R. SCHMIDT.

GOODS AND PASSENGER ELEVATOR.

No. 192,940. Patented July 10, 1877.

Fig. 1.

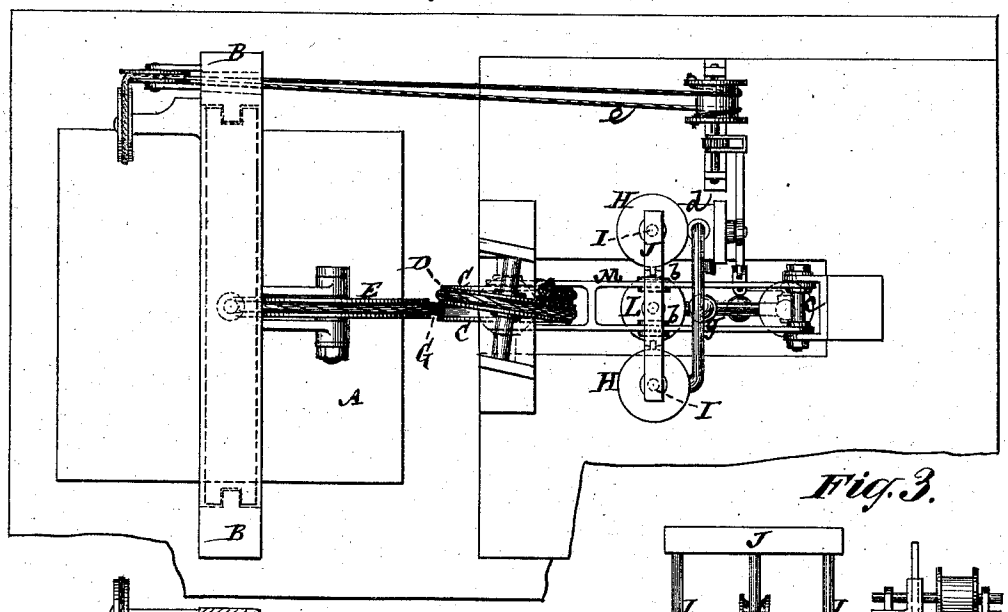
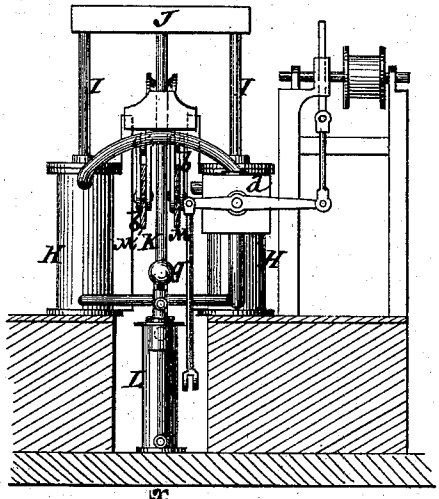


Fig. 3.



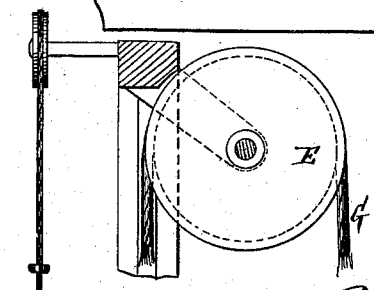
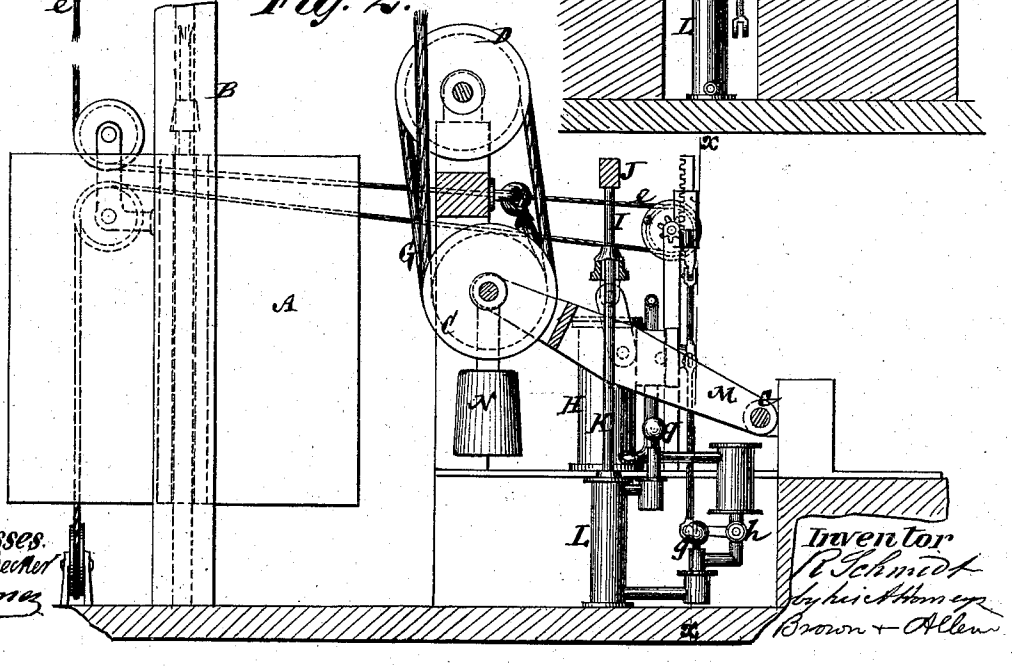


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

RUDOLPH SCHMIDT, OF YONKERS, NEW YORK, ASSIGNOR TO OTIS, BROTHERS & CO., OF SAME PLACE.

IMPROVEMENT IN GOODS AND PASSENGER ELEVATORS.

Specification forming part of Letters Patent No. **192,940**, dated July 10, 1877; application filed May 25, 1877.

To all whom it may concern:

Be it known that I, RUDOLPH SCHMIDT, of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Hoisting-Machines, of which the following is a description, reference being had to the accompanying drawing, forming part of this specification.

This invention relates to direct-acting engines for hoisting purposes, whether impelled by steam, water, or other gas or fluid; but it will suffice in the following description to refer exclusively to steam.

The invention is more especially designed to be applied to that class of hoisting-machines which are known as goods and passenger elevators, and in which the car or cage is actuated through a tackle device operated by the engine subject to the control of a fluid retarder.

One of the objects of the invention is to economize the working space occupied by the hoisting mechanism, so as to adapt it to a room of contracted dimensions or area, and yet obtain an extended lift.

The invention consists in a combination, with the engine piston or pistons, of a beam actuated by the latter and one or more loose pulleys or sheaves carried by said beam, and raised or lowered by the motion of the beam to elevate or lower the car or cage of the elevator by the tackle device, of which said loose pulley or pulleys forms a component part.

The invention also consists in a certain combination of the movable pulley or pulleys of the tackle device, the swinging beam which carries said pulley or pulleys, a counter-balance applied to control said beam, and the piston or pistons of the engine by which said beam is operated, and the movable pulley or pulleys and counter-balance are raised and lowered.

Figure 1 represents a plan of a goods or passenger elevator having my invention applied. Fig. 2 is a sectional side elevation of the same, and Fig. 3 a transverse vertical section thereof on the line *x x*.

A is the car or cage, arranged to work up and down between guides or uprights B by means of a tackle device controlled by the engine, and which is here represented by a set of movable pulleys, C, fixed pulleys D E, and ropes or chains G, but which tackle device may be farther extended to give an increased movement to the car or cage. H H are duplicate upright engine-cylinders, arranged side by side at a suitable distance apart, and I I the rods of the pistons of said cylinders, which rods are here represented as projecting through the upper ends of the cylinders, but which might project through their bottoms, and the arrangement of parts generally be correspondingly changed or reversed.

The piston-rods I I are connected by a cross-head, J, which latter is intermediately connected by a rod, K, with the piston of the fluid-retarder L, and is further connected by links *b b* with a swing-beam, M, which is a lever of the third order, having its fulcrum *c* at one end, the power of the engine-pistons applied intermediately of its two ends, and the movable sheaves or pulleys C at the opposite end of it to that at which the fulcrum is arranged.

Suitable guides serve to direct the piston-rods in their straight lines or courses.

One and the same main valve, working in a chest, *d*, may, by suitable connections, control the pistons of both engine-cylinders H H, and such valve be actuated by the usual hand-rope *e*. The fluid-retarder L, which is, or may be, supplied with fluid from a reservoir, and be provided with the usual check-valves *g g*, may have its main controlling-valve *h* likewise connected with the lever by which the engine-valve is operated, so that the same hand-rope *e* serves to control both valves and to regulate the speed of the engine. Such valve mechanism, however, forms no part of this invention, and the retarder L is substantially similar in its action to that of other fluid-retarders applied to hoisting apparatus, and has the same function or use.

To elevate the load steam is admitted to the upper ends of the engine-pistons, and the beam M with its attached movable pulleys C is depressed.

The combination of the engine piston or pistons with the beam and the movable pulleys on the free end of the beam greatly economizes material and space as regards the hoisting

mechanism, which may all be inclosed within a comparatively small room or chamber, and yet obtain an extended lift.

Attached to the free or movable pulley end of the beam M, or forming a part of said end, is a counter-balance, N, which may be proportioned to counterbalance one-half, more or less, of the net load, so that, when working the hoisting apparatus to its full capacity, only about one-half the load and friction of the working parts has to be overcome by the engine, which is consequently or necessarily double-acting, to work the car in both directions.

I claim—

1. The combination, with the engine piston or pistons, of a lever or swinging beam actuated by said piston or pistons, and one or more movable pulleys of a tackle device carried by and swinging with the beam, substantially as and for the purpose herein set forth.

2. The combination of the movable pulley or pulleys C of the tackle device, the swinging beam M, the counter-balance N, and the piston or pistons of the engine by which said beam is operated, and the movable pulley or pulleys and counter-balance applied to the beam are raised and lowered, essentially as described.

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