

(No Model.)

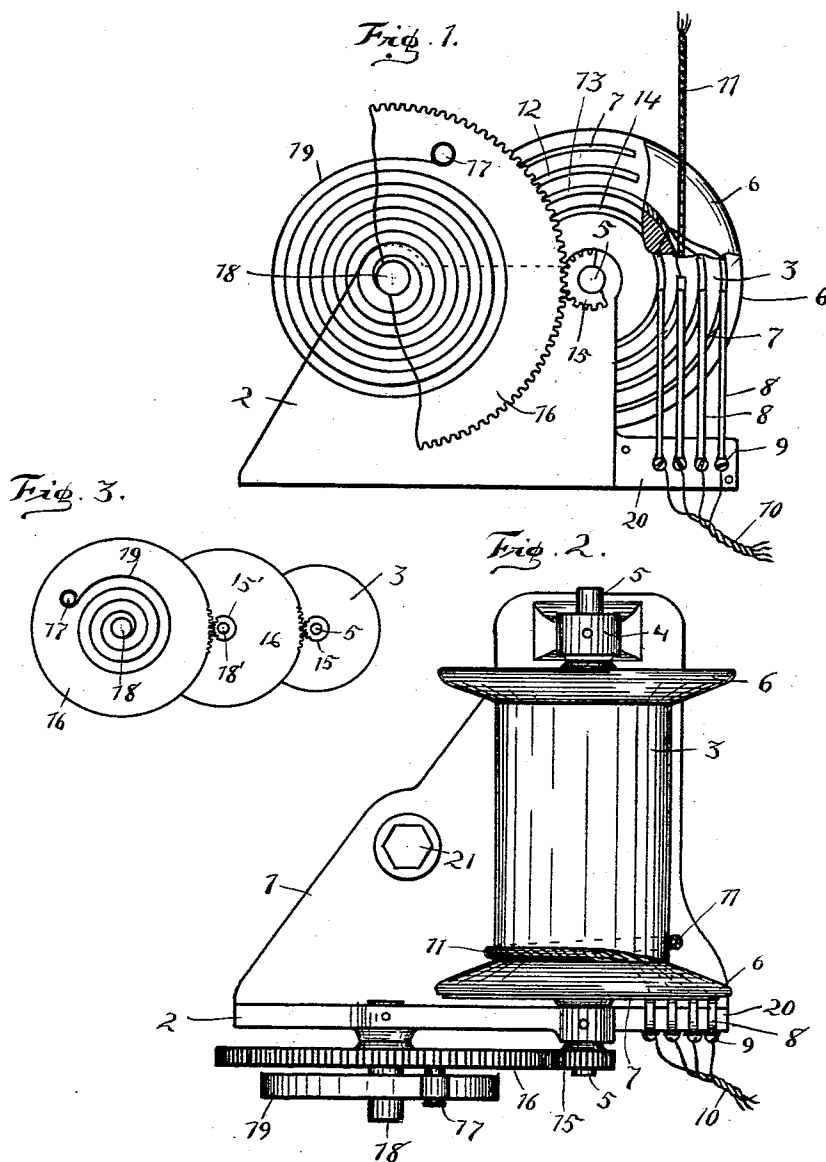
2 Sheets—Sheet 1.

D. E. HOUSER.

WINDING DEVICE FOR ELECTRIC CABLES IN ELEVATORS.

No. 557,819.

Patented Apr. 7, 1896.



WITNESSES:

David E. Houser

INVENTOR

Walter G. Burns
Louis H. Goette

BY Chapin & Denny
his ATTORNEYS,

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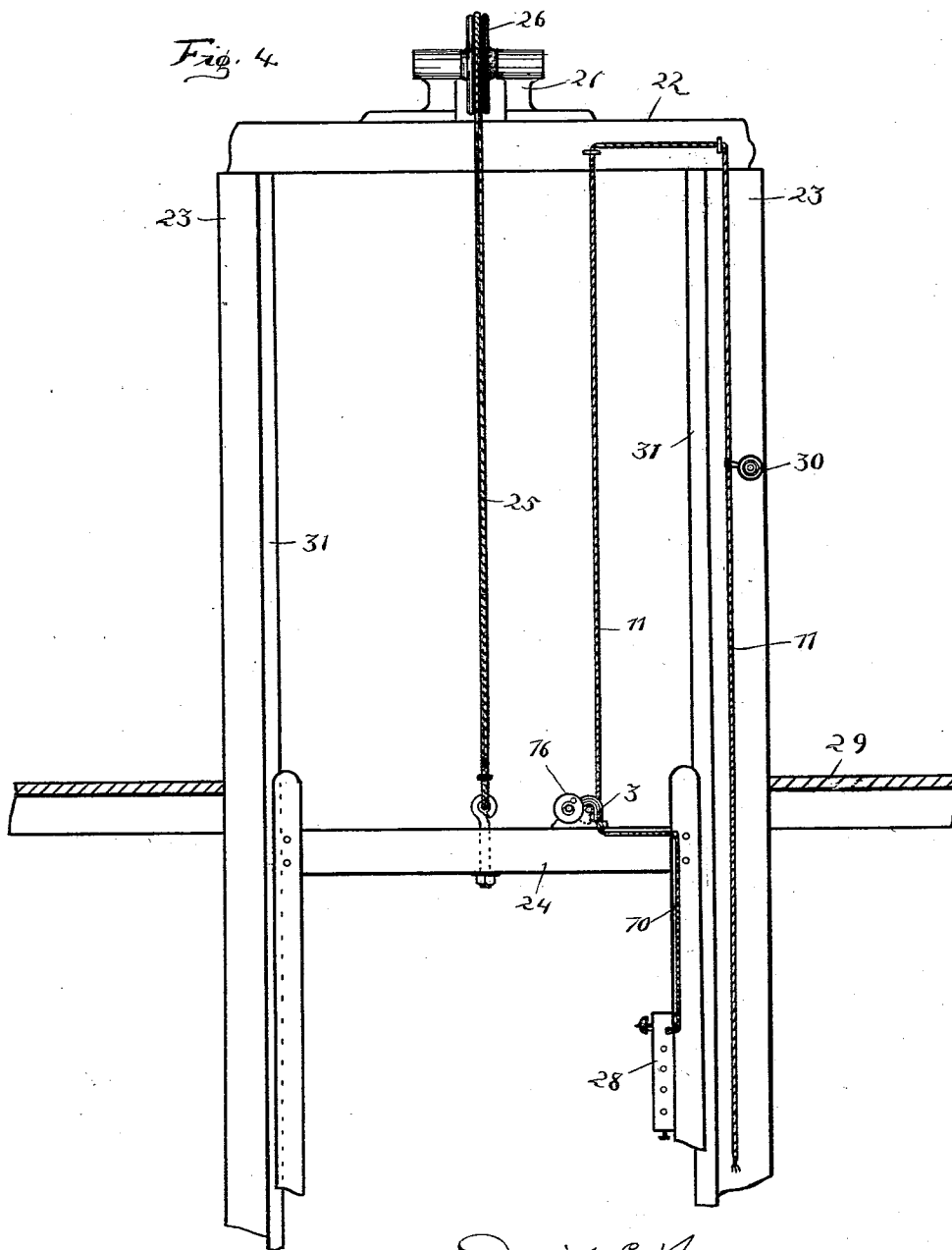
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David E. Houser INVENTOR

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BY *Chapin & Denny*

Flavius J. Young

his ATTORNEYS.

UNITED STATES PATENT OFFICE.

DAVID E. HOUSER, OF FORT WAYNE, INDIANA.

WINDING DEVICE FOR ELECTRIC CABLES IN ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 557,819, dated April 7, 1896.

Application filed August 16, 1895. Serial No. 559,468. (No model.)

To all whom it may concern:

Be it known that I, DAVID E. HOUSER, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Winding Devices for Electric Cables in Elevators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in winding devices for electric cables in elevators.

The object of my invention is to provide a cheap, convenient, and reliable winding device for the slack cable comprising the electric wires in the signaling-circuit in an up-and-down-moving elevator, and the improvement is specially adapted for use upon a freight-elevator, in which there is usually no convenient room for the slack and looped portion of said cable.

My invention consists of a winding-drum for the electric cable revolubly mounted upon a supporting-casting and provided with a series of annular contact-rings adapted for engagement with corresponding series of brushes arranged in the signaling-circuit, and also with a terminal pinion meshing with an actuating gear-wheel rotatably mounted on said casting and a coiled driving-spring adapted to automatically wind up the slack portion of the said cable as the elevator ascends and which permits the said cable to unwind against the tension of said spring as the elevator descends.

My improvement is illustrated in the accompanying drawings, in which similar reference-numerals represent similar parts thereon in the several views.

Figure 1 is a side elevation of my invention, partly cut away, and shows the connection of the electric cable with the annunciator by means of the brushes and contact rings or plates. Fig. 2 is a plan of my improvement, showing the general arrangement of the operating parts. Fig. 3 is a detail of the reducing-gear formed by the introduction of an extra or intermedial gear-wheel and pinion

to avoid the use of a coil-spring of an objectionable length in a very high elevator-shaft. Fig. 4 is a view in elevation, showing my improvement in position upon the elevator when in use.

The casting on which the operating mechanism is mounted is of irregular outline and has a horizontal base provided with an integral bearing 4 for one end of drum-shaft and an upright portion 2, having suitable bearings for the other end of said shaft. The said casting, when in position, is rigidly fixed at a suitable point upon the cross-head 24 of the elevator-car, Fig. 4, by means of the bolt 21, Fig. 2, or in other proper manner.

The winding-drum 3, of any proper size and of insulating material, preferably of wood, is preferably spool-shaped, with terminal flanges 6, as shown in Fig. 2, and is rigidly mounted upon the metallic shaft 5. The said shaft 5 is loosely mounted in proper bearings in said casting and carries upon one end thereof the rigid pinion 15 in mesh with the actuating-wheel 16.

At a suitable point in the upright portion 2 of the said casting is rigidly fixed the inner end of the short shaft or spud 18, upon which the said wheel 16 is revolubly mounted. At a proper point upon the outer face of said wheel 16 is rigidly fixed the wrist-pin 17, to which the outer end of the coil driving-spring 19 is fixed, Fig. 1. The inner end of the said spring is rigidly secured in any proper manner to the said spud 18, about which it is coiled in a direction opposite to that in which the cable 11 winds upon the said drum 3.

Upon the outer face of one of the terminal flanges 6 is rigidly arranged a series of annular contact rings or plates 7, 12, 13, and 14, Fig. 1, to which the wires forming the cable 11 are respectively connected in a well-understood manner by passing through a proper perforation in said flange 6, Figs. 1 and 2.

To the outer end of the said casting is rigidly secured a block 20, of proper insulating material, to the outer face of which the lower ends of the brushes 8 are respectively secured by the binding-screws 9. The said brushes 8 are so arranged that their free ends are in contact with the said contact-rings, respectively, Fig. 1. The upper ends of the wires forming the cable 10 are connected to the respective

brushes 8 by means of the said binding-screws 9, the lower end of which leads to the annunciator 28.

The wires composing the cables 10 and 11 are of course properly insulated in the usual or other proper manner.

In Fig. 4 is shown so much of the elevator shaft and car as is necessary to understand the general position and working of my invention.

The elevator-shaft, having proper guide-posts 23 and guide-strips 31 and cross-beam 22, is of any proper height and has an operating-cable 25 running over the wheel 26 in the bearings 27, rigidly fixed upon the said cross-beam 22. In Fig. 4 is also shown the floor 29 of one story of a building and also the relative arrangement of the push-button 30 and any proper annunciator 28.

The operation of my improvement thus described is obvious. The cable 11 being rigidly secured to the said cross-beam 22, only that portion thereof reaching from the said cross-beam to the said car is free to wind upon the said drum 3. As the driving-spring 19 is coiled about the said spud 18 in a direction opposite to that in which the cable 11 coils about the said drum, and as the pinion 15, which meshes with the said drive-wheel, is fixed upon the same shaft 5 of the said drum, it is evident that uncoiling the said cable from the said drum 3 will tighten the coil and increase the tension of the said driving-spring 19, and vice versa, so that as the elevator ascends the slackened portion of the cable 11 will automatically wind upon the drum 3 as the same is slackened, and, under the tension of the said driving-spring 19 and as the elevator-car descends, the said spring will be tightened as the said cable uncoils. Where the elevator-shaft is a long one, passing through several floors, a second gear-wheel 15, with a proper pinion to mesh with the said gear-wheel 16, revoluble on the spud 18, fixed in the said casting, may be employed, as seen in Fig. 3, to reduce the size of the driving-spring required. Where a second gear-wheel is employed, the manner of securing the driving-spring is the same as above described, though the arrangement thereof is reversed, being arranged to coil

about the spud 18 in the same direction as the said cable 11 winds upon the said drum 3. While the employment of the said second gear-wheel is not an essential feature of my invention, it may be conveniently employed.

Having thus described my invention and the operation thereof, what I desire to secure by Letters Patent is—

1. A cable-winding device for elevators comprising a winding-drum 3 for the cable 11 having a fixed shaft 5 revolubly mounted in proper bearings on a supporting-casting and provided with a series of contact-rings for the purpose specified, a pinion 5 rigid upon one extremity of the shaft 5 a gear-wheel 16 mounted as shown in the said casting and meshing with the said pinion, a driving-spring 19 arranged as described and adapted to actuate the said wheel and said drum and a series of brushes fixed upon an insulated base and adapted for a frictional contact with the said rings, respectively, all substantially as and for the purpose described.

2. The combination in a cable-winding device for elevators of a winding drum or spool revolubly mounted on a proper supporting-base and provided upon one of its terminal flanges with a series of contact-rings to which the wires forming the winding-cable are respectively connected as shown, a tooth-pinion 5 fixed upon one end of the drum-shaft, a gear-wheel 16 meshing with the said pinion and revolubly mounted upon a fixed spud 18, a driving-spring 19 arranged as described and adapted to automatically actuate the said drum for the purpose of coiling the slack cable thereon, a series of brushes 8 mounted as described and connected at one end with the cable 10 and having at their other end a frictional contact with the said rings respectively and the cables 10 and 11 connected in the signaling-circuit as shown all substantially as and for the purpose described.

Signed by me, at Fort Wayne, this 10th day of August, 1895.

DAVID E. HOUSER.

Witnesses:

W. P. TOMIET,
A. GROSJEAN.