

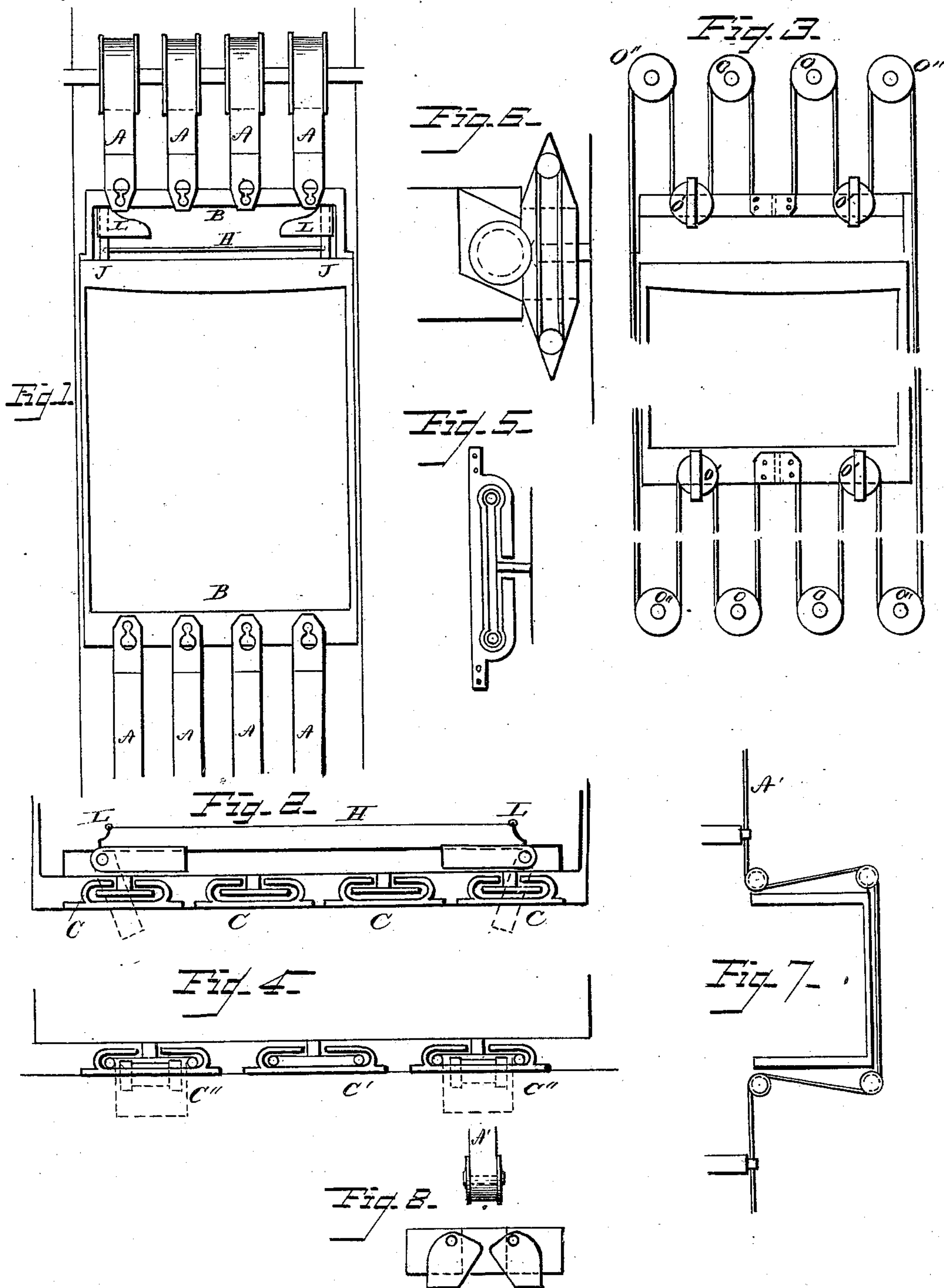
(No Model)

D. W. & H. D. SWIFT.

PROTECTING ELEVATOR SHAFTS AND THEIR HATCHWAYS.

No. 273,323.

Patented Mar. 6, 1883.



WITNESSES

H. L. Curand.

C. J. Williamson.

INVENTORS

D. W. Swift,

H. D. Swift,

by J. G. Arnold

Attorney



# UNITED STATES PATENT OFFICE.

D. WHEELER SWIFT AND HENRY D. SWIFT, OF WORCESTER, MASSACHUSETTS.

## PROTECTING ELEVATOR-SHAFTS AND THEIR HATCHWAYS.

SPECIFICATION forming part of Letters Patent No. 273,323, dated March 6, 1883.

Application filed September 2, 1882. (No model.)

*To all whom it may concern:*

Be it known that we, D. WHEELER SWIFT and HENRY D. SWIFT, both of the city and county of Worcester, State of Massachusetts, have invented certain Improvements in Protecting Elevator Shafts or Wells and their Hatchways, of which the following is a specification.

The object of our automatic protector is to provide a safe, sure guard for elevator shafts or wells and their hatchways at all times when they are not in actual use. It is designed to be automatically removed and replaced by the elevator in use without other attention. Its nature is shown in the accompanying drawings and following description of the apparatus embodying our invention.

In said drawings, Figure 1 is a front view of an elevator-car and adjacent parts as fitted with a belt protector, Fig. 2 showing a plan of the front edge as passing a floor with the attachments to the floor. Fig. 3 is a similar view of a car, &c., fitted with a protector of ropes or chains, Fig. 4 showing a plan of the edge of the car and floor it passes. Figs. 5 and 6 are enlarged views of some of the holders to secure the protectors to the floors; and Fig. 7 and 8 show some details and modifications, hereinafter more particularly described.

In Fig. 1, the belts A A A are fastened by one end to the bottom of the car B by suitable studs having narrow necks, as shown in Fig. 2, so they can carry the belts through the holders C C C C, which are attached to the floors. The belts pass down to the lower part of the shaft over suitable flanged pulleys or drums on shafts, across the shaft and up behind the car the whole length to the top, across the top, over similar pulleys or drums, down in front to the top of the car or to the bar B', attached to the top of the car, to receive them, the belts moving round as the car rises or falls. The ends of the belts we provide with a metallic sheath firmly riveted or secured thereto, and having a slot with an opening, as shown, to allow their being put over the heads of the studs, whose necks close to the heads fit into the slots and hold the belts a short distance off from the car, so that the lips of the holders may pass between them and the edge of the car. Any number of belts may be used ac-

cording to the width of the car. We prefer about four to six inch belts, placed from six to eight inches apart, though these may be governed by circumstances, and varied in different cases. The holders being provided for each floor, the belts will be securely held in place and give ample protection.

To prevent the bar B' from accidentally, in descending, doing injury by hitting any person looking down or goods left projecting from the floor into the car, we place the protector-belt H a little below the bar B', with its ends secured to short arms on the perpendicular shafts J J at each side, on which shafts are firmly fastened the stoppers L L, made sufficiently strong to stop the car, when turned out, by projecting over the floor, they being held back in place, as shown in Fig. 2, by springs which stretch the belt H tight, and when anything is in the way and hits the belts it throws out the stoppers, as shown in dotted lines, Fig. 1, instantly stopping the car before any injury can be done. A yielding belt or coiled spring in its place might be used, if preferred.

In cases where the car is used from both front and back, or for other reasons, the belts cannot pass up and down behind the car, they may be turned quartering at the top and bottom, and so pass on one or both sides of the car; or the plan shown in Fig. 3 may be used, which shows an arrangement of ropes or chains in place of belts, and accomplishing the same results, their ends being held in a T-clamp fast to the middle of the car, and then over the pulleys O O' O'', and the whole length of the elevator shaft or well—one on each side. The T-clamp carries the ends through a holder, as shown in Fig. 5, and for the pulleys we provide an automatic holder by placing a roller in a cavity having an inclined bottom, as shown in Fig. 6, so that it shall roll forward into position shown in Fig. 4, against the lips of the holders, holding the ropes apart by its ends. Each of the pulleys on the car we provide with a pointed shoe or guard projecting sufficiently to press the roller up the incline in passing, as shown in Fig. 6, to allow the pulleys to pass, and allowing them to roll back immediately after they have passed, and securely hold the ropes in place. Of course instead of two ropes or chains only one might be used, holding its



ends in suitable clamps on one side of the car and passing up or down the other, though we prefer two as giving less velocity to the middle of them and the pulleys; and in some cases it may be preferable to use more, and fastening their ends to the car pass over pulleys at the top and bottom, like the belts in Fig. 1, either to the back or sides; or their ends may be fastened at the top and bottom of the elevator shaft or well, and by pulleys or drums attached to the car, they may be made to pass behind it, as shown in Fig. 7, in which case the holders should be provided with movable lips to be pressed away to allow the rolls on the car to pass and close behind them to hold the rope or chain, a plan of one being shown in Fig. 8.

It will be seen that by the use of a series of belts ample protection is secured, and there is space between them for the attendant to reach the hand-ropes or mechanism for starting or stopping the motion of the car, that the light is not obstructed, and the car can be seen, so that its position can be known and they can be applied in cases where an apron as heretofore used is not applicable. As they require so little space, they can be readily applied with the various hoisting mechanisms or the pistons or elevating mechanisms at the bottom; and

they can, when desired, be turned to run back on either or both sides, as described.

We claim—

1. The automatic protector described, consisting of a series of belts (with spaces between them through which the starting and stopping mechanism can be reached) adapted to be run over pulleys and be operated by the motion of the car, when constructed and operating in the manner and for the purposes above set forth and described.

2. The protecting-guards, substantially as described, in combination with the holders securing them to the floors, substantially as and for the purposes described.

3. The safety-belt H and its stoppers L L, with their operating mechanism, substantially as set forth.

4. In a moving protector for elevator-shafts, &c., the metal-tipped belts held on studs or their equivalents, when constructed and operating substantially as and for the purposes described.

D. WHEELER SWIFT.

HENRY D. SWIFT.

Witnesses:

SARAH J. SWIFT,  
J. G. ARNOLD.