(No Model.) 2 Sheets—Sheet 1.

N. C. BASSETT.

GEARING FOR ELEVATORS.

No. 483,203. Patented Sept. 27, 1892.

Fig. 1.

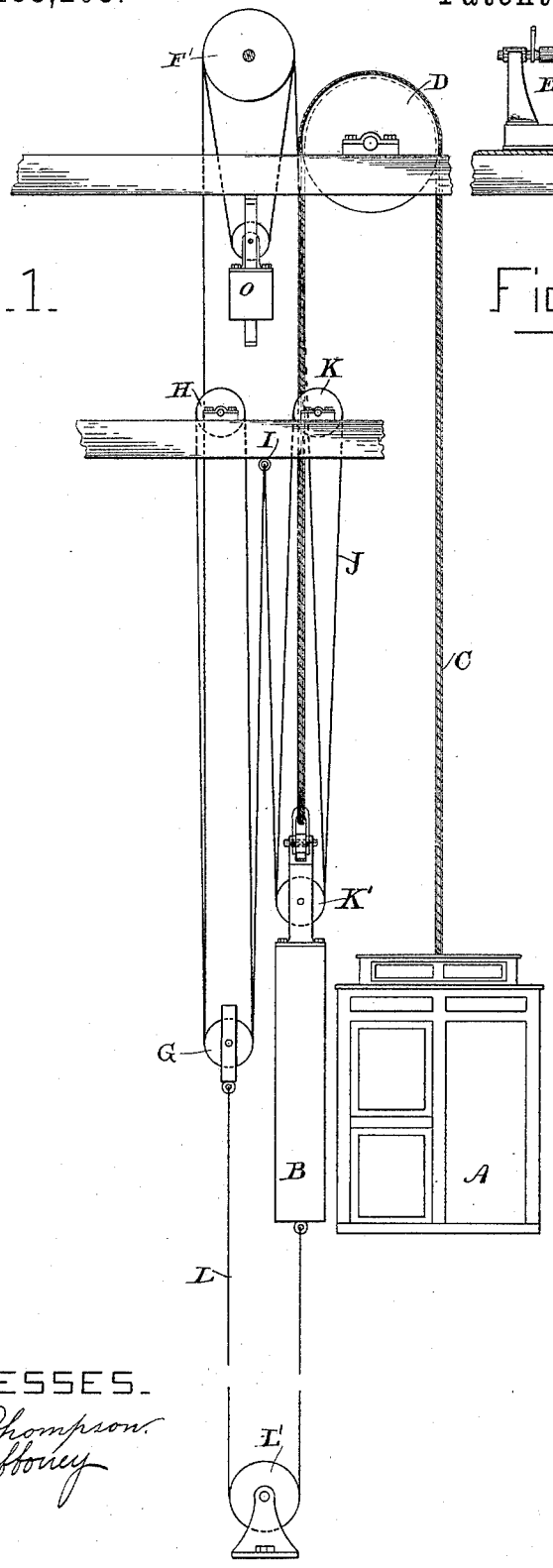
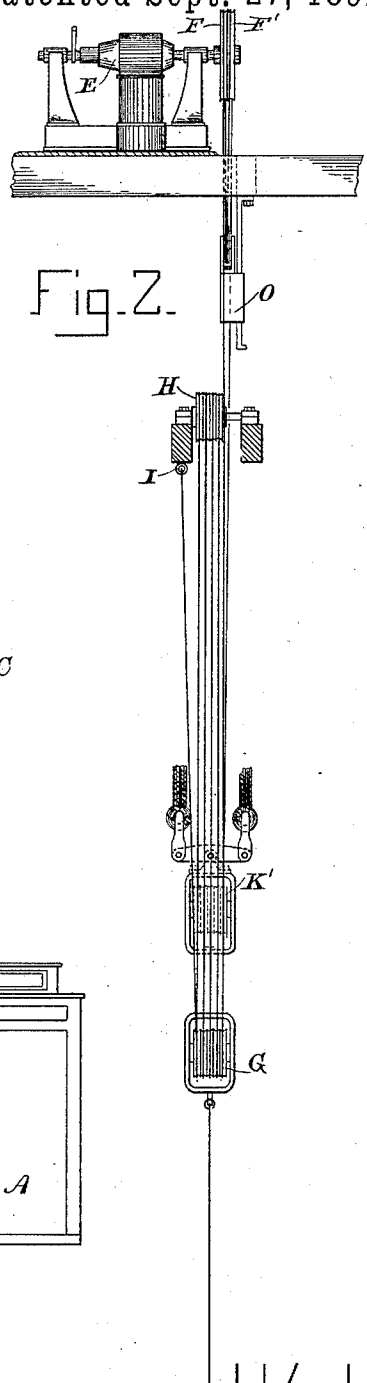


Fig. 2.



WITNESSES.
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J. W. Gibboney

INVENTOR.
Norman C. Bassett
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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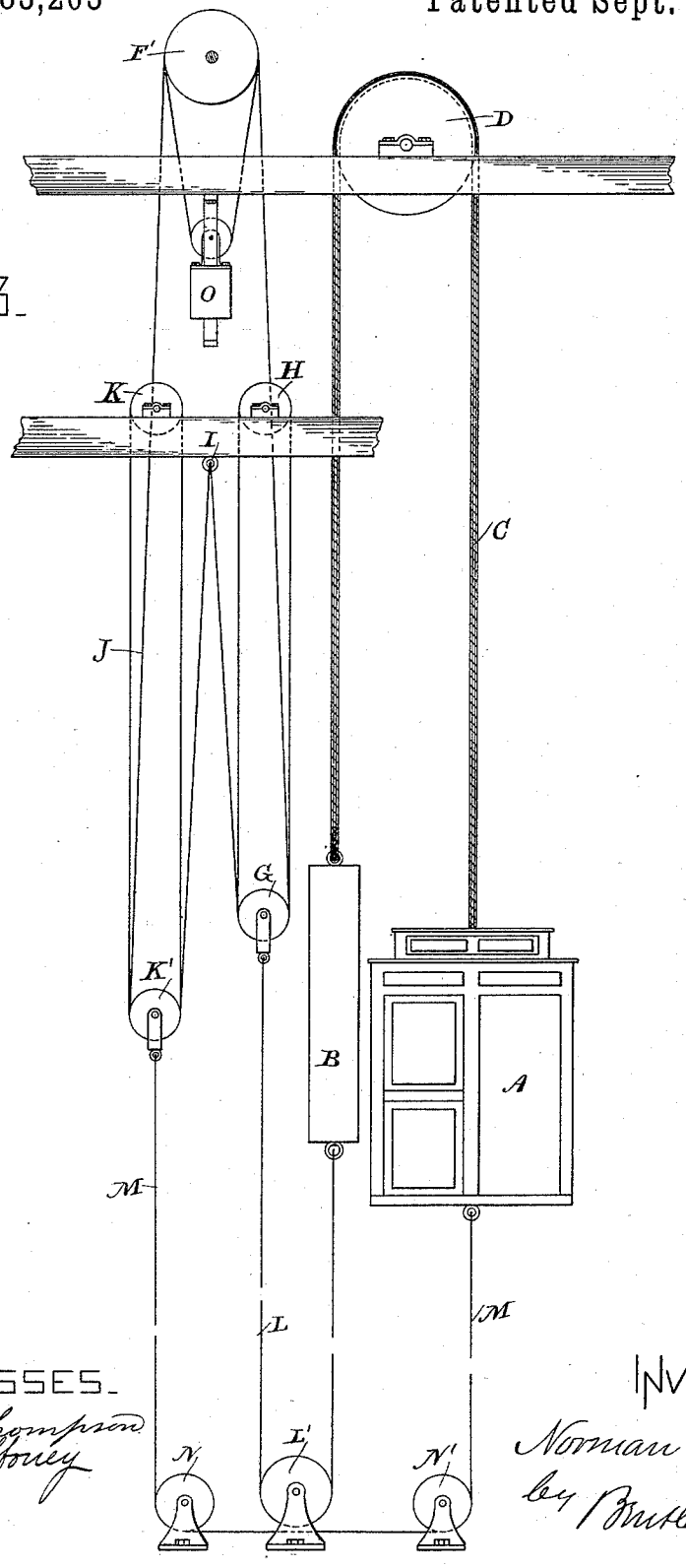
Fig. 3.



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UNITED STATES PATENT OFFICE.

NORMAN C. BASSETT, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE THOMSON-HOUSTON ELECTRIC COMPANY, OF CONNECTICUT.

GEARING FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 483,203, dated September 27, 1892.

Application filed October 11, 1890. Serial No. 367,836. (No model.)

To all whom it may concern:

Be it known that I, NORMAN C. BASSETT, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented a certain new and useful Improvement in Gearing for Elevators, of which the following is a specification.

My present invention relates particularly to elevators driven by an electric or other fast-running motor, and its aim is to provide an effective and noiseless mechanism for transmitting the power and reducing the high speed of the motor to the comparatively slow speed of the car. One of the principal difficulties in elevators of this sort arises in the excessive loss by friction, which is unavoidable when the weight of the total load is brought to bear upon the armature of the motor or other fast-running parts connected therewith. This objection, however, I largely avoid by an arrangement such that the main portion of the load is balanced and carried upon a slow-running sheave or sheaves, and the motor is required to overcome only the remaining unbalanced portion of the load, the connection being such that the balanced weight is not felt by the motor. A rope-and-pulley device operated by winding-drums driven by the armature-shaft moves the car and counter-weight in either direction and is arranged to divide the unbalanced portion of the load, so that any desired fraction only of the same comes directly upon the bearings of the winding-drums. By this transfer of the main portion of the load from the fast-running drums to the slow-running sheaves the loss due to friction and wear is greatly reduced.

My improvements are illustrated in the accompanying drawings, wherein—

Figure 1 is a front elevation. Fig. 2 is a side elevation of the same, and Fig. 3 is a front elevation of a construction somewhat modified in details.

The elevator-car A and counter-balance B are attached to the opposite ends of a suitable cable or cables C, which pass over the slow-running sheave or sheaves D, journaled in the upper portion of the hatchway. The counter-weight B will ordinarily exceed the weight of the car by about one-half of the maximum load which the elevator is designed to carry.

An electric or other fast-running reversible motor E drives the elevator and is connected with the counter-weight and car by an intermediate rope-and-pulley power-transmitting device in the following manner: Upon the armature-shaft of the motor, or otherwise driven thereby, are two winding-drums F F′, which run at a high rate of speed. From one of these drums F a rope J passes down around a pulley carried upon a take-up weight O, thence back over the other drum, and is looped around a traveling pulley G and fixed pulley H as many times as desired, the free end being made fast at I. From the drum F the same rope J passes likewise, but in the opposite direction downward, and is given the same number of turns around pulleys K and K′. The pulley G is attached to the counter-weight by a rope L, which passes under a pulley L′, fixed in the lower part of the hatchway, and the pulley K′ may be either journaled in hangers upon the counter-weight, as in Fig. 1, or attached to the car by a rope M, turned around the guide-pulleys N N′, as in Fig. 3. The rope-and-pulley device, as shown, has five ropes on each side; but the number will be proportioned to the desired amount of reduction in speed between the drums F F′ and sheaves D. A corresponding reduction will also be made in the proportions of the entire weight of the unbalanced portion of the load to that part of it borne directly by the winding-drums, for, supposing the total unbalanced load to be one thousand pounds, this would be equally divided among the ten ropes supporting it, and as only one of the ropes passes over the drums the weight acting upon the drum-shaft to produce friction and wear would amount to only one hundred pounds.

I am aware that many mechanical modifications may be made in the precise structure illustrated, and therefore do not limit myself thereto.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of an elevator-car, counter-weight, slow-running sheave, and cable passing around said sheave and attached

to the car and weight, whereby the main portion of the total load divides into two portions balanced upon and carried by said sheave, with a reversible motor, a fast-running winding-drum driven thereby, and a rope fastened to a fixed point and passing around said winding-drum and around movable pulleys and connected with the counter-weight, whereby a fraction only of the weight of the unbalanced portion of the total load comes upon said winding-drum, substantially as described.

2. The combination, with an elevator-car, of a counter-weight, a slow-running sheave, a cable passing around said sheave and attached to the car and weight, a motor, a fast-running winding-drum driven thereby, and a rope having its ends permanently fastened to a fixed point and passing around said drum and also around fixed and movable pulleys, the latter being connected with the counter-weight, substantially as set forth.

3. The combination, with an elevator-car, of a counter-weight, a slow-running sheave, a cable running over said sheave and attached to the car and weight, a motor, a fast-running drum driven thereby, and a rope the middle portion of which passes around the drum, the end portions passing around fixed and movable pulleys and being permanently fastened to a fixed point, said movable pulleys being connected with the moving parts, substantially as described.

NORMAN C. BASSETT.

Witnesses:
HENRY N. SWEET,
JOHN W. GIBBONEY.