

W. N. ROWE.
AIR LIFTING DEVICE.
APPLICATION FILED NOV. 10, 1920.

1,392,451.

Patented Oct. 4, 1921.

3 SHEETS—SHEET 1.

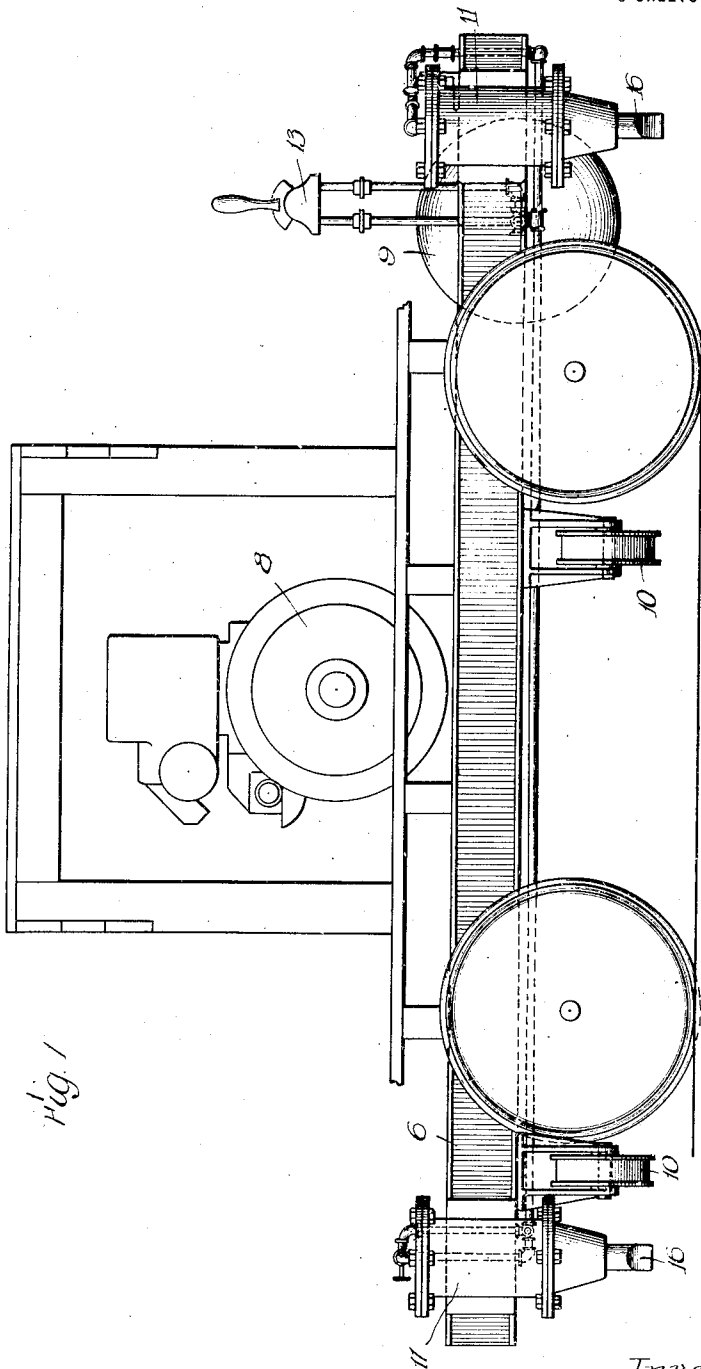


Fig. 1

Witness:

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By

Inventor:

William N. Rowe,

D. Anthony Kana

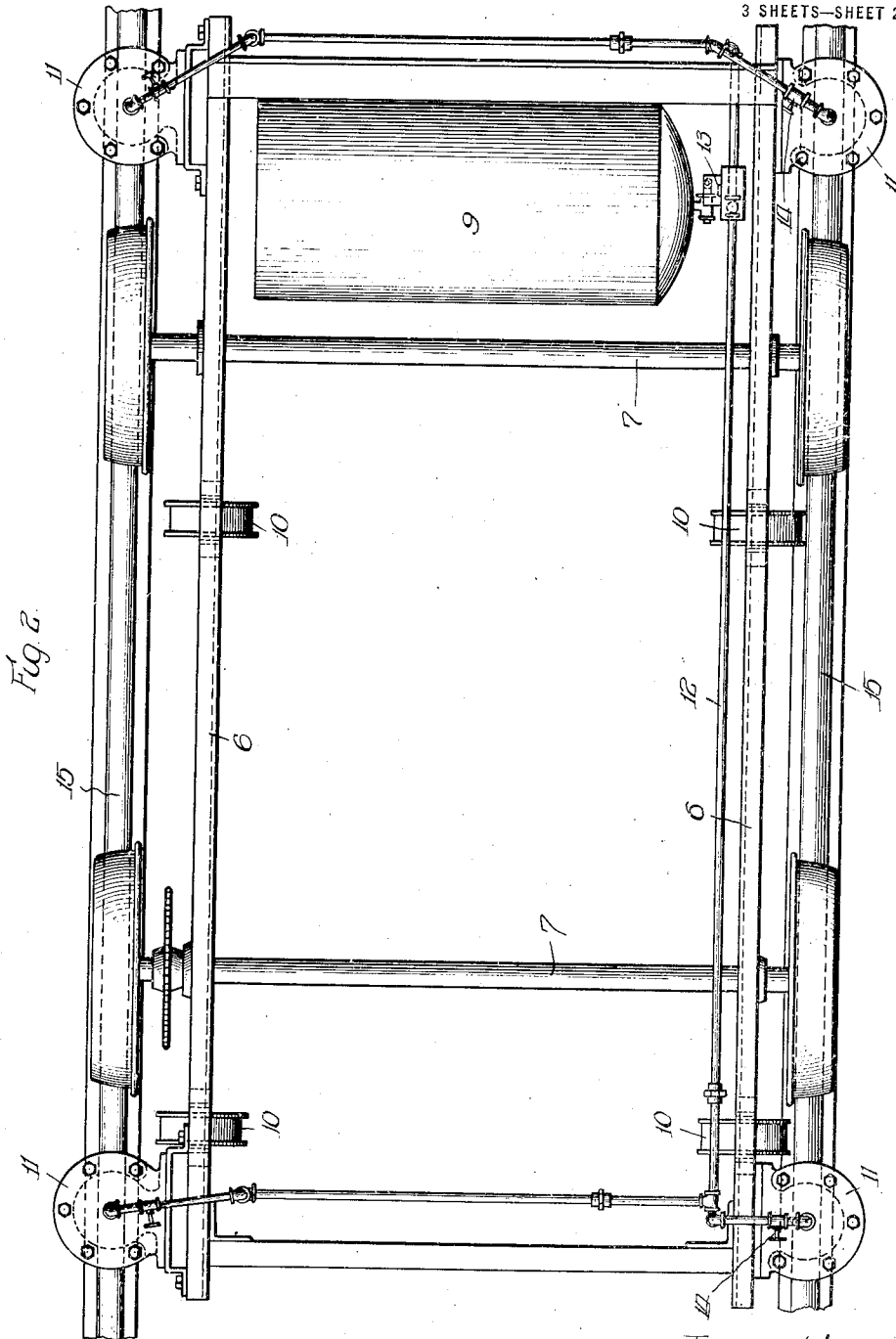
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3 SHEETS—SHEET 2.



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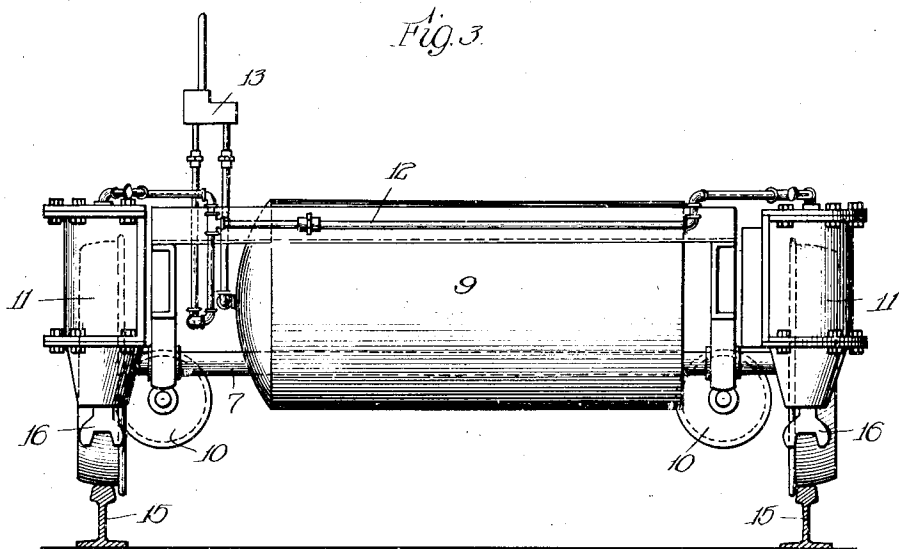


Fig. 4

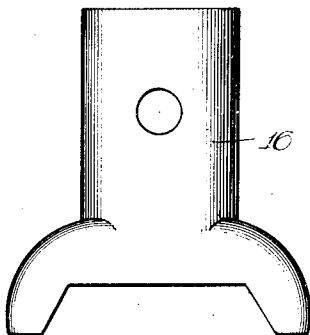
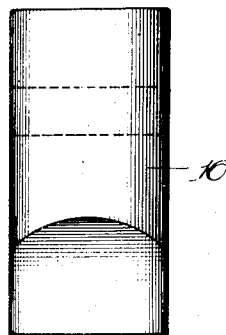


Fig. 5



Witness:
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UNITED STATES PATENT OFFICE.

WILLIAM N. ROWE, OF HIBBING, MINNESOTA.

AIR-LIFTING DEVICE.

1,392,451.

Specification of Letters Patent.

Patented Oct. 4, 1921.

Application filed November 10, 1920. Serial No. 423,145.

To all whom it may concern:

Be it known that I, WILLIAM N. ROWE, a citizen of the United States, residing at Hibbing, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Air-Lifting Devices, of which the following is a specification.

This invention relates to a new and improved method of lifting vehicles in order that they may clear tracks or other constructions. It is particularly adapted for use in connection with work vehicles used in connection with railroads. Work vehicles of this character are often provided with air receivers for use in connection with pneumatic tools and in some cases a gasoline driven air compressor is also mounted on the car. These cars in their use are run from place to place upon the standard gage railroad tracks, in some cases being driven by the gasoline engine. Upon arrival at the place where they are to be used, it is necessary that they be removed from the tracks for the purpose of permitting the tracks to be cleared for regular traffic.

Work cars of this character provided with engines and air containers or heavy machinery are exceedingly heavy and are difficult for a small number of men to handle. It is ordinarily necessary to raise them from the tracks sufficiently to permit transverse rails to be slipped under supplemental wheels so that the car may be rolled laterally. When replacing the car upon the track a similar amount of labor is involved. Furthermore, in emergencies an ability to remove the vehicle very rapidly is highly desirable.

It is an object of the present invention to provide means whereby vehicles of this type may be readily and quickly lifted from the track or replaced thereon without the necessity for excessive manual labor. It is also an object to provide means of this character which is rapid in its operation and simple in its construction. Other and further objects will appear as the description proceeds.

Broadly my invention comprises vertically placed cylinders and vertically moving pistons located adjacent the four corners of the vehicle. The pistons are preferably provided with shoes adapted to engage the rails although this is not essential as they may bear upon the ground. The pistons are

operated by compressed air transmitted from the air receivers carried by the car.

I have illustrated a preferred embodiment of my invention in the accompanying drawings in which—

Figure 1 is a side elevation of an air compressor car fitted with my invention;

Fig. 2 is a plan view of the car, the deck and upper machinery being omitted;

Fig. 3 is an end view of the car as shown in Fig. 2;

Fig. 4 is a front view on an enlarged scale of one of the track engaging shoes; and,

Fig. 5 is a side view of the device of Fig. 4.

As shown in the figures, the car comprises the frame 6 supported upon the axles 7, the latter carrying wheels rolling upon the standard track in the usual manner. As shown in Fig. 1 a floor or deck is carried by the car frame, and on this deck is located the gasoline engine 8 directly connected to an air compressor. The compressed air is contained in the receiver or tank 9 carried between the frame at one end. The car is provided with the transverse supplemental wheels 10 which extend below the frame but which clear the rails engaged by the main wheels.

According to my invention, the car is provided with the four cylinders 11 located adjacent its four corners, these cylinders being connected to the air receiver 9 by the pipe line 12. This pipe is provided with a main air valve 13 through which air may be admitted to the pipe line. Each cylinder is also provided with a supplemental valve 14 by means of which it may be cut off if it is not desired to operate all cylinders simultaneously. The pistons extend downwardly from the cylinders, their lower ends carrying a bifurcated shoe 16 adapted to engage the rail head 15 as best shown in Fig. 3. These shoes are shown in detail in Figs. 4 and 5.

In the normal use of my invention air is admitted to all of the cylinders and the car is thus lifted from the track at all four corners. Transverse rails are then placed across the main rails and under the supplemental wheels 10. The air is then released from the cylinders allowing the car to settle down and be carried on the transverse rails. It is then sufficiently high so that the main wheels will clear the track and it may be pushed transversely away from the track. When

it has entirely passed from the main track and has reached a suitable point, blocking is placed under the four pistons and air is admitted to the cylinders thus lifting the car from the transverse rails which may then be removed thus clearing the main railway track. Any suitable blocking or rails may be placed under the main wheels and the air released from the cylinders permitting the car to rest on the blocking or rails while the car is used at that point.

I have found in the practical use of this device that when the pistons are up the shoes 16 should clear the rails approximately three inches. I preferably provide a cylinder having a stroke of about ten inches, and thus when air is admitted to the cylinders the entire vehicle is raised about seven inches. This affords ample space between the main rails and the transverse wheels 10 so that transverse rails may be readily slipped into place. With my device heavy and fully loaded work vehicles may be readily and quickly removed from place upon the main line track with a minimum loss of time and without the necessity for any large amount of manual labor.

While I have described more or less precisely the details of construction of my invention, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form and the proportion of parts and substitution of equivalents as circumstances may suggest or render expedient, without departing from the spirit of my invention.

I claim:

1. In combination with a car adapted to run upon rails, main wheels running on the rails, and supplemental wheels, a source of compressed air carried by the car, air lines leading from said source to a plurality of air cylinders carried by the car and having pistons with portions adapted to lift the car vertically, said pistons being independent of said main and supplemental wheels.

2. In combination with a car normally supported by wheels adapted to run upon rails, a source of compressed air carried by the car, air lines leading from said source to a plurality of air cylinders carried by the car and having pistons with portions independent of the car wheels adapted to coact with said rails to lift the car vertically therefrom.

3. In combination with a car adapted to run upon rails, a source of compressed air carried by the car, air lines leading from said source to a plurality of air cylinders carried by the car and having pistons with portions adapted to coact with the rails to lift the car vertically therefrom, the car being provided with main wheels and with supplemental wheels adapted to run upon supplemental rails transverse of the rails coacting with the main wheels, the lifting pistons serving to lift the main wheels from the rails and to permit insertion of the supplemental rails under the auxiliary wheels.

Signed at Hibbing, Minnesota, this 3rd day of November, 1920.

WILLIAM N. ROWE.