(No Model.) 2 Sheets—Sheet 1.

C. G. ROSS.

HOISTING MACHINE.

No. 301,281. Patented July 1, 1884.

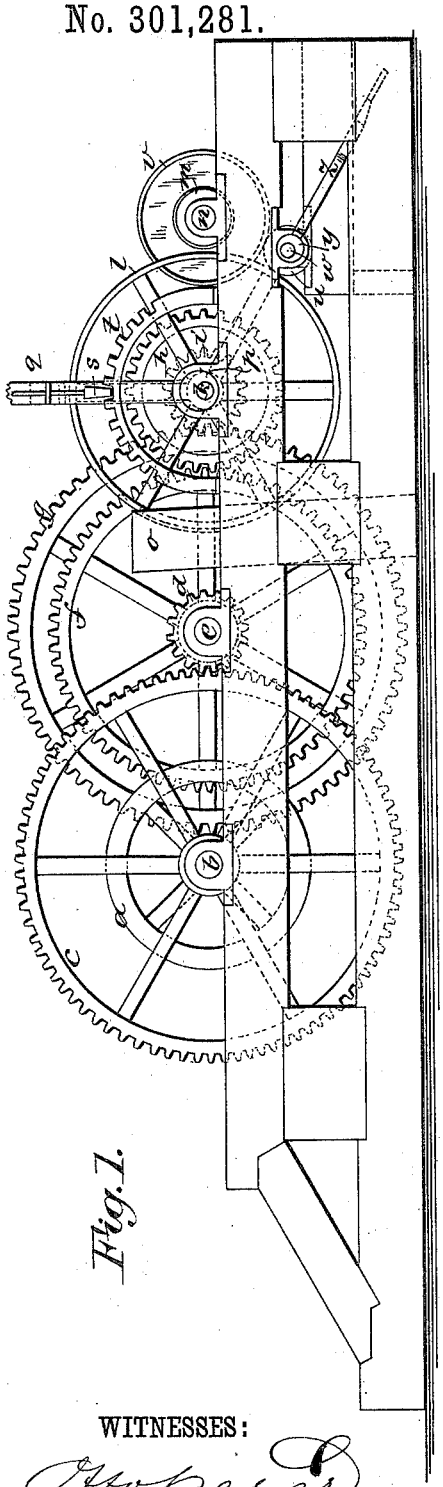

Fig. 1.

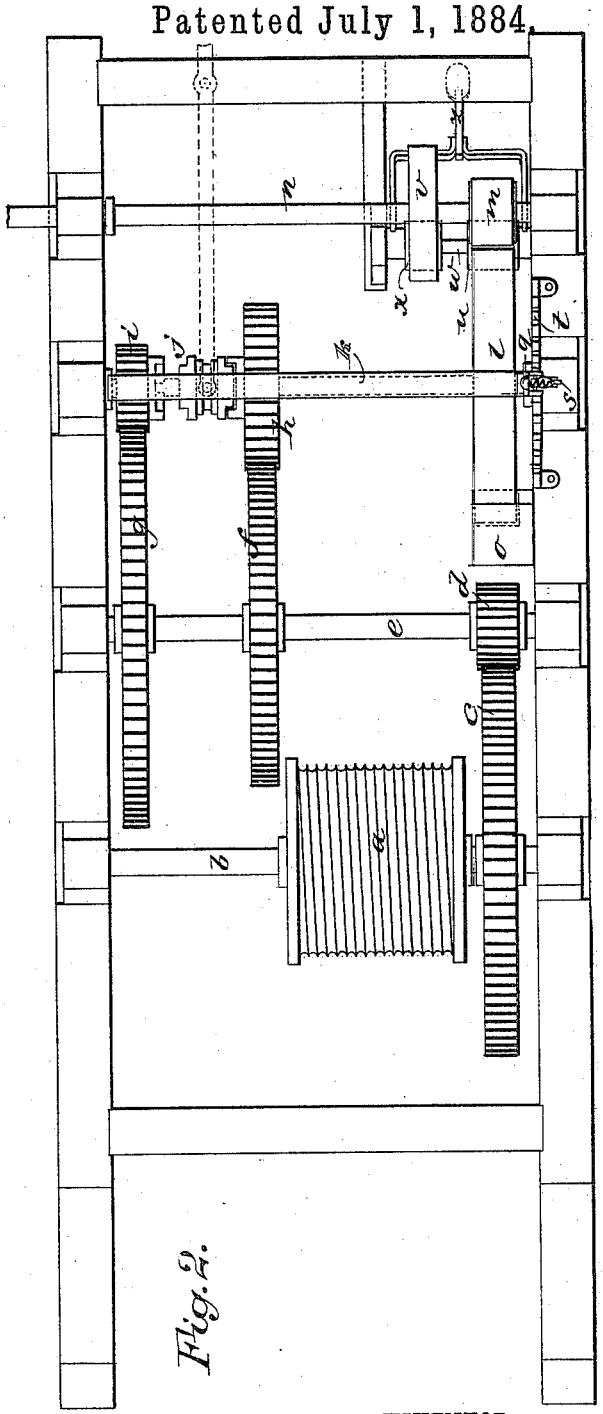

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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HOISTING MACHINE.

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Fig. 3.

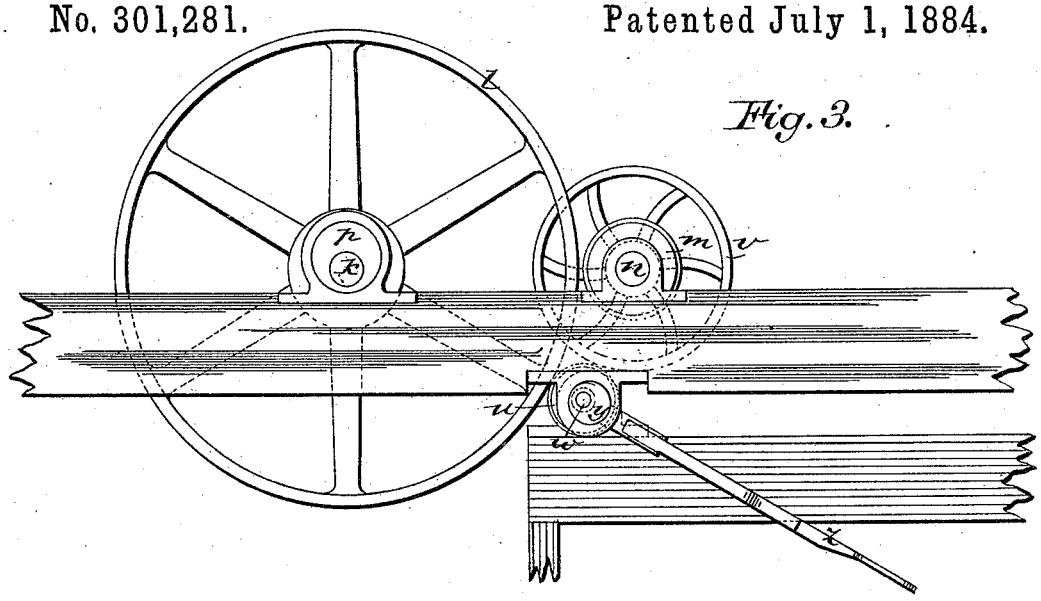


Fig. 4.

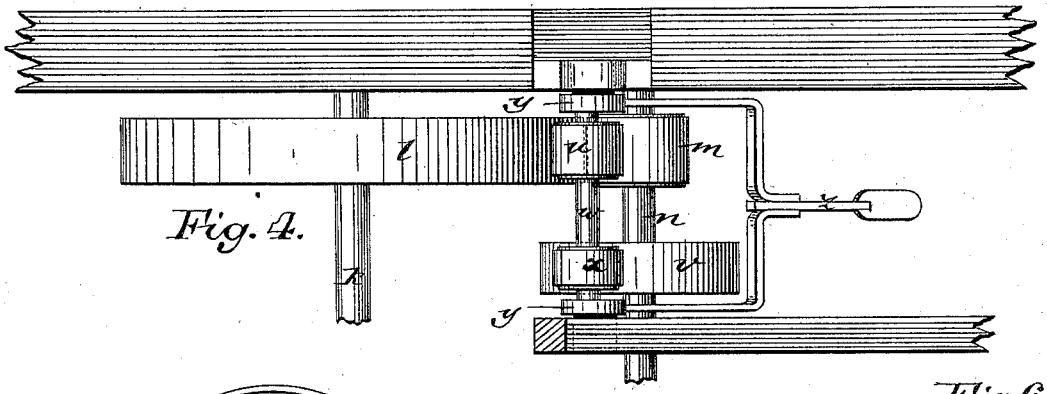


Fig. 5.

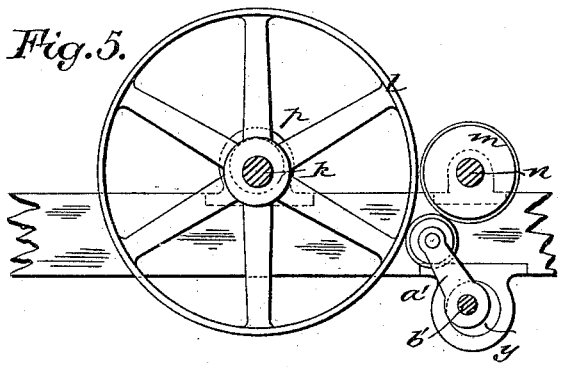
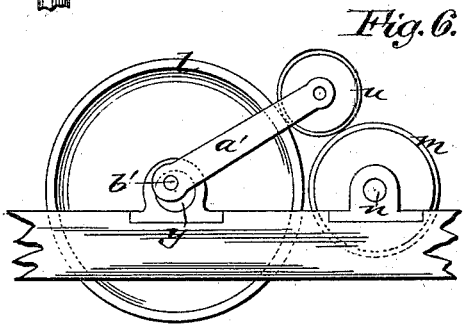


Fig. 6.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

CORNELE G. ROSS, OF RUTLAND, VERMONT, ASSIGNOR TO THE LINCOLN IRON WORKS, OF SAME PLACE.

HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 301,281, dated July 1, 1884.

Application filed May 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, CORNELE G. ROSS, of Rutland, in the county of Rutland and State of Vermont, have invented certain new and useful Improvements in Hoisting Machinery, of which the following is a full, clear, and exact description.

This invention relates to hoisting-machines in which a drum with suitable driving mechanism and a disconnecting-clutch are employed for winding up the rope of a derrick and unwinding or "overhauling" the rope, as the quarry-men say, in the handling of heavy stones and other objects in quarries, mines, and the like places; and the invention consists of contrivances for unwinding or overhauling the rope more rapidly than it can be done as these machines are commonly arranged, to economize time when working in deep mines, quarries, and other places requiring the use of considerable length of rope, which consumes too much time for overhauling it unless worked much faster than it can be by the ordinary method of overhauling it by hand, as hereinafter fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the hoisting-machine with the improved overhauling apparatus applied to it. Fig. 2 is a plan view of the same. Fig. 3 is a detail inside elevation on an enlarged scale to show the apparatus more clearly. Fig. 4 is a plan view of the apparatus of Fig. 3 inverted, and Figs. 5 and 6 represent modifications of the apparatus in side elevation.

The hoisting-machine consists, as now in use, of the rope-winding drum *a*, mounted on the shaft *b*, which is geared by the wheel *c* and pinion *d* with the shaft *e*, which is geared by differential wheels *f g* and pinions *h i* and the clutch *j* with the shaft *k*, which has a friction-wheel, *l*, working between the friction-driver *m* on the driving-shaft *n* and the friction-post *o*, the shaft carrying said wheel *l* having its bearing in the eccentric *p*, by which the wheel *l* is readily shifted from driver *m* to the middle position or to the friction-post, according as the drum is to be turned by the driver *m* to raise the load, or be held fast to suspend the load by the friction-post, or to let the load descend, or to allow the rope to be overhauled, said eccentric having a shifting-lever, *q*, with a stop-latch, *s*, and a holding-rack, *t*, arranged for shifting and setting it, as described. The shaft *n* is geared with the driving-engine in any approved way, and the pinions *h* and *i* are fitted loosely, to be put in gear by the clutch, according as the fast or slow speed is required for light or heavy loads.

These machines are constructed very heavy and strong for lifting great weights, and work with so much friction that the overhauling or unwinding of the rope for lowering the tackle to take a new load requires the gearing to be turned backward by the shaft *k* when the wheel *l* is set in the middle position, for which said shaft is commonly fitted with arms, like a windlass, to be worked by hand, which is a very slow process, consuming too much time when working in quarries of much depth, and which construction it is now proposed to improve by the employment of a reversing friction-wheel, *u*, between the wheel *l* and the driver *m*, or a multiplying-wheel, *v*, on the shaft *n*, to utilize the driving-power for overhauling the rope. This reversing-wheel *u* may be arranged to be thrust between said wheels *l* and *m*, as represented in Figs. 5 and 6; but for the purpose of more rapid action it is preferred to fit said wheel *u* on a counter-shaft, *w*, having a wheel, *x*, gearing with a larger wheel, *v*, on shaft *n*, for multiplying the speed, said shaft *w* being mounted in eccentric bearings *y*, to which a foot-lever or hand-lever, *z*, is connected suitably for shifting its wheels *u* and *x* into and out of gear with the wheels *l* and *v*, when required.

Any other approved means of shifting the reversing-wheel may be used, as a lever swinging on a fulcrum-pivot and carrying the shaft of said pulley *u* in one end; and the same lever arrangement or eccentric bearings *y* may be employed with suitable levers or supporting-arms, *a'*, for working them, when it is preferred to dispense with the wheel *v* and arrange the reversing-wheel to work between wheels *l* and *m*, in which case said reversing-

wheel may be arranged under the driving-wheels, to be thrust upward between them, as in Fig. 5; or it may be arranged above them to produce the requisite friction by its weight and the weight of its arms, the supporting-arms a' being fitted to pivot-studs b' of the eccentric bearings y.

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

1. The combination of the reversing-wheel u and an eccentric shifting-box, y, with the driving-wheels l and m of the hoisting-machine, substantially as described.

2. The combination of the reversing-wheel u, wheel x, multiplying-wheel v, eccentric shifting-boxes y, and lever z with the driving-wheels l and m of the hoisting-machine, substantially as described.

CORNELE G. ROSS.

Witnesses:

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NATHANIEL S. STEARNS.