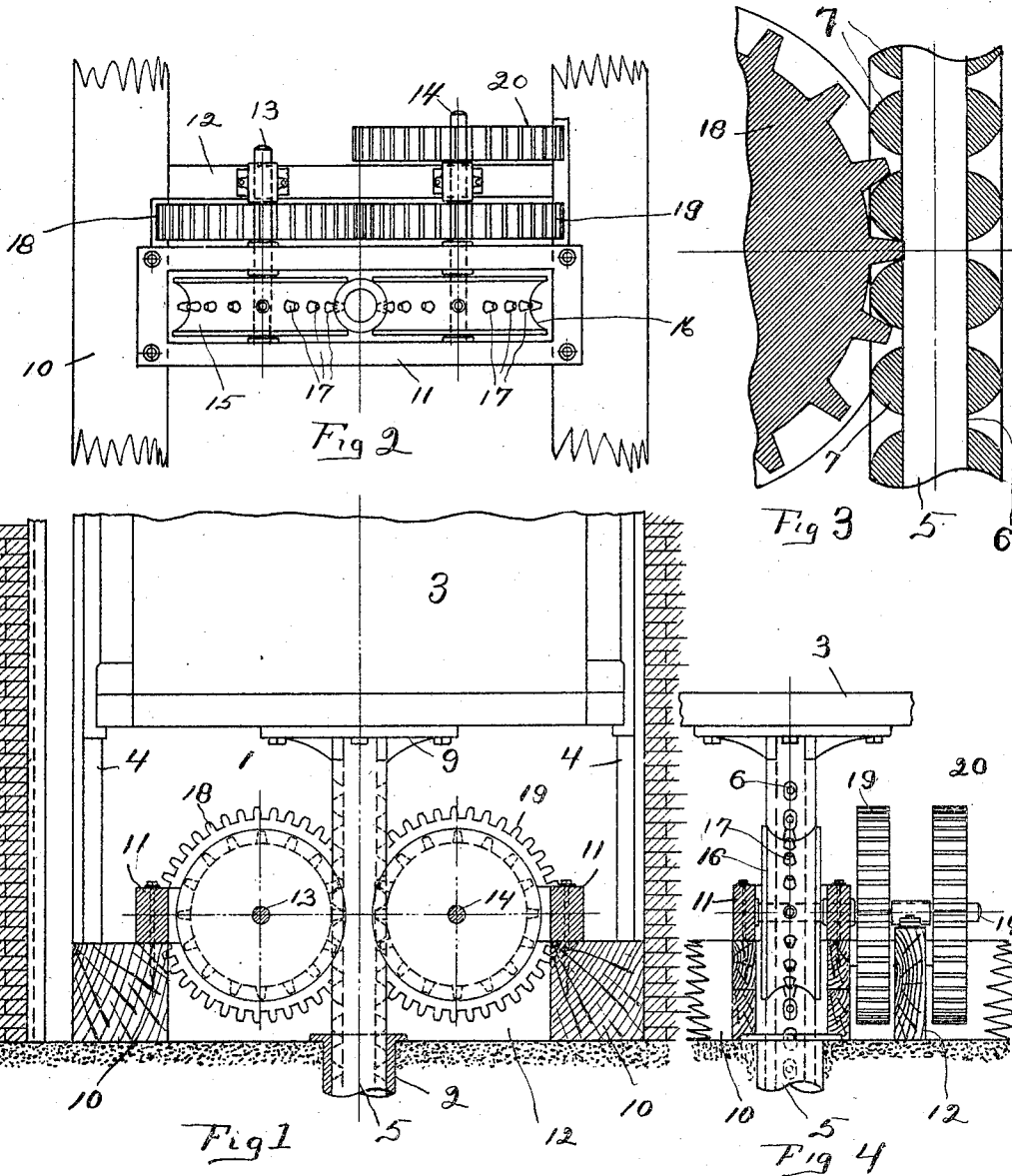


No. 789,003.

PATENTED MAY 2, 1905.

J. CASHO.
ELEVATOR.

APPLICATION FILED SEPT. 3, 1904.



WITNESSES:

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ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 789,003, dated May 2, 1905.

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To all whom it may concern:

Be it known that I, JOSEPH CASHO, 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 Elevators, of which the following is a specification.

This invention relates to certain improvements in the plunger-type elevators, which will be more clearly hereinafter pointed out.

The object of this invention is to eliminate the hydraulic type of plunger-elevators; and with this and minor objects in view my invention consists in the parts and the combination of parts as hereinafter set forth.

In the drawings, Figure 1 is a section of the elevator-well, showing my invention in position, the car being in elevation. Fig. 2 is a top plan view of the same with the car and walls removed. Fig. 3 is a detailed section of the plunger and sprocket-wheel. Fig. 4 is an end elevation of Fig. 2 with an addition of a portion of the car.

1 represents the well of the elevator, from the bottom of which depends a tube 2 of the desired length.

3 is the car, running upon suitable ways 4 in the well.

5 is a tubular plunger circular in cross-section, in diametrically opposite sides of which are formed in any suitable manner openings, on each side of which the metal is compressed to form rack-teeth 7. This plunger is secured, by means of a bracket 9, to the platform of the car 3 and is of the desired length according to the height of the building in which it is intended to be used.

10 represents timbers secured on opposite sides of the elevator shaft or well, upon which is mounted and secured in any desired manner the frame 11.

12 is a joist extending between the timbers 10 to one side of the frame 11.

13 and 14 are shafts suitably journaled in the frame 11 and on the joist 12, upon which are mounted grooved wheels 15 and 16, respectively, each of said wheels being provided with conical-shaped teeth 17, positioned in the bottom of its groove. It will be seen that

these wheels are fixed to the shafts 13 and 14 within the frame 11.

18 is a gear-wheel keyed to shaft 13 between the joist 12 and the frame 11.

19 is a gear-wheel keyed to shaft 14 between the joist 12 and the frame 11, and 20 is a gear-wheel keyed to shaft 14 beyond the joist 12.

As stated, it is my purpose to build an elevator of the plunger type; but instead of using water in connection with the plunger I make the plunger of extra heavy pipe or tubing and run the plunger between the grooved wheels 15 and 16, the grooves of which are turned out to fit the plunger closely to obviate the possibility of a slip. The gear-wheels are designed to time the revolution of the grooved wheels 15 and 16, so that their teeth are timed to engage the rack formed on the plunger and the grooved wheels pinch the plunger to prevent any jumping. The plunger can be made any length, and the driving mechanism may be any motor.

By means of my invention I am enabled to make an elevator with the least amount of friction, which can be counterweighted from the weight of the car and plunger. For instance, say the capacity of the elevator is three thousand pounds and the average load about eight hundred pounds, in which case I would counterweight the elevator to balance the eight hundred pounds on the car, so that should there be nothing on the car the counterweight would be sufficient to pull the car up and the engine would be employed to pull it down. By having the elevator geared in this way a much smaller motor will do the work, as the motor may operate the car either way.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A tubular plunger for elevators having openings in two diametrically opposite sides, said openings forming racks.

2. In an elevator, the combination with the plunger having teeth formed in two diametrically opposite sides thereof, of grooved wheels journaled to embrace the plunger, and there being teeth formed in the bottoms of

the grooves, adapted to mesh with the teeth of the plunger.

3. In an elevator, the combination with grooved wheels journaled in the well, and having conical-shaped teeth in the grooves thereof, and gear-wheels journaled upon the shafts of said grooved wheels, of a tubular plunger having teeth formed in two diametrically opposite sides thereof, said plunger being constructed to pass between and be embraced by the grooves of said grooved wheels while the teeth of said plunger intermesh with the teeth in the grooves of said wheels.

4. In an elevator, the combination with suitable timbers in the well thereof, a frame extending between said timbers, a joist extending between said timbers, but spaced from said frame, shafts journaled in said frame on

said joist, grooved wheels keyed to said shafts within the frame and having conical teeth secured thereto in the bottom of their grooves, and gear-wheels keyed to said shafts between the frame and said joist and intermeshing with each other, of a car and a plunger secured to the bottom thereof, and depending therefrom between the said grooved wheels, the grooves of said wheels embracing said plunger, the said plunger having teeth formed in two diametrically opposite sides.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH CASHO.

Witnesses:

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