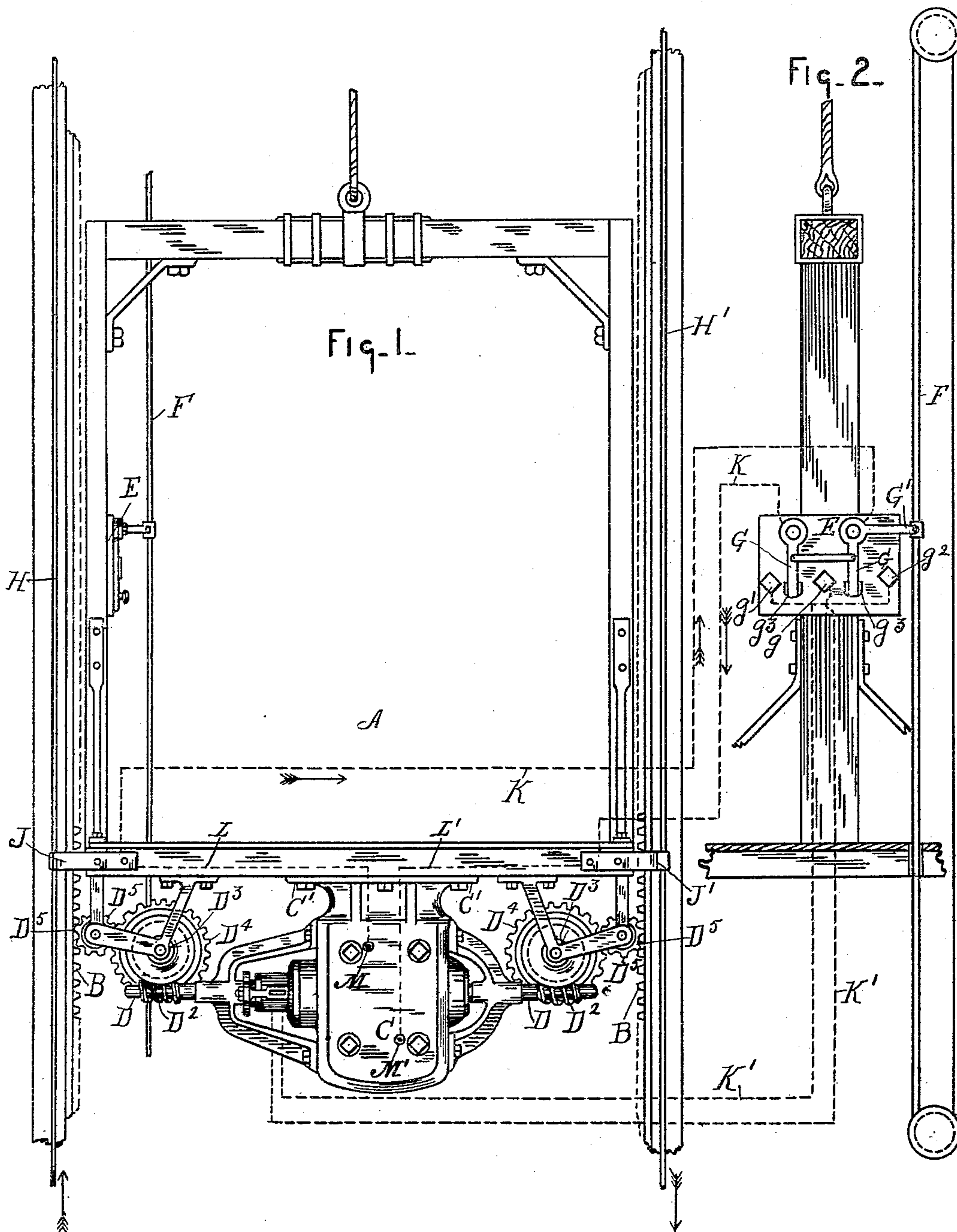


(No Model.)

H. H. BLADES & W. J. McKEE.
ELECTRIC ELEVATOR.

No. 462,527.

Patented Nov. 3, 1891.



WITNESSES

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HARRY H. BLADES AND WILLIAM J. MCKEE, OF DETROIT, MICHIGAN.

ELECTRIC ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 432,527, dated November 3, 1891.

Application filed January 11, 1890. Serial No. 836,806. (No model.)

To all whom it may concern:

Be it known that we, HARRY H. BLADES and WILLIAM J. MCKEE, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Electric Elevators; and we declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

In the drawings, Figure 1 is a vertical longitudinal section, showing parts in elevation, of an elevator embodying our invention. Fig. 2 is a diagrammatic view of switch, circuit-wires, and running-cord, the circuit-wires being shown as connected with the motor in Fig. 1.

It is the purpose of our invention to combine with an elevator, and more particularly a freight-elevator, an electric motor, the said motor connected with the elevator-cab and adapted to travel with it, and switch mechanism on the car for governing the admission of current to the motor; also, in connection therewith a continuous cable traveling with the car, whereby any person at any floor may operate the said electric switch and cause the elevator to ascend or descend to his level, as the case may be; also, in peculiar features of construction in connection with the said apparatus.

In carrying out our invention, A represents an elevator cab or platform.

B represents fixed rack-bars in the guides or ways along which the elevator travels.

C is an electric motor suitably supported by brackets C' or otherwise to the car and preferably beneath the car, although it may be located either above or below the car, as may be desired. The shaft D of this electric motor is provided with worms D², which in turn mesh with worm-gears D³.

On the shaft of the gear D³ is an ordinary gearing-wheel D⁴, which meshes with a suitable pinion D⁵, and this in turn engages the rack B. The said pinion is made of a suitable size to gear down the speed of the motor to correspond with the desired speed of the elevator.

L L' represent the wires connecting the field of the motor with the trolleys J J'.

M M' represent the terminals of the field. The course of the current is from the trolley J through L to M, through the field to M', and through L' to the trolley J'.

E is a switch located preferably within the elevator, so as to be operated by a person on the elevator. This switch governs the introduction of current to the armature of the motor.

F represents a running cord or continuous cable extending from the top to the bottom of the well, and which is connected with the switch in such manner that the switch may be operated from any floor, so that a person upon any floor may cause the elevator to ascend or descend to his position—that is to say, the switch (which needs no particular description since it forms no part of our present invention) is of that character which, by a motion in one direction, will introduce the current into the armature of the machine in a direction to cause the elevator to descend, while a motion in the opposite direction will introduce the current in a direction to cause the elevator to ascend, while with the switch at another fixed position the elevator will stand still. Such arrangement of switch is illustrated in diagrammatic form in Fig. 2. In this diagram F represents the running cord; K K', the armature-circuit; G, the switch-arms, and G' a projecting switch-lever which fixedly engages the said cord F. g and g' represent a set of terminals so connected with the motor-circuit that when the switch-levers are upon them the current will pass along the conductor K through the armature of the motor in a direction to cause the elevator to ascend; but by lifting on the cord F the switch-levers may be caused to rest upon the terminals g and g', in which event the current is directed through the armature of the motor in the reverse direction or in a direction to cause the elevator to descend, and by throwing the said switch into such a position as to connect with another set of terminals g² the current would be cut off or so manipulated as to hold the elevator at rest.

The current may be brought to the elevator

in any usual way—as, for instance, by connecting the same with two rods, one at each side of the elevator-well, and taking the current off from the said rods by trolleys. Such rods are shown at H H' and the trolleys are indicated at J J'. This arrangement of the motor upon the car reduces to the minimum the cost of construction. The worm-gear mechanism also imparts a very certain and positive motion to the car. Again, should the motor get out of order or the current be cut off, the engagement of the pinions with the rack-bar and with the worm-gears is such that the worm-gears serve to effectually lock and prevent the car from descending.

Instead of the worm-gear being located upon the armature-shaft, it may be formed on a shaft directly connected to and in line with the armature-shaft.

What we claim is—

The combination, with an elevator, of an electric motor located thereon, rack-bars at the sides of the well, gearing engaging the said rack-bars with the armature-shaft, and switch located on the elevator for governing the admission of current to the motor, and a running rope extending from the top to the bottom of the well, connected with said switch, whereby a person on any floor may operate the said switch and cause the elevator to ascend or descend, substantially as and for the purposes described.

In testimony whereof we sign this specification in the presence of two witnesses.

HARRY H. BLADES.
WILLIAM J. MCKEE.

Witnesses:

WELLS W. LEGGETT,
M. A. REEVE.