Aug. 13, 1929. L. M. FLAGG 1,724,011

LOCK AND WINDOW ADJUSTER

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Fig 2

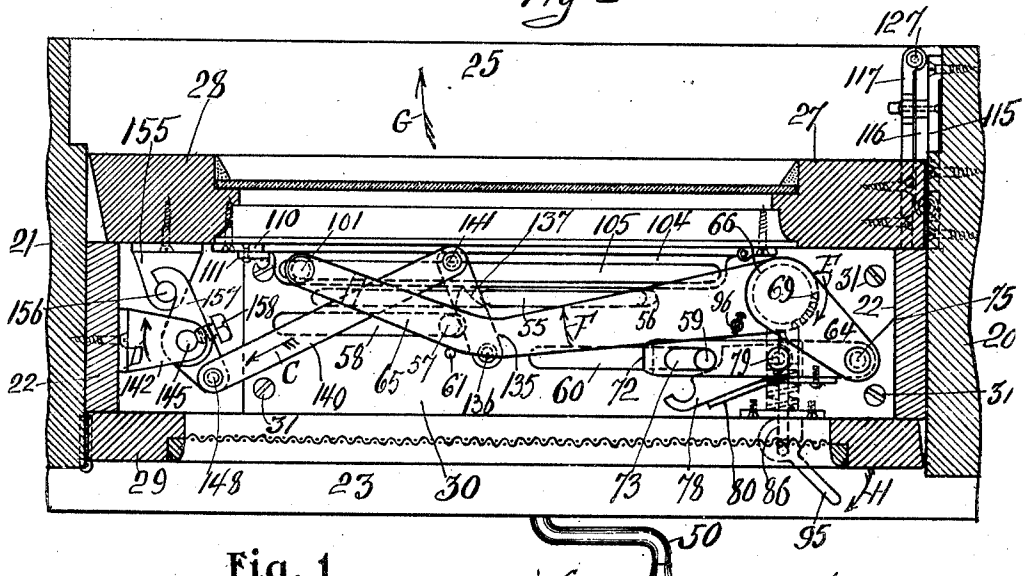


Fig. 1

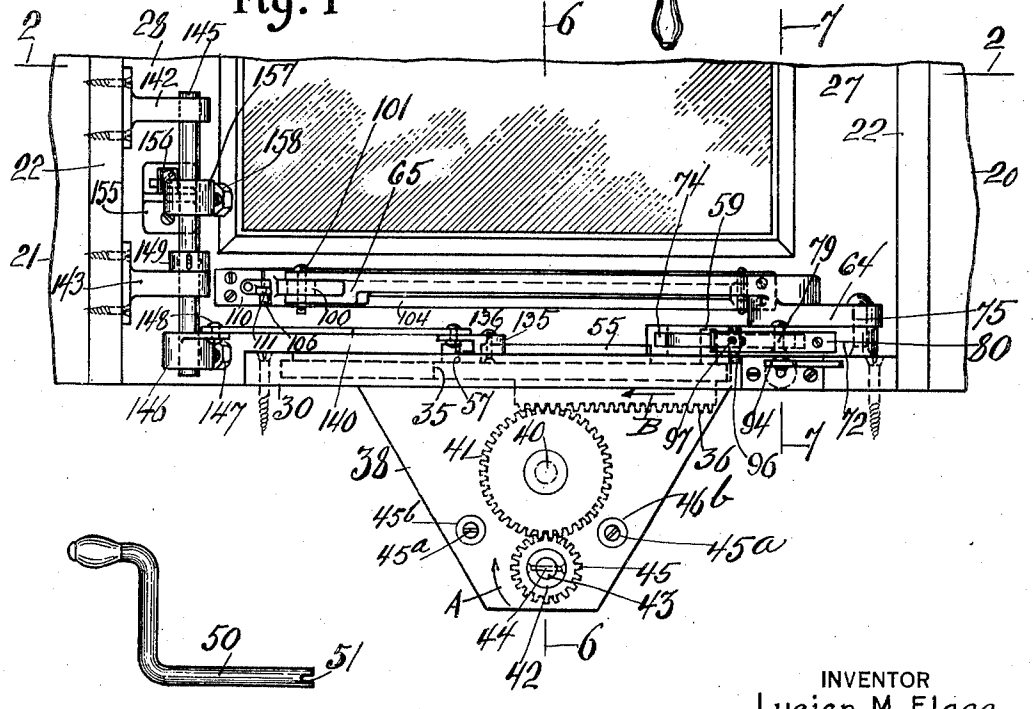


Fig. 2A

INVENTOR
Lucien M. Flagg
BY A. de Bonneville
ATTORNEY

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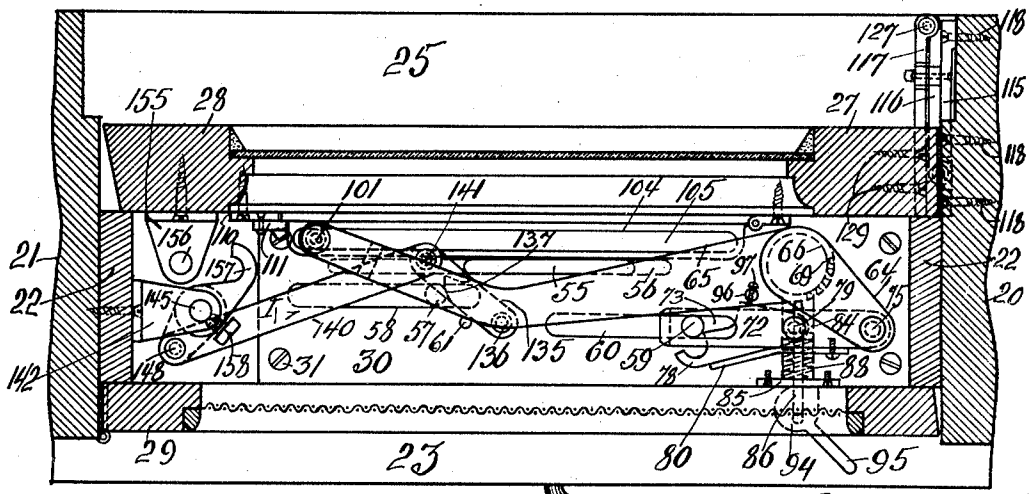


Fig. 3

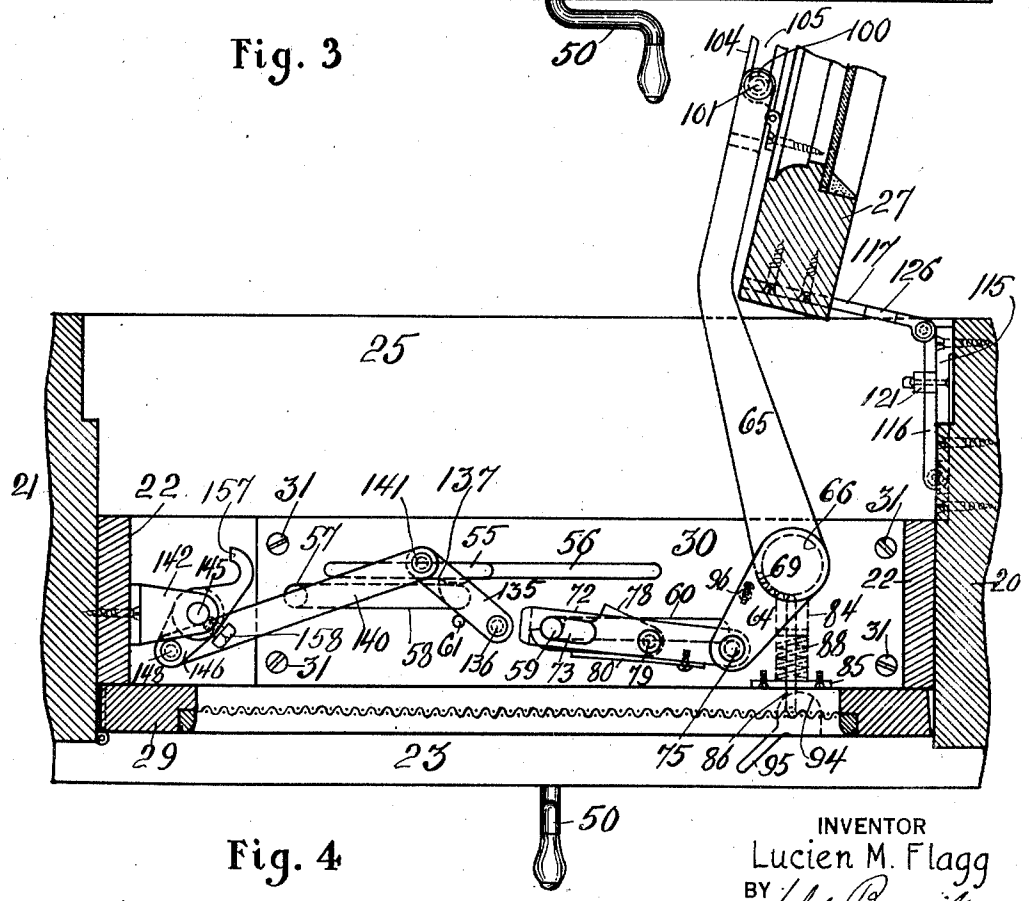


Fig. 4

INVENTOR
Lucien M. Flagg
BY A. A. de Bonneville
ATTORNEY

Aug. 13, 1929. L. M. FLAGG 1,724,011

LOCK AND WINDOW ADJUSTER

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Fig5

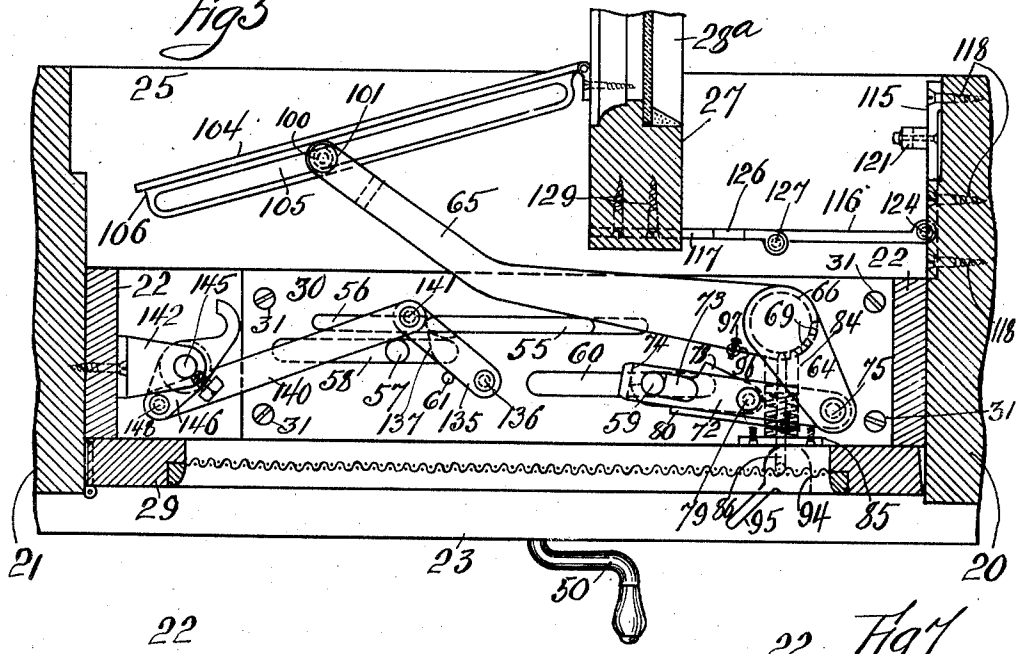
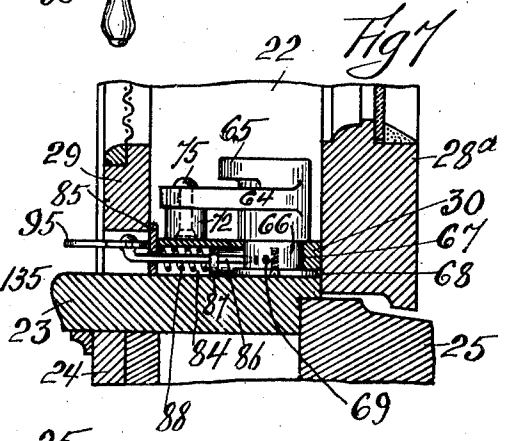


Fig7



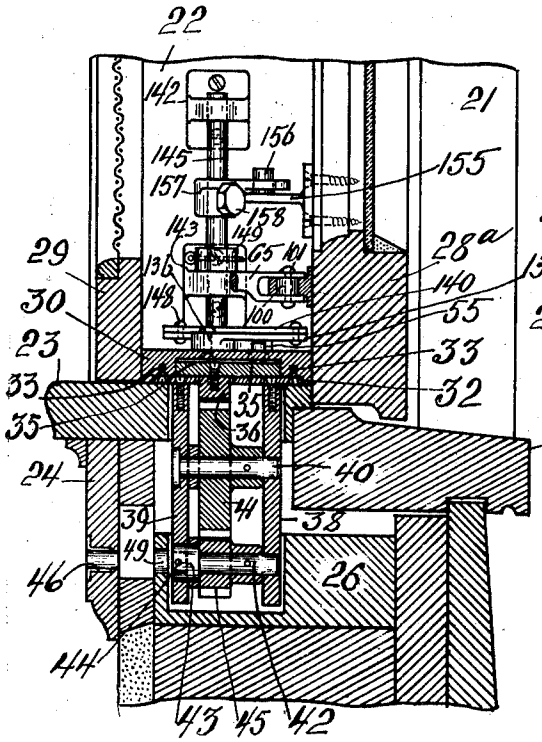


Fig. 6

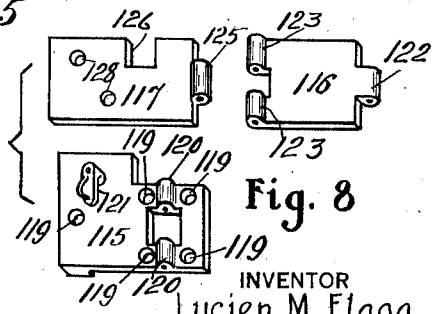


Fig. 8

INVENTOR
Lucien M. Flagg
BY A. A. de Romeville
ATTORNEY

Patented Aug. 13, 1929. 1,724,011

UNITED STATES PATENT OFFICE.

LUCIEN M. FLAGG, OF ASHEVILLE, NORTH CAROLINA.

LOCK AND WINDOW ADJUSTER.

Application filed July 2, 1926. Serial No. 120,062.

This invention relates to a lock and window adjuster.

The object of the invention is the production of a lock and window adjuster, by means of which a hinged window can be opened from the inside, without interfering with a fly screen located on the inside of the window frame. The second object of the lock and adjuster is to provide means, to automatically lock the window in its closed position at its free end opposite its hinge. The third object of the device is the production of means, to maintain a hinged window open in different angular positions. The fourth object is the production of means to space a window from its frame when open at its hinged side. In the accompanying drawings, Fig. 1 represents a front elevation of an exemplification of the improved lock and window adjuster with a fragmentary portion of an inside elevation of a window sash and its frame; Fig. 2 shows a top plan view of Fig. 1 with a section thereof on the line 2, 2; Fig. 2ª shows a plan view of a detail; Figs. 3, 4, and 5 indicate views similar to Fig. 2 with some of the elements in different positions; Fig. 6 is a section of Fig. 1 on the line 6, 6; Fig. 7 represents a section of Fig. 1 on the line 7, 7 and Fig. 8 indicates elevations of some details.

A window frame is indicated with the jambs 20, 21, the stops 22, the stool 23, the apron 24, the sill 25 and the buck 26. A window sash is indicated with the stiles 27, 28 and the bottom bar 28ª. A screen 29 has one end hinged to the jamb 21. A U shaped guide plate 30 is fastened to the stool 23, by means of the screws 31. A bottom plate 32 is detachably connected to the said U shaped plate, by means of the screws 33. A slide bar 35 is located in said U shaped plate 30, and bears on the bottom plate 32. A rack 36 extends from the slide bar 35, through an opening in the plate 32. Journal brackets 38 and 39 depend from and are fastened to the lower face of the bottom plate 32. A journal pin 40 is journaled in the journal brackets 38, 39 and has fastened thereto the spur gear 41 which meshes with the rack 36. A second journal pin 42, having the cavity 43 in one end thereof is journaled in the journal brackets 38, 39 below the journal pin 40. A locking pin 44 extends through the cavity 43. A pinion 45 is fastened to the journal pin 42 and meshes with the spur gear 41. Screws 45ª with spacers 45ᵇ connect the brackets 38 and 39. A sleeve 46 is secured in an opening in the apron 24 and is coaxial with the journal pin 42. An opening 49 is made in the buck 26 coaxial with the sleeve 46. A removable operating handle 50 with the slot 51 at one end, is inserted through the sleeve 46 and the opening 49, so that its slot 51 engages the locking pin 44. A key 55 extends up from the slide bar 35 through the elongated opening 56 in the U shaped plate 30. A pin 57 extends up from said slide bar through the elongated opening 58 in the plate 30. A pin 59 extends up from the said slide bar 35 through an elongated opening 60 in the U shaped plate 30. A stop pin 61 extends up from the said plate 30.

A lever is indicated with the short arm 64 and the long arm 65. A journal pin 66 extends from the bottom face of said lever through a journal opening 67 in the U shaped plate 30. A disc 68 is fastened to the bottom face of the journal pin 66, and is located in a recess in the bottom face of the U shaped plate 30. Locking openings 69 are formed in the journal pin 66.

A link 72 is indicated with the elongated opening 73 at one end thereof. A slot 74 extends through the end of the link 72 and joins with the opening 73 at right angles thereto. The link 72 bears on the top face of the U shaped plate 30, and its elongated opening engages the pin 59. The other end of the link 72 is pinned to the arm 64, by means of the journal pin 75. A latch 78 operates in the slot 74 of the link 72 and is journaled to said link by means of the pin 79. A spring 80 has one end fastened to the link 72, and its free end bears against the latch 78. A cylindrical opening 84 is formed in the U shaped plate 30, and a plate 85 is fastened to said plate 30 over the opening 84. A locking pin 86 extends through an opening in the plate 85 and into the opening 84. The pin 86 has fastened thereto the guide collar 87. One end of the locking pin 86 is adapted to lock with any of the openings 69. A helical spring 88 encircles the locking pin 86 and its ends bear against the guide collar 87 and the plate 85. A locking cam 94 with the operating handle 95 is pinned to the locking pin 86. A screw 96 is in threaded engagement with and extends up from the top face of the U shaped plate 30. An adjusting screw

97 is in threaded engagement with the screw 96 and forms a stop for the latch 78.

The end of the arm 65 is bifurcated for the roller 100, which is journaled thereto by means of the pin 101.

An arm 104 with the elongated guide opening 105 has one end thereof hinged to the bottom bar 28^a, and the roller 100 is guided in said opening 105. A stop lug 106 is formed at the outer end of the arm 104. A plate 110 is fastened to the bottom bar 28^a and has journaled thereto the latch 111 which coacts with the stop lug 106 on the arm 104.

An extension hinge (see Fig. 8 for some details) comprises the end member 115, the middle member 116 and the end member 117. The member 115 is fastened to the jamb 20 by means of the screws 118 which extend through the openings 119. Hinge bearings 120 extend from the outer face of the member 115, and a latch 121 is pivoted to said outer face. The member 116 has formed at one end the hinge bearing 122, and at its other end the pair of hinge bearings 123. The hinge bearing 122 is hinged to the bearings 120 of the member 115, by means of the hinge pin 124. The member 117 has formed at one end the hinge bearing 125, and in its top end is formed the clearance opening 126. The hinge bearing 125 is hinged to the hinge bearings 123, by means of the hinge pin 127. Openings 128 are formed in the member 117, and screws 129 extend through the openings 128, which fasten the member 117 to the stile 27 of the window sash.

A latch arm 135 has one end pinned to the top face of the U shaped plate 30, by means of the pin 136. A heel 137 is formed with the bottom face of the latch arm 135 at the other end thereof. A link 140 has one end pinned to the arm 135 by means of the pin 141. A pair of brackets 142, 143 are fastened to one of the stops 22. A latch shaft 145 is journaled in the brackets 142 and 143. An arm 146 is fastened to the lower end of the shaft 145, by means of the set screw 147, and its free end is pinned to the link 140, by means of the pin 148. A collar 149 is fastened to the shaft 145 and bears on the top face of the bracket 143. A bracket 155 is fastened to the stile 28 of the window sash and has extending from its upper face the latch pin 156. A latch 157 is fastened to the shaft 145 by means of the set screw 158.

To operate the window adjuster, to open the window (see Figs 1, 2, 2^a, 6) the end of the handle 50 is inserted into the sleeve 46 to lock the slot 51 with the locking pin 44. The handle 50 is turned as indicated by the arrow A, which by means of the pinion 45 and the spur gear 41 moves the rack 36 and with it the slide bar 35 in the direction of the arrow B. Thereby the pins 57, 59 and the key 55 are also moved in the direction of said arrow B. The key 55 strikes the heel 137 of the latch arm 135 and thereby moves the link 140 in the direction of the arrow C, until the arm 135 strikes the stop pin 61, by means of which the latch shaft 145 is turned in the direction of the arrow D, and the latch 157 is released from the latch pin 156. At the same time the pin 57 moves in the direction of the arrow B to enable the arm 135 to swing. The link 72 is moved by the pin 59, which swings the short arm 64 in the direction of the arrow E and the long arm 65 in the direction of the arrow F, by virtue of which the window sash swings in the direction of the arrow G, (to its open position as indicated in Fig. 4) on the pin 127 of the member 117 of the hinge already described, the roller 100 rolling in the guide opening 105 of the arm 104. With the movement of the link 72 in the direction of the arrow B the pin 59 moves in the elongated opening 73 of said link 72, and the latch 78 is locked with said pin 59.

The operator may maintain the window sash in different angular open positions, by swinging the operating handle 95 in the direction of the arrow H, which locks the locking pin 86 with one of the locking openings 69 in the journal pin 66.

To close the window sash, see Figs. 1, 2, 3, 4 and 6, the operating handle 50 is turned in a direction opposite to the arrow A, and thereby the slide bar 35 is moved in a direction opposite to the arrow B. By this means the pin 59 moves from the position indicated in Fig. 4 to the position shown in Fig. 3, and during its movement the latch 78 contacts with the adjusting screw 97 and said latch unlocks from the pin 59, which permits the pin to further move in the elongated opening 73 of the link 72. The pin 57 moves with the pin 59. The latter strikes the heel 137 of the latch arm 135, whereby the link 140 moves in the direction of the arrow I, (Fig. 3), and the latch 157 locks with the latch pin 156 and the window is securely locked in its closed position as indicated in Fig. 1.

The arm 104 during the operations described is locked to the sash by means of the latch 111, and after the window is partially opened, if it is desired to space the sash from the jamb 20, to which it is hinged as indicated in Fig. 5, the latch 111 is first released from the arm 104, and the latch 121 is released from the hinge member 116 to which it was locked. The operator may now manually space the sash to the position shown in Fig. 5, to be enabled to clean the outer face of the window.

Various modifications may be made in the invention and the present exemplification is to be taken as illustrative and not limitative thereof.

Having described my invention what I desire to secure by Letters Patent and claim is:

1. In a lock and window adjuster the combination of means to hinge one side of a window sash to a jamb of the frame of a window, a guide plate supported on the stool of the window frame, a slide bar guided by said plate, means to reciprocate said bar, a lever with a pair of arms pivoted to said guide plate, a pin extending from said slide bar, one of the arms of said lever in slidable connection with said window sash to locate it in different angular positions, a link with one end pivoted to the other arm of said lever, the other end of the link having an elongated opening, a pin extending from the slide bar engaging said elongated opening, said link having a slot therethrough at right angles to its elongated opening, a latch pivoted to said link positioned to swing in its slot, a spring with one end fastened to said link and its free end bearing on said latch, an adjusting screw extending above said guide plate and adapted to bear against said latch, a key extending up from the slide bar, a latch arm with one end pinned to the guide plate, a heel formed with the lower said key, a stop pin extending up from the guide plate to coact with the latter arm, a link plate to coact with the latter arm, a link with one end pinned to the latch arm, brackets fastened to one of the stops of the window frame, a shaft rotatably supported in said brackets, an arm fastened to said shaft and pinned to the other end of the latter link, a bracket fastened to the stile of the window frame associated with the swinging end of the sash, a latch pin extending from the latter bracket, a latch fastened to said shaft adapted to engage said latch pin, and a second pin extending from the slide bar adapted to coact with the said heel of the latch arm.

2. In a lock and window adjuster the combination of means to hinge one side of a window sash to a jamb of the frame of a window, a guide plate supported on the stool of the window frame, a slide bar guided by said plate, means to reciprocate said bar, a lever having a pair of arms pivoted to said guide plate, a link having one end pinned to one of the arms of said lever, a pin extending from said slide bar engaging the other end of said link, the other arm of said lever in slidable connection with said window sash to locate it in different angular positions, a latch arm having one end pinned to the guide plate, a key extending up from the slide bar, said key adapted to coact with said latch arm, a link having one end pinned to the latch arm, brackets fastened to one of the stops of the window frame, a shaft rotatably supported in said brackets, an arm fastened to said shaft and pinned to the other end of the link, a bracket fastened to one of the stiles of the sash, a latch pin extending from the latter bracket, a latch fastened to said shaft adapted to engage the latch pin, and a pin extending from the slide bar adapted to coact with the latch arm.

In testimony whereof I affix my signature.

LUCIEN M. FLAGG.