

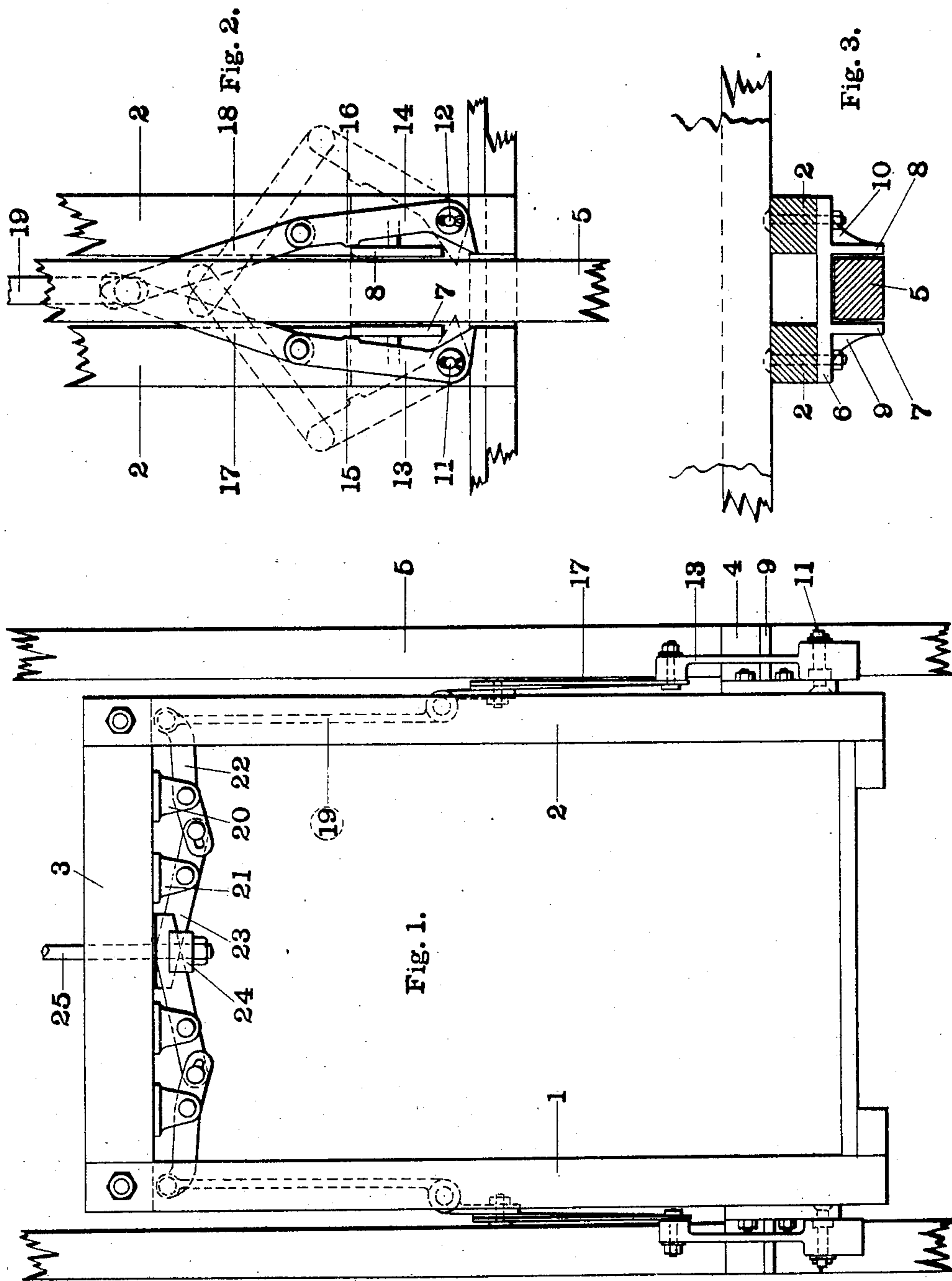
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A. FROUSSARD.  
SAFETY APPLIANCE FOR ELEVATORS.

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NO MODEL.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## SAFETY APPLIANCE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 762,398, dated June 14, 1904.

Application filed November 2, 1903. Serial No. 179,504. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT FROUSSARD, a citizen of the United States, and a resident of the city of St. Louis, State of Missouri, have  
5 invented certain new and useful Improvements in Safety Appliances for Elevators, of which the following is a specification.

My invention relates to elevators, and has for its principal objects to automatically stop  
10 an elevator-car when the tension upon the cable is released, to insure that the parts of the clutch shall be held in operative position, to protect the mechanism from excessive strain, and other objects hereinafter more fully ap-  
15 pearing.

My invention consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawings, forming a  
20 part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a diagrammatic view of an elevator-car and its guides equipped with my improved safety appliances. Fig. 2 is a side  
25 view of the clutch, being shown in its released position in full lines and in its clamping position in dotted lines. Fig. 3 is a horizontal sectional view through the uprights of the elevator-car and the guides, showing the shape  
30 of the bracket, the clutch-levers being omitted for clearness.

Safety appliances for elevators are subject to certain defects whereby they may fail to stop the elevator-car. First, when released  
35 the appliances may be thrown into such a position that they will fail to operate under the conditions for which they were intended to operate; second, when operated to clutch the guide the entire mechanism is thrown under  
40 strain and may fail because of the breakage of a part remote from the actual clutch; third, the clutch members may turn about on their pivots past the point at which they have clutch-  
45 ing engagement with the guide. In my improved safety appliance stops are provided which prevent the clutch assuming a position in which it will be inoperative and other stops which serve to support the clutch, and thus prevent the transmission of strain to other

parts than the guide-engaging members and 50 prevent too great a degree of rotation upon their pivots.

The car-frame has side bars 1 2 and a top beam 3, upon which all the members of the safety appliance are mounted. The appli- 55 ances upon opposite sides of the car are duplicates of each other, and hence but one will be described. A guide-bracket 4 is mounted upon the side bars and consists of a plate 6, mounted upon the side bars, and has project- 60 ing parallel flanges 7 8 adapted to embrace the guide of the elevator. Integral bracing-webs 9 10 extend from the plate to the flanges to strengthen said flanges. Near the lower corners of the bracket studs 11 12 are mounted, 65 as shown in the dotted lines in Fig. 1. These studs are arranged just below the lower edge of the flanges 7 8. Substantially L-shaped clutch-levers 13 14 are mounted upon the studs. One arm of each clutch-lever terminates in 70 a sharp end, which is adapted to engage the guide. The upwardly-extending arms of said levers are provided with lugs 15 16, respectively, so located as to engage the forwardly-extending flanges of the bracket at its upper 75 edge. The pairs of clutch-levers are pivotally connected to links 17 18, which are pivotally joined to each other at their upper ends and to a jointed connecting-rod 19, extending upwardly to near the top of the car-frame. 80 In brackets 20 21, mounted upon the beam 3 of the car-frame, are pivoted levers 22 23, to the outer of which the jointed connecting-rod 19 is pivoted. The inner lever is engaged by a yoke 24, to which the cable 25, supporting 85 the car, is connected. So long as the weight of the car rests upon the cable the adjacent ends of the inner levers will be held upwardly, and consequently the clutch-levers will be held in the position shown in full lines in Fig. 90 2. It will be noted, however, that due to the engagement of these levers with the forwardly-extending flanges of the brackets the said clutch-levers and their links are held at such an angle to each other that when they move they 95 must move in such a direction as to bring the clutch-levers into engagement with the guide, the pivot-point of the levers and links being



held out of line with their pivotal connection at their opposite ends. If now the cable should break, the adjacent ends of the inner levers are permitted to fall downwardly, the  
 5 connecting-rod moves downwardly, spreading the connecting-links and bringing the ends of the clutch-levers into engagement with the guide. The movement of the clutch-levers about their pivot-point is, however, limited  
 10 by their engagement with the forwardly-extending flanges on the brackets. Thus the complete rotation of the clutch-levers upon their pivots is prevented and the strain is taken up by that arm of the clutch-lever in  
 15 engagement with the guide by the flange and by the stud upon which the lever is mounted. No strain is transmitted to the other arm of the lever, to the links, or any of the connecting parts above them.

20 It will be noted that the brackets perform the double function of guides for the elevator-car and of stops for the safety appliance.

Obviously the specific construction shown and described for the purpose of illustrating  
 25 my invention is capable of modification without departing from the scope of my invention, and I do not wish to be limited to the specific construction hereinbefore described.

What I claim is—

30 1. A safety appliance for elevators comprising pivoted clutch-levers, stops to engage said clutch-levers between their pivot-points and point of engagement with the elevator-guide when in operation and stops to engage said  
 35 clutch-levers in their released position.

2. A safety appliance for elevators comprising clutch-levers, links pivotally connected to said levers, respectively, means to connect said links with the elevator-cable and stops to pre-  
 40 vent said levers and their respective links assuming a position with their pivot-points in a straight line.

3. A safety appliance for elevators comprising clutch-levers, links pivotally connected to  
 45 said levers, respectively, means to connect said links with the elevator-cable and stops in position to engage said clutch-levers when in released position to prevent said levers and their respective links assuming a position with their  
 50 pivot-points in a straight line.

4. A safety appliance for elevators comprising pivoted clutch-levers, links pivotally connected to said levers, respectively, means to connect said links to the elevator-cable, stops  
 55 in position to engage said levers in released

position and stops to engage said levers in operative position.

5. A safety appliance for elevators comprising pivoted clutch-levers, links pivotally connected to said levers, respectively, and to each  
 60 other, stops to prevent said levers and their respective links assuming a position with their pivot-points in a straight line when released, and stops to support said clutch-levers when  
 65 in operative position.

6. A safety appliance for elevators comprising a bracket, clutch-levers pivoted thereon, and stops on said bracket, one set to engage  
 70 said levers in their released position, and one set to engage said levers in their operative position.

7. A safety appliance for elevators comprising a bracket, projecting parallel flanges on said bracket, and clutch-levers pivoted on said  
 75 bracket, said flanges being of such a width as to engage said levers upon one side of their fulcrums when in released position and upon the other side of their fulcrums when in operative position.

8. A safety appliance for elevators comprising a bracket, projecting parallel flanges thereon, bell-crank clutch-levers pivoted on said  
 80 bracket, and lugs on the upper arms of said bell-crank levers in position to engage said flanges when in released position.  
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9. A safety appliance for elevators comprising a bracket, projecting parallel flanges thereon, bell-crank clutch-levers pivoted on said  
 90 bracket, and lugs on the upper arms of said bell-crank levers, said flanges being of such a width as to engage said lugs when said levers are in their released position and to engage the opposite arms of said levers when in operative position.

10. A safety appliance for elevators comprising a bracket, bell-crank clutch-levers, the  
 95 upper arms of said levers having lugs thereon, projecting parallel flanges on said bracket arranged to serve as stops for said clutch-levers in both released and operative positions, links  
 100 pivotally connected to said levers, respectively, and to each other, and means to connect said links with the elevator-cable.

In testimony that I claim the above I have hereunto subscribed my name in the presence  
 105 of two witnesses.

ALBERT FROUSSARD.

Witnesses:

FRED F. REISNED,  
 J. B. MEGOWN.