Aug. 23, 1955 M. E. PROSSER ET AL 2,715,747

WINDOW STOP SASH BALANCE

Filed July 21, 1952 2 Sheets-Sheet 1

Fig. 1

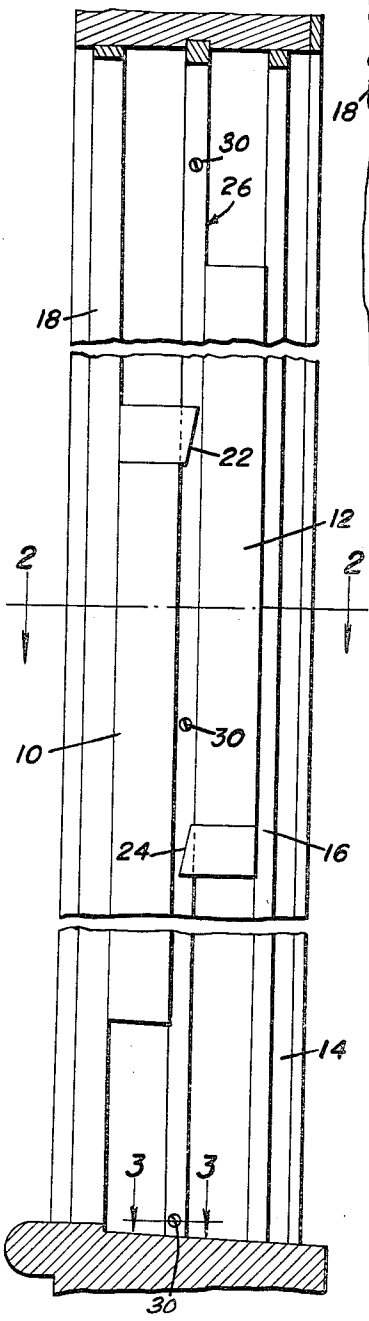


Fig. 2

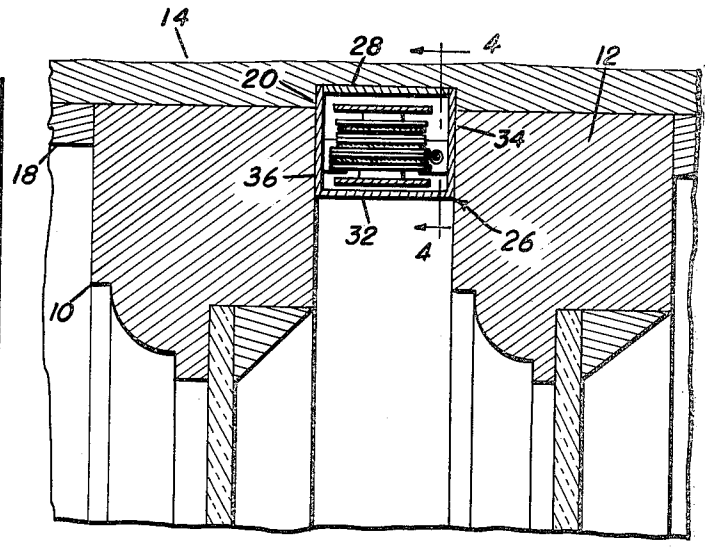


Fig. 3

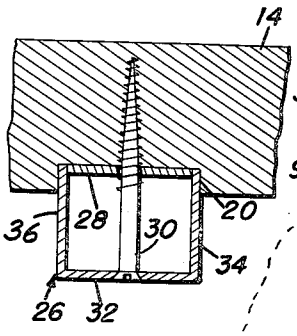
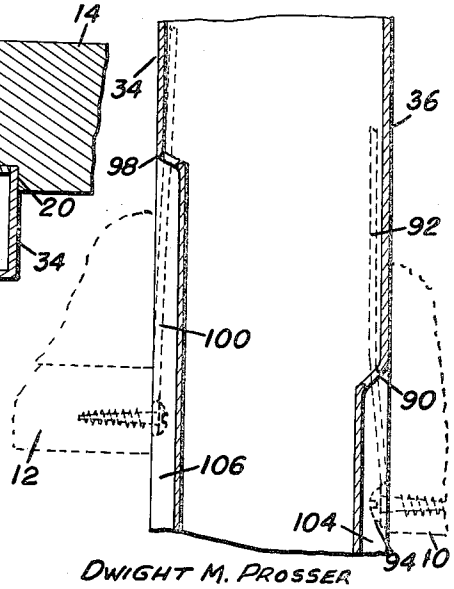


Fig. 6



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2 Sheets-Sheet 2

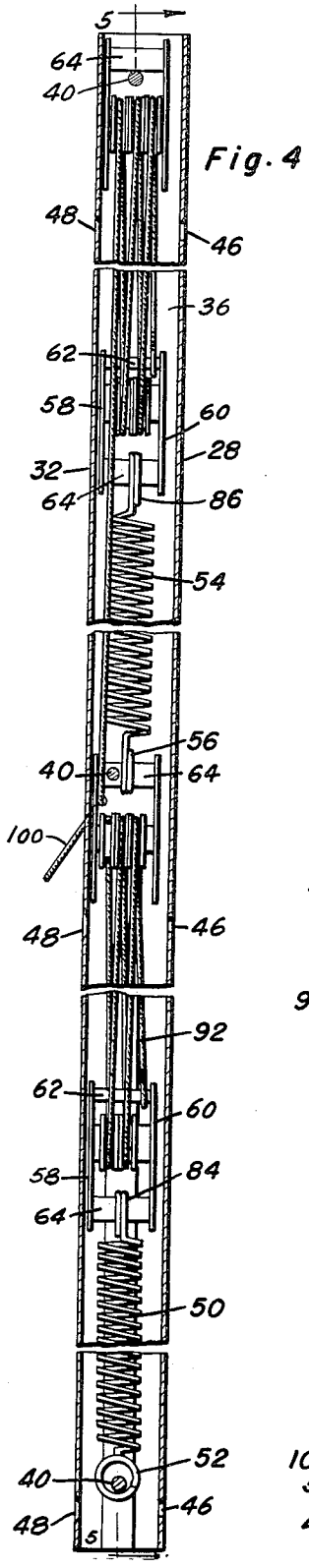


Fig. 4

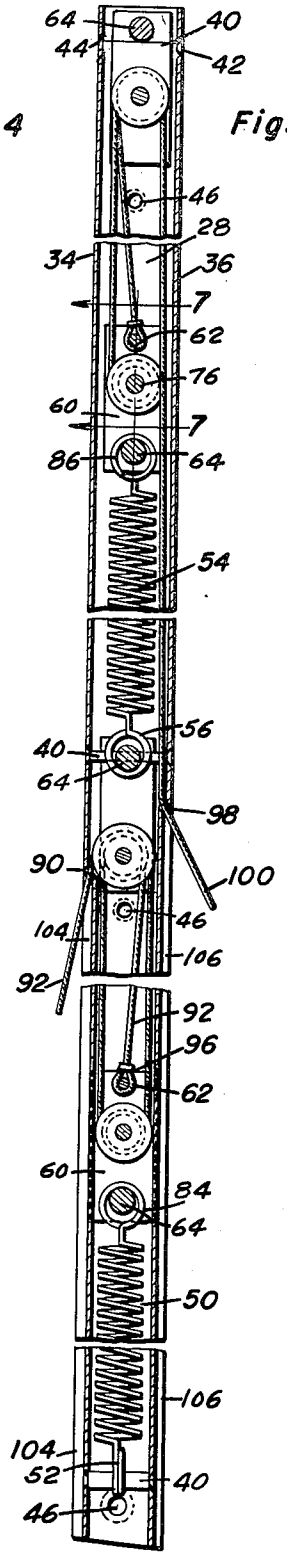


Fig. 5

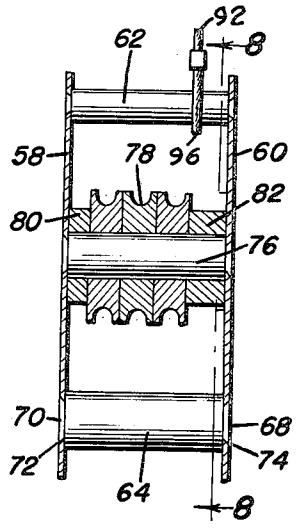
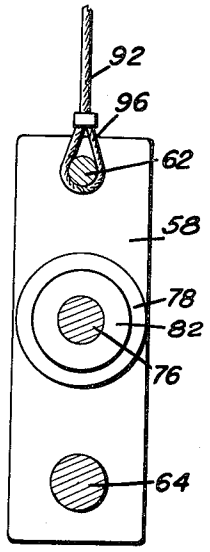


Fig. 7

Fig. 8



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WINDOW STOP SASH BALANCE

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Application July 21, 1952, Serial No. 299,967

4 Claims. (Cl. 16—198)

This invention relates to a window stop and particularly to a parting stop containing balance members for supporting the sash of a double hung window in any desired position.

In the utilization of double hung windows it is highly desirable to provide balance means for counteracting the weight of the sash so that the sash may be opened and left in any desired position. It has long been customary to provide sash weights slidable in a back portion of the window frame and connected to the sash by means of cords passing over a pulley. Not only are the sash cords highly unsightly because of their traversing over the face of the window frame but also in the event the cord becomes broken or otherwise damaged it is necessary to perform a major carpentry operation on the window frame to restore the same. Such operations frequently cause permanent disfigurement of the window frame or window supporting structure so that it is frequently desirable to completely replace the window frame to obviate such disfigurement.

It has also been customary to use so-called spring balancers for supporting the sash of double hung windows. These spring supports have substantially all of the inconvenience of the sash cord supports in that major carpentry operations must be performed to embed the springs and also in the event they break or otherwise become disabled it is frequently necessary to completely destroy a portion of the window in order to remove the faulty devices. The same holds true for spring balancers making use of multiplying sheaves, as in Cross et al. Patent 2,262,990.

The present invention has for its principal object to provide a sash balance of this kind which can be readily placed in position in and removed from a window frame without disturbing any of the window construction. This is accomplished by means of a parting stop which is placed between the upper and lower sections of the window to maintain them in smoothly guided relation to each other and within which the necessary balance springs and multiplying equipment are contained, with the sash cords emerging therefrom in such manner that they are invisible or at least inconspicuous when the sash is raised or lowered. If desired, the parting stop may be provided with grooves accommodating the sash cord so that the sash cord may be attached to the sash without any carpentry operation on the frame.

Other objects and many of the attendant advantages of the invention will be apparent from the following detailed description taken in conjunction with the accompanying drawings in which:

Figure 1 is an edge elevation with parts in section of a window frame incorporating a parting stop made according to the invention;

Figure 2 is an enlarged cross-section taken substantially on the plane indicated by the line 2—2 of Figure 1;

Figure 3 is an enlarged fragmentary cross-section of the window frame and parting stop taken substantially on the plane indicated by the lines 3—3 of Figure 1;

Figure 4 is a sectional side elevation of the parting stop

taken substantially on the plane indicated by the line 4—4 of Figure 2;

Figure 5 is a sectional front elevation of the parting stop taken substantially on the plane indicated by the line 5—5 of Figure 4;

Figure 6 is an enlarged fragmentary section of a portion of the stop showing the construction for bringing out the sash cords;

Figure 7 is an enlarged fragmentary section of the parting stop showing the balance hanger and taken substantially on the plane indicated by line 7—7 of Figure 5; and

Figure 8 is a section through the sheave block taken substantially on the plane indicated by the line 8—8 of Figure 7.

In the exemplary embodiment of the invention the lower sash 10 and an upper sash 12 are mounted in a window frame 14 having an outer guide strip 16 and an inner separable stop strip 18. The frame member 14 is provided with a shallow groove 20 in which is mounted the parting stop of the present invention, such parting stop taking the place of the usual wood parting stop. The sashes 10 and 12 are provided with check rails 22 and 24 which meet in substantially flush engagement when the sashes are closed so that no atmospheric moisture will pass through the window.

The parting stop of the present invention comprises a more or less tubular stop member 26 of U-shaped or channel-shaped cross-section and, if desired, a suitable closure member 28. Preferably the stop member 26 is secured in groove 20 by means of suitable fasteners such as screws 30. Obviously members 26 and 28 may be made of any suitable material such as plastic or metal but are preferably formed of metal. Along the inner side 32 thereof stop member 26 is preferably substantially smooth so that the ends of check rails 22 and 24 can have the closest possible clearance therewith. The front face 34 and the back face 36 are kept rigidly spaced apart by means of suitable spacer members 40 having a substantially cylindrical central portion and reduced rivet-like ends 42 and 44 (Figure 5) attached thereto by riveting over. However, spacer members 40 may be attached by welding, soldering or any other desired method.

Apertures 46 provided in closure member 28 and registering apertures 48 are similarly provided in stop member 26 so that the screws 30 may be passed through them into the frame 14.

Operating mechanism for the device as a whole includes, along with two coil springs 50 and 54, a pair of fixed sheave blocks and a pair of sliding sheave blocks which are substantially identical in construction and which will now be described. Each of the sliding sheave blocks contains side plates 58 and 60 (Figure 7) which are spaced apart by suitable spacer members 62 and 64, upper and lower, each of which includes a substantially cylindrical central portion and reduced end portions 68 and 70. The latter pass through apertures 72 and 74 in plates 58 and 60 and are preferably peened over to rigidly mount the plates 58 and 60 in spaced relation with each other. The fixed sheave blocks are similarly constructed but lack lower spacer members. In each case, an axle 76 that is substantially identical with spacer members 62 and 64 is rigidly mounted intermediate the ends of the plates 58 and 60 and preferably centrally thereof and sheaves 78 are journaled thereon. Suitable spacers 80 and 82 are preferably provided on axle 76 for locating the sheaves 78 as desired therein.

One of the fixed sheave blocks is mounted substantially centrally between the upper and lower ends of the stop member 26 by means of one of the spacer members 40. It and the parts which lie below it, including the lower

of the two sliding sheave blocks and lower spring **50**, constitute a unitary assembly controlling lower sash **10**. Another of the fixed sheave blocks is mounted adjacent the top of the stop member **26**, preferably by engagement with another of the spacer members **40**. Along with upper spring **54** and the upper of the two sliding sheave blocks, it forms a similar unitary assembly controlling upper sash **12**. Each of the springs has its ends provided as shown with loops such as **52**, **84** and **56**, **86**, each of the lower loops being associated with a stationary element such as one of the spacer members **40** and each of the upper loops being associated with the lower spacer member **64** of one of the sliding sheave blocks.

The back face **36** of the parting stop is provided with an outlet eyelet **90** (Figure 6) through which a lower sash cord **92** extends outwardly to lower sash **10**, to which it is connected by any suitable means such as a screw **94**. The lower sash cord **92** is entrained as shown in Figures 4 and 5 over the sheaves of the lower fixed sheave block and also over the sheaves of the lower sliding sheave block, which is attached to lower spring **50**. Cord **92** passes over the sheaves an appreciable number of times and the stroke of the cord is a corresponding multiple of the stroke of the upper end of spring **50**. The other end of the cord **92** is attached to one of the spacer members such as **62** by any suitable means such as a loop **96**.

Front face **34** of the stop member **26** is likewise provided with an eyelet **98** for the upper sash cord **100**, which is attached to the upper sash **12**. The upper sash cord **100** extends upwardly to the upper fixed sheave block and is entrained a number of times over the sheaves of the upper fixed sheave block and the sheaves of the upper sliding sheave block, the arrangement being substantially identical to the arrangement already described in the case of lower sash cord **92**.

In the utilization of the device a pair of stop members **26** is arranged on opposite sides of a window frame and attached to the sashes **10** and **12**. In back face **36** of each a groove **104** is provided to accommodate screw head **94** and the lower sash cord **92**—see Figure 6. Such groove is always completely covered by the lower sash **10** when the window is closed and is visible only when the sash is raised. Likewise, in front face **34** a groove **106** is provided below the eyelet **98**. Groove **106** extends downwardly therefrom to accommodate upper sash cord **100** in such manner that the sash cord **100** will always be concealed by the upper sash **12**.

In the event the sash balances should become damaged

in any manner, the entire stop member may be readily removed from the window and a new stop member inserted.

For purposes of exemplification a particular embodiment of the invention has been shown and described according to the best understanding thereof. It will be apparent to those skilled in the art that changes and modifications can be made therein without departing from the true spirit of the invention.

Having described the invention, what is claimed as new is:

1. In a hollow parting stop of channel-shaped cross-section the bight in which is intended to face a window frame, internal anchor means spanning the channel from side to side thereof at a point near the middle of the parting stop; a first spring and sheave group sash balancing system on one side of said anchor means; a second spring and sheave group sash balancing system on the other side of said anchor means, and means constituting part of the spring of the first sash balancing system and part of the sheave group of the second sash balancing system for positioning the proximate ends of said sash balancing systems in relation to the internal anchor means.

2. A window frame element as in claim 1 in which the means constituting part of the spring of the first sash balancing system is disposed immediately above and the means constituting part of the sheave group of the second sash balancing system is disposed immediately below the anchor means.

3. A window frame element as in claim 2 in which the sheave group of the first sash balancing system is attached to the parting stop near the upper end of the stop and the spring of the second sash balancing system is attached to the stop near the lower end of the stop.

4. A window frame element as in claim 3 in which each of the two sash balancing systems has a sliding sheave block disposed roughly midway between the internal anchor means and the end of the parting stop to which the sash balancing system is attached.

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