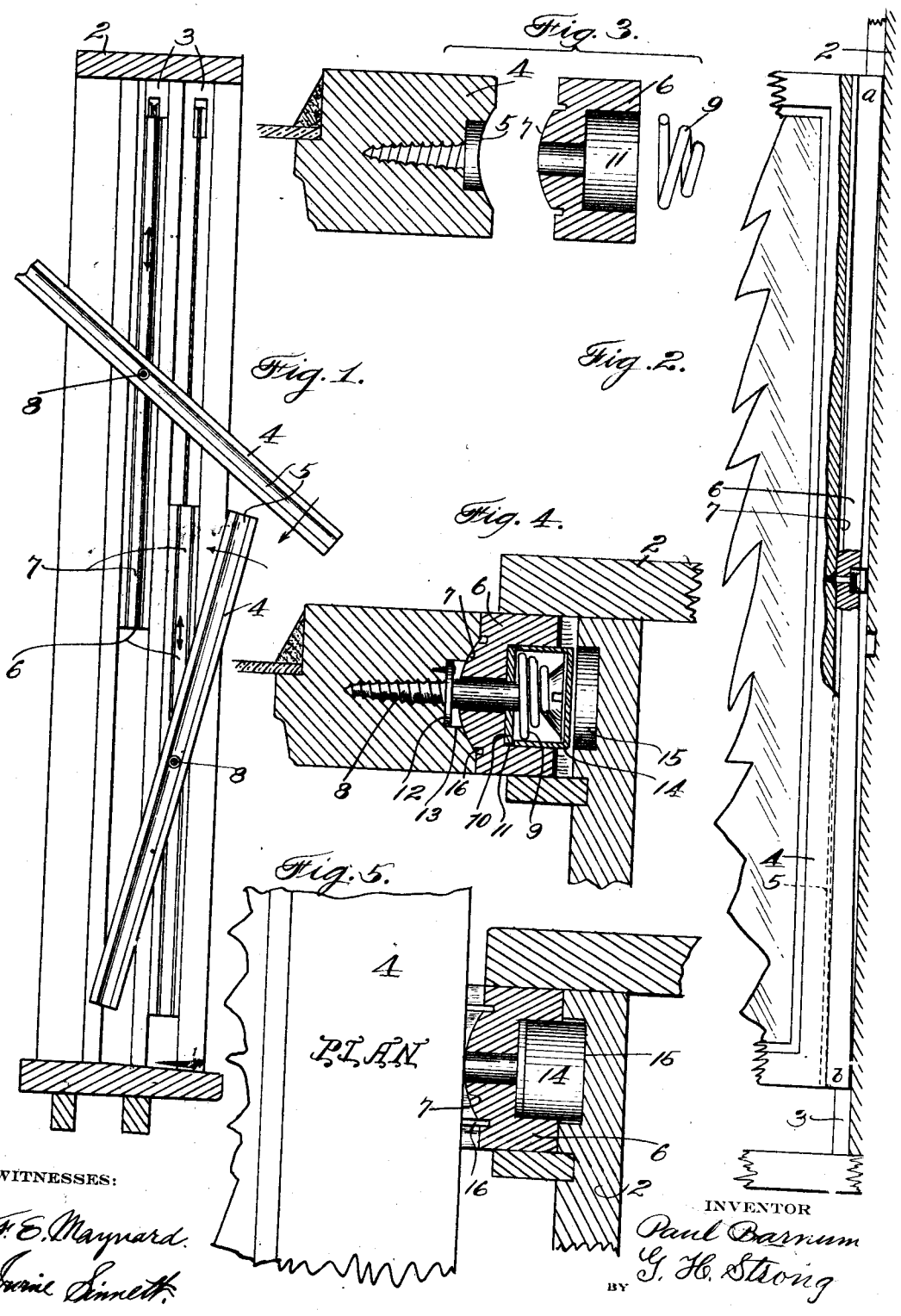
P. BARNUM.

REVERSIBLE WINDOW.

APPLICATION FILED NOV. 17, 1914.

1,176,190.

Patented Mar. 21, 1916.



WITNESSES:

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REVERSIBLE WINDOW.

1,176,190. Specification of Letters Patent. Patented Mar. 21, 1916.

Application filed November 17, 1914. Serial No. 872,564.

To all whom it may concern:

Be it known that I, PAUL BARNUM, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Reversible Windows, of which the following is a specification.

It is one of the objects of this invention to provide a simple, substantial and inexpensive reversible window structure.

A further object is to construct a window of the reversible type which will provide against accidental reversal of the sash while it is being cleaned and thus provide for the safety of persons unaware of its reversible character.

In reversible window sashes as heretofore constructed it is customary, when the sash is a sliding one, to mount the stiles between the shoes arranged to fit in the usual slides in the window frame, the sash being mounted on pivots or trunnions between the shoes so that it may swing freely about its axis or it may be moved vertically in the window frame slides. Heretofore the stile has been held in normal alinement with the shoe by some spring pressed or manual yielding means operating uniformly the full length of the stile, either operated automatically by pressure on the sash or manually by operating a button or latch. This always necessitated a space to receive the yielding means the full length of the sash on either side and usually left the sash loose in the frame when the yielding means was in juxtaposition.

In the present instance I have combined the features of weather-proof, yielding, spring-pressed means with a flexing movement of the shoe, leaving the sash at all times tight in the frame but independent of any coöperation as to the spring pressure between the frame and shoe.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a section in a vertical plane through the window frame, showing the glazed sashes in tilted position. Fig. 2 is a side elevation of the right side of a window partially broken away. Fig. 3 is a detail horizontal section of the sash stile and its shoe before assembly. Fig. 4 is a horizontal detail section of the assembled stile, shoe and pivotal connection, the sash being vertical. Fig. 5 is a view showing the sash tilted, with the shoe locked to the window frame.

2 represents a window frame structure with sash-ways 3.

4—4 indicate upper and lower glazed sashes, the side edges of which are provided with straight, concaved grooves or seats 5 in which is adapted to spring and bear the ribbed surface of a strip 6 termed the "shoe", of which there is one for each side of a sash 4 and which run in the sash-ways 3. The shoe 6 is of uniform thickness from end to end calipering along the ridge of the longitudinal, half-round rib 7 which is formed by running a cutter along the one side of the shoe while this is bowed outwardly toward the path of the cutter so that when again released and in a normal state, the ridge of the rib and the back of the shoe are straight and parallel. The surface on which the rib is formed is dished or concaved from the ends to the center, thus leaving the rib highest at the center and gradually thinning out toward and flush with the ends.

Referring to Fig. 2, when a shoe is placed against a side of a sash 4 and sprung up against it by a pivot screw 8, the rib is forced into the curved seat 5 and the concaved surface straightened out against the edge of the sash, thus bowing the shoe 6, as clearly shown, so that only its extreme ends *a*—*b* bear against the frame stile. The shoe rib 7 forms a wedge, which, when the sash 4 is tilted, rides out of the seat groove 5 and bends out the shoe until its back is straight and parallel with the frame stile, as in Fig. 5.

Under the head of each pivot screw 8 is a spiral conical spring 9 seating against a washer 10 in a pocket 11 in the sash-shoe 6. The screw passes through the shoe and jams in a non-turnable washer 12 in a pocket 13 of the sash stile. The screw compresses the spring 9 which in turn bows the shoe so that its concaved face bears against the adjacent face of the stile and the tapering key part or rib 7 rests in the seat 5. When the sash is tilted about the trunnion screws, the ribs ride out of the seats and flex the shoes outwardly at the center and compress the springs 9.

For the protection of window cleaners and others likely to grasp the window sashes and cause them to tilt suddenly and allow such persons to fall, in each of the pockets 11 is inserted a cap or button 14 which projects beyond the rear face of its shoe. Only when these buttons are in register with sockets 15 at suitable locations in the fixed window frame 2 can the sashes be tilted, as any attempt to swing the sash causes the wedges 7 to expand the shoes and force the buttons 14 against the adjacent surfaces of the window frame. If, under a driving wind, any water should enter the crevice between the shoe and the sash it would collect in channels or ducts 16 along the wedge ribs 7 and drain down.

By jamming the screws in the non-turnable washers 12 they are held against turning under the friction of the spring 9. These springs are preferably conical for the reason that they may be compressed to the thickness of the wire and thus are economical of space. The contiguous surfaces of the sash and shoes are paraffined or otherwise treated for their preservation and also to reduce friction.

When the sash is set in the window frame, the shoes engage the casing at four corners only, forming a much better and freer bearing for raising and lowering than if the shoes touched throughout their length. When the sash is reversed or tilted the shoe flexes at the center against the pressure of the conical spring. The shoe ends have no movement, the shoe merely straightening out and the stile is free to clear the shoe the full length of the sash.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. In a structure of the character described a window frame having sash guides, a sash having a groove formed in one edge thereof, and a shoe pivoted to the grooved edge of the sash and slidably engaged in a sash guide of the window frame, the shoe having a rib decreasing in thickness from its center toward its ends and frictionally interlocking with the sash groove to permit of the sash swinging on its pivot.

2. In a structure of the character described, a window frame having sash guides, a sash having a groove formed in one edge thereof, and a shoe pivoted to the sash and having a rib which decreases in thickness from its center to its ends interlocking in the sash groove, said shoe being bowed toward the sash when interlocked therewith and bearing at its ends against the frame, and means for bowing the shoe.

3. In a structure of the character described, a window frame having sash guides, a sash having a groove formed in one edge thereof, and a shoe pivoted to the sash and having a rib which decreases in thickness from its center to its ends interlocking in the sash groove, said shoe being bowed toward the sash when interlocked therewith and bearing at its ends against the frame, and yieldable means for bowing the shoe.

4. The combination with a window frame and a sash having a groove in its edge, of a shoe pivoted to the side of the sash and bearing in the frame, the shoe having an inwardly curved side with a longitudinal rib, the ridge of which is parallel to the opposite face of the shoe, and yieldable means for springing the shoe to interlock the rib in the sash groove.

5. A structure of the character described comprising a window frame having a guide, a sash, a flexible bowed shoe slidable in the guide of the frame and supporting the sash for relative movement whereby the shoe will be flexed, and a lock carried by the shoe in free relation to the frame and adapted to engage the latter to lock the shoe thereto on flexing the latter by relative movement between the sash and shoe.

6. A structure of the character described comprising a window frame having a guide formed with an opening, a shoe operable in the frame guide and bowed centrally therefrom, a lock carried by the bowed portion of the shoe and adapted to engage in the opening of the frame guide to retain the shoe from movement, and a sash pivoted to the shoe for swinging movement and provided with means whereby the shoe will be flattened on such movement to move the lock in the frame guide opening.

7. The combination with a slidably mounted sash and its guide frame, of means upon which the sash is pivoted, bowed so that its ends bear on the frame and form an intermediate segmental space, and whose opposite central portion bows toward and engages the sash, said means and sash cooperating in such fashion that as the sash is tilted the said means flexes into said space, and a lock carried by the bowed means in the intermediate segmental space adapted to engage with the frame on flexing of said means.

8. In a reversible and slidable window, a window casing with sash-ways, a sash, and means slidable in said ways and upon which said sash is pivoted and by which the sash is prevented from tilting motion except at a predetermined position as to the frame, said means including a flexible part with a concaved face having a projection in close juxtaposition to a surface of said way and which is operative by and upon a tilting action of the sash to abut the surface and so prevent further tilting motion, said frame having a socket for said projection into which it enters when it is desired to allow the tilting of the sash.

9. In a window structure, a sash and its guide frame, a pivot non-turnably secured in said sash, a lateral shoe, mounted upon said pivot running in said frame and resiliently dished toward the pivot and sash, coöperative means on said shoe and the sash whereby when the latter is tilted the shoe is bent back into the guide frame, and a projection on the side of the shoe toward the guide frame, the latter having a pocket, said projection being disengaged from the surface of the guide while the shoe is dished but operative to abut the same and prevent tilting of the window except when the projection is in alinement with the pocket.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

PAUL BARNUM.

Witnesses:
W. W. HEALEY,
M. E. EWING.