Sept. 4, 1956 D. J. DINSMORE 2,761,173

DEVICE FOR DISCONNECTING SASH BALANCE CABLES

Filed Dec. 1, 1952

2 Sheets-Sheet 1

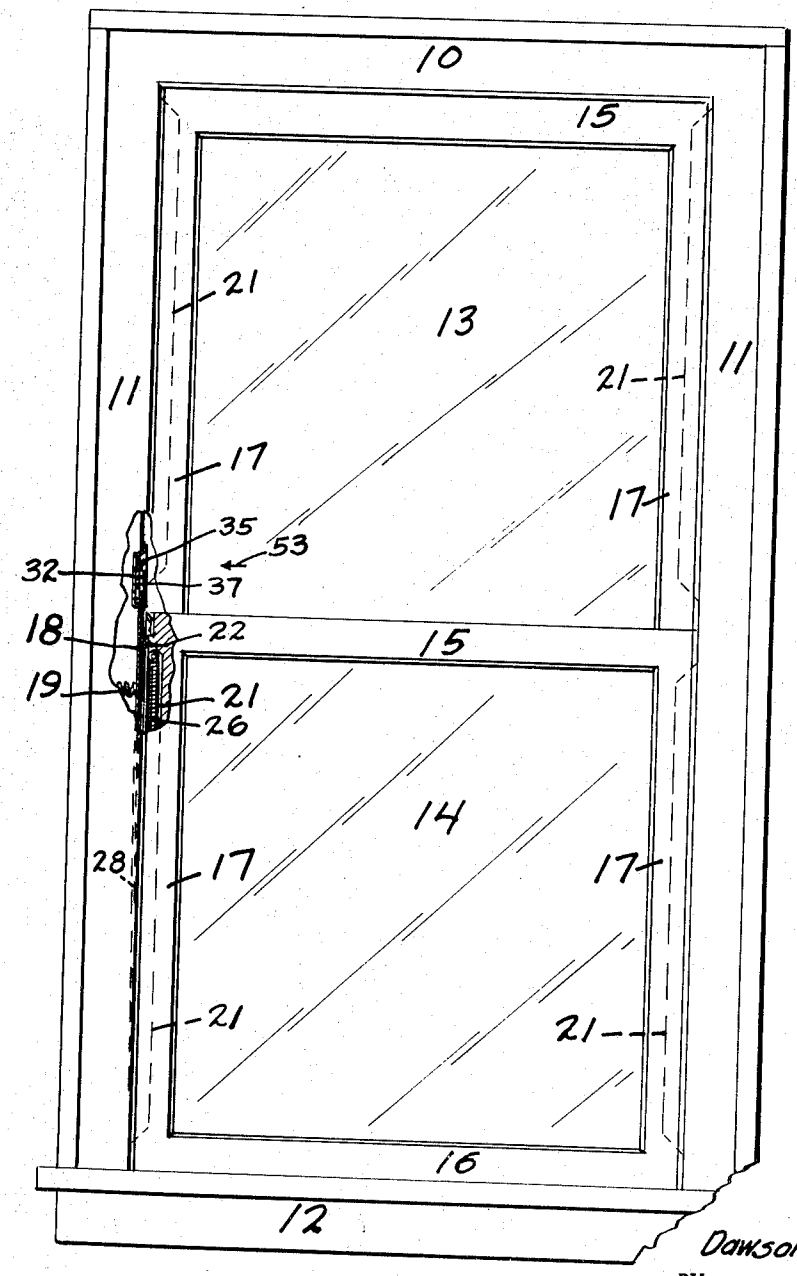


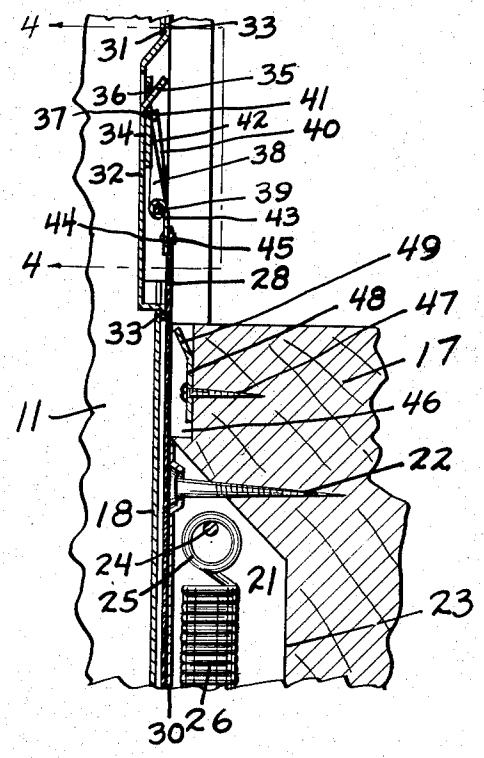
Fig. 1

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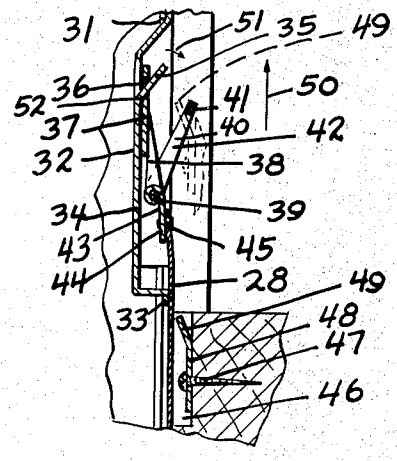


Fig. 3

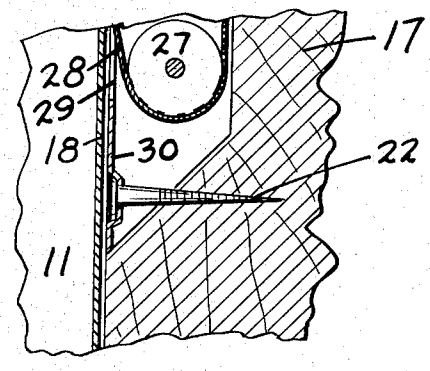


Fig. 2

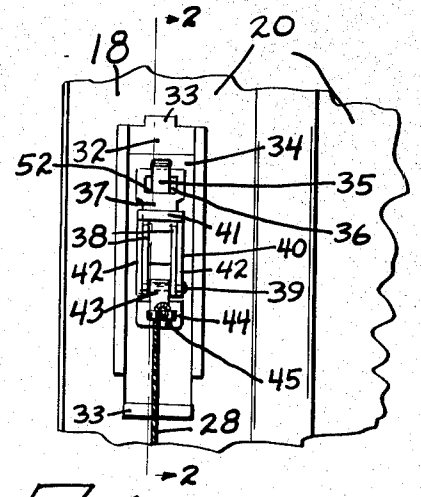


Fig. 4

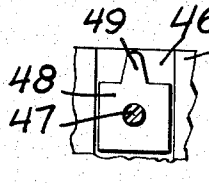


Fig. 5

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DEVICE FOR DISCONNECTING SASH BALANCE CABLES

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Application December 1, 1952, Serial No. 323,466

2 Claims. (Cl. 16—206)

My invention relates to a removable sash counter-balance.

An object of my invention is to provide a counter-balancing unit which can be readily attached to a window sash on either side thereof, and which includes in combination therewith certain means whereby the counter-balancing unit can be readily disengaged from the window framework at any time when it is desired to remove the window sash itself for cleaning, or for any other purpose.

A further object of my invention is to provide an arrangement in which the window sash can be raised and lowered in an entirely natural manner, and wherein by a simple manipulation, the counter-balance will become disengaged from the framework portions merely upon a simple raising action of the window sash itself.

A further object of my invention is to provide a simple device wherein the tension on the counter-balancing arrangement is quickly transferred to the disengaging arrangement upon said simple manipulation.

A further object of my invention is to provide a special device which can be readily incorporated with spring-urged or any other special type of jamb, and to further provide an arrangement which can be easily attached at the four medial corners of a double-hung window construction, namely, the upper sash and the lower sash.

With these and other objects in view, my invention consists in the construction, arrangement, and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a forward elevation of a window construction employing my device,

Figure 2 is an enlarged sectional view of a detail of my device and taken substantially along the lines 2—2 of Figure 4,

Figure 3 is a similar view to that of Figure 2 showing one of the lever members in off-set position,

Figure 4 is a view taken along the lines 4—4 of Figure 2, and

Figure 5 is a further detail.

My invention contemplates the provision of a device which can be used in combination with window structures principally of the type utilizing a spring tension counter-balance used with floating types of jambs or sub-frames, and to provide means wherein the sashes can be conveniently removed from the frames and washed and thence replaced, or so that the sashes can be removed for any other required reason, such as repairing or the like.

I have used the character **10** to indicate the horizontal portion of a window frame, the character **11** indicating the two vertical sides, and the character **12** the lower horizontal portion. I have further used the character **13** to indicate the upper sash and the character **14** the lower sash, with the sashes including the various further horizontal sash portions **15** and **16**, and the vertical sash portions **17**.

I have further used the character **18** to designate the so-called floating jambs against which abut a plurality of springs indicated by the character **19**, these springs thereby serving to impart resiliency against the jamb portions **18** and thereby retain a frictional engagement against the side edges of the members **17**, the members **18** including a pair of channels **20** (see Figure 4), one of the channels receiving the upper sash and the other the lower sash. It will be obvious that the springs **19** are evenly distributed along the vertical length of the members **18**.

To provide the counter-balancing action, I provide a casing member **21** which is secured by means of a wood screw **22** within a suitable channel **23** in the members **17**, the members **21** including a transverse pin **24** passing therethrough, which receives the loop **25** of a coiled helical spring **26**, the lower end of which spring is attached to a suitable cable, and which cable passes over a further sequence of rollers, the lower roller of which is indicated by the character **27**, the cable, which is indicated by the character **28**, then passing through the slotted opening at **29** in the end wall **30** of the member **21**, and thence passing upwardly.

The counter-balancing member **21** having the spring **26**, etc. is fully described in Patent No. 2,262,990, issued to myself and George C. Cross, and patented November 18, 1941, and it should be specifically understood herein that the invention about to be described will also pertain to, and can be used with, any other type of spring counter-balancing arrangement, as will be obvious.

The lower end of the member **21** is secured in a similar manner by a further screw **22**, and it will be noted from Figure 1 by the dotted lines that there is provided a counter-balancing unit **21** etc. in each side sash portion **17** of the upper and lower sashes, thereby providing means for disengaging any of the side members **17** from their receiving channels, and it being realized that although only one counter-balancing unit is described specifically herein, that four can be used as shown.

The end wall **30** of the member **21** is recessed slightly within the edge of the member **17**, and received in the rectangular opening **31** of the floating member **18** is a further substantially rectangular dished member **32** having the extending lips **33** for securing the member **32**, and extending from the base portion **34** of the member **32** is the upwardly struck inclined lip **35**.

Normally receiving the lip **35** is the opening **36** which is provided at the upper end of a lever member **37**, the lever member **37** including the pair of portions **38**, the lower ends of which portions **38** are freely pivoted on the transverse pin **39**. A further lever member indicated generally by the character **40** includes the transverse strap portion **41** extending into the side portions **42**, which side portions are normally frictionally engaged with the side portions **38**, the lower terminals of the portions **42** also being pivoted on the pin **39**.

Also freely journalled on the pin **39** is a member **43** which extends into the integral portion **44** to which is suitably secured as at **45** the upper terminal of the cable **28**.

In the upper corner of the sash member I provide a recessed portion **46** in which is attached by means of the screw **47** the member **48** having the angularly inclined lip **49**, the lip **49** being tapered as shown in Figure 5.

The arrangement operates as follows. Normally, when the lever members **37** and **40** are frictionally engaged as shown in Figure 2, the tension will be applied onto the cable **28** at all times, and the counter-balancing feature will thereby be present during the raising and lowering of the sash.

However, when it is desired to remove any one of the windows, each of the lever members **40** at either side of the window is swung outwardly to the approximate position shown in Figure 3. The sash is then raised in the direction of the arrow **50**, whereupon the angularly inclined lip **49** will engage beneath the transverse portion **41** of the lever **40** (see dotted lines, Figure 3) and whereupon continued movement of the window in the same direction will then also cause the lever member **37** to pivot in the direction of the arrow **51** due to the fact that the lower edge **52** of the opening **36** will abut against the inclined lip **35**, so that as a result, the lever member **37** is disengaged from the lip **35**, the tension of the cable **28** thence being transferred to the levers **40** at both sides of the sash. The window is then thrust laterally in the direction of the arrow **53** as shown in Figure 1, or against the floating jamb members **18**, whereupon the opposite side edge **17** of the window can be removed from its channel, and the entire sash easily removed, since the latching lever members will of course become completely disengaged from the lips **35**.

It will thus be noted that the device automatically transfers the attachment of the cable and the tension thereof from the side frame of the window to the sash itself, thereby accomplishing the desired result.

When re-inserting the sashes, the openings **36** are engaged with the lips **35** (after one side **17** is first thrust inwardly against its corresponding jamb member and the other side **17** then inserted) and the lower sash, for instance, is then thrust downwardly to its normal position, and the lever **40** is then frictionally engaged with the lever **37** by virtue of the side members **38** and **42**, whereupon the sash is then in its normal operating condition again.

It should be specifically understood that other types of counter-balancing units could be employed with my invention, it being understood also that modifications in the unit for transferring the cable tension could also be made without, however, departing from the essential spirit of my invention.

It will now be seen that I have provided the various advantages set forth in the objects of my invention with various other advantages being readily apparent.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim as my invention:

1. A connecting device for a window sash balance cable and a window frame in which said sash operates comprising a lever member, a further lever member, a pivot pin, said lever members being pivoted about the said pivot pin, said lever members being normally frictionally engaged during normal movement of said sash, said lever members being attached to said cable by means of said pivot pin, said further lever member being adapted to attach said cable to said frame, said lever member being adapted to attach said cable to said sash, raising action of said sash engaging said lever member when said lever member is pivoted away from said further lever member, said sash including a lip attached thereto, said lever member having an opening for engaging said lip whereby said cable attachment will be transferred from a window frame to said lever member and to said sash.

2. A connecting device for a window sash balance cable and a window frame in which said sash operates comprising a lever member, a further lever member, a pivot pin, said lever members being pivoted about the said pivot pin, said lever members being normally frictionally engaged during normal movement of said sash, said levers members being attached to said cable by means of said pivot pin, said further lever member being adapted to attach said cable to said frame, said lever member being adapted to attach said cable to said sash, raising action of said sash engaging said lever member when said lever member is pivoted away from said further lever member, said sash including a lip attached thereto, said lever member having an opening for engaging said lip whereby said cable attachment will be transferred from a window frame to said lever member and to said sash, said frame including a support member including an angularly inclined further lip, said further lever member having an opening normally receiving said further lip and being disengaged therefrom during upward movement of said sash due to the inclination of said further lip, the engagement between said support member and said further lever member being adapted to attach said cable to said frame.

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