United States Patent [19]

Vickers

[11] **3,863,965**

[45] **Feb. 4, 1975**

[54] **GARAGE DOOR LOCK**

[76] Inventor: **William S. Vickers,** 1186 Jericho Rd., Abington, Pa. 19001

[22] Filed: **June 20, 1973**

[21] Appl. No.: **371,862**

[52] **U.S. Cl.**..... **292/66,** 292/DIG. 36, 292/DIG. 51, 292/DIG. 55

[51] **Int. Cl.**..... **E05c 5/00**

[58] **Field of Search**..... 292/1, 5, 6, 7, 40, 66, 292/106, 107, DIG. 36, DIG. 51, DIG. 55, DIG. 60

[56] **References Cited**

UNITED STATES PATENTS

508,389	11/1893	Immel	292/167 UX
1,959,809	5/1934	Benjamin	292/40 UX
2,124,969	7/1938	Bagley et al.	292/36 X
2,199,765	5/1940	Velie	292/6
2,309,437	1/1943	Blodgett	292/1

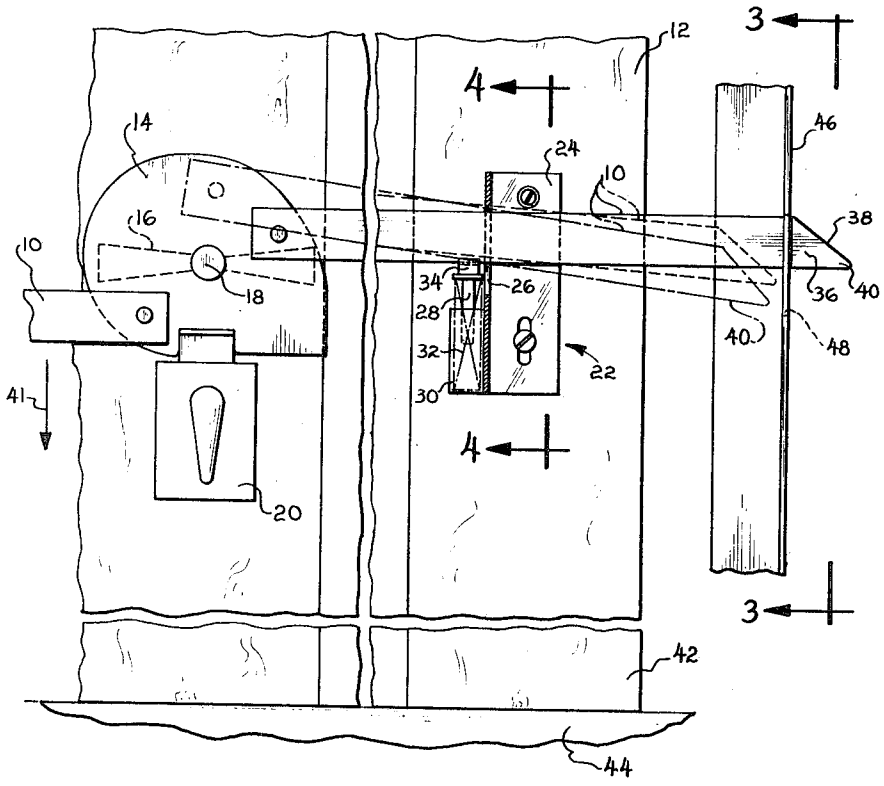
Primary Examiner—Robert L. Wolfe

Attorney, Agent, or Firm—Thomas Hooker

[57] **ABSTRACT**

A garage door lock which automatically locks the door with the bottom of the door resting flush on a sill despite raising or lowering of the sill from its normal position due to frost action or other causes.

3 Claims, 4 Drawing Figures



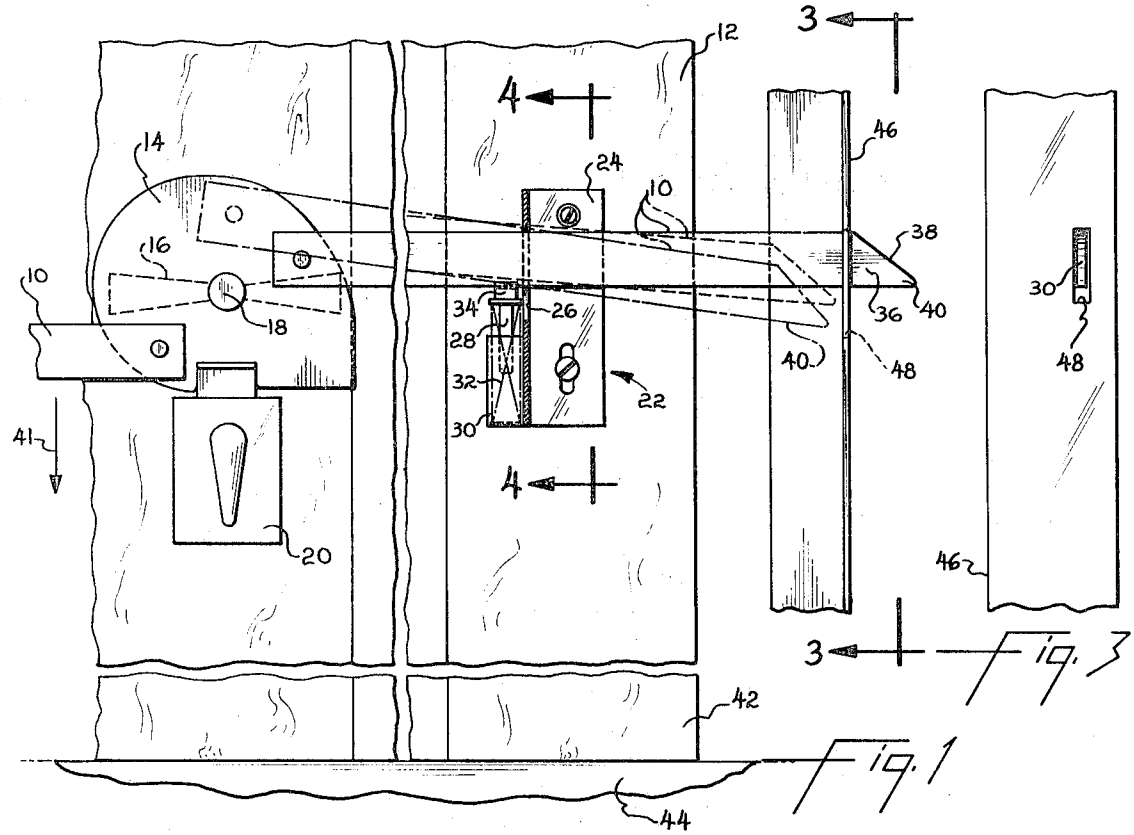


Fig. 3

Fig. 1

Fig. 2

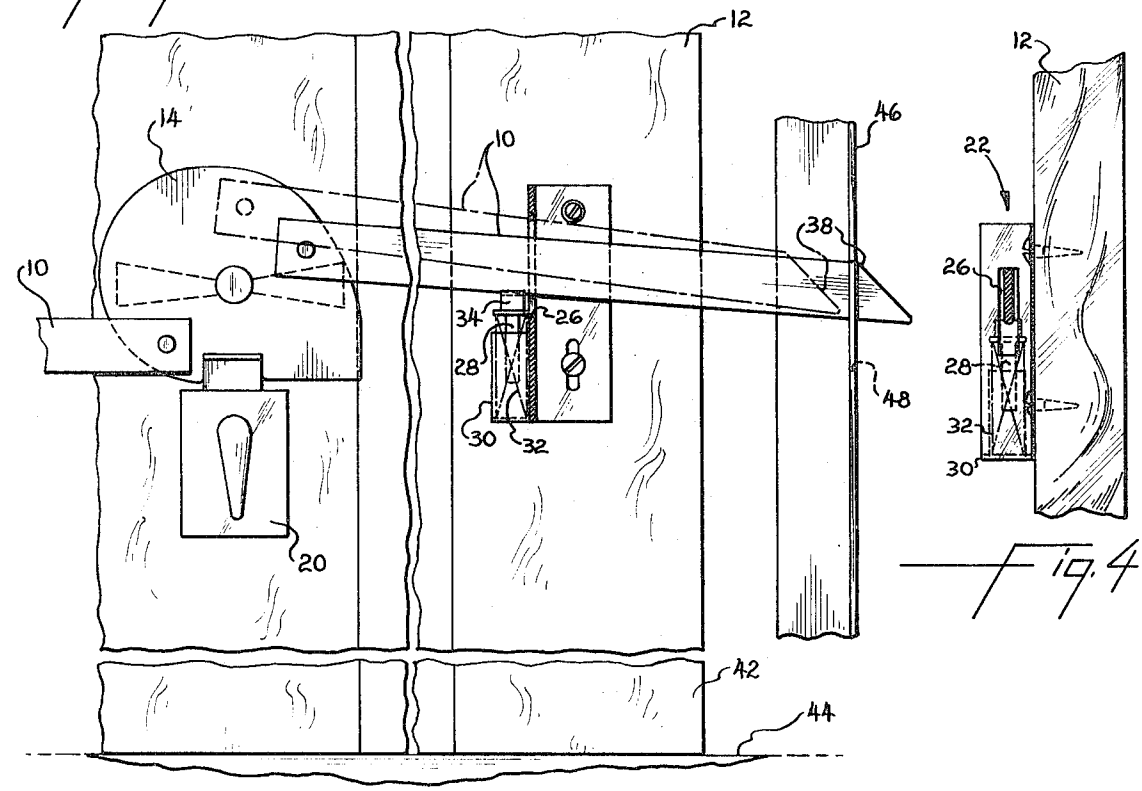


Fig. 4

GARAGE DOOR LOCK

This invention relates to locks for securing overhead garage doors or the like in a closed position with the bottom of the door resting flush upon a sill. A conventional garage door lock is disclosed in U.S. Pat. No. 2,124,969 and includes a pair of extendible locking bars which, when the door is lowered to rest on a sill, are extended to engage fixed openings in keepers on either side of the door and thus lock the door in the closed position. Raising or lowering of the sill raises or lowers the bars relative to the locking openings and prevents locking of the door.

The garage door lock disclosed herein includes a pair of locking bars and collapsible guides for the bars which permit the closing and locking of the garage door with the bottom of the door flush upon a sill despite raising or lowering of the sill from its normal position. The bars are automatically adjusted to the change in height of the door relative to the keepers into which they are extended and thus assure that the door is properly locked closed with the bottom on the sill. Other objects and features of the invention will become apparent as the description proceeds, especially when taken in conjunction with the accompanying drawings illustrating the invention, of which there is one sheet.

IN THE DRAWINGS

FIG. 1 is a partially broken away view of one side of a garage door having a lock according to the invention showing the door closed and locked;

FIG. 2 is similar to FIG. 1 except showing the door closed and locked in the case that the sill has raised due to ground frost or another cause;

FIG. 3 is a view taken along line 3—3 of FIG. 1 illustrating a locking bar extending into a hole in a keeper plate; and

FIG. 4 is a sectional view taken along line 4—4 of FIG. 1 illustrating a guide for the locking bar.

The lock described herein is useful on garage door closures or locks of the type including one or a pair of extendible locking bars **10** mounted on the interior surface of the garage door **12** with the inner ends of the bars pivotally connected to rotatable locking plate **14**. A handle **16** on the outside of door **12** is secured to the locking plate **14** by means of a shaft **18** extending through the door. The handle and plate are illustrated in the locked position in FIGS. **1** and **2** with the bolt of lock **20** extending into a locking recess in plate **14** to secure the plate in the locked position with the bars **10** extended.

Each bar **10** extends through a guide **22** located to one side of plate **14**. The guides **22** each comprise an L-shaped support bracket **24** secured on the interior surface of door **12** with a bar **10** extending through an elongate bar-receiving slot **26** formed in the portion of the bracket extending away from door **12**. Slot **26**, as illustrated in FIG. **2**, is appreciably longer than the width of bar **10** so that the bar may be moved up and down within the slot. Pin **28** is mounted on bracket **24** in pin holder **30** with spring **32** biasing the pin toward bar **10** so that pin end **34** engages the adjacent edge of the bar and normally holds the opposing edge against the upper end of slot **26**. The free end **36** of each bar **10** away from plate **14** includes a cam surface **38** extending from a tip **40** at the lower edge of the bar back toward the upper edge of the bar normally maintained in engagement with the upper end of slot **26**.

Garage door **12** is normally brought down in the direction of arrow **41** to the closed position with the handle **16** and plate **14** rotated 90° counterclockwise from the position of FIG. **1**. The door is closed until lower door edge **42** rests upon sill **44**. The sill is conventionally a concrete slab resting on the ground. FIG. **1** illustrates the door in a closed position resting upon sill **44** in the normal position and not raised by frost or other causes. When the door is lowered to this position, the bars **10** are withdrawn to the dotted position of FIG. **1** and tips **40** are free of the keeper plates **46** to either side of door **12**. With the door in this position, handle **16** and plate **14** are rotated to the position of FIG. **1** to extend the bars **10** so that the tips **40** protrude through locking slots **48** provided in the keeper plates **46**. The spring-backed pins **28** hold the upper edges of bars **10** against the top ends of slots **26** as the bars are extended so that the bars rock about this surface as moved from the retracted to locked positions shown in the dotted and full lines in FIG. **1**. As the bars are extended, the ends **36** move freely through the locking slots **48**.

In some instances the sill **44** may be raised as a result, for instance, of ice on the sill, frost action, or other causes. In normal garage door locks, raising of the sill prevents the door from being lowered sufficiently to permit the ends of the locking bars to extend through the slots in the keeper plates. The door cannot be locked closed. This problem is eliminated by the present invention.

FIG. **2** illustrates a garage door closed against an elevated sill so that the locking plate, bars and guides are elevated with respect to the fixed locking slots in keeper plates **46**. In this case, rotation of the locking plate **14** extends the bars **10** from their retracted position and pilots tips **40** within the locking slots **48**. Further extension of the bars brings the cam surfaces **38** into engagement with the upper ends of the slots **48** so that the bar ends **36** are forced down into the slots and simultaneously the spring-backed pins **28** are compressed against springs **32**. As shown in FIG. **2**, the bars **10** illustrated in solid lines are extended to lock the elevated door against a raised sill. In this case, the upper edge of the bars **10** no longer rest upon the upper end of guide slots **26**.

The disclosed garage door lock automatically assures that the door is locked despite changes in elevation of the sill caused by frost, ground water, or other causes. While I have illustrated and described a preferred embodiment of my invention, it is understood that this is capable of modification, and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

What I claim as my invention is:

1. A lock for securing a garage door or like closure in a closed position with an edge of the door in flush engagement against a movable sill or like surface, where the lock includes a locking bar having a nose at the free end thereof, means for extending the bar so that the nose moves toward one side of the door, and a fixed keeper located at such side of the door and having a bar-engaging surface facing the sill so that upon closing of the door on the sill, extension of the bar moves the nose toward the keeper to engage the surface and lock the door against movement away from the sill; the improvement comprising a bar guide on the door adjacent the fixed keeper, the guide including a bar guide sur-

face facing the sill and engagable with a side of the bar facing away from the sill and means biasing the bar toward the guide surface to hold such side of the bar normally against the bar guide surface while permitting movement of the bar from such surface toward the sill, whereby, depending upon the position of the sill relative to the fixed keeper, extension of the bar to position the free end in engagement with the bar-engaging surface may move the bar from the bar guide surface against the action of said means.

2. A lock as in claim **1** wherein said bar guide includes a member, an opening extending in the member, the bar extending through the opening, said bar guide surface being located on one side of said opening, and said means being located on an opposite side of said opening.

3. A lock as in claim **2** wherein said means includes a spring holder on said bar guide, a contact member engaging said bar, and a spring confined between said holder and said member.

* * * * *