

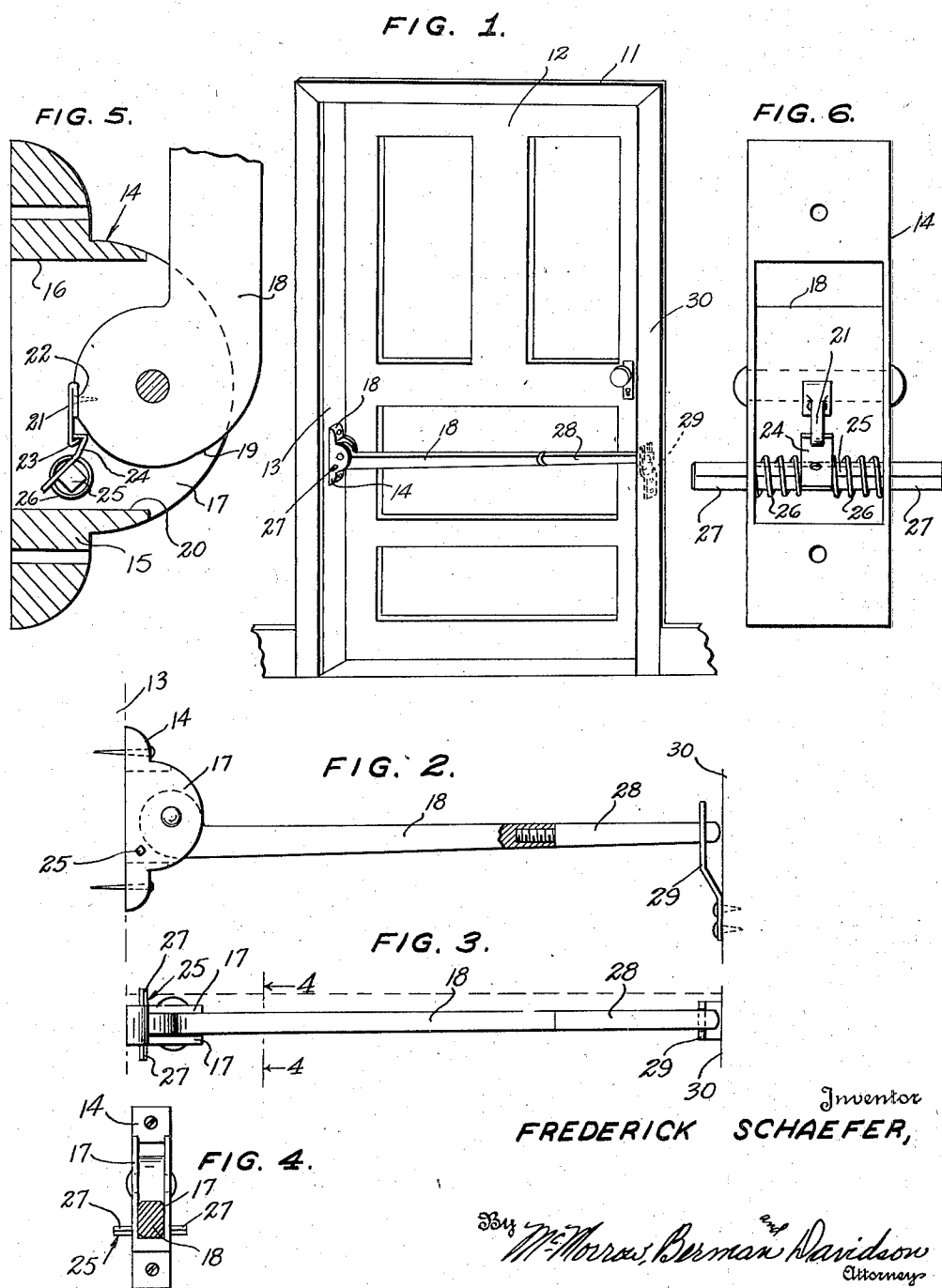
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SAFETY GUARDRAIL

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SAFETY GUARDRAIL

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4 Claims. (Cl. 20-71)

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This invention relates to safety guard rail devices and more particularly to a safety rail device adapted to be located behind a door leading to a downwardly extending flight of steps.

A main object of the invention is to provide a novel and improved guard rail device which is very simple in structure, easy to install and automatic in operation.

A further object of the invention is to provide an improved safety guard rail device for automatically warning a person opening a door of the presence of a downwardly extending flight of steps behind the door, said guard rail device being inexpensive to manufacture, reliable in operation and involving only a few simple parts.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a perspective view of a doorway at the top of a flight of steps showing a guard rail constructed according to the present invention installed thereon, the rail being shown in its doorway-obstructing position.

Figure 2 is an enlarged detail elevational view partly in cross-section of the guard rail structure employed in Figure 1.

Figure 3 is a top plan view of the structure of Figure 2.

Figure 4 is a cross-sectional view taken on line 4-4 of Figure 3.

Figure 5 is an enlarged detail vertical cross-sectional view taken longitudinally through the hinge portion of the guard rail structure of Figure 2.

Figure 6 is a rear elevational view of the structure of Figure 5.

Referring to the drawings, 11 designates a doorway leading to a downwardly extending flight of steps, such as cellar steps or the like. Hinged in a conventional manner in the doorway 11 is a door 12. Door 12 opens inwardly as viewed in Figure 1, that is, behind the plane of the paper.

Secured to the intermediate portion of the vertical door frame member 13 at the hinged side of the door is a bracket member 14 comprising a body portion 15 adapted to be secured to frame member 13, said body portion being formed with a recess 16 from the sides of which project parallel lugs 17, 17 between which is pivoted an arm 18 adapted to swing about a horizontal axis 11. The pivoted end of arm 18 includes a rounded abutment portion 19 adapted to engage the lower wall of the recess 16 at 20 to thereby support the arm 18 in horizontal position, as shown in Figure

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2. Arm 18 is biased by its weight to said horizontal position. Said arm may be retained in a vertical position out of obstructing relation to the doorway, however, by a hooked catch member 21 secured in a recess 22 formed in the pivoted end portion of arm 18. Catch member 21 comprises a resilient finger having a hook 23 adapted to interlock with a hooked arm 24 carried on a squared transverse shaft 25 slidably carried in the bracket member 14 and extending across the lower portion of recess 16. Encircling shaft 25 are coiled springs 26, 26 which bear respectively on the hooked arm 24 and the inner wall surfaces of recess 16, thereby biasing arm 24 to an intermediate position in the recess where it may lockingly engage with the hooked catch 21 when the arm 18 is raised to a vertical position.

Shaft 25 projects laterally of bracket member 14 on each side thereof, as shown at 27, 27. When door 12 is closed, it engages one of the lateral projections 27 of shaft 25, thereby moving shaft 25 axially and disengaging hooked arm 24 from catch 21, allowing the arm 18 to drop to its horizontal doorway-obstructing position.

Arm 18 has removably secured to its free end an extension 28 which is adapted to engage in a notched bracket 29 secured to the opposite doorway vertical frame member 30 to prevent the guard rail from being swung horizontally when it is in its lowered position. The extension 28 is provided for relatively wide doorways. Where the doorway is of standard width the arm 18 may be employed without the extension 28.

When door 12 is closed arm 18 is in horizontal position, so that when the door is opened the guard rail obstructs passage to the stairway, thereby providing a warning of its presence. The guard rail may then be lifted to its vertical position where it is held by the interlocking latch elements 21 and 24, permitting access to the stairway. When the door 12 is again closed it slides shaft 25 axially, disengaging the latch elements and allowing the guard rail to drop to its horizontal position.

Since the shaft 25 projects laterally on both sides of the bracket member 14 at 27, 27, the guard rail structure may be installed for pivoting with respect to either vertical door frame member 13 or 30.

While a specific embodiment of a doorway guard rail device has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the

invention other than as defined by the scope of the appended claims.

What is claimed is:

1. In a doorway including a door mounted for opening and closing movement with respect to said doorway, a guard device arranged within said doorway adjacent to and spaced from said door and mounted for movement into and out of obstructing position with respect to said doorway, said device comprising a bracket member carried by a side-face of said doorway, an arm mounted in said bracket for swinging movement about a horizontal axis, a transverse slidable shaft carried by said bracket and actuable upon closing movement of said door, a latch means on said arm and on said shaft engaging each other when the arm is in out-of-obstructing position to thereby lock the arm in the latter position and releasable from each other upon slidable movement of said shaft in response to closing movement of said door to thereby cause the arm to swing to its obstructing position, and resilient means operatively connected to said shaft and said arm for normally biasing said latch means into engagement with each other.

2. In a doorway including a door mounted for opening and closing movement with respect to said doorway, a guard device arranged within said doorway adjacent to and spaced from said door and mounted for movement into and out of obstructing position with respect to said doorway, said device comprising a bracket member carried by a side-face of said doorway, an arm mounted in said bracket for swinging movement about a horizontal axis, a transverse slidable shaft carried by said bracket and actuable upon closing movement of said door, latch means on said arm and said shaft engaging each other when the arm is in out-of-obstructing position to thereby lock the arm in the latter position and releasable from each other upon slidable movement of said shaft in response to closing movement of said door to thereby cause the arm to swing to its obstructing position, resilient means operatively connected to said shaft and said arm for normally biasing said latch means into engagement with each other, and means on the opposite side-face of said doorway and co-acting with the said arm when the latter is in its obstructing position for retaining the arm in said position.

3. In a doorway including a door mounted for opening and closing movement with respect to said doorway, a guard device arranged within said doorway adjacent to and spaced from said door and mounted for movement into and out of obstructing position with respect to said doorway,

said device comprising a bracket member carried by a side-face of said doorway, an arm mounted in said bracket for swinging movement about a horizontal axis, a transverse slidable shaft carried by said bracket and actuable upon closing movement of said door, a catch member on said arm, a hooked arm carried by said shaft, said hooked arm engaging said catch member when the arm is in out-of-obstructing position to thereby lock the arm in the latter position and releasable from said catch member upon slidable movement of said shaft in response to closing movement of said door to thereby cause the first-named arm to swing to the obstructing position, and resilient means operatively connected to said shaft and said first-named arm for normally biasing the hooked arm in engagement with said catch member.

4. In a doorway including a door mounted for opening and closing movement with respect to said doorway, a guard device arranged within said doorway adjacent to and spaced from said door and mounted for movement into and out of obstructing position with respect to said doorway, said device comprising a bracket member carried by a side-face of said doorway, an arm mounted in said bracket for swinging movement about a horizontal axis, a transverse slidable shaft carried by said bracket and actuable upon closing movement of said door, a catch member on said arm, a hooked arm carried by said shaft, said hooked arm engaging said catch member when the arm is in out-of-obstructing position to thereby lock the arm in the latter position and releasable from said catch member upon slidable movement of said shaft in response to closing movement of said door to thereby cause the first-named arm to swing to the obstructing position, resilient means embodying coiled springs circumposed about said shaft and operatively connected to said hooked arm and said first-named arm for normally biasing the hooked arm in engagement with said catch member, and means on the opposite side-face of said doorway and co-acting with said arm when the latter is in its obstructing position for retaining the arm in said position.

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