T. N. GARSON.

CRANE.

APPLICATION FILED SEPT. 13, 1916.

1,228,659. Patented June 5, 1917.

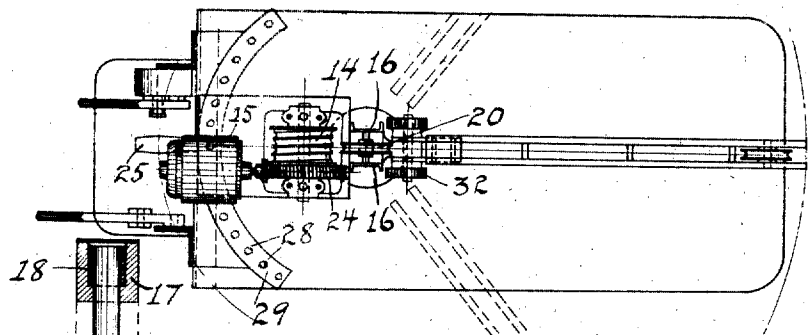


Fig. 1.

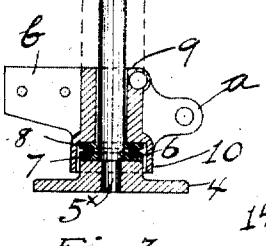


Fig. 3.

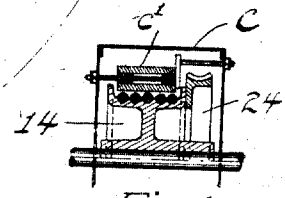


Fig. 4.

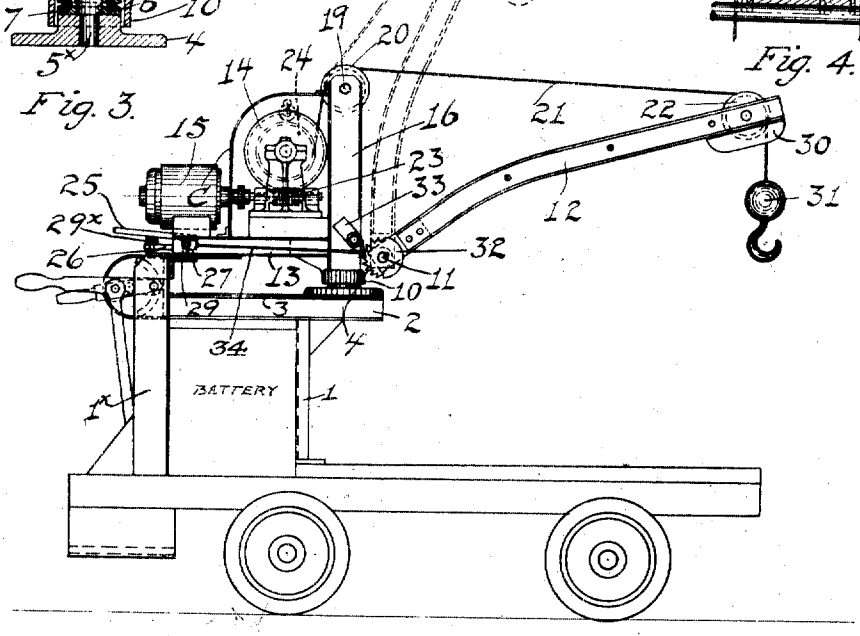


Fig. 2.

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CRANE.

1,228,659. Specification of Letters Patent. Patented June 5, 1917.

Application filed September 13, 1916. Serial No. 119,816.

To all whom it may concern:

Be it known that I, THORVALD N. GARSON, a citizen of the United States, residing at Greenville, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Cranes, of which the following is a specification.

This invention relates to portable cranes, and has for its object to provide a light, efficient and easily controlled crane especially adapted for hoisting and distributing about the platform upon which it is mounted, a plurality of relatively small but heavy packages or articles, such as castings and the like, the crane being so mounted and balanced that with its load it may be swung upon a bearing shaft by a single operator.

In the drawings, Figure 1 is a diagrammatic plan view of the improvements;

Fig. 2 is a side elevation of the improvements mounted upon a wheeled truck;

Fig. 3 is a detail sectional view of the bearing shaft and connections; and

Fig. 4 is a detail sectional view of certain parts of the improvements, including the hoisting drum and a rope guide employed therewith.

In the present embodiment of the invention the crane is mounted upon a wheeled truck, the supporting frame for the crane being disposed at the rear end of the truck so as to retain the maximum free space thereon for the reception of the articles to be hoisted and transported. The supporting frame for the crane comprises four or more standards, of which two, 1, 1^x, are illustrated in Fig. 2, the standards being connected at their upper ends by cross bars 2 upon which rest table 3. Secured on the upper surface of the table is the flanged base of a bearing block 4 apertured to receive the reduced lower end 5^x of a vertical shaft 5 which affords a bearing support for the elements of the crane. Surrounding the shaft and resting upon the top of block 4, is the hardened steel bearing disk 6 which serves as one of two ball retaining members, a series of rollers or ball bearings 7 being disposed intermediate its upper face and the second ball retaining member 8, the latter being a hardened steel disk formed with a flat upper surface for the reception of the lower bracket sleeve 9, the latter being formed with a depending flange 10 which serves as a protecting cap for the bearing disks. Bracket sleeve 9 is formed with a forwardly projecting arm *a* which is apertured to receive the fulcrum pin 11 for the boom 12. A second arm *b* projects rearwardly from bracket sleeve 9 and has rigidly secured thereto one or a plurality of horizontally disposed arms 13 which carry the hoisting drum 14 and the motor 15 which drives the same. Bracket sleeve 9 is connected by means of two plates 16 (one being illustrated in Fig. 2) with an upper side bearing 17 embracing the shaft 5 and formed with a cup to receive a lubricating compound 18. Plates 16 extend above the bearing 17 and are formed with alined apertures to receive the supporting pin 19 of a guide wheel 20 for the hoisting rope 21, the latter being led over an idler pulley or sheave 22 at the end of the boom, and at its rear end being connected with drum 14. The drum is driven by the motor 15 through worm 23 and worm wheel 24, and is covered by a dust-proof casing C which serves as a support for a guide roller *c'* and acts to prevent the hoisting rope 21 from becoming displaced with respect to the peripheral holding face of the drum.

It will be seen from the foregoing, that the crane elements are so arranged with respect to the shaft 5 that the load may be moved about the shaft with slight effort on the part of the operator. This follows, because the hoisting drum, motor and driving elements, are mounted upon the bracket arm *b* at one side of the shaft and the boom is mounted upon the bracket arm *a* at the opposite side of the shaft so that the weight of the load is balanced by the weight of the motor and drum. A handle 25 is secured to a bracket 26 on the motor supporting frame so that the boom may be swung by the operator, and the handle also controls a locking pin 27 arranged to enter apertures 28 in a segment bar 29 to hold the crane from turning when it is placed in a desired position. To this end, the pin 27 is carried by one end of the handle and may be elevated out of locking position by depression of the handle against the stress of spring 29^x.

One of the primary objects of the invention is the provision of means whereby a single operator is enabled to hoist and distribute about the truck platform longitudinally thereof, a plurality of heavy articles, such as castings, and with the employment of a single drum and hoisting rope. To this end, the hoisting rope itself is utilized

both to hoist and lower the load and to control the elevated position of the boom; also means are provided for locking the boom in the desired elevated position so that the hoisting rope may be lowered without affecting the position of the boom, as now to be described.

Secured upon the lower face of the boom at its outer end is a wear guard 30 adapted to be engaged by a ball or other contact device 31 fixed upon the hoisting rope 21. When the load has been hoisted above the upper face of the truck, the hoisting rope in its continued movement will carry ball 31 into contact with the wear block, and further movement of the hoisting rope will cause said ball to lift the boom, as illustrated by dotted lines in Fig. 2. Assuming that the forward portion of the truck is covered with articles, the boom, by the aforesaid means, may be swung upwardly to carry the load rearwardly and above a clear space on the truck. Fixed upon the boom at its lower end is a ratchet disk 32 which is engaged by a pawl 33 supported on one of the two plates 16. Pawl 33 is weighted at its outer end so that it tends to swing into engagement with the teeth of ratchet disk 32 and to hold the boom against downward movement, while permitting its upward movement. Thus, the boom is held in its elevated position and the movement of drum 14 may now be reversed to lower the hoisting rope and its load. A pull rod 34 is connected with the pawl so that the operator may move the latter out of engagement with the teeth of ratchet disk 32 and permit the boom to be lowered.

What I claim and desire to secure by Letters Patent of the United States is:—

In a crane the combination with a support, of a hoisting drum and driving means therefor, a boom pivotally mounted upon the support, a hoisting rope connected with the drum and led over the end of the boom, a contact device carried by the hoisting rope and adapted to engage the boom to elevate the same when the hoisting rope is wound a predetermined length on the drum, and two interengaging members at the base of the boom for automatically locking the latter in its elevated position to permit a reverse movement of the hoisting rope, one of said members being carried by the boom and the second member being carried by the support.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

THORVALD N. GARSON.

Witnesses:
W. Lee Helms,
A. C. Wiechers.