Oct. 7, 1930. R. T. AXE 1,777,513

WINDOW FRAME AND SASH CONSTRUCTION (REMOVABLE SASH)

Filed May 25, 1928

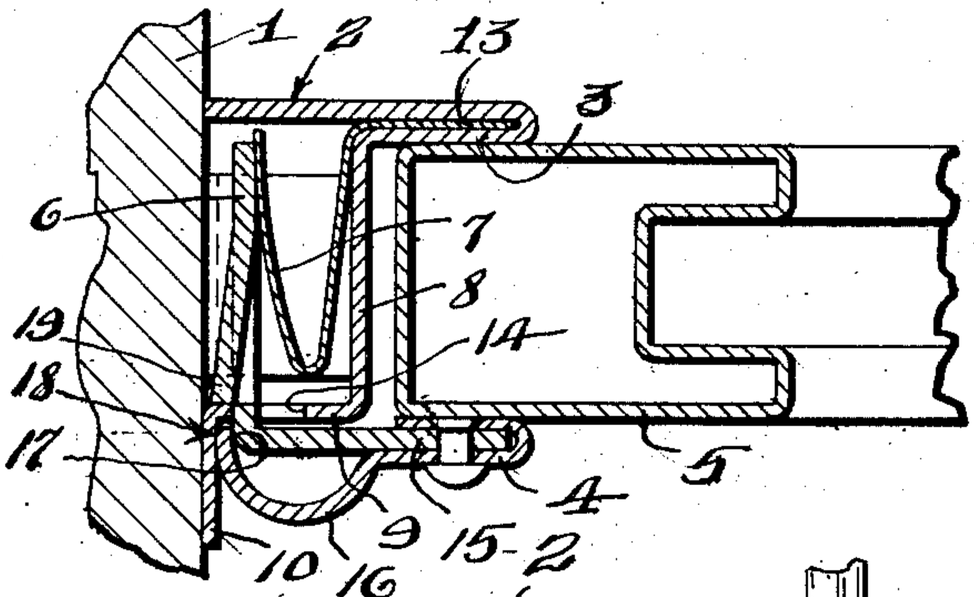

Fig-1-

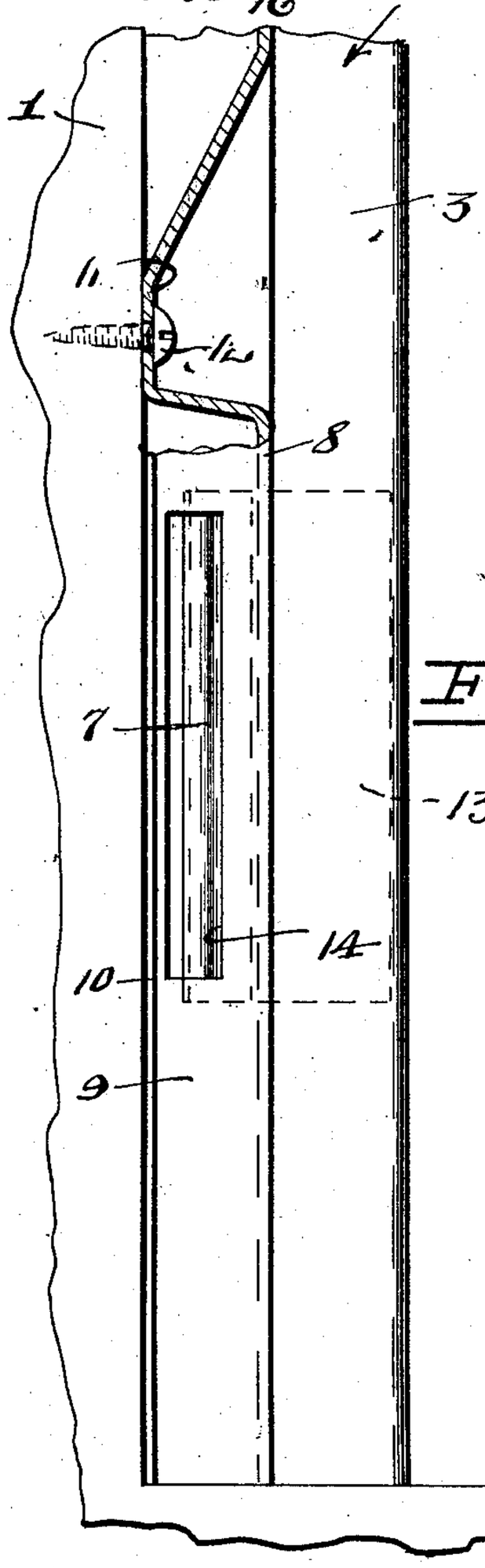

Fig-2-

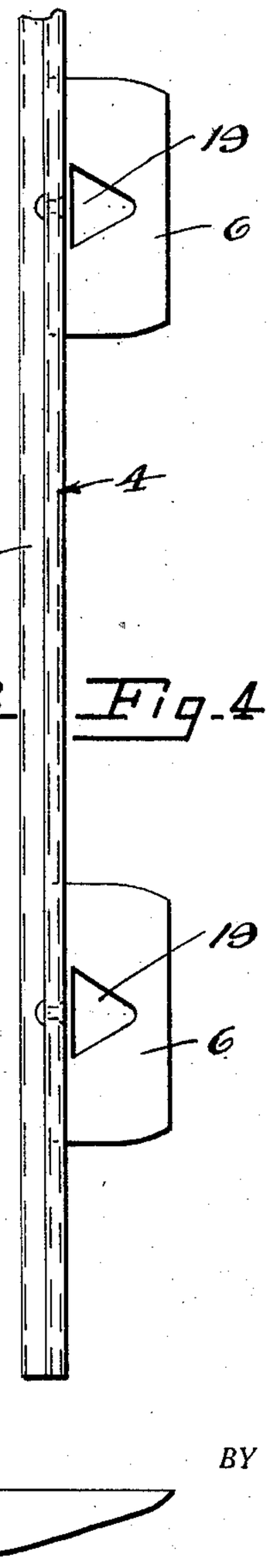

Fig-4-

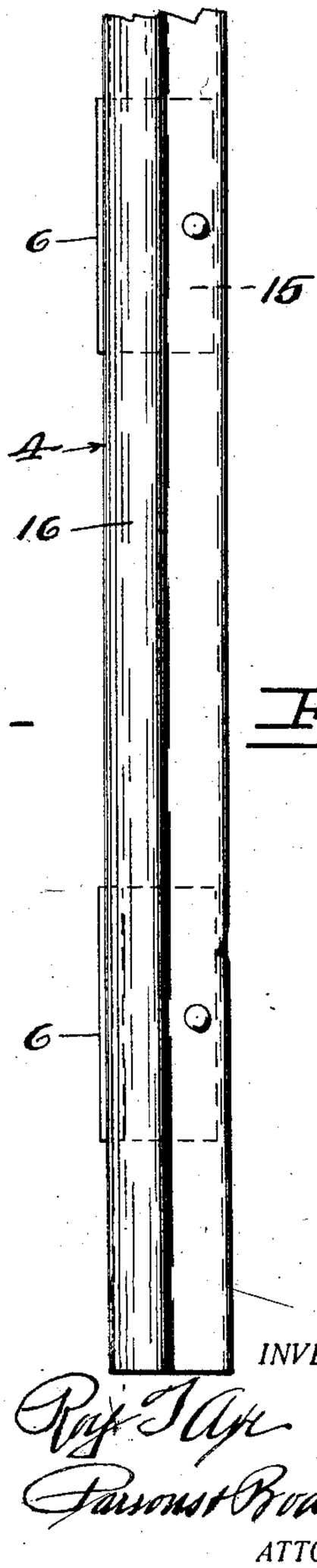

Fig-3-

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UNITED STATES PATENT OFFICE

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WINDOW FRAME AND SASH CONSTRUCTION (REMOVABLE SASH)

Application filed May 25, 1928. Serial No. 280,401.

This invention relates to window frame and sash constructions and has for its object a particularly simple, economical and compact construction by which a sash can be very quickly removed and replaced.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings, in which like characters designate corresponding parts in all the views.

Figure 1 is a fragmentary cross sectional view through a window frame and sash embodying my invention.

Figure 2 is a front elevation of parts seen in Figure 1.

Figure 3 is an elevation of the removable strip.

Figure 4 is a plan view thereof.

This window construction comprises, generally, a frame element and a sash element, one of which is formed with a channel for receiving the other element, one wall of the channel being detachable and means located within the width of the channel for holding the detachable wall in position and for pressing it toward the other element.

In the illustrated embodiment of my invention, the frame is the element formed with the channel for receiving the other element or sash.

1 designates the frame having a guide comprising a body 2 formed with one side wall 3 of the channel.

4 is a strip forming the other side wall of the channel and 5 is the stile of the sash movable in the channel between the walls 3, 4. The removable wall of strip 4 is provided with an angular arm 6 at its base extending in a direction crosswise of the channel, the arm 6 and the strip forming an angle lever fulcrumed near its angle. The means for acting on said lever or the arm 6 to press the strip 4 toward the sash 5 is located within the width of the channel and comprises a spring 7 pressing on the free end of the arm 6. There are usually several of these arms spaced suitable distances apart and a spring 7 corresponding to each arm 6. The arm 6 is also provided with means for interlocking with the body 1 in order to normally hold the strip 4 from displacement, this interlocking means being held in engagement by the spring 7.

The body 2 is preferably formed up of sheet metal to form the wall 3 and the bottom 8 of the channel, and also an outwardly extending flange 9 at the edge of the bottom remote from the flange 3. This flange also has an outwardly extending lip 10 resting on the frame 1. Also, the bottom is formed at suitable intervals with indentations 11 resting on the frame 1 and secured thereto as by screws 12. These indentations are for the purpose of coacting with the bolt of the sash holder.

The body 2 of the guide is also preferably formed of sheet metal and folded upon itself to form the wall 3 so that the wall 3 is double and the spring 7 is a leaf spring with a base portion 13 clamped between the double portion of the wall 3 of the channel. The remaining portion of the spring extends crosswise of the channel beneath the bottom 8 thereof and is V shaped in cross section with its free end pressing on the arm 6. The apex of the V is toward the flange 9 in line with openings or slots 14 through which the arm 6 extends so that the arm 6 will engage the spring and tension it as the arms are passed through the openings 14 into the space beneath the bottom 8 when the strip 4 is being placed in position.

The strip 4 is also formed up of sheet metal with its inner marginal portion bent upon itself to form a double wall and the arm 6 is one flange of an angle piece, the other flange 15 of which extends between the double walls of the part 4.

The strip 4 is also formed with a lengthwise corrugation 16 at its base and the angle formed by the arm 6 and flange 15 rests at 17 on the inner face of the corrugation. The outer margin of this corrugation fulcrums at 18 on the outwardly extending lip 10. Each arm 6 is formed with means for ratcheting into engagement with the wall of the slot 14 and as here shown, each arm is formed with a boss 19 having an inclined face and an abrupt face, the inclined face engaging the wall of the slot when the arm 6 is being

thrusted through the slot 14 causing the arm to move into engagement with a snap action.

The sash 5 may be of any suitable form, size and construction and the stiles thereof are usually formed up of sheet metal.

The sash and guide construction is of minimum width and the spring means, which presses the removable strip against the sash, is located within the width of the guide or channel.

To remove the sash, the strip 4 is detached by moving it with a prying tool inwardly against the tension of the springs until the bosses 19 clear the walls of the slots 14 and then pulling tightly laterally on the strips to withdraw the arms 6 out of the slots. To replace the strip 4, the arms 6 are alined with the slots 14 and the strip pushed until the bosses 19 snap into engagement with the walls of the slots 14.

What I claim is:

1. A window construction comprising a frame element, a sash element, one of said elements being formed with a channel for receiving the other element and comprising a body formed with one side wall of the channel and a removable strip constituting the other side wall of the channel, the strip having an angular portion extending in a direction crosswise of the channel and means located within the width of the channel for pressing the strip toward said other element.

2. A window construction comprising a frame element, a sash element, one of said elements being formed with a channel for receiving the other element comprising a body formed with one side wall and the bottom of the channel and a removable strip forming the other side wall of the channel, the strip having an angular arm at its base extending under the bottom of the channel and forming with the strip an angle lever fulcrumed near its angle and spring means within the width of the channel and interposed between the bottom wall of the channel and said arm to move the lever on its fulcrum and press the removable strip toward said other element.

3. A window construction comprising a frame element, a sash element, one of said elements being formed with a channel for receiving the other element comprising a body formed with one side wall and the bottom of the channel and a removable strip forming the other wall of the channel, the strip having an angular arm at its base extending under the bottom of the channel and forming with the strip an angle lever fulcrumed near its angle and spring means within the width of the channel and interposed between the bottom wall of the channel and said arm to move the lever on its fulcrum and press the removable strip toward said other element, said arm having means for interlocking with the body and held in interlocking engagement by the spring.

4. A window construction comprising a frame element, a sash element, one of said elements being formed with a channel for receiving the other element and comprising a body formed with one side wall of the channel and a removable strip forming the other side wall of the channel, the removable strip having an angular arm at its base extending in a direction crosswise of the channel and together with the strip forming an angle lever fulcrumed near its angle, and means associated with the element formed with the channel and located within the width of the channel and coacting with said arm to move the lever on its fulcrum to press the strip toward said other element.

5. A window construction comprising a frame element, a sash element, one of said elements being formed with a channel for receiving the other element and comprising a body formed with one side wall of the channel and a removable strip having an angular arm at its base extending in a direction crosswise of the channel and together with the strip forming an angle lever fulcrumed near its angle, and means associated with the element formed with the channel and located within the width of the channel and coacting with said arm to move the lever on its fulcrum to press the strip toward said other element, said arm and the body of the channel being formed with means for interlocking by the inward movement of the strip moving the arm in a direction crosswise of the channel and the spring means acting on said arm to move said interlocking means into engagement with a snap action.

6. A window construction comprising a frame element, and a sash element, one of said elements being formed with a channel for receiving the other element and comprising a body formed with one of the side walls of the channel and a removable strip forming the other side wall of the channel, said strip having a marginal portion folded upon itself to form an inwardly facing groove and an angle piece having one arm thereof extending into the groove and the other arm extending in a direction crosswise of the channel and forming with the strip an angle lever fulcrumed near its angle, and means acting on the arm for moving the lever on its fulcrum and thereby pressing the strip toward said other element.

7. A window construction comprising a frame element and a sash element, one of said elements being formed with a channel for receiving the other element and comprising a body formed of sheet metal with one of the side walls of the channel and the bottom of the channel, the body being shaped to form said side wall of the channel double and a removable strip forming the other side wall

of the channel and having an angular arm at its base extending inwardly crosswise of the channel beneath the bottom and together with the strip forming an angle lever fulcrumed near its angle, spring means for acting on said arm comprising a leaf spring having its base portion held between the portions of the double wall of the channel and its free portion extending in a direction crosswise of the channel beneath the bottom and acting on said arm.

8. A window construction comprising a frame element and a sash element, one of said elements being formed with a channel for receiving the other element and comprising a body formed of sheet metal with one of the side walls of the channel and the bottom of the channel, the body being shaped to form said side wall of the channel double and a removable strip forming the other side wall of the channel and having an angular arm at its base extending inwardly crosswise of the channel beneath the bottom and together with the strip forming an angle lever fulcrumed near its angle, spring means for acting on said arm comprising a leaf spring having its base portion held between the portions of the double wall of the channel and its free portion extending in a direction crosswise of the channel beneath the bottom and acting on said arm, the free portion being V shaped in cross section.

9. A window construction comprising a frame element and a sash element, one of said elements being formed with a channel for receiving the other element and comprising a body formed with one of the side walls of the channel and a removable strip forming the other side wall of the channel, said strip having an angular arm at its base extending in a direction crosswise of the channel, the strip and the arm forming an angle lever fulcrumed at its angle, the body also having associated therewith a flange arranged adjacent said strip and formed with an opening through which the arm extends and said arm having means for interlocking with the wall of said opening with a ratcheting action and spring means associated with the body and acting on said arm.

10. A window construction comprising a frame element and a sash element, one of said elements being formed with a channel for receiving the other element and comprising a body formed with one of the side walls of the channel and a removable strip forming the other side wall of the channel, said strip having an angular arm at its base extending in a direction crosswise of the channel, the body also having associated therewith a flange arranged adjacent said strip and formed with an opening through which the arm extends and said arm having means for interlocking with the wall of said opening with a ratcheting action and spring means associated with the body and acting on said arm, said spring means comprising an inclined portion arranged opposite said opening in order to be engaged by the end of the arm when the arm is passed through the opening.

11. A window construction comprising a frame element and a sash element, one of said elements being formed with a channel for receiving the other element and comprising a body formed with one of the side walls of the channel and the bottom of the channel and an angular flange at the bottom of the channel formed with an opening, the portion forming one of the walls of the channel being shaped to form a double wall, a removable strip forming the other wall of the channel and having an angular arm at its base extending through said opening and having means for coacting with the wall of the opening with a ratcheting action, a spring having its base portion held between the double portions of the wall of the channel and a leaf portion extending crosswise of the channel beneath the bottom thereof and arranged to press on said arm.

12. In a window construction comprising a frame element, a sash element, one of said elements being formed with a channel for receiving the other element, one wall of the channel being detachable and means located within the width of the channel and acting against the bottom of the channel and the detachable wall for normally holding the wall against the other element.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and in the State of New York, this 23rd day of May, 1928.

ROY T. AXE.