Dec. 10, 1935. A. E. ORMSBY ET AL 2,023,790

PORTABLE CRANE

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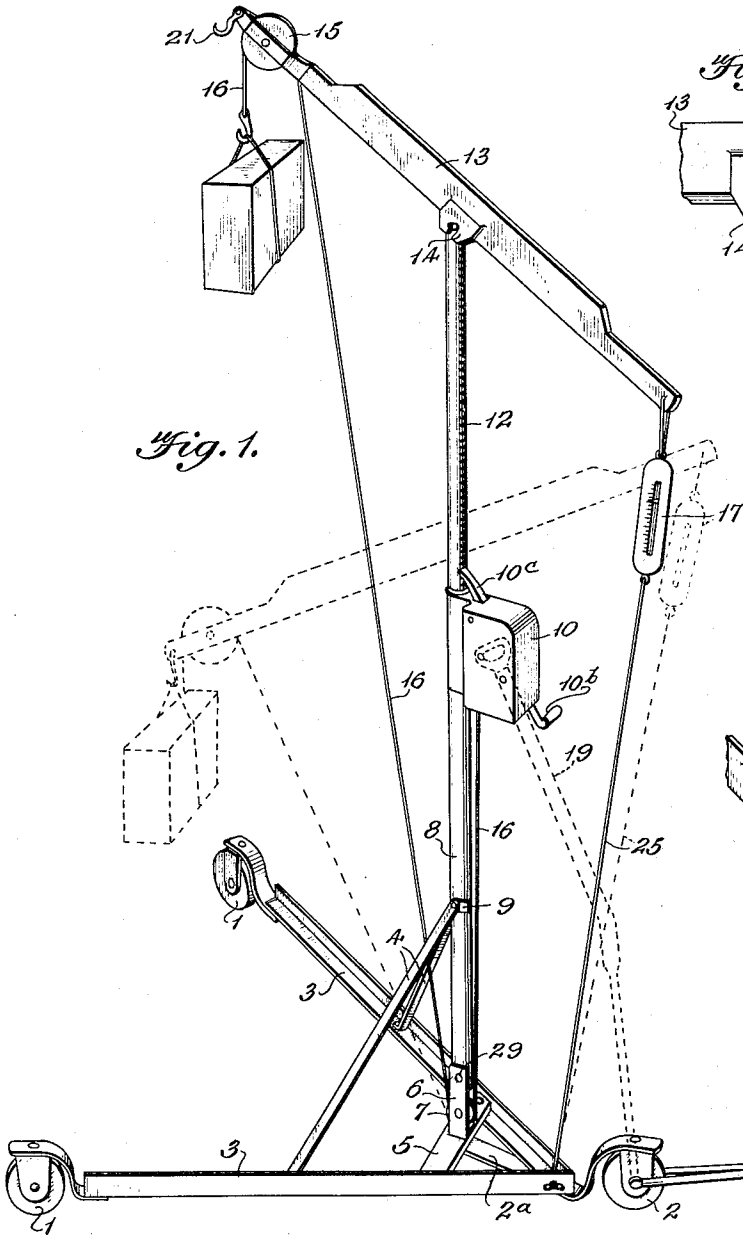
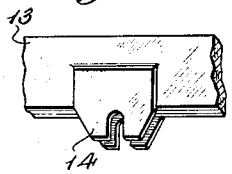


Fig. 1.

Fig. 3.



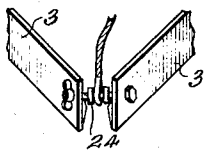
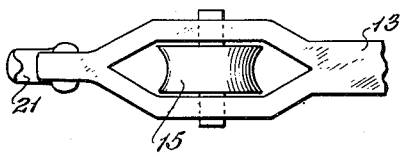


Fig. 10.

Fig. 9.



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Fig. 2.

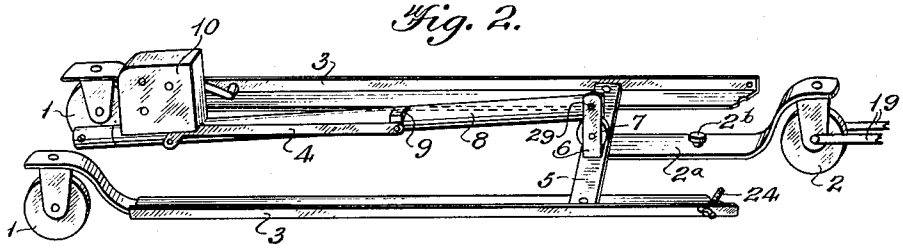


Fig. 6.

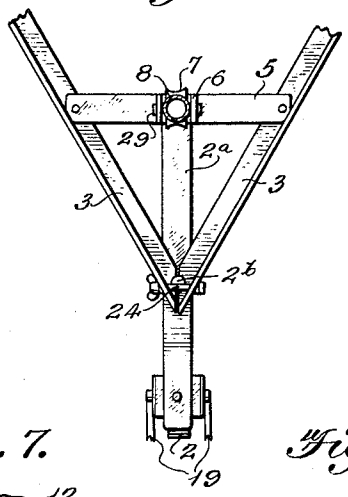


Fig. 4.

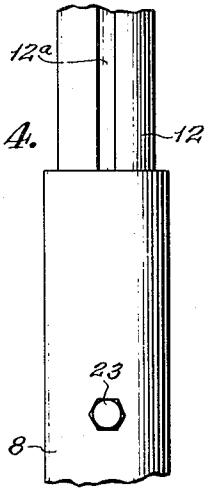


Fig. 7.

Fig. 8.

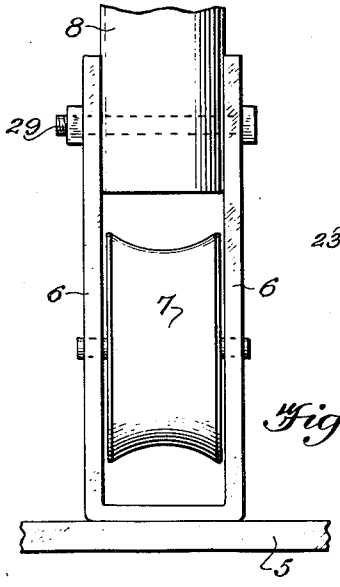
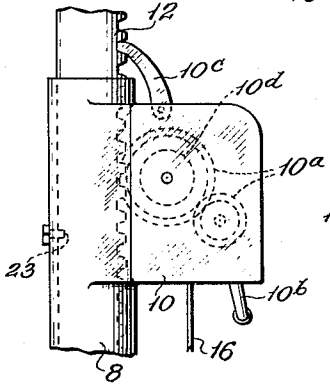
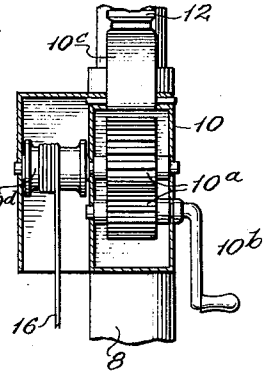


Fig. 5.





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PORTABLE CRANE

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Centerville, Calif.

Application April 2, 1935, Serial No. 14,359

3 Claims. (Cl. 212—140)

This invention relates to portable cranes or hoists for handling articles or materials. It is particularly useful for lifting and handling or transporting tires, automobile wheels and other relatively heavy articles which are ordinarily handled with difficulty by one man, but with which the services of two men are ordinarily too expensive or unnecessary.

The principal object of the invention, therefore, is to provide what may be termed a one man portable crane or hoist, which can be used and moved around conveniently by one man.

A further object of the invention is to provide a folding crane or hoist of this type, which can be knocked down or folded into small compass for storage or transportation.

A further object is to provide an improved quick adjustment for height in such a type of crane, so that it can be readily applied to work of different kinds.

A further object is to provide a scale attachment which will indicate the weight of the article being handled.

A further object is to provide an improved device of the type employing a hoisting cable and crank gear operating device.

With these and other objects in view, one form of the invention is illustrated in the accompanying drawings in which Fig. 1 is a perspective view of the crane in elevating position.

Fig. 2 is a similar view of some of the parts in folded position. Fig. 3 is a detail of the rocker beam bearing. Fig. 4 is a detail, enlarged of the rack bar and standard adjustment. Fig. 5 is a detail of the connection at the foot of the standard. Fig. 6 is a detail in plan of part of the base construction. Figs. 7 and 8 are details of the rack bar and gear hoist. Fig. 9 is a detail of one end of the rocker beam. Fig. 10 is a detail of the detachable connection between the base members.

Referring particularly to the drawings, the base comprises a pair of angle bars 3, which may be arranged to form a V, as shown in Fig. 1, when the crane is in use, or which may be swung to parallel position, as shown in Fig. 2, when the crane is folded. At their rear or outer ends each bar is provided with a caster wheel 1. The bars are connected near their front ends by a cross bar 5 to which is connected a bar or frame 2a which carries a caster wheel 2 to which a handle bar 19 is connected so that the crane can be pulled or pushed around from place to place. The bar 2a is assembled with the bars 3 by means of a pin 2b on the bar 2a which fits in notches in the lower flange at the front end of the bars 3, and said ends are connected by a stout bolt 24 provided with a wing nut for drawing the ends together while permitting the ends to be separated when desired, as shown in Fig. 2.

Secured to the top surface of the bar 5 is a U connection 6 between the branches of which is mounted a pulley 7 and to the upper ends of which is connected a standard 8 by pivot bolt 29. Braces 4 are secured to the base bars 3 and are connected at their upper ends by bolts to a cross piece 9 welded or otherwise secured to the tubular standard 8. The standard may be folded down by removing the bolts.

Fixed to the upper end of the tubular standard 8 is a housing 10 supporting reduction or larger and smaller gears 10a the shaft of the latter of which is provided with a hand crank 10b. The larger gear meshes with an extensible rack bar 12 which slides up and down in the tubular standard 8 and is prevented from turning by a stud 23 projecting into a groove 12a at the back of the rack bar. A pawl 10c is pivoted in the casing 10 and may be engaged with the rack to hold the bar at the desired height and to provide for a quick adjustment. The shaft of the larger gear 10a is provided with a drum 10d on which winds a cable 16 which extends thence around the pulley 7 and around another pulley 15 at one end of a rocker beam 13, and the free end of the cable has a hook 22 for engaging the load. The pulley 15 is set in a yoke in the end of the rocker beam 13, as shown in Fig. 9; and said beam may also be provided with a hook 21 for direct engagement with a sling or load.

The rocker beam 13 has a detachable pivotal connection with the top of the rack bar 12 by means of notches and cross piece 14 which fits in said notches to permit rocking movement of the beam. The other end of the rocker beam is connected by a cable or chain 25 to the bolt 24, and a scale 17 may be interposed to weigh the load.

When the device is set up, as shown in Fig. 1, the rack bar 12 may be quickly adjusted for height, by means of the pawl 10c and the load connected to the cable 16. Then by operation of the gear and hand crank the cable is wound on the drum 10d and by the same movement the rocking beam is swung on its pivot to hoist the load by the action of the winding drum and the rocking of the beam. The load supported in this position can be moved from place to place by pulling the truck, and so brought to the desired position according to the operation to be effected. By releasing the detent and slacking off on the

cable by means of the gear and crank the load can then be lowered.

When it is desired to fold or knock down the crane the beam 13 can be lifted off and by disconnecting the bolts at the connection 9 the standard and rack bar can be folded down on the pivot 20, as shown in Fig. 2, and the whole device pushed under a bench or any suitable place, the bolt 24 being also disconnected to permit the bars 3 to be swung to parallel position.

The whole forms a very convenient and simple crane for shop operations and is capable of being handled and operated by one man, and the particular nature of the device permits loads to be moved from place to place without additional or overhead rigging which is limited with respect to use and position.

We claim:

1. A base for a portable crane comprising a pair of wheeled base bars, a cross bar to which they are pivoted, a detachable connection at the front end of the base bars, whereby they may be adjusted to angular or parallel position, a wheeled frame engaged by the base bars when adjusted to angular position and provided with a handle, and hoisting devices mounted on the cross bar.

2. The combination stated in claim 1, the hoisting devices including a standard hinged to the cross bar, and a pair of detachable brace bars between the base bars and the standard.

3. A portable crane comprising a pair of wheeled base bars, a cross bar to which they are pivoted, a folding standard hinged at its lower end to the cross bar, detachable brace bars between the base bars and the standard, a rack bar slidable up and down on the standard, a rocker beam mounted between its ends on the upper end of the rack bar, a cable extending over one end of the rocker beam, a hoisting gear supported on the standard and operatively connected to the rack bar and the cable, and a connection between the other end of the rocker beam and the base of the truck.

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