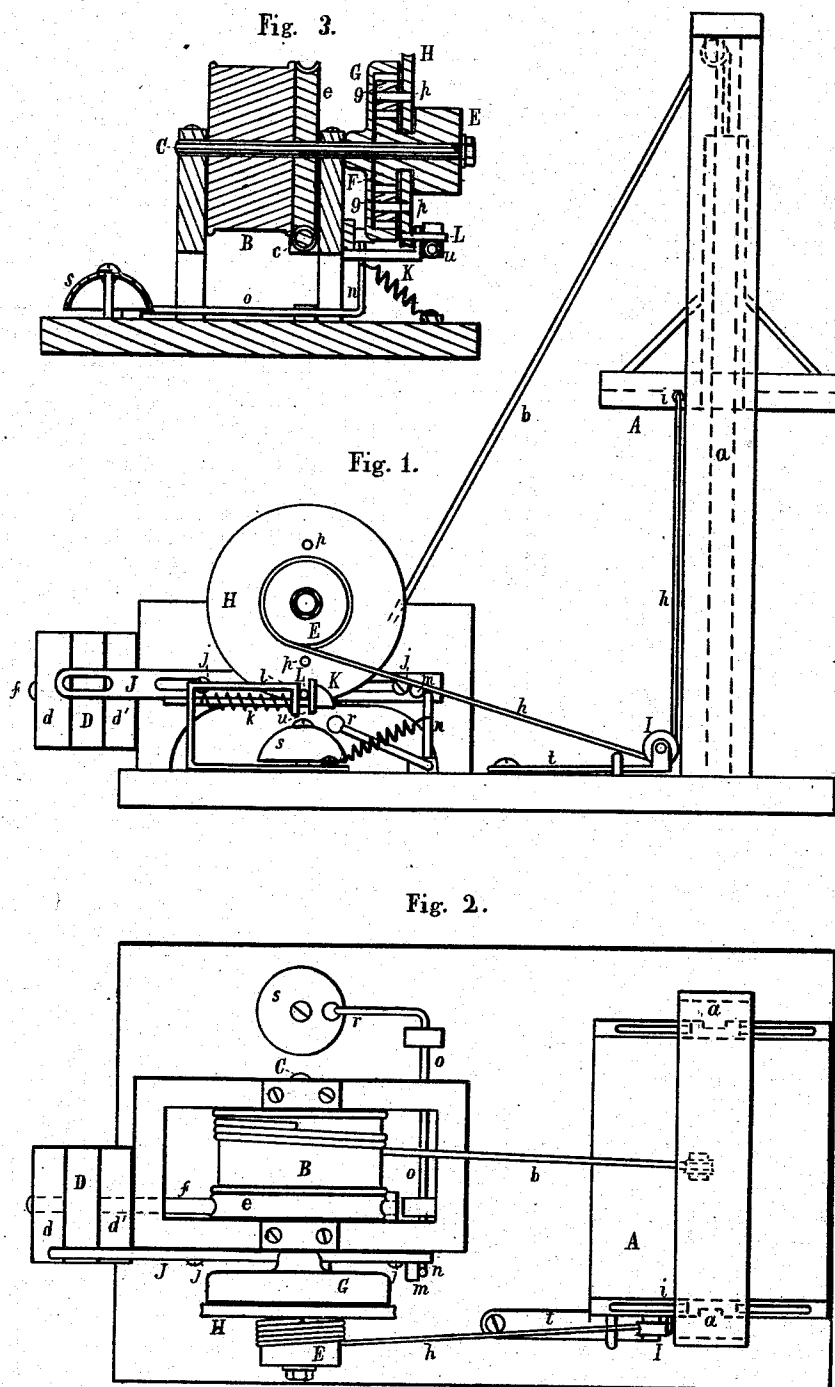


H. E. BATHRICK.

Safety-Attachments for Elevators.

No. 158,234.

Patented Dec. 29, 1874.



Witnesses:

Sam^l F. Thompson,
Edw. Dunimer,

Inventor:

Henry E. Bathrick

UNITED STATES PATENT OFFICE.

HENRY E. BATHRICK, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SAFETY ATTACHMENTS FOR ELEVATORS.

Specification forming part of Letters Patent No. 158,234, dated December 29, 1874; application filed May 22, 1874.

To all whom it may concern:

Be it known that I, HENRY E. BATHRICK, of Boston, State of Massachusetts, have invented an Improvement in Elevators, of which the following is a specification:

My invention relates to a safety attachment for elevators, and has for its object, first, an arrangement by means of which, through the use of compound gearing and a rope attached to the bottom of the car, the driving-belt shall be shipped from the driving to a loose pulley in case the car meets with an obstruction; and, secondly, an alarm which shall be made to sound at the same time with said shipping of the driving-belt.

It is well known that in working an elevator, should the car meet with any obstruction on its downward passage, the drum continuing to revolve, the hoisting-ropes are slackened, and are consequently liable to become entangled, caught in the gearing, and severed, and also that, the obstruction being overcome, the car suddenly drops. To insure against any such accidents I use the following-described arrangement:

Figure 1 shows an elevation of so much of an elevator and its driving machinery, with my attachment, as will illustrate my invention. Fig. 2 is a plan of Fig. 1. Fig. 3 is a vertical cross-section through the center of drum B and shaft C.

A is the car of the elevator, moving on the guides *a a*. B is the drum on shaft C, and on which wind the hoisting rope or ropes *b*. The drum B and shaft C are driven by the main driving-pulley D on shaft *f* by means of the worm *c* and worm-gear *e*. *d d'* are loose pulleys on the shaft *f*. I place on the shaft C the loose pulley or drum E, which has rigidly attached to it the gear F, also moving freely on shaft C. Fixed rigidly on the same shaft C is the internal gear G. Between the gear F and the drum E, turning freely on the hub which connects the two, as shown, is the wheel or disk H. This disk carries with it the pinions *g g*, which turn also on the studs *p p*, fixed in disk H. The teeth of these pinions mesh into both the teeth of gear F, and internal gear G on the drum E winds the rope *h*, which, passing around the pulley I, is attached to the car A at *i*. The shipper J slides, being guided

by a suitable arrangement, as by the studs *j j*. An arm, K, is attached to the shipper, and also presses against a pin, L, fixed firmly to the disk H. This pin L also presses against the stop *l* when the shipper holds the belt on the driving-pulley D, being drawn thereto by the rod and arm *u* and spring *k*.

The arrangement of parts being as described and shown, the operation is as follows: The driving-belt being on the driving-pulley D, and the car A moving freely downward, as the rope *b* unwinds from the drum B by means of the internal gear G, pinions *g g*, and gear F, the rope *h* is wound on the drum E, the drums B and E and the gears being of proportionate size to keep the ropes taut. In this operation the disk H remains stationary, the pinions *g g* turning only on the studs *p p*. But when the car meets with any obstruction, and is stopped on its downward passage, the drum E cannot turn, being held by the rope *h*, attached to the car; hence the pinions *g g* and disk H turn about the shaft C, and the stud or pin L, by means of the arm K, slides the shipper, carrying the belt from the driving-pulley D to the loose pulley *d'*, and the revolution of drum B is stopped. On reshipping the belt by hand onto the driving-pulley the stud L returns to its former position against the stop *l*. On the shipper is the projection *m*, which, by means of a suitable arm, *n*, and connecting-rod *o*, operates the hammer *r*, which strikes the bell *s*, so that at the same time when the shipper carries the belt from the tight to the loose pulley an alarm is given.

It will be noticed that the pulley I is attached to a spring, *t*, for the purpose of compensating for any difference in the speed of drums B and E, and that thus the pulley I has a vertical movement on the tightening of the rope *h*. I am well aware that this vertical motion or an equivalent effect might be employed to move the shipper directly.

I claim as my invention—

1. The combination of the drums B and E, ropes *b* and *h*, car A, and the compound gearing, consisting of the internal gear G, gear F, and pinions *g g*, all arranged and combined substantially as and for the purpose hereinbefore set forth.

2. The combination of the car A with the

rope *h*, winding upon the drum in a direction opposite to the hoisting-rope, for the purpose of operating the stop mechanism.

3. The combination of the disk *H*, shipper *J*, rod and arm *u*, stop *l*, and spring *k*, arranged and for the purpose substantially as hereinbefore set forth.

4. The combination of the shipper *J*, projection *m*, hammer *r*, and bell *s*, substantially as described.

HENRY E. BATHRICK.

Witnesses:

SAMUEL F. THOMPSON,
EDW. DUMMER.