J. W. ALEXANDER.

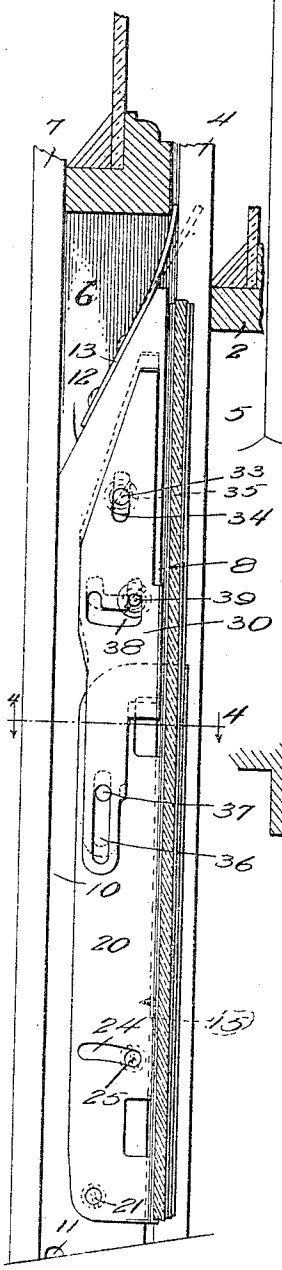
HINGE FIXTURE.

APPLICATION FILED MAR. 24, 1916.

1,243,575.

Patented Oct. 16, 1917.

FIG. 2.



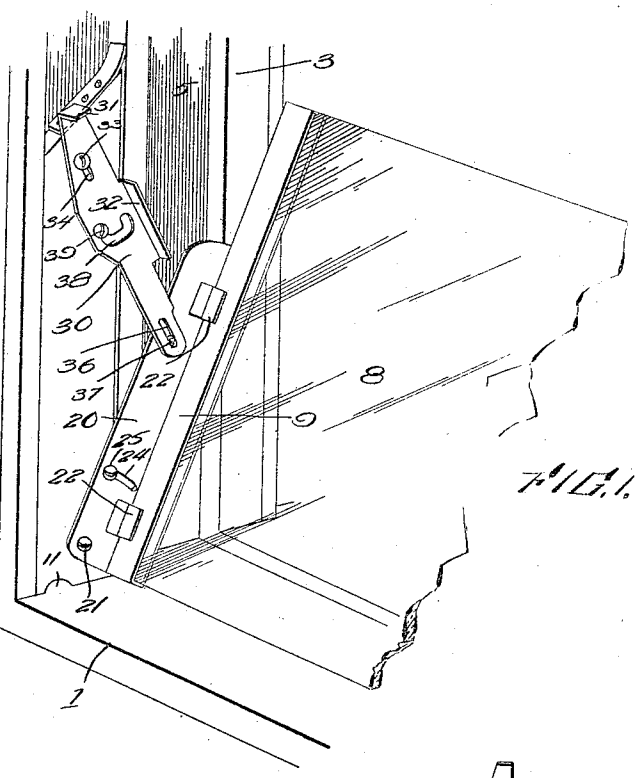


FIG. 1.

FIG. 4.

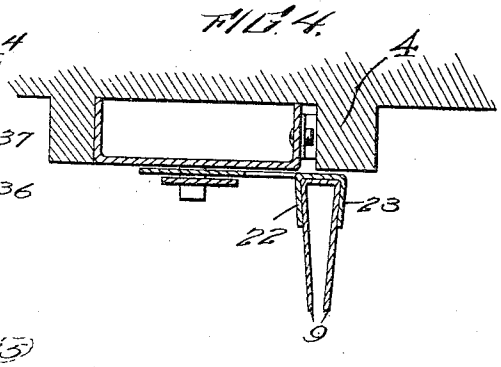
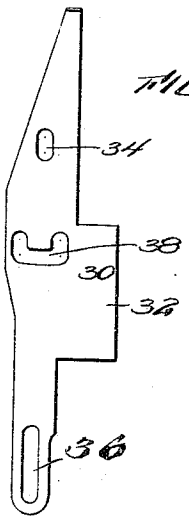


FIG. 3.



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HINGE-FIXTURE.

1,243,575. Specification of Letters Patent. Patented Oct. 16, 1917.

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To all whom it may concern:

Be it known that I, JOHN W. ALEXANDER, a citizen of the United States, residing at Spartanburg, in the county of Spartanburg and State of South Carolina, have invented certain new and useful Improvements in Hinge-Fixtures; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to builders' hardware, and more especially to hinges; and the object of the same is to produce a hinge fixture whereof one member is adapted for removable insertion in the outer sash channel of a window frame and the other member carries a plate and in some cases is detachably connected with the first member. The invention also comprises a stop for limiting the opening movement of the hinge and therefore the swing of the plate, means for locking the hinge in either open or closed position, and a guard for preventing the inner sash from being brought down onto the plate. Details will appear in the following specification and are illustrated in the accompanying drawings wherein—

Figure 1 is a perspective view showing this improved hinge fixture as applied to a glass plate or pane, the latter serving as a wind shield and herein illustrated as swung across the line of the inner sash channel.

Fig. 2 is an elevation of the device with the hinge members closed together and the plate standing in the plane of the bead, so that the sash (which appears in section) may be moved down within the inner channel to close the window.

Fig. 3 is a plan view of the blank from which one of the latch plates is cut.

Fig. 4 is a sectional view taken on about the line 4—4 of Fig. 2.

My invention is shown in the accompanying drawings as applied to an ordinary window frame, the latter comprising a sill 1 and its side bars whereof only one is shown, and shown in perspective in Fig. 1. For purposes of description it will be necessary only to refer to the parts of this frame which coact with the sashes, and only the inner sash is shown at 2 in Fig. 2. Said sash moves between the inner stop 3 and the bead 4 in the inner channel 5 which is provided for it, whereas the outer or upper sash would move in the outer channel 6 between said bead and the outer stop 7. I may say at this point that the numeral 8 is herein described as referring to a plate. The same may be and preferably is a plate of glass or a pane as shown in Fig. 1, and it is by preference used as a wind shield. I do not wish to be limited in this respect, however, because the plate may be of other material, either solid or perforated. By preference it is held within a frame whereof only one side bar 9 is shown herein, and if the plate 8 is of glass the frame need have only two side bars 9 clipped to the opposite edges of the glass as perhaps best seen in section in Fig. 4. However, whether this plate is of glass or otherwise, it is clear that the frame 9 might extend around its four edges, and also it is obvious that the frame might be omitted if the plate is of stiff material.

Broadly speaking, it is the purpose of the present invention to mount this plate hingedly or pivotally between two blocks which are removably inserted in the outer channel 6, and in such way that the plate may swing inward across the vertical plane of movement of the inner sash or may be swung outward into the plane of the bead 4 when said inner sash is to be closed. It is also the purpose of the invention to limit the inward swing of the plate and hence of the inner hinge member which carries it, to lock these parts in either open or closed position, and to provide means for preventing the inner sash from being accidentally drawn down onto the plate. These various objects are carried out by constructing the parts in such manner that they constitute not only the hinge but also a fixture for limiting the movements of its parts and locking them in the positions described.

Associated with the well-known parts above described by reference to the drawings, are the elements of this improved hinge fixture which may be of any suitable material or materials although I prefer metal, and may be of such sizes, proportions, and exact configuration as desired. It will be understood that the fixtures are in duplicate, one for each edge of the plate 8, and that we see but one of them in Fig. 1. The numeral 10 designates a block, so called because it may be solid and might be of wood although I prefer to make it of metal and hollow as best seen in Fig. 4, and in this case a drain opening 11 is provided at its

lower end so that moisture in it may run out over the sill 1. The upper end of this block is by preference beveled as seen at 12, and upon it is secured a spring 13 whose free end extends across the line of the inner edge of the block as seen in dotted lines in Fig. 2 which show its normal position, and may be bent so as to permit the block and spring to pass into the outer channel 6, when the engagement of said free end with the bead 4 will hold the block in place. At another point on the block and preferably near its lower end is mounted a second spring 15 best seen in Fig. 2, and here again its normal shape is indicated in dotted lines. When this spring is flattened out the block can be inserted into the channel 6, and therefore the normal tendency of this spring, like that of the spring 13, is to engage the bead 4 and hold the block in place. I do not wish to be limited to this means for removably fastening the block in the channel, but describe it as perhaps the simplest means which may be employed. In thickness the block is such that its exposed face stands about flush with the inner edges of the bead 4 and stop 7, and in height the block is such that its upper end stands about opposite the upper edge of the plate 8 when the latter is closed as seen in Fig. 2. If this plate be a wind shield as suggested above, it will probably rise not over half the height of the inner sash, and therefore the outer sash may be drawn half way down before it will strike the upper ends of the blocks. It is to be understood that there are two of these blocks, of right and left formation for the opposite sides of each window. The block itself may be said to constitute one leaf of the hinge described below.

The numeral 20 designates a plate or leaf of rather stiff sheet metal, and this might be said to constitute the other leaf of the hinge. It is of substantially rectangular formation, narrower and shorter than the block against whose inner face it lies, and near its lower outer corner it is pivotally connected with the block by what might be called the hinge pin 21. This may be literally a pin, or it might be a screw as shown in Fig. 1. and in some cases I prefer a screw. The opposite or inner edge of the leaf 20 is connected with the plate, to which it stands at right angles, and the connection may be any such as is desired. I have shown lips 22 cut from the leaf and bent up against the outer side of the plate (or its frame 9 if one be used) while the inner edge of the leaf 20 is bent against the inner side of the plate in a flange 23. Between the latter and the lips the edge of the plate is clamped more or less tightly, and as described below the connection may be such that the plate and its frame might be withdrawn from the clamp of the leaf. Said leaf is also provided with an arcuate slot 24 standing above and struck on a curve around the pin 21, and a stop pin 25 is seated in the block 10 so that this slot moves over it as the leaf 20 is swung inward and outward. This element 25 also may be a pin or a screw. The length of the slot is such as to check the outward movement of the leaf when it reaches a vertical position as seen in Fig. 2, and to check its inward movement when it has swung over its hinge pin 21 to about the extent illustrated in Fig. 1.

Such is the detail construction of the elements necessary to make up the hinge itself. Its fixed leaf is represented by the block 10, its pintle by the hinge pin 21, its movable leaf by the plate 20, and the swinging element by the plate 8; and the slot 24 and pin 25 constitute a stop for limiting the opening and closing movements of the swinging element. In addition to the hinge proper, however, I find it highly desirable, especially where said plate 8 is of glass, to provide a latch as a part of this improved hinge fixture and by means of which the glass plate and the hinge elements carrying it may be locked in either extreme position so that no gust of wind can do injury to the same. This latch is made of a stiff metal plate 30 cut initially in the form best seen in Fig. 3, and its upper extremity then bent inward to constitute a handle 31 for use as described below. I may here say that the portion 32 of this plate may be left in the plane of its body as seen in Fig. 3, or may be bent inward as seen in Fig. 1, and in either case it extends across the inner channel 5 when the plate 8 is swung inward and constitutes a guard to prevent the inner sash 2 from being brought accidentally down onto the parts of this fixture or the glass plate 8, with injury to either. Otherwise the configuration of the plate 8 is such as will adapt it to lie well within the contour of the upper block 10 when the fixture is closed as seen in Fig. 2, and at this time the handle 31 stands so near the upper edge of the plate 8 that the operator can reach over the latter and grasp said handle. The latch plate 30 is pivoted to the block 10 near the upper end of both, the pivot being by means of a pin or screw 33 projecting from the inner face of the block, and engaging a short longitudinal slot 34 in the plate. A washer should surround the screw between the block and plate as indicated in dotted lines at 35, its purpose being to hold the plate slightly away from the face of the block, although of course the upper end of the plate could lie in contact with it and the lower end be deflected slightly. In any event, said lower end overlies the upper portion of the leaf 20 and is provided with a longitudinal slot 36 loosely engaged by a pin 37 projecting inward from the leaf 20 near its upper end. It should be noted

that this slot is of such length as to give considerable freedom of movement to the pin 37, and the latter does not reach the lower end of the slot when the pin 25 engages the inner end of the slot 24. This permits the entire latch to be raised from the position shown in Fig. 1, when the plate 8 is to be closed. What might be called the locking feature of the latch is a U-shaped slot 38 at about the mid-length of plate 30 engaged by a pin or screw 39 in the block 10.

If the three slots in the plate are properly shaped and positioned with respect to the pins or screws engaging them, the action will be as follows: With the parts standing closed as seen in Fig. 2, the operator reaches over the edge of the plate 8 and passes one finger under the handle 31 and raises the latch plate 30 to the position shown in dotted lines in this view. This movement is permitted by the slots 34 and 36 and by the length of the inner leg of the U-shaped slot 38, and pin 39 now passes into the bend of said U as will be clear. Next the operator draws the plate inward at its upper edge, it turns around the hinge pin 21, and the slot 24 moves over the stop pin 25. This causes the bend of the U-shaped slot 38 to move over the pin 39, the latch plate 30 meanwhile turning on its pivot pin 33 and the pin 37 sliding in the slot 36 as necessary. When the pin 39 reaches the outer end of the bend in the U-shaped slot 38, it is obvious that the plate 30 will drop by its own gravity so that this pin rises to the upper extremity of the outer leg of its slot as the length of the slot 34 permits. The operator may and probably will have by this time released the handle 31. The parts now stand as seen in Fig. 1, and the guard 32 extends at least part way across the inner channel 5 so that the inner sash 2 cannot be brought down onto the fixture. To close the plate from this position, the operator reaches over its upper edge and grasps the handle 31, moving the latch plate 30 again upward so that the pin 39 moves downward in the outer leg of its slot 38 and into the bend of the same, after which the plate 8 can be restored to an upright position, and the latch again falls by gravity from the dotted position in Fig. 2 to the full lined position therein. This brings the plate 8 (and its frame 9 if it have one) into the plane of the bead 4 so that the inner sash 2 can be brought down past it with ease, whereas it has been already explained that the outer sash can be brought down only to a point where it will strike the upper ends of the blocks 10, and as these preferably rise above the glass 8 they thoroughly protect it.

When it is desired to remove this attachment entirely from the window, it is possible to draw the plate 8 upward out of engagement with the swinging leaf 10 if the latter is provided with flange 23 and lips 22 which frictionally engage said plate or its frame. This would leave the two fixtures in the window. However, the leaf 20 might be permanently connected with the plate, and in that case the attachment could be removed from the window by springing the lower end of the latch plate inward so that its slot 36 disengaged the pin 37, and then removing the pins 21 and 25 which in this case would obviously have to be screws. In either event, the block 10 with the parts carried thereby could then be taken out of the outer channel with ease, as it is no longer held therein by anything but friction, and this fact accounts for the statement above that I reserve considerable latitude for the block-fastening means. These may be the springs 13 and 15 described above, or any other means, and if it were not for the fact that the block might stick in this which is the exposed channel, it might even be held therein by its own close fit. In other words, the fastening means for the blocks are not absolutely necessary, as the presence of the elements between the two blocks 10 will prevent their falling out of the channels 6. Attention is directed to the fact that when the plate 8 is closed as seen in Fig. 2 it is raised slightly off the sill 1 and the inner sash can be lifted a little to permit air to pass outward or inward beneath it. On the other hand, when the plate is swung inward as seen in Fig. 1 and the inner sash is raised, no wind can pass under the plate and if rain or snow should pass under the raised sash and strike the plate it will run off the latter over the sill, and will not get into the room.

What I claim is:

1. In a window ventilator, the combination with a window frame having beads forming sash guideways, of supports transversely fitting the respective guideways and having their front faces substantially flush with the plane of beads forming the guideways, and a deflector extending transversely across the frame and pivotally connected at its ends to said supports to swing on a horizontal axis between said supports with its ends close to the beads.

2. In a window ventilator, a support adapted to be removably mounted in the guideway of a sash and having its face flush with the plane at the open side of the guideway, and a member pivoted on the face of said block, tiltable across the guideway, and adapted to carry a deflector extending between the guideway of a sash.

3. A bearing for a tiltable deflector for window ventilators, comprising a block, the width of which is such as to approximately transversely fit a given sash-guide and whose thickness is substantially equal to the depth of the guide, so that the exposed face of the block is approximately flush with the top of the guide walls, and a hinge leaf pivoted on

the block to swing transversely in the plane of the face thereof.

4. A hinge structure for window ventilators, comprising a pair of blocks each having a transverse sectional form such that its exposed face will lie in the plane of the top of a given sash guide-way, and a leaf for each block pivoted thereto at the lower end of its face and adapted to swing between vertical and inwardly inclined positions in the plane of the face of its block and across the guideway, said leaves adapted to carry between them a deflecting sheet.

5. In a hinge structure for ventilators for windows, a supporting block of sheet metal bent to U-shape in cross section, and of a depth to lie flush with the top of a given sash-guideway, the upper end of the block being closed by an outwardly inclined wall.

6. In a hinge structure for ventilators for windows, a supporting block of sheet metal bent to U-shape in cross section, and of a depth to lie flush with the top of a given sash-guide-way, the upper end of the block being closed by an outwardly inclined wall and the lower front panel of the block being provided with an outlet to form a drain for water which may collect in the guideway and behind the block.

7. In a window, the combination with a pair of blocks of U-shaped cross section, each of a size to fit the channel of the outer sash and having its upper end beveled and a drain opening in its lower end, and a spring secured to the upper end and projecting normally beyond the inner edge of the block and adapted to hold the latter removably in said channel.

8. In a hinge fixture for window ventilators, the combination with a block constituting one hinge member, a leaf overlying one face of the block and constituting the other hinge member, and a pivot pin transversely uniting said members near one end of the same; of a latch plate having a handle projecting beyond the opposite end of the block, its body being provided with outer and inner longitudinal slots and with a U-shaped slot between them, a pin through the outer slot into the block, a pin through the inner slot into the leaf, and a pin through the U-shaped slot into the block at a point to engage one leg of this slot when the members are swung to either open or closed position and to travel through the curve of this slot during the swinging movement.

In testimony whereof I affix my signature.

JOHN WILSON ALEXANDER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."