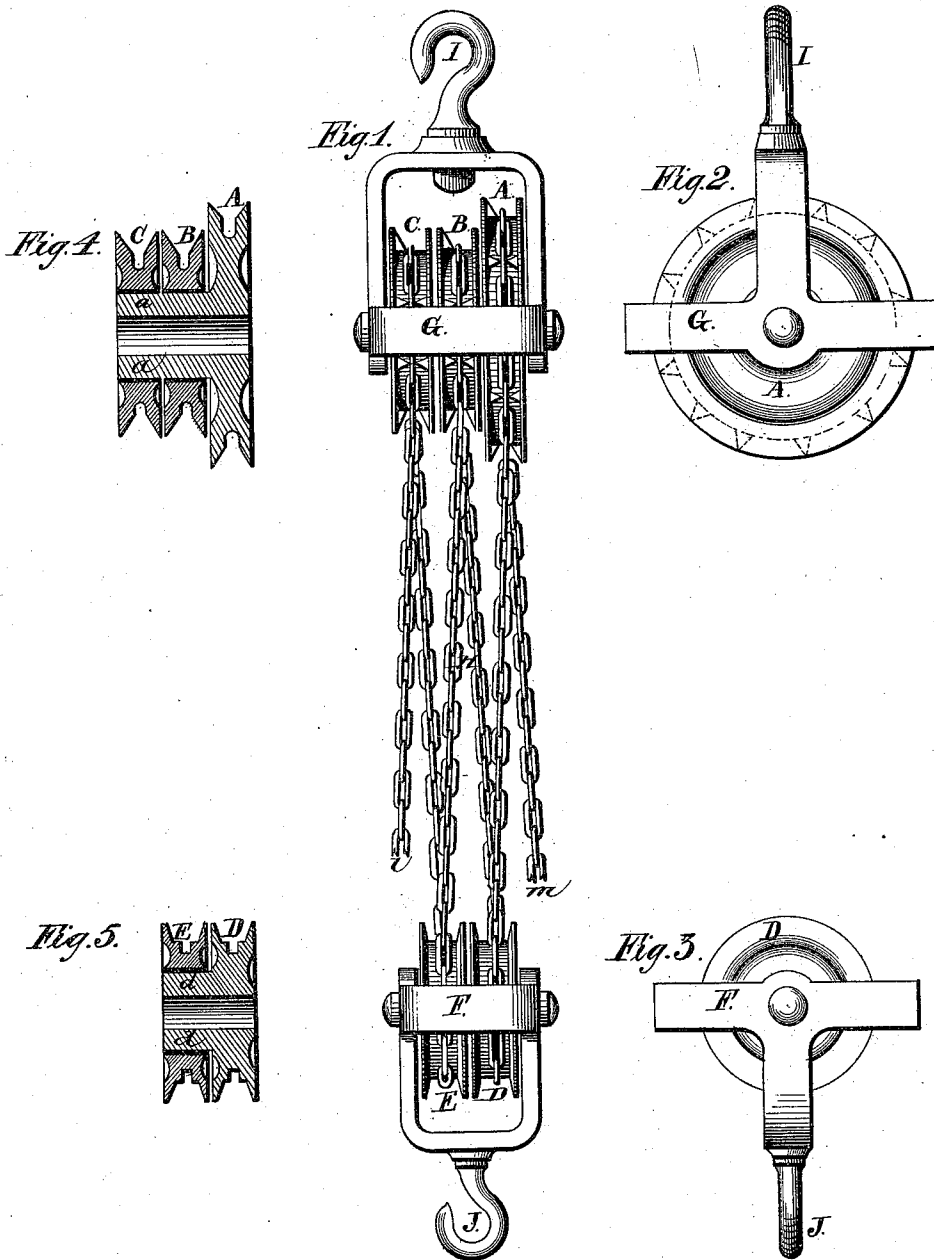


A. B. LIPSEY.
HOISTING APPARATUS.

No. 173,309.

Patented Feb. 8, 1876.



Attest:

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att'y.

UNITED STATES PATENT OFFICE.

ANDREW B. LIPSEY, OF WEST HOBOKEN, NEW JERSEY, ASSIGNOR OF ONE-HALF HIS RIGHT TO H. A. SHERRILL, OF NEW YORK, N. Y.

IMPROVEMENT IN HOISTING APPARATUS.

Specification forming part of Letters Patent No. **173,309**, dated February 8, 1876; application filed October 28, 1875.

To all whom it may concern:

Be it known that I, ANDREW B. LIPSEY, of the town of West Hoboken, county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Hoisting Apparatus, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to that class of hoisting apparatus in which the power is applied by means of an endless chain running over grooved pulleys or chain-wheels of different diameters, and having teeth or stops upon the inside of the grooves, to prevent the chain from slipping, and the load from running down when no power is being applied.

In the former inventions of this character, such as J. J. Doyle's, patented January 8, 1861, the two chain-wheels are cast, or rigidly fastened together, and revolve together, and differ from each other in circumference by the length of one link of the chain, or one wheel has one less tooth or stop for the chain than the other, so that for every revolution of the chain-wheels the load is raised or lowered the length of one link of the chain. As it is impossible for the chain-wheels to differ by less than one link, and as the less the difference the greater the power, the only manner in which the power can be increased in the former class of inventions referred to is by increasing the diameters of the chain-wheels, and thus decreasing their proportional difference.

The object of this invention is to provide a simple and durable hoisting apparatus, in which the power can be indefinitely increased without increasing the diameters of the chain-wheels, by the addition of one or more loose pulleys for the chain to run over.

In the accompanying drawings, Figure 1 is an edge view of a hoisting apparatus embodying my improvements. Fig. 2 is a side ele-

vation of the same, without the chain; and Fig. 3 is a side elevation of the lower block. Fig. 4 is a vertical central cross-section of the upper block.

Similar letters indicate similar parts.

A is the large and C the smaller chain-wheel, and *a a* is a sleeve or hollow shaft connecting them together rigidly, or the same result may be accomplished by keying the chain-wheels to a solid shaft. B is a pulley running loose between the two chain-wheels. H is the chain by which the hoist is operated and weight supported, and which passes around the two connected chain-wheels and loose pulley of the upper block, and the two loose pulleys of the lower block. The ends *l* and *m* are joined, forming an endless chain. The lower loops, connecting *l* and *m*, are omitted in the drawing. I and J are hooks, which are used, respectively, to attach to any convenient point of resistance, and to the weight to be hoisted.

The advantages of this arrangement are, that the power can be indefinitely increased without increasing the diameters of the chain-wheels by the addition of one or more loose pulleys to the upper block, and that a smaller chain can be used for supporting and raising the same weight than with an ordinary chain fall.

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

The employment or use of one or more loose pulleys, in connection with two chain-wheels of different diameters, rigidly connected together on a hoisting apparatus, substantially in the manner and for the purpose specified.

ANDREW B. LIPSEY.

Witnesses:

WM. W. MANN,
H. W. SHERRILL.