June 21, 1932. A. E. PRINCE 1,864,093

ELEVATOR CONSTRUCTION

Filed Aug. 23, 1930

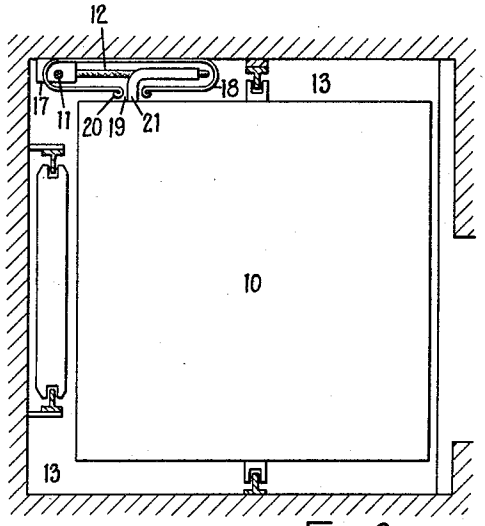


FIG. 2

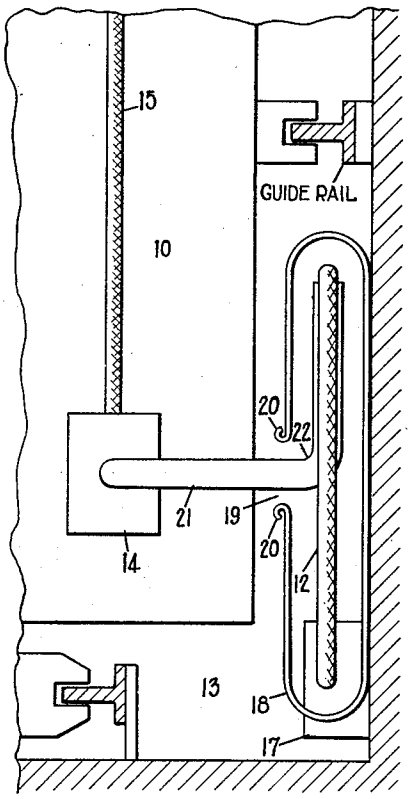


FIG. 3

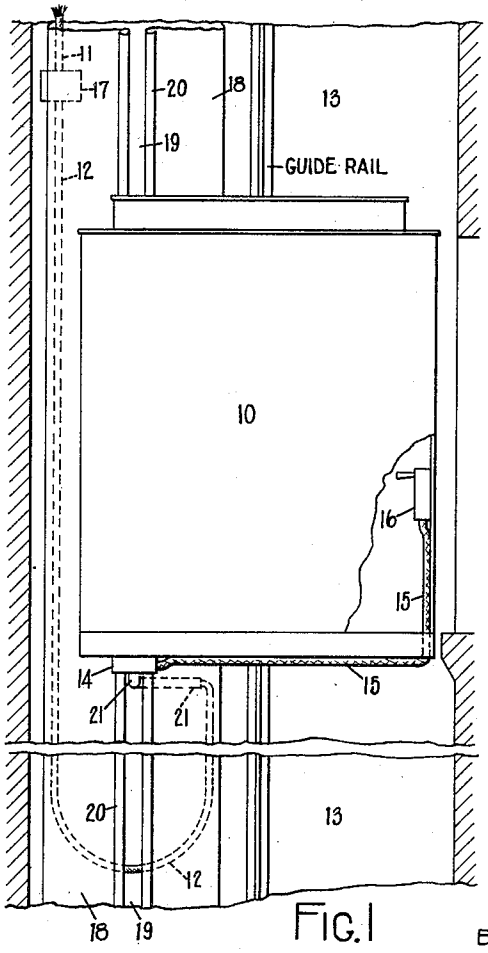


FIG. 1

Arthur Ennis Prince INVENTOR

BY Walter E. Bradley ATTORNEY

Patented June 21, 1932 1,864,093

UNITED STATES PATENT OFFICE

ARTHUR ENNIS PRINCE, OF MERRICK, NEW YORK, ASSIGNOR TO OTIS ELEVATOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY

ELEVATOR CONSTRUCTION

Application filed August 23, 1930. Serial No. 477,208.

The present invention is directed to elevators and relates especially to the travelling cable or any similar flexible member depending from the elevator car in the hatchway.

The usual practice is to suspend the travelling cable from two junction boxes, one fastened to a side wall of the hatchway and the other fastened to the bottom of the elevator car, and to allow the cable to depend freely from its points of suspension in the hatchway. Thus, the cable is free to swing in the hatchway with the result that in certain installations it may catch on members extending into the hatchway or may catch on or interfere with other moving objects in the hatchway. For example, this swinging of the elevator travelling cable may be caused by the pitch or roll of the ship in elevator or dumbwaiter installations on shipboard. Also, this swinging may be caused by air currents which traverse the hatchway, particularly in cases where the hatchway is exposed. Interference with the travelling cable is likely to occur in installations where more than one car is provided in the same hatchway and the travelling cable for one car must pass the other car. The present invention is directed to obviating these difficulties.

One feature of the invention is to restrict the amount of swinging motion of the travelling cable or the like in the hatchway.

A second feature resides in preventing an elevator travelling cable from catching or becoming entangled with objects disposed within or protruding into the elevator hatchway.

A third feature resides in the provision of a chute or similar means for the travelling cable for confining the cable to a limited portion of the hatchway.

Other features and advantages will be apparent from the following description and appended claims.

For the purpose of illustrating the genus of the invention, a typical concrete embodiment is shown in the accompanying drawing, in which:

Figure 1 is a diagrammatic representation of a portion of an elevator hatchway with an elevator car therein;

Figure 2 is a plan view of the apparatus shown in Figure 1; and

Figure 3 is an enlarged detail of certain parts shown in Figures 1 and 2, as viewed from the bottom of the car.

Referring to the drawing, the elevator car 10 is provided with rails for guiding it during its travel up and down in the hatchway 13. The travelling cable 12 which contains the conducting wires leading to and from the elevator car is illustrated as a single cable but it is to be understood that several cables may be provided, depending upon the requirements of the particular installation. This cable is secured to the bottom of the elevator car, usually to a junction box 14 mounted on the car framework, in such manner as to take the load of the cable off the conducting wires. A conduit 15 leads from the junction box 14 to the control or signal mechanism in the car. For convenience, the conduit 15 has been illustrated as leading to a car switch designated 16. This conduit contains conducting wires joined to the travelling cable conducting wires at the junction box 14. The other terminal of travelling cable 12 is at the junction box 17 secured to a side wall of the hatchway 13, usually at the approximate center of the vertical travel of the car. Cable 12 is suspended at junction box 17 in such manner as to take the load off the conducting wires. A conduit 11 is illustrated as leading from the junction box 17 as indicative of the connection from the travelling cable to the control or signal apparatus outside the car.

To prevent the travelling cable from fouling objects in the hatchway 13, a vertical sheath or chute 18 is provided for the cable in the hatchway. The chute 18 is preferably constructed of fairly heavy gauge metal and is secured at intervals to the hatchway wall in any suitable manner. The chute is provided with a central opening 19 extending vertically throughout its length. The edges 20 of the chute bordering on the opening 19 are preferably rolled and the chute as a whole is made shallow and wide as illustrated in Figure 3.

Junction box 17 is arranged at one side of

the chute to suspend the fixed end of the travelling cable at a point remote from the slot 19. The other end of the travelling cable is supported from the elevator car in such manner as to cause the cable to depend into the chute at other side thereof. This support is preferably in the form of a pipe but a bracket or any other suitable means may be provided. For convenience, a pipe, designated 21, has been shown. This pipe is supported from the bottom of the elevator car and is provided with a right angle bend 22. The pipe extends from the junction box 14 to the center of the chute 18 and thence to a point near the opposite side of chute 18 from the junction box 17. Travelling cable 12 is enclosed in the pipe 21 so that it is caused to depend in the chute at one side thereof. With the travelling cable depending from junction box 17 at the other side of the chute, both depending strands of the cable are suspended from points removed from the central opening 19 of the chute. This arrangement causes the bight of cable 12 to traverse the slot 19 at all times and keeps the depending strands of the cable away from the slot, thus insuring the retention of the cable in the chute. The travelling cable is therefore limited in its movement to a path defined by the chute 18, thus eliminating any possibility of the cable being caught on objects disposed within or projecting into the elevator hatchway or interfering with other moving objects in the hatchway.

The arrangement above described is also suitable for defining the paths of movement of other flexible conducting means such as the air hose employed to conduct air to the gate operating mechanism.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. In an elevator installation, a hatchway, an elevator car therein, a flexible member hanging in the hatchway with one end attached to the car and the other end attached at a point in the hatchway, and means for confining said flexible member to such definite portion of the hatchway as to prevent said member from fouling objects in the hatchway during movement of the car.

2. In an elevator installation, a hatchway, an elevator car therein, a flexible member hanging in the hatchway with one end attached to the car and the other end attached at a point in the hatchway, and a chute for said flexible member for confining said member to a limited portion of the hatchway.

3. In an elevator installation, a hatchway, an elevator car adapted to travel up and down in said hatchway, a travelling cable depending from said car and a wall of said hatchway, and a chute for said travelling cable disposed along said wall of the hatchway for preventing said cable from fouling objects in the hatchway.

4. In an elevator installation, a hatchway, an elevator car adapted to travel up and down in said hatchway, a travelling cable communicating between the elevator car and a junction in the hatchway, a chute disposed adjacent the elevator and parallel with the hatchway, said chute having a central opening extending throughout the length of said chute, and a support for the car end of the cable extending through said opening to a point within said chute remote from said opening.

5. In an elevator installation, a hatchway, an elevator car adapted to travel up and down in said hatchway, a travelling cable communicating between said car and a point in said hatchway, a chute for said cable disposed adjacent said elevator car and having a central opening throughout its length, said opening being parallel with the hatchway, a support for the car end portion of said travelling cable extending through said opening to a point within the chute remote from said opening, and a support for the hatchway end of the travelling cable for suspending that end of the cable from a point within said chute remote from said chute opening and said first-named cable end.

6. In an elevator installation, a hatchway, an elevator car adapted to travel up and down said hatchway, a travelling cable for said car, a chute for said cable disposed adjacent said elevator car and having a central opening throughout its length, said opening being parallel with the hatchway, a junction box fixed to the bottom of said car and forming one terminal for said travelling cable, a second junction box fixed to a mid-point of a wall of the hatchway and forming the support for the other end portion of said travelling cable, said second junction box communicating with the interior of said chute at a point remote from the chute opening, and a support fixed to the bottom of said car for conducting an end portion of the travelling cable from said first-named junction box to the interior of said chute at a point remote from said opening and said second-named junction box.

In testimony whereof, I have signed my name to this specification.

ARTHUR ENNIS PRINCE.