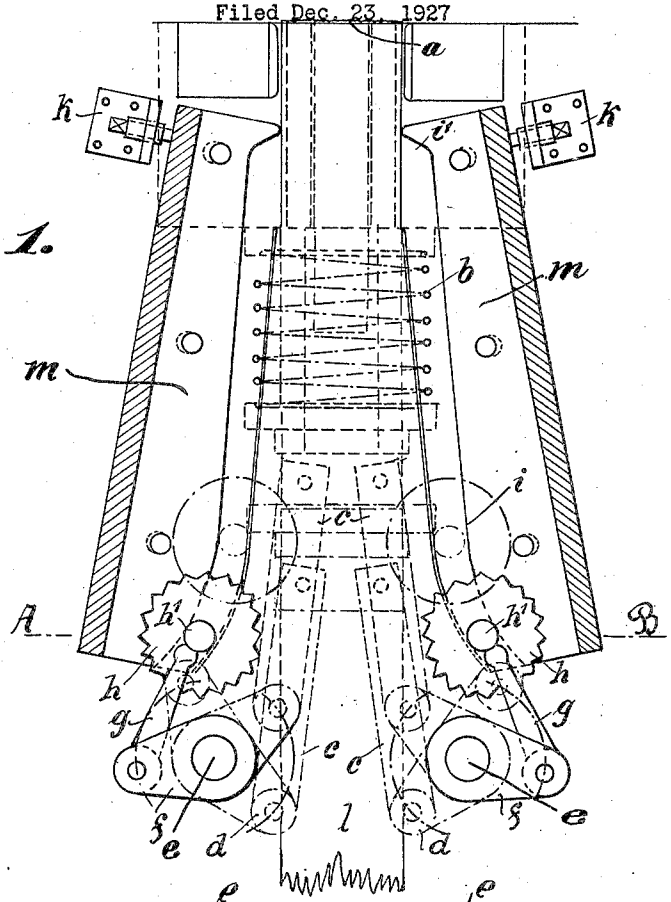
March 26, 1929. B. STEIN ET AL. 1,707,099

CATCHING DEVICE FOR THE CAGES OF HOISTS, LIFTS, AND THE LIKE

Filed Dec. 23, 1927

Fig. 1.



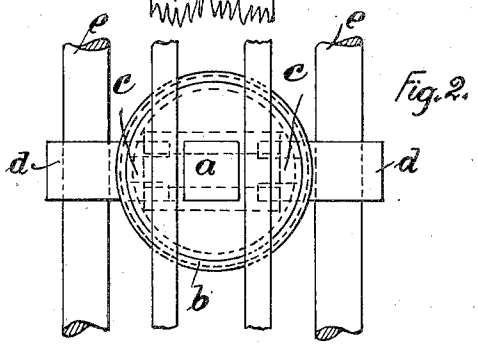
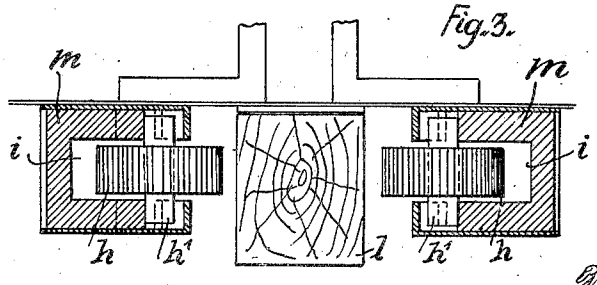


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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CATCHING DEVICE FOR THE CAGES OF HOISTS, LIFTS, AND THE LIKE.

Application filed December 23, 1927, Serial No. 242,206, and in Germany April 22, 1925.

The invention relates to a catching device for the cages of hoists, lifts and the like. Devices of this class are already known, in which, when a break in the cable occurs, catching rollers are brought to intervene with the guide beams on which the cage is guided in an angular direction in guides, and thereafter the intervention of the catching rollers is increased.

The devices of this class which are known, have the disadvantage, that they can be used only for one certain case and cannot be made to suit different working conditions. According to our invention this disadvantage is overcome thereby, that the guiding channels for the catching rollers are arranged so that they can be adjusted, to suit the load and the hoisting speed, in their relation to the guide beams.

In the accompanying drawing the invention is illustrated in one form by way of example, in which Fig. 1 is a side elevation of the catching device, Fig. 2, a plan view of diverse parts of the device over the middle of the cage, and Fig. 3 a cross section at the line A—B of Fig. 1.

By means of the spiral spring *b* which is provided on the kingbar *a*, the cage of the lift, or the like, is supported in the usual manner. When a break in the cable occurs, the kingbar *a*, the connecting links *c* and the levers *d* are forced downward by the expanding action of the spiral spring *b*. Thereby shafts *e* are caused to rotate. The lever arms *f* are keyed firmly to the shafts *e* and are connected movably to forked lever arms *g*. In the normal working position the forked arms *g* support the shafts h^1 of the rollers *h*, these being fluted or milled for wooden guide beams and notched for iron beams. The rollers *h* on their shafts h^1 lie perfectly free in the guiding channels *i* of guiding members *m*, whereby the shafts of the rollers are compelled to roll and run up in especially curved grooves, which merge into straight grooves that are extended upwardly in an angular direction adjacent to the channels *i* in the guiding members, and therefore must roll in a certain braking course when a break occurs in the cable. By means of the adjusting screws *k*, Fig. 1, the guiding members *m* can be adjusted to a desirable position in relation to the guide beams. The upper ends of the guiding channels *i* are provided with a short curve, the so-called safety curve i^1, by means of which it is made impossible for the rollers to run out of the guiding channels.

When a break in the cable causes the shafts *e* to be rotated under the action of the spiral spring *b*, by means of the connecting links *c* and the levers *d*, the lever arms *f*, which are firmly located on the shafts *e* are moved upwards, and simultaneously therewith the forked arms *g* are also moved in the same direction. Thereby the forked arms *g*, which raise the bearings of the roller shafts h^1, bring the toothed rollers to contact with the guide beams *l*. In this state the spiral spring *b* has become expanded to but one half of its actual working expansion, and consequently, the remaining active force in the spring will bring the rollers to intervene with the guide beams *l* with an absolute certainty. As soon as this intervention has become sufficiently strong, the rollers *h* begin to rotate. Thereby the bearings of the shafts h^1, as a result of the internal force of the descending cage, are caused to roll upwards in the grooves adjacent to the guiding channels *i* in the guiding members *m*, so that the coercive action of the curved and angular guide grooves forces the rollers *h* continuously deeper into the guide beams *l*, until the internal force of the descending cage has become gradually consumed because of the active resistance, and the cage comes to a standstill.

Thereby, that the shafts h^1 are firmly located in the rollers *h* and must cover a certain distance in the curved and angular grooves in the guiding members, a longer braking course is attained. The adjustment of the braking course is attained by means of the screws *k*, which are to be adjusted so as to bring the guiding channels either closer to, or farther away from the guiding beams *l*.

I claim:

1. A catching device for the cages of hoists, lifts and the like, comprising, in combination, an open spiral spring on the kingbar of the hoisting cage, connecting links and levers adapted to rotate shafts and to actuate movable forked lever arms, the said forked arms supporting shafts of toothed rollers, and means for adjusting and gradually bringing said rollers to contact with the beams on which the cages are guided, substantially as set forth.

2. A catching device for the cages of hoists, lifts and the like, comprising, in combination, an open spiral spring on the kingbar

of the hoisting cage, connecting links and levers adapted to rotate shafts and to actuate movable forked lever arms, the said forked arms supporting shafts of toothed rollers, the said roller shafts being guided in curved grooves which merge into straight grooves provided in adjustable guiding members, so that the rollers are compelled to run upward when a break in the cable occurs, the said guiding members being adjustable by means of screws in their position in relation to the guide beams of the cages, substantially and for the purpose as set forth.

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