May 19, 1953 W. N. CARTER 2,638,639

FRICTIONALLY CONTROLLED SLIDING WINDOW SASH

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Fig. 1.

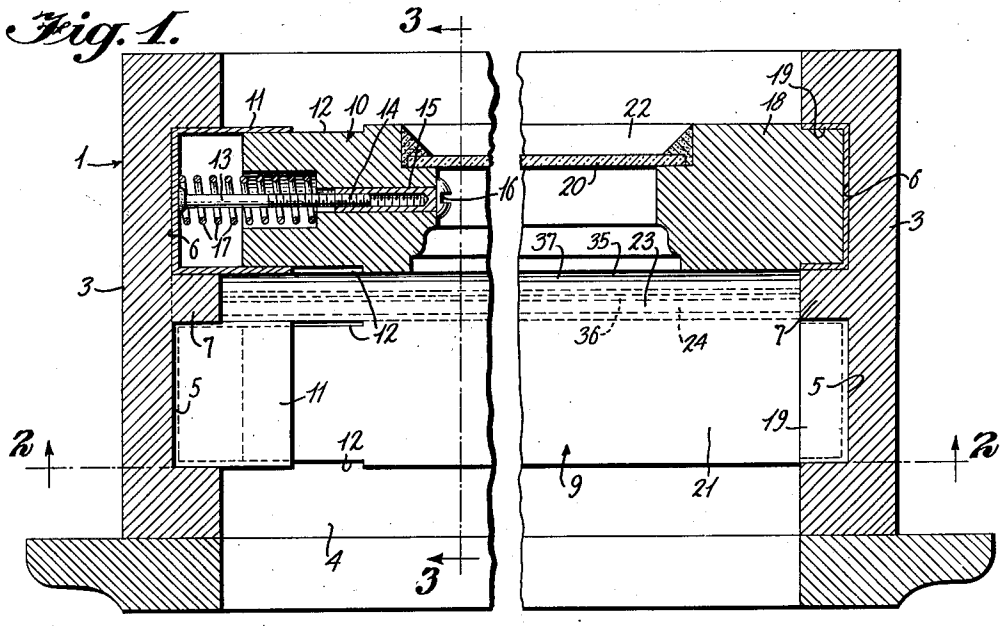
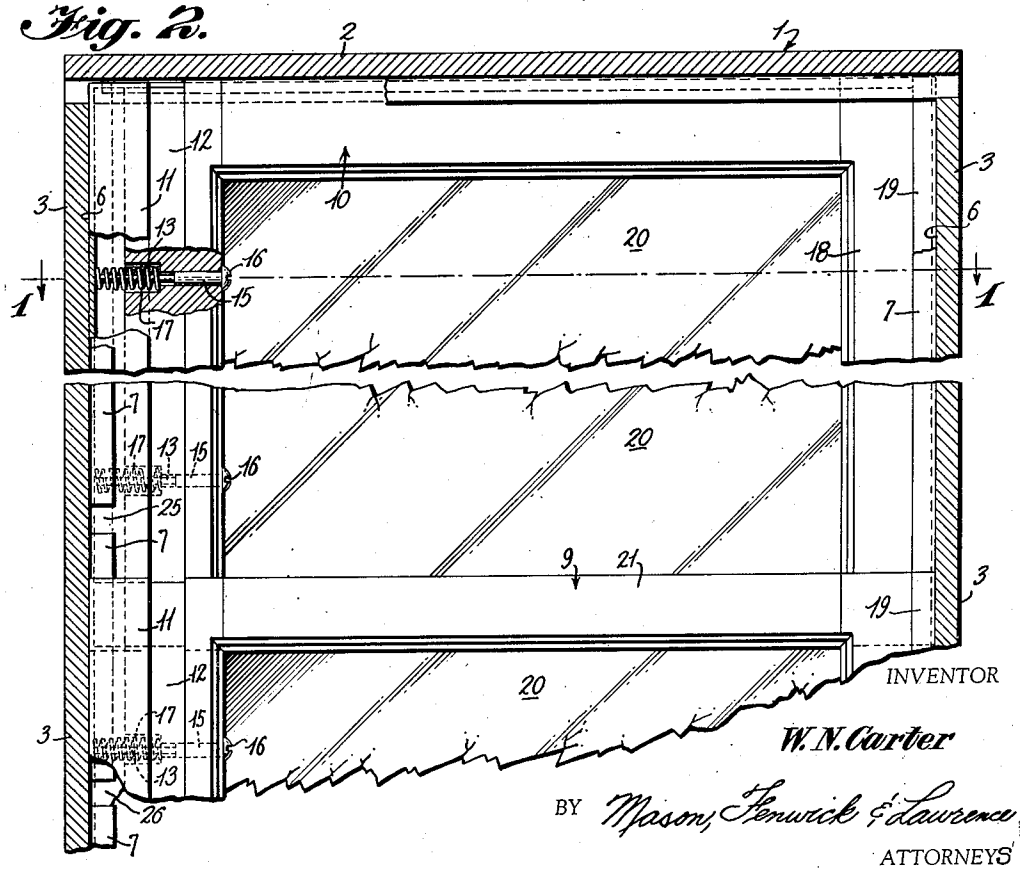


Fig. 2.



INVENTOR

W. N. Carter

BY Mason, Fenwick & Lawrence

ATTORNEYS

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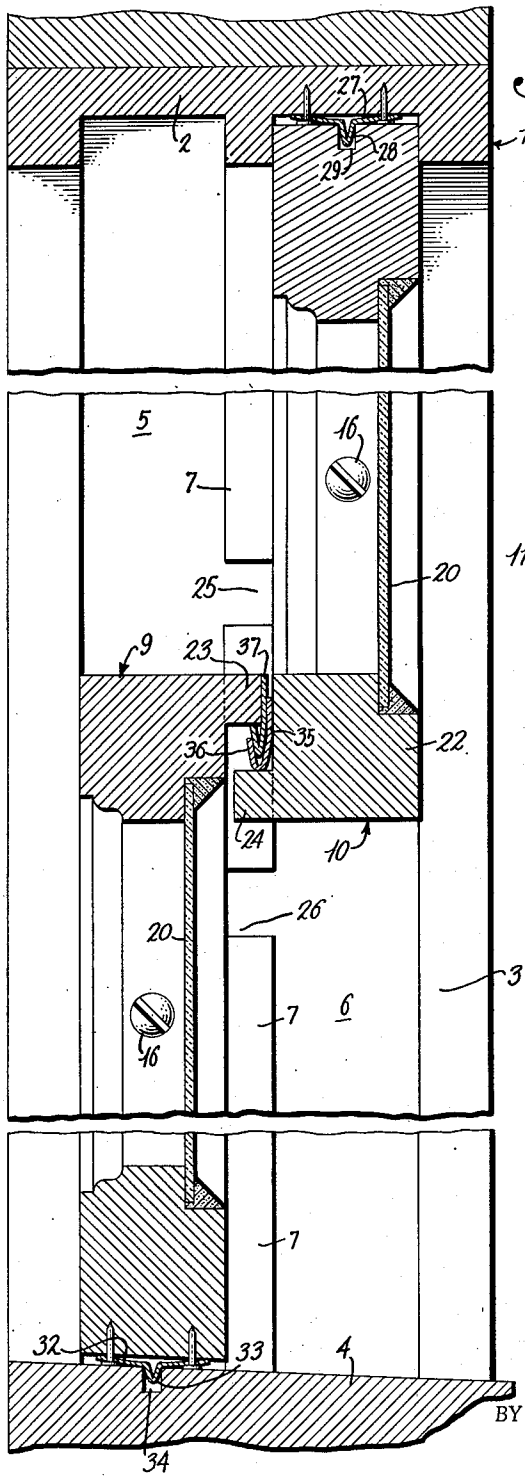


Fig. 3.

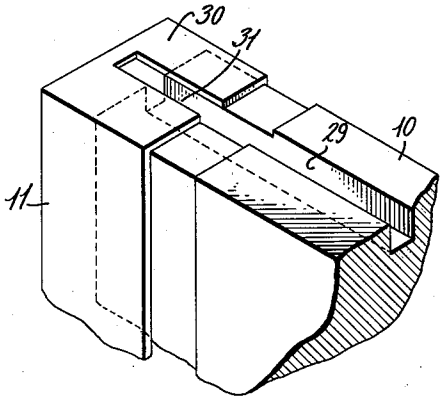


Fig. 4.

INVENTOR
W. N. Carter

BY Mason, Fenwick & Lawrence
ATTORNEYS

Patented May 19, 1953

2,638,639

UNITED STATES PATENT OFFICE

2,638,639

FRICTIONALLY CONTROLLED SLIDING WINDOW SASH

Walton N. Carter, Columbus, Ga.

Application June 9, 1950, Serial No. 167,235

1 Claim. (Cl. 20—52.2)

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This invention relates to window construction, and particularly to a window of the sliding sash type in which the upper and lower sashes can be raised or lowered, and will stay open at any height without the use of sash weights, making it possible to use a window frame which omits sash weight boxes, and therefore can be of very simple and inexpensive construction.

Generally in window construction of this type, two forms are in use, one in which a spring urged batten housed in the guide channel in the jamb of the window frame presses one side of the sash frame and forces the sash frame into contact with the opposite jamb. In the other form the spring urged batten is carried by the sash and reacts between the sash and the adjacent jamb. In either case, by pressing the sash sidewise so as to compress the springs, the person operating the sash can shift it sufficiently to clear the opposite guide channel so that it can be removed entirely from the window frame to facilitate washing it, or for other purposes.

In conventional windows of this type, the full pressure of the springs behind the battens is exerted between batten and jamb, making it hard to raise or lower the sashes. Furthermore, since all the sashes of a house will be identical as to spring pressure, while the window frames may vary slightly in width, roughness, and perhaps other factors, all the sashes in a house may not work with equal ease; some may be more difficult to open than others. Moreover, it is frequently difficult to push the sash sidewise in compressing the batten, with sufficient uniformity throughout the length of the sash to permit the opposite side of the sash to clear the guide groove, in removing the sash.

The present invention is designed to overcome these and other disadvantages. It has for its general object the provision of a window construction of the type described, in which the spring biased batten or its equivalent can be positively adjusted to bring the spring pressure into or out of action by adjusting means accessible from the inside of the sash frame. Each sash may thus be individually adjusted to the particular frame in which it is mounted, so that it may be said that the sashes are tailored to fit the window frames with uniform frictional pressure.

Another object of the invention is to provide a window construction in which the batten can be mechanically retracted against spring pressure to a position in which the sash can be removed from the frame, and maintained in that position as long as desired.

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Still another object of the invention is to provide a window construction of the type described in which the window is fully weatherstripped.

Other objects of the invention will appear as the following description of a preferred and practical embodiment thereof proceeds.

In the drawings which accompany and form a part of the following specification, and throughout the figures of which the same reference characters have been used to denote identical parts:

Figure 1 is a horizontal cross-section through a window embodying the principles of the present invention, taken along the line 1—1 of Figure 2, an intermediate portion being omitted;

Figure 2 is a vertical section taken along the line 2—2 of Figure 1, parts being broken away;

Figure 3 is a vertical section taken along the line 3—3 of Figure 1, parts being broken away;

Figure 4 is a fragmentary detail in perspective, showing an upper corner of the sash, with the groove for a weatherstrip.

Referring now in detail to the several figures, the numeral 1 represents the window frame as a whole, having the top 2, jambs 3, and sill 4. Since no sash weight boxes are required by the present simplified construction, the four members of the frame may be simple boards secured together. In the illustrated embodiment of the invention, the jambs 3 are each milled with the guide channels 5 and 6 for the respective lower and upper sashes to slide in, having formed between them the integral parting strip 7.

The sash frames 9 and 10 are of such width that when one side is fully seated in its guide channel, the other side clears its guide channel. The side member 10 at one side of each sash is made laterally extensible by means of a metal shoe 11, which is the full length of the sash. It is freely slidable in a shallow rabbet 12 so as to lie flush with the front and rear faces of the sash frame. At intervals along its length the shoe 11 has posts 13 welded to the inner face thereof and perpendicular to said end face. Said posts have threaded sections 14 which screw into internally threaded studs 15, having a screw kerf 16 in their headed ends. The side member 10 has a bore therethrough, which slidably receives the shank of the stud 15, and a counterbore receiving one end of a spring 17 surrounding the post 13, and in compression between the shoe 11 and the end of the counterbore.

The opposite side member 18 is also rabbeted and has a shoe 19 fixedly secured thereto. The numeral 20 represents the glass, the position of

which indicates that the head of the stud is accessible on the inside of the window. Now, it is obvious that if the stud **16** is screwed inward until its head bears against the jamb, the outer face of the shoe **11** is drawn away from the bottom of the guide channel so that the spring **17** no longer acts to press the shoe into contact with the guide channel. If from this position the stud **16** is unscrewed just to the point at which its head barely touches the side member **10**, the spring **17** maintains the shoe in extremely light contact with the bottom of the guide groove. If the stud be loosened still further, the spring pushes the shoe with all its force against the guide groove.

When it is desired to remove either sash, the sash is bodily pushed in a direction to compress the springs **17**. Before the side of the sash will have reached the bottom of the shoe **11**, the opposite side of the sash will be out of its guide groove, so that the sash may be tilted and bodily removed from the window frame.

Another and perhaps more convenient mode of removing the sash is to screw the studs **16** in a direction to shorten the post **13**, retracting the shoe against spring pressure until the shoe has reached such position as to clear its guide groove. The sash may then be tilted and removed.

Referring to Figure 3, it will be noted that the meeting stile **21** and **22** of the lower and upper sashes have respective extensions **23** and **24** extending the width of the window frame between the parting strip **7**, and which lap as shown. In order that the sashes may be shifted in a sidewise direction to remove them, the parting strip, at the side of the window frame adjacent the shoe has cutout portions **25** and **26**, respectively, a short distance above and a short distance below the upper and lower levels of the meeting stiles when bottom sashes are closed, the longitudinal extent of each cutout portion being slightly greater than the thickness of the respective stile extensions **23** and **24**. There being no obstructive parting strip at these zones, the sash may be freely shifted to remove them. This arrangement of cutout portions assures a weathertight window, for when the sashes are closed the stile extensions closely abut the front faces of the parting strip in the zone where the strip is intact, that is, between the cutout portions, while the cutout portions are effectively sealed by the shoes **11**, one of said cutout portions being inside of the upper sash, while the other is on the outside of the lower sash.

Figure 3 shows a resilient metal weatherstrip **27** nailed in the bottom of the guide groove at the top of the window, having a ridge or fold **28** which fits into a groove **29**, plowed in the top of the upper sash frame. Figure 4 shows that the shoe **11** has an end closure **30**, which is provided with a slot **31**, being a continuation of the groove **29**. The lower sash at the bottom has a similar weatherstrip **32** with a ridge **33** fitting into a groove **34** plowed in the sill **4**. The construction at the lower end of the shoe **11** is similar to that at the upper end, including a slot, not shown, corresponding to the slot **31**.

The joint between the sides of the sash frame, including the movable shoe **11** and the window frame, do not require weatherstripping, since the springs **17** hold both sides of the sash frame in close contact with the bottoms of the respective guide grooves.

The meeting rail **22** of the upper sash is provided with a weatherstrip **35** secured thereto, having an upturned flange **36**, defining a trough which is contiguous to the upper face of the extension **24**. The upper meeting strip **21** of the lower sash has a weatherstrip **37** secured to the extension **23**, and shaped similarly to the weatherstrip **35** so as to nest within the latter, forming a waterproof joint.

While I have in the above description disclosed what I believe to be a preferred and practical embodiment of the invention, it will be understood by those skilled in the art that the specific details of construction and arrangement of parts are by way of example and not to be construed as limiting the scope of the invention.

What I claim as my invention is:

In a double hung window, in combination, a window frame having opposite guide grooves in the jambs, a sash frame including side members adapted to slide in said guide grooves, said sash frame being of such width that when one side member is fully seated in one of the guide grooves, the other side member is out of the opposite guide groove, said sash frame having a lateral extension on one side the full length of said sash, comprising a box-shaped shoe having parallel side flanges slidably embracing the front and back faces of the adjacent side member, top and bottom flanges slidably lapping the top and bottom of said sash frame, and an end web engageable with the bottom of the adjacent guide groove, springs urging said extension outwardly in one direction and reacting to urge the sash frame in the opposite direction, a weatherstrip extending from one of the horizontal members of said window frame, the corresponding member of said sash frames including the adjacent one of said lapping flanges being formed with a groove to receive said weatherstrip.

WALTON N. CARTER.

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