United States Patent

Yard

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[54] PORTABLE WAGON SHIFTER

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[52] **U.S. Cl.** .....**105/90 A,** 105/26.1, 254/35

[51] **Int. Cl.**.....**B60s 9/22,** B61c 17/00, B61d 15/12

[58] **Field of Search**.....105/26, 26.1, 90, 90 A; 254/35

[56] **References Cited**

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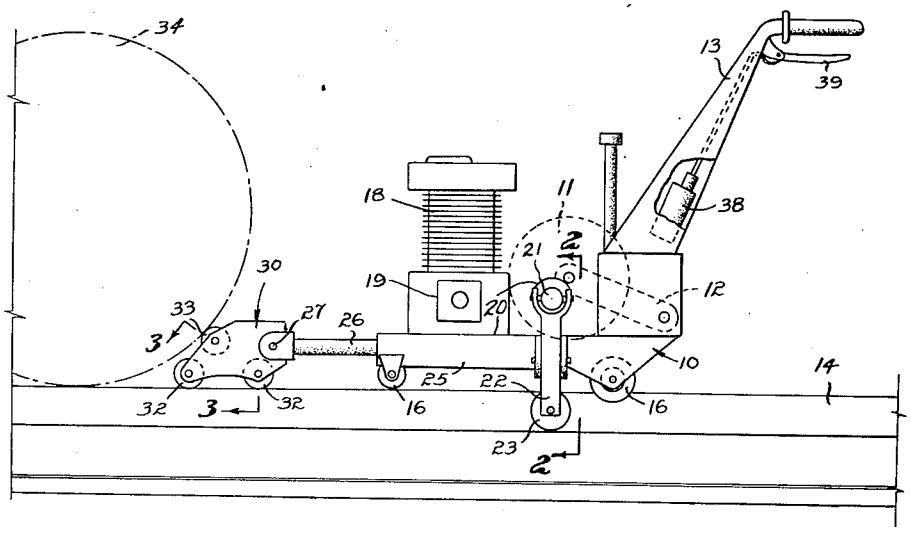
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[57] **ABSTRACT**

A wagon shifter or spotter arranged to run along a single rail of a railroad track and provided with a small wheel to engage the wheel of a wagon, the small wheel being carried on a hydraulic ram, and a further hydraulic ram arranged to grip the sides of the rail head, so that when the two rams operate simultaneously the rail is gripped and the wagon wheel is moved along the rail.

5 Claims, 3 Drawing Figures



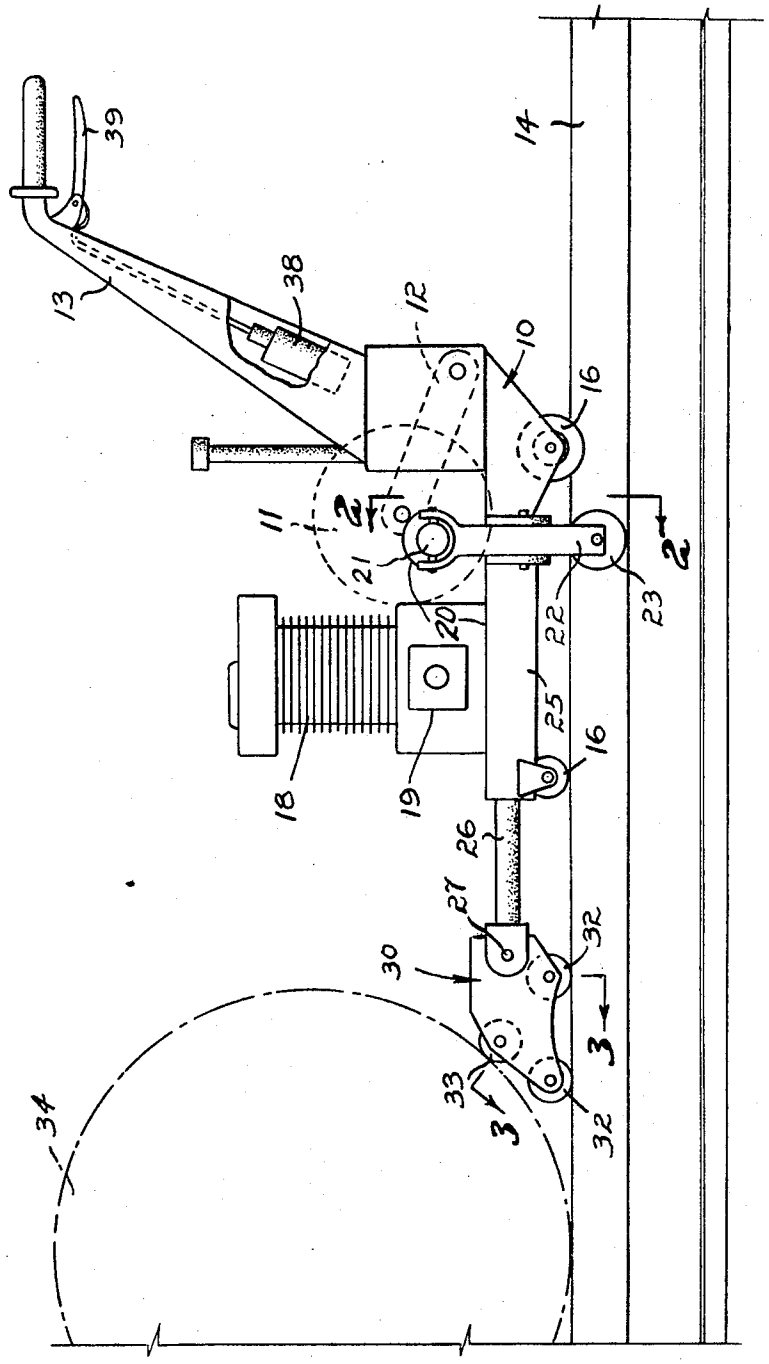


FIG 1

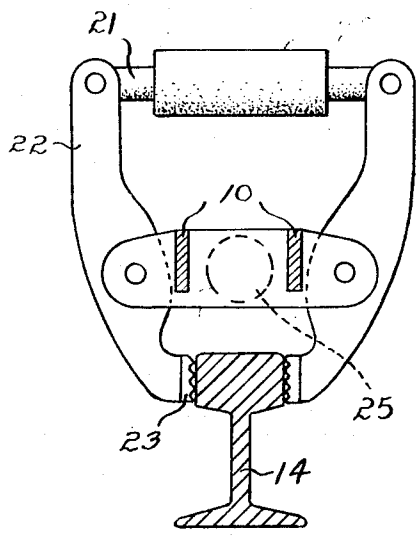


FIG 2

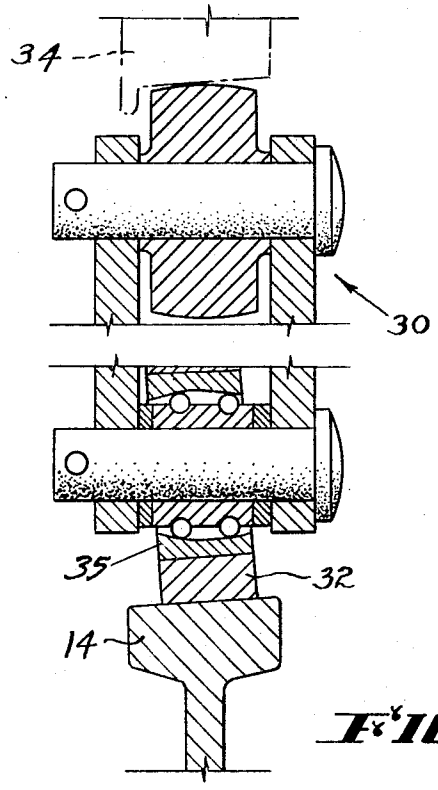


FIG 3

PORTABLE WAGON SHIFTER

This invention relates to a small hydraulically operated machine which is suitable for moving wagon trucks along a railway line.

In the handling of railway trucks there is frequently need to move one or a series of trucks a short distance, wherein the movement required does not warrant the use of a shunting vehicle, and previously this operation has been effected by hand. This, however, is both slow and tedious, and one of the main objects of this invention is to provide a simple but effective machine for the moving of railway wagons along a track.

The invention includes as a feature a mobile machine arranged to move along a railway track and being provided with rail clamping means and also with a thrusting device, the thrusting device being hydraulically operated.

By use of the invention a man may move (that is, "spot") railway trucks from one position to another by single operation of hydraulic valves, and with very small physical effort. This saves physical effort and at the same time makes it possible to move the trucks from one place to another very much more quickly.

An embodiment of the invention is described hereunder in some detail with reference to and is illustrated in the accompanying drawings, in which:

FIG. 1 is a side elevation of a wagon spotter (with its pneumatic wheels raised),

FIG. 2 is a part section of line 2—2 of FIG. 1, showing the rail engaging clamp, and

FIG. 3 is a part section on broken line 3—3 of FIG. 1, showing the head piece.

According to this embodiment a chassis **10** is carried on pneumatic tired wheels **11** on swinging arms **12** pivoted at their one end to the chassis **10**, thereby enabling the wheels **11** to be retractable, the chassis **10** also being provided with handles **13** so that it can be readily wheeled over rough ground on the pneumatic tired wheels **11** and placed over a rail **14**, whereupon the wheels can be retracted as shown in FIG. 1. The chassis is then supported on rail engaging wheels **16** which are arranged to engage the head of the rail **14**, whether that rail be the left hand or right hand rail. The chassis carries on it an engine **18** which drives a hydraulic pump **19**, and the chassis is also provided with a pair of hydraulic jacks having cylinders **20**. One of the two cylinders operates as a clamp cylinder **21**. The clamp cylinder is simply located between a pair of clamp arms **22** which pivot intermediate their ends (in a 2:1 ratio), and the lower ends of the clamp arms are provided with jaws **23** to engage the sides of the rail head. The second cylinder **25** constitutes a thrust ram and has its piston rod **26** extending forwardly from the chassis that is in a direction opposite the direction of the handles **13**. The front end of the thrust ram is provided with a thrust head piece **30** pivoted to a clevis **31** carried on the front end of the piston rod **26** by a pivot pin **27**, and the head piece **30** is provided with a pair of wheels **32** which engage the rail and a third wheel **33** disposed upwardly from the rail and arranged to engage the outer periphery of the wheel **34** of a wagon. The ram **26** functions as guide means guiding the thrust head piece for rectilinear movement. As shown in FIG. 3, the wheels **32** are supported by self-aligning ball races **35** which enable the device to be used on right or left hand rails.

Control of the rams is through a single hydraulic valve **38** and this in turn is controlled by a simple "on-off" lever **39** attached to one of the handles **13**, so that by simply pushing the chassis along the rail and moving the valve the chassis is clamped relative to the rail and the thrust ram then operates the head piece, to in turn urge a wagon wheel forwardly. The amount of thrust stroke can be varied by the operator to suit a

particular load which he is pushing, and also to suit variations in weight and construction. The height and length of the shifter or spotter are arranged so that the shifter or spotter can be positioned between two trucks after they have been uncoupled and can urge one group of trucks away from the other. It will, of course, be appreciated that wagon wheels are provided with a tread taper, and since the device should be usable on either left or right hand rails, the thrust head piece is provided with a wheel engaging roller of peripheral cross-sectional shape so as to engage only the center part of a wheel (see FIG. 3). Use is made of self-aligning rollers to accommodate the rail head variations, and the taper which exists on the tread (about one in 20) is also accommodated by the variations from normal alignment of the wheel engaging roller.

A brief consideration of the above embodiment will indicate that the invention enables rail wagons to be moved along a rail with a positive non-slip action on every stroke. It has been found practical to the machines of the type designed at speeds up to as high as 30 feet per minute when operated by a single man.

I claim:

1. A wagon shifter comprising a chassis, rail engaging wheels, means retaining the rail engaging wheels rotatable relative to and supporting the chassis, a rail engaging clamp carried on the chassis, clamp jaws on the rail engaging clamp positionable one on each side of the rail head to clamp side faces of a rail when said rail is supporting said rail engaging wheels, an hydraulic jack carried on the chassis having a cylinder with cylinder having a movable piston rod extending therefrom, a thrust head piece, means securing the thrust head piece to the piston rod, the hydraulic cylinder guiding the thrust head piece for horizontal rectilinear movement in the direction of the rail when said rail is supporting the rail engaging wheels, a pair of head piece support wheels supporting the head piece and arranged to engage the upper surface of the rail, and a further wheel on the thrust head piece arranged to engage the outer periphery of a wagon wheel when that wagon wheel is supported by the rail to thereby urge the wagon wheel along the rail upon operation of the hydraulic cylinder.

2. A wagon spotter according to claim 1 wherein said means securing the thrust head piece to the piston rod comprises a pivot pin interconnecting the outer end of the piston rod and the thrust head piece.

3. A wagon spotter according to claim 2 further comprising self-aligning bearings between the rail engaging wheels and the head piece, said further wheel on the head piece arranged to engage the outer periphery of said wagon wheel being positioned between and above said head piece support wheels.

4. A wagon spotter having a chassis, rail engaging wheels supporting the chassis, a pair of clamp arms pivoted intermediate their ends to the chassis, a clamp cylinder interconnecting corresponding ends of the clamp arms and jaws on the other ends of the clamp arms positionable one on each side of the head of a rail when said rail supports the rail engaging wheels, an hydraulic cylinder on the said chassis having its piston rod movable in the direction of said rail, a thrust head piece having head piece support wheels arranged to engage the upper surface of said rail, means connecting the head piece to an end of said piston rod, and a further wheel on the head piece substantially in vertical alignment with the rail engaging wheels thereon and engageable against the outer periphery of the wheel of a wagon when supported by said rail to move said wagon wheel when said hydraulic cylinder is actuated.

5. A wagon spotter according to claim 10 further comprising a single hydraulic valve and conduit means connecting the valve to both the rail clamp cylinder and the hydraulic thrust cylinder.

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