

March 9, 1926.

R. A. MAXEY

1,576,204

PULLING JACK

Filed Dec. 6, 1923

Fig. 1.

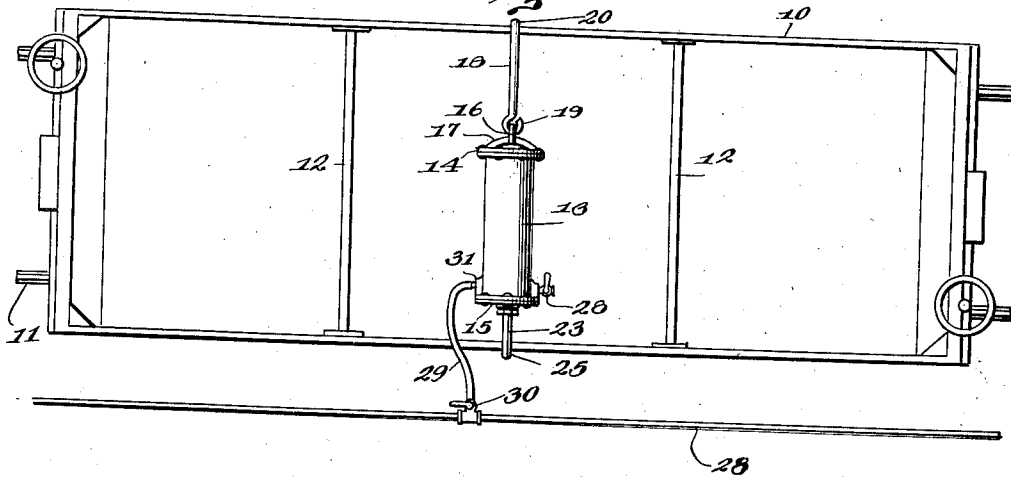


Fig. 2.

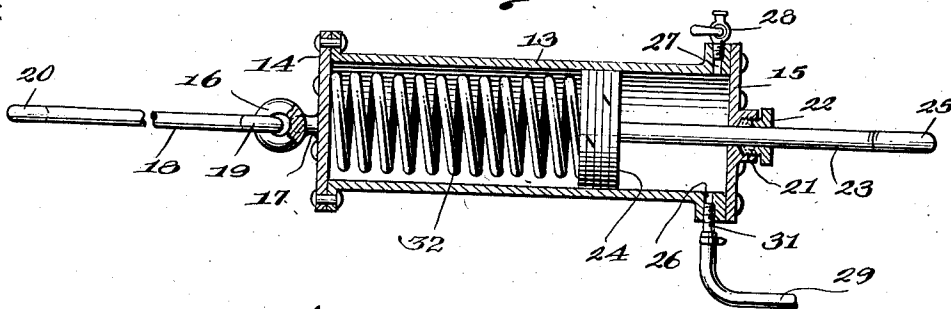


Fig. 3.

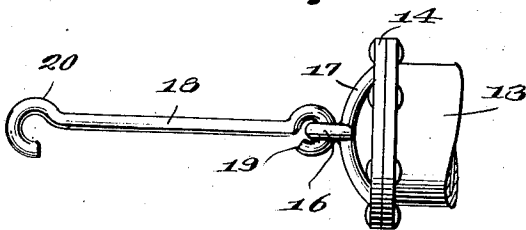
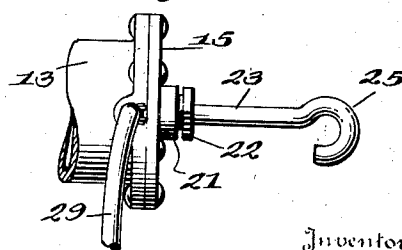


Fig. 4.



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UNITED STATES PATENT OFFICE.

ROBERT A. MAXEY, OF WILLIAMSON, WEST VIRGINIA.

PULLING JACK.

Application filed December 6, 1923. Serial No. 678,947.

To all whom it may concern:

Be it known that I, ROBERT A. MAXEY, a citizen of the United States, residing at Williamson, in the county of Mingo and State of West Virginia, have invented certain new and useful Improvements in Pulling Jacks, of which the following is a specification.

This invention has reference to a pulling jack adapted for all classes of structural work but used principally in repairing steel cars.

The object of the invention is to provide a simple and efficient device for straightening the top of steel cars that have been sprung apart and loosened from the tie beams by reason of overloading, jamming, or other causes and it is designed to replace the usual hand-operated screw puller commonly used for pulling in the top of steel cars to permit replacing the tie beams.

It is a further object of the invention to provide a jack of the type above specified which is adapted to be operated by compressed air and which can be adjusted to either long or short pulls. Other important advantages of the invention reside in the fact that it is capable of being easily handled, set up, or taken apart and the ease with which it may be manipulated to exert a pulling force on the top of the car undergoing repairs.

With the above and other objects in view, the invention consists in the particular arrangement, construction, and combination of parts hereinafter more fully described and referred to in the accompanying drawing, wherein:

Figure 1 is a top plan view of a steel car showing the invention applied thereto.

Figure 2 is an enlarged view of the invention, the cylinder being shown in section.

Figure 3 is a detailed view of one end of the jack, and

Figure 4 is a detailed view of the opposite end.

Describing the invention in detail, 10 designates a conventional railway car of the steel car type, the same being stationary on track 11. The tie beams, which provide the main support for the top of the car, are indicated at 12. Due to overloading and other causes, a majority of these cars, when turned in at the shop for repairs, are spread apart at the top from six to eight inches, more or

less, so that the tie beams become loosened and the device in use at the present time for pulling in the top of the cars for the purpose of replacing the tie beams is a screw puller used and operated by hand in a very slow and inconvenient manner. By the employment of a device constructed in accordance with the present invention, however, it is possible to replace the tie beams much more quickly than has been heretofore possible, in addition to making the work lighter and less inconvenient. To this end the invention includes a compressed air cylinder in which the barrel 13 has the cylinder heads 14 and 15 suitably fastened to each end thereof. Cylinder head 14 is provided with a ring 16 spaced outwardly from the outer face of the cylinder head formed integral therewith, as shown at 17. To the ring 16 is adapted to be engaged one of the pulling hooks or cables of the device. In the present instances the pulling hook is shown as comprising a straight bar 18 of iron or of other suitable metal having a double hook, one hook 19 being engaged with ring 16 and the other hook 20 being adapted to engage over the side of the car, as shown in Figure 1. It is, however, obvious that bar 18 may be replaced by a cable of any desired length, provided with additional hooks spaced at intervals to take up the slack on long pulls.

At the opposite end of the cylinder, the cylinder head 15 is provided with a bearing 21 and a packing gland 22 through which the plunger rod 23 is adapted to slide. At its inner end, rod 23 carries the plunger 24, and at its outer end is provided with a hook 25 adapted to be engaged with the opposite side of the car, as shown in Figure 1. Inwardly of the cylinder head 15, the barrel 13 is provided on one side with an air inlet 26 and on the opposite side with an outlet opening 27 in which is screwed the exhaust valve 28. Plunger 24 is normally positioned at the valved end of the cylinder by reason of a helically coiled spring 32 arranged between the cylinder head 14 and the adjacent face of the plunger.

Compressed air for operating the device is obtained from a suitable supply line 28 to which is connected a flexible hose 29, there being a valve 30 provided, as shown, for cutting off the feed of air to the device when so desired. At its opposite end, the hose 29 is provided with a threaded nipple 31, which is adapted to be threadedly engaged in the

inlet opening 26 of the cylinder. Hence, when the device is set up in operative position, with the hooks 20 and 25 engaged over the sides of the car to be repaired, and compressed air is admitted into the cylinder by way of opening 26, the pressure against plunger 24 and cylinder head 15 will cause the plunger and the cylinder to be moved relative to each other so that the hooks are drawn inwardly, thereby drawing together the sides of the car. When the sides have been pulled in the desired extent, valve 28 is opened to permit escape of air from the cylinder and thereby release the pressure therein.

From the foregoing it will be apparent that the compressed-air operated device provided by this invention offers a more convenient and efficient tool than the hand-operated screw devices in use at the present time for re-bending or straightening the sides of railway cars which have become distorted or bent out of shape. It is also apparent that the present invention is adapted to be applied with various modifications and alterations and it is, therefore, to be understood that minor changes in matters of construction and arrangement of the parts, etc., may

be resorted to, within the scope of the invention claimed.

What is claimed, is:

A device for straightening the top of a steel car including a cylinder presenting a stuffing box at one end and a ring at the other end, said cylinder being adapted to be disposed horizontally between the sides of the car, a pulling hook having one end secured to the said ring and its other end adapted to be hooked over the side of the car for anchoring the cylinder thereto, a plunger rod slidably supported in the said stuffing box and having its outer end provided with a hook adapted to be engaged with the opposite side of the car, a plunger at the inner end of the said plunger rod, a spring in expansion between the face of the plunger and the adjacent end of the cylinder and means for introducing fluid pressure into the cylinder and rearwardly of the plunger for moving the latter inwardly against the action of the said spring for drawing together the sides of the car.

In testimony whereof I affix my signature.

ROBERT A. MAXEY.