May 30, 1933. H. T. REYNOLDS 1,911,292

WINDOW

Filed March 30, 1932 3 Sheets-Sheet 1

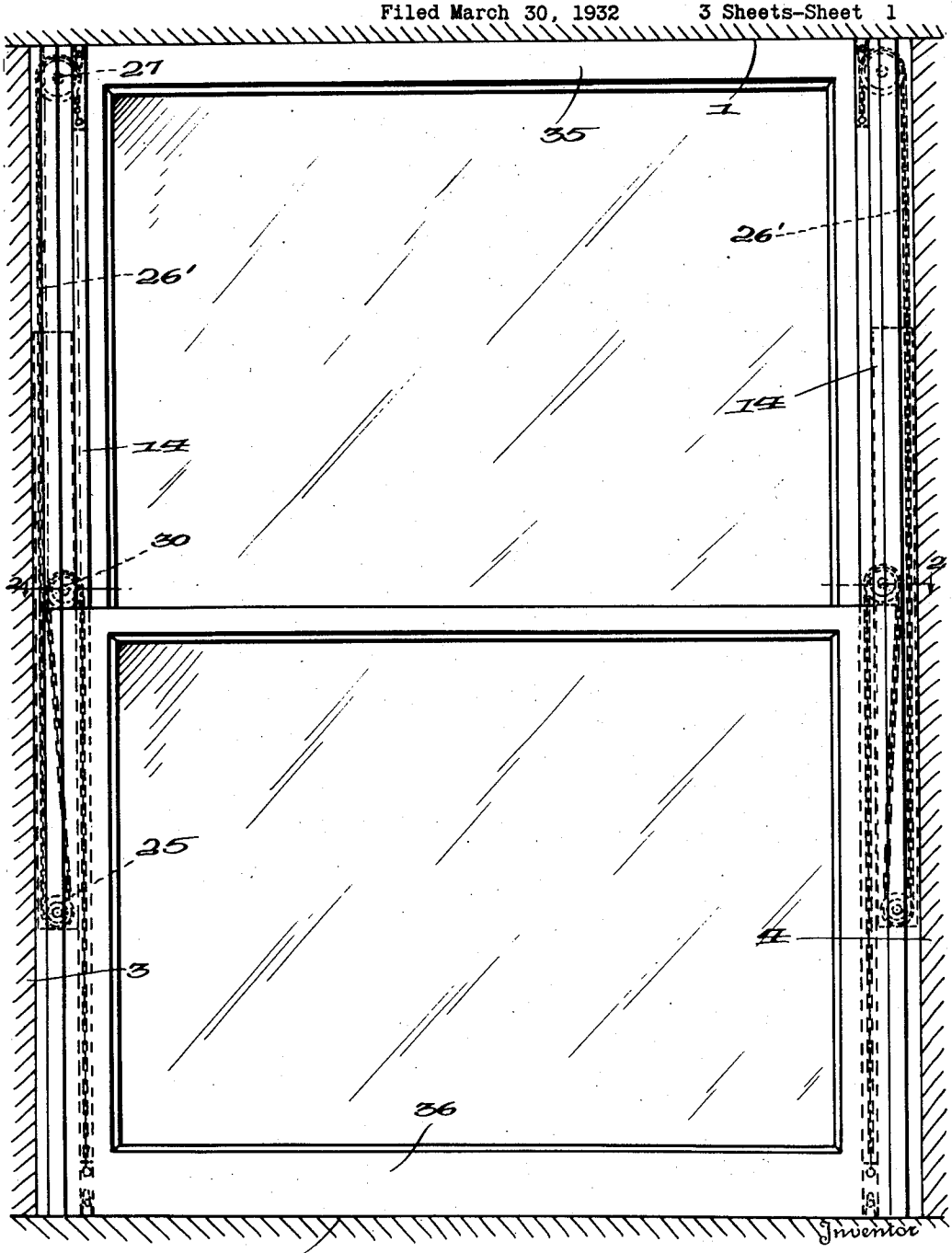


Fig. 1.

H.T. Reynolds

By Geo. P. Kimmel
Attorney

May 30, 1933. H. T. REYNOLDS 1,911,292

WINDOW

Filed March 30, 1932 3 Sheets-Sheet 2

Fig. 2.

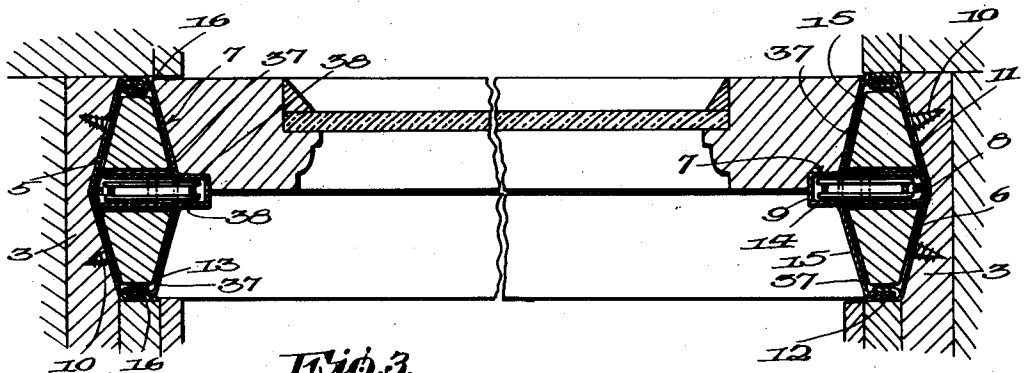


Fig. 3.

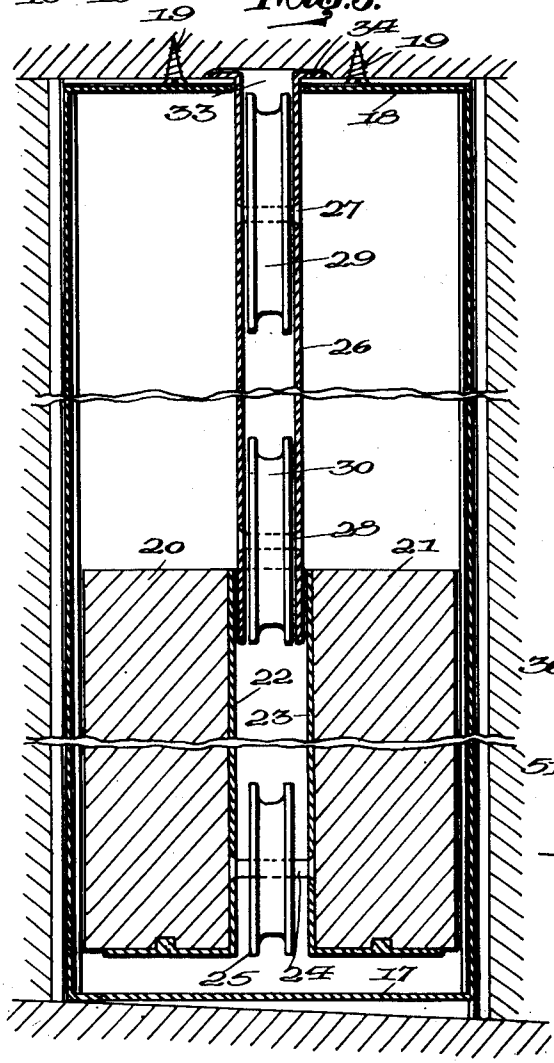
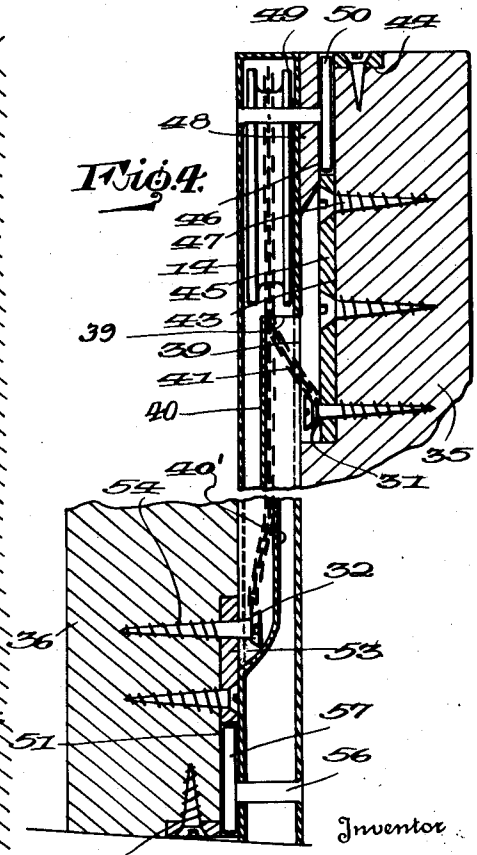


Fig. 4.



Inventor

H. T. Reynolds

Geo. P. Kimmel

Attorney

May 30, 1933. H. T. REYNOLDS 1,911,292

WINDOW

Filed March 30, 1932 3 Sheets-Sheet 3

Fig. 5

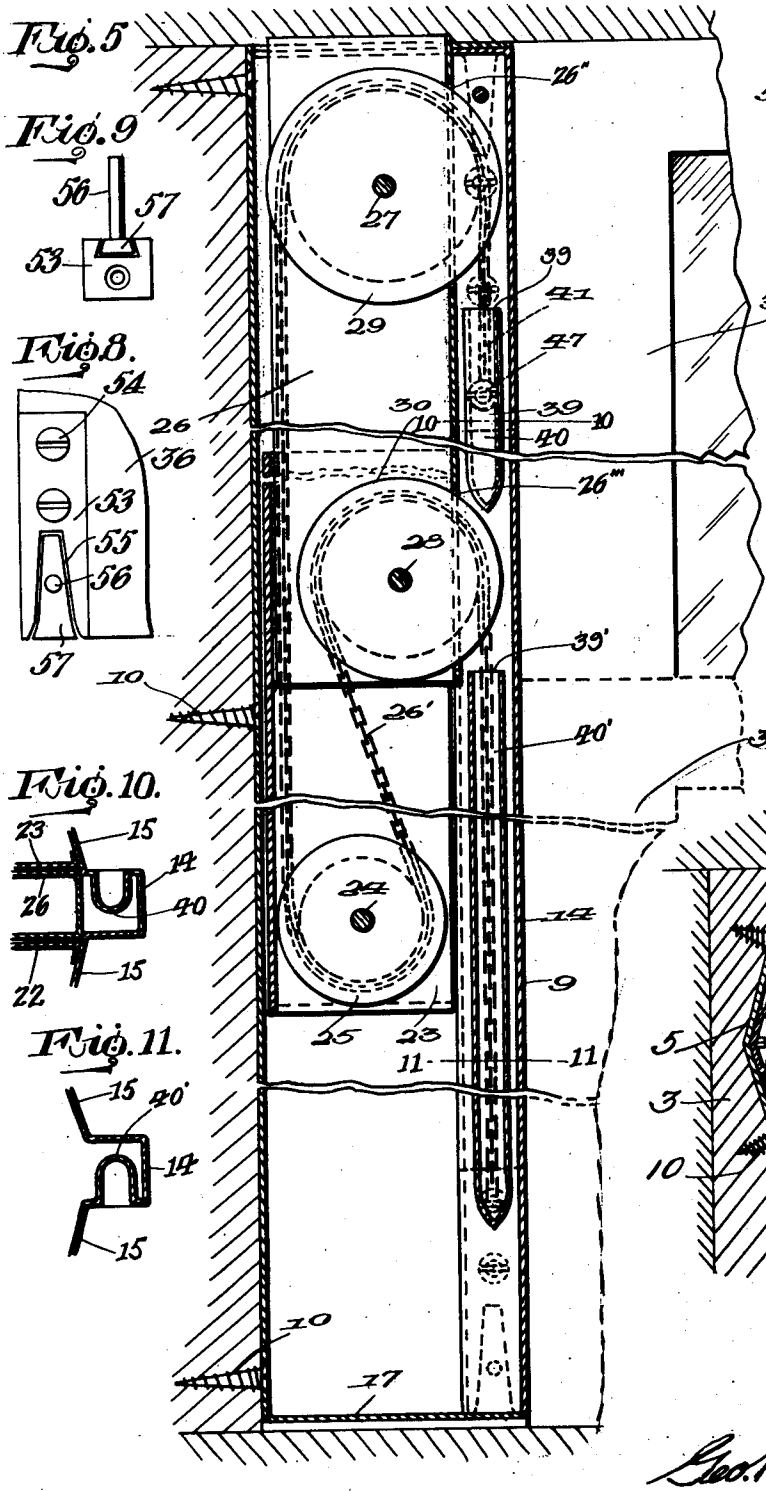


Fig. 6.

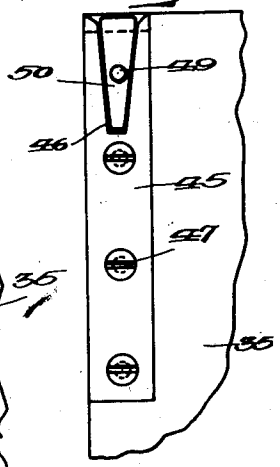


Fig. 7.

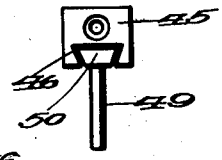


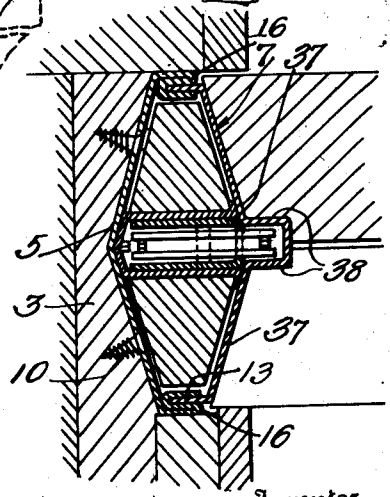
Fig. 9

Fig. 8.

Fig. 10.

Fig. 11.

Fig. 12.



Inventor

H. T. Reynolds

Geo. P. Kimmel

Attorney

Patented May 30, 1933 1,911,292

UNITED STATES PATENT OFFICE

HAMILTON T. REYNOLDS, OF HUNTINGDON, PENNSYLVANIA

WINDOW

Application filed March 30, 1932. Serial No. 602,034.

My invention relates to certain new and useful improvements in windows of that type including upper and lower vertically movable sashes.

The essential objects of my invention are to provide, in a manner as hereinafter set forth, a window including opposed jamb structures for maintaining a weather tight joint at all times and to compensate for the contraction and expansion of the window sashes arranged between said structures; jamb structures, each formed of a stationary and a shiftable section free to move horizontally back and forth between the sashes and with each structure constituting a weight box; jamb structures so constructed and arranged to provide for a free and smooth vertical movement of the sashes at all times; jamb structures each having a part thereof constituting a parting bead; parting beads coacting with closure plates for drawing and latching the sashes to the jamb structures when the sashes are closed; means for sustaining the sashes when shifted to the desired opened position; a suspended, stationary channeled pulley case carrying the pulleys for the upper and lower sashes; combined sustaining weights constructed and arranged in a manner for the extending therebetween of such case during the vertical adjustment of either of the sashes to open position; and to attain these ends in a strong, durable, thoroughly efficient, readily assembled and comparatively inexpensive structure.

To the above ends essentially and others which may hereinafter appear, my invention consists of such parts, and such combination of parts which fall within the scope of the invention as claimed.

In the drawings:—

Figure 1 is a front elevation of a window in accordance with my invention.

Figure 2 is a section on line 2—2 Figure 1.

Figure 3 is a fragmentary view in vertical section.

Figure 4 is a fragmentary view in transverse section.

Figure 5 is a vertical sectional view, broken away, taken at right angles to Figure 3.

Figures 6 and 7 are details in front elevation illustrating the latching means for the upper sash.

Figures 8 and 9 are details in front elevation illustrating the latching means for the lower sash.

Figures 10 and 11 are sectional details of the parting bead on lines 10—10 and 11—11 respectively of Figure 5.

Figure 12 is a fragmentary view in sectional plan and upon an enlarged scale on line 2—2 Figure 1.

Referring to the drawings, 1 denotes the top, 2 the sill and 3, 4 the sides of a window frame. The opposed faces of the sides 3, 4 are formed with grooves 5, 6 respectively. In cross section, the wall of each groove extends at opposite outward inclinations from the center thereof.

Seated on and extended from each of said grooves is a jamb structure 7. As each of these structures are of like construction, but one will be described, as the description of one will apply to the other. Each jamb structure includes an inner and an outer section 8, 9 respectively, the former being stationary and the latter being shiftable in a horizontal direction to and from the former.

The section 8 is seated in a groove 5 or 6 and extends from the latter. The section 8 is held stationary by the holdfast devices 10 against the wall of the groove and includes a body part 11 and side portions 12 having grooves 13 opening at the edges of such portions. The body part 11 is oppositely inclined from its vertical median.

The section 9 includes a body part formed of a channel shaped portion 14 providing a parting bead, a pair of oppositely inclined portions 15 and from the inner sides of the latter extends outwardly the portion 14. The body part of section 9 also includes a pair of flanges 16 disposed at obtuse angles to the portions 15 and extending in an opposite direction with respect to portion 14. The flanges 16 are slidably mounted in the grooves 13 and coact with the latter to not only close the jamb structure, but to permit of section 9 moving horizontally relative to section 8 of the structure. The body part of section 8

is oppositely disposed with respect to the body part of section 9.

Arranged within and at the bottom of each jamb structure is a spreader plate 17. Arranged within and in proximity to the top of each jamb structure is a spreader plate 18. The top of section 8 of each jamb structure is secured to the top 1 of the window frame by the holdfast devices 19.

The sections of each jamb structure coact to provide a weight box and vertically adjustable within the latter is a pair of opposed, spaced, suspended, slidable, sustaining weights 20, 21 for a sash. Each weight conforms in contour to that of a side portion of a jamb structure. Each pair of weights is mounted on a carrier consisting of upstanding angled shaped parts 22, 23 to which the weights 20, 21 respectively are secured. The parts 22, 23 are connected together at their rear and arranged at the inner sides and bottoms of the weights and extend from the tops to the bottoms of the latter. The parts 22, 23 are also connected together, in proximity to their lower ends, by a coupling element 24 which constitutes a shaft upon which is revolubly mounted a pulley 25 wholly arranged between members 22, 23 and in connection with a chain 26′, to be further referred to, to provide a suspension for the weights. The rear of the carrier opposes the section 8 of the jamb structure centrally of the latter.

Depending into each jamb structure centrally thereof and extending between the parts 22, 23 of the carrier is a pulley casing 26 open at its top, bottom and slotted at its front. The rear of casing 26 opposes the rear of the weight carrier. The front of casing 26 is secured to jamb section 9 and the sides of the casing align with the sides of portion 14 of section 9. The front of casing 26 has upper and lower slots 26″, 26‴. The casing 26 carries a pair of superposed spaced shafts 27, 28 disposed between the vertical median of casing 26 and its open end. Revolubly mounted on shafts 27, 28 are pulleys 29, 30 respectively extended through slots 26″, 26‴ into the portion 14 of the section 9 of each jamb structure. The pulley 29 is what is termed an upper sash pulley and the pulley 30 a lower sash pulley. The pulley 29 is of greater diameter than pulleys 25, 30 and the former is of less diameter than pulley 30. The pulley 25 does not extend into portion 14 of the shiftable section 9 of a jamb structure.

Travelling over the top of pulley 30, then downwardly against the inner side of the latter, then in a direction towards the front of casing 26 and against the front, bottom and rear of the pulley 25, then upwardly towards and against the inner side, top and front side of pulley 29 is the chain 26′. The chain also passes against and depends from the front of pulley 30, as well as depends from the front of pulley 29. The upper and lower ends of chain 26′ are indicated at 31, 32 respectively.

The casing 26 passes down through and is also secured to spreader plate 18 and has its upper end extend into a recess 33 formed in the lower face of the top 1 of the window frame. The upper end of casing 26 is flanged, as at 34 and such flange is seated upon the top of the jamb structure.

The upper and lower sashes are designated 35, 36 respectively. The sashes have their rails beveled as at 37 and rabeted as at 38. The bevels and rabbets of the upper sash are oppositely disposed with respect to those of the lower sash. The rabbets provide clearances for the portions 14 of the sections 9 of the jamb structures. The portions 14 provide, as heretofore stated, parting beads. The beveled sides of the sashes conform in contour to the inclined parts of the sections 9 of the jamb structures.

The portion 14 of each jamb section 9 has one side slitted and inset to provide an opening 39 and a channel 40 and its other side slitted and inset to provide an opening 39′ and a channel 40′. The opening 39 is for the passage of the upper terminal portion of the chain 26′ and the channel 40 provides a confining or guide groove for such upper terminal portion. The opening 39′ is for the passage of the lower terminal portion of the chain 26′ and the channel 40′ provides a confining or guide groove for such lower terminal portion.

Each side of the upper sash 35 is recessed for a portion of its length as at 43. The sash 35 is also mortised as at 44 at each end of its top. Each recess 43 opposes that side of the portion 14 of each jamb section 9 formed with the channel 40. The mortises 44 open into the upper ends of the recesses. Secured to the base of the recesses and also in the mortises are angle shaped closure plates 45, each provided with a wedge shaped slot 46 at its upper end. The plates 45 are secured to the upper sash by spaced holdfast devices 47 and the lowest one of the latter has the upper end 31 of the chain 26′ connected thereto. The upper terminal portion of the chain 26′ is extended from channel 40 into a recess to clear pulley 30, when the upper sash is lowered to its extreme extent. Positioned between the slots 46 and that side of portion 14 provided with the channel 39 is a shim 48. Carried by the upper part of the portion 14 of the section 9 of each jamb structure is a rivet 49 having a wedge shaped head 50 cooperating with the walls of a wedge shaped slot for latching as well as drawing the section 9 and sash 35 together to provide a closed joint.

Each side of the lower sash 36 is mortised for a portion of its length as at 51. The

sash 36 is also mortised at each end of its bottom edge as at 52. The lower end of the mortises 51 opens into the mortises 52. The mortises 51 oppose the sides of the portions 14 of the jamb structures 9 formed with the channels 40. Secured to the lower sash are angle shaped closure plates 53, each being arranged in a pair of communicating mortises. The plates 53 are secured in position by spaced holdfast devices 54, the uppermost one of such devices being secured to the end 32 of chain 26′ and extends into the channels 40′. The plates 53 are formed with wedge shaped slots 55. Carried by the portion 14 of each jamb section 9 is a rivet 56 provided with a wedge shaped end 57 which coacts with the wall of a slot 55 for latching and drawing the section 9 and lower sash together to provide a closed joint. The thickness of the plates 53 are of a thickness corresponding to the depth of the mortises 51, 52.

The slots 46 are oppositely disposed with respect to the slots 55. The rivets 49 are oppositely disposed with respect to the rivets 56. The slots 46 open at the top of plates 45. The slots 55 open at the bottom of plates 53. The jamb structures extend from the sill to the top of the window frame.

What I claim is:—

1. In window construction of that type including upper and lower vertically movable sashes, a pair of oppositely disposed jamb structures for said sashes and each including a fixed and a movable section shiftable horizontally relative to and interengaging with the fixed section, said movable section having a part thereof forming a parting bead for said sashes, said jamb structures providing weight boxes, a pair of channeled casings, each depending in a jamb structure and suspended from the top of the latter, a pair of spaced sash sustaining weights within each structure and having a revoluble pulley suspended therebetween, each pair of said weights being bodily movable together vertically and spaced to provide a clearance for the extending therebetween of a casing, a pair of superposed spaced pulleys suspended by each casing, upstanding flexible members travelling over the pulleys in said casings and under the pulleys suspended by said pairs of weights, and means for connecting the upper ends of the members to the upper sash and the lower ends of the members to the lower sash

2. In window construction of that type including upper and lower vertically movable sashes, a pair of oppositely disposed jamb structures for said sashes and each including a fixed and a movable section shiftable horizontally relative to and interengaging with the fixed section, said movable section having a part thereof forming a parting bead for said sashes, said jamb structures providing weight boxes, a pair of channeled casings, each depending in a jamb structure and suspended from the top of the latter, a pair of spaced sash sustaining weights within each structure and having a revoluble pulley suspended therebetween, each pair of said weights being bodily movable together vertically and spaced to provide a clearance for the extending therebetween of a casing, a pair of superposed spaced pulleys suspended by each casing, upstanding flexible members travelling over the pulleys in said casings and under the pulleys suspended by said pairs of weights, means for connecting the upper ends of the members to the upper sash and the lower ends of the members to the lower sash, and means for latching and drawing together said sashes and shiftable sections when the sashes are closed.

3. In window construction of that type including upper and lower vertically movable sashes, a pair of oppositely disposed jamb structures for said sashes and each including a fixed and a movable section shiftable horizontally relative to and interengaging with the fixed section, said movable section having a part thereof forming a parting bead for said sashes, said jamb structures providing weight boxes, a pair of channeled casings, each depending in a jamb structure and suspended from the top of the latter, a pair of spaced sash sustaining weights within each structure and having a revoluble pulley suspended therebetween, each pair of said weights being bodily movable together vertically and spaced to provide a clearance for the extending therebetween of a casing, a pair of superposed spaced pulleys suspended by each casing, upstanding flexible members travelling over the pulleys in said casings and under the pulleys suspended by said pairs of weights, and means for connecting the upper ends of the members to the upper sash and the lower ends of the members to the lower sash, the pulleys suspended by said casings being extended into the parts of said shiftable sections providing the parting beads.

4. In window construction of that type including upper and lower vertically movable sashes, a pair of oppositely disposed jamb structures for said sashes and each including a fixed and a movable section shiftable horizontally relative to and interengaging with the fixed section, said movable section having a part thereof forming a parting bead for said sashes, said jamb structures providing weight boxes, a pair of channeled casings, each depending in a jamb structure and suspended from the top of the latter, a pair of spaced sash sustaining weights within each structure and having a revoluble pulley suspended therebetween, each pair of said weights being bodily movable together vertically and spaced to provide a clearance for the extending therebetween of a casing, a pair

of superposed spaced pulleys suspended by each casing, upstanding flexible members travelling over the pulleys in said casings and under the pulleys suspended by said pairs of weights, means for connecting the upper ends of the members to the upper sash and the lower ends of the members to the lower sash, and means for latching and drawing together said sashes and shiftable sections when the sashes are closed, the pulleys suspended by said casings being extended into the parts of said shiftable sections providing the parting beads.

5. In window construction of that type including upper and lower vertically movable sashes, a hollow jamb structure for said sashes and including a fixed section and a movable section shiftable horizontally to and interengaging with said fixed section, said shiftable section for bearing against and having a part thereof providing a parting bead for the sashes, a vertically movable weighting means slidably mounted in said structure and including a suspended revolubly mounted pulley, a vertical, stationary casing suspended in the upper portion of said structure, said weighting means provided centrally thereof with a clearance for the casing, a pair of superposed spaced pulleys carried by the casing, an upstanding flexible member travelling over the pulleys carried by the casing and under the pulley of said weighting means, and means for connecting the upper end of said member to the upper sash and the lower end of said member to the lower sash.

6. In window construction of that type including upper and lower vertically movable sashes, a hollow jamb structure for said sashes and including a fixed section and a movable section shiftable horizontally to and interengaging with said fixed section, said shiftable section for bearing against and having a part thereof providing a parting bead for the sashes, a vertically movable weighting means slidably mounted in said structure and including a suspended revolubly mounted pulley, a vertical, stationary casing suspended in the upper portion of said structure, said weighting means provided centrally thereof with a clearance for the casing, a pair of superposed spaced pulleys carried by the casing, an upstanding flexible member travelling over the pulleys carried by the casing and under the pulley of said weighting means, and means for connecting the upper end of said member to the upper sash and the lower end of said member to the lower sash, the pulleys carried by said casing extending into the part of said shiftable section providing the parting bead.

7. In window construction of that type including upper and lower vertically movable sashes, a hollow jamb structure for said sashes and including a fixed section and a movable section shiftable horizontally to and interengaging with said fixed section, said shiftable section for bearing against and having a part thereof providing a parting bead for the sashes, a vertically movable weighting means slidably mounted in said structure and including a suspended revolubly mounted pulley, a vertical, stationary casing suspended in the upper portion of said structure, said weighting means provided centrally thereof with a clearance for the casing, a pair of superposed spaced pulleys carried by the casing, an upstanding flexible member travelling over the pulleys carried by the casing and under the pulley of said weighting means, means for connecting the upper end of said member to the upper sash and the lower end of said member to the lower sash, and means for latching and drawing together said sashes and shiftable section when the sashes are closed.

8. In window construction of that type including upper and lower vertically movable sashes, a hollow jamb structure for said sashes and including a fixed section and a movable section shiftable horizontally to and interengaging with said fixed section, said shiftable section for bearing against and having a part thereof providing a parting bead for the sashes, a vertically movable weighting means slidably mounted in said structure and including a suspended revolubly mounted pulley, a vertical, stationary casing suspended in the upper portion of said structure, said weighting means provided centrally thereof with a clearance for the casing, a pair of superposed spaced pulleys carried by the casing, an upstanding flexible member travelling over the pulleys carried by the casing and under the pulley of said weighting means, means for connecting the upper end of said member to the upper sash and the lower end of said member to the lower sash, and that part of said section providing the parting bead being inset at its sides to provide clearances, one for the upper terminal portion of said member and the other for the connection means for the lower end of said member.

9. In window construction of that type including upper and lower vertically movable sashes, a hollow jamb structure for said sashes and including a fixed section and a movable section shiftable horizontally to and interengaging with said fixed section, said shiftable section for bearing against and having a part thereof providing a parting bead for the sashes, a vertically movable weighting means slidably mounted in said structure and including a suspended revolubly mounted pulley, a vertical, stationary casing suspended in the upper portion of said structure, said weighting means provided centrally thereof with a clearance for the casing, a pair of superposed spaced pulleys carried by the

casing, an upstanding flexible member travelling over the pulleys carried by the casing and under the pulley of said weighting means, means for connecting the upper end of said member to the upper sash and the lower end of said member to the lower sash, the pulleys carried by said casing extending into the part of said shiftable section providing the parting bead, and that part of said section providing the parting bead being inset at its sides to provide clearances, one for the upper terminal portion of said member and the other for the connection means for the lower end of said member.

10. In window construction, upper and lower vertically movable sashes having beveled sides, jamb structures for the sashes, each structure including a fixed and a shiftable section interengaging with the former, said shiftable section having oppositely inclined portions bearing against and conforming in contour to the sides of the sashes, said shiftable section having a part thereof extended from said inclined portions to provide a parting bead for the sashes, vertically movable sustaining means for the sashes, said means suspended in the jamb structures and connected to the sashes.

11. In window construction, upper and lower vertically movable sashes having beveled sides, jamb structures for the sashes, each structure including a fixed and a shiftable section interengaging with the former, said shiftable section having portions bearing against and conforming in contour to the sides of the sashes, vertically movable sustaining means for the sashes, said means suspended in the jamb structures and connected to the sashes, each of said shiftable sections having an extended portion providing a parting bead for the sashes, and means at the upper end of the upper sash and lower end of the lower sash and coacting with means on said extended portions for latching the sashes in closed position and for drawing the shiftable sections and sashes together to provide a tight joint therebetween when the sashes are closed.

12. In window construction, upper and lower vertically movable sashes having beveled sides, jamb structures for the sashes, each structure including a fixed and a shiftable section interengaging with the former, said shiftable section having portions bearing against and conforming in contour to the sides of the sashes, vertically movable sustaining means for the sashes, said means suspended in the jamb structures and connected to the sashes, each of said shiftable sections having an extended portion providing a parting bead for the sashes, said means including flexible members, and said extended portions having openings for the passage of and guides for said members.

13. In window construction, upper and lower vertically movable sashes having beveled sides, jamb structures for the sashes, each structure including a fixed and a shiftable section interengaging with the former, said shiftable section having portions bearing against and conforming in contour to the sides of the sashes, vertically movable sustaining means for the sashes, said means suspended in the jamb structures and connected to the sashes, each of said shiftable sections having an extended portion providing a parting bead for the sashes, means at the upper end of the upper sash and lower end of the lower sash and coacting with means on said extended portions for latching the sashes together to provide a tight joint therebetween when the sashes are closed, said means including flexible members, and said extended portions having openings for the passage of and guides for said members.

14. In window construction, upper and lower vertically movable sashes, jamb structures for the sides of the sashes and each including a horizontally shiftable section bearing against the sides of the sashes, said shiftable sections having extended portions providing parting beads for the sashes, a sustaining structure for the sashes arranged in each jamb structure and including a vertically movable weighting means, a stationary guiding means for the weighting means and flexible connections between the latter and the sashes, and means at the upper end of the upper sash and lower end of the lower sash and coacting with means carried by said extended portions for latching the sashes in closed position and for drawing said shiftable sections and sashes together to provide a closed joint when the sashes are closed.

15. In window construction of that type including upper and lower vertically movable sashes, a hollow jamb structure for said sashes and including a fixed section and a movable section shiftable horizontally to and interengaging with said fixed section, said shiftable section for bearing against and having a part thereof providing a parting bead for the sashes, a vertically movably weighting means slidably mounted in said structure and including a suspended revolubly mounted pulley, a vertical, stationary casing suspended in the upper portion of said structure, said weighting means provided centrally thereof with a clearance for the casing, a pair of superposed spaced pulleys carried by the casing, an upstanding flexible member travelling over the pulleys carried by the casing and under the pulley of said weighting means, means for connecting the upper end of said member to the upper sash and the lower end of said member to the lower sash, means for latching and drawing together said sashes and shiftable section when the sashes are closed, and that part of said section providing the parting bead being inset

at its sides to provide a pair of clearances, one for the upper terminal portion of said member and the other for the connection means for the lower end of said member.

16. In window construction of that type including vertically movable sashes, a hollow sash jamb structure providing a box for a vertically movable sustaining means for the sashes, said structure formed of a pair of oppositely disposed sections, one being stationary and the other shiftable, said shiftable section movable horizontally towards and from said stationary section and provided at its lengthwise center with an outwardly directed part to form a parting bead for the sashes, said stationary section having lengthwise extending grooves opening at the lengthwise edges thereof, and said shiftable section being formed with lengthwise flanges extending into said grooves.

17. In window construction of that type including vertically movable sashes, a hollow sash jamb structure providing a box for a vertically movable sustaining means for the sashes, said structure formed of a pair of oppositely disposed sections, one being stationary and the other shiftable, said shiftable section movable horizontally towards and from said stationary section and provided at its lengthwise center with an outwardly directed part to form a parting bead for the sashes, said stationary section having lengthwise extending grooves opening at the lengthwise edges thereof, said shiftable section being formed with lengthwise flanges extending into said grooves, latching members carried by said outwardly directed part, and means for connection to the sashes and coacting with said members for latching the sashes in closed positions and for drawing said shiftable section and sides of the sashes in abutting engagement.

18. In window construction of that type including vertically movable sashes, a hollow sash jamb structure providing a box for a vertically movable sustaining means for the sashes, said structure formed of a pair of oppositely disposed sections, one being stationary and the other shiftable, said shiftable section movable horizontally towards and from said stationary section and provided at its lengthwise center with an outwardly directed part to form a parting bead for the sashes, said stationary section having lengthwise extending grooves opening at the lengthwise edges thereof, said shiftable section being formed with lengthwise flanges extending into said grooves, and said outwardly directed part having portions thereof constituting guides for and to permit of the flexible element of such sustaining means being attached to the sashes.

19. In window construction of that type including vertically movable sashes, a hollow sash jamb structure providing a box for a vertically movable sustaining means for the sashes, said structure formed of a pair of oppositely disposed sections, one being stationary and the other shiftable, said shiftable section movable horizontally towards and from said stationary section and provided at its lengthwise center with an outwardly directed part to form a parting bead for the sashes, said stationary section having lengthwise extending grooves opening at the lengthwise edges thereof, said shiftable section being formed with lengthwise flanges extending into said grooves, latching members carried by said outwardly directed part, means for connection to the sashes and coacting with said members for latching the sashes in closed positions and for drawing said shiftable section and sides of the sashes in abutting engagement, and said outwardly directed part having portions thereof constituting guides for and to permit of the flexible element of such sustaining means being attached to the sashes.

In testimony whereof, I affix my signature hereto.

HAMILTON T. REYNOLDS.