Oct. 21, 1924. 1,512,741

S. U. BARR

DOUBLE HUNG WINDOW

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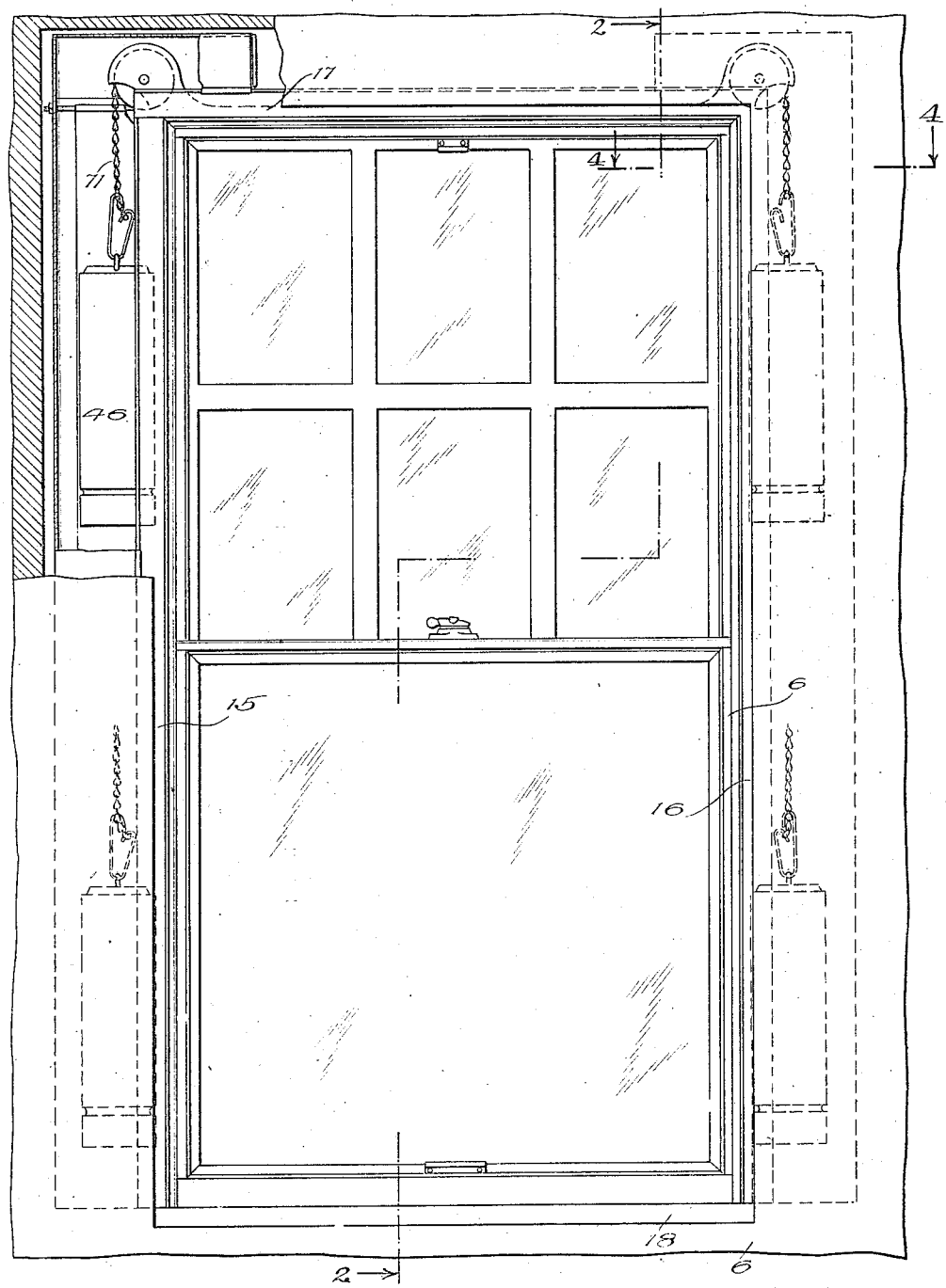


Fig. 1.

WITNESSES

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INVENTOR

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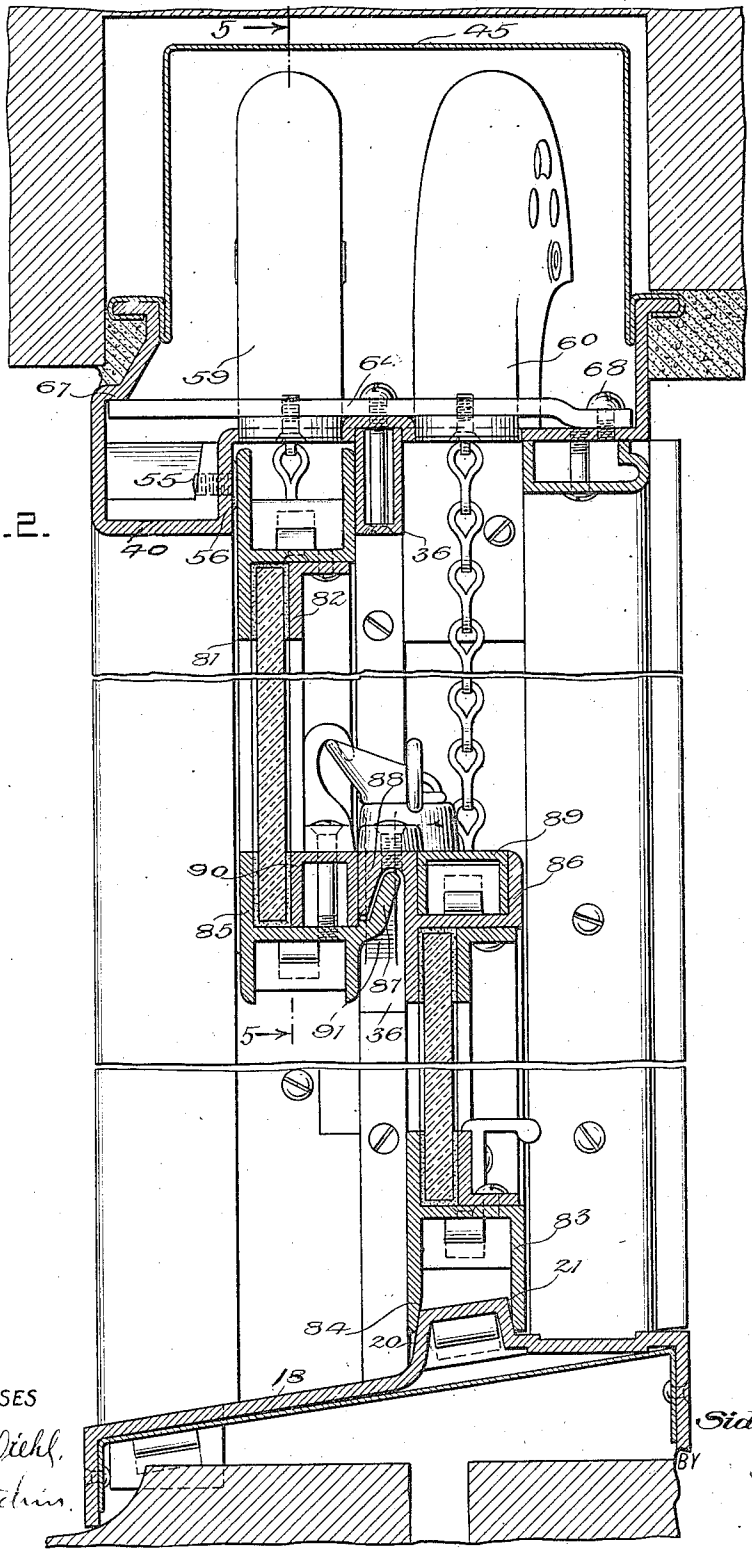
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DOUBLE HUNG WINDOW

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Fig. 2.



WITNESSES

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Oct. 21, 1924 1,512,741

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DOUBLE HUNG WINDOW

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Fig. 3.

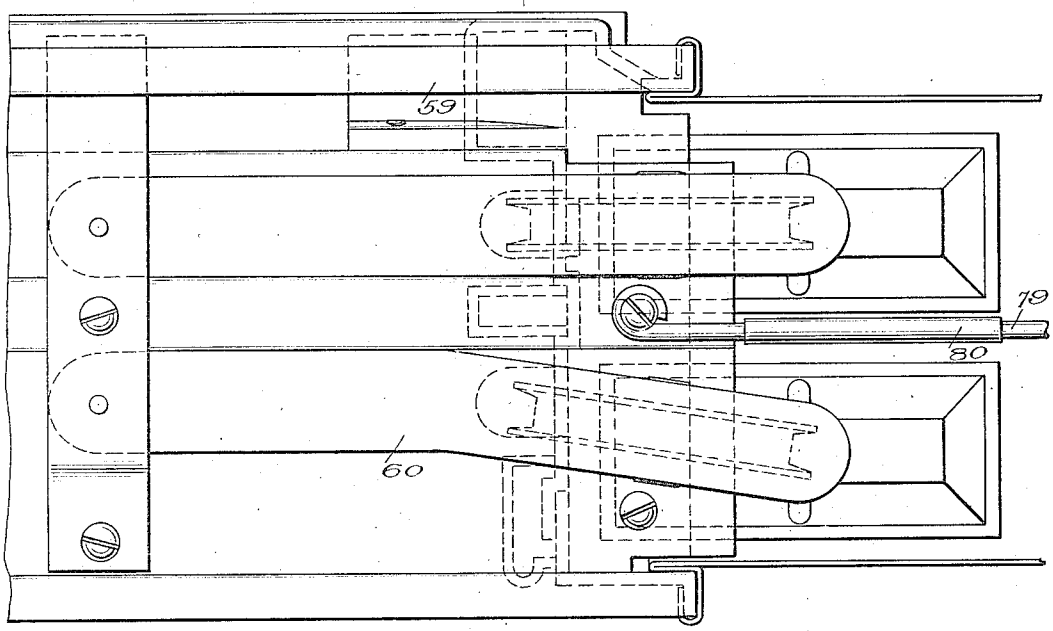
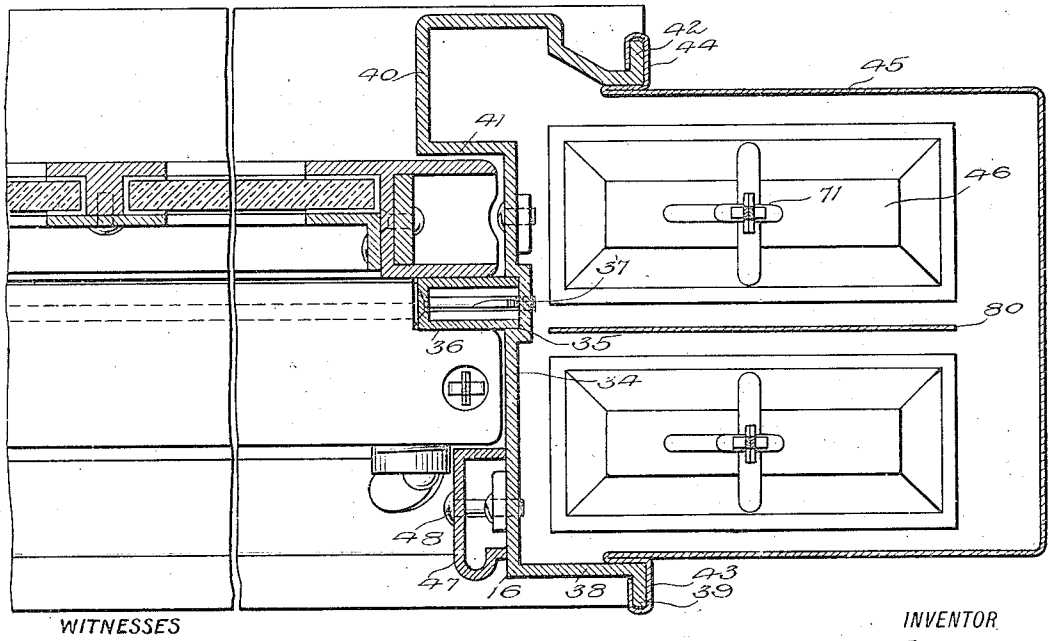


Fig. 4.



WITNESSES

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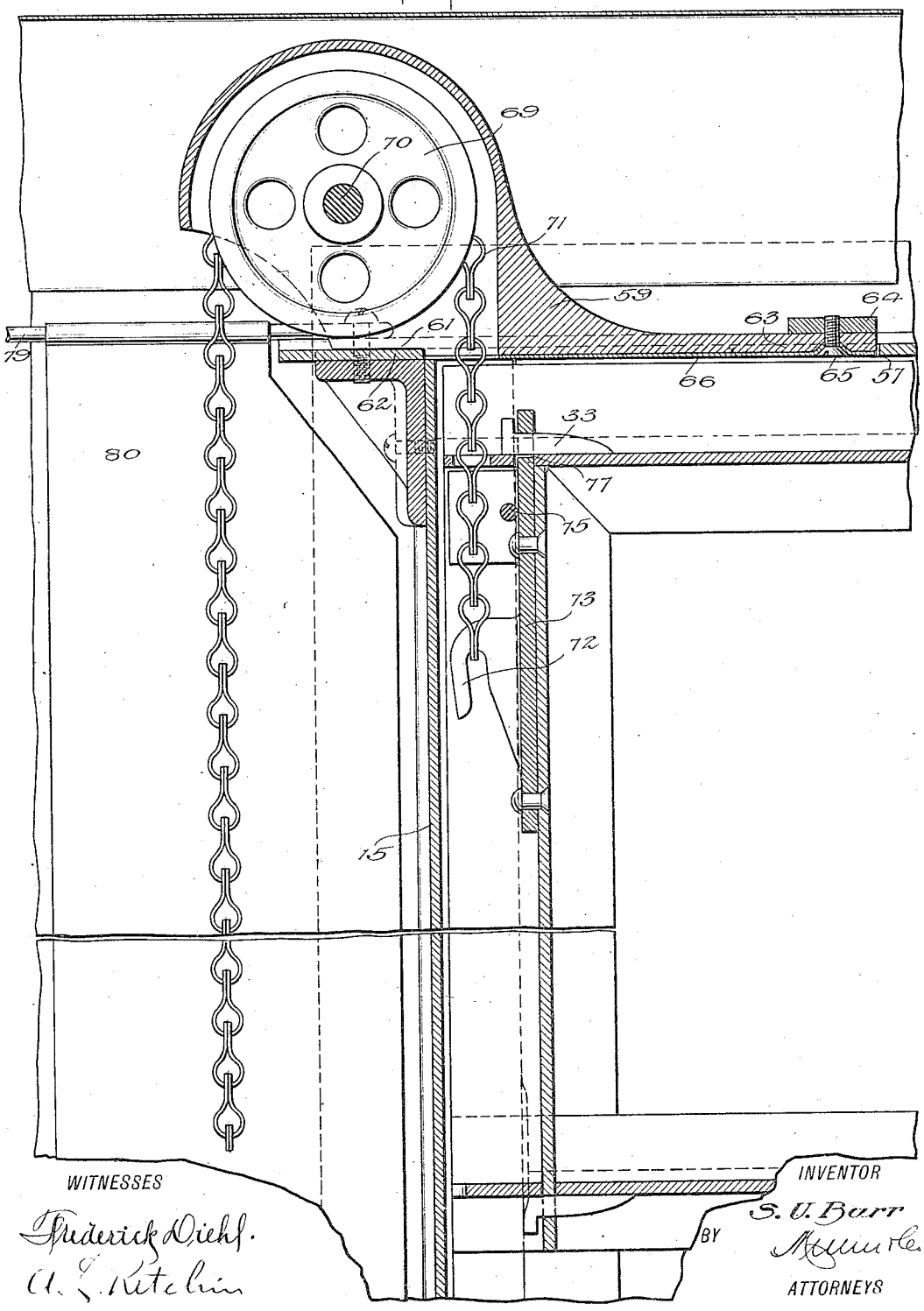
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DOUBLE HUNG WINDOW

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Fig. 8.



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Fig. 6.

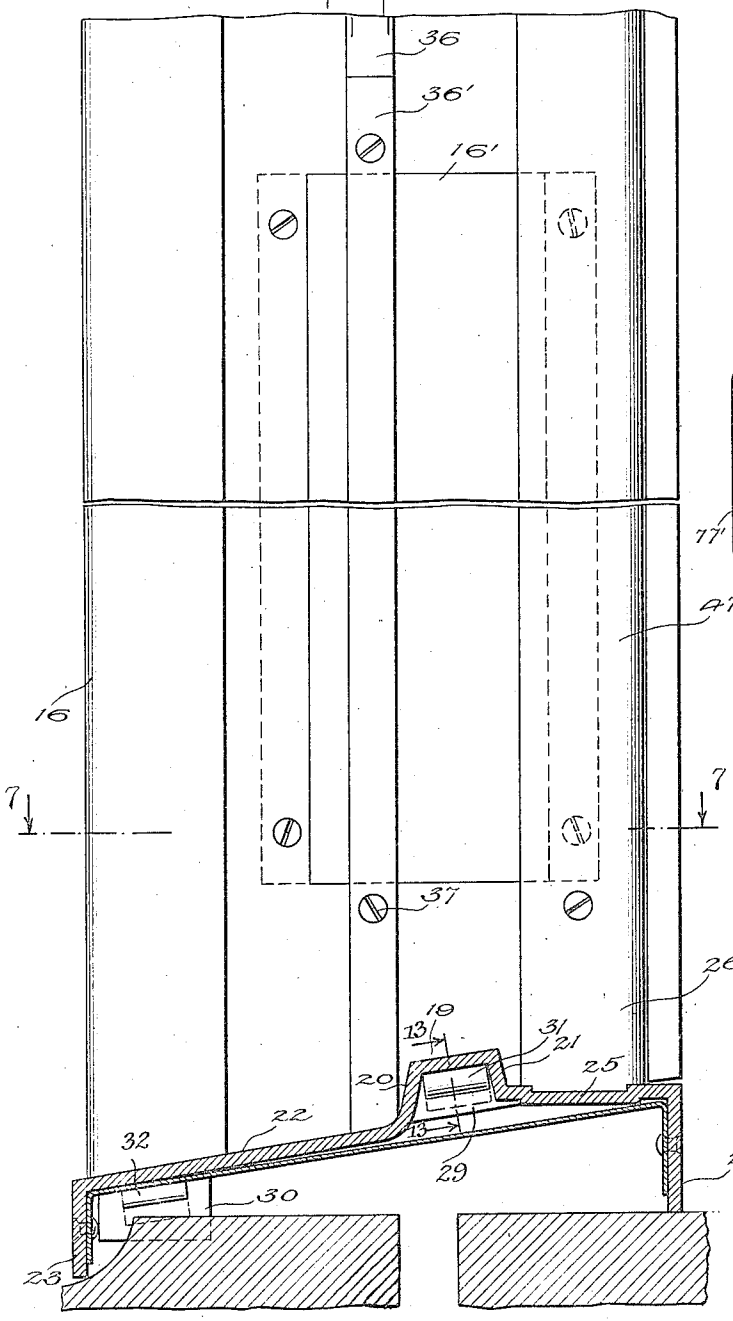


Fig. 8.

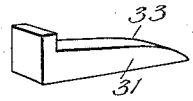


Fig. 9.

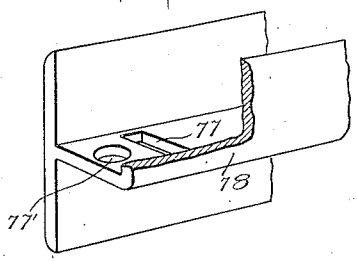
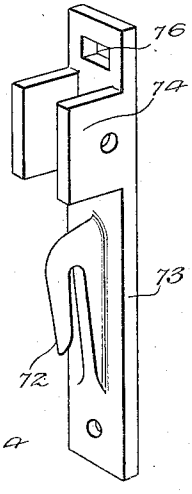


Fig. 10.



WITNESSES

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Oct. 21, 1924. 1,512,741

S. U. BARR

DOUBLE HUNG WINDOW

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Fig. 7.

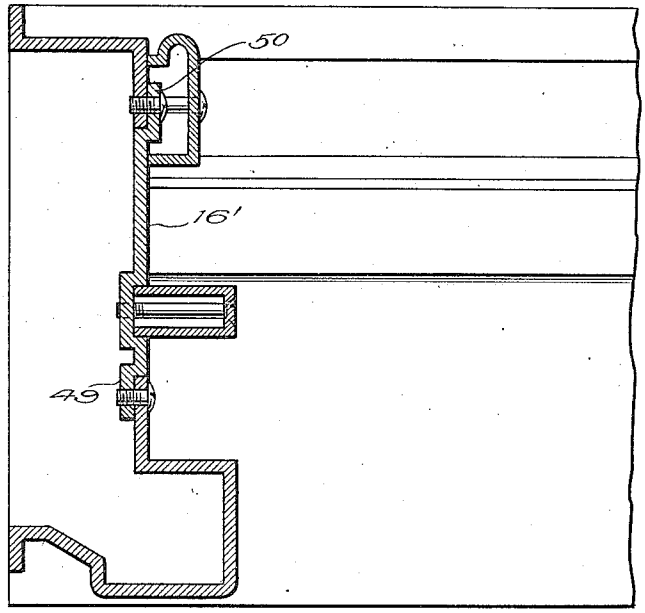
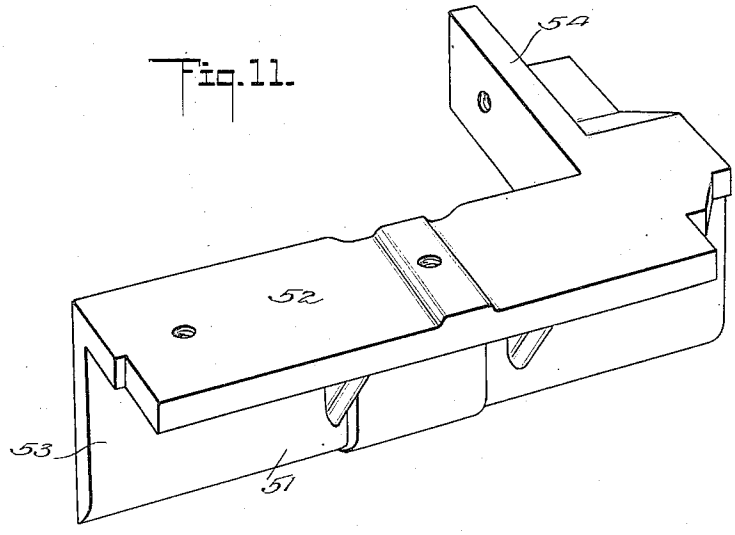


Fig. 11.



WITNESSES

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Oct. 21, 1924. 1,512,741

S. U. BARR

DOUBLE HUNG WINDOW

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Fig. 12.

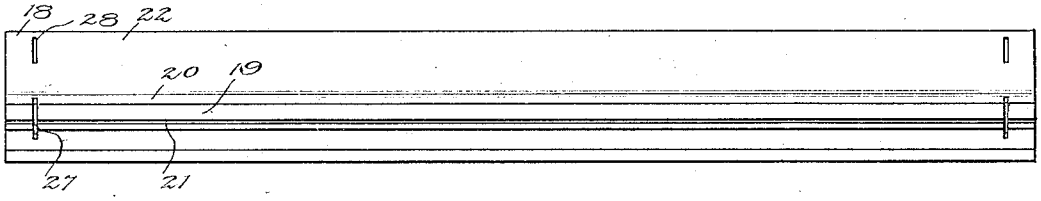


Fig. 13.

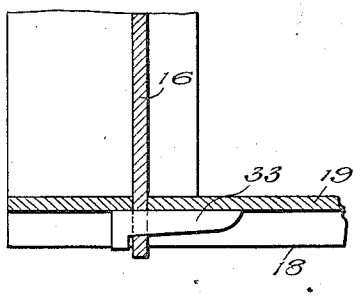
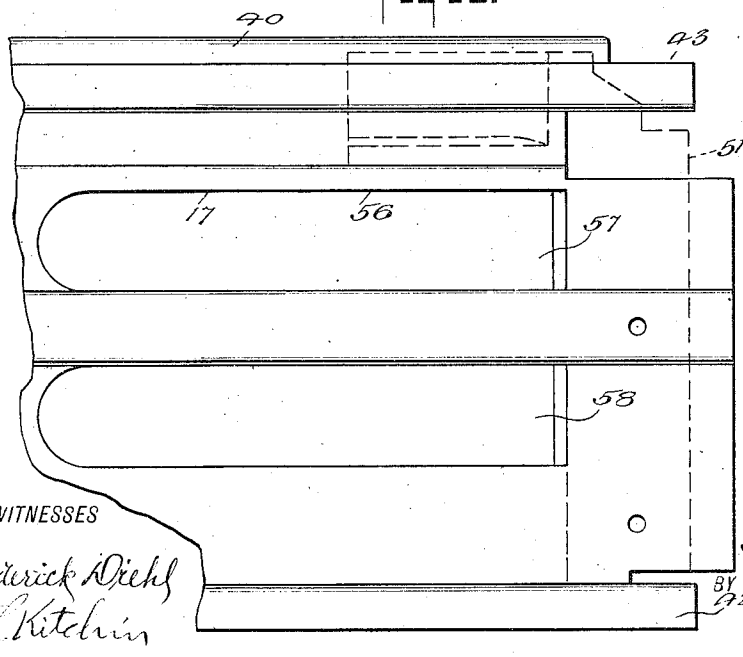


Fig. 14.



WITNESSES

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ATTORNEYS

Patented Oct. 21, 1924. 1,512,741

UNITED STATES PATENT OFFICE.

SIDNEY U. BARR, OF BROOKLYN, NEW YORK.

DOUBLE-HUNG WINDOW.

Application filed November 25, 1922. Serial No. 603,309.

To all whom it may concern:

Be it known that I, SIDNEY U. BARR, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Double-Hung Window, of which the following is a full, clear, and exact description.

This invention relates to window frames and sashes and particularly to what is known as a double hung window and has for an object to provide an improved construction wherein means are presented for permitting the window sashes to be raised and lowered readily and at the same time provide a substantially air and water-tight structure when the sashes are closed.

Another object of the invention is to provide an improved metal window frame and metal sash co-acting therewith which is constructed out of certain shaped members formed so that they may be cut to different lengths and assembled in the same manner to accommodate different widths and heights of window openings.

A still further object of the invention is to provide an improved construction of sash support and means for holding the sash tightly when closed while supporting the same freely when open.

In the accompanying drawings—

Figure 1 is an elevation of a window frame and a pair of sashes embodying the invention, certain parts being broken away for better illustrating the construction.

Figure 2 is a vertical sectional view on on enlarged scale through Figure 1 approximately on line 2—2.

Figure 3 is a top plan view of one corner of the window frame illustrated in Figure 1.

Figure 4 is an enlarged fragmentary sectional view through Figure 1 approximately on line 4—4.

Figure 5 is a vertical sectional view through Figure 2 approximately on line 5—5.

Figure 6 is a vertical sectional view through the frame, the same being taken approximately on line 6—6 of Figure 1 but shown on an enlarged scale.

Figure 7 is a transverse sectional view through Figure 6 approximately on line 7—7.

Figure 8 is a detail perspective view of a key or wedge embodying certain features of the invention.

Figure 9 is a detail perspective view of one end of one of the top rails of one of the sashes, the same showing an arrangement of tongue receiving aperture and chain receiving aperture.

Figure 10 is a perspective view of the bracket or fitting provided to connect the lifting chain with the sash.

Figure 11 is an enlarged perspective view of an angle fitting used in connecting the upper corners of the side jambs of the window frame with the head section or jamb.

Figure 12 is a top plan view of the sill of the window frame illustrating particularly the location of the apertures for receiving the tenons or tongues on the side jambs.

Figure 13 is a sectional view through Figure 6 approximately on line 13—13.

Figure 14 is a top plan view of one end of the head jamb with the angle fitting shown in Figure 11 illustrated in dotted lines.

Referring to the accompanying drawings by numeral, 15 and 16 indicate the respective side jambs, 17 the top section or jamb and 18 the sill or the bottom jamb. The sill 18 as particularly illustrated in Figures 6, 12 and 13 is provided with a raised substantially central portion 19 extending longitudinally for the full length of the sill, said raised portion being formed with an inclined outer wall 20 and also a slightly inclined inner wall 21. It will also be noted that the outer part 22 is inclined so that the water may freely run off and pass over the outer depending flange 23. From the wall 21 the sill extends to an inner flange 24, the portion 25 being provided with a grooved portion for receiving a projection from the guiding molding 26. Near each end of the sill 18 are a pair of apertures 27 and 28, said apertures being designed to receive the tongues or tenons 29 and 30 respectively. These tongues or tenons extend from the side bars 15 and 16 and are provided with apertures through which the draw keys or gibs 31 and 32 extend, said gibs being illustrated in detail in Figure 8. It will be noted that the bottom of these gibs are straight and flat and the tops are provided with a rounded surface 33 so that they will draw the parts tightly together

and produce a locking structure which, if desired, may be further secured by being welded or brazed.

The side bar 16 is of a particular shape in cross section as illustrated in Figure 4. The jamb 15 is of the same shape so that the description of one will apply to both. From Figure 4 it will be seen that the jamb 16 is provided with a flat body section 34 which at the center is pressed for forming a longitudinal groove 35 for receiving the parting strips 36 and 36′, which strips are held in place by suitable screws 37. On the inner edge of the body 34, a flange 38 is provided merging into an edge flange 39 while the body 34 at the outer edge is provided with an enlargement 40 which acts as a molding retaining strip for producing a nice appearance and at the same time a shoulder 41 with which the top sash co-operates or co-acts. From Figure 4 it will be seen that by reason of the shoulder 41 and the parting strip 36, a guiding groove or structure is presented for readily guiding the upper sash in its up and down movement. The enlargement 40 is bent into a desired shape as shown in Figure 4 which eventuates in an outer edge flange 42. The flanges 39 and 42 receive edge portions 43 and 44 of the housing 45 which housing is preferably of thin metal and acts as a housing for the weights 46 and associated parts. Co-acting with the parting strip 36 is a guiding molding 47 which is held in place by suitable screws 48, said guiding strip with the parting strip 36 presenting a grooved or guiding structure for the lower sash whereby it may freely move up and down in the proper manner.

As illustrated in Figures 6 and 7, the parting strip 36 is divided near the center so that the lower part 36′ may be removed without molesting the upper part. At the part 36′ of the parting strip, the side jamb 16 is formed with a removable section 16′ which is provided with ears or flanges 49 and 50 for receiving suitable screws whereby this section may be clamped in place. When it is desired to apply or remove a weight, the portion 36′ of the parting strip is removed, the molding strip 47 is removed and then the section 16′ is removed. Access may then be had to the weight 46.

The frame at the bottom is held together by the gibs 33 as heretofore described and particularly illustrated in Figures 6, 12 and 13. At the top, however, a different structure is provided which consists of an angle fitting or knee 51 arranged at each end of the head jamb on the outside of the side jambs as illustrated particularly in Figures 3, 5, 11 and 14. This fitting is provided with a main or body portion 52 secured to the head jamb by suitable screws extending vertically while suitable horizontally positioned screws extend through the depending flange 53 and into the respective side jambs 15 and 16. A projecting section 54 extends from the body 52, said extension extending into the enlarged portion 40 of the head jamb to which it may be secured if desired. This extension carries a screw 55 (Figure 2) having a flat head 56 with a rounded edge, said head acting as a friction or pinching member for the top rail of the top sash whereby said top rail is crowded over against the parting rail 36 when the top sash is closed, thus providing a tight connection to prevent air or water from passing through and also to prevent any rattling of the sash.

As illustrated particularly in Figures 1, 2 and 4, a housing 45 is provided on each side of the window frame, said housing extending over the head jamb thereof a short distance whereby the weights 46 chain pulleys and other parts associated therewith will be protected against dirt and dust from the wall. Preferably, this casing or housing is merely held in place by the turned over portions or edges 42 and 43 if desired, other fastening means may be used without departing from the spirit of the invention.

In order to provide a support for the window sashes whereby the sashes may be balanced by the weights 46, a certain construction has been provided as shown particularly in Figures 2 and 5. In the head jamb 17 there is provided a pair of apertures 57 and 58 near each end, said apertures accommodating the respective pulley housings 59 and 60, which housings may be passed upwardly through these openings when being mounted in position. It will be noted that each of the housings is provided with an overhanging portion or shoulder 61 adapted to rest on the outer end portion 62 of the head jamb 17 while the end 63 of the housing is clamped to the bar 64 by a suitable screw 65. A thin trimming strip 66 is also held in place by the screw 65, said trimming strip snugly fitting the respective apertures 57 and 58. The bar 64 has one end resting under the shoulder 67 of the enlargement 40 while the opposite end is secured in place by a suitable screw 68. It will be noted from Figure 2 that the respective screws 65 connect the ends 63 of the respective housings 59 and 60 to the bar 64 so that they are properly held in place. A pulley 69 is journaled on a suitable shaft 70 carried by the respective housings 59 and 60, said pulleys accommodating the respective chains 71. One end of the chains 61 is secured in any desired manner to the weight 46 while the opposite end is passed over a hook 72. This hook projects from a plate 73 rigidly secured to the sash by rivets or other means. A pair of upstanding stiffening webs or ears 74 are carried by the plate 73 near the upper end. If desired a pin 75 could be extended through

the ears 74 and through the stiles of the sash. It will be noted that the upper end of the plate 74 is provided with an aperture 76 through which one of the keys or gibs 33 extend. It will be also noted that the upper end of the plate 73 projects through a suitable aperture 77 formed in the top rail 78 of the window sash whereby the gib 33 not only locks the top rail of the window sash to the stile thereof but also connects the plate 73 with the top rail.

As indicated in Figure 3, the pulley housing 60 is bent at an angle so as to give more space for the weights without moving the sash chains further apart. It will also be noted from this figure that a rod 79 is secured to the head jamb and to one of the angle fittings 51 by a suitable screw, said rod 79 supporting a plate 80 of thin sheet metal, which plate loosely depends or hangs in the casing 45 and acts as a spacing or separating member for the weights whereby they will not become entangled.

The upper sash is provided with a top rail 78 as shown in Figures 2 and 9 which is formed with an aperture 77 at each end and also an aperture 77′ at each end, said last mentioned aperture accommodating the respective chains 71. The respective plates 73 project through the apertures 77 for receiving the gibs 33 whereby the head jamb is rigidly secured to the respective stiles of the sash. It will be noted that the head rail 78 is provided with a depending flange 81 co-acting with a molding or retaining strip 82 for clamping the glass in place. It will be noted that the flange 81 is arranged interiorly so that the glass is always placed in position from the interior. The bottom sash is provided with a bottom rail 83 similar to rail 78 in all respects, except that it is slightly beveled at 84 so that it may fit tightly against the wall 20 as well as the sill 18. The bottom rail 83 is secured to the stiles of the bottom sash in a similar manner as described in respect to the top rail of the top sash. Likewise the meeting rails 85 and 86 are secured to their respective stiles in the same manner as the top and bottom rails.

From Figure 2 it will be noted that the meeting rail 85 is provided with an inclined flange 87 interlocking with the grooved member 88 whereby a water-proof and thief-proof structure is provided. A filling or trimming channel iron 89 is arranged in the rail 86 while the channel iron 90 is arranged in the rail 85 which acts as a filling member and also as a molding for holding the glass in place. In connection with the flange 87 it will be noted that the same is adapted to press against the embossed section 91 of the parting rail 36 whereby a tight fit is produced and, consequently, the sashes cannot shake. It will be noted that there is provided an embossed portion 91 (Figure 2) on each of the parting rails at substantially the center thereof while the screw heads 56 are provided for the upper rail near each end thereof. These slight projections or embossed portions cause a pinching action between the respective parts and, consequently, hold them tightly together and against rattling. The bottom rail 83 of the lower sash cannot rattle because it straddles the central raised portion 19 and pinches the same as it presses against the walls 20 and 21.

What I claim is:—

1. A double hung window, comprising a metal frame or casing, an upper sash slidingly mounted in said frame, a lower sash slidingly mounted in said frame, means carried by the frame near the upper end for pinching the top rail of the upper sash when in a closed position said means including a screw having a comparatively flat head with the edge of the head rounded, and a parting strip formed with a pressed out cam near the center for preventing rattling of the lower sash when in a closed position.

2. In a double hung metallic window, a metallic frame comprising a sill, a pair of side jambs connected with said sill, a head jamb overlapping the upper ends of said side jambs, and an angle fitting or knee rigidly secured to the under face of each end of said head jamb and to the upper end of each of said side jambs said fitting extending across said head jamb with a projection extending downwardly into one of said side jambs.

3. In a double hung window, a metallic frame, said frame being provided with a head jamb, a sill and side jambs secured to the head jamb and sill respectively, each of said side jambs being provided with a removable section near the bottom, a parting strip formed with a removable section extending across the first mentioned removable section, and a guiding molding overlapping the first mentioned removable section.

4. In a metallic double hung window, a metallic sash provided with top and bottom rails, each of said rails having apertures therein, a pair of stiles connecting said rails, said stiles at the lower end being provided with tongues projecting through the apertures in the lower rail, chain engaging brackets secured to the stiles near the upper end, said brackets projecting through the apertures in the upper rail, a key or gib extending through each of said brackets near the upper end for clamping the upper rail to the stiles, and a gib or key extending through the projections on the stiles and extending through the apertures of the bottom rail whereby the bottom rail is rigidly clamped to the stiles.

5. In a metallic window of the character

described, a pair of metallic sashes, a metallic frame for accommodating said sashes, said frame at the upper end being formed with elongated apertures, a pulley casing capable of insertion through said apertures formed with a base fitting into the respective apertures and overlapping part of the frame, means for rigidly clamping said base in position, a pulley mounted in the respective casings, a chain passing over the respective pulleys and connected with the respective sashes, and a weight for each chain.

6. In a double hung metallic window, a metallic frame comprising a sill, a pair of side jambs secured at one end to said sill, each of said side jambs having a portion which is substantially square in cross section, a head jamb overlapping the upper ends of said side jambs, an angle fitting positioned on the under face of each end of said head jamb and over the upper end of each of said side jambs, each of said fittings or knees having a right angle projection at one end and an upper face conforming to the lower face of said head jamb, the respective projections extending into the portions square in cross section of the respective side jambs, and screw means extending through said head jamb and the respective side jambs for rigidly securing the parts together.

7. A double hung metallic window, comprising a metallic frame, a metallic upper and a metallic lower sash slidingly mounted in said frame, a parting strip formed with a central pressed out cam engaging the upper part of said lower sash when the sash is closed, said cam forcing said sash laterally and thereby pinching the same against the opposite side of the frame.

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