No. 790,875. PATENTED MAY 30, 1905.

D. ABREY.

HOISTING AND POWER TRANSMITTING MACHINE.

APPLICATION FILED FEB. 4, 1905.

2 SHEETS—SHEET 1.

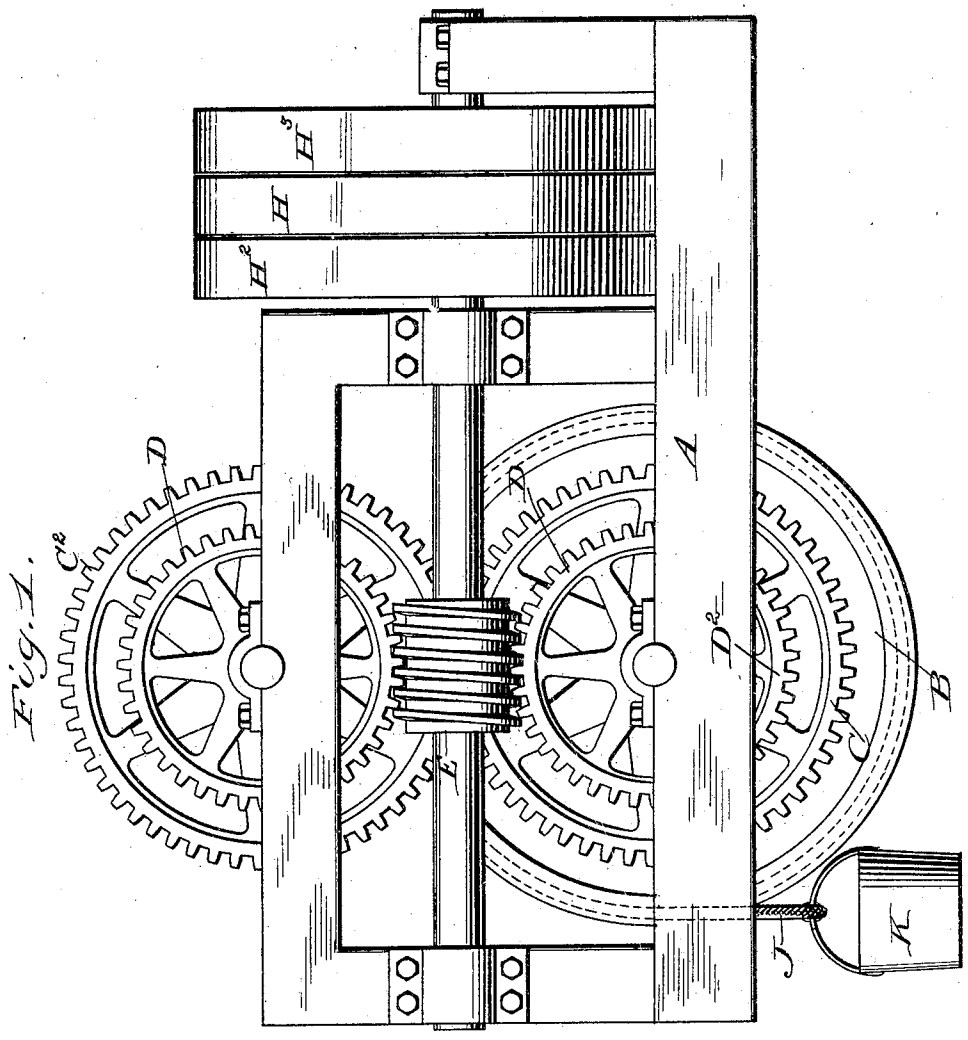


Fig. 1.

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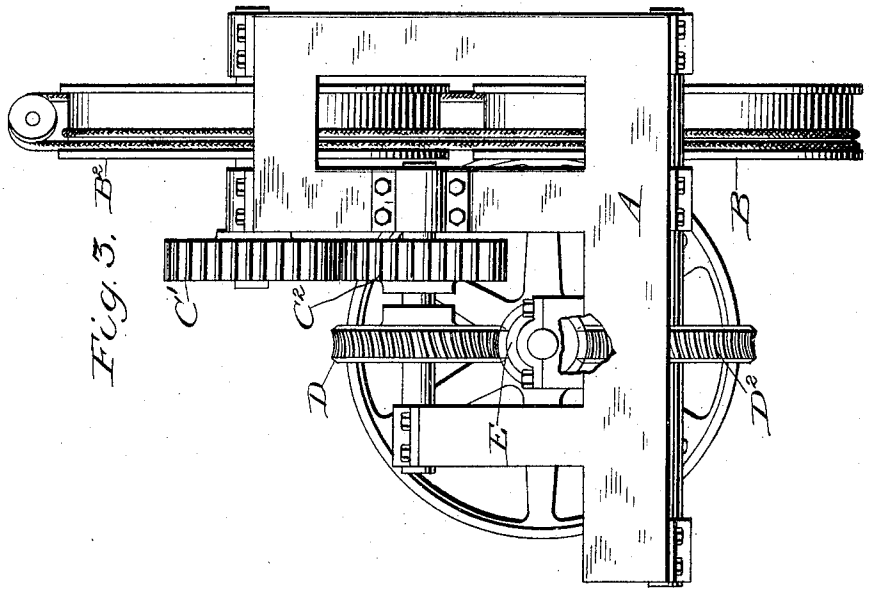


Fig. 3.

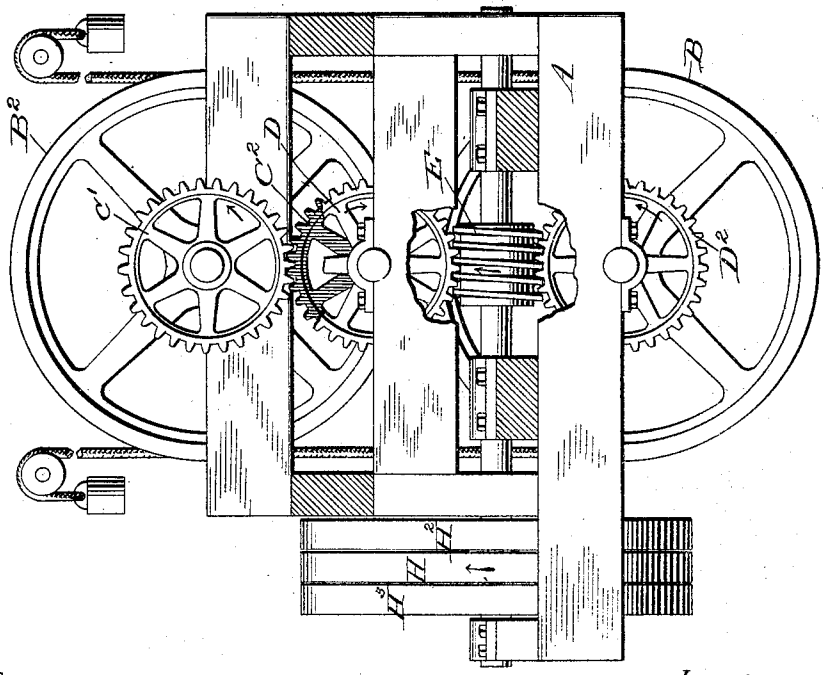


Fig. 2.

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UNITED STATES PATENT OFFICE.

DANIEL ABREY, OF PHILADELPHIA, PENNSYLVANIA.

HOISTING AND POWER-TRANSMITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 790,875, dated May 30, 1905.

Application filed February 4, 1905. Serial No. 244,177.

To all whom it may concern:

Be it known that I, DANIEL ABREY, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Hoisting and Power-Transmission Machines, of which the following is a full, clear, and exact specification.

This invention relates to mechanisms for transmitting power from the shaft of an engine or motor to a distant point through the instrumentality of endless or other cables running upon a drum or drums driven by worm-gearing directly connected with the shaft of the engine or motor.

My invention has for its object the imparting of motion to the winding drum or drums through worm-gears engaging opposite sides of the worm.

With this and other objects in view the invention consists in constructions and combinations to be described in detail in the ensuing specification and set forth in the claims.

In the accompanying drawings, illustrating forms of apparatus adapted to carry out my invention, Figure 1 is an elevation, looking longitudinally of the worm-shaft, of a single drum-hoist embodying my invention, part of the frame being broken out to better show the lower worm-gear. Fig. 2 is an elevation, looking at right angles to the worm-shaft, illustrating an embodiment of my invention as adapted to a double-drum power-transmitter. Fig. 3 is an elevation of the form shown in Fig. 2, but taken at right angles thereto.

The apparatus is mounted in a frame A, suitable in strength for the work intended and in the instance shown substantially rectangular, comprising sills, standards, and cross-braces. A worm-shaft is journaled in bearings at opposite sides of the lower part of the frame, and between these bearings a worm E is keyed upon said shaft, said worm being engaged on opposite sides by worm-gears D and D^2, keyed to shafts journaled at right angles to the worm-shaft in bearings mounted on the side braces of the frame, as shown. To the shaft of the upper one of these worm-wheels D is keyed a gear-wheel C^2, which, referring now to Fig. 1, meshes with a similar gear C, keyed to the shaft of the lower worm-wheel D^2, upon which is mounted the winding-drum B. It follows, therefore, that as the worm-wheels D and D^2 are rotated in opposite directions by the worm E and the gears C^2 and C are respectively keyed to the shafts of said worm-wheels power will be transmitted from opposite sides of the worm to the drum through both of the worm-gears and the gears C^2 and C.

Referring now to Figs. 2 and 3, illustrating my invention embodied in a double drum apparatus, the operation is the same as heretofore described, a gear C', however, being in this instance keyed to the shaft of the upper drum B^2, so that power is taken from the opposite sides of the worm and imparted to the winding-surface through the gears C^2 and C, the latter being keyed to the shaft of the winding-surface whether it be the single drum B or the duplicate drums B and B^2.

By the construction shown I avoid lateral wear of the worm-wheel shaft and its bearings, as also a tendency of a worm-shaft to spring or yield where its worm meshes with but one worm-wheel.

The worm-wheel shaft is shown as provided with three pulleys, the central one H being fast on the shaft and the outer ones H^2 and H^3 running loose, the intention being to couple this shaft with a constantly-rotating power-shaft by a straight belt running over one loose pulley—say H^3—and a cross-belt running over the other loose pulley, H^2, so that the motion of the shaft can be instantly reversed by any usual belt-shifter.

While I have for convenience of description referred to the worm-wheels D and D^2 as above and below the worm, it will be understood that they may be arranged laterally thereof and that the worm-wheel shaft may be horizontal, as shown, or vertical without departing from my invention.

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

1. In a hoisting device, in combination, a worm, worm-gears meshing with opposite sides of the worm, shafts carrying said worm-

gears, a gear-wheel mounted on the shaft of one worm-gear and another gear-wheel in mesh with said first-named gear-wheel, substantially as described.

2. In a hoisting device, in combination, a worm, worm-gears meshing with opposite sides of the worm, shafts carrying said worm-gears, a gear-wheel mounted on the shaft of one worm-gear and a third shaft carrying a gear-wheel in mesh with said first-named gear-wheel, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL ABREY.

Witnesses:
E. E. MARKS,
CHAS. E. RIORDON.