July 21, 1970 J. G. PERRY 3,521,320

ANCHOR FOR TILTABLE SASH BALANCER

Filed Dec. 4, 1968

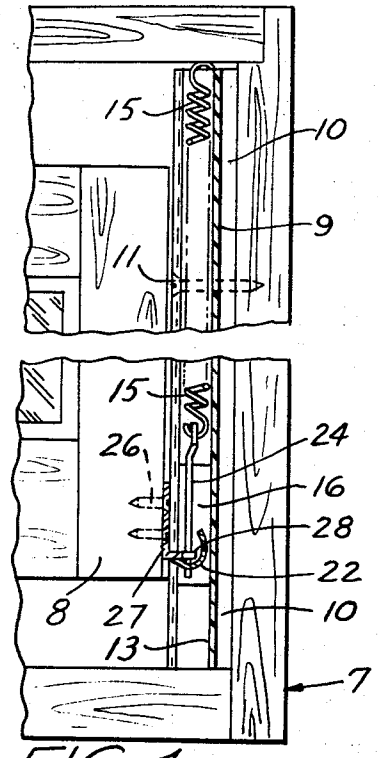


FIG. 1

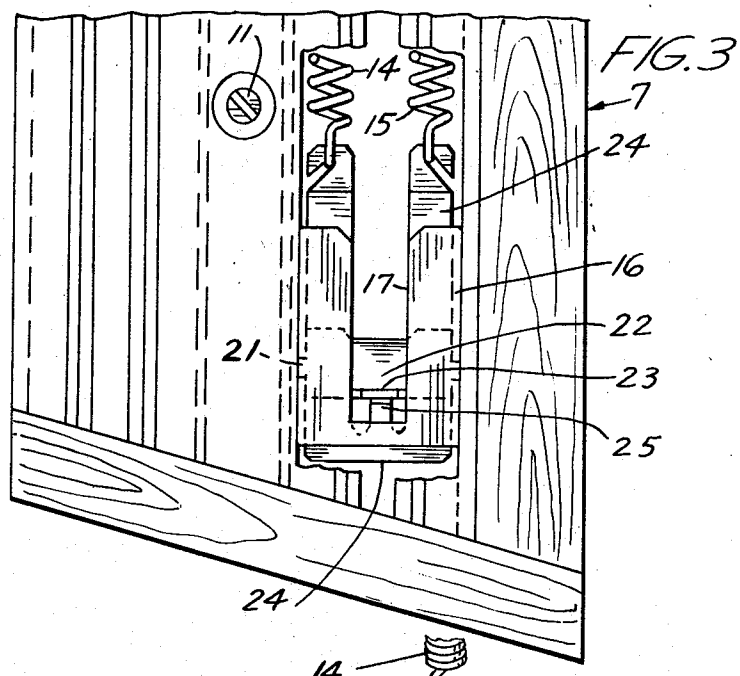


FIG. 3

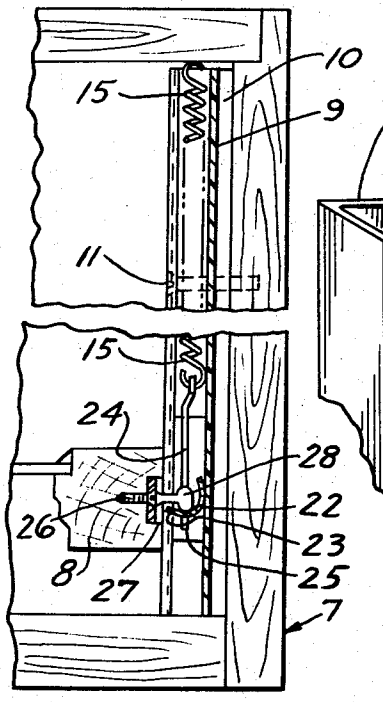


FIG. 2

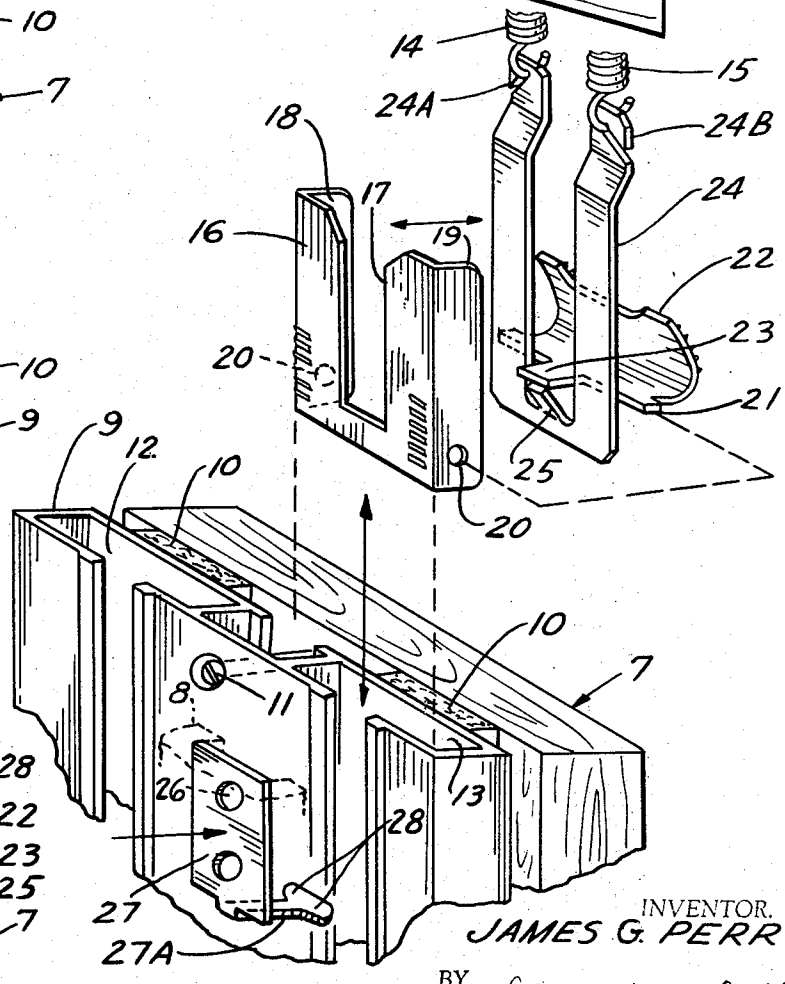


FIG. 4

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ANCHOR FOR TILTABLE SASH BALANCER

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U.S. Cl. 16—197 5 Claims

ABSTRACT OF THE DISCLOSURE

The application discloses an anchor for the balance spring, or springs, of a tilt type window sash. The invention resides in the construction, arrangement and functioning of the anchor assembly. The anchor consists of a channel shaped carrier element, with a slot in its web portion and having an arcuate member pivoted in the side walls. The arcuate member has a lip extending through said web slot. An elongated U-shaped member, having hooks at the upper end and having a lip extending through said web slot, is slidable in said channel, with the lip of said U-shaped member positioned below the lip of said arcuate member. The tiltable sash carries an L-shaped bracket, the short leg of which rides on the lip of said arcuate member. So long as the weight of the sash, through said brackets, rests on the lip of the arcuate member, the anchor assembly remains unlocked and free to travel in the weather strip channel, under the influence of the balancer springs. When the sash is tilted for removal, a cam member on the bracket removes the weight of the sash from the lip of the arcuate member, so that the arcuate member is free to rock on its pivots under the upward pull of the springs and the lip of the sliding U-shaped member, causing the arcuate member to contact the inside wall of the weather strip to lock the anchor assembly against further movement. When the weight of the sash is again placed on the lip of the arcuate member, it is rocked out of locking position and the anchor assembly is again free to travel up and down with the spring balancers.

This invention relates to anchors for window balancer springs and has particular reference to an anchor for the balancer springs for a tilt type window sash.

An object of this invention is to improve devices such as disclosed in my co-pending application, Ser. No. 680,754, filed Nov. 6, 1967 and now Pat. No. 4,441,978.

Another object of the invention is to provide a sash balancer spring anchor, for a tilt type window, which is simple in construction, economical to manufacture and efficient in operation.

Another object of the invention is to provide an anchor of the character indicated, which is particularly efficient, when used with window frames using plastic weather strips, which often times vary in tolerance.

Another object of the invention is to provide an anchoring device of the character indicated, which is constructed and arranged to balance window sash requiring more than one spring to offset added weight, occasioned by the use of twin pane glass, and the like.

Another object of the invention is to provide a device of the character indicated, which is constructed and arranged so that the sash of a double hung window may be tilted inwardly and lifted out of the window frame.

Another object of the invention is to provide an anchor for balancer springs, which may be actuated from the side of the window sash instead of the front.

Another object of the invention is top rovide an anchoring device of the character indicated, which has a comparatively large area of contact, whereby the locking

pressures may be distributed over a greater area of the weather strip.

The foregoing and other objects and advantages of the invention will become more apparent as the description proceeds, reference being made from time to time to the accompanying drawing, forming part of the within disclosure, in which drawing:

FIG. 1 is a fragmentary, front elevational view, with parts in section, of a window frame and sash equipped with the device embodying the invention.

FIG. 2 is a view similar to that shown in FIG. 1, but with the window sash tilted approximately 90° from that shown in FIG. 1, preliminary to lifting the sash from the frame.

FIG. 3 is a fragmentary, elevational, side view, with parts broken away showing the device embodying the invention.

FIG. 4 is an exploded view, in perspective, of a section of a window frame equipped with conventional plastic weather stripping, and the device embodying the invention.

Referring now more particularly to the drawing, it will be understood that in the embodiment herein disclosed, the reference character **7** indicates, in general, the frame and the reference character **8** indicates, in general, the sash of a window equipped with the device embodying the invention.

In FIG. 1, I show the sash **8** in normal position for up and down vertical movement, and the anchor assembly in unlocked condition. In FIG. 2, I show the sash **8** titled approximately 90° from the vertical and the anchor mechanism in locked condition, so that the sash **8** may be removed from the frame, at the same time holding the balancer springs and anchor mechanism against displacement.

It will be understood that in the embodiment herein disclosed, the window frame **7** is equipped with a plastic weather stripping device **9**, which is spaced from the frame **7** by means of a resilient material **10**, such as sponge rubber, or the like. The plastic weather stripping is secured to the frame by means of wood screws **11**, or other suitable means. The resilient material **10** is provided so that the weather stripping **9** may be moved to, and away from the frame **7**. This is necessary during the operation of removing and replacing the window sash **8** is in the frame.

The elements just described are conventional elements used in the building trade, and form no part of the invention, except as they are combined with the elements hereinafter described.

The anchor assembly is clearly illustrated in FIG. 4. It will be understood that the principal elements of the anchor assembly are arranged to travel in either of the channels **12** and **13**, which are integrated parts of the plastic weather stripping **9**. The anchor mechanism shown in the drawing is suspended at the end of balancer springs **14** and **15**, which springs are secured on the top edge of the plastic weather stripping, as shown in FIGS. 1 and 2, and counter balance the weight of the sash **8**. I prefer to use 2 counter balance springs **14** and **15**, parglass. This distributes the weight over a greater section ticularly when the sash is provided with double paned of the end of the weather stripping and, by the same token, enables the pressures of the anchoring assembly to be distributed over a greater area of the inside wall of the weather stripping **9**.

The anchor assembly (FIG. 4) consists of a channel shaped carrier member **16**, the web of which is slotted as at **17**, for the purpose hereinafter indicated. The side walls **18** and **19** of the carrier member **16** are provided with apertures **20** for receiving ears **21**, formed on an

arcuate member **22**, which arcuate member **22** is the principal locking element of the anchor assembly. The apertures **20** and the ears **21** serve as pivot points for rocking the arcuate member **22** into and out of locking engagement with the inside walls of the plastic weather stripping **9**. It will be understood that the arcuate member **22** is also provided with a lip **23**, which is arranged to extend into and through the web slot **17** formed in the carrier member **16**.

An elongated U-shaped member **24** is slidable in the channel shaped carrier member **16**, between the web portion of the channel and the arcuate member **22**. The springs **14** and **15** are secured to the hook elements **24A** and **24B** of the U-shaped member **24**, and tend to urge the U-shaped member **24** upwardly when the weight of the sash **8** is removed from the anchor device.

It will be understood that the U-shaped member **24** is also provided with an angular lip **25** which also extends through the web slot **17** in the carrier **16**, and at all times is positioned beneath, and in contact with, the lip **23**, and serves as a bearing point for the lip **23**. The lip **25** urges the lip **23** upwardly under the influence of the springs **14** and **15** when the weight is removed from the anchor assembly, thus causing the member **22** to rock on its pivots **20** and **21**, to effect the locking of the anchor mechanism, so that the window sash **8** may be removed from, and reinstalled in the window frame, and without upward displacement of the anchor mechanism.

The weight of the window sash **8** is transmitted to the anchor assembly through an L-shaped bracket **27** (FIG. 4) which is secured at the lower end, to the side of the window sash **8** (FIGS. 1 and 2) by means of screws **26**, or other suitable means. The short leg **27A** of the bracket **27** (FIG. 4) is provided with a flat face which rides on top of the lip **23** to firmly hold the lip **23** on the lip **25** of the member **24** and at the same time, hold the arcuate member **22** out of locking engagement. As long as the weight of the sash **8** is carried on the lip **23** through the bracket **27**, the anchor assembly is free to move up and down in the channel of the weather strip for the reason that the tension on the springs **14** and **15** is counter balanced by means of the weight of the sash.

It will be noted in FIG. 4 that the short leg **27A** of the bracket **27** is provided with a pair of cam elements **28**, which, upon the tilting of the sash **8** transfers the weight of the sash from the top of the lip **23** to a point beyond the pivot points **21** of the member **22**, so that the arcuate member **22** may be rocked into locking position as shown in FIG. 2, upon the slightest upward movement of the member **24** under the influence of the springs **14** and **15**. The width of the leg **27A** is such that it may be passed through the slots when tilted, but not otherwise. When the anchor is in locked position as shown in FIG. 2, the window sash **8** may then easily be removed from the frame by slightly cocking the window sash and exerting pressure against the resilient elements **10**. The window sash may be reinstalled in the frame by the reverse operation and when the weight of the sash is again positioned on the anchor assembly, as shown in FIG. 1, the anchor assembly is free to move up and down in the channel **13** in counter balanced relation as previously indicated.

It is believed that the operation of the device is obvious from the foregoing description.

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

1. An anchor for tilt type window sash balancer springs, positioned in the channel of a weather strip, comprising a channel shaped carrier member, having a longitudinal slot in the web portion thereof, and having apertures in the side walls which have received therein the ears of an arcuate member arranged for pivotal movement around said ears, a lip extending from said arcuate member through said web slot, an elongated U-shaped member, having hooks thereon for engaging said balancer springs, slidable in said carrier member, between the web portion and said arcuate member, said U-shaped member having an annular lip also extending through said web slot in a position beneath, and in contact with the lip of said arcuate member, and a bracket on the sash of said window, having an element extending through the said web slot and received on top of the lip portion of said arcuate member, to balance the weight of said sash against the tension of said springs, and permit the free vertical movement of said anchor in said weather strip.

2. The structure of claim **1**, in which said arcuate member is rocked into locking contact with said weather strip, by the lip of said U-shaped member, under the tension of said springs, when the weight of said sash is lifted from said lips.

3. The structure of claim **1**, in which the sash bracket has an arm provided with cam members for shifting the point of contact with the lip to another point of the arcuate member, when the window sash is tilted in the window frame.

4. The structure of claim **1**, in which the sash bracket has an arm extending through a slot in said weather strip and through the web slot of said carrier member, said arm being removable from said slots, when the sash is tilted from the vertical and non-removable from said slots when the sash is in vertical position.

5. The structure of claim **1**, in which said arcuate member is rocked into locked position with said weather strip by means in said sash, when the sash is in a titlted position other than vertical, and said arcuate member is rocked into unlocked position then said sash is in vertical position.

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