O. M. EDWARDS.

SECURING FLEXIBLE MATERIAL TO WINDOW SASHES.

APPLICATION FILED NOV. 13, 1907.

997,256. Patented July 4, 1911.

Fig. 1

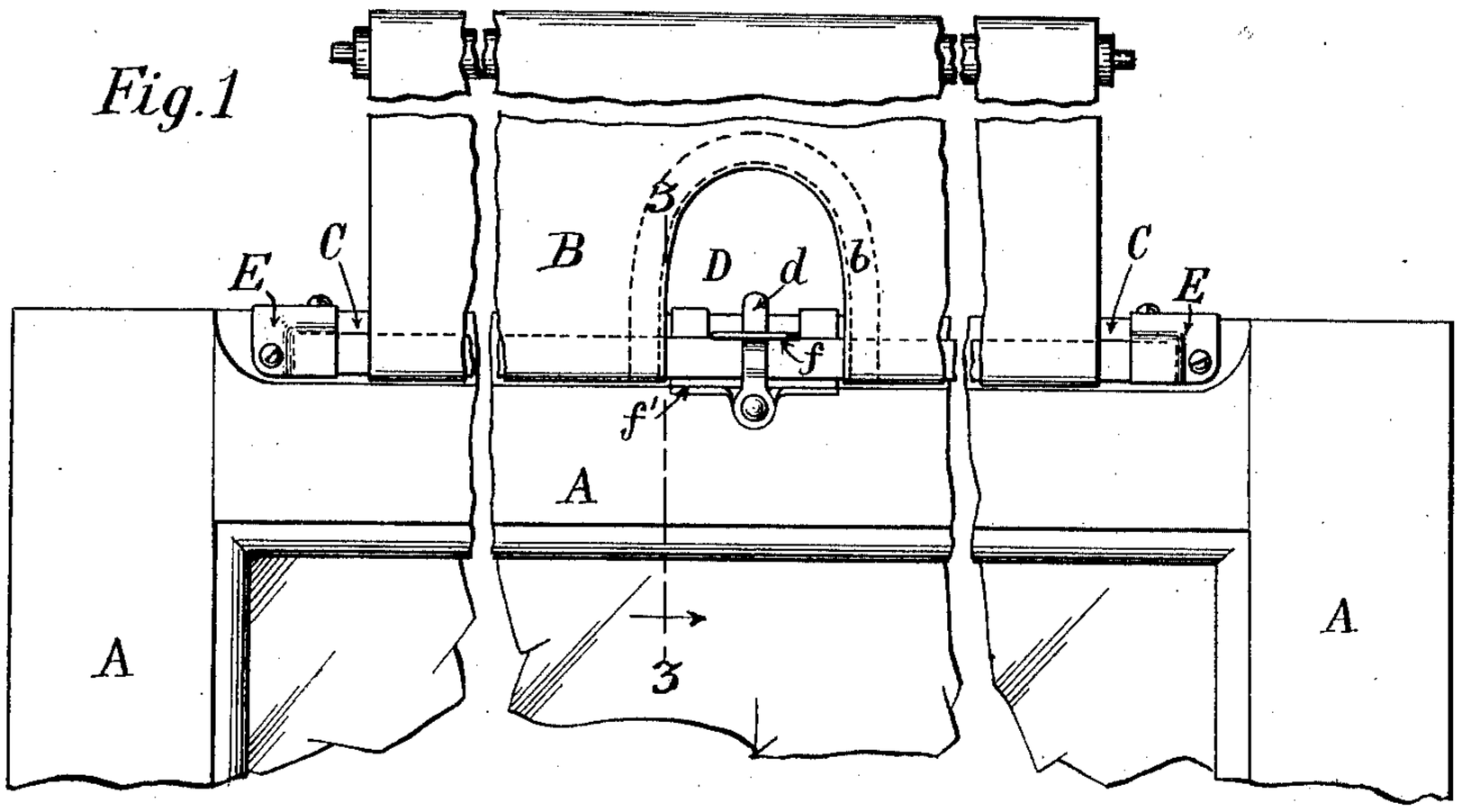


Fig. 2

Fig. 3

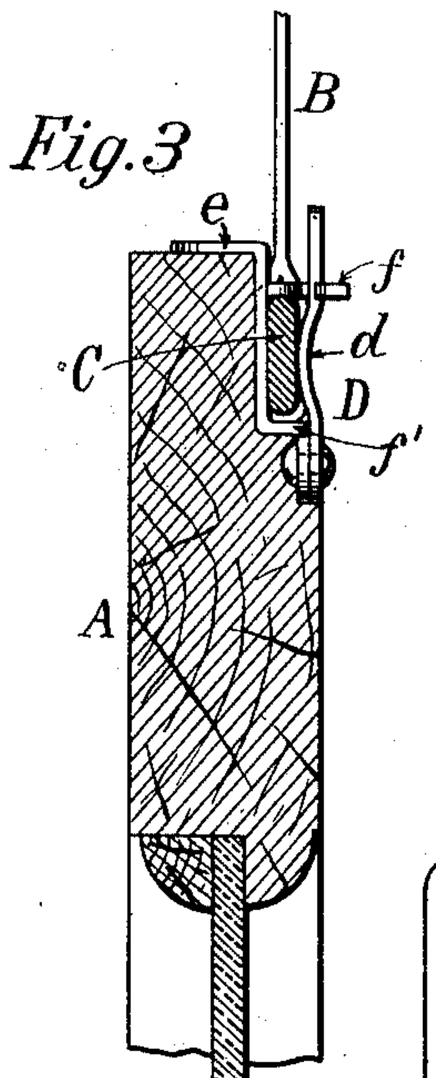
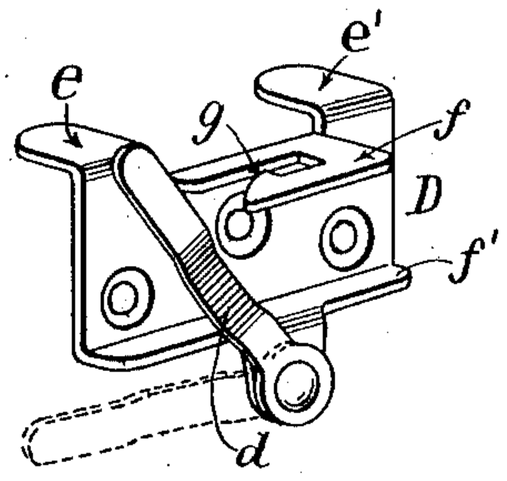


Fig. 4



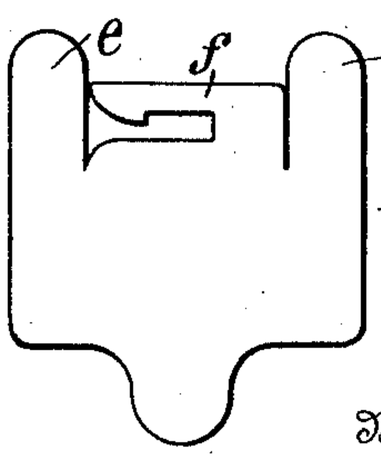


Fig. 5

Witnesses:
H. R. Schulz.
L. D. Morrill

Oliver M. Edwards, Inventor
By his Attorney Henry L. Newbury.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OLIVER M. EDWARDS, OF SYRACUSE, NEW YORK.

SECURING FLEXIBLE MATERIAL TO WINDOW-SASHES.

997,256. Specification of Letters Patent. **Patented July 4, 1911.**

Application filed November 13, 1907. Serial No. 401,939.

To all whom it may concern:

Be it known that I, OLIVER M. EDWARDS, a citizen of the United States, residing at Syracuse, county of Onondaga, State of New York, have invented a new and useful Improvement in Securing Flexible Material to Window-Sashes, &c., of which the following is a full, clear, and exact description, reference being had to the drawing accompanying and forming a part of the same.

My invention relates to means for securing flexible material, usually a web or webs of woven fabric, to a window sash and similar devices, where the sash or device is to be lifted or supported by the application of force to the flexible material, as by the lifting or pulling force of a spring roller to which such flexible material is in part secured, so as to wind thereon, as is well known and as is illustrated in Letters Patent No. 661,963, dated November 20, 1900. It has been found in practice that the outer edge portions of these webs of material tend to stretch to a greater extent than the central portions do and as a result the lifting force is exerted to a greater extent upon the central portion of the bar, shown in said patent, than is exerted by the outer portions of the web on the end portions of such bar. From this it follows that the main lifting force is exerted upon the central holding means by which the bar and web are secured to the sash and, therefore, the central portion of such bar should be as securely held in place, if not more so, than the end portions are held. An examination of this prior patent will show that this is not the case in the construction therein illustrated, and because of this there has been in many instances a breaking away of the central portion of the bar from the sash resulting in accidents to passengers seated adjacent to the windows where the central portions of the holding bars broke away from the sash.

It is the object of the present invention to provide means by which the flexible material will be as securely attached to the sash at its central portions as it is at its edge portions and yet be as readily, if not more readily detachable therefrom than can be done in the construction disclosed in the above mentioned patent; and it consists in the means and the combinations of members or devices particularly pointed out in the claims annexed hereto and forming a part of this specification.

Figure 1 illustrates in front elevation one embodiment of my invention showing the lower portion of the web of flexible material, the bar and the means for attaching and detaching the flexible material to and from the window sash. Fig. 2 shows in plan view that which is shown in Fig. 1. Fig. 3 shows in vertical section on line 3—3 of Fig. 1 and on an enlarged scale the securing means for connecting the central portions of the web and bar to the central portion of the sash. Fig. 4 shows in perspective the central securing or holding means with the movable pivoted portion, seen in Figs. 1 and 3, partially moved out of the securing position, such movable portion being movable from the position seen in Fig. 1 to that shown in dotted lines in Fig. 4, when the web is to be secured to or detached from the sash. Fig. 5 shows a sheet metal blank out of which the central holding or securing means may be formed by bending if desired.

Like letters of reference wherever they occur indicate corresponding parts in all of the figures.

A is the window sash, B the flexible material, and C the bar, preferably of metal, with which the flexible material engages to secure it to the sash. This web of material is preferably divided or cut out as shown at the point *b* so as to divide it near the point where it is secured to the sash into two substantially equal portions, thus dividing the lifting or holding action of the web and leaving the central portion thereof unconnected directly with the sash. The free ends of the divided portions of this web are preferably turned over on such divided portions and secured thereto so as to form pockets or recesses to receive the bar C, there being one pocket or recess for each of such portions. By thus dividing or cutting out the web as shown in Fig. 1 and forming the pockets therein, the bar C engages only with the divided portions, leaving the central portion of the web indirectly connected to the bar. This cutting out or dividing the web as shown leaves a space amply sufficient to receive holding or securing means which engage with the central portion of the bar C. This cutting out or dividing that portion of the web which is to be secured to

the sash is in effect equal to the dividing of the web throughout its length or the using of two separate and narrow webs in the place of the one wide one.

Catches E E are attached to the sash A and are adapted to receive the ends of the bar C and secure such ends to the sash and permit of the removal of such ends without disturbing the catches attached to the sash. These catches E E are somewhat similar in construction to the catches seen in Figs. 1 and 2 of the patent heretofore referred to and they may be formed in any desired manner to adapt them to receive the ends of the bar and hold it to the sash and yet permit such bar to be removed from such catches without disturbing them or the sash. As shown in Fig. 1, these catches E E are formed with openings at the lowermost portions and they cover substantially the entire width of the end portions of the bar C, when such bar is received by them. Each catch is secured to the sash as shown, or in any other desired way, and each is preferably provided with a right angle projection to extend more or less over the top of the sash and thereby aline such catches with the sash so that the bar C which they are to hold will be properly held in alinement relatively to the sash on which the catches are secured. These right angle projections of these catches aid in applying the securing means to the sash and tend to cheapen the cost and labor required for this purpose. If desired these right angle projections of the catches E E may be utilized for securing such catches to the sash in the manner seen in Fig. 2 of the drawing.

Securing or holding means D adapted to receive or engage with the central portion of the bar C are secured to the sash about midway between the catches E E and such means is preferably formed out of sheet metal into the form shown in Fig. 4 of the drawing by stamping and bending, as is well known, but such means may be formed in any other desired manner, so long as such means is adapted to do the work that is done by the specific form made from the blank illustrated in Fig. 5. As here shown the holding or securing means D is formed with a base preferably provided with right angle extensions *e e'* adapted to rest on the top portion of the sash and thereby aid in alining such holding or securing means with the catches E E, so that the bar C will equally bear upon such means and catches when the lifting force applied to the web B tends to balance or lift the sash, it being understood that these projections are properly arranged to bring the bearing surfaces for the bar C in line with one another. Such base is also preferably provided with right angle extensions *f f'*, one to engage with the top portion of the bar C and the other to extend out from underneath the central portion of such bar C and receive the movable part or bar *d*, which as shown is pivotally attached to this lowermost right angle extension *f'*, as seen in Figs. 1, 3 and 4. The upper right angled extension *f* of this base is preferably made in two portions, of which the one nearest to the main portion of the base projects from the base portion and engages with the central portion of the bar, when such bar is received by the catches and held crosswise of the sash. The other portion of this extension *f* is, as shown, formed integral with one end of the first and extends or projects farther away from the base than the first and has formed therein a recess the ends of which are adapted to engage with the opposite side edges of the movable bar *d* and hold such bar against displacement when once received therein. Between these two projecting portions of the extension *f* there is a slot *g* through which the movable bar *d* can pass and be received by the recess in the furthermost projecting portion of such extension. This locking or movable bar or part *d* is preferably made of resilient material and bent, as shown, so that when such bar passes through the slot *g* and is released from pressure, it springs into the recess and remains there until force is applied to remove it therefrom, thereby securing the bar C and web B to the sash A, as seen in Figs. 1, 2 and 3 of the drawing. This movable part or locking bar *d*, which is pivotally attached to the lowermost right angle extension *f'* of the base of the holding means D, is preferably bent, as is more clearly seen in Fig. 3, and exerts a spring action upon the bar C to press it against the sash, such locking bar *d* being free to pass into the slot *g* by reason of the form given to it in bending the same.

When it is desired to move or unlock this pivoted bar *d* from the position seen in Fig. 1 to that seen in dotted lines in Fig. 4, the upper portion of such bar can be forced out of the enlarged portion by the yielding or spring action of such bar at its upper end without damage to any part of the structure. The central holding means D is secured to the sash by three screws or otherwise, as desired and such means with the catches E, E, are designed to remain connected with the sash and the bar and web of material are to be attached to and detached from the sash without displacing such means and catches. When the securing means D and the catches E E are secured to the sash in the desired relation to each other to receive the bar C and it is desired to connect the web of flexible material with the sash, so that the spring roller or other lifting means may exert its force upon the sash, the pivoted lever *d* of the securing means D is moved out of the slot *g* and into

substantially the position seen in dotted lines in Fig. 4, when the bar C, after being inserted in the pockets in the web B may be received by such securing means and when this is done, the pivoted bar *d* is moved into the position seen in Fig. 1 and the web secured to the sash, ready for use as desired. To detach or remove the web of flexible material from the sash, it is only necessary to move the pivoted lever *d* out of the slot *g* and into the position seen in dotted lines in Fig. 4 when the bar C can be removed from the securing means by moving it in the reverse direction from that in which it was moved upon entering such means.

In practice it has been found that the bar C may be sufficiently thin and flexible to be bent or flexed throughout its length and thereby be made to enter the catches E E in an endwise direction and then to straighten out, after being received by said catches, and its central portion be fixedly held in the straightened position by the action of the pivoted lever *d* thereon, when the upper portion of such lever is in engagement with the slot *g*.

I have herein shown one embodiment of my invention, but I wish it to be understood that it may take on other forms or embodiments, as the one shown will naturally suggest modifications thereof to those skilled in the art and, therefore, I do not desire to be limited to the specific form shown and described and wish to include all having substantially the same principle or mode of operation as that herein shown.

What I claim as new and desire to secure by Letters Patent is:—

1. The combination, substantially as set forth, of a window sash, catches attached to the sash and adapted to receive and hold the end portions of a bar, holding means adapted to receive and hold the central portion of a bar against movement relatively to the sash, a bar adapted to be received by the catches and holding means and secured to the sash crosswise thereof, and flexible material adapted to be connected with the bar, whereby the flexible material is secured to the sash against movement relatively to the sash by the bar being received and held by the catches and holding means and is detachable therefrom without removing the catches and holding means from the sash.

2. The combination, substantially as set forth, of a window sash, catches attached to the sash and adapted to receive and hold the end portions of a bar, holding means adapted to receive and hold the central portion of the bar, a bar adapted to be received and held crosswise of the sash by the catches and holding means, and flexible material divided substantially midway of its width adjacent to where it is to be attached to the sash and adapted to be connected with the bar by its divided portions, whereby the flexible material is secured to the sash by its divided portions receiving the bar, which bar is received and held by the catches and holding means.

3. The combination, substantially as set forth, of a window sash, catches attached to the sash and adapted to receive and hold the end portions of a bar, holding means adapted to receive and hold the central portion of a bar in two directions, a bar adapted to be received and held crosswise of the sash by the catches and holding means, and flexible material in two portions adapted to be attached to the sash, each of which portions is provided with a receiving recess or pocket adapted to receive a portion of the bar, whereby the flexible material is secured to the sash by the two portions thereof receiving the bar and the bar being received and secured to the sash by the catches and holding means.

4. The combination, substantially as set forth, of a window sash, catches provided with alining means adapted to receive and hold the end portions of a bar, holding means also provided with alining means adapted to receive and hold the central portion of a bar, a bar adapted to be received and held crosswise of the sash by the catches and holding means, and flexible material adapted to receive the bar, whereby the flexible material is secured to the sash by the bar being received and held by the catches and holding means attached to the sash.

5. The combination, substantially as set forth, of a window sash, catches attached to the sash and adapted to receive and hold the end portions of a bar, holding means provided with a movable part adapted to be moved into and out of position to engage with the central portion of a bar, a bar adapted to be received and held by the catches and holding means, and flexible material adapted to receive the bar, whereby the flexible material is secured to the sash by the bar being received and held by the catches and holding means.

6. The combination, substantially as set forth, of a window sash, catches attached to the sash and adapted to receive and hold the end portions of a bar, holding means provided with a movable part and means with which such part may engage and be held in position to hold a bar to the sash, a bar adapted to be received and held by the catches and holding means, and flexible material adapted to receive the bar, whereby the flexible material is secured to the sash by the bar being received and held by the catches and holding means.

7. The combination, substantially as set forth, of a window sash, catches attached to the sash and adapted to receive and hold

the end portions of a bar in two directions, holding means adapted to receive the central portion of a bar and hold it against movement in opposite directions, a bar adapted to be received and held crosswise of the sash by the catches and holding means, and flexible material divided at its central sash attaching point into two portions, each of which is provided with a pocket or recess adapted to receive a portion of the bar, whereby the flexible material is secured to the sash by the divided portions engaging with the bar, the central portion of such bar being unconnected with the central portion of the flexible material.

8. Bar holding means consisting of a base provided with angular projections, one of which is adapted to engage with a bar to hold it in position and provided also with means a portion of which is movable into and out of position to engage with and release such bar.

9. Bar holding means consisting of a base provided with different angular projections, one of which is adapted to engage with a bar to hold it in position, another one is provided with a recessed portion adapted to receive a movable bar engaging part and hold such part in holding position and another one is adapted to carry the movable bar engaging part and permit it to move into and out of position to engage with the recess portion of one of the projections.

10. Bar holding means consisting of a base provided with angular projections forming alining means, bar engaging means and attaching means for a movable bar engaging part, and a pivotally mounted bar engaging part movable into and out of engaging position.

11. Bar holding means consisting of a base provided with angular projections formed out of a single piece of material of substantially equal thickness, such projections forming alining means, bar engaging means and attaching means for a movable bar engaging part, and a pivotally mounted bar engaging part movable into and out of engaging position.

12. Bar holding means consisting of a base provided with angular projections forming alining means, bar engaging means and attaching means for a movable bar engaging part, and a resilient engaging part pivotally mounted to the base and movable into and out of engaging position.

OLIVER M. EDWARDS.

Witnesses:

EDNA A. LADD,

FRANCES E. GARVIN.