G. B. GARST.

BALANCED SAFETY CRANE.

APPLICATION FILED AUG. 2, 1912.

**1,048,520.**

Patented Dec. 31, 1912.

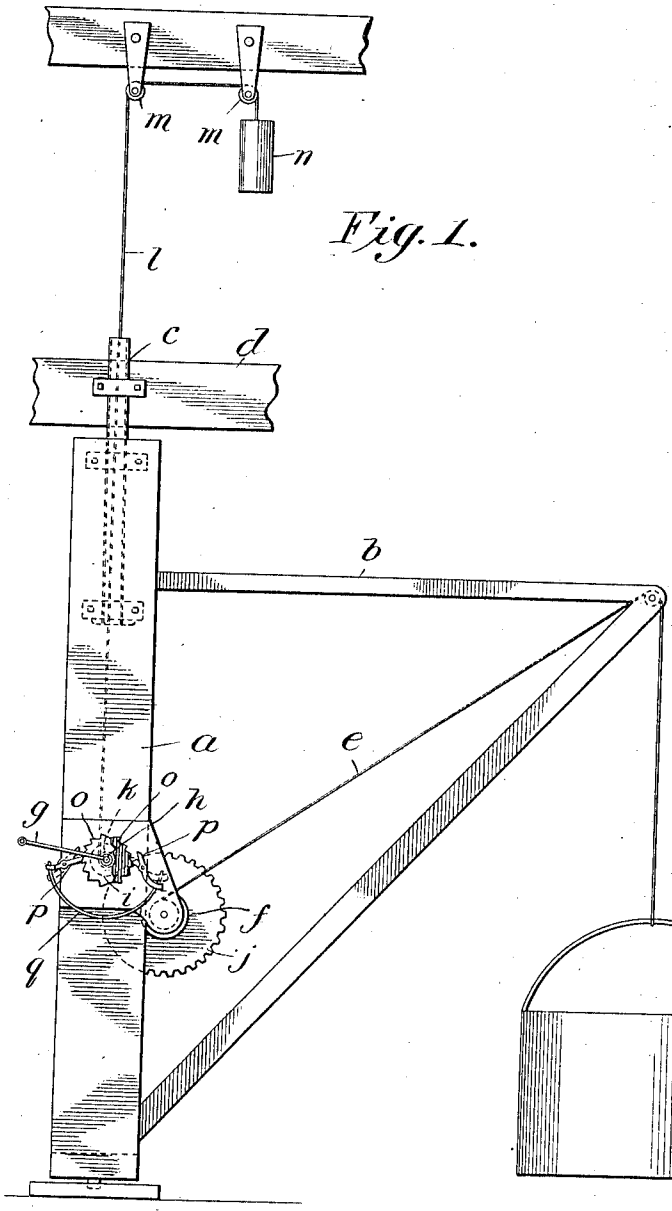


Fig. 1.

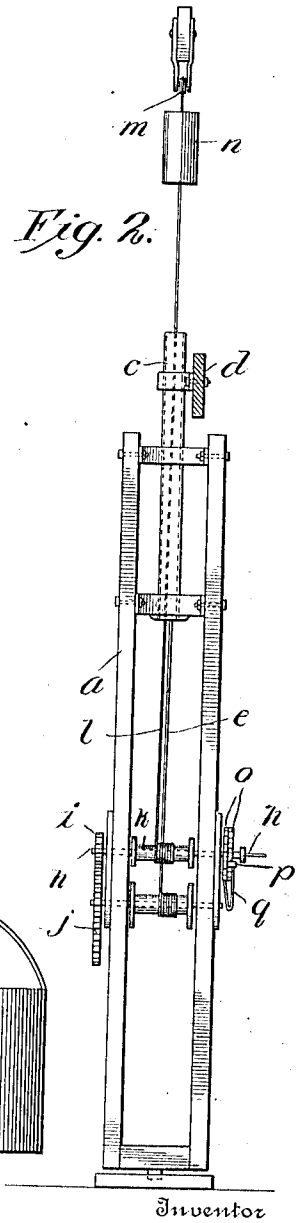


Fig. 2.

Witnesses

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# UNITED STATES PATENT OFFICE.

GEORGE B. GARST, OF ROANOKE, VIRGINIA.

## BALANCED SAFETY-CRANE.

1,048,520. Specification of Letters Patent. Patented Dec. 31, 1912.

Application filed August 2, 1912. Serial No. 712,891.

*To all whom it may concern:*

Be it known that I, GEORGE B. GARST, a citizen of the United States, and a resident of Roanoke, county of Roanoke, State of Virginia, have invented certain new and useful Improvements in Balanced Safety-Cranes, of which the following is a full and clear specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a crane of ordinary type provided with my invention, a part of one of the ratchet wheels being broken away; and Fig. 2 an elevation of the rear side of the crane.

The object of this invention is to provide that type of crane which embodies a vertical mast rotatable on vertical pivots and provided with a lateral projecting jib, with simple means whereby the load is balanced or partly balanced by an overhead counter-balancing weight, whereby the load may be raised and lowered with ease.

In the drawing *a* designates the vertical mast and *b* the jib, the mast being supported in a step bearing and by a vertical hollow shaft *c* at its upper end, the shaft having a rotatable bearing in a suitable frame beam *d*. The usual load cable *e* is wound upon the usual load drum *f*, and this drum *f* is rotated in either direction by means of a suitable hand cank *g* attached to a shaft *h*, said shaft being geared to the shaft of the drum *f* by means of a pinion *i* and a gear *j*.

The shaft *h* is provided with a drum *k* on which is wound the balancing cable *l* which extends up through the shaft *c* and over one or more pulleys *m* suspended from an overhead support, the end of the cable being provided with a pendant counter-weight *n*. The shaft *h* is provided also with a pair of oppositely facing ratchet wheels *o*, and co-acting with the respective ratchet wheels is a pair of oppositely facing pawls *p* connected by a bow-spring *q*, this pawl arrangement being a well known device adapted to simultaneously and alternately throw the pawls into and out of action, so that one of the pawls may be adjusted to lock the drum *k* against rotation through the pull by the balancing cable while the other pawl may be adjusted to lock the drum *k* against turning through the action of the load pulling on the load cable and transmitting the power through the gear wheels. In the drawing, the load sustaining pawl is in action while the other pawl is out of action, so that the apparatus is in position for raising the load and the weight *n* is brought into counter-balancing action with relation to the load during the act of raising the load, the balancing cable being paid off the drum *k* as the load is raised. When it is desired to lower the load the pawls are shifted and the opposite pawl then engages the other ratchet wheel, as shown in dotted lines in Fig. 1; the load can then be lowered by rotating the shaft *k* in the direction to wind up the balancing cable *l*, as is obvious.

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

A crane consisting of an upright mast rotatably supported, the supporting means at the upper end consisting of a hollow shaft, a jib attached to said mast, a load drum and load cable supported on the mast and the jib, a load counter-balancing drum mounted on said mast, gearing connecting said two drums and means for rotating the drums in either direction, and a cable mounted on said load balancing drum and extending up through said hollow shaft and having a weight attached to its depending end, and suitable pawl and ratchet means for said drums.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

GEORGE B. GARST.

Witnesses:
R. H. MCCLAUGHERTY,
W. L. MCGHEE.