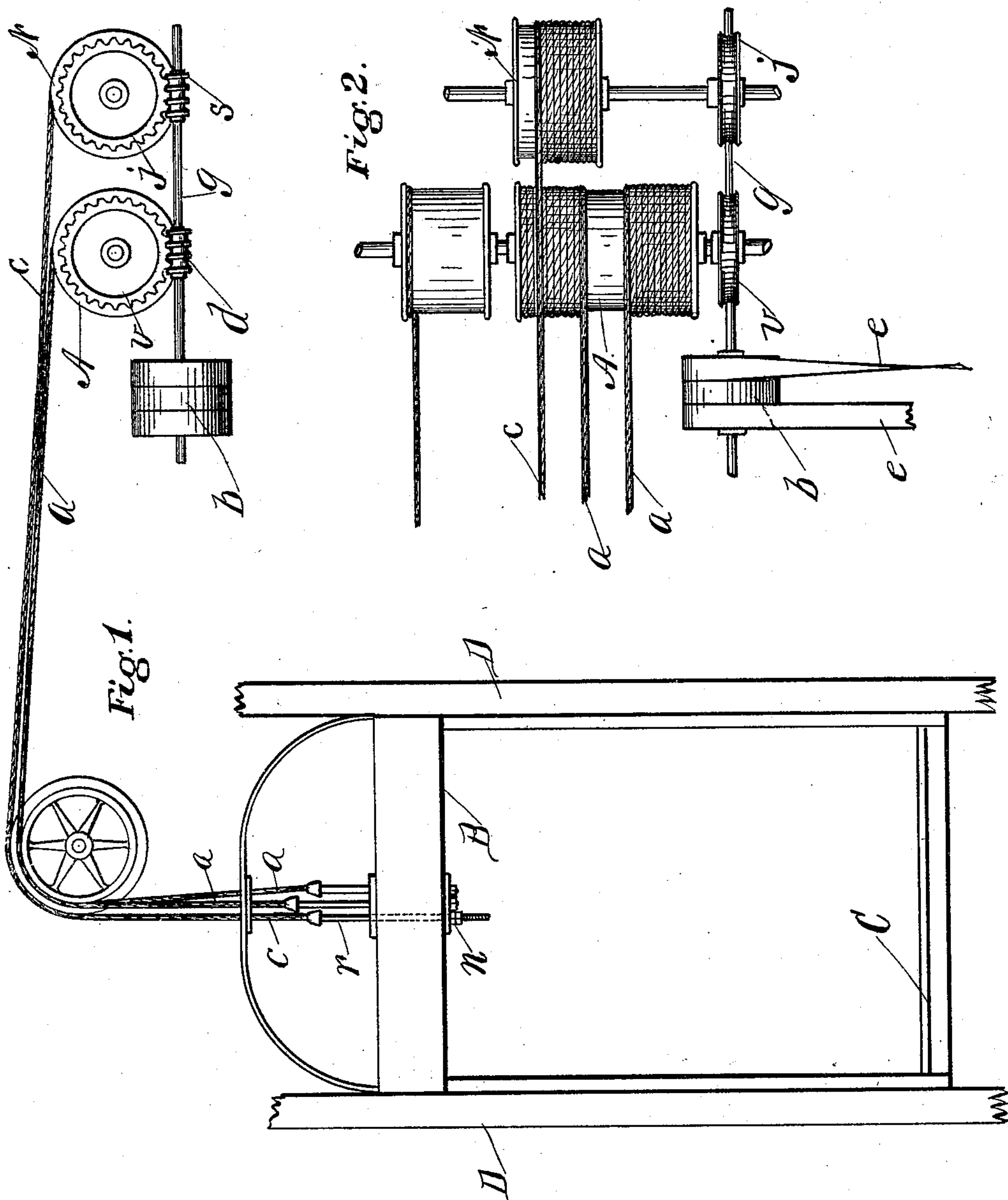


(No Model.)

B. F. COVEL.
ELEVATOR.

No. 599,768.

Patented Mar. 1, 1898.



WITNESSES

Benj. L. Dennis.
M. E. Lawton.

INVENTOR

Benjamin F. Covel
BY
Arnold & Barlow.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

BENJAMIN F. COVEL, OF FALL RIVER, MASSACHUSETTS.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 599,768, dated March 1, 1898.

Application filed October 26, 1897. Serial No. 656,415. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. COVEL, of Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Elevators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates to elevators, and has for its object to provide for the safety of the persons and property carried on them in case of accident to the operating machinery. It is intended especially to provide something more trustworthy than the usual clamps and catches for preventing the fall of the elevator-car in case the hoisting-ropes or the gearing that drives the rope-drums should break. It is fully explained and illustrated in this specification and the accompanying drawings.

Figure 1 is a front elevation of the elevator-car and the hoisting part of the running mechanism. Fig. 2 is a top view of the drums and their gearing.

The object of the invention is accomplished by providing another drum similar to that carrying the hoisting-rope, with a like rope to be secured to and wound on this auxiliary drum and attached by the other end to the elevator-car. This auxiliary drum is driven, preferably, by the same shaft that drives the hoisting-drum, and like gearing connects it with the shaft that it may have the same speed as the hoisting-drum, but keep a little slack in the rope between the auxiliary drum and the car.

In the drawings a freight or mill elevator is shown, though the invention is applicable as well to passenger-elevators.

Those parts of the mechanism provided for starting and stopping the cars are omitted for sake of clearness.

C is the elevator-car, that slides up and down between the posts D D.

B is the top cross-beam of the car, to which the hoisting-ropes *a a*, that run to the hoisting-drum A, are attached, and also the rope *c*, that runs to the auxiliary or "idler-drum" N, as it may be called, as it does no work except to wind up the rope *c* and keep it nearly taut between it and the car, while the weight of the car is wholly supported by the ropes *a a* and the drum A.

The drum A is driven to operate the car by a worm *d*, fast on the shaft *g*, and which engages with a worm-gear *v*, fast on the shaft of the drum A. The shaft *g* receives motion through the pulleys *b b* and the belts *e e* directly from a motor or other shafting connected with a motor. The idler-drum N is also driven by a worm *s*, fast on the shaft *g*, and a worm-gear *j*, secured to the shaft of that drum. The drum on the end of the shaft of drum A is intended to receive the rope from a weight to balance the weight of the car.

The object in driving the circumferential surface of the two drums at the same speed is that if the hoisting-ropes *a a* or the gearing of the drum A break to have the weight of the elevator-car come on the idler rope and drum and its gearing with as little shock as possible, and also to wind up the auxiliary rope at the same speed as the hoisting-ropes, which makes it necessary, as before stated, that the rope *c* should be nearly taut as may be and not take any of the weight of the car, and to allow for the stretch of the ropes *a a*, which would take up that slack, the attachment of the rope *c* to the beam B is made by means of a bolt *r*, having a screw-thread made on it and nuts *n* fitted thereon, by the turning of which more or less slack can be given to the rope *c*, as may be needed, to make it slightly looser than the hoisting-ropes *a a*. The ropes from the drums may be attached directly to the beam of the elevator-car or through the intervention of other safety devices, as may be preferred.

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

The combination of an elevator-car, a main hoisting-rope for said car and a drum for said rope, a slack auxiliary rope and a drum to receive it, to take the weight of the car in case of an accident to the main hoisting-rope, its drum or gearing, a shaft, worms fast on said shaft, worm-gears secured to the shafts of said drums and engaging with said worms, substantially as described.

In testimony whereof I have hereunto set my hand this 23d day of October, A. D. 1897.

BENJAMIN F. COVEL.

In presence of—

BENJ. ARNOLD,
M. E. LAWTON.