June 25, 1940. H. H. TRACY 2,205,677

LOCK FOR HINGED WINDOWS

Filed Aug. 6, 1938

Fig. 1.

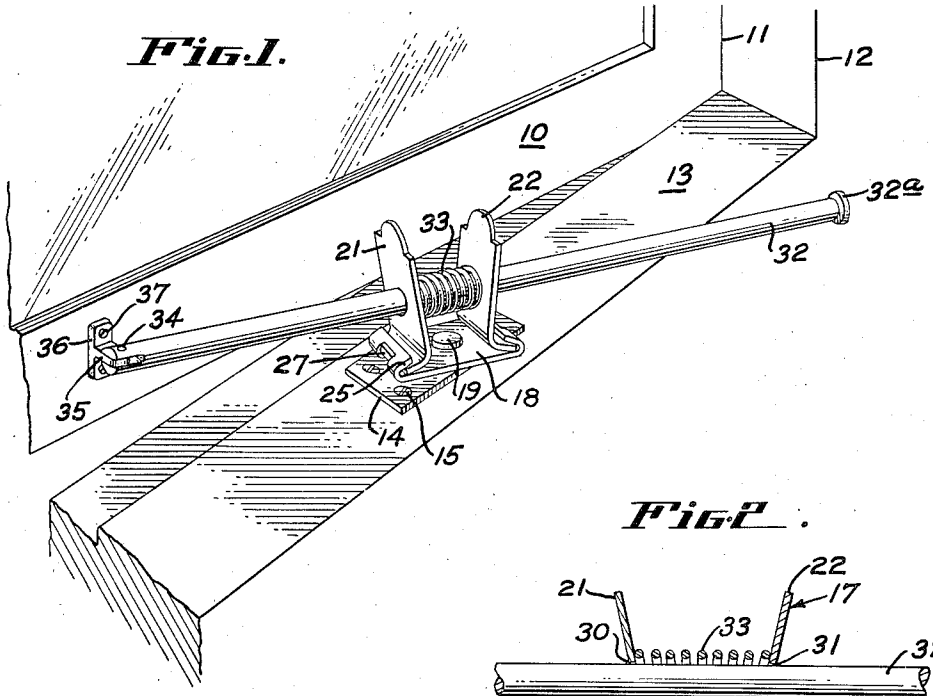


Fig. 2.

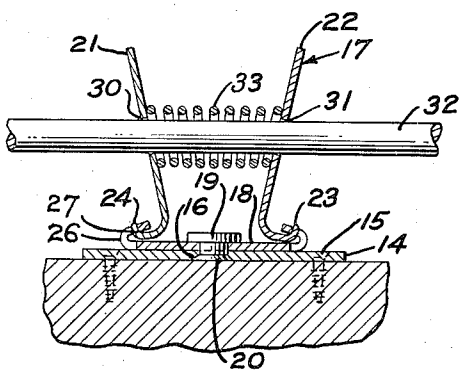


Fig. 4.

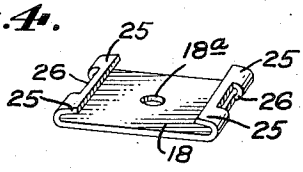


Fig. 7.

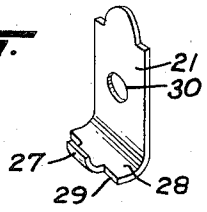


Fig. 3.

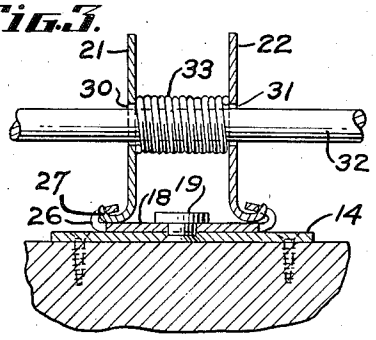
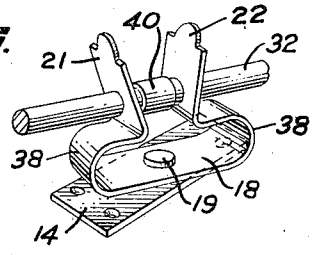


Fig. 6.



INVENTOR.
HAYDEN H. TRACY.
BY
ATTORNEY

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2,205,677

LOCK FOR HINGED WINDOWS

Hayden H. Tracy, San Francisco, Calif.

Application August 6, 1938, Serial No. 223,484

8 Claims. (Cl. 292—275)

This invention relates to improvements in locks for hinged windows and the like, and is particularly adapted to casement windows, door transoms, or other hinged bodies in which a window sash, door, or similar hingedly mounted body is mounted in a frame.

The invention may be employed in any situation where it is desired to releasably lock one pivoted or hinged member in adjustable relation to a fixed frame or support, but as one exemplification of its practical use it is described herein with reference to a casement window sash which is hinged to a window casing or frame.

Broadly, the invention involves a bar connected to a casing of a hinged window or the like and a gripping device to releasably lock the bar by frictional engagement. Devices of this general character are old in a broad sense, but they have presented unsolved problems and difficulties because the gripping means is caused to bind on its pivot due to the usual relatively small base thereof and the lateral pressure of the bar member which forces the vertical axis of the gripping means out of alignment with the axis of its pivot pin.

A spring actuated, manually manipulable gripping device being highly desirable, it is one of the objects of this invention to provide an improved spring actuated releasable locking device for positioning casement windows, transoms, and the like which will eliminate binding of the locking device. Another object is to provide such a locking device in which a spring actuated gripping member is mounted in pivotal relation to the base therefor and is prevented from binding against the pivot pin; another object is to provide such a locking device which is simple and economical in construction, efficient in operation, and generally to improve on locking devices of this character.

With the foregoing and other objects in view, all of which will be more apparent as this description proceeds, the invention is exemplified in one form in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size and details of construction of the apparatus may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

To more clearly comprehend the invention, reference is directed to the accompanying drawing wherein:

Fig. 1 is a perspective view of the invention mounted on the sill of a window frame.

Fig. 2 is a fragmentary, longitudinal vertical section of the device of Fig. 1, and showing a gripping device in its locking position.

Fig. 3 is a fragmentary, longitudinal vertical section of the gripping device of Figs. 1 and 2, illustrating the position of the members of the gripping device when in released or unlocked position.

Fig. 4 is a perspective view of a base plate of a gripping member.

Fig. 5 is a perspective view of a finger grip element of a gripping device.

Fig. 6 is a fragmentary perspective view of a modification of the invention.

In describing the invention reference is hereby made to the accompanying drawing, the reference characters in the several views being the same for corresponding parts thereof.

Referring first to Figs. 1 to 5, inclusive, of the drawing, 10 indicates generally a window sash which is hingedly mounted at one side edge 11 to a frame or window casing 12, the sill of which is indicated 13. A relatively long and broad plate 14 is adapted for fixed mounting to the sill 13 by screws 15 adjacent its four corners. The plate 14 is flat and has a hole 16 drilled substantially at its center. Upon this base is pivotally mounted a gripping device indicated in its entirety 17. The gripping device 17 has a relatively long and broad base 18 which is pivotally mounted on the plate 14 by a headed pivot pin 19 which passes through a hole 18a in the base 18 and through the plate 14, and is held in fixed relation with plate 14 by being swaged as at 20. The base 18, being relatively broad and long, has its lower face in superficial contact with the upper face of plate 14 so that when the gripping device 17 is rotated or pivoted on the pin 19, there will always be a large area of the base 18 in contact with the face of the plate 14, which prevents the tipping or tilting of the gripping member 17 away from its normal vertical axis of rotation or pivoting on pin 19, regardless of the position which it may assume in its operation. The gripping device 17 is provided with a pair of vertically upright finger grip members 21, 22, which have hinged connection at their lower ends, 23, 24, to the ends of the base 18 and have extensions above the bar 32 by which the finger members may be manipulated into and out of frictional engagement with said bar. For simplicity and economy of construction in making this hinged connection, it is preferred that the opposite end portions of base 18 be turned back or retroverted upon itself as at 25 and be provided at the bends thereof with a

stamped-out portion providing an elongated opening or slot 26 laterally transverse of and substantially parallel with the plane of base 18, for receiving an ear 27 formed at the lower ends 23, 24, of the finger grip members 21, 22, said lower ends being also bent or flanged approximately at a right angle at their lower ends providing a portion 28 which fits loosely beneath the retroverted part 25 of the base 18 and provides a shoulder 29 which bears against the inturned wall of said base. Intermediate the respective ends of each of the finger members 21, 22 there is provided a hole or opening 30, 31, through which there is received a bar 32, the diameter of which is slightly less than the diameter of the openings 30, 31, so as to provide a slidable relationship. Between the finger grip members 21, 22, there is slidably mounted upon the bar 32 a coil spring 33 which, when expanded, presses the finger grip members to an oblique angle relative to base 18 so that the periphery of holes 30, 31, due to such change of angle, provide a frictional engagement with the bar 32 and thus frictionally lock the bar against inadvertent movement. By manual manipulation of the finger grip members toward each other or to a substantial perpendicular to base 18, the spring 33 is compressed and the frictional lock of the finger grip members against the bar is released so that the bar 32 may slide freely through the openings 30, 31, said openings, as previously stated, being slightly larger in diameter than the diameter of the bar 32. The coils of the spring 33 are of sufficient number and diameter so that when the finger grip members are manually pressed toward each other until the said coils are relatively in contact, the finger grip members are at a position where they are completely free of frictional locking engagement with the bar 32; thus the spring 33 also serves as a spacer element between the finger grip members and when thus compressed prevents the finger grip members from being moved toward each other to such an extent that they will bind the movement of the bar 32. The bar 32 is pivotally connected at one end thereof as at 34 to a boss 35 of a plate 36, the latter being adapted for connection to the lower bar of a window sash by means of screws 37.

Referring to the modification of Fig. 6, the plate 14 and the bar 32 and pivot pin 19 are similar to like elements in Fig. 2. In this modification, however, the fingers 21, 22 which frictionally grip the bar 32 comprise a continuous strip of spring metal which is bent upon itself at each end of its base 18 so as to form loops 38 having sufficient spring or resilience to actuate the finger grip members 21, 22 into frictional locking engagement with the bar 32. In order to release the bar from such frictional locking engagement, the finger grip members 21, 22 are moved toward each other. A spacer member 40 is slidably mounted on the bar 32 between the finger grip members so that they cannot be moved toward each other sufficiently to inadvertently lock the bar and thereby prevent its movement.

From the foregoing description, it is believed that the mode of operation is self-explanatory. Having mounted the device in relation to a hinged window or the like, with the bar 32 having its pivoted end connected to the window sash, the gripping device will, due to the spring tension exerted upon finger grip members 21, 22, frictionally lock the bar 32 from movement. In order to release the bar from the frictional lock, it is necessary only to press the finger grip members toward each other, which changes the angle of the finger grip members relative to the bar and since the openings 30, 31 are of greater diameter than the bar, the bar 32 will then be freely slidable through said openings. If the finger grip members are pressed too closely toward each other, they would lock the bar against movement and therefore the spring member 33 in Fig. 2 and the spacer member 40 in Fig. 6 are provided to prevent such excessive movement. To prevent the bar being completely withdrawn from the gripping device, a nob 32^a is provided at its free end.

Thus I have provided a locking device in which the gripping member for the bar is pivotally mounted, and in which the base on which it is mounted is sufficiently broad and flat so as to maintain the gripping device on a proper vertical axis of rotation or pivoting on the pivot pin; thus, there is no binding thereof at any position to which the gripping device may be pivoted by movement of the window sash and bar 32.

I claim:

1. In a releasable locking device of the character described having a bar provided with an end portion pivotally connectible to a hinged sash, a device for frictionally and releasably clamping said bar at arbitrary positions, comprising a plate for fixed mounting on a frame adjacent the sash, a gripping device having an opening therethrough for slidably receiving the bar and having a base pivotally mounted on said plate on a pivotal axis perpendicular to the plate, said base extending outwardly parallel to and in slidable facial contact with said plate, the said gripping device including spring actuated means for frictionally locking said bar at arbitrary positions, and being selectively manually releasable so that the bar may slide freely therethrough, and said means for frictionally locking the bar being mounted on its base fixedly against pivotal rotation relative to its base whereby said means and its base pivot simultaneously relative to the frame plate.

2. In a releasable locking device of the character described having a bar provided with an end portion pivotally connectible to a hinged sash, a device for frictionally and releasably clamping said bar at arbitrary positions, comprising a plate for fixed mounting on a frame adjacent the sash, a gripping device having a base pivotally mounted on said plate on a pivotal axis perpendicular to the plate, said base extending outwardly parallel to and in slidable facial contact with said plate, the said gripping device having a pair of relatively spaced spring-tensioned finger members each having an opening therethrough for slidably receiving the bar, said finger members being operable responsive to spring tension for frictionally locking said bar at arbitrary positions, and being selectively manually releasable so that the bar may slide freely therethrough, and said means for frictionally locking the bar being mounted on its base fixedly against pivotal rotation relative to its base whereby said means and its base pivot simultaneously relative to the frame plate.

3. In a releasable locking device of the character described having a bar provided with an end portion pivotally connectible to a hinged sash, a device for frictionally and releasably clamping said bar at arbitrary positions, comprising a plate for fixed mounting on a frame adjacent the sash, a gripping device having a base pivotally mounted on said plate in slidably

superficial contact therewith, said base extending outwardly from said pivotal mounting perpendicularly thereto, said gripping device having a pair of relatively spaced spring-tensioned finger members each having an opening therethrough for slidably receiving the bar, said finger members being operable responsive to spring tension for frictionally locking said bar at arbitrary positions, and being selectively manually releasable so that the bar may slide freely therethrough, the axis of pivoting of the gripping device being perpendicular to said plate, and said means for frictionally locking the bar being mounted on its base fixedly against pivotal rotation relative to its base whereby said means and its base pivot simultaneously relative to the frame plate.

4. In a releasable locking device of the character described having a bar provided with an end portion pivotally connectible to a hinged sash, a device for frictionally and releasably clamping said bar at arbitrary positions, comprising a plate for fixed mounting on a frame adjacent the sash, a gripping device having a base pivotally mounted on said plate and having spring-tensioned finger members each having an opening therethrough for slidably receiving the bar, said base extending outwardly from said pivotal mounting perpendicularly thereto, said finger members being operable responsive to said spring tension for frictionally locking said bar at arbitrary positions, and being selectively manually releasable so that the bar may slide freely therethrough, the axis of pivoting of the gripping device being perpendicular to said plate, and said means for frictionally locking the bar being mounted on its base fixedly against pivotal rotation relative to its base whereby said means and its base pivot simultaneously relative to the frame plate.

5. In a releasable locking device of the character described having a bar provided with an end portion pivotally connectible to a hinged sash, a device for frictionally and releasably clamping said bar at arbitrary positions, comprising a plate for fixed mounting on a frame adjacent the sash, a gripping device pivotally mounted on said plate on a pivotal axis perpendicular to the plate, said gripping device having a base and a pair of relatively spaced spring-tensioned finger members connected at the bottom portion to said base, each finger grip member having an opening therethrough intermediate its ends for slidably receiving the bar, said finger grip members being operable responsive to spring tension for frictionally locking said bar at arbitrary positions, and having a free extended portion above the bar whereby said fingers are selectively manually releasable so that the bar may slide freely therethrough, said base of the gripping device and said plate having relatively parallel faces of relatively large area in superficial slidable contact, and said means for frictionally locking the bar being mounted on its base fixedly against pivotal rotation relative to its base whereby said means and its base pivot simultaneously relative to the frame plate.

6. In a releasable locking device of the character described having a bar provided with an end portion pivotally connectible to a hinged sash, a device for frictionally and releasably clamping said bar at arbitrary positions, comprising a plate for fixed mounting on a frame adjacent the sash, a gripping device having a base pivotally mounted on said plate and having a pair of relatively spaced finger members each having an opening therethrough for slidably receiving the bar, said base extending outwardly from said pivotal mounting perpendicularly thereto, and a coil spring member slidably mounted on said bar between the finger members, said finger members being actuated by said spring for frictionally locking said bar at arbitrary positions, and being selectively manually releasable so that the bar may slide freely therethrough, the axis of pivoting of the gripping device being perpendicular to the said plate, and said means for frictionally locking the bar being mounted on its base fixedly against pivotal rotation relative to its base whereby said means and its base pivot simultaneously relative to the frame plate.

7. In a releasable locking device of the character described having a bar provided with an end portion pivotally connectible to a hinged sash, a device for frictionally and releasably clamping said bar at arbitrary positions, comprising a plate for fixed mounting on a frame adjacent the sash, a gripping device having a base pivotally mounted on said plate and extending outwardly from said pivotal mounting in slidable facial contact with said plate, said gripping device including a pair of relatively spaced finger members, said finger grip members being hingedly mounted to said base at their respective lower ends, each finger member having an opening therethrough for slidably receiving the bar, a coil spring member slidably mounted on said bar between the finger members to actuate said finger members relatively in opposite directions for frictionally locking said bar at arbitrary positions, said finger members having an upper free end portion for manipulation for selectively releasing said spring-tensioned lock so that the bar may slide freely through said fingers, the pivotal axis of the gripping device being perpendicular to the plate, and said means for frictionally locking the bar being mounted on its base fixedly against pivotal rotation relative to its base whereby said means and its base pivot simultaneously relative to the frame plate.

8. In a releasable locking device of the character described having a bar provided with an end portion pivotally connectible to a hinged sash, a device for frictionally and releasably clamping said bar at arbitrary positions, comprising a plate for fixed mounting on a frame adjacent the sash, a gripping device having a base pivotally mounted on said plate, said base being turned upon itself providing a pair of relatively spaced resilient finger members integrally formed with said base, each having an opening therethrough for slidably receiving the bar, a spacer member mounted on said bar between the finger members of a length to stop the movement of said fingers toward each other at the position thereof wherein the bar may slide freely in either direction through the openings, the said finger grip members being spring actuated for frictionally locking said bar at arbitrary positions, and being manually releasable so that the bar may slide freely therethrough, and said means for frictionally locking the bar being mounted on its base fixedly against pivotal rotation relative to its base whereby said means and its base pivot simultaneously relative to the frame plate.

HAYDEN H. TRACY.