

C. V. HUGHES & J. M. ROBINSON.
WINDOW SHADE AND FIXTURES.
APPLICATION FILED MAY 11, 1908.

938,148.

Patented Oct. 26, 1909.

2 SHEETS—SHEET 1.

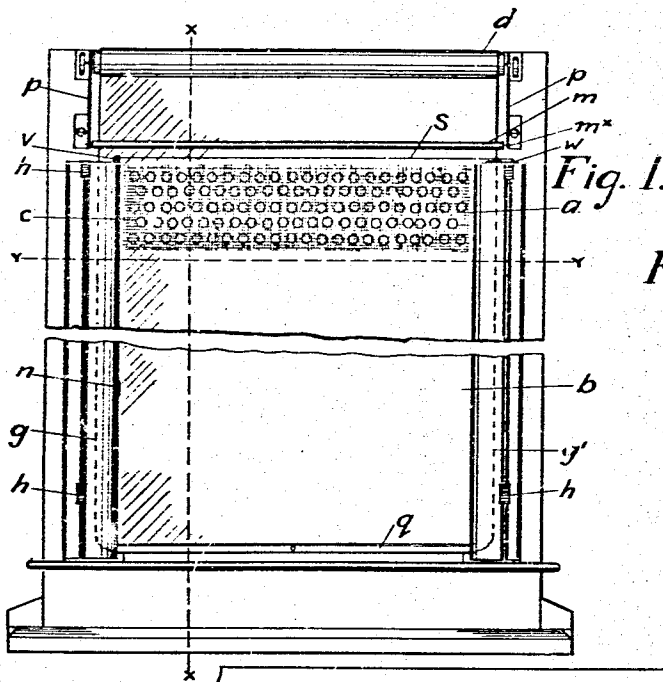


Fig. 1.

Fig. 2.

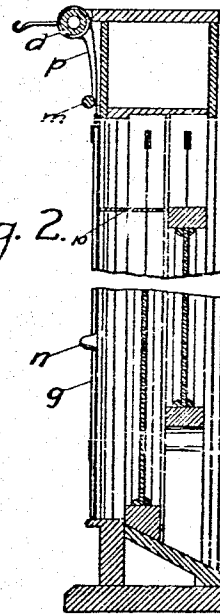


Fig. 5.

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Fig. 3.

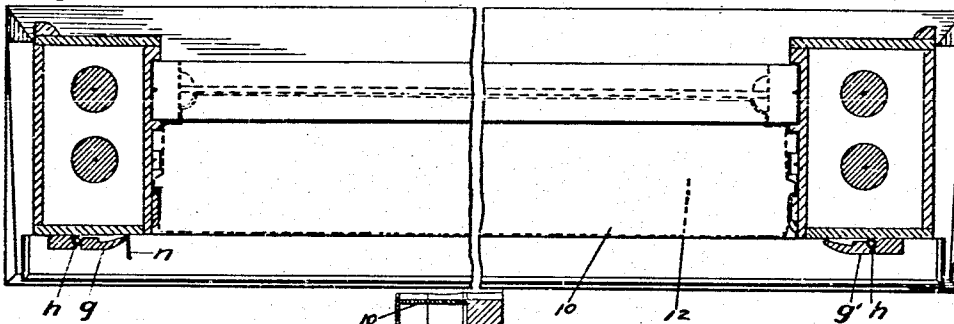
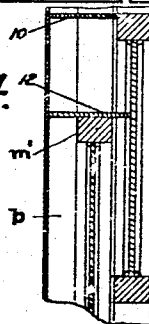


Fig. 4.



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2 SHEETS—SHEET 2.

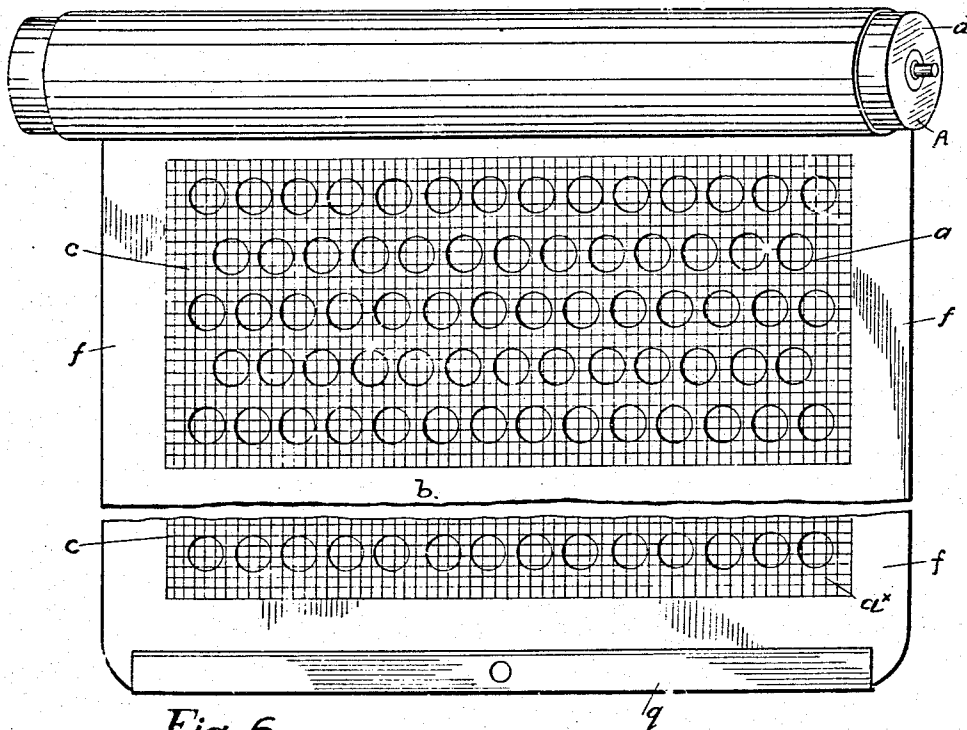


Fig. 6.

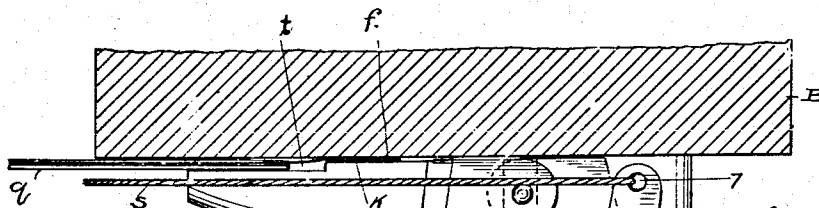


Fig. 7.

Fig. 8.

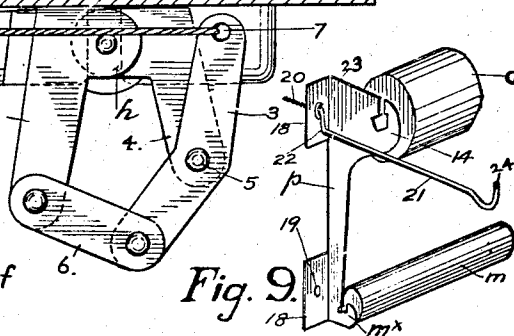
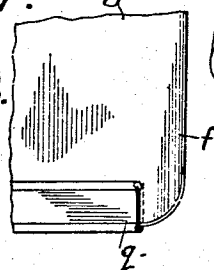


Fig. 9.

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UNITED STATES PATENT OFFICE.

CONSTANT V. HUGHES AND JESSE M. ROBINSON, OF ALAMEDA, CALIFORNIA, ASSIGNORS TO VENTILATING WINDOW SHADE COMPANY, A CORPORATION OF ARIZONA TERRITORY.

WINDOW-SHADE AND FIXTURES.

938,148.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed May 11, 1908. Serial No. 432,115.

To all whom it may concern:

Be it known that we, CONSTANT V. HUGHES and JESSE M. ROBINSON, citizens of the United States, and residents of Alameda, in the county of Alameda and State of California, have invented new and useful Improvements in Window-Shades and Fixtures, of which the following is a specification.

This invention relates to improvements made in window-shades that are provided with apertures to admit air into the room through the open window when the shade is drawn down; and the object of the invention is to improve in several respects a window-shade of this class or description, and the fixtures or means for adjusting and controlling it, all as hereinafter particularly described and set forth.

In the following description reference is had to the accompanying drawings that form a part of this specification.

Figure 1 of the drawing represents in front elevation a window-frame having upper and lower sliding sashes with the rolling shade and fixtures of our invention adapted to provide for ventilation when the shade is drawn down over the window. Fig. 2 is a vertical section taken transversely through Fig. 1 at $x-x$. Fig. 3 is a horizontal transverse section taken through Fig. 1 at $y-y$ on an enlarged scale. Fig. 4 is a vertical section on an enlarged scale taken transversely through the two sashes and the stop-boards showing one sash raised and the other lowered. Fig. 5 is a detail plan or top-view of the stop-board for the lower sash. Fig. 6 is a front elevation, on an enlarged scale, of the window shade of our invention removed from the brackets, the shade here shown being constructed for providing ventilation at both the top and bottom of the window, and the middle portion thereof being broken away to reduce the dimensions of the view. Fig. 7 is a top-view in detail, on an enlarged scale, of the clamping-strip on one side of the casing, and the means by which it is opened or raised to release the shade from the movement of the corresponding-strip on the other side of the casing; this view being a horizontal sectional view through the casing just above the top of the clamping-strip. Fig. 8 is a detail showing a portion of the shade-stick and the corner of the shade to which it is secured. Fig. 9 is a perspective view of the bracket fixture.

That part or feature of our invention relating to the construction of the window shade has as its object to provide apertures of relatively large size and ample area of opening in the ventilating portion of the shade, and to secure exclusion of flies and insects that might be able to gain admission to the room through such apertured portion of the shade.

To this end the window-shade is composed of a closed, light-excluding portion b of such dimensions in length as well as breadth as to properly cover the window when drawn down, and in addition thereto an apertured, air-admitting portion a which increases the length of the shade by being added at the top between the closed portion b and the shade-roller; so that when the shade is drawn down to cover the window this apertured ventilating portion will be in front of and in line with the opening which is afforded by lowering the top-sash, and the air will be freely admitted to the room instead of being shut off or obstructed in its circulation.

Further or additional provision may be made for free circulation of air through the shade at the lower part of the window, as when ventilation is desired by raising the sash from the bottom of the window, and at the same time it is desirable to keep the shade drawn down to shut out or modify the light. For that purpose the lower part of the shade is likewise formed or provided with an apertured, ventilating portion a' corresponding to the apertured portion a at the top, as seen in Fig. 6. In forming or producing these ventilating portions of the shade the apertures are preferably arranged in rows, and they are made of circular shape in relatively close order extending nearly the full width of the fabric, and in greater or less number of rows according to the superficial dimensions required for the ventilating portion; but so as to leave or provide solid strips or unperforated portions f along the perpendicular sides of the shade, as seen in Fig. 6. These continuous strips or portions being of sufficient width to give strength to the fabric along the edges of the perforated portion, and also to enable the reinforcing strip of open-mesh fabric c to be secured to the shade fabric. This covering of open-mesh fabric is attached to the shade-fabric preferably by means of an adhesive, as it is united to the body of the shade not only

around the edges of the apertured portion, but also over the whole surface covered by the open-mesh fabric so as to reinforce or strengthen the apertured portion of the shade. Pliable mosquito-netting of good quality is used for this covering; but any fabric or material that will readily roll with the shade, and in which the interstices or openings between the warp and woof are sufficiently small to shut out flies and other insects can be employed for this purpose. An apertured portion thus constructed and reinforced will have the proper pliability, or flexibility, to permit it to wind and unwind readily on the shade-roller, and will be besides sufficiently strong to meet the conditions of strength and durability called for.

The open-mesh reinforcing material not only serves to prevent the admission of flies and insects through the apertures in the shade, but by contributing to the strength of the solid portions of the fabric between and around the apertures, it permits apertures of relatively large size to be formed and arranged more closely together than would otherwise be practicable.

Ventilating apertures of relatively large size are thus secured without materially weakening the shade, so that a more free passage and circulation of air through the shade is secured by a small number of large apertures arranged in relatively close order, than through a greater number of small ones spread over a larger surface.

As shown in the drawings the apertured, ventilating portion is combined with a closed or solid body *b* below it of sufficient length to more or less cover the window when drawn down before the apertured portion is unwound from the shade-roller, and the apertured portion *a* is brought in service by drawing the shade farther off the roller. Provision is thus made for ventilating the room through the lowered top-sash only when the window is covered by the shade and the light is practically excluded, when the apertured portion *a* at the top is only provided in the shade. But by providing the additional apertured portion *a'* at or near the bottom part of the shade, it is possible to adjust the shade so as to cover the opening made by raising the lower sash, as well as the top-sash, and this without shutting out the air.

A shade of this construction will not operate or perform its required function to advantage, however, unless it be held and confined along the sides and also across the top against the window-frame or casing, in such a close manner that no crack or opening is afforded between the shade and the casing; and our invention accordingly involves an improved means or device for holding the shade against the window-frame or casing,

so as to close the gap or opening along the sides of the shade and across the top, and also between the shade and the window-sashes. The feature of our invention relating to these means or devices for closing the gaps between the shade and the window-casing and the sashes, has for its object to prevent the flies and insects from gaining admittance into the room, thereby giving the ventilating shade of our invention both the function of excluding flies and insects in addition to its ventilating quality; also to keep the shade from flapping in the wind, to the annoyance and discomfort of the occupants of the room. For these means we provide two spring held clamping-strips *g g'* formed of thin slats of proper length to extend from a point beneath and close under the shade-roller down to the bottom of the casing, or to the lowest point reached by the bottom of the shade when it is drawn down. The clamping-strips *g g'* are attached to the casing by hinges preferably spring hinges *h*, and are so placed as to clamp the marginal edges of the shade against the casing from the bottom of the window to the shade-roller above the hinges having sufficient power in their springs to press and hold the edges of the shade closely against the casing. The slats before-mentioned are also of proper width to overlap the shade, but they are cut away or recessed on the side next the casing in such manner that while they will engage and bear upon the marginal edge *f* of the shade, they will clear the shade-stick *q* on the bottom of the shade, or will bear so lightly on it as not to prevent or interfere with the shade moving readily up or down when the clamping-strips are raised to take their pressure off the edge of the shade, and allow it to be drawn from or wound on the roller. The form or construction of the clamping-strip is shown in Fig. 7, where the part to bear upon and clamp the side of the shade is seen at *k*, and from that portion to the outer edge the face of the strip is recessed, as at *t*, to take the pressure of the strip off the shade-stick *q*. Another novel feature in this clamping means consists in connecting the two clamping-strips together, so that they can both be raised or held off the shade by using one hand, thereby leaving the other hand free to raise or lower the shade.

The clamping-strip *g* hinged to one side of the window-casing is connected with the correspondingly formed strip *g'* on the opposite side by the cord or wire *s*. This wire is attached to the strip *g* at *v*, and is connected to the other strip *g'* through the medium of a bell-crank lever of peculiar construction, comprising an arm 2 on one leaf or member *w* of the top hinge, and a lever 3 of the first order having one end connected to the end of the arm 2 by a link 6, and its

fulcrum 5 on the end of a fixed arm 4 on the stationary leaf or member of the hinge. The wire *s* is attached to the end 7 of the lever, and between that point and the opposite end that is connected to the movable leaf of the hinge the fulcrum-point 5 is located. The effect of this lever-connection is to produce movement of one clamping-stop simultaneously with the movement of the corresponding strip on the casing, simply by opening or drawing back the strip on which the knob or handle *n* is provided for that purpose.

As both strips are attached to the window-casing by spring-hinges, they are held normally closed upon the marginal sides of the shade exerting at such time sufficient pressure to prevent the shade from flapping under a strong breeze, and to avoid gaps or openings between the edges of the shade and the face of the window-casing that commonly exist when the shade hangs loosely or unconfined.

Being connected together in the manner described, it is not possible to release one edge of the shade without taking the pressure from the opposite side, or without releasing both edges of the shade from the clamps *g g'* at the same moment; and by connecting the clamps for simultaneous movement, the additional advantage is gained of releasing the shade from the clamps by using one hand alone, thus leaving the other hand of the operator free to raise or adjust the shade. No separate adjustment of the clamping-strips is therefore required, and they are opened or closed on the shade independently of special care or attention.

In order to employ a relatively thin and flat clamping-strip it is desirable that the shade-stick *q* on the bottom of the shade should be made as thin as will be found consistent with the necessary stiffness and strength. The shade-stick *q* which we find best adapted to secure these ends, is formed of sheet metal, by bending a strip of the same into a channel shape, and securing it on the edge of the shade by closing the strip after the edge of the fabric is inserted. The shade-stick *q* is made somewhat shorter than the width of the shade, leaving marginal portions *f* on both sides beyond the ends of the stick *q*, and of suitable width to lie under and be caught between the window-casing and the clamping faces *k* of the strips. The ends of the shade-stick thus will slide readily between the clamps *g g'* and the casing, but the shade will be confined at all points along the edges *f* when the clamps are closed.

In the ordinary sliding-sash window having a top and a bottom sash there exists when either one or the other is opened, a space between the two sashes, affording an inlet for flies and insects from the outside;

and such space or gap will exist between the top-rail of the bottom-sash and the glass in the top-sash when the top-sash is lowered; or when the bottom sash is raised.

The novel features in connection with the ventilating window-shade of our invention include further a cut-off board or device for closing the gap or space between the sashes and the window casing, whereby when the shade is drawn down and adjusted to cover the opening between the sash and the casing there will be no opening left between the sashes through which flies or insects can enter by crawling on the window-pane.

The means for closing the opening between the top-rail of the upper sash and the window-shade, comprises the stop-boards 10 12 of proper length to fit closely in place between the upright sides of the window-frame. The stop-board 10 is carried by the top rail of the upper sash to which it is secured in any suitable manner and extends forward therefrom toward the shade so that when inserted between the partly lowered shade and the top sash as seen in Fig. 2, it closes the space or opening between the shade and the top-sash. Another stop-board 12 placed on the top-rail *m'* of the lower sash serves to close the space or opening between that top-rail and the glass panes in the upper sash, as seen in the detail Fig. 4.

Each stop-board is of the proper dimensions in length to fit tightly between the sides of the window-frame in the run of the sashes, and while the one designated 10 is of sufficient width to extend across and close the space between the upper sash and the shade, as seen in Figs. 2 and 4, the stop-board 12 fixed in place on the top-rail of the lower sash extends toward and touches the glass in the upper sash. The two stop-boards 10—12 when thus fixed in place will effectually close the opening between the top-rail of the lower sash and the window panes of the upper sash, when one sash may be raised or the other lowered for admitting air. The same end may be attained also by making the stop-board 12 a fixed or permanent element of the top-rail on the lower sash, also by making the stop-board 12 of sufficient width to extend over the top rail of the lower sash, and touch the shade when the latter is drawn down, the space between the shade and the lower sash will be closed on the line of the stop-board 12 the same as it is closed on the line of the stop-board 10 above, and the upper stop-board need not be used. These stop-boards in connection with the ventilating window-shade of our invention are important features in securing the necessary exclusion of flies and insects when ventilating the room through the open window.

In connection with the window-shade and fixtures of our invention where the shade-

roller is set away from the window-casing to allow for the increase in the diameter of the roller as the shade is wound on the roller there necessarily exists an opening behind the top-roller, between it and the casing through which flies or insects gain admission into the room from the outside, and by reason of the variations in the diameter of the rolling shade, as it is raised or lowered it becomes difficult to protect such opening. This objectionable feature we remove or overcome by arranging a roller *m* below the shade-roller *d* parallel with the shade-roller and in close rolling contact with the shade. As shown in Figs. 1, 2 and 9 bearings *m*^x for the axles of this idle-roller are provided in ears of the bracket *p* by which the roller *m* is accurately held in true relation parallel with the shade-carrying roller and a proper working position of the roller *m* is insured and maintained without any special or separate adjustment of the supports required for its axes.

An accurate and unvarying relation of the two rollers *d* and *m* is an important factor in securing the proper and uniform operation of the window-shade of our invention, as otherwise the shade will not run or travel properly between the clamping-strips. It has been found necessary therefore for insuring a true parallel position and relation of each roller with the others, to provide bearings for the axles of the two rollers upon the same brackets, so that there will be no difficulty in securing the required end. The brackets *p* which we have provided for this purpose are of peculiar construction in having each of the two separate ears or members 14 and *m*^x in fixed and unvarying relation one to the other, and the flanges 18 for securing the bracket to the window-casing. In the ears are slotted apertures in which the axles of the rollers are removably fitted, and in the flanges 18 are apertures 19, 23 for screws by which to secure the bracket to the face of the casing.

One of the fastening-screws 20 is preferably formed with a hook 24 having a straight shank 21 and having a shoulder 22 beyond the screw formed by making an offset in the shank. This screw hook 20 has the double function of securing the bracket to the casing, and of furnishing a support for one end of a curtain rod, when the same is used on the window.

When the hook is screwed in place with the offset or shoulder 22 set up closely against the bracket, it will be seen that the shank of the hook will support the weight of a curtain to a considerable extent or degree without bending, and the liability of straining the hook by requiring it to sustain the combined weight of the curtain-pole and curtain is overcome in a simple and effective manner with the additional ad-

vantage of dispensing with separate supports on the casing to carry the curtain-pole.

We claim:—

1. The combination with a window casing having a slidable sash, of a shade provided with an apertured portion for admitting the passage of air, the spring held clamping-strips on the casing, and a stop-board on the sash adapted to close the space between the sash and the window-shade when the latter is lowered.

2. The combination with a window-casing having slidable sashes, of a shade provided with an apertured air admitting portion, the spring-held clamping-strips on the casing and the stop-boards on the sashes adapted to close the space between the sashes and between the shade and the sashes when the latter are set to afford openings for circulation of air.

3. The combination with a window-casing of a shade, a shade-roller therefor, the spring-held clamping strips movably attached to the casing and means operatively connecting the clamping-strips together for moving one strip from the movement of the other strip.

4. The combination with a window-casing, of a shade, a roller for rolling up the shade, spring-held clamping strips attached to the casing and adapted to close the gap between the casing and the shade along the edges of the latter, means operatively connecting the clamping strips together comprising the cord attached to one of the said strips and means to which the cord is attached connected with the other strip and arranged to cause it to open when the first mentioned strip is opened.

5. The combination with a window shade, of means for engaging the edges thereof to hold it from flapping, comprising clamping strips pivoted to the opposite sides of the window casing and means for causing the strips to be simultaneously opened to release the shade and closed to hold it.

6. The combination with a window shade provided at its lower edge with a shade stick of less length than the width of the shade whereby are left marginal edge portions of the shade, *f*, extending beyond the ends of the stick, of pivoted clamps for engaging with the said marginal edges of the shade to hold them against the window casing, the strips being recessed adjacent to their edges on their faces toward the casing to receive the ends of the stick without interfering with their clamping action upon the marginal edges of the shade.

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