

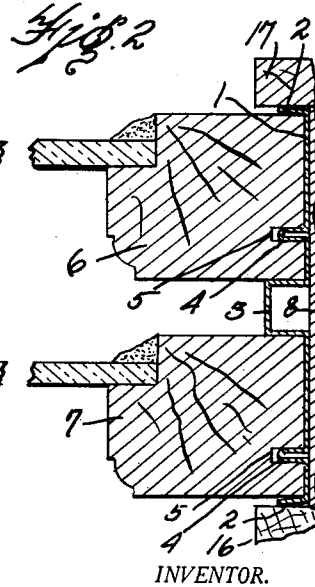
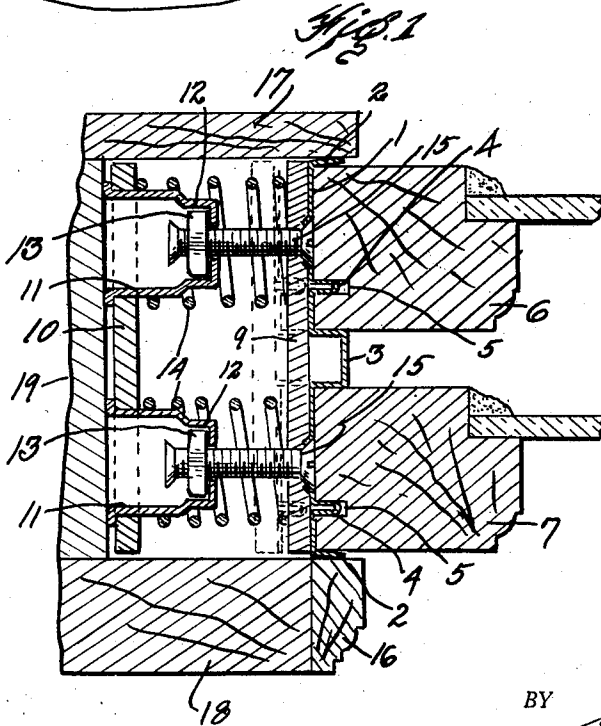
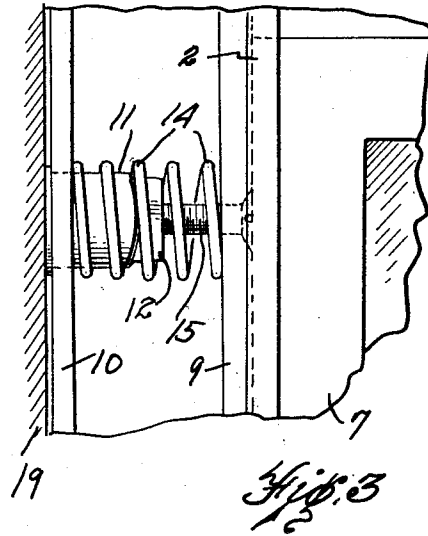
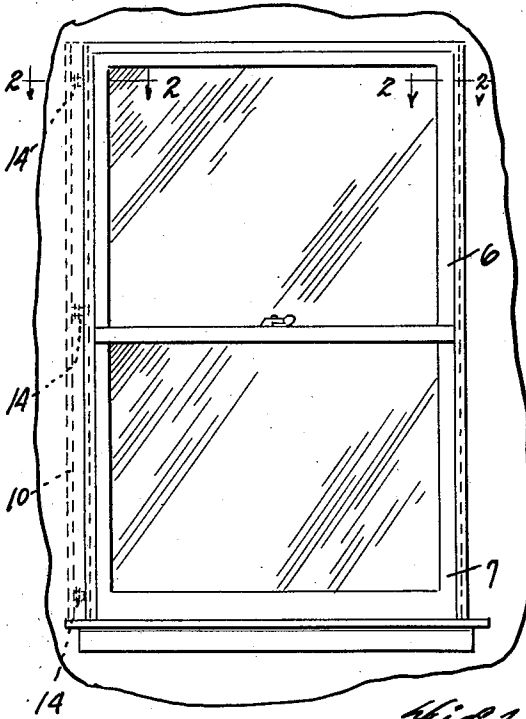
June 21, 1932.

G. H. HOWENSTEIN

1,864,066

WINDOW CONSTRUCTION

Filed Feb. 3, 1930



INVENTOR.

BY *George H. Howenstein*
Emery B. Nisner
ATTORNEY.

UNITED STATES PATENT OFFICE

GEORGE H. HOWENSTEIN, OF DETROIT, MICHIGAN

WINDOW CONSTRUCTION

Application filed February 3, 1930. Serial No. 425,463.

This invention relates to window constructions and the object of the invention is to provide a double hung window in which an adjustable tension is maintained on the sash throughout the path of travel of the sash.

Another object of the invention is to provide a window construction utilizing a sash guide as described and claimed in my copending application entitled "Sash guide," Serial No. 286,436, filed June 18, 1928, and allowed July 17, 1929, and arranged so that the sash guide is spring supported in the window frame.

A further object of the invention is to provide a window construction in which swelling or shrinkage of the wood of the sash is taken up by the spring action of the sash support.

Another object of the invention is to provide a friction device for holding the sash in which the only tool required for adjustment is a screw driver.

Another object of the invention is to provide a double hung window in which the sash cannot bind or rattle and in which the sash are yieldably supported without the use of weight, pulleys or sash cords.

Another object of the invention is to provide a window construction in which the frame members may be utilized as structural units, effecting a saving in building material and greatly simplifying erection of walls containing window openings.

A further object of the invention is to provide a window construction in which the principle employed to sustain the sash in any desired position is that of friction applied with practically equal pressure along the entire edge of the sash.

Another object of the invention is to provide a double hung window of the character described in which the sash may be very easily installed or removed.

These objects and the several novel features of the invention are hereinafter more fully described and claimed and the preferred form of construction by which these objects are obtained is shown in the accompanying drawing in which—

Fig. 1 is an elevation of a double hung window embodying my invention.

Fig. 2 is an enlarged section taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged elevation of the tension device.

This invention is based on the sash guide described and claimed in my above mentioned copending application and comprises a sheet metal guide member 1, shown more particularly at the right of Fig. 2. This guide member is provided with an upturned flange 2 at each longitudinal edge thereof and the guide member is formed to provide a parting stop 3 at the center as shown. It will be noted that the parting stop 3 and the two flanges 2 form channels for the upper and lower sash each side of the parting stop.

A weatherstrip rib 4 is formed in the bottom of each channel and engages in a groove 5 provided therefor in the upper sash 6 and in the lower sash 7. This sash guide shown at the right of Fig. 2 is secured directly to the window frame member 8 by nails or screws as desired.

At the left of Fig. 2 a similar sash guide is supported by a stiffening strip 9 of plywood which supports and stiffens the sash guide. Spaced from the plywood strip 9 is a second plywood strip 10 which is apertured to receive the anchor members 11. These anchor members 11 are each provided with a square recess 12 in the upper end thereof adapted to receive a square nut 13 and prevent it from turning. A coiled spring 14 is positioned about each member 11 and extends between the plywood strips 9 and 10. To tie these plywood strips together a screw 15 is inserted through the sash guide and plywood strip 9 and is threaded into the nut 13 in the anchor member 11 and upset at the end opposite the head to prevent unthreading of the screw from the nut. As will be noted from Fig. 2 the sash guide is countersunk or recessed to receive the heads of the screws 15 so that these screws will not interfere with the sliding movement of the sash.

The tension devices are arranged in pairs, and one pair is placed adjacent the top of the

5 window opening, one pair is positioned adjacent the meeting rails of the upper and lower sash, and one pair is positioned adjacent the window sill as shown in dotted lines at the left of Fig. 1 and additional units may be added according to the weight of the sash.

10 The heads of the screws 15 limit movement of the sash guide toward the right of Fig. 2 while the coiled springs 14 force the plywood strip 9 into engagement with the sash guide and thus hold the sash guide in frictional engagement with the sash 6 and 7. When the sash is in the lower part of the sash guide below the position shown in Fig. 2, the coiled springs 14 force the sash guide to the right until the nut 13 engages the end of the anchor member 11. When the sash is moved to a position adjacent the screws 15, the sash guide and strip 9 are moved slightly to the left of Fig. 2 against the tension of the springs 14 thus moving the nut 13 to the left of said figure away from the end of the anchor member 11, as shown in Fig. 2. This movement of the sash guide and compression of the springs 14 may be increased or diminished by adjustment of the screws 15. This adjustment allows the friction on the sash to be increased or diminished at the will of the operator and allows the friction to be adjusted in accordance with the weight and size of the sash. Also by adjustment of the screws in one sash guide channel the friction on one sash may be varied in relation to the friction on the other sash and the friction at the top, bottom or center of the sash guide may be varied in relation to the friction at the other points. For instance the screws at the bottom of the sash guide may be set so that the friction increases as the sash approach the sill to prevent the sash from being slammed shut and cracking the window.

It will be noted that the pressure is applied to only one side of the sash, but due to its engagement in the opposite sash guide the friction is really applied to both vertical edges of the sash thus causing the flanges 2, parting stops 3 and weatherstrip ribs 4 to hug the sash closely and prevent leakage of air, snow, rain or dust between the sash and sash guide.

As no sash weights, pulleys or sash cords are utilized the window frame members may be utilized as structural units, effecting a saving in structural material and greatly simplifying the erection of walls containing window openings. In solid brick construction this window is especially valuable since it permits the use of a double hung window with a plank frame. With this device, when swelling or shrinkage of the wood sash occurs, it is taken up in the spring action of the left sash guide.

The installation is simple. The sash guide at the right of Fig. 2 is secured to the window frame with screws and the trim stop 16 at the

left of the window is removed. The assembly comprising the sash guide, strips 9 and 10 and connecting bolts and springs is then inserted between the blind stop 17 and ground 18 and against the window frame 19. The screws 15 are then turned up sufficiently to depress the sash guide to the position shown in dotted lines in Fig. 2 so that the parting stop 3, flanges 2 and weatherstrip ribs 4 are depressed below the edges of the sash.

At this time the sash are engaged in the sash guide at the right of Fig. 2 and the opposite edges of the sash are swung to the position shown at the left of Fig. 2. The screws 15 are then released to allow the spring pressed sash guide to properly engage the sash and the trip stop 16 is again secured in place. To remove the sash the operation is reversed.

From the foregoing description it becomes evident that the device is very simple and efficient in operation, will not easily get out of order, is very easily installed and provides a device which accomplishes the objects described.

Having thus fully described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

1. In a window construction, a window frame, a pair of sash slidably mounted in the window frame, a sheet metal sash guide formed to provide a channel for each sash, a stiffening strip mounted behind the sash guide, a second strip in spaced relation with the stiffening strip, a pair of hollow sheet metal anchor members mounted in the second strip and extending toward the stiffening strip, each anchor member being provided with a hole in the end, a screw extending through each sash channel and through the hole of the respective anchor member, a nut on each screw within the anchor member, each anchor member on the interior being formed to prevent rotation of the nut in relation thereto, and a coiled spring about each anchor member and screw and tending to force the stiffening strip and second strip apart.

2. In a window construction, a window frame, a pair of sash slidably mounted in the window frame, a sheet metal sash guide formed to provide a channel for each sash, a stiffening strip mounted behind the sash guide, a second strip in spaced relation with the stiffening strip, a pair of anchor members mounted in the second strip, a screw extending through each sash channel and into the respective anchor member, a nut on each screw within the anchor member, each anchor member on the interior being formed to prevent rotation of the nut while the screw is threaded therethrough and a coiled spring about each anchor member and screw and

tending to force the stiffening strip and second strip apart.

5 3. In a window construction, a window frame, a pair of sash slidably mounted in the window frame, a sash guide formed to provide a channel for each sash, a strip mounted in spaced relation with the sash guide, a pair of hollow sheet metal anchor members mounted in the strip and extending toward the sash
10 guide, a screw rotatably mounted in each channel of the sash guide and extending into the respective anchor members, a nut on each screw within the respective anchor member, the nuts being movable longitudinally in the
15 anchor members and a coiled spring tending to force the sash guide away from the anchor members.

4. In a window construction, a window frame, a pair of sash slidably mounted in the
20 window frame, a sash guide formed to provide a channel for each sash, a pair of hollow sheet metal anchor members mounted in the window frame in spaced relation with the sash guide, a pair of screws rotatably mounted in the sash guide and extending into the
25 anchor members, a nut movable longitudinally of each anchor member and threaded to receive the screws and a coiled spring about each anchor member and tending to force the
30 sash guide away from the anchor members.

In testimony whereof I sign this specification.

GEORGE H. HOWENSTEIN.