

A. M. LANE.
CASEMENT WINDOW STAY.
APPLICATION FILED NOV. 16, 1918.

1,357,714.

Patented Nov. 2, 1920.

Fig. 1.

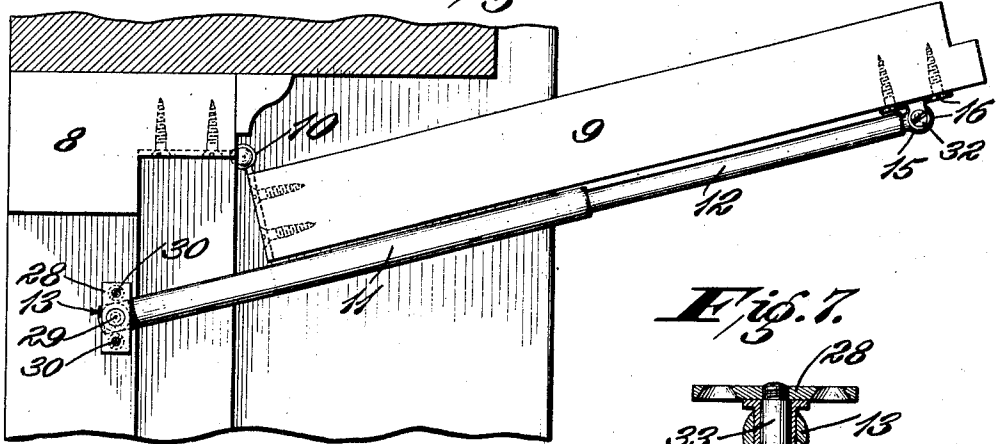


Fig. 7.

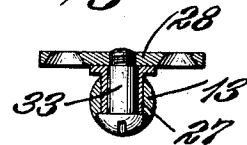


Fig. 2.

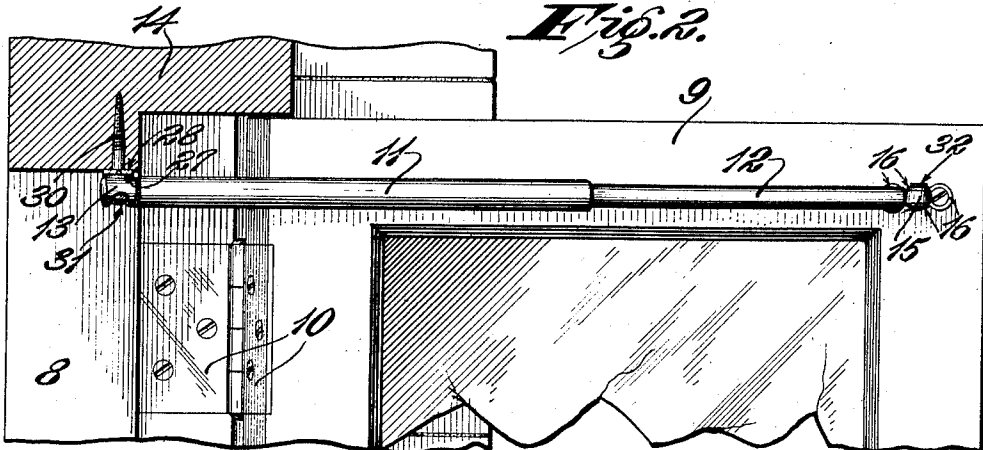


Fig. 3.

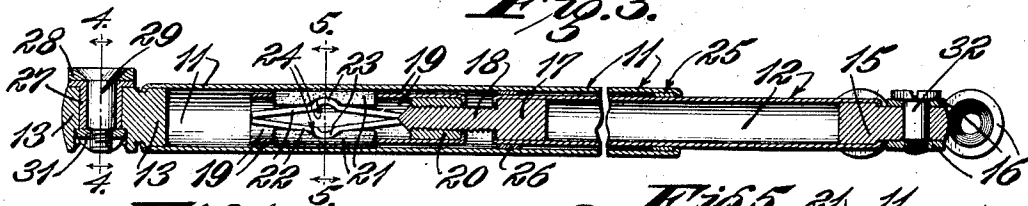


Fig. 4.

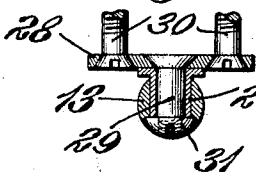


Fig. 6.

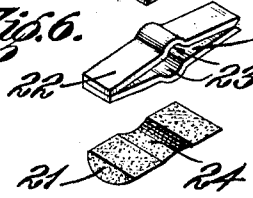
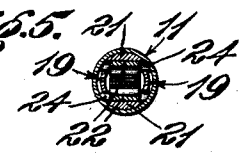


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALFRED M. LANE, OF ST. LOUIS, MISSOURI, ASSIGNOR TO MONARCH METAL PRODUCTS COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

CASEMENT-WINDOW STAY.

1,357,714.

Specification of Letters Patent.

Patented Nov. 2, 1920.

Application filed November 16, 1918. Serial No. 262,823.

To all whom it may concern:

Be it known that I, ALFRED M. LANE, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Casement-Window Stays, of which the following is a specification.

This invention relates to stays or props for holding casement or pivoted windows, blinds, doors, transoms and the like in open or partly open position; and is an improvement on my Patent No. 1,221,752, dated April 3, 1917, for casement window stays.

The principal object is to provide for the adjustment of the parts of the stay which frictionally hold the window at the desired angle, whereby these parts may be adjusted to take up wear and to vary the pressure of the frictional contact between said parts, making it greater or less according to the size and weight of the window to which the stay is applied. Another object of the invention is to produce a strong, compact, light weight stay of simple construction which can be cheaply manufactured and which can be applied in various ways to windows of different sizes and types.

The invention consists in the improved means for adjusting the friction shoes and in the improved manner of detachably connecting the ends of the stay to the pivot fittings. The invention further consists in the parts and arrangements of parts hereinafter more fully described and claimed.

In the accompanying drawings, which form part of this specification and wherein like symbols refer to like parts wherever they occur,

Figure 1 is a horizontal section taken through the frame of a casement window with the sash open, showing a stay embodying my invention applied thereto;

Fig. 2 is a vertical section through the window frame, showing the sash and stay in side view;

Fig. 3 is a vertical longitudinal section taken through the axis of the stay, the spring and friction blocks being shown in side elevation;

Fig. 4 is a vertical cross-section taken through the pivot block and securing bracket at the inner end of the stay on the line 4-4 in Fig. 3;

Fig. 5 is a vertical cross-section taken

through the stay in the region of the spring and friction blocks on the line 5-5 in Fig. 3;

Fig. 6 is a perspective view of the springs and friction blocks removed from the stay; and

Fig. 7 is a section similar to Fig. 4, showing a modified form of pivot.

In the accompanying drawings, my invention is illustrated as applied to a casement window. In said drawings, 8 indicates the jamb of the window and 9 indicates the window sash secured to one side of the jamb by means of hinges 10 so as to swing outward.

The stay comprises two main members, an outer tubular member 11 and an inner member 12 which slides or telescopes in the outer tube 11. The inner end of the outer tube 11 is provided with a pivot block 13 which is pivotally secured to the under side of the lintel or head piece 14 of the jamb 8 in a manner hereinafter more fully described. The inner member is preferably tubular although a solid rod may be used. The outer end of said inner member is provided with a pivot block 15 which is pivoted to a bracket member 16 screwed or otherwise secured to the inside face of the window sash 9. With this arrangement, the outer end of the inner tube 12 is pivotally anchored to the window sash 9, and the inner end of the outer tube is pivotally secured to the head piece 14 of the jamb 8, thus permitting the inner tube 12 to telescope in and out of the outer tube 11 when the window is opened and closed.

The inner tube 12 is provided with a block 17 which is pressed into the inner end of the inner tube, the end of said tube being spun over to retain the block 17 in place. The pivot block 15, which is attached to the bracket member 16 secured to the window sash 9, is pressed into the outer end of the inner tube 12 and is similarly held in place by spinning the outer end of the inner tube over the shoulder formed on the pivot block. The block 17 has a threaded pin or extension 18 which projects beyond the inner end of the inner tube 12. Mounted on said threaded pin is a tubular housing or shell 19 is of the same diameter as the inner tube 12 and constitutes, in effect, an extension thereof. A block 20 is pressed into the outer

- end of said housing and the end of said housing is spun over the block to retain it in place. This block is provided with a threaded opening into which the threaded pin or
- 5 projection 18 of the block 17 located in the inner end of the inner tube 12 is screwed, thus permitting the tubular extension or housing to move with the inner tube as it slides in and out of the outer tube.
- 10 The inner end portion of the housing 19 or tubular extension of the inner tube 12 has two vertically aligned openings located in its top and bottom. A friction shoe 21 of fiber or other suitable material is arranged in
- 15 each of these openings, their inner faces being flat and separated from each other by the side walls of the housing or tubular extension 19 and their outer faces being shaped to conform to the inside of the outer tube 11.
- 20 A pair of arched springs 22 of flat section are arranged between the inner faces of the friction shoes 21. The ends of the springs are arranged with their ends adjacent and with their middle portions bowed apart in a
- 25 substantially elliptic arc. The springs have raised corrugations 23 arranged crosswise at their middle which project into grooves 24 extending across the middle of the flat inner faces of the friction shoes 21 and there-
- 30 by form a pivoted bearing so as to insure an even bearing of the outer faces of the friction shoes on the inner wall of the outer tube. The end of the threaded pin 18 of the block 17 secured to the inner end of the inner
- 35 tube 12 is tapered to a point and the adjacent ends of the springs 22 are beveled so that movement of the threaded pin 18 in the direction of the springs will spread the ends of the springs apart and force the friction
- 40 shoes 21 out against the inner walls of the outer tube 11.
- The outer tube is slightly larger than the inner tube and has a bushing 25 at its outer end, which fits around the inner tube. This
- 45 bushing is pressed into the outer end of the outer tube and said end is spun over the bushing to retain it in position. The inner end of the inner tube is also provided with a bushing 26 on the outside thereof, said
- 50 bushing being preferably shrunk thereon and fitting the inside of the outer tube. By reason of the bushing 26 on the inner end of the inner tube fitting in the outer tube and the bushing 25 at the outer end of the
- 55 outer tube fitting over the inner tube, a snug fit is obtained between the inner and outer tubes which are thus kept in alinement and prevented from rattling.
- The pivot block 13 at the inner end of the
- 60 outer tube is pressed into place and has a groove around it into which the end of the outer tube is spun to hold said block in place. The pivot block is provided with a counter-sunk hole having a bushing 27 arranged
- 65 therein. The bottom portion of the bushing is arranged flush with the counter-sunk portion of the hole, and the top portion is provided with a flange which rests on the flattened top portion of the pivot block 13.
- A plate 28 having a downwardly projecting pivot pin 29 is secured to the under face of the head 14 of the jamb by means of screws 30. The pivot pin 29 of the plate 28 extends downwardly into the bushing 27 located in the pivot block 13 which is pivotally
- 70 secured thereto by means of a slotted nut or button 31 threaded on the lower end of the pivot pin that is located in the counter-sunk portion of the hole in the block.
- The pivot block 15 located at the outer
- 80 end of the inner tube 12 is removably secured to the bracket member 16 attached to the window sash 9 by means of a pivot stud 32.
- In the modification shown in Fig. 7, the pivot for the inner end of the outer tube 11
- 85 is shown in the form of a screw stud 33 which passes through the bushing 27 in the pivot block 13 and is threaded into the plate 28 attached to the head piece 14 of the jamb.
- To apply the stay, the window sash is
- 90 opened to the desired maximum angle and the anchor plate 28 on the inner end of the stay is screwed to the head 14 of the jamb, the plate 28 being spaced back far enough from the rabbet in the jamb to clear the win-
- 95 dow sash when closed. The stay is then pulled out to its full length and the bracket 16 on the outer end is secured to the inside face of the window sash 9. The outer end of the stay may then be removed from the
- 100 bracket 16 and the inner tube 12 of the stay rotated. This causes the point of the threaded pin 18 on the inner tube 12 to be forced between the adjacent beveled ends of the springs 22 thereby forcing the friction
- 105 shoes 21 against the inner walls of the outer tube 11. The amount of friction required between the friction shoes and the inner wall is determined by the weight of the window sash and the wind pressure. After the de-
- 110 sired friction between these parts is obtained, the outer end of the stay is then attached to the bracket 16 on the window sash 9. If the friction shoes become worn, the outer end of the stay may be removed from the bracket
- 115 16 and the wear taken up by rotating the inner tube and thereby forcing the shoes out against the inside face of the tube as hereinbefore described.
- The foregoing arrangement is considered
- 120 only as an example and as being the one most adapted to the style of window shown, and I do not wish to be limited thereto, as the stay may be applied in different ways and is applicable to various types of windows.
- 125 What I claim is:
1. A window stay comprising telescoping members, an extension detachably secured to the inner end of the inner member, friction shoes in said exten-
- 130

sion, said shoes being adapted to bear against the outer telescoping member, and spring means located in said extension between said friction shoes, and means for
 5 varying the pressure of said springs against said shoes while the parts of the stay are in assembled relation.

2. A window stay comprising telescoping tubular members, the inner end of the inner
 10 member having an extension removably secured thereto, said extension having openings in its wall, friction shoes disposed in said openings, said shoes being adapted to bear against the inner wall of the outer
 15 telescoping member, and spring means located between said friction shoes, said means being adapted to be engaged by the adjacent inner end of said inner member whereby the pressure of the shoes against
 20 the inner wall of the outer member may be regulated.

3. A window stay comprising a tubular casing and a member slidable in said casing, a tubular housing attached to said slidable
 25 member and arranged to travel therewith, said housing having openings in its wall, friction shoes disposed in said openings, said shoes being adapted to bear against the inner wall of said tubular casing, springs located between said friction shoes, and a rod
 30 having one end threaded into said tubular housing whereby rotation of the rod will cause the springs to separate and cause the shoes to move outwardly.

35 4. A window stay comprising a tubular casing and a member slidable in said casing, a tubular housing attached to said slidable member and arranged to travel therewith, said housing having openings in its walls, friction shoes disposed in said openings, said
 40 shoes being arranged to bear against the inner wall of the tubular casing, springs located between said friction shoes, a rod removably secured to said slidable member so as to move therewith, and adjustable
 45 means for moving said rod into engagement with the springs to cause the springs to spread and move the shoes outwardly.

5. A window stay comprising two telescoping members, a housing attached to the inner end of said inner member and arranged for movement with respect thereto, said housing having similarly shaped openings in its wall, friction shoes disposed in
 55 said openings, said shoes being adapted to bear against the inner wall of the outer telescoping member, springs arranged in said housing between said friction shoes, said springs being arranged with their ends adjacent and their middle portions spaced
 60 apart and adapted to bear against the inner faces of the friction shoes, said inner member extending into said housing and being adapted to bear against one end of said
 65 springs for forcing the springs apart and

thereby causing the friction shoes to move outwardly.

6. A window stay comprising two telescoping members, a housing mounted on the inner member and arranged to travel there-
 70 with, said housing having oppositely disposed openings in its wall, friction shoes disposed in said openings and having notches extending across their inner faces, the outer faces of said shoes being shaped to conform
 75 to the inner wall of the outer telescoping member and adapted to bear against said wall, bowed springs arranged between said friction shoes, said springs being arranged in said housing with their ends adjacent and
 80 with their middle portions extending into the notches in the inner faces of the friction shoes, said inner member being adjustable with respect to said housing and being adapted to engage said springs for forcing
 85 the springs apart whereby the pressure of said friction shoes against the wall of the outer member may be regulated.

7. A window stay comprising a tubular casing having a pivot connection with a
 90 plate for anchoring one end, a member slidable in the free end of said casing and having a detachable pivot connection with a bracket for securing its outer end, a tubular housing secured to the inner end of said
 95 slidable member, said tubular housing having openings in its wall, friction shoes disposed in said openings, the outer faces of said shoes being adapted to bear against the inner wall of the tubular casing and having
 100 notches formed in the inner faces, a pair of half elliptic springs arranged between said friction shoes, said springs being of flat section and arranged with their ends adjacent and with their middle portions in-
 105 clined away from each other so as to bear against the notches in the inner faces of the friction shoes, the inner end of the slidable member extending into said tubular housing and being beveled, whereby movement of
 110 said member will cause the beveled end thereof to engage the adjacent ends of the pair of springs and force the springs apart and thereby cause the friction shoes to move outwardly.
 115

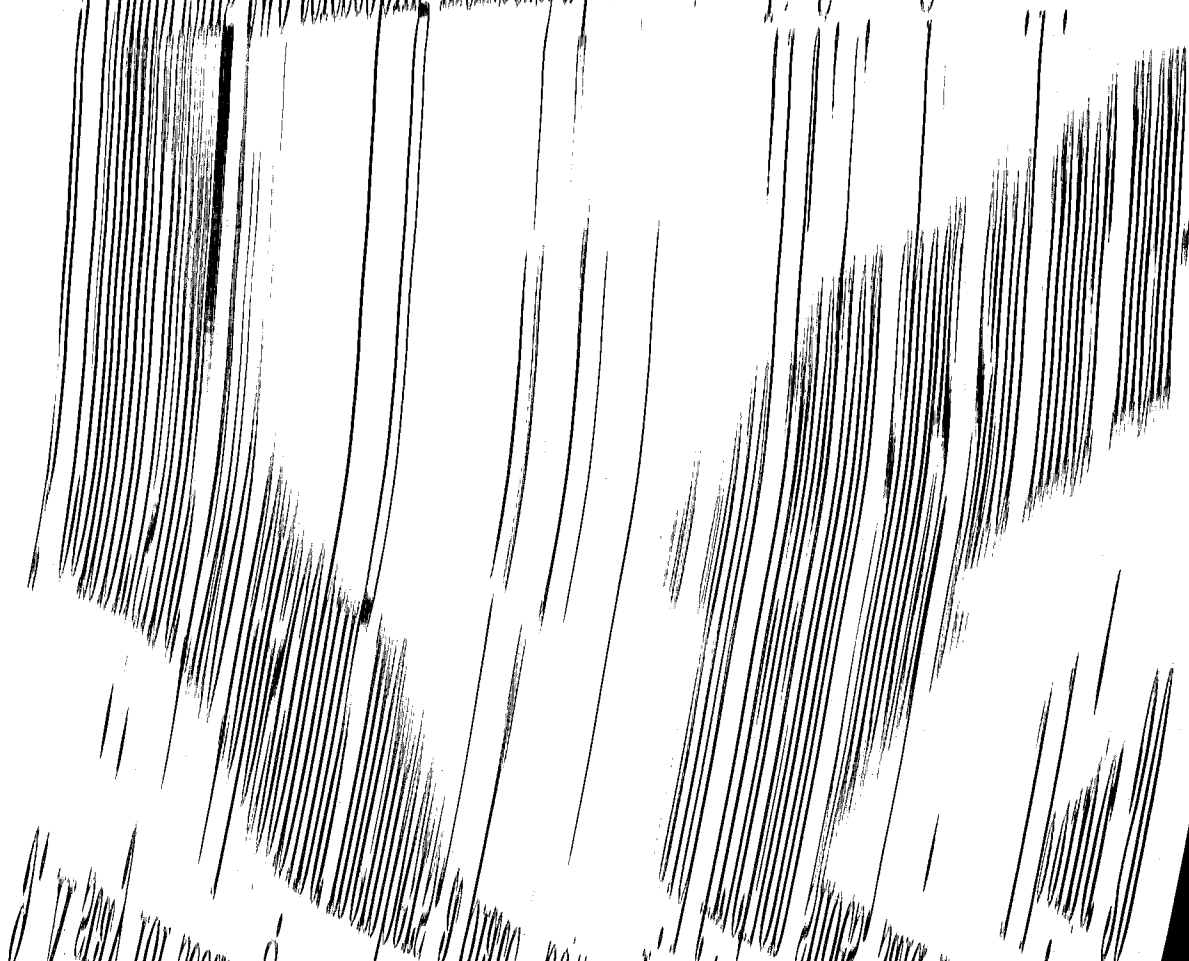
8. A stay for swinging sashes and the like comprising two telescoping tubular members, the free end of one of said members being pivotally secured to the swinging sash and the free end of the other of said members
 120 being pivotally secured to the window frame, a housing detachably secured to the inner end of the inner telescoping member and having spaced friction shoes loosely mounted therein and adapted to bear against
 125 the inner wall of the outer telescoping member, spring means arranged in said housing between the spaced friction shoes, and means for moving the inner member into engagement with said spring means,
 130

whereby the friction shoes may be maintained in contact with the inner wall of the outer tubular member.

9. A stay for securing sashes and the like

inner member spaced friction shoes loosely mounted in said housing, and adapted to bear against the inner wall of the outer telescoping member, and a pair of oppositely bowed springs arranged in said housing be-

comprising two telescoping members, a plate



whereby the friction shoes may be maintained in contact with the inner wall of the outer tubular member. 15
 inner member spaced friction shoes loosely mounted in said housing, and adapted to bear against the inner wall of the outer telescoping member, and a pair of oppositely bowed springs arranged in said housing be-