Oct. 21, 1958 M. H. PETERSON 2,857,192

GARAGE DOOR LOCKING DEVICE

Filed Aug. 23, 1955 2 Sheets-Sheet 1

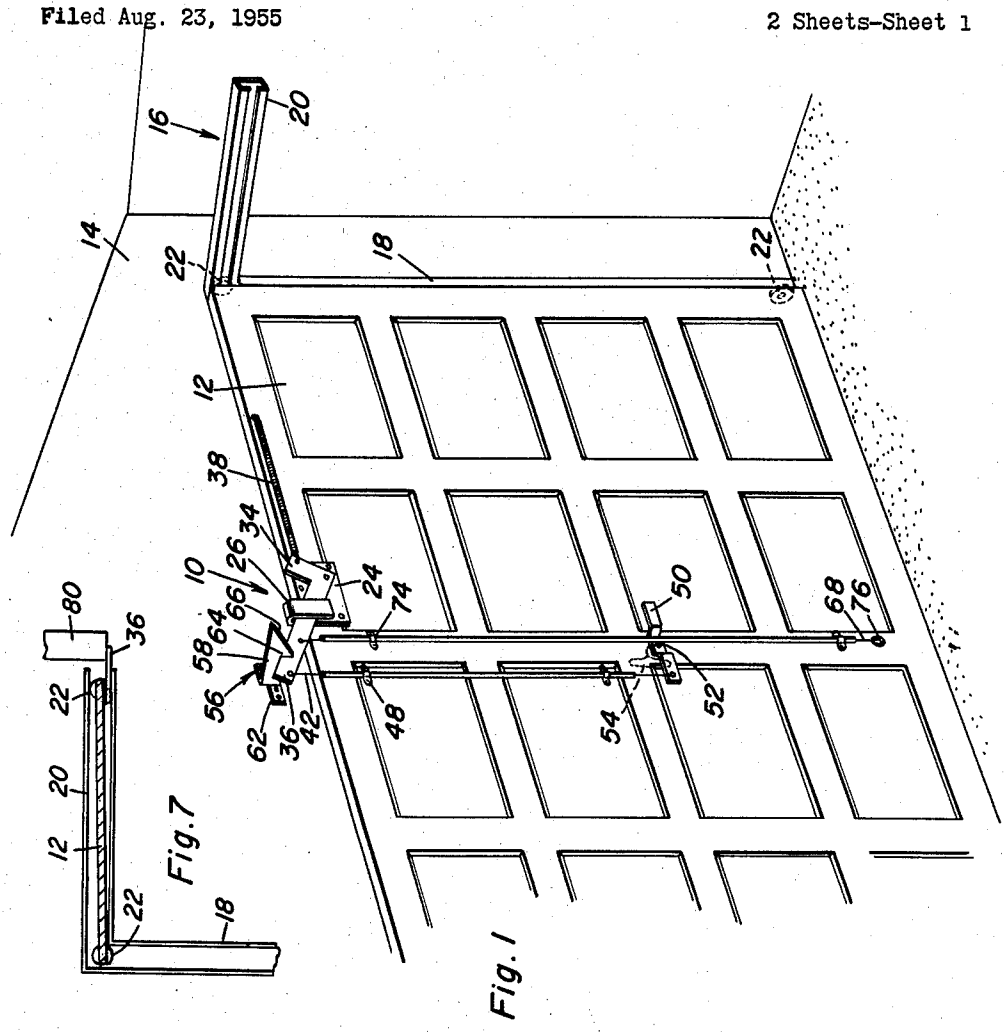


Fig. 7

Fig. 1

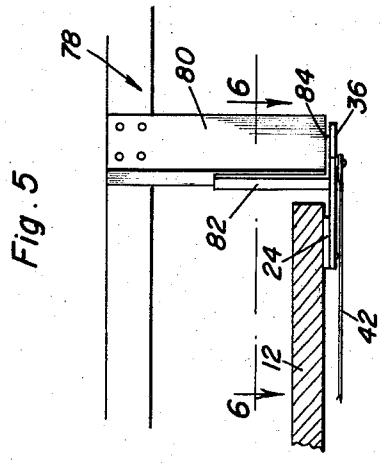


Fig. 5

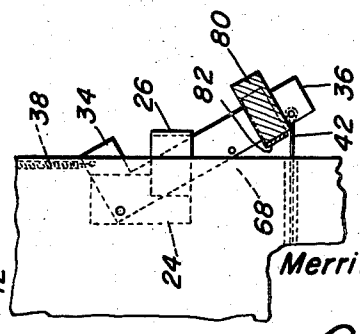


Fig. 6

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GARAGE DOOR LOCKING DEVICE

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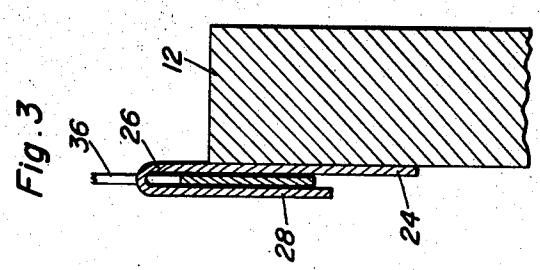


Fig. 3

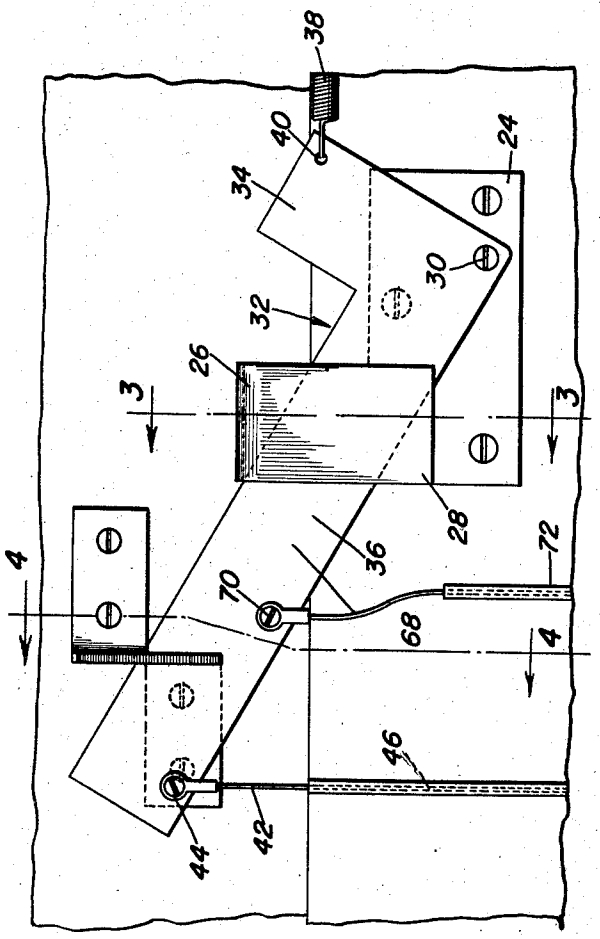


Fig. 2

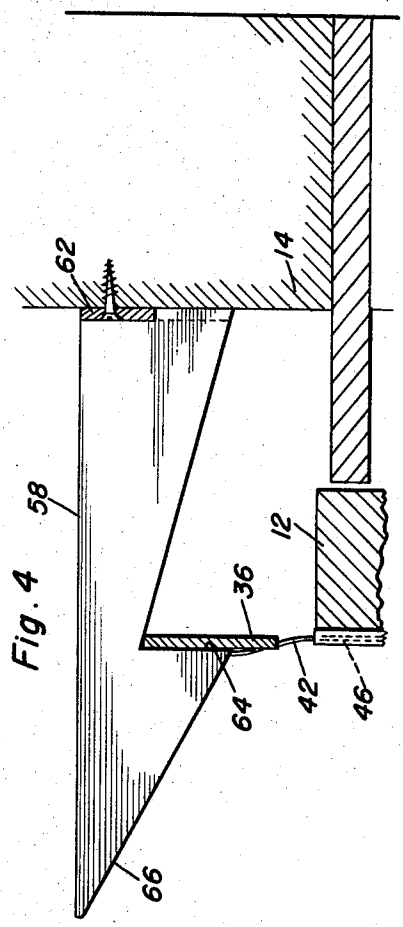


Fig. 4

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GARAGE DOOR LOCKING DEVICE

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2 Claims. (Cl. 292—223)

This invention generally relates to a locking device, and more specifically provides a device for releasably locking overhead type of garage doors in a vertical closed position and a generally horizontal raised or open position.

In the construction of buildings, and especially garages, the overhead door is being widely used. The overhead door is advantageous in that one of its characteristics permits a door of relatively great height, length and weight to be used and opened in a single operation wherein the presence of counterbalancing mechanism may materially reduce the force required for opening and closing the door. Usually, such doors in their closed position extend vertically and are substantially in alignment with or at least parallel to the front wall of the garage or building of which they are a part. In their raised or open position, they generally extend horizontally and are at a sufficient height that persons or vehicles, such as automobiles, can pass thereunder for permitting entry and exit into the building. The use of such counterbalancing mechanism as aforementioned facilitates the opening of the doors but also produces a balance for the door that is so sensitive that the door may sometimes be accidentally displaced from its raised open position by wind or other external forces wherein the door will proceed to its vertical closed position unexpectedly and without warning. This accidental closing of the garage door could be harmful to vehicles setting thereunder or passing thereunder, or harmful to persons that may be injured by such closing of the door. Further, the accidental closing may possibly damage the door. Accordingly, it is the primary object of the present invention to provide a locking device which will selectively retain the door in its vertical closed position or its raised horizontal position with equal facility and positiveness of operation.

Another object of the present invention is to provide a garage door locking device including a single pivotal latch member that is actuated by one actuating means from either the inside or exterior of the door to permit release thereof when the door is in closed position together with a separate actuating means including a depending flexible line for grasping by a person moving the door from the raised to the closed position.

A further important object of the present invention is to provide a garage door locking device in accordance with the preceding objects wherein very little alteration to the building wall and building in which the door is installed is necessary and which is constructed of sturdy and inexpensive elements thereby rendering the device relatively simple in construction, easy to install, efficient in operation, well adapted for its intended purposes and extremely inexpensive to manufacture.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of the garage door with the locking device of the present invention installed thereon with the garage door being in vertical closed position;

Figure 2 is an enlarged side elevational view of the locking device illustrated in Figure 1;

Figure 3 is a transverse vertical sectional view taken substantially upon a plane passing along section line 3—3 of Figure 2 illustrating the details of the U-shaped guide and limit member limiting the movement of the latch mechanism;

Figure 4 is a sectional view taken substantially upon a plane passing along section line 4—4 of Figure 2 illustrating the relationship of the hook-shaped keeper to the pivotal latch mechanism of the locking device of the present invention;

Figure 5 is a detailed fragmental side elevational view of the keeper mechanism and its relationship to the door and latch mechanism for retaining the door in horizontal open position;

Figure 6 is a plan sectional view taken substantially upon a plane passing along section line 6—6 of Figure 5 illustrating the relationship of the pivotal latch in relation to the keeper for retaining the door in substantially horizontal position when it is in open or raised position; and

Figure 7 is a schematic view illustrating the relationship between the door, the trackway, the pivotal latch and keeper before the latch is retracted for allowing the door to move to a vertical position.

With reference to the accompanying drawings, the numeral **10** generally designates the locking device of the present invention for attachment to the inner surface of a vertically disposed rigid type overhead garage door **12** wherein the locking device **10** is disposed adjacent the upper edge thereof when the door **12** is in closed position. The door **12** is normally positioned for closing a doorway in the front wall **14** of a garage or similar building and is mounted for movement between a pair of tracks **16** including a vertical portion **18** and a horizontal portion **20** wherein the tracks support the door **12** by use of a roller or rollers **22** adjacent each side corner of the door **12**. When the door **12** moves from the vertical closed position to the horizontal open position, the upper roller **22** must initially move horizontally in the horizontal portion **20** of the track **16** after which the lower roller will move vertically in the vertical portion **18** of the track **16** until such time as it reaches the horizontal portion **20** of the track **16**, after which it may move slightly horizontally so that the door **12** is retained in horizontal position. The locking device of the present invention is adapted for retaining the door **12** in its vertical position to prevent the upper end thereof from moving horizontally and to retain the door **12** in its horizontal position for preventing inclining the door **12** in the initial closing movement of the door **12** from the horizontal position to the vertical position.

The locking device **10** includes a mounting plate **24** of generally rectangular construction having a U-shaped extension **26** adjacent one corner at the upper edge thereof wherein the U-shaped portion includes a leg **28** in generally spaced parallel relation to the mounting bracket **24**. Pivotally attached to the mounting bracket **24** by a pivot bolt **30** is a generally L-shaped latch member generally designated by the numeral **32** and including a short leg **34** and an elongated leg **36** wherein the pivot bolt **30** is disposed at the juncture between the short leg **34** and the long leg **36**. The pivot bolt **30** pivotally mounts the L-shaped latch member **32** for movement in a plane generally parallel to the door **12** wherein the long leg **36** is normally disposed in longitudinally extending relation to the upper edge of the door **12**. Also, the long leg **36** is disposed within the U-shaped extension **26**

on the mounting bracket 24, thereby limiting and guiding movement of the elongated leg 36 of the L-shaped latch member 32.

A tension spring member 38 is connected to an aperture 40 in the free end of the short leg 34 and is connected at its other end to the door 12, thereby constantly urging the elongated leg 36 outwardly from the adjacent edge of the door 12 and against the U-shaped extension 26.

A flexible actuating member 42 is connected to the outer end of the elongated leg 36 by a fastening member 44 and the elongated flexible member 42 is disposed in a suitable housing 46 supported on the door by U-shaped mounting brackets 48. The other end of the flexible line 42 is connected to one end of an elongated handle member 50 pivotally mounted on the door 12 at its center portion wherein the pivot pin 52 is secured to the handle 50 and projects through the door for attachment to a handle 54 on the other side thereof, thereby permitting actuation of the flexible line 42 by use of the handle 54 or the handle 50, thereby permitting retraction of the elongated leg 36 from either side of the door 12.

A keeper generally designated by the numeral 56 is supported on the front wall 14 immediately above the doorway opening and immediately above the upper edge of the door 12. The keeper 56 includes a generally vertically disposed plate member 58 projecting outwardly from the wall 14 including laterally extending mounting portions 62 and a hook-shaped end 64 terminating in a cam edge 66 which is inclined downwardly and rearwardly for engagement by the outer edge of the elongated leg 36 wherein the elongated leg 36 will be urged towards the door 12 against action of the tension spring 38. As the door 12 is moved to its fully closed position, the spring 38 urges the elongated leg 36 behind the hooked end 64 of the keeper 56, thereby securing the upper end of the door 12 alongside the front wall 14, thereby preventing horizontal rearward movement thereof and thus preventing opening of the door 12 until such times as the elongated leg 36 has been retracted towards the door 12, which will then permit the upper end of the door to move rearwardly for permitting opening thereof.

A second actuating means including an elongated flexible line 68 is connected to the elongated leg 36 in spaced relation to the flexible line 42 by a fastening member 70 and is housed in a tubular housing 72 mounted by suitable supporting brackets 74 and terminating in a pull ring 76 which will depend from the door 12 when the door is disposed in horizontal open position, thereby permitting retraction of the elongated leg 36 by pulling on the pull ring 76.

For retaining the door 12 in horizontal position, a keeper generally designated by the numeral 78 is disposed on the top wall of the building construction in depending relation thereto and includes a generally elongated bracket member 80 having the longer side thereof disposed in perpendicular relation to the normal position of the elongated leg 36. The front surface of the bracket 80 is provided with a striker plate 82 which continues under the bottom of the bracket 80, as designated by the numeral 84, thereby forming a hardened striking surface for engagement by the elongated leg 36.

As the door 12 is moved to its open position, it is in inclined position until the lower roller 22 comes into alignment with the horizontal portion 20 of the track 16. As the lower roller and lower edge of the door 12 approach the horizontal portion 20 of the track 16, the elongated leg 36 will engage the striker plate 82 in spaced relation to the bottom thereof and the subsequent movement of the door 12 will tension and stretch the spring 38 and force the elongated leg 36 towards the adjacent edge of the door 12. As the door 12 continues its movement to a full and true horizontal position, the elongated leg member 36 will be moved downwardly due to the upward movement of the front or bottom edge of the door

from the inclined position to the horizontal position, thereby permitting the spring 38 to urge the elongated leg 36 to a position under the horizontal surface 84 of the bracket 80 as shown in Figure 6. After the elongated leg 36 moves to this position, the door 12 cannot be moved to an inclined position until such time as the elongated leg 36 is retracted by pulling the flexible line 68. Since downward movement of the front edge of the door would cause upward movement of the rear edge of the door and the projecting leg 36 and due to engagement of the leg 36 against the undersurface of the bracket 80, the door will be prevented from moving to an inclined position. The elongated leg 36 moves under the bracket 80 a distance greater than the total outward horizontal movement of the door 12 prior to its movement to an inclined position thus necessitating retraction of leg 36 as shown in Figure 7, thereby assuring that the elongated leg 36 will lock the door in horizontal position.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. In an overhead swinging door construction, a rectangular rigid door formed to close a doorway and mounted for movement from a vertical closed position to a substantially horizontal raised open position, and common lock means on said door for releasably retaining the door in both positions, said lock means including a pivotal latch mounted adjacent the upper inner edge of the door, a keeper above the doorway, a keeper spaced inwardly of the doorway adjacent the inner edge of the door when in horizontal open position, said latch including a generally L-shaped member, pivot means interconnecting the juncture of the legs of the L-shaped member to the door for movement in a plane generally parallel thereto, spring means interconnecting the short leg of the L-shaped member and door for urging the long leg of the L-shaped member longitudinally outwardly from the edge of the door, said door being movably mounted between a pair of generally right angular trackways with rollers adjacent each side corner of the door for engagement in the trackway whereby the upper edge of the door initially moves horizontally when opened, said long leg extending upwardly of the uppermost rollers when the door is opened, said keeper at the upper edge of the doorway having a generally hook-shaped end with an inclined cam surface on the outer edge thereof for forcing the long leg of the L-shaped member towards the edge of the door until the door is fully closed, said spring means urging the long leg of the L-shaped member behind the hook-shaped end when the door is fully closed thereby preventing horizontal opening movement of the upper edge of the door, said L-shaped member having a pair of actuating means connected thereto and extending to the center of the door, one of said means being operable from both sides of the door, the other of said means including a flexible member disposed in depending relation for retracting the long leg of the L-shaped member when the door is in raised position, said keeper in spaced relation to the doorway including a depending bracket having a lower horizontal surface disposed parallel to the long leg of the L-shaped member when the door is in raised open position for receiving said long leg of the L-shaped member closely thereunder, said door moving from an inclined to a horizontal position during the final opening movement thereof, said long leg of the L-shaped member engaging the face of the bracket during the final stage of movement of the door towards the open position thereby forcing

the long leg towards the edge of the door, said spring means urging the long leg under the horizontal surface of the bracket when the door is finally disposed horizontally, said bracket acting as a stop for downward movement of the door, with the horizontal sliding movement of the door during initial movement toward a closed position being less than the distance of projection of the long leg of the L-shaped member under the bracket thereby preventing downward movement of the front edge of the door until the long leg of the L-shaped member has been retracted from under the bottom horizontal surface of the bracket.

2. The combination of claim 1 wherein a U-shaped stop and guide member is mounted on said door for

receiving the long leg of said L-shaped member thereby limiting and guiding the movement thereof.

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