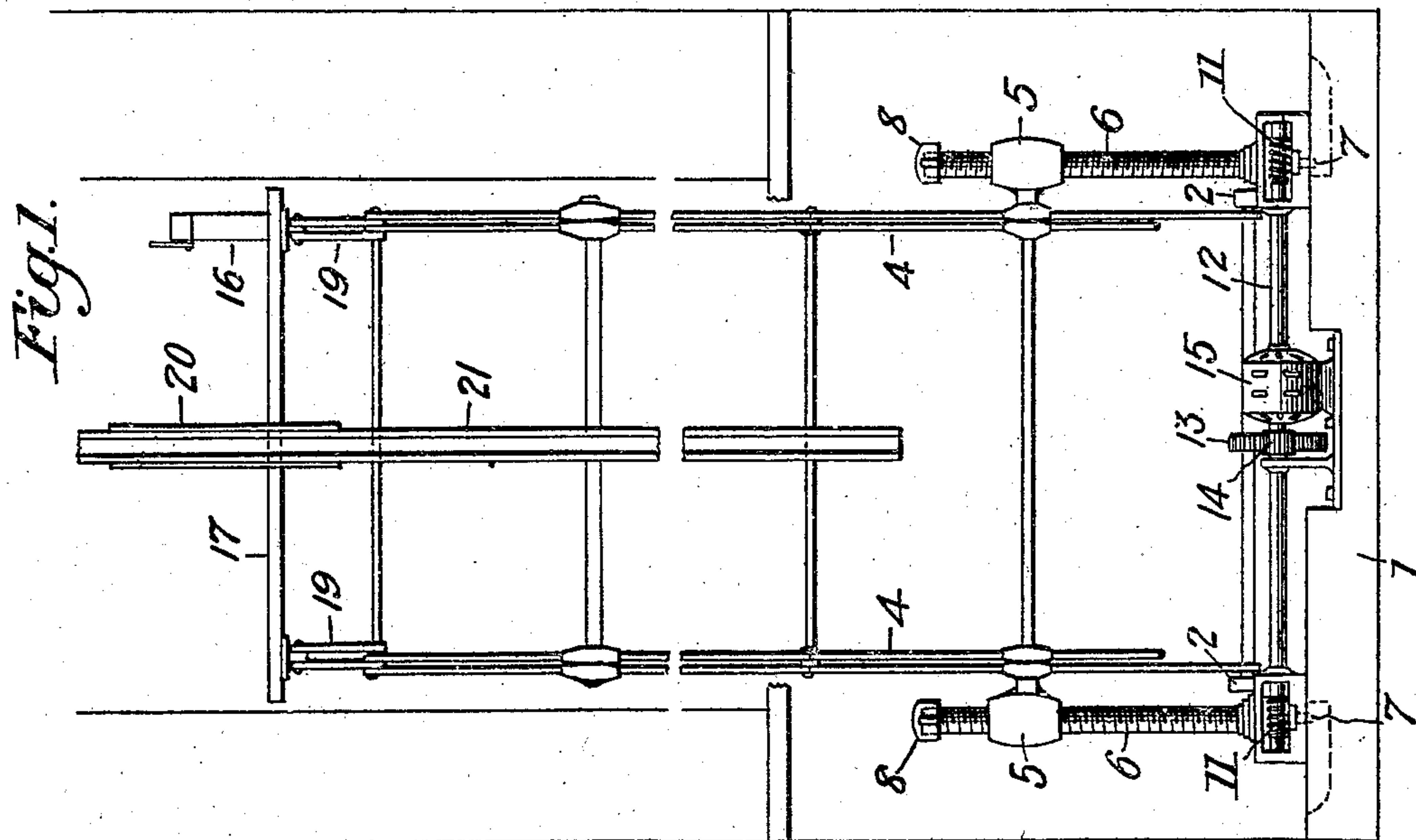
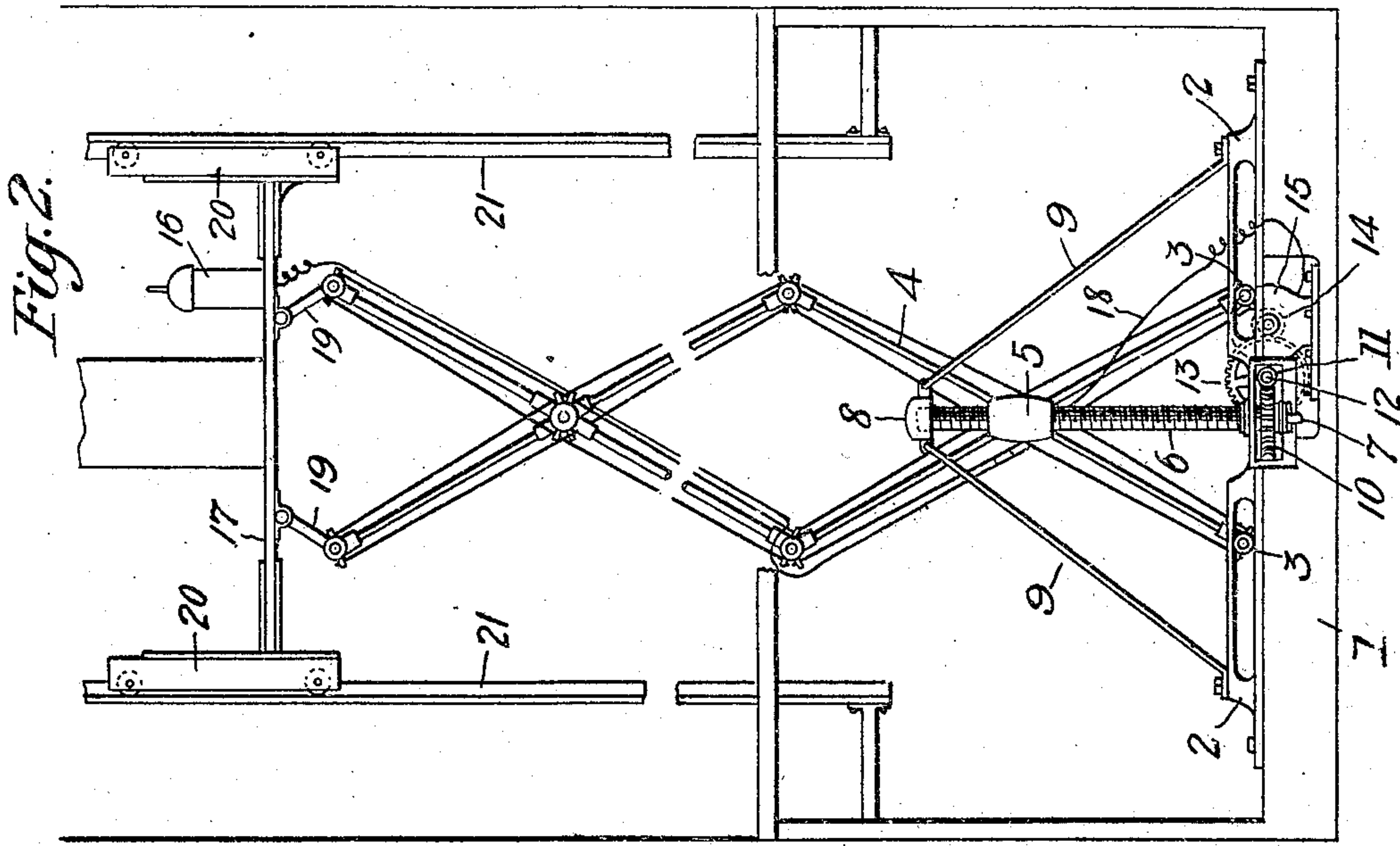


C. A. SCHWARZ.  
MOTOR AND LAZY TONGS ELEVATOR.  
APPLICATION FILED JAN. 15, 1910.

956,189.

Patented Apr. 26, 1910.



Witnesses:  
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Inventor:  
Carl A. Schwarz  
by W. H. Finkel Att'y.



# UNITED STATES PATENT OFFICE.

CARL A. SCHWARZ, OF HANCOCK, MICHIGAN.

MOTOR AND LAZY-TONGS ELEVATOR.

956,189.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed January 15, 1910. Serial No. 538,312.

*To all whom it may concern:*

Be it known that I, CARL A. SCHWARZ, a citizen of the United States, residing at Hancock, in the county of Houghton and State of Michigan, have invented a certain new and useful Improvement in Motor and Lazy-Tongs Elevators, of which the following is a full, clear, and exact description.

The object of this invention is to provide an elevator, portable or fixed, wherein the cage or car is mounted upon a lazy-tongs arrangement, the operation of which is effected by power appliances at the base, which are controlled by means carried in and by the cage or car.

One embodiment of the invention comprises a pair of lazy-tongs mounted upon a base, having guides for its lower members, and connected with operating screws which are actuated preferably by gear connection with an electric motor, and the upper ends of the pair of lazy-tongs connected to an elevator cage or car, having side runners traveling upon guide rails in the shaft or well, the said cage or car having mounted thereupon and carried thereby a controller wired to the motor, and the wires carried down by the lazy-tongs, all as I will proceed now more particularly to set forth and finally claim.

In the accompanying drawing, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a front elevation, some near parts partly broken away. Fig. 2 is a side elevation.

In both views of the drawing the elevator is shown as raised.

Any suitable foundation or support 1, stationary or portable, may be employed, and on this foundation are erected pairs of stationary guides 2. These guides receive and direct rollers 3 on the lower ends of the pair of lower members of the lazy-tongs 4. The lower members of the pair of lazy-tongs are provided with swivel-nuts 5, in which are arranged screw-shafts 6, which are stepped at 7 in the foundation, and are supplied with caps 8 at their upper ends, which may be braced to the guides 2 by means of rods 9.

Each screw-shaft 6 has a worm wheel 10 engaged by worms 11 on a shaft 12, suitably mounted and extending from one screw-

shaft to the other, and this shaft 12 has a gear wheel 13 in mesh with a pinion 14, on the shaft of the electric motor 15. This electric motor is stationarily mounted upon the foundation or support and is wired with a controller 16, arranged upon and carried by the cage or car 17, and the wire 18 is carried up by and supported upon the lazy-tongs, as shown more particularly in Fig. 2.

The elevator cage or car is connected with the upper ends of the pair of lazy-tongs by means of the toggles 19. The cage or car is supplied on each side with roller guides 20, arranged to travel upon T-shaped guide rails 21, erected on the sides of the shaft or well of the elevator. The roller guides and the guide rails serve to guide or direct the elevator in its vertical movements in the well or shaft.

As will be understood, the operator of the elevator, from his position in the cage or car, and by means of the controller 16, has entire control of the operating mechanism.

It will be understood, of course, that by rotation of the worm shaft 12 the screw-shafts 6 are turned, and thus the nuts 5 are caused to travel up or down said screw-shafts in accordance with their direction of rotation, and by this means the pair of lazy-tongs is extended or contracted respectively to raise and lower the cage or car. The controller 16 is reversible, and it and the motor may be of any approved construction.

While I prefer to use electric motor power, it is within my invention to substitute other forms of power, where the controlling medium may be arranged upon the cage or car, and be connected by some flexible medium with the motor, of whatever character, located at the bottom of the shaft or well.

By the construction described, a very simple, economical and efficient elevator is provided.

What I claim is:—

An elevator, comprising a cage or car, roller guides on its sides, guide rails in connection with which the said roller guides are arranged, a pair of lazy-tongs on which the cage or car is mounted, a support for said lazy-tongs, screw-shafts for actuating the lower members of said lazy-tongs mounted upon said support, worm-wheels on said screw-shafts, a worm-shaft also mounted upon said support and meshing with said

worm-wheels, a stationary electric motor mounted upon said support and geared to said worm-shaft, a reversible controller mounted upon and carried by the cage or car, and flexible operative connections between the controller and the motor.

In testimony whereof I have hereunto set

my hand this tenth day of January A. D. 1910.

CARL A. SCHWARZ.

Witnesses:

ADDIE WILLIAMS,  
PEARL KENDALL.