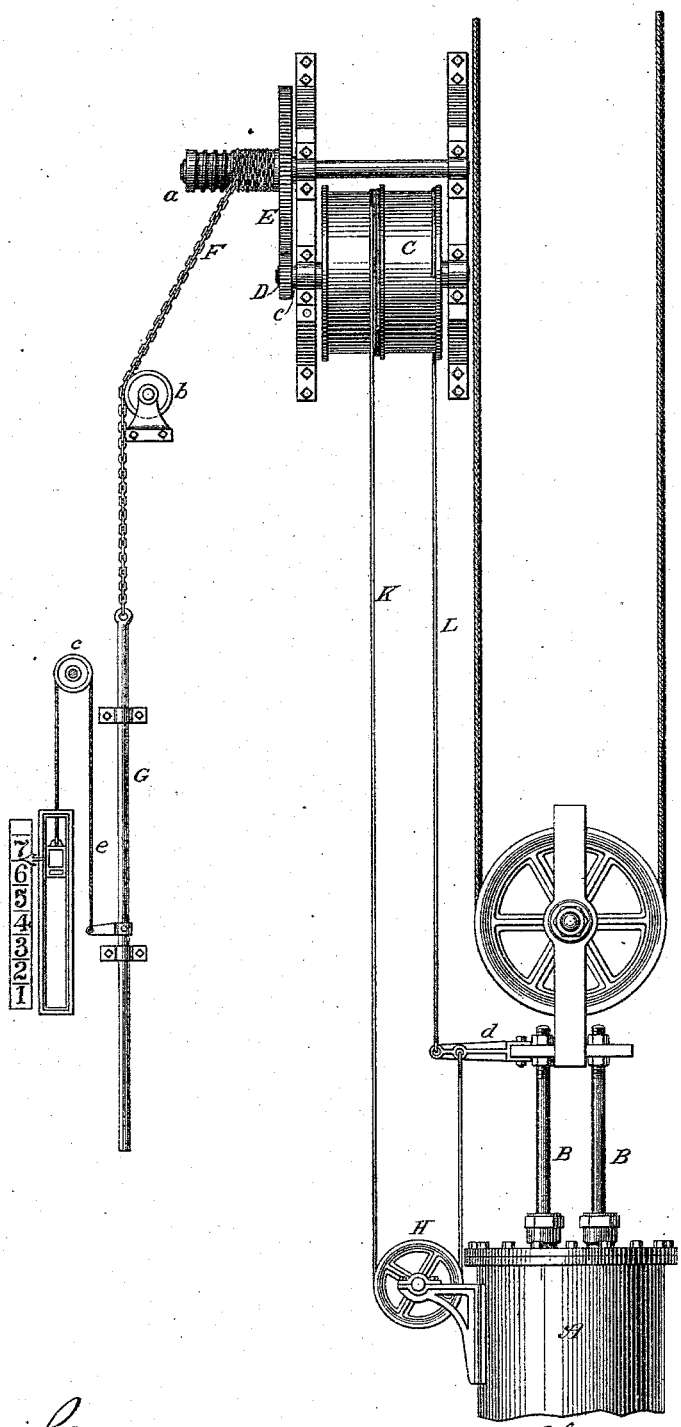
(No Model.)

T. S. YOUNG.

INDICATOR FOR ELEVATORS.

No. 303,247. Patented Aug. 5, 1884.



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INDICATOR FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 303,247, dated August 5, 1884.

Application filed January 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, THOMAS S. YOUNG, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Indicators for Elevators, of which the following is a specification, reference being had to the drawing accompanying and forming a part of the same.

My invention relates to devices for indicating at one or more points the position and movements of an elevator-car. Heretofore this has usually been done by means of a rod, chain, or rope having pointers attached, and connected through some form of motion-reducing mechanism to the devices for imparting motion to the elevator-car. For instance, a drum for imparting motion to the rod or chain has been connected by a belt to the drums carrying the hoisting-cables, or to some equivalent moving part, the motion of the latter being thus imparted to the indicator. In practice it has been found, however, that the means heretofore employed are open to many objections and need constant attention or adjustment in order to give good results. This is due to the fact that in all devices for this purpose known or used the slipping of the belts and cables not being in any way compensated for, the indicating devices failed to give a correct indication of the actual position of the car. These objections are, in the main, what I seek to avoid in my improved indicator; and this I accomplish by making a positive connection between the indicator-rod, or the device for moving the same, and some part of the hoisting devices, the movement and position of which at all times correspond to that of the car.

For convenience I have illustrated my invention as applied to an ordinary form of hydraulic elevator, showing so much of the mechanism of the latter as is necessary to an understanding of the purpose and principle of operation of the invention.

The drawing shows in elevation the indicating mechanism and portions of a hydraulic hoist or elevator mechanism.

A designates the cylinder of the elevator-hoisting device; B B, the piston-rods and parts connected therewith. In the operation or use of the elevator these rods are moved in and out of the cylinder A, and, being connected by suitable gearing for multiplying their motion with the car, it is evident that their movements and position will always correspond with that of the car.

On a proper support in the top of the elevator-shaft I mount a double drum, C, the shaft *c* of which carries a gear-wheel, D, meshing with a larger wheel, E. On the shaft of the latter, or on that of a similar wheel in case the train be extended for still further reducing the motion, is a winding-drum, or, what is preferable, a worm, *a*, in the threads of which is wound a cord or chain, F, passing over a pulley, *b*, and connected to the rod G. This rod is usually of brass, and is held vertically in the elevator-shaft, and, if so desired, in a position where it and the pointers connected thereto can be easily seen by persons on the several floors of the building. Generally, however, cords *e* are attached to the rod at the desired points and run over pulleys *c*. Weights or indicators of any kind are suspended in the face of an index-plate from the ends of these cords.

H is a fixed pulley set at a convenient point below the cross-head of the piston-rod B. A cord, K, is brought through the drum C about its middle, carried around the pulley H, and made fast to a pin, *d*, on the piston-rod B. A second cord, L, is brought through the drum C, near its edge, and connected to the pin *d* on the piston-rod. The cords are carried around the drum C a certain number of times in opposite directions, so that as the piston-rod B rises the drum will be turned in one direction; but when the piston sinks the drum will be turned in the other direction. The rod G will in consequence be raised or lowered, and its position will always correspond to that of the piston-rod B or the elevator-car, which the latter moves.

I have now described a specific, and what I regard as the best, means of carrying out my invention. That the same may be varied or modified in many ways is obvious. For instance, the cords K L may be connected directly to the elevator-car, though, from the greater range of motion of the latter, it is evident that more complicated motion-reducing devices will in that event be required.

I have described the drum C as a double drum, meaning thereby a drum sufficiently wide for holding the two cords K and L on its surface, or a drum divided by a central flange or any equivalent therefor. This drum may be placed at such part of the elevator-shaft as circumstances may render most convenient. The use of the two cords, both positively connected to the drum and to a moving part of the hoisting mechanism, insures a correct and reliable action of the indicator.

What I claim as my invention is—

1. The indicator for elevator-cars, consisting of a drum connected with and operating the indicators, in combination with cords or bands wound in opposite directions thereon, and connected to a moving part of the hoisting mechanism, and a fixed pulley beyond the limit of movement of the point of connection of the cords, as and for the purpose specified.

2. The combination, with the piston-rod of an elevator-hoisting mechanism, of a fixed pulley, a double drum, cords connected to the piston-rod and carried around the drum in opposite directions, and indicating mechanism connected with and operated by the drum, as set forth.

3. The combination, with the piston-rod of an elevator-hoisting mechanism, of a fixed pulley, a double drum, cords connected to a pin set in the cross-head of the piston-rod and carried around the drum in opposite directions, a train of wheels driven by the drum, and a vertical movable indicating-rod connected to and operated by said train, as and for the purpose specified.

4. The combination, with the piston-rod B, of the fixed pulley H, the double drum C, the cords K L, the rod G, the train of wheels driven by the drum, and the connection F, these parts being constructed and arranged in the manner set forth.

In testimony whereof I have hereunto set my hand this 24th day of January, 1884.

THOMAS S. YOUNG.

Witnesses:

W. H. HARTLEY,

W. FRISBY.