Jan. 20, 1959 M. LEVINE 2,869,171

DOOR CHECK FOR SLIDING DOORS

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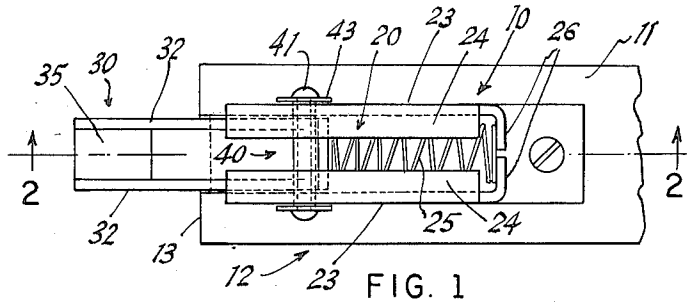



FIG. 1

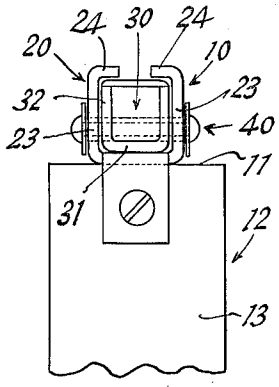



FIG. 3

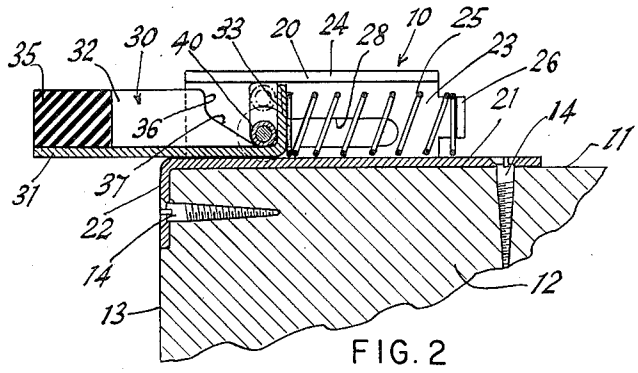



FIG. 2

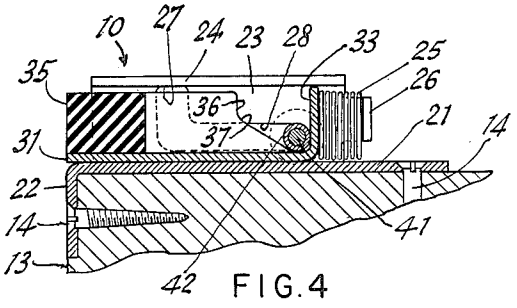



FIG. 4

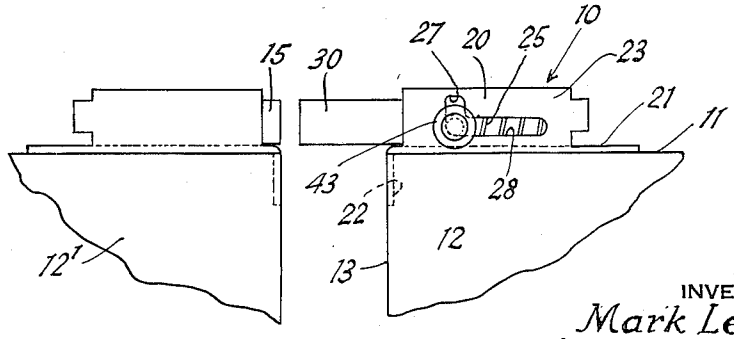



FIG. 5

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# DOOR CHECK FOR SLIDING DOORS

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10 Claims. (Cl. 16—83)

This invention relates to a door check and, more particularly, to an improved and simplified check for sliding doors adapted, on too rapid movement of a sliding door toward its limiting position, to momentarily arrest the door movement in advance of the limiting position.

In accordance with the invention, the door check comprises an elongated housing arranged for mounting on a surface of the door, such as the top surface. This housing has parallel side walls formed, intermediate their ends, with perpendicular slots from the lower end of which horizontal slots extend rearwardly. These slots receive a rolling pin extending across the housing and movable in the slots, the pin normally lying in the horizontal slots.

An elongated slide has a slidable fit in the housing and has a bottom wall from which extend a pair of vertical side walls and a vertical inner end wall. The inner end wall abuts a coil spring seated in the housing and lies inwardly of the roller pin. Just outwardly of the inner end wall, the side walls terminate in a wedge configuration extending from the top edges of the side wall to the bottom wall outwardly of the end wall. The spring biases the slide to project outwardly of the housing beyond the vertical edge of the door.

If the door is moved at a normal rate toward its limit stop or toward another door, the slide, upon encountering the limit stop or a bumper on another door, is moved inwardly compressing the spring with the pin moving along the horizontal slot. However, if the door is moved too rapidly, the pin rides up the wedge configurations and up the vertical slots, finally engaging vertical surfaces at the upper ends of the wedge configurations. This effectively halts the door in advance of its limit. The pin drops down as the spring urges the slide outwardly, so that movement of the door to its limit can be completed.

For an understanding of the invention principles, reference is made to the following description of a typical embodiment thereof as illustrated in the accompanying drawing.

In the drawing:

Fig. 1 is a plan view of a door check embodying the invention, as mounted on the upper edge of a sliding door;

Fig. 2 is a sectional view, on the line 2—2 of Fig. 1, of the door check with the slide extended;

Fig. 3 is an outer-end elevation view of the door check;

Fig. 4 is a view, similar to Fig. 2, of the door check in the retracted position; and

Fig. 5 is an elevation view of a sliding door combination incorporating the door check.

Referring to the drawing, the door check **10** is illustrated as mounted on the upper edge **11** of a door **12**. Check **10** comprises a housing **20** and a slide **30**, slide **30** normally projecting outwardly beyond a vertical edge **13** of door **12**.

Housing **20** includes a mounting base **21**, secured to edge **11** by a screw **14**, and having a down turned outer end **22** secured in a recess in edge **13** by a second screw **14**. Parallel side walls **23** project upwardly from base **21** intermediate its ends, and have inturned horizontal flanges **24** at their upper edges and inturned flanges **26** at their rear edges. Side walls **23** are formed with aligned vertical slots **27** jointed to aligned horizontal slots **28** for a purpose to be described.

Slide **30** is generally channel shape including a base **31**, side walls **32** and an end wall **33** extending upwardly from the inner end of base **31**. The slide has a freely movable substantially telescoping fit in housing **20**. A resilient bumper block **35** is secured by a compressed frictional fit in the outer end of slide **30**.

Side walls **32** terminate short of end wall **33** to provide aligned vertical surfaces **36** joined by aligned sloping surfaces **37** to base **31** at a line spaced from end wall **33**. The surfaces **36** and **37** provide a wedge configuration cooperable with a roller pin **40** extended through slots **27**, **28** and normally lying at the junction of these slots and against base **31** and inner end wall **33**. Pin **40** comprises headed rivets **41** and is secured in a sleeve **42** and carries washers **43** engaged with walls **23** of housing **20**.

The arrangement operates as follows. Slide **30** is biased outwardly by a helical compression spring **25** between wall **33** and flanges **26**. If the door **12** is moved at a normally slow rate toward a limit stop, such as a second door **12'** carrying a resilient bumper **15** of well know construction, when slide **30** encounters bumper **15**, the slide will be moved inwardly to compress spring **25**, with roller pin **40** moving along horizontal slot **28**. However, if door **12** is moved too rapidly toward its limit stop, the sudden inward movement of slide **30**, in conjunction with the inertia of pin **40**, will cause the pin to ride up on sloping surfaces **37** and move up in vertical slot **27**. As pin **40** encounters surface **36**, the door will be stoped in advance of its limiting position. Before movement of the door in the same direction can be completed, the door movement must be reversed to allow spring **25** to move slide **30** outwardly and allow pin **40** to move down into slot **28**. The door movement can then be continued toward its limit stop at a slower rate.

The desired checking effect can be pre-set by selection of the proper angle of surfaces **37**, and the weight of pin **40**.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the invention principles, it will be understood that the invention may be embodiment otherwise without departing from such principles.

What is claimed:

1. A door check, for sliding doors and the like, comprising, in combination, a fixed member formed with a vertical slot and a horizontal slot extending rearwardly from the lower end of said vertical slot; an inertia element extending transversely through the juncture of said slots; a movable member slidably engaged with said fixed member for movement parallel to said horizontal slot and having vertical wall means formed with an inner end surface sloping upwardly and outwardly from said horizontal slot and then vertically, said end surface being engaged with said inertia element whereby, when said movable member is moved inwardly slowly, said inertia element will travel along said horizontal slot, and, when said movable member is moved inwardly abruptly, said inertia element will move along said vertical slot and said sloping surface of the vertical wall means to engage the vertical surface to arrest inward movement of said movable member; and means biasing said movable member outwardly relative to said fixed member.

2. A door check as claimed in claim 1 including means limiting outward movement of said movable member.

3. A door check as claimed in claim 2 in which said limiting means comprises said inertia element and a stop

on said movable member inwardly of said inertia element.

4. A door check, for sliding doors and the like, comprising, in combination, a housing adapted for mounting on a surface of the door adjacent a vertical edge thereof and having wall means formed with a vertical slot and a horizontal slot extending rearwardly from the lower end of said vertical slot; an inertia element extending transversely through the juncture of said slot; a bumper slidably engaged with said housing for movement parallel to said horizontal slot and having vertical wall means formed with an inner end surface sloping upwardly and outwardly from said horizontal slot and then vertically, said end surface being engaged with said inertia element whereby, when said slide is moved inwardly slowly, said inertia element will travel along said horizontal slot, and, when said slide is moved inwardly abruptly, said inertia element will move along said vertical slot and said sloping surface of the vertical wall means to engage the vertical surface to arrest inward movement of said slide; and means biasing said bumper outwardly relative to said housing.

5. A door check as claimed in claim 4 including means limiting outward movement of said bumper.

6. A door check, for sliding doors and the like, comprising, in combination, a housing adapted for mounting on a surface of the door adjacent a vertical edge thereof and having a pair of parallel side walls formed with transversely aligned vertical slots and transversely aligned horizontal slots extending inwardly from the lower ends of said vertical slots; a roller pin extending between said walls in the juncture of said horizontal and vertical slots; a bumper slidably engaged with said housing for movement parallel to said horizontal slots and having vertical wall means formed with an inner end surface sloping upwardly and outwardly from said horizontal slots and then vertically, said end surface being engaged with said roller pin whereby, when said slide is moved inwardly slowly, said roller pin will travel along said horizontal slots and, when said slide is moved inwardly abruptly, said roller pin will move along said vertical slots and said sloping surface to engage the vertical surface of the vertical wall means to arrest inward movement of said slide; and means biasing said bumper outwardly relative to said housing.

7. A door check, for sliding doors and the like, comprising, in combination, a housing adapted for mounting on a surface of the door adjacent a vertical edge thereof and having a pair of parallel side walls formed with



transversely aligned vertical slots and transversely aligned horizontal slots extending inwardly from the lower ends of said vertical slots; a roller pin extending between said walls in the juncture of said horizontal and vertical slots; a bumper slidably engaged with said housing for movement parallel to said horizontal slots and having side walls each formed with an inner end surface sloping upwardly and outwardly from said horizontal slots and then vertically to the level of the upper end of said vertical slots, said end surfaces being engaged with said roller pin whereby, when said slide is moved inwardly slowly, said roller pin will travel along said horizontal slots and, when said slide is moved inwardly abruptly, said roller pin will move along said vertical slots and said sloping surfaces to engage the vertical surfaces to arrest inward movement of said slide; and means biasing said bumper outwardly relative to said housing.

8. A door check as claimed in claim 7 including means limiting outward movement of said bumper.

9. A door check as claimed in claim 8 in which said limiting means comprises said roller pin and an end wall on said bumper inwardly of said roller pin.

10. A door check, for sliding doors and the like, comprising, in combination, a fixed member formed with a vertical slot and a horizontal slot extending rearwardly from the lower end of said vertical slot; an inertia element extending transversely through the juncture of said slots; a movable member slidably engaged with said fixed member for movement parallel to said horizontal slot and having vertical wall means formed with an inner end surface sloping upwardly and outwardly from said horizontal slot and then vertically, said end surface being engaged with said inertia element whereby, when said movable member is moved inwardly slowly, said inertia element will travel along said horizontal slot, and, when said movable member is moved inwardly abruptly, said inertia element will move along said vertical slot and said sloping surface of said vertical wall means to engage the vertical surface to arrest inward movement of said movable member; means biasing said movable member outwardly relative to said fixed member; and means limiting outward movement of said movable member comprising said inertia element and a stop on said bumper inwardly of said inertia element.

**References Cited** in the file of this patent

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