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T. N. GARSON

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DRUM OPERATING MECHANISM FOR PORTABLE CRANES

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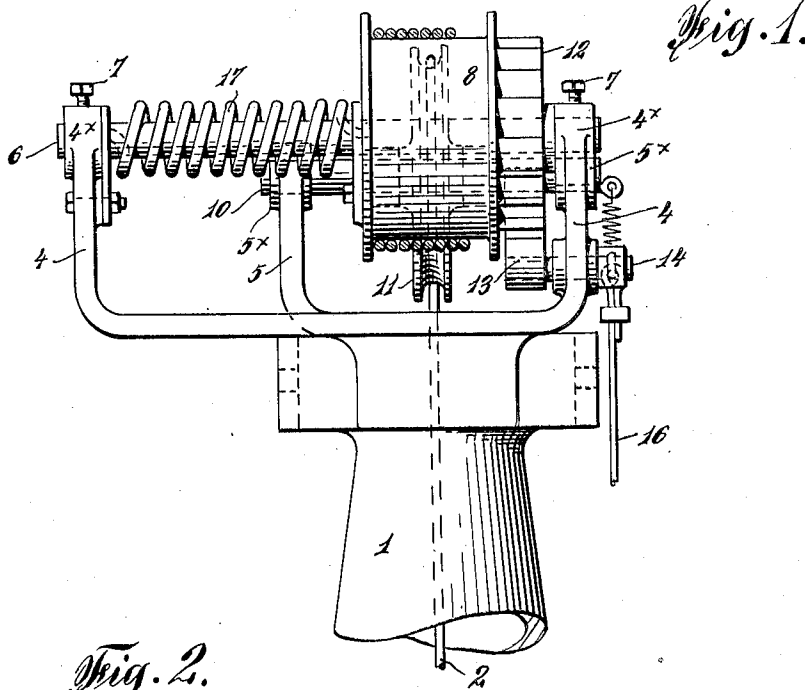
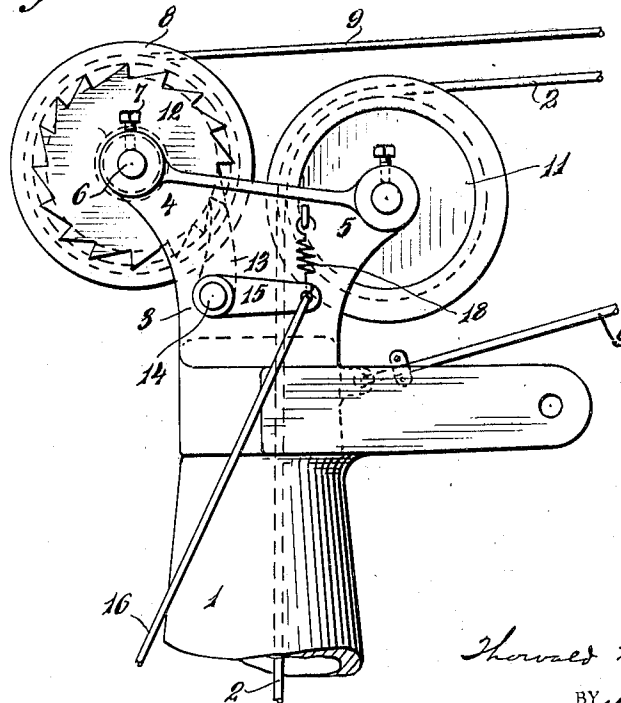


Fig. 2.



INVENTOR
Thomas N. Garson
BY *W. Lee Nelson*
ATTORNEY

UNITED STATES PATENT OFFICE

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DRUM OPERATING MECHANISM FOR
PORTABLE CRANESThorvald N. Garson, New Brighton, Staten Island,
N. Y.Original application January 25, 1932, Serial No.
588,645. Divided and this application July 25,
1932, Serial No. 624,501

1 Claim. (Cl. 242—109)

This invention relates to drum operating mechanism, particularly adapted for portable cranes of the type mounted upon movable structures, for example, a tractor. The present application is a division of my application filed January 25, 1932, Serial No. 588,645.

The invention is more particularly related to means for controlling a latching rope which, in practice, will be connected to a boom raised by a hoist rope to the desired position, said controlling means, through the latching rope, automatically holding the boom in any position to which it may be raised.

The invention will be described with reference to the accompanying drawing in which

Fig. 1 is a rear elevation of an embodiment of the invention.

Fig. 2 is a side elevation of the same.

Referring to the drawing, I have shown a standard 1 which is hollow and through which passes a hoist rope 2. As shown by my application, Serial No. 588,645, of which the present is a division, the standard 1 will afford a pivotal support for a boom.

Mounted upon the upper end of the standard, either integrally therewith or secured as a bearing member, is a bracket member 3 having two sets of spaced arms, one set being indicated at 4 and a second set at 5.

Each of arms 4 is formed with a bearing boss 4x to receive a shaft 6 and set screws 7 may be employed for holding the shaft in fixed position.

Upon shaft 6 is rotatably mounted a drum 8 upon which is wound latching rope 9 which may be connected to a boom (not shown).

Arms 5 carry bearing bosses 5x which receive a second shaft 10 upon which is mounted, for rotation, a pulley 11 over which hoist rope 2 is led.

One face of drum 8 is fixed to a ratchet wheel 12 adapted to be engaged by a pawl 13 fixed upon a shaft 14 carried by the bracket 3. Shaft 14 has fixed thereto a pawl lever 15 which may be operated by rod 16 leading to a handle or pedal (not shown).

It will be seen that bracket arms 4 are widely spaced relatively to the width of the drum so that a section of the shaft is exposed intermediate one face of the drum and the opposite bracket arm. The said exposed section of the shaft receives a spiral spring 17, one end of the spring being carried by the drum, more particularly shown in Fig. 1, and the other end of the spring being fixed to one of the bracket arms 4. Thus, when drum 8 is rotated by the pulling out of latching rope 9, spring 17 will be wound and will exert a gradually increasing tension upon the drum. When the latching rope is released by the lifting of the boom, spring 17 will act to rotate the drum and wind in the latching rope,

the ratchet wheel slipping over the end of pawl 13, the latter being held in position by a spring 18 engaging lever 15. Thus, if the hoist rope is reversed, the boom will still be held in its elevated position by the latching rope and the ratchet elements applied to drum 8.

Spring 17 may be so related to the boom that when the boom is in its maximum upward position, the spring will have the minimum effect upon drum 8, and therefore when the boom is lowered, latching rope 9 will immediately rotate the drum in clockwise rotation to wind the spring. Inasmuch as spring 17 is disposed exteriorly of the drum, in case of breakage, a new spring may be placed in position without disturbing the drum, since shaft 6 may be moved endwise in a direction toward the drum, the old spring being moved from the left-hand end of the shaft, Fig. 1, and a new spring readily placed in position.

It will be understood that the relative proportions shown in the drawing are for purposes of illustration only. Thus, the spring may be of substantially greater diameter than that illustrated in Fig. 1, and the turns of relatively greater spacing when the boom is raised, the exact arrangement being dependent upon the sweep of the boom, the degree of rotation of the drum, etc.

Having described my invention, what I claim and desire to secure by Letters Patent, is as follows:—

In portable cranes, drum-operated latching means comprising a hollow standard adapted to support a boom, a bracket mounted upon the top of the hollow standard and having opposed vertical arms, each arm at its top being formed with a bearing aperture, the arms being disposed at opposite sides of the hollow area of the standard and one of said arms being projected a substantial distance laterally of the standard, a shaft mounted in the bearing apertures of said arms and extending transversely of said hollow area of the boom, a drum carried by said shaft in registration with said hollow area of the standard and disposed a substantial distance from said laterally projected arm, a spring mounted on the shaft intermediate said laterally projected arm and the drum and connected to the drum and to said arm, a ratchet wheel fixed upon the drum, a pawl for engaging the teeth of the ratchet wheel and means for operating said pawl.

THORVALD N. GARSON.