

(No Model.)

2 Sheets—Sheet 1.

H. WALBAUM Jr
ELEVATOR GUARD.

No. 548,147.

Patented Oct. 15, 1895.

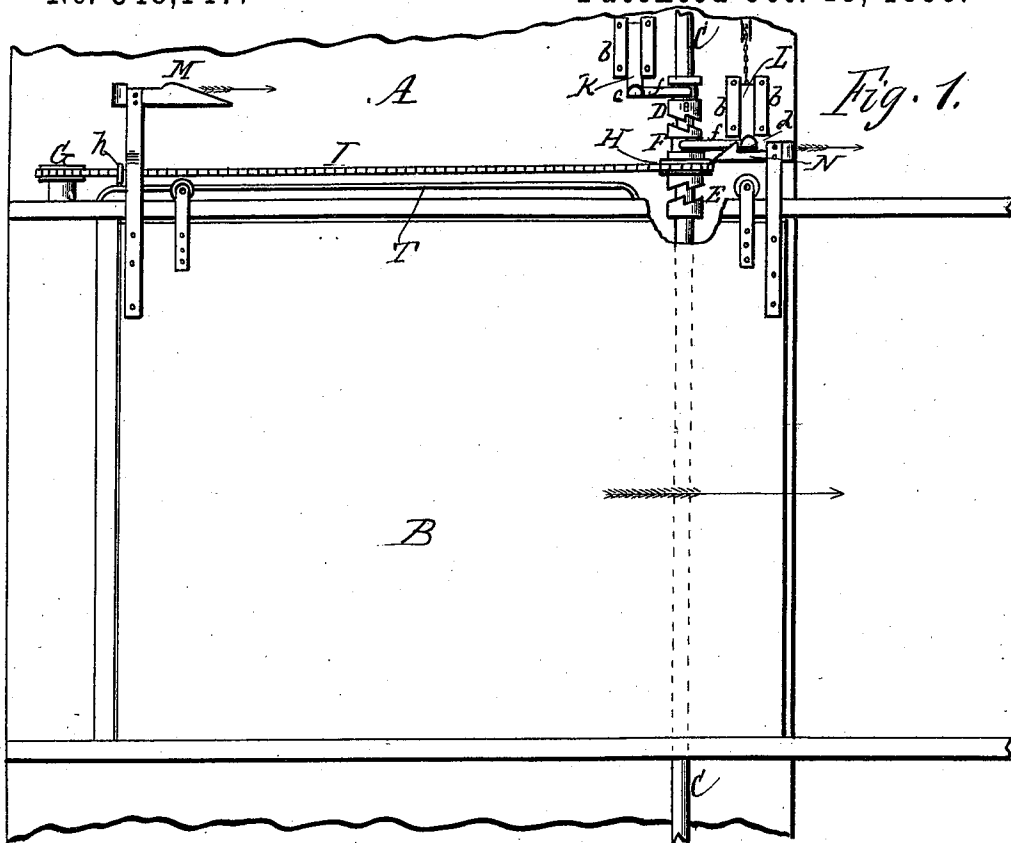
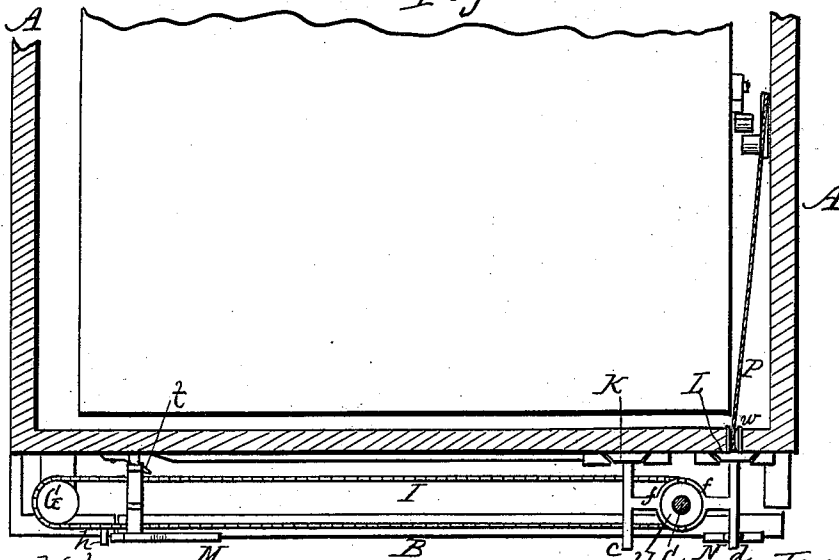


Fig. 2.



Witnesses.

J. Z. Culver
J. B. Culver

Inventor.
Henry Walbaum, Jr.
per R. F. Osgood, Atty.

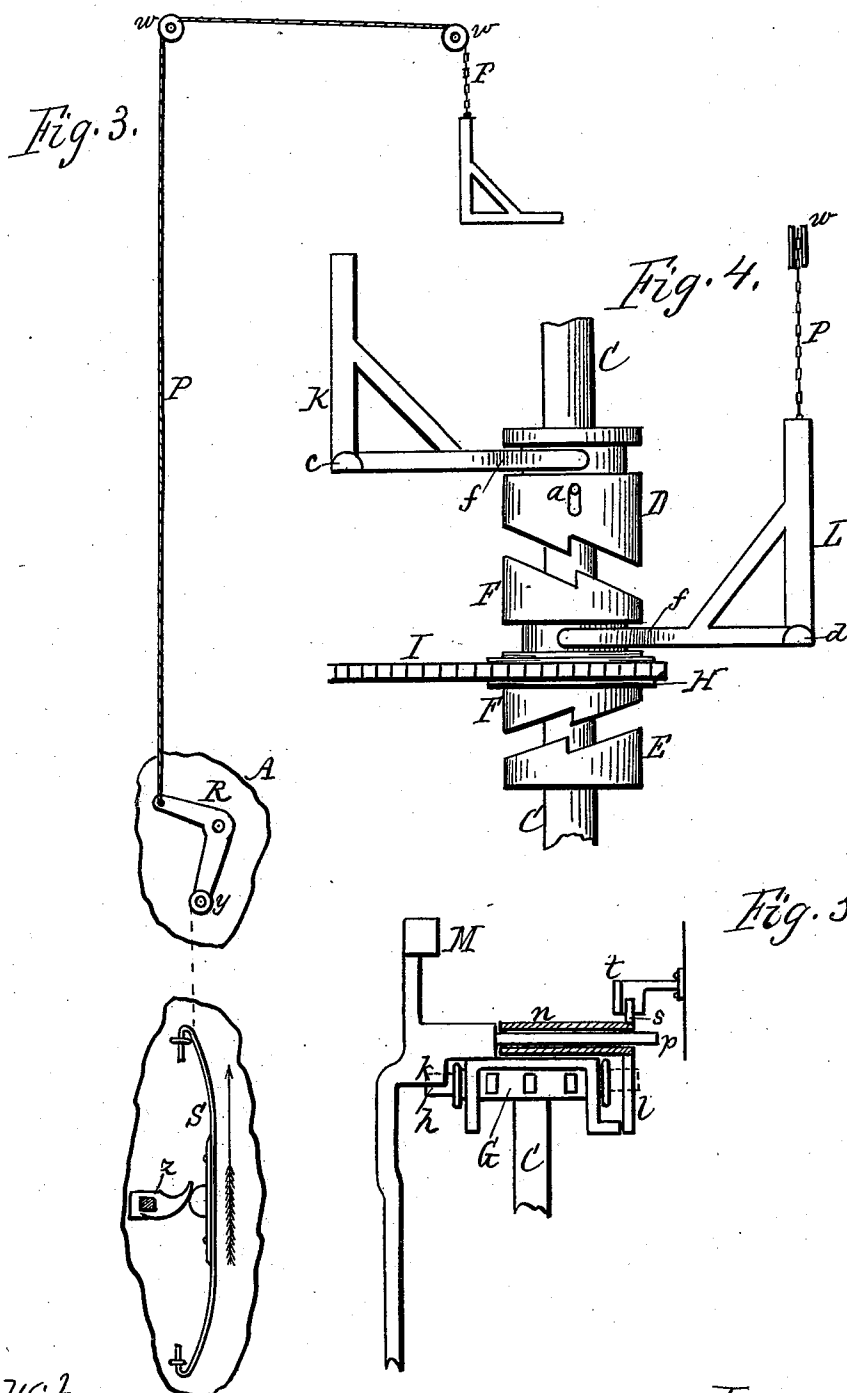
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per R. F. Osgood,
Atty.

UNITED STATES PATENT OFFICE.

HENRY WALBAUM, JR., OF ROCHESTER, NEW YORK, ASSIGNOR OF TWO-THIRDS TO EDWARD W. GOHR AND GUSTAVE O. FELSKEY, OF SAME PLACE.

ELEVATOR-GUARD.

SPECIFICATION forming part of Letters Patent No. 548,147, dated October 15, 1895.

Application filed July 20, 1894. Serial No. 518,119. (No model.)

To all whom it may concern:

Be it known that I, HENRY WALBAUM, JR., of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Elevator-Guards; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this application.

My improvement relates to means for opening and closing elevator-doors by the action of the car in rising and falling, and is of that kind where a long shaft extends through all the floors and is provided with clutch mechanism which shifts by the action of the car and in which the door is operated by an endless chain which passes around sprocket-wheels.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

In the drawings, Figure 1 is a front elevation of a portion of the well and one of the doors in the closed position. Fig. 2 is a cross-section of the well and a top view of the door and the connecting mechanism. Fig. 3 is a diagram showing the shifting mechanism inside the well. Fig. 4 is an enlarged elevation of the clutch mechanism. Fig. 5 is a detail view showing the shifting mechanism at the closed end of the door.

A indicates the well, and B the sliding door, which latter is shown in the closed position in Fig. 1.

C is the vertical shaft which extends through all the floors where doors are used. D, E, and F are three clutch-heads connected with this shaft at each doorway. The upper and lower clutch-heads D and E are connected with shaft C, so as to turn with the same, while the middle clutch-head F is loose on the shaft. The upper clutch-head D, however, is movable vertically on the shaft, being retained against loose turning by a pin and slot *a*, Fig. 4.

G and H are two sprocket-wheels at opposite ends of the door and above the same, around which sprocket-wheels passes an endless chain or cable I. The sprocket-wheel G is permanently seated in the well, and the other sprocket-wheel H is attached to and

forms a part of the middle sliding clutch-head F. Hence it rises and falls with the sliding clutch-head F.

K and L are two slides which move freely up and down in ways *b b*, attached to the well, said slides being provided with outwardly-projecting arms *c* and *d*, and also with jaws *f f*, which embrace, respectively, the clutch-heads D and F and serve to raise them.

M and N are two wedge-shaped cams attached, respectively, to opposite ends of the door and so arranged as to strike under and raise the slides K and L by striking under their projecting arms *c d* as the door opens and closes. Consequently they raise and lower the clutch-heads D F alternately as the door opens and closes.

h is a knuckle attached to one side of the chain I and projecting outward.

To open the door when closed the two clutch-heads D and F are in engagement and give motion to the chain, and then the knuckle *h* strikes the shank of cam M, as shown at the left in Fig. 1, and pushes it along, thus opening the door; but at the close of the opening movement of the door the cam M strikes under arm *c* and elevates slide K, raising the clutch-head D from contact with clutch-head F, thus stopping the door. The clutch-head F remains out of contact with both clutches D E as long as the car stands at the opening. Hence the door is open and stationary. When the car leaves the opening, the clutch-head F falls into engagement with clutch-head E, thereby lowering the end of the chain and dropping the knuckle *h* under the bend *k* of cam M, and the knuckle then escapes and the chain moves onward, carrying the knuckle with it in the reverse direction. The knuckle *h* in the reverse motion then strikes a downwardly-projecting arm *l* of a slide *n*, sliding in and out on an extension *p* of the cam M, and closes the door again. At the end of the closing movement of the door a lug *s*, attached to the slide *n*, strikes a wedge-shaped cam *t*, attached to the well, which draws the slide outward away from contact till the arm *l* frees from the knuckle *h*, thus disconnecting from the door. The chain I always runs in the same direction.

Attached to the slide L is a chain or cord

P, passing over pulleys *w w* and attached at its inner end to a crank-arm R, pivoted to the inner side of the well. On the lower end of the crank-arm is a friction-roller *y*. On the 5 side of the car is a cam S in the form of a spring. This is pressed out by a dog *z*. In the up or down movement of the car the cam S strikes the roller *y*, throws the crank-arm R, and draws upon the cord P, thereby ele- 10 vating the slide L and engaging the two clutch-heads F and D to open the door, as before described. When the car leaves the opening, the cam disengages from the crank-arm and allows the slide to drop and brings 15 clutch-head F into engagement with clutch-head E to close the door.

Any other suitable mechanism may be employed in place of the cam S and the crank R.

T is a guide-rod over which knuckle *h* rides 20 to hold it up and prevent slack.

Having described my invention, I claim—

1. In an elevator guard, the combination, with the sliding door, of the shaft C, the clutch heads D E F resting thereon, the mid-

dle one, F, being vertically movable, the 25 sprocket wheels G H, one attached to the well, the other to the clutch-head F, the cam M secured to the door, and the chain I running on the sprocket wheels, said chain being provided with a knuckle *h* which comes in 30 contact with the cam to impart motion to the door, as herein shown and described.

2. In an elevator guard, the combination, with the sliding door, of the chain I provided with the knuckle *h*, the cam M provided with 35 the extension *p*, the slide *n* resting on the extension and movable forward and back, the arm *z* on the slide, and the wedge shaped cam *t* for drawing the slide endwise, as herein shown and described. 40

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

HENRY WALBAUM, JR.

Witnesses:

R. F. OSGOOD,

CHAS. A. WIDENER.