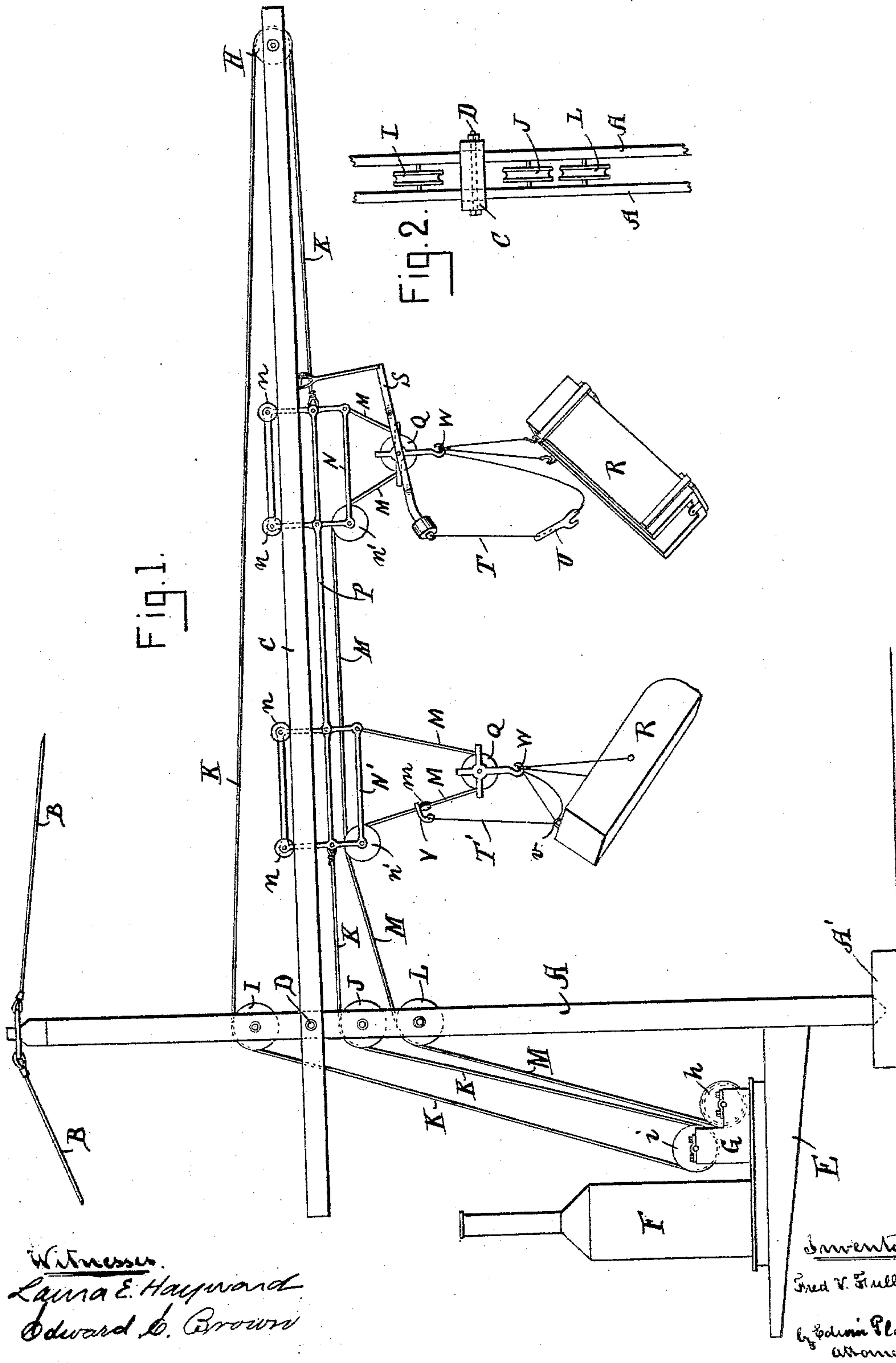


(No Model.)

F. V. FULLER.  
CRANE DERRICK.

No. 596,868.

Patented Jan. 4, 1898.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

FRED V. FULLER, OF BOSTON, MASSACHUSETTS.

## CRANE-DERRICK.

SPECIFICATION forming part of Letters Patent No. 596,868, dated January 4, 1898.

Application filed December 21, 1896. Serial No. 616,435. (No model.)

*To all whom it may concern:*

Be it known that I, FRED V. FULLER, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Crane-Derricks, of which the following, taken in connection with the accompanying drawings, is a specification,

My invention relates to certain improvements in crane-derricks, the object being to overcome certain objectionable features in said derricks as now used.

Heretofore where ordinary boom-derricks have been used and the tub or load transferred laterally from one point to another by swinging the boom double-drum hoisting-engines have been used, one of said drums operating a draft or tail rope that passes along the boom and over a sheave at the extreme end of the boom, one end of which was made fast to the traveler or carriage, and on the other drum is secured a hoisting-rope that passes over sheaves and is made fast to the carriage. When it is desired to raise and convey the load toward the engine, the hoisting-rope is drawn in by the engine, while the draft-rope is paid out, as near as can be estimated by the engineer, and at the same rate of speed. Therefore this process of conveying is not definite or automatic, as the speed of the unwinding-drum while conveying the load has to be estimated by the engineer, and if, as in many cases, he cannot see the load he is liable to raise or lower it during the process of conveying, which is very objectionable.

Now according to my invention instead of the ordinary double-drum hoisting-engine I employ a reversible link-motion engine in connection with an endless rope. The endless rope is fastened to the forward end of the traveler, passes over a sheave at the extreme end of the boom, thence over a sheave mounted on the mast, and then passes to the drum, around which it is wound several times in order to give it the necessary friction, thence over another sheave mounted on the mast, and then to the rear end of the traveler or carriage, to which it is made fast. The hoisting-rope is the same as in the ordinary derrick, but may be doubled, so that two or

more tubs or skeps can be hoisted or lowered by means of two travelers.

The invention also consists in the means of automatically dumping the tub or skep, as hereinafter described.

Referring to the accompanying drawings, Figure 1 represents a side view of a derrick embodying my invention. Fig. 2 is an end view of a portion of the mast, showing the sheaves therein.

A represents the mast, the lower end of which fits into a step A'. B B are guys for supporting the upper end of same; C, the boom fulcrumed to the mast at D in order that, should it be desired, its outer end can be raised or lowered to suit the particular place in which it is to be employed.

E is a platform, upon which are mounted the boiler F and engine G.

h is the hoisting-drum, and i the drum for the draft or tail rope.

In the outer end of the boom C is fitted a sheave H, and in the mast A are fitted sheaves I and J, over which passes the draft or tail rope K, and a sheave L is also mounted in the mast A, over which the hoisting-rope M passes.

N N' are travelers mounted upon wheels n, that run on the upper surface of the boom C and which are attached together by means of a connecting-rod P. To the outer end of the outer traveler N is attached one end of the draft or tail rope K, which then passes over the sheave H, thence over the sheave I in the mast A down to the drum i, around which it is passed several times in order to obtain a tension. Said rope then passes up and over the pulley J in the mast A and thence to the rear traveler N', to which it is secured.

In the lower corner of each of the travelers N N' is mounted a sheave n', and the outer lower corner is formed with a hole, through which the end of the hoisting-rope M passes and is there secured to said traveler. It then passes down and up over the sheave n', thence over the sheave L in the mast A, and then down to the hoisting-drum h.

In the bight of the hoisting-rope M, between the end of the traveler and the sheave n', a sheave Q is placed, to which the tub or skep R is suspended and which is automatically dumped by releasing a dog, rooster, or trig-



ger. This may be accomplished by an angular arm S, fulcrumed near its center to the frame or spindle of the sheave Q, so that when said sheave Q is raised to a certain height the upper end of the arm comes into contact with the under side of the boom and is depressed, thus elevating the other end of said arm, which is, by a cord or chain T, attached to a trigger U, (of ordinary construction,) releases the tub or skip R, which then falls down at its open end, and the contents are dumped.

In connection with the traveler nearest the mast, as shown on the drawings, I have shown another arrangement for dumping the load. In this case, at a convenient point on the hoisting-rope M, a button *m* is clamped or a knot or stud worked into the rope, and around the rope is a ring or clevis V, slightly smaller in diameter than the clamp or knot *m* and which rests upon said clamp or knot. To this ring or clevis is fastened one end of a rope or chain T', that passes through an eye *v* on the rear of the skip R, and thence up to the hook W, that carries the chain for supporting said skip, so that when the hoisting-rope M is drawn up the button or knot *m* will come into contact with the ring or clevis V and draw up the rope or chain T' and with it the rear end of the skip R, so that its contents fall out at the other end, or instead of the chain T' being carried through the ring V and attached to the hook W it might be attached to a catch, rooster, dog, or trigger, which, when released, will cause the skip to fall forward and dump its load.

By reason of the engine and drums being mounted upon a platform carried by the mast, the boom buckets or skip and loads are counterbalanced and the right relation of the ropes

are retained, no matter to what position the boom is turned.

What I claim is—

1. In a crane-derrick, a mast supported in a step and by suitable guys, a boom fulcrumed thereto, a platform carried by said mast, an engine and drums mounted upon said platform, a sheave at the end of the boom, two sheaves in the mast, a draft or tail rope passing over said sheaves, in combination with two carriers, a rod connecting the carriers together hoisting-ropes attached at their outer ends to said carriers thence passing down to form a loop and then passing over a pulley in the carrier and over a pulley in the mast to the hoisting-drum, a sheave carried in the loop or bight of the hoisting-rope, buckets or skips attached to said sheaves all arranged and operated substantially as set forth.

2. In a crane-derrick a bucket or skip carried by a sheave in the bight of the hoisting-rope, a button or stud on said rope, a ring or clevis to which is attached a rope or chain passing through an eye on the bucket or skip and up to the supporting-hook or to a catch, rooster, dog or trigger, whereby when the hoisting-rope is raised said button or stud will come into contact with the clevis or ring and draw upon the rope or chain so that the contents of the bucket or skip will be dumped substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 1st day of July, A. D. 1896.

FRED V. FULLER.

Witnesses:

CHAS. STEERE,  
EDWIN PLANTA.