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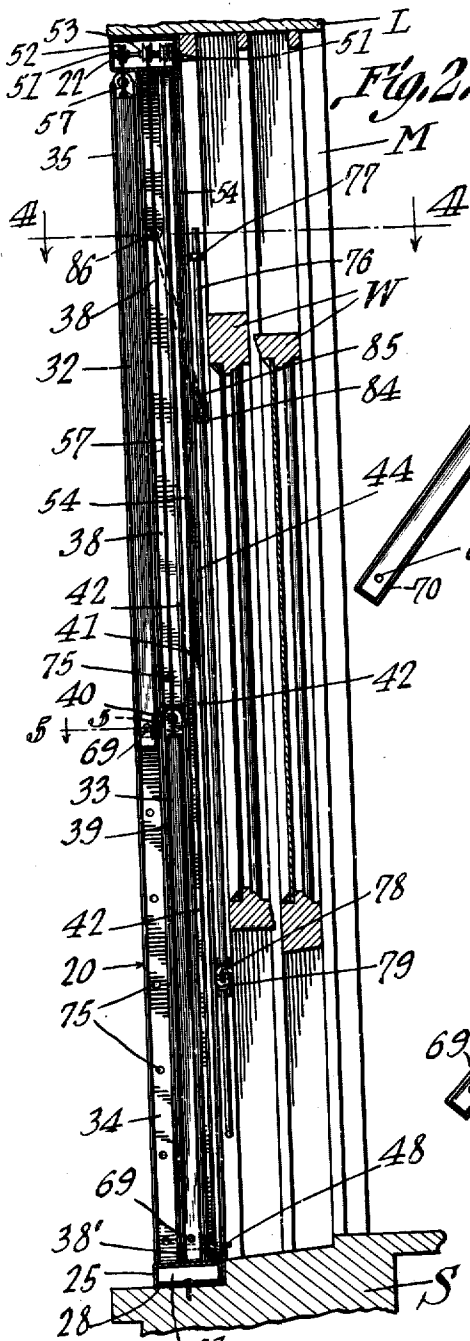


Fig. 2.

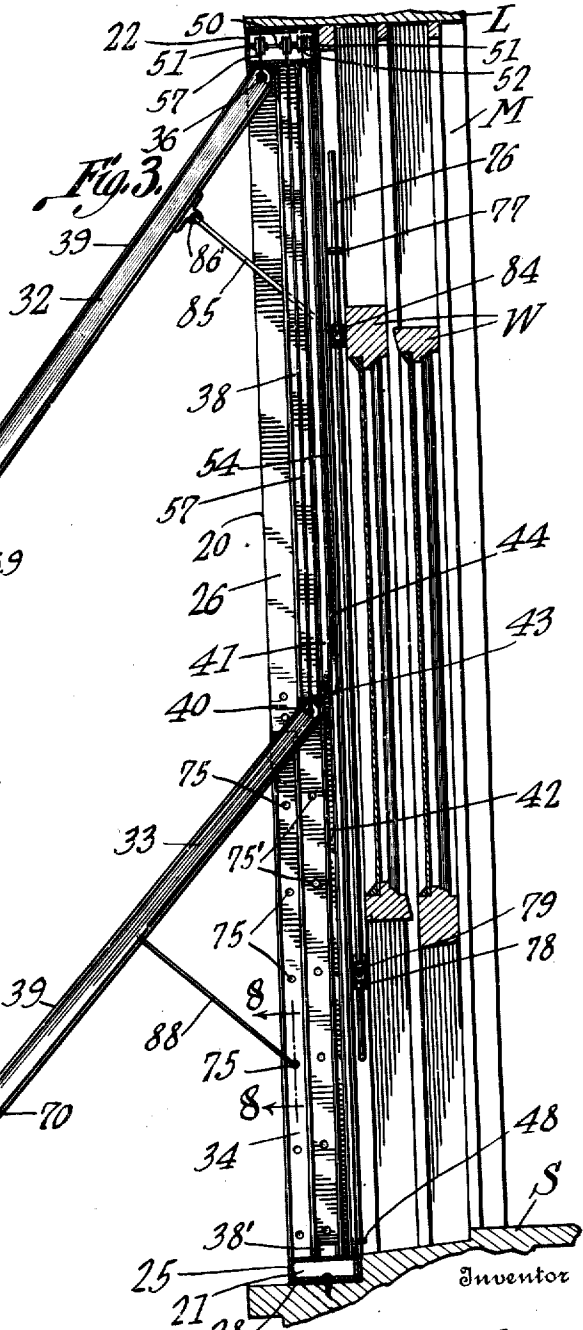


Fig. 3.

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Patented Apr. 5, 1921.

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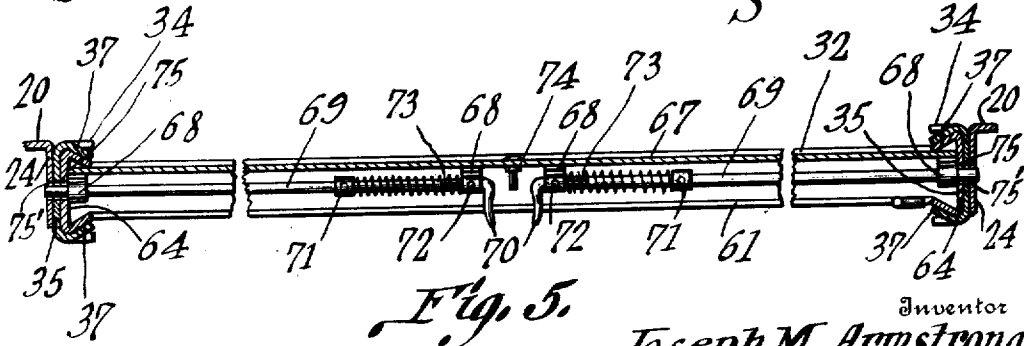
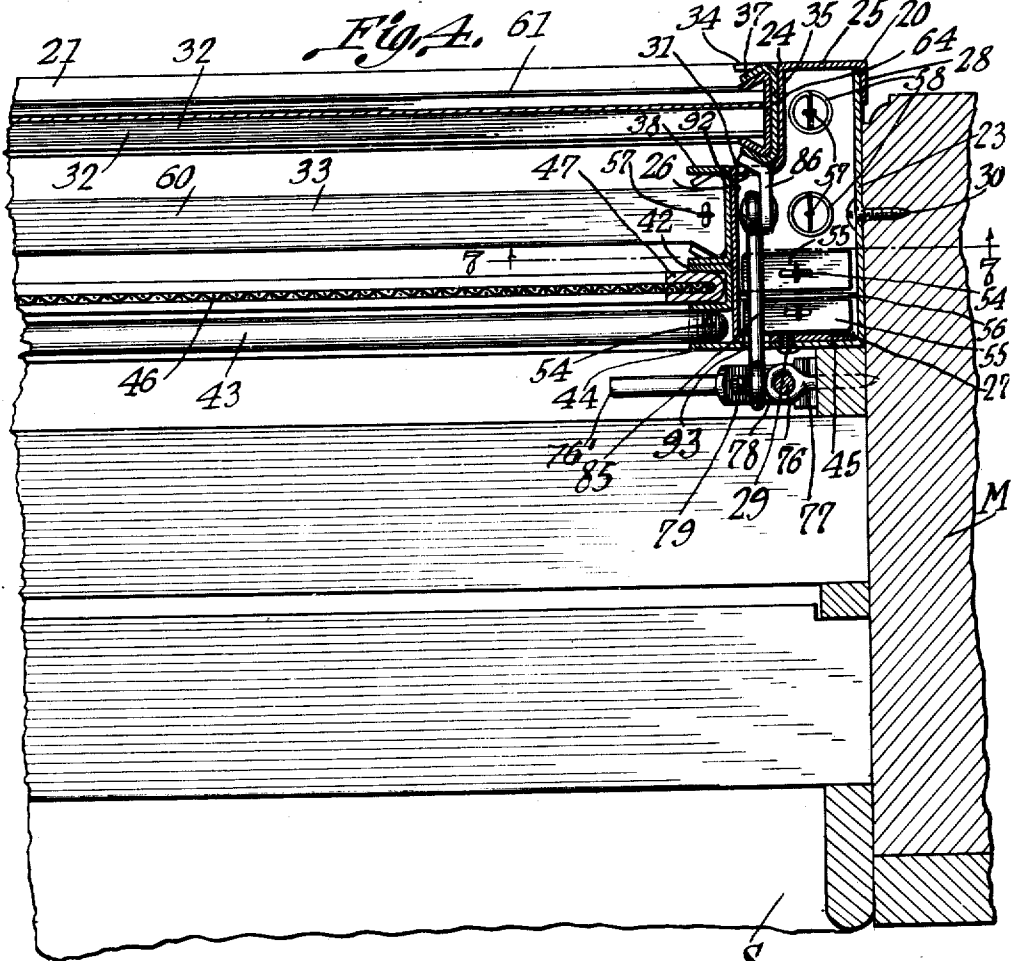


Fig. 5.

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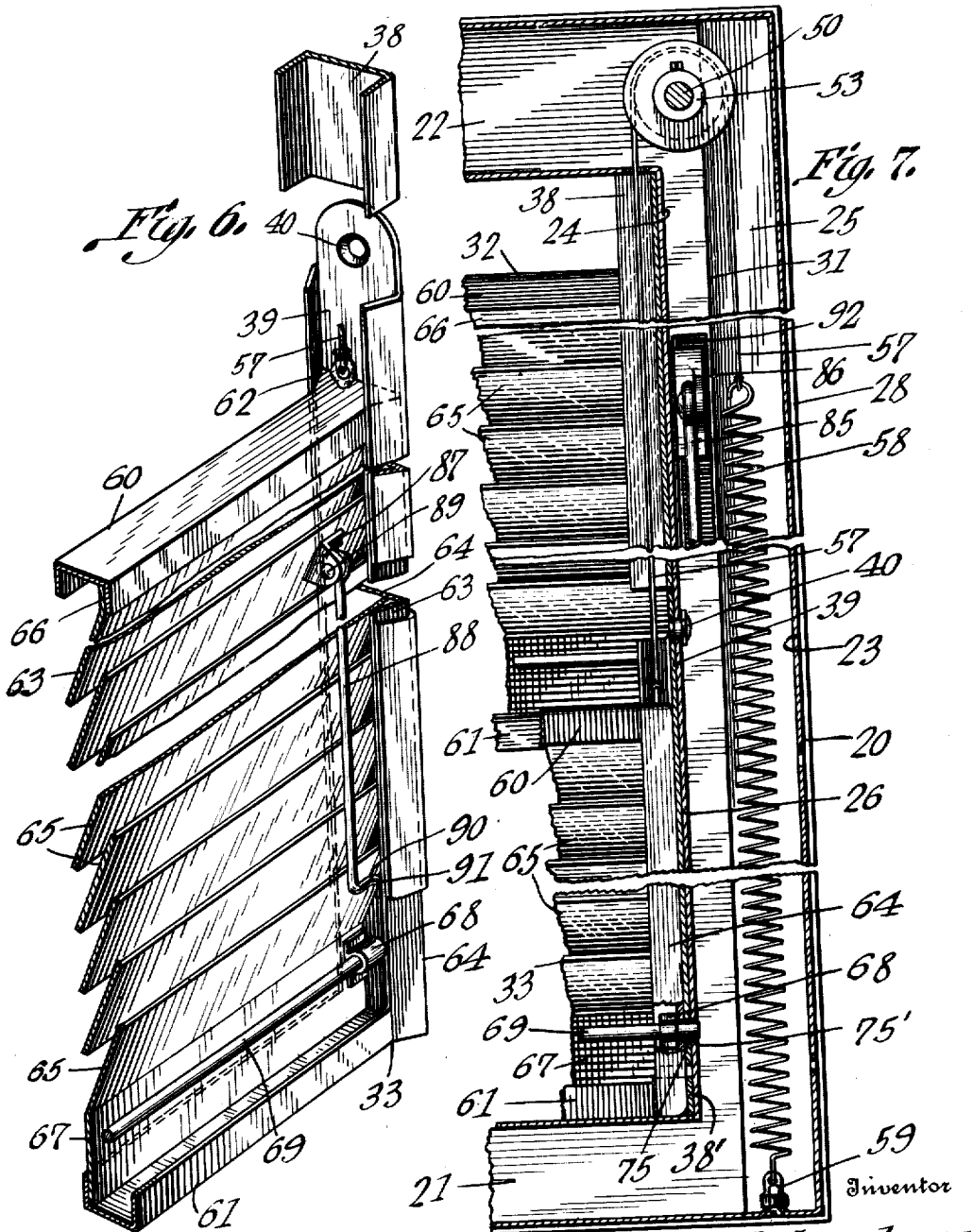
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J. M. ARMSTRONG.
SHUTTER FRAME.
APPLICATION FILED, NOV. 1, 1919.

Patented Apr. 5, 1921.
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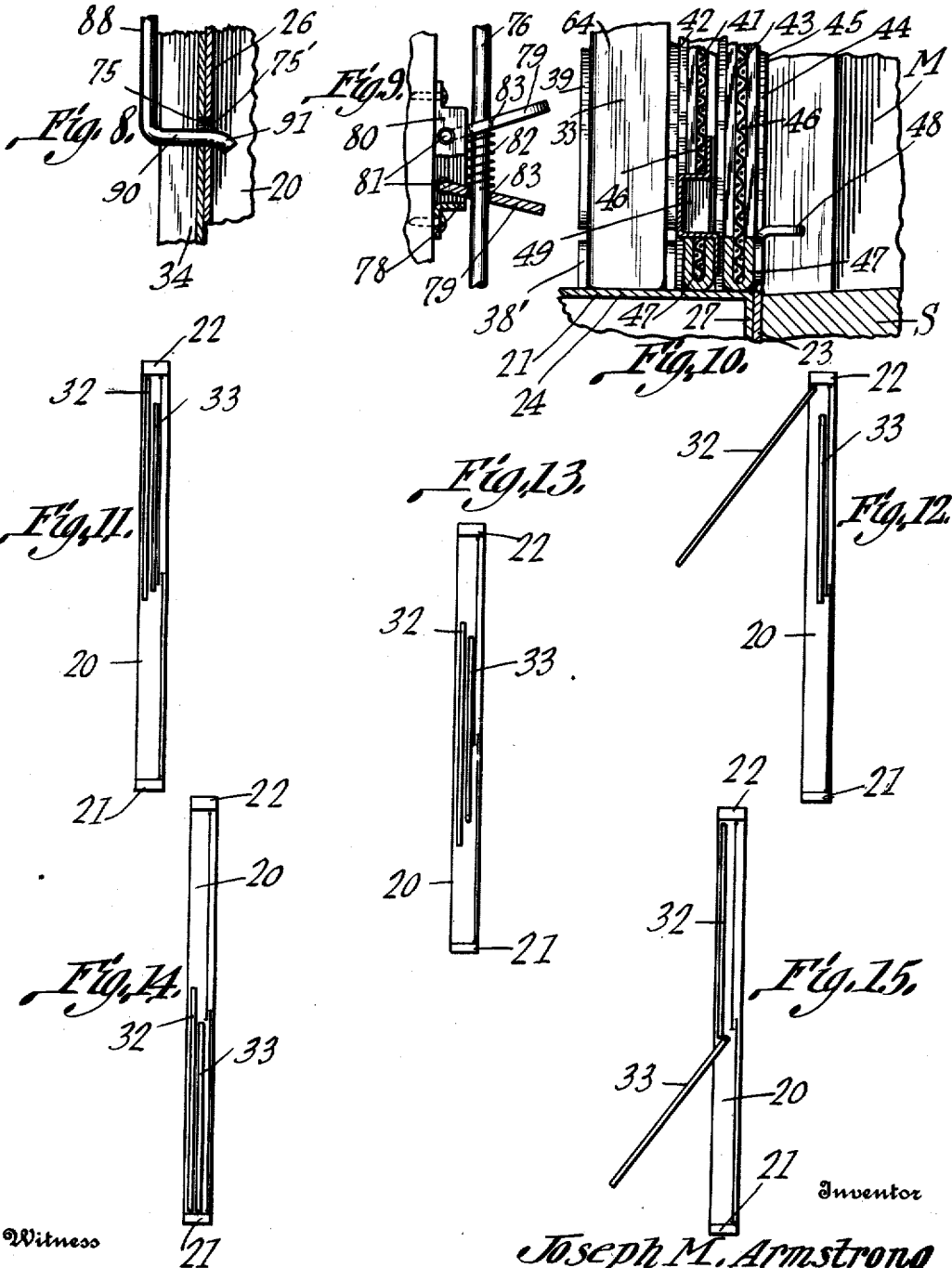
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UNITED STATES PATENT OFFICE.

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SHUTTER-FRAME.

1,373,584.

Specification of Letters Patent.

Patented Apr. 5, 1921.

Application filed November 1, 1919. Serial No. 335,200.

To all whom it may concern:

Be it known that I, JOSEPH M. ARMSTRONG, a citizen of the United States, residing at Alexandria, in the county of Alexandria and State of Virginia, have invented a new and useful Shutter-Frame, of which the following is a specification.

This invention relates to an auxiliary frame adapted for use in connection with the conventional window structure, and has for an object the provision of means for shading and screening the room in which the window is located.

Another object of this invention is to provide an auxiliary window frame comprising universally adjustable shutters or blinds, and means for rigidly locking the blinds or shutters to the frame, thereby providing a secure closure for the said window.

A further object of this invention is to provide an auxiliary window frame embodying separate sliding and pivoted blinds or shutters and means for sliding the said shutters longitudinally along the frame, as well as means for swinging each shutter about a pivot or bearing and for locking them in predetermined positions with respect to the frame and to each other.

An additional object of this invention is to provide a window shutter and screen of generally improved construction, whereby the device will be simple, durable and inexpensive in construction, as well as convenient, practical, servicable and efficient in its use.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts to be hereinafter more fully described and claimed, it being understood that changes in the precise embodiment of the invention may be made without departing from the spirit or scope of the invention.

The invention has been illustrated in its preferred embodiments in the accompanying drawings, wherein:—

Figure 1 is a front view of the auxiliary window frame showing the shutters or blinds in their closed or locked position;

Fig. 2 is a transverse vertical sectional view taken through the auxiliary window frame and the conventional window frame, and showing the shutters or blinds and

screens in elevation, the said shutters being in their locked positions;

Fig. 3 is a similar view, but showing the shutters or blinds in their open positions, in which the said shutters are shown as awnings;

Fig. 4 is a fragmental horizontal section taken on a line 4—4 of Fig. 2;

Fig. 5 is a horizontal sectional view taken on a line 5—5 of Fig. 2, and disclosing the locking device for each shutter;

Fig. 6 is a fragmental perspective view of the shutter and its movable and stationary guiding members;

Fig. 7 is a fragmental vertical sectional view taken on a line 7—7 of Fig. 4;

Fig. 8 is a fragmental vertical sectional view taken on the line 8—8 of Fig. 3;

Fig. 9 is a detailed view of a locking means for the shutter adjusting rod;

Fig. 10 is a fragmental vertical sectional view taken through the auxiliary frame and the conventional window frame with both screen members in their lowermost positions and showing the handle or manipulating means for said screens; and

Figs. 11, 12, 13, 14 and 15 are diagrammatic views of the auxiliary window frame illustrating different positions of the shutters.

Referring to the drawings, there is shown the conventional window frame comprising the sill S, lintel L, side members or stiles M, and window sashes W.

The invention includes an auxiliary window frame which is preferably formed of sheet metal and has side members or stiles 20, a sill 21 and a top rail or lintel 22. This frame is a composite structure including an outer member 23, which is L-shaped in cross section and extends entirely around the frame, and this member coöperates with an inner member 24, which is of rectangular cross section and includes a front wall 25, inner wall 26 and rear wall or flange 27. A relatively short flange 28 extends perpendicularly from the wall 25 and overlaps the outer edge of the L-shaped member 23, while the rear wall 27 is secured to the rear flange of the L-shaped member 23 by screws or other suitable securing devices 29. The L-shaped member 23 is secured to the side members or stiles M by screws or other securing devices 30, thus rigidly securing the

entire auxiliary frame to the conventional window frame. The vertical portions or stiles of the inner wall 26, are offset at 31 to accommodate guide members for independently adjustable shutters or blinds.

Two shutters are provided which are arranged to form an outer shutter 32 and an inner shutter 33, and each shutter is preferably formed of sheet metal and has movable and stationary guide members. The stationary guide members for the outer shutter 32 are indicated by the numeral 34 and are positioned at the lower part of the auxiliary frame. These guide members 34 are preferably formed of U-shaped or channeled metal, and are rigidly secured to the outer offset portions of the walls 26 formed on the inner member of the stiles or side members of the auxiliary frame. Movable guide members are adapted to cooperate with members 34 and these guide members 35 are pivoted at their upper ends, to the outer offset portions of the walls 26, as indicated at 36.

These movable guide members are U-shaped in cross section, and have their opposed side flanges 37 inclined toward each other for the sliding reception of the side members of the outer shutter 32, which will be hereinafter described. The guide members for the inner shutter 33 are oppositely positioned, in that the stationary U-shaped or channel guide 38 is secured at the upper portion of the frame while the lower guide member 39 is pivoted to the lower portion of the auxiliary frame, as shown at 40. This lower member 39 has its side flanges inclined toward each other for the reception of the side members of the inner shutter; and relatively short stationary guide or locking members 38' are positioned at the lower ends of the stiles of the auxiliary frame and these guides are in vertical alignment with the guide members 38 and 39 for the inner shutter 33.

Separate screens are provided for cooperation with the auxiliary frame, and a guide way is provided for the outer screen 41 by securing vertically disposed channel members 42 to the stiles of the inner wall 26, and the inner screen frame 43 is guided between the inner flanges of the channel members 42 and lateral extensions 44 projecting from the vertical or stile portions 45 of the L-shaped outer member 23. Each screen is formed by clamping the usual screen or foraminous material 46 between the opposed flanges of a rectangular frame, which is U-shaped in cross section as indicated at 47. The inner screen 43 has a thumb piece or manipulating member 48 secured to the bottom rail of its U-shaped frame, and the outer screen 41 has a portion of its foraminous material 46 cut away for the reception of a finger receiving socket 49, which is secured to the lower rail of this

screen member and to the foraminous material. Thus it is obvious that these screens can be operated in the restricted space provided therefor without interfering with each other.

In order to support the screen and shutter members in operable relation with the auxiliary frame, there are provided spaced transversely disposed shafts or bearing members 50, which are secured to the upper rail of the inner member of the auxiliary frame, as indicated at 51. These shafts 50 have spaced pulleys or sheaves 52 rotatably mounted thereon for independent rotation with respect to each other, and these sheaves are held against longitudinal movement along the shafts 50 by locking collars 53. Cables or other flexible elements 54 are secured to the upper rails of the outer and inner screen frames 41 and 43, and extend upwardly around the two innermost pulleys 52 on each shaft 50, and then lead downwardly to supporting weights 55. These weights slide longitudinally within the stiles of the auxiliary frame; and transversely disposed partitions 56 are secured within these stiles and form guideways for the weights 55.

The shutters 32 and 33 have cables or other flexible elements 57 secured to their upper rails, and these cables extend upwardly around the two outer sheaves 52 of each shaft 50 and then downwardly to the upper terminals of helical extension springs 58, which springs are, in turn, secured to the lower rail of the auxiliary frame, as indicated at 59. This arrangement supports the screens and shutters against downward movement, and the springs 58 are employed when expediency necessitates the employment of an auxiliary frame of restricted dimensions; although it is to be understood that this particular arrangement is not mandatory, but weights may be employed exclusively under conditions permitting the employment of a frame of liberal dimensions.

Each shutter is formed of a rectangular frame comprising an upper rail 60 and a lower rail 61, which rails are formed of channeled or U-shaped material. These rails flare at their opposed terminals, as indicated at 62, and coincide with the inclined flanges 63 of U-shaped side members or stiles 64. A plurality of obliquely disposed cross slats 65 is provided and they have their opposed terminals secured within the U-shaped side members 64. The uppermost slat 65 has a vertically disposed flange 66 formed thereon which is rigidly secured to one of the depending flanges of the top rail 60, thereby reinforcing the structure; and the lowermost slat 65 has an apron or flange 67 extending vertically therefrom and is secured to the outer flange of the bottom rail 61. Spaced bearing members 68 are rigidly secured to

the apron 67, and these bearings 68 have opposed latch or lock bars 69 slidably mounted therein. Manipulating fingers 70 are formed at the inner or adjacent terminals of the rods 69, and a collar 71 is adjustably secured to each rod 69, while an extension spring surrounds each rod 69 and is positioned between the innermost bearing 68 and the adjustable collar 71 to normally project the outer end of each rod 69 beyond the outer faces of the stiles 64.

Each rod 69 is held against rotation with respect to the bearing 68 by means of a pin or key 72, which engages a spline or key way 73, and a stop member or pin 74 is secured to the apron 67 and is positioned intermediate the inner terminals of the latch bars 69. Spaced apertures 75 and 75' are formed in the guide members for the inner and outer shutters and in the stiles of the frame.

Therefore each shutter may be locked in any predetermined position in its respective guide members by moving each shutter so that the latch bars 69 register with selected apertures 75 and 75'.

An adjusting means is provided for swinging the outer shutter 32 and its movable guide members 35 about their pivots 36, and includes a vertically disposed rod 76 having a manipulating handle or finger 76' and this rod is mounted for sliding movement in bearings 77 and 78. The bearing 78 is formed to provide a locking member for the rod, and incorporates spaced manipulating fingers 79 pivotally mounted on a frame member 80, as indicated at 81, and an extension spring 82 surrounds the rod 76 and is disposed between the manipulating or locking fingers 79 to normally hold these fingers in spaced relation, thereby causing the bearing apertures 83 of the fingers 79 to grip the bar 76 and hold it against longitudinal movement. A collar 84 is adjustably secured to the rod 76 and a link 85 is pivotally secured to an ear 86 carried by one of the guide members 35 and to said collar.

The inner shutter 33 has an ear or bearing member 87 secured to one of its cross slats 65, and a link or supporting rod 88 is loosely and pivotally secured to the ear 87, as is indicated at 89. The outer or free end of the link 88 has a laterally extending perpendicular finger 90 which is slightly curved at its outer end, as indicated at 91. This finger 90 is adapted to engage the apertures 75 and 75' formed in the guide members and stiles of the auxiliary frame, thereby supporting the inner shutter 33 in its awning-forming position, and the curved terminal 91 prevents disengagement of the finger 90 from the selected apertures 75 or 75'. Since the inner member 26 of the auxiliary frame is offset, the outer shutter 32 is somewhat wider than the inner shutter 33, thus permit-

ting the inner shutter and its movable guides 39 to swing outwardly about their pivots 40 without engaging the guide members 34 for the outer shutter 32. This arrangement also permits the connecting link to operate through longitudinal slots 92 and 93, the slots 92 being formed in the offset portion 31 of the inner frame 26 and the slots 93 are formed in the rear walls or flanges of the inner and outer members of the stiles of the auxiliary frame, thus allowing free movement of the link 85 through the frame to operate the outer shutter without interfering with the inner shutter or screens.

In operation, the outer shutter may be moved vertically to any desired position and there locked, by simply allowing the latch bars 69 to snap into engagement with selected apertures 75 and 75', and the inner shutter may be likewise adjusted without interfering with the operation of the outer shutter. If it is desired to form an awning of the outer shutter 32, this may be readily done by simply moving this shutter to its uppermost position and locking it to its movable guides 35. Then by gripping the fingers 79 and raising the rod 76, the shutter may be moved about its pivots 36 to any desired position and there secured by simply releasing the fingers 79. When it is desired to employ the inner shutter 33 as an awning, it is moved downwardly into its movable or pivoted guide members 39, but free from engagement with the relatively short guide-way 38'. Now the rod 88 is grasped and the shutter 33 moved outwardly about its pivots 40 to a desired position, and then the finger 90 is positioned within the selected apertures 75 of the outer stationary guide member 34 or the apertures 75' formed in the stile of the inner member of the auxiliary frame. The weight of the shutter forces the finger inwardly and downwardly, thereby causing the curved and offset portion 91 of the finger 90 to prevent disengagement of the rod 88. Thus it is obvious that these shutters may be independently adjusted, and by referring to Figs. 11, 12, 13, 14 and 15, it will be seen that the shutters may be so manipulated as to distribute the light in any desired manner within a room or inclosure.

The shutters may be moved to a locking or closure position, as disclosed in Fig. 2, and in this position the outer shutter 32 is moved a short distance downwardly so that its lower terminal is positioned in the upper portions of the stationary guide members 34, in which position the latch bars 69 engage certain of the apertures 75 and 75' and lock the shutter 32 to the frame. Now the inner shutter 33 is moved to its lowermost position and locked, in which position the lower terminal of this shutter is positioned within the relatively short stationary guide or locking members 38'. It is obvious that this arrange-

ment presents a burglar-proof structure, since it is necessary, in order to effect an entrance through the window, to not only shear or break the terminals of the latch bar 69, but it is necessary to remove or break the outer flanges of the stationary guide member 34 and the locking member 38' before these shutters can be moved outwardly about their pivots.

10 Having thus described my invention, what is claimed is:

1. A device of the class described including a frame, a stationary guide member carried by the frame, a movable guide member pivoted to the frame and cooperating with the stationary guide member to form a continuous guideway, a shutter mounted to slide along the said guideway, means for locking the shutter in selected positions along the guideway and for locking the shutter to the pivoted guide member to permit the pivoted guide member and shutter to move independently of the stationary guide member, means for moving the pivoted guide member and shutter about the pivot of the pivoted guide member, and means for locking the pivoted guide member in selected positions in its path of movement about its pivot.

2. The combination with a window frame, of a composite auxiliary frame having shutters mounted to slide within the auxiliary frame and mounted for swinging movement upon the auxiliary frame, and screen frames mounted to slide within the said auxiliary frame.

3. An auxiliary window frame having a stationary guide member secured thereto, a relatively short stationary guide member secured to the said frame in alinement with the first mentioned stationary member, a movable guide member pivoted to the said frame intermediate the said stationary guide members and adapted to aline with said stationary guide members, a shutter mounted to slide within the guide members, and means for locking the shutter in selected positions within the said guide members.

4. A composite auxiliary frame formed of sheet metal, inner and outer guide ways carried by the frame, each guide way comprising a stationary strip of U-shaped metal and a pivoted strip of U-shaped metal, inner and outer shutters mounted to slide within the said guideways, and means for locking the said shutters to the said guideways.

5. A composite auxiliary window frame, inner and outer guideways supported by the frame, the outer guideway having a stationary guide member secured to the lower portion of the frame and a pivoted guide member which is positioned above the stationary member and adapted to aline with the stationary guide member, the inner guideway comprising spaced stationary

guide members and a movable guide member which is pivoted between the said spaced stationary guide members and adapted to aline with the spaced stationary guide members, shutters mounted to slide within the said guideways, means for locking the shutters in selected positions within the guideways, and means for moving the pivoted members about their pivots.

6. The combination with a window frame, of a composite auxiliary frame, inner and outer guideways supported by the auxiliary frame, inner and outer shutters mounted to slide within the inner and outer guideways respectively, each guideway comprising a stationary guide member and a pivoted guide member, means for counterbalancing the said shutters, a rod mounted to slide upon the window frame; a link pivotally connected to the rod and to the outer pivoted guide member, said link extending through the auxiliary frame and adapted to cooperate with the said rod to move the outer guide member about its pivot, means for locking the said rod, and a link having one end pivoted to the inner shutter and its opposed end adapted to engage the outer stationary guide way to support the inner shutter in selected positions.

7. A device of the class described including a frame, movable guide members pivotally secured to the frame and formed of approximately U-shaped metal having inclined side flanges, and a shutter mounted to slide upon the movable guide member, said shutter having stiles formed of approximately U-shaped metal having inclined flanges and adapted to slide upon the movable guide members, the inclined flanges of the movable guide members and the stiles cooperating to prevent lateral displacement of the stiles with respect to the movable guide members.

8. The combination with a window frame of a sheet-metal auxiliary frame comprising an outer member which is L-shape in cross section, means for securing the outer member to the window frame, an inner member which is rectangular in cross section and cooperates with the outer member to form a housing, means for securing the outer member to the inner member, and shutters mounted for sliding and swinging movement upon the auxiliary frame.

9. An auxiliary frame comprising an outer member which is L-shape in cross section, an inner member which is rectangular in cross section and is secured to the outer member, said inner member having an offset portion and spaced slots formed in the walls of the inner member adjacent the offset portion, an outer guide member pivoted to the rectangular inner member and an inner guide member secured to the offset portion of the inner member, shutters mounted for

sliding movement within the guide members, a sliding rod, a link pivotally secured to the sliding rod and to the pivoted outer guide member, said link extending through the
5 said slots to move the outer guide member about its pivot when the said sliding rod is moved without interfering with the inner guide member.

10 10. A device of the class described including a frame, movable guide members pivotally secured to the frame and having opposed inclined side flanges, a shutter comprising opposed end rails, opposed stiles, and a plurality of cross slats, said stiles

having opposed inclined flanges and adapted 15 to engage and slide upon the movable guide members, the inclined flanges of the stiles cooperating with the inclined flanges of the movable guide members to prevent lateral displacement of the stiles with respect to the 20 movable guide members.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH M. ARMSTRONG.

Witnesses:

MARGARET MONCURE,
CARL BUDWESKY.