

No. 791,529.

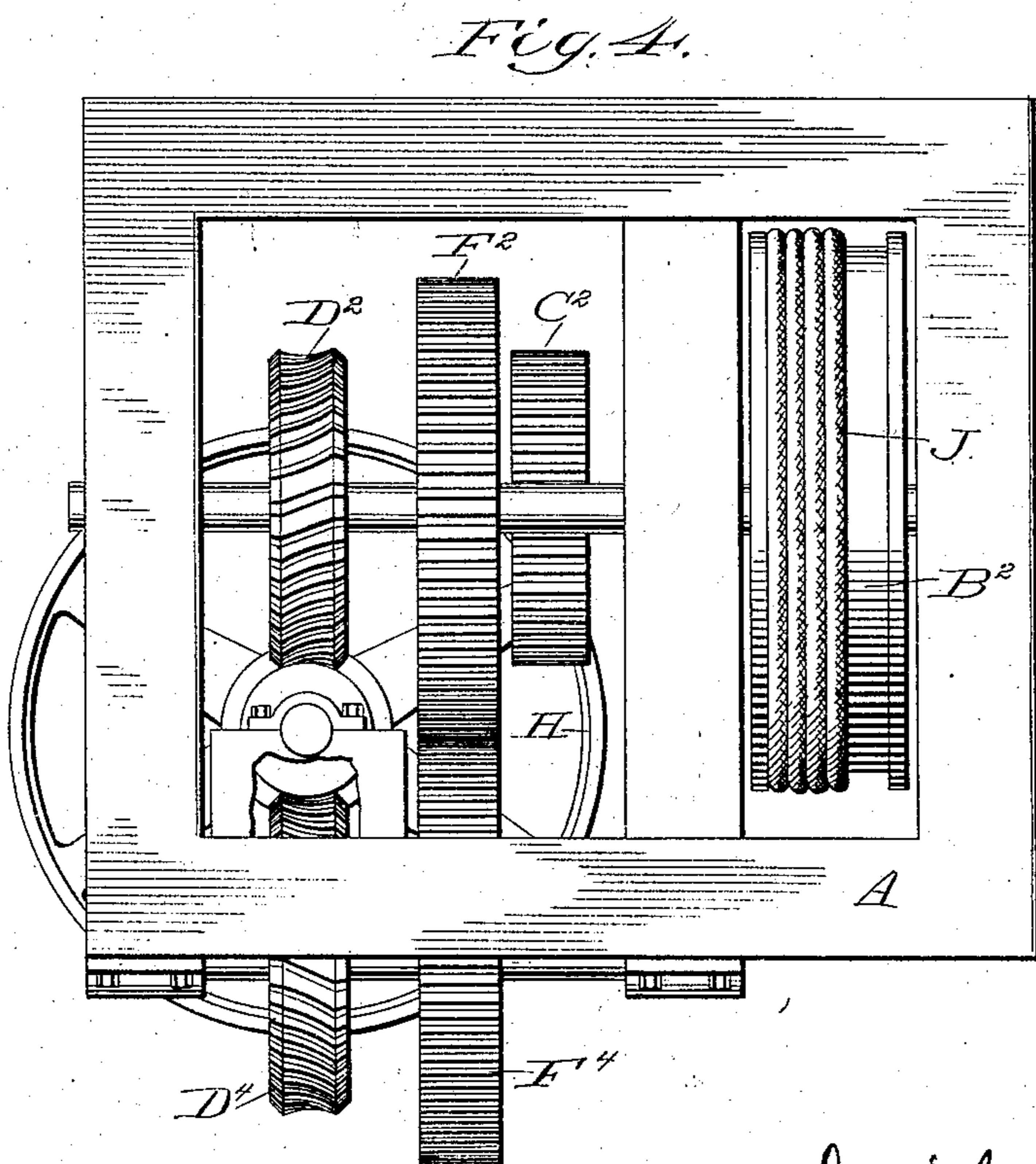
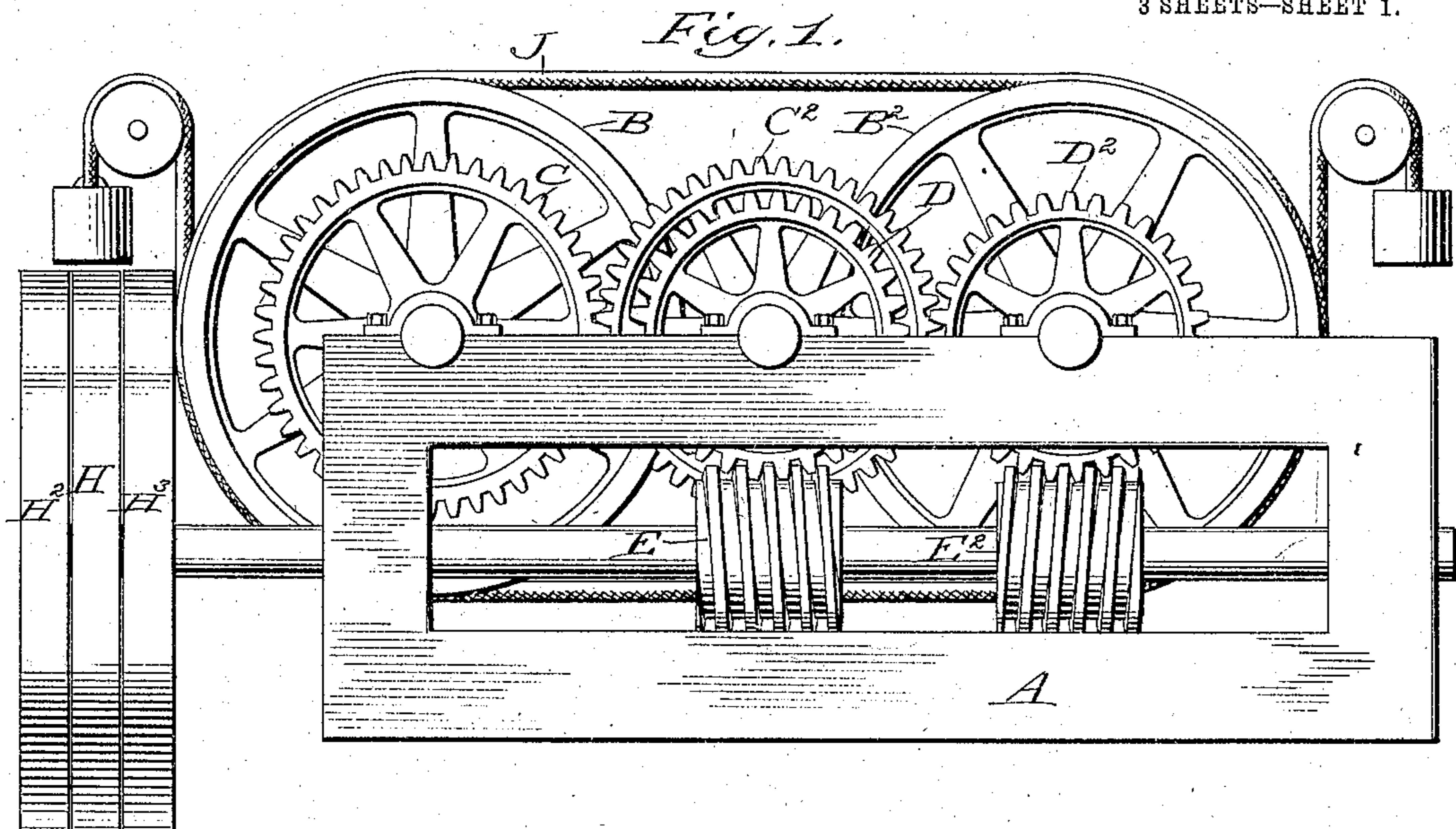
PATENTED JUNE 6, 1905.

D. ABREY.

HOISTING MACHINE OR POWER TRANSMITTER.

APPLICATION FILED FEB. 11, 1905.

3 SHEETS—SHEET 1.



Inventor

Daniel Abrey

Witnesses

W. B. Malone
Charles Jordan

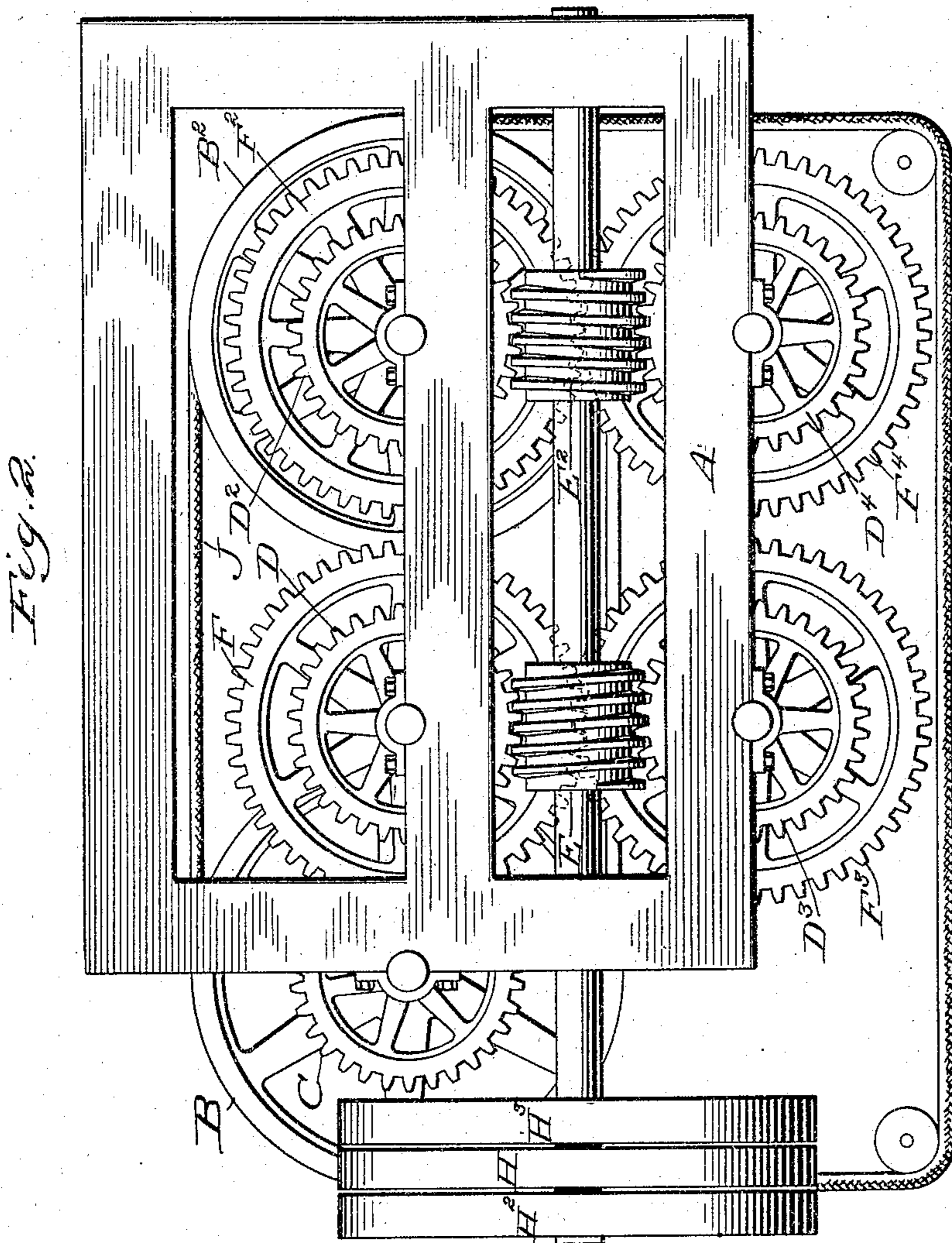
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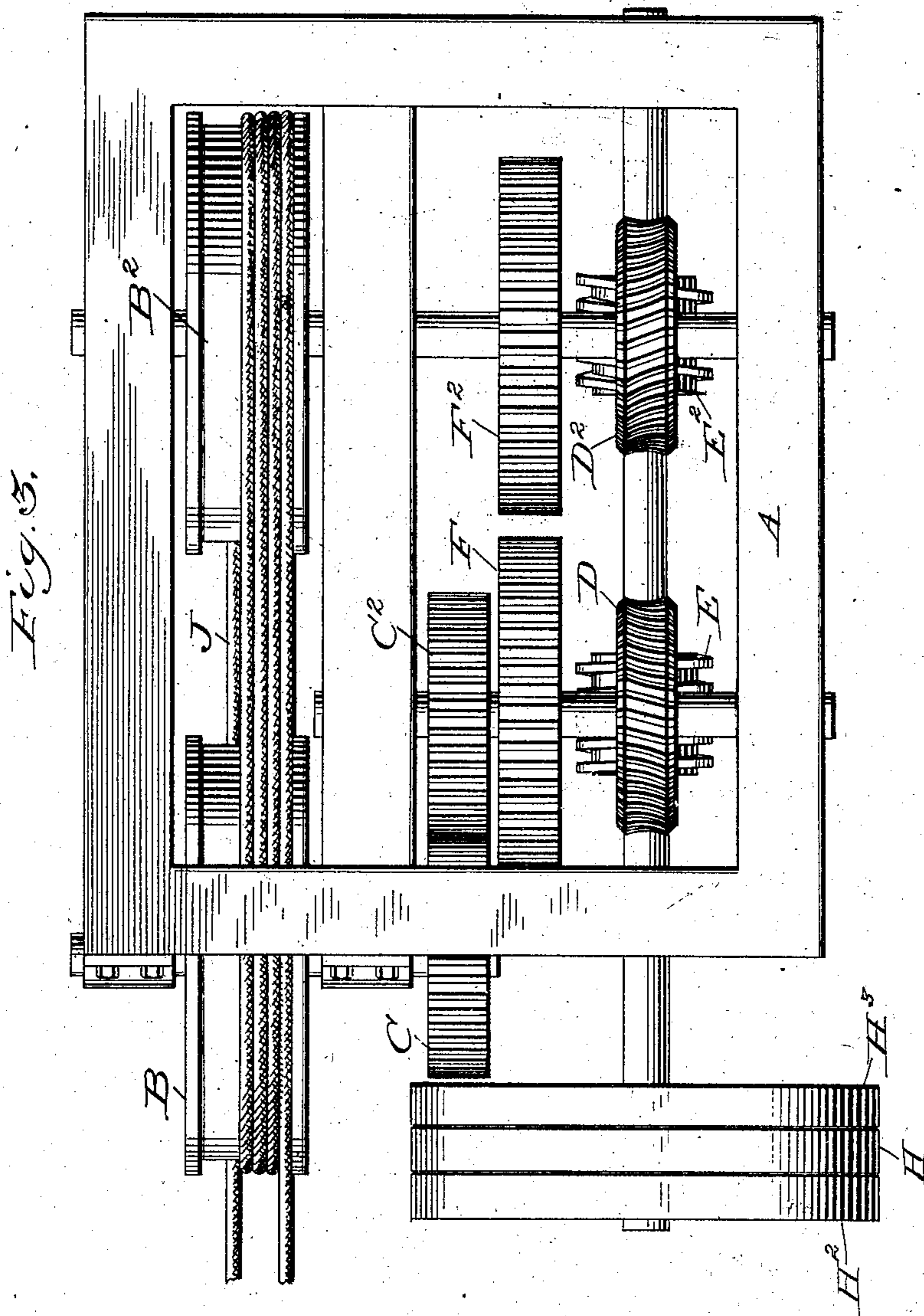
Wm Brundine
Chas E Dordow

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3 SHEETS—SHEET 3.



Witnesses

Wm. B. ...
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UNITED STATES PATENT OFFICE.

DANIEL ABREY, OF PHILADELPHIA, PENNSYLVANIA.

HOISTING-MACHINE OR POWER-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 791,529, dated June 6, 1905.

Application filed February 11, 1905. Serial No. 245,294.

To all whom it may concern:

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

This invention relates to hoists more particularly designed for the operation of passenger or freight elevators, but equally applicable for use in other relations.

My invention is associated with a hoist embodying a worm-shaft and two drums driven thereby, about which a rope or cable is drawn, one object of the invention being to avoid end thrust on the worm-shaft, another object being to impart power to the drums from opposite sides of the worm-shaft, thereby avoiding lateral wear on the bearings and strain on the shaft.

With these ends in view the invention consists in novel features and combinations to be described in detail in the ensuing specification and set forth in the claims.

In the accompanying drawings, illustrating forms of mechanism for carrying my invention into practical effect, Figure 1 is a side elevation of a double-drum hoist embodying my invention. Fig. 2 is a side elevation of the double-drum hoist of Fig. 1, showing additional driving connections between the worms and drum-shafts. Fig. 3 is a top plan view of the construction shown in Fig. 2, and Fig. 4 is an end elevation thereof.

The mechanism is mounted in any suitable frame A shown as rectangular, comprising bottom sills, uprights or standards, and cross-braces, these parts carrying the bearings for the various shafts, and within which are mounted the worm-shaft, drum-shafts, and gear-shafts to be hereinafter referred to.

The drums B and B² are keyed to stout shafts extending transversely of the frame A and mounted in suitable bearings carried thereby, the shaft of the drum B being fitted with a gear C, keyed thereto, and the shaft of the drum B² being provided with a similarly-keyed worm-gear D². Right and left hand worms E² and E are keyed to a shaft

extending longitudinally of the frame A and mounted in suitable bearings carried thereby, the worm E² meshing with the worm-gear D², of the shaft-carrying drum B², and the worm E meshing with a worm-wheel D, keyed to a transverse shaft, to which is also keyed a gear C², which meshes with the gear C on the shaft carrying the drum B. From this arrangement it will be seen that both drums will be driven from the worm-gear shaft in the same direction and that as equal work is put on the right and left hand worms E² and E there will be no end thrust of the worm-shaft, since the end thrust of one worm will balance that of the other, as is well understood.

In the form shown in Fig. 2 additional worm-gears D³ and D⁴, meshing with worms E and E², are mounted on transverse shafts beneath the worm-shaft. On the shaft of worm-wheel D³ is keyed a gear F³, which meshes with a gear F at the opposite side of the shaft of worm E and imparts motion from the opposite side of the worm E to the drums. The shaft of worm-wheel D⁴ is similarly fitted with a gear F⁴, which meshes with gear F², keyed to the shaft which carries worm-gear D² and drum B². From this construction motion will be imparted from opposite sides of the worm-shaft to drum B through gears C C² and worm-gear E, and worm-gear D³, gears F and F³, and the shafts on which they are mounted and gears with which they mesh, as heretofore described. At the same time power is transmitted to the shaft of drum B² through gear F⁴ on shaft of worm-wheel D⁴ and gear F² on shaft of drum B², so that the two drums act in unison to impart movement to a rope or cable J, which may be endless or otherwise and attached to an object to be moved.

The worm-shaft may be driven from any suitable source of power. As here shown, it is provided with a fixed pulley H and a loose pulley H² H³ on either side thereof in order that it may be coupled with a constantly-rotating shaft by straight and cross belts, one running on each loose pulley, so that the direction of rotation of the worm-shaft may be instantly changed upon shifting the belts by a suitable belt-shifter in a well-known manner.

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 double-drum hoisting-machine or power-transmitter, in combination, a shaft, 5 right and left worms mounted thereon, drum-shafts, a gear-wheel mounted on one of said drum-shafts and a worm-wheel on the other, said worm-wheel meshing with one of said worms, a transverse shaft, a gear-wheel and 10 worm-gear mounted thereon, substantially as described.

2. In a double-drum hoisting-machine or power-transmitter, in combination, a shaft, 15 right and left worms mounted thereon, a pair of transverse shafts, one of said shafts being a drum-shaft, worm-gears mounted on said transverse shafts meshing with opposite sides of one of said worms, intermeshing gears

also mounted on said transverse shafts, another pair of transverse shafts, worm-gears 20 mounted thereon meshing with opposite sides of the other worm, intermeshing gears mounted on said last-mentioned pair of transverse shafts, and another drum-shaft, a gear mounted thereon, a gear keyed to one of the second 25 pair of transverse shafts in mesh with the gear carried by the second drum-shaft, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two sub- 30 scribing witnesses.

DANIEL ABREY.

Witnesses:

HAZEL NORDEMAN,
HOMER GUERRY.