Oct. 16, 1934. S. E. BLESSIN 1,976,767

EDGE SPRING FOR WINDOW SASHES

Filed Dec. 8, 1933

Fig. 1.

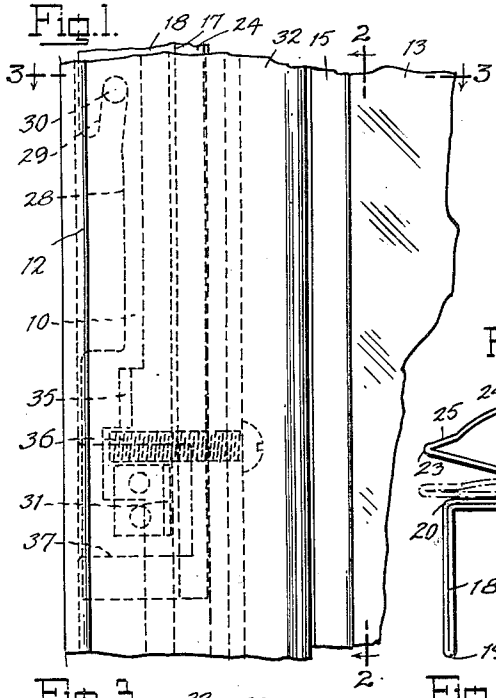


Fig. 2.

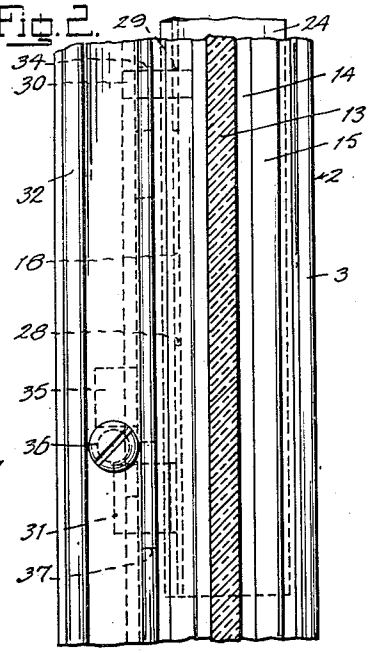


Fig. 6.

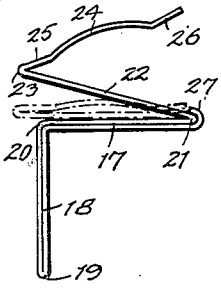


Fig. 3.

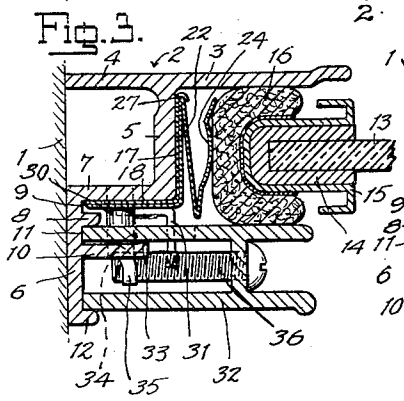


Fig. 4.

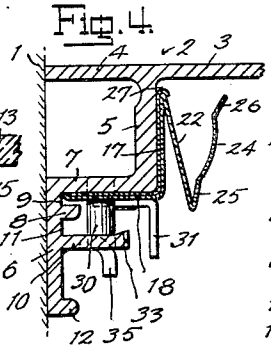


Fig. 5.

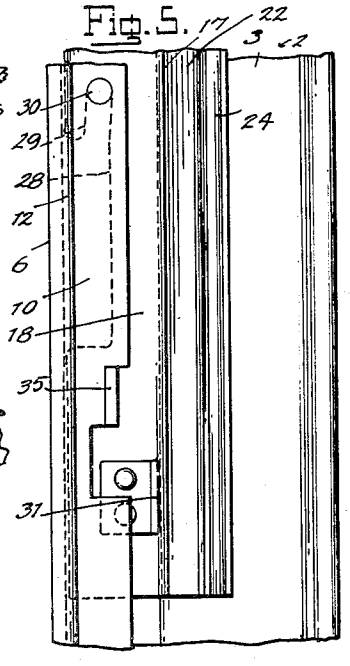


Fig. 7.

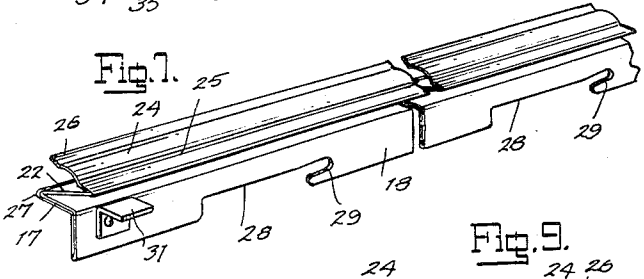


Fig. 8.

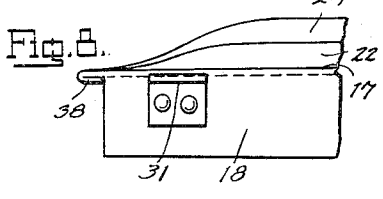
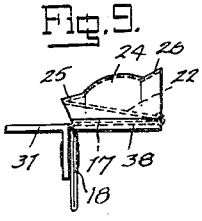


Fig. 9.



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UNITED STATES PATENT OFFICE

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EDGE SPRING FOR WINDOW SASHES

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Application December 8, 1933, Serial No. 701,459

6 Claims. (Cl. 189—73)

The present invention relates to an improved edge spring for window sash, particularly for bus or car window sashes, an object being to provide a spring which may be readily assembled with the window structure, which will give a uniform pressure for any sash position within the operating range of the sash, and whereby the sash will be effectually retained against rattling and may be raised and lowered with a smooth easy action. Another object is to provide a spring having relatively light weight spring portions and reinforced mounting portions, and further to provide means for limiting the action of the spring portion, so that it will operate with a predetermined range.

A further object is to provide fastening means by which the spring may be quickly attached to the window structure or detached for replacement purposes, without the use of bolts, rivets, or other permanent fastening means. It is also an object to provide fastening means which will not interfere with the compression of the spring to its full limit. It is further proposed to provide fastening means by which the spring is secured by the same means employed for holding the inside stop of the window structure to the post piece.

With the above and other objects in view, an embodiment of my invention is shown in the accompanying drawing and this embodiment will be hereinafter more fully described with reference thereto and the invention will be finally pointed out in the claims.

In the drawing:

Fig. 1 is a fragmentary inside elevation of a window sash and side post, embodying my invention.

Fig. 2 is a vertical sectional view, taken along the line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view taken along the line 3—3 of Fig. 1.

Fig. 4 is a horizontal sectional view of the side post with the sash and inside stop removed.

Fig. 5 is an inside elevation thereof.

Fig. 6 is an enlarged end view of the spring, and showing in dot-and-dash lines the full compression position thereof.

Fig. 7 is a perspective view, with the parts broken away of the sash spring according to my invention.

Fig. 8 is a side elevation of the end portion of the sash spring, according to a modification of the invention.

Fig. 9 is an end view thereof.

Similar numerals of reference will be used to denote like parts in the several figures of the drawing.

Referring to Figs. 1 to 7 of the drawing, 1 represents the window casing, and 2 generally denotes the outside stop which is made of metal. This outside stop comprises a comparatively wide member 3 which has a leg 4 abutting the post, a member 5 that extends inwardly and is spaced from the post and is then stepped flush with the leg 4 and abuts the post, as shown at 6, and immediately beyond the riser 7 of the stepped portion is a comparatively narrow rib 8 which is integral with the stop 2 and parallel to the member 3, the spacing between the riser 7 and rib 8 forming a groove 9. A flange 10 also integral with the stop 2 is provided beyond the rib 8, the spacing between the rib 8 and the flange 10 forming a groove 11. The portion 6 extends beyond the flange 10 and terminates in a lip 12 that is parallel to said flange.

The window sash glass 13 has its side edges bound in glazing tape 14 and contained in a channel side strap 15 adapted to slide within a felt channel 16. The side strap 15 may have fastened to it a facing strip of felt, such as the channel strip 16, or of other suitable material and adapted to slide in the channel formed by the leg 3 of the outside stop 2, the inner leg of the inside stop 32, and the leaf portion 24 of the spring.

The spring, according to my invention, yieldingly backs up the felt channel. This spring which extends the full height of the window is made of suitable spring metal, and comprises a double thickness base 17 having a right angle flange 18 formed by folding the metal on itself at 19 and bending at a right angle at 20. The upper thickness of metal is then bent back at 21 forming a channel engaging abutment leaf portion 24, which is arcuately bent or crowned in spaced relation to its longitudinal edges, thus forming marginal flat portions 25 and 26 adapted to abut the leaf portion 22 in the full compressed position of the spring, as shown in dot and dash lines in Fig. 6. The lower thickness of the base 17 is curled at 27 about the bend 21 providing a means for retaining the two thicknesses of the base together and also protecting the bend 21 and forming a limiting means to limit the spring reaction of the leaf portion 22 at this point.

At suitable intervals along the edge of flange 18 there are provided notches 28 having inclined slots 29 extending therefrom in a generally longitudinal direction and which are adapted to be engaged by pins 30 secured to and between the riser 7 and flange 10 of the stop 2, the engagement being effected by first engaging the pins in the notches 28 and thereupon moving the spring

longitudinally, whereupon the pins enter the slots with a wedging action to secure the spring in place, the base 17 being drawn down tightly upon the portion 5. A right angular bracket 31 is secured to the flange 18 near the lower end of the spring, and cooperates with means presently to be more fully described to lock the spring in place.

The inside stop 32 is of generally H-shape, and is inserted by rolling one leg over the slightly protruded end 33 of the member 10 into the channel 11 and in abutting relation to the inner leg of the felt channel 16, the outer leg seating upon the member 6 adjacent the lip 12.

When the inside stop is thus placed in position, it will be noted that the pressure of the felt channel is outwardly upon its outer end pressing the inner end of the inner leg against the lip 8 about the protrusion 33 on the end of the member 10 as a fulcrum, the stop being thus held in position and in turn retaining the felt channel 16.

In order to fasten the inside stop in position the inner leg of the stop is provided at suitable intervals along its edge disposed in the groove 11 with notches and inclined slots 34, substantially similar in shape to the notches 28 and slots 29 of the spring, and which are adapted to be engaged by the projecting pins 30, the engagement being effected by first engaging the pins in notches and thereupon moving the stop longitudinally whereupon the pins enter the slots with a wedging action to secure the stop in place. The stops are thereupon locked in position, and for this purpose the member 10 is provided with a transversely bent lug 35 disposed in the plane of a screw 36 provided in the cross part of the stop. With this screw withdrawn a sufficient distance to clear the lug 35 the stop may be freely moved in a longitudinal direction either to engage or disengage it. When fully engaged the screw 36 is screwed in as shown in Figs. 1 and 3 into obstructing position behind one end of the lug 35 thus preventing retractive movement on the stop. A cut-out 37 in the inner leg of the stop 32 clears the bracket 31 of the spring as the stop is engaged in place.

With the stop engaged in place and the screw 36 screwed into locking relation with the lug 36 the screw also obstructs the path of the locking bracket 31 of the spring, as clearly shown in Figs. 1, 2 and 3 and thereby locks the spring against retractive movement.

In Figs. 8 and 9 I have shown a modification in which the ends of the portions 17, 22 and 24 of the spring are extended beyond the flange portion 18 and are folded under, as at 38, the ends of the portions 22 and 24 being bent down to the base portion 17. This provides a finished end for the spring to prevent the corners from catching in the felt backing 16.

The spring according to my invention provides evenly applied pressure to the edge of the sash and permits the sash to be raised and lowered with a smooth easy action. By compressing the springs to a greater or less amount relatively wide variations in the width of the sash or spacing of the side posts is permitted.

I have illustrated and described a preferred and satisfactory embodiment of the invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claims.

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

1. A window sash pressure spring formed of flat sheet metal comprising a double thickness base formed by bending the metal upon itself over its entire area, means securing the two thicknesses together at a point removed from the bend between said thicknesses, a single thickness springy leaf portion formed by bending the metal back from one longitudinal edge of said base portion, and a single thickness springy abutment portion formed by bending the metal back from a longitudinal edge of said springy leaf portion.

2. A window sash pressure spring formed of flat sheet metal comprising a double thickness base formed by bending the metal upon itself, a single thickness springy leaf portion formed by bending the metal back from one longitudinal edge of the upper thickness of said base portion, and a single thickness spring abutment portion formed by bending the metal back from a longitudinal edge of said springy leaf portion, the edge of the under thickness of said base contiguous to the bend between the upper thickness of said base and said springy leaf portion being curled upwardly and inwardly over said bend to provide double thickness at said bend.

3. A window sash pressure spring formed of flat sheet metal comprising a double thickness base of right angular cross-section formed by bending the metal upon itself and including a base portion and a flange portion, a single thickness springy leaf portion formed by bending the metal back from the longitudinal edge of the upper thickness of said base portion opposed to said flange portion, a single thickness springy abutment portion formed by bending the metal back from a longitudinal edge of said springy leaf portion, the edge of the under thickness of said base contiguous to the bend between the upper thickness of said base and said springy leaf portion being curled upwardly and inwardly over said bend to provide double thickness at said bend.

4. In a window construction including a side post and a sash, compression spring means between said post and said sash formed from flat sheet metal comprising a right angular cross-section base having a base portion and a flange portion, a springy leaf portion bent from the longitudinal edge of said base portion opposed to said flange portion and engaging the edge of said sash, said flange portion having a bayonet slot therein, a pin carried by said post and engaging said bayonet slot through longitudinal movement of said spring in one direction, and locking means carried by said post adapted to prevent retracting longitudinal movement of said spring.

5. In a window construction including a side post and a sash, compression spring means between said post and said sash formed from flat sheet metal comprising a double thickness right angular cross-section base having a base portion and a flange portion, a single thickness springy leaf portion bent from the longitudinal edge of said base portion opposed to said flange portion and engaging the edge of said sash, said flange portion having a bayonet slot therein, a pin carried by said post and engaging said bayonet slot through longitudinal movement of said spring in one direction, and locking means carried by said post adapted to prevent retracting longitudinal movement of said spring.

6. In a window construction including a side post and a sash, compression spring means between said post and said sash formed from flat sheet metal comprising a right angular cross-

section base having a base portion and a flange portion, a springy leaf portion bent from the longitudinal edge of said base portion opposed to said flange portion and engaging the edge of said sash, said flange having a bayonet slot therein, a pin carried by said post and engaging said bayonet slot through longitudinal movement of said spring in one direction, a removable stop member adapted to be interlockingly engaged with said pin, locking means adapted to fix said stop member to said post, and means carried by said flange portion adapted to cooperate with said locking means to prevent retracting longitudinal movement of said spring.

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