1.

The bogie 33 in addition to carrying the appliance carries a motor for driving the 90  
said appliance, consisting of a boiler 39 and an engine 40, which latter is provided with a driving-shaft 41, extending across the front of the bogie 33 and being carried in end bearings 42, attached to the platform of the said 95  
bogie. On the driving-shaft 41 is mounted a worm 43, located between the forked ends of a bracket 44, which latter is attached to the



back member 1 of the carrying-frame. This worm 43 gears with a worm-wheel 45, mounted on a stud 46 on the bracket 44, said wheel 45 being attached to a spur-pinion 47 on the same stud 46, and the pinion 47 gears with a spur-wheel 48, connected with a spur-pinion 49, both mounted on the stud 19, while the pinion 49 gears with a spur-wheel 50 on the stud 18, the wheels 50 and 16 being attached to each other, while the wheel 17 runs loose on its stud 19, whereby the desired rotary motion is imparted to the gear-wheels 14 15, shafts 10 11, and serrated rollers 12 13.

The operation of fixing the upper or wearing portions of compound tramway-rails to their base or foundation portions is as follows: The upper or wearing portions 51 of the rails, which are of channel-section, are placed on the heads of their base or girder portions 52, with the flanges of the said channel portions depending or hanging down over the heads of the base portions when the bogie 33 is placed upon the rails, the appliance being located over one of the rails, with its guide-roller 37 resting upon the upper surface of the rail and the serrated rollers 12 13 located one on each side of the said rail. The engine is now put in motion, whereby the serrated rollers 12 13 are caused to revolve through the medium of the speed-gear above described, when the said rollers 12 13 are drawn inward toward the depending flanges of the upper portion 51 of the rail by means of the hand operating-gear and toggle-levers 20 21, whereby the said depending flanges are bent inward and pressed firmly around the head of the base-rail 52, while at the same time the bogie 33, with its appliance, is caused to travel forward on the rails by the grip or frictional contact of the serrated rollers 12 13 on the flanges of the upper rail 51, the said rollers 12 13 of the appliance rolling and pressing the flanges of the top rail 51 inward around the head of the base-rail 52 as the machine travels along.

After one of a pair of rails has been treated in the manner above described the appliance may be transferred across the face-plate 32 of the bogie 33 into position to operate upon the other rail. To this end a keyway 53 is

formed in the driving-shaft 41, and the worm 43 is provided with a key engaging the said keyway, and on slackening the bolts 35 of the projecting flanges 36 of the appliance the latter is free to slide on the face-plate 32, the retaining-bolts 35 passing along in their slot-holes 34, while the worm is carried forward on the shaft 41 by the bracket 44.

If desired, the bogie 33 may be fitted with two rolling appliances of the above-described construction, one for each rail, whereby the depending flanges of the upper portions of both rails may be rolled around the heads of their base or foundation portions simultaneously.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. An appliance for the purpose specified, comprising a carrying-frame to which two oppositely-situated arms are pivoted, each arm carrying a shaft provided with a serrated or roughened roller, speed-gearing for rotating the said roller-shafts, toggle-actuating mechanism for rocking the said arms on their pivots, and a guide-roller at the base of the carrying-frame, substantially as described.

2. An appliance for the purpose specified, comprising a carrying-frame to which two oppositely-situated arms are pivoted, each arm carrying a shaft provided with a serrated or roughened roller, speed-gearing in connection with the said roller-shafts, toggle-actuating mechanism in connection with the pivoted arms, a guide-roller at the base of the carrying-frame, flanges formed on the said frame provided with fixing-bolts which engage a face-plate of a traveling bogie arranged to run on the rails, and a motor on the said bogie provided with a driving-shaft connected with the speed-gearing of the roller-shafts, substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

WALTER LORD LE MAITRE.

FREDERIC GEORGE WILLIAM PARKER.

EDGAR RHODES.

Witnesses:

JOHN JOWETT,

ROBERT J. LONGLEY.