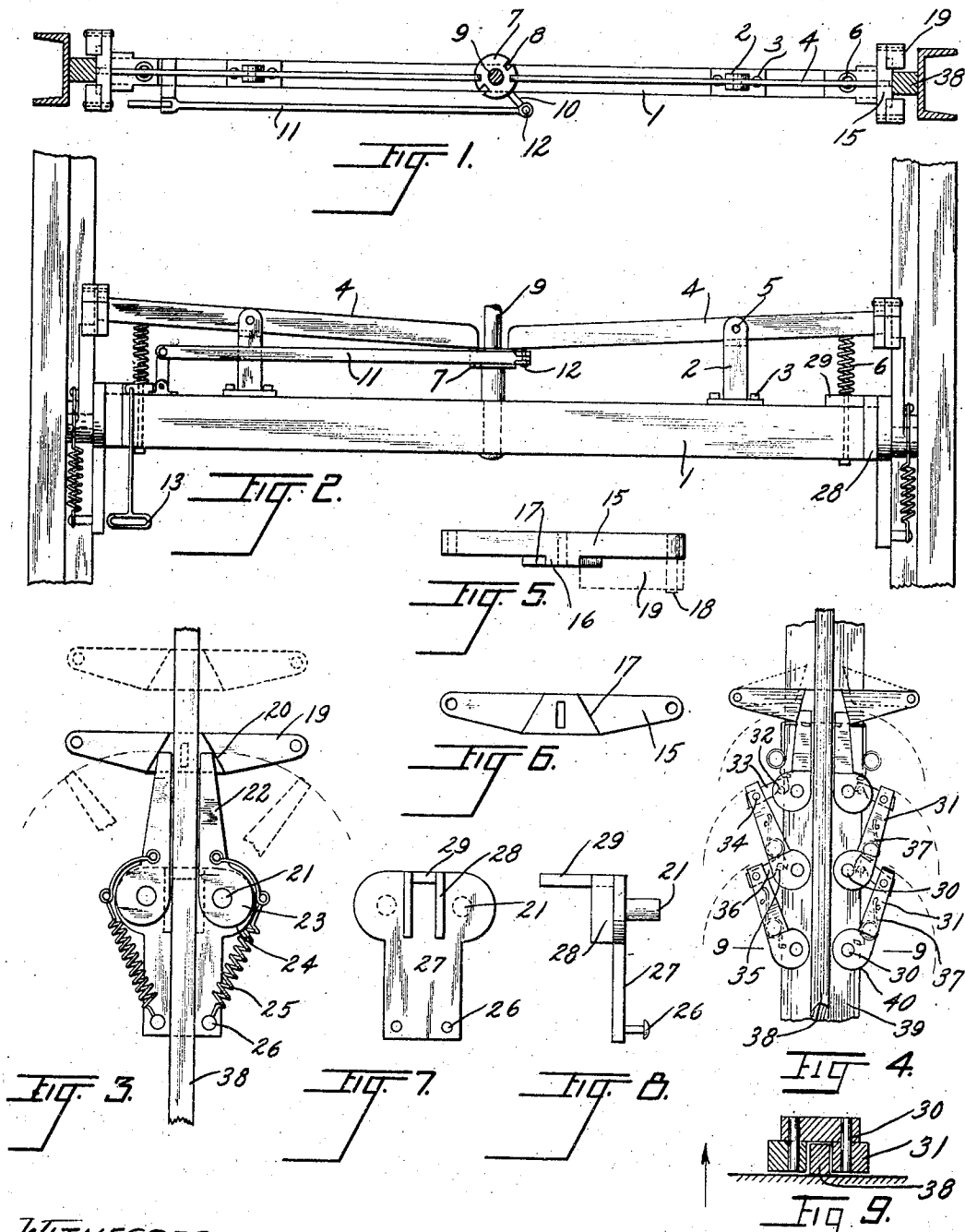


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SAFETY DEVICE FOR ELEVATORS.
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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MATHIAS SCHNUR, a subject of the King of Hungary, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Safety Devices for Elevators, of which the following is a specification.

The object of this invention is to provide means for locking the car of an elevator to prevent the car from falling down the shaft in case of an accident to the machinery or breakage of the cables.

In the drawings, Figure 1 is a top plan view of the invention; Fig. 2 is a side elevation thereof; Fig. 3 is an end elevation taken at right angles to the view of Fig. 2; Fig. 4 is a view similar to Fig. 3, additional locking members being shown; Fig. 5 is a bottom plan view and Fig. 6 is a side elevation of the member which holds the various locking dogs out of engagement with the shaft; Figs. 7 and 8 are elevations of one of the members adapted to be secured to the car; and Fig. 9 is a section on the line 9—9, Fig. 4.

Upon the top framework 1 of the car standards 2 are bolted or screwed at 3, and the levers 4 are fulcrumed at 5 in said standards. Said levers 4 at their ends adjacent the shaft are normally pressed upward by the helical springs 6. At their inner ends said levers ride upon the plate 7 which is provided with slots 8. The plate 7 is pivotally mounted upon beam or shaft 9, and crank-arm 10 is secured thereto. When the pitman 11, which is pivoted at 12 to the crank-arm 10, is pulled by the handle 13, plate 7 is given a partial rotation, and as it revolves the ends of levers 4 will pass through the slots as the springs 6 expand, thus depressing the inner ends of each of said levers and elevating the outer ends thereof, and, as the outer ends are elevated, the locking devices are released and immediately serve to lock the car to the shaft. It should be understood, of course, that the car is to be provided with a governor or other suitable means for automatically turning the plate 7 or for otherwise unlocking the levers 4 whenever the car is descending at a dangerous rate of speed. Such automatic unlocking means, however, are neither shown nor described in detail in this specification for they are well known in the art and form no part of the present invention,

since any desired type of automatically-operating release may be applied by the builder of the car. Each lever 4 at its outer end carries the arm 15 which is fixed at right angles to lever 4. The arm 15 carries a shoulder 16 which has the beveled edges 17. Pivoted to arm 15 at 18 are blocks 19 which also are provided with beveled edges 20. Blocks 19 have those surfaces which abut upon arm 15 cut away so as to conform to and rest upon the shoulder 16.

Secured to the side of the car by strong shafts or rods 21 are locking dogs 22. Each of said dogs comprises a heavy base 23 which has a curved edge 24, which may be either circular, and act eccentrically to shaft 21, or elliptical, parabolic, or hyperbolic, with shaft 21 at one focus of the curve. Springs 25 secured to pins 26 are likewise secured to the arm of each dog 22. The dogs are normally retained in the position shown in full lines in Figs. 3 and 4, but when released, the springs 25 will carry the parts around pins 21 as axes. The shaft 21 may be secured to or formed integral with the plate or casting 27, which casting may have ears 28 and arms 29, thus affording a convenient means for bolting same to the bottom of timber 1 at the top of the car, the end of said timber being received in the space between ears 28. Upon the sides of the car are additional pins or pivots 30, upon each of which is mounted a dog 31 which corresponds in shape, mounting, and function to dogs 22. Upon the body portion 23 of each dog 22 is a pin 32 which is engaged in the hook 33 which is pivoted at 34 to the end of the adjacent dog 31, and each dog 31 may be similarly provided with a pin 35 to be similarly engaged by a hook 36 secured to the next dog 31. Each of the dogs 31 is provided with a spring 37 which will normally cause each dog 31 to swing in a circle around pin 30 as an axis.

When the levers 4 are released by the rotation of plate 7 their outer ends are elevated, thus carrying the arm 15 and the blocks 19 from the position shown in full lines, Figs. 3 and 4, to the dotted line positions in said figures. This motion of the levers carries the beveled edges 20 of the blocks out of engagement with the toes of the dogs 22. Said dogs being thus released, they are caused to swing about their respective axes 21 toward the dotted line position in Fig. 3. As each dog 22 so moves, the pin 32, which is carried

thereupon, moves therewith to a point where it rides out of the crotch of the hook 33. The hook 33 being no longer held, the dog 31 to which said hook is secured, is likewise released and its end is carried downwardly by the spring 37. This action continues throughout the series, the release of each dog 22 or 31 being adapted to release the dog next in series, and so on.

The respective dogs 22 and 31 are arranged in pairs on each side of the web 38 which is secured to the shaft timber 39, and as the several dogs 22 and 31 are released, their respective cam faces bear upon said web 38, and as the downward movement of the car continues, said cam faces will ride upon said web 38. The longer the car moves the more tightly will the cam faces bear upon web 38, and as the friction thus created between the cam faces and the web increases as the car descends, it will, obviously, be a question only of time before the clamping effect of the dogs 22 and 31 will be so strong that the car is locked to the web 38 and the descent of the car thus absolutely and finally checked.

In Fig. 4 of the drawings, three pivoted dogs are shown on each side, but this number may be varied as desired according to circumstances. Other means than the lever 4, arms 15, and blocks 19 may be provided for locking the dogs which are first in the series against release and for releasing them automatically or at a predetermined time.

The construction herein shown is only one of many which are adapted to perform the desired function. It is obvious that many other changes in construction and arrangement of parts may be made without departing from the scope of the invention or of the various claims.

I claim as my invention:

1. An attachment for elevators comprising a dog, a pivot therefor, one end of said dog being curved and the pivot being set eccentrically to said curve, a lever, an arm carried upon said lever, a stop pivoted to

said arm, one face of said stop being beveled and the arm of said dog being normally in engagement with said beveled face, means upon said arm to limit the movement of said stop, and means to actuate said lever, thereby to cause said stop to ride off said arm.

2. An attachment for elevators comprising a plurality of dogs, means for connecting each dog to the dog next in the series, each of said dogs being a cam faced member adapted to grip the elevator shaft, each of said dogs being adapted to act independently of the others, means for locking the first dog in the series, and means for releasing said dog, thereby to release, successively, each of the other dogs in the series.

3. An attachment for elevators comprising a plurality of dogs, each being a cam faced member adapted to grip the elevator shaft, a pin upon each dog except the last dog in the series, a hook-like member engaging each pin, each hook-like member being secured to the dog next lower in the series than the dog which bears the pin engaged by said hook-like member, means for locking the first dog in the series, and means for releasing said dog at a predetermined time, thereby to release, successively, each of the other dogs in the series.

4. An attachment for elevators comprising a plurality of dogs, each of which is a cam faced member adapted to grip the elevator shaft, a pivot for each dog, locking means connecting each dog to the dog next in the series, means for locking the first dog in the series, and means for releasing said dog, thereby successively to disconnect each of said connecting means.

In testimony whereof I have hereunto affixed my name in the presence of two witnesses.

MATHIAS SCHNUR.

Witnesses:

ROBT. KLOTZ,
AUG. BUEHLER.