June 12, 1928. 1,672,896

J. W. MARSHALL

WINDOW SCREEN

Filed Nov. 26, 1920 2 Sheets-Sheet 1

Fig. 1

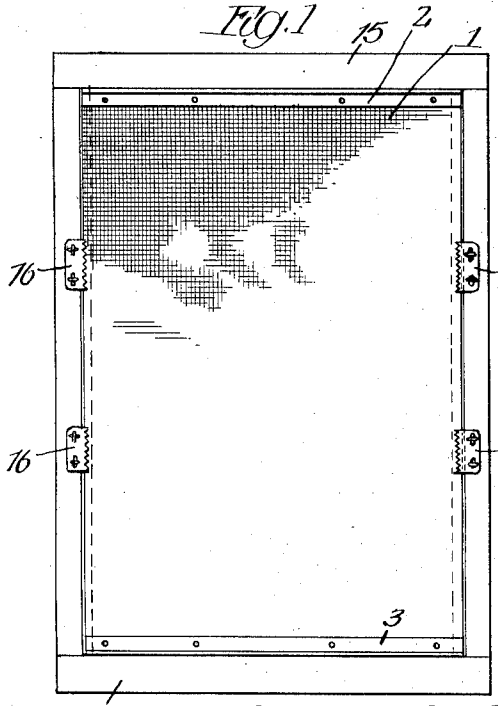


Fig. 2

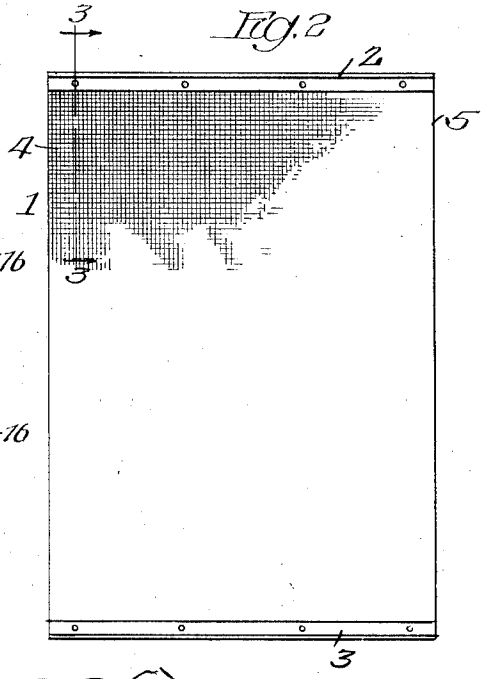


Fig. 3

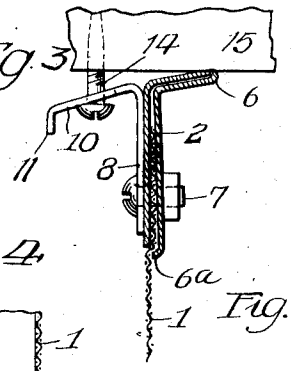


Fig. 4

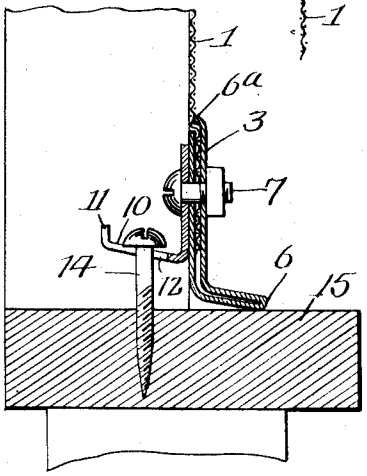


Fig. 5

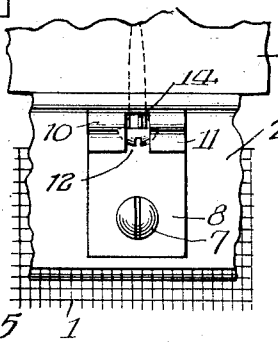


Fig. 6

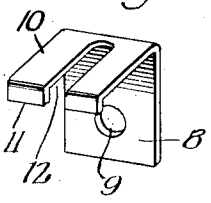
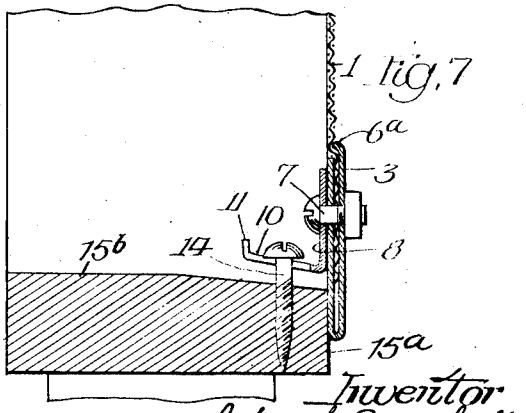


Fig. 7



Inventor.
John W. Marshall.
By Parker Carter Attys

June 12, 1928. 1,672,896

J. W. MARSHALL

WINDOW SCREEN

Filed Nov. 26, 1920 2 Sheets-Sheet 2

Fig. 7a

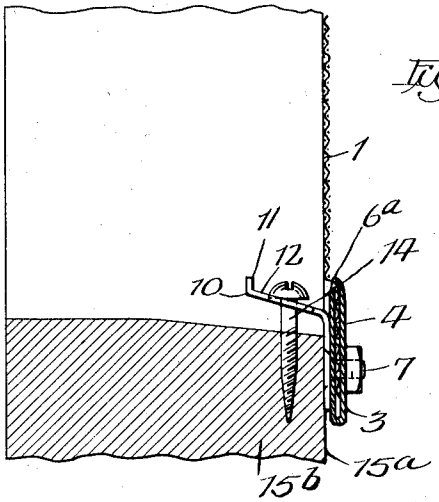


Fig. 8

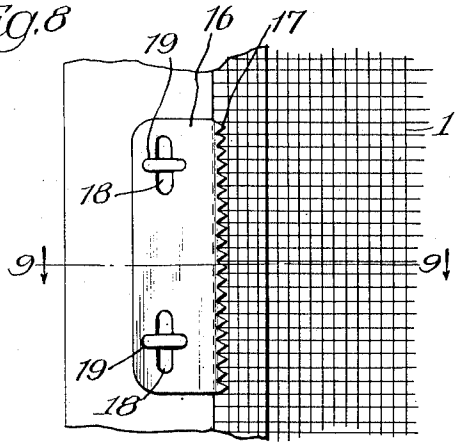


Fig. 9

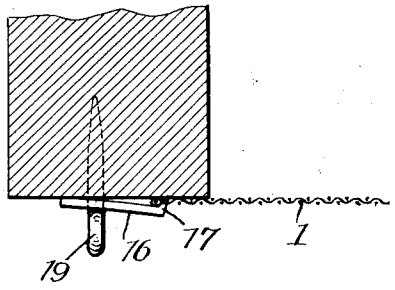


Fig. 10

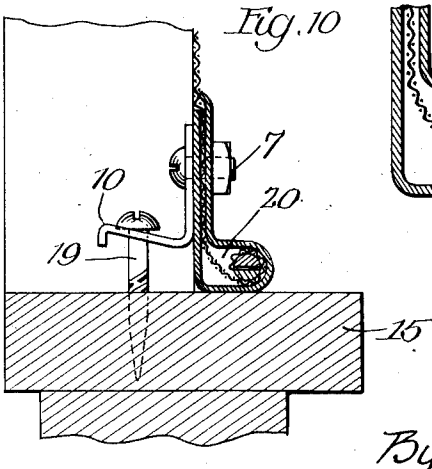


Fig. 11

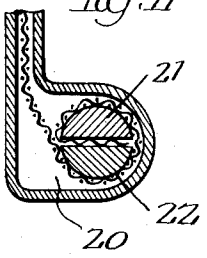
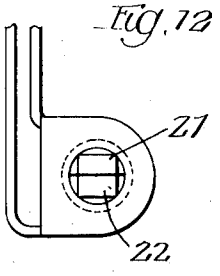


Fig. 12



Inventor
John W. Marshall
By Parker & Carter Attys

Patented June 12, 1928. 1,672,896

UNITED STATES PATENT OFFICE.

JOHN W. MARSHALL, OF CHICAGO, ILLINOIS.

WINDOW SCREEN.

Application filed November 26, 1920. Serial No. 426,370.

This invention relates to screens for windows and the like. One of the objects of this invention is to provide a screen for windows and the like without a continuous frame and so constructed and attached as to retain a taught condition of the screen wire without interfering with the upward or downward movement of the window sash.

Another object of the invention is to provide a window screen which shall extend across the full opening of the window and which can be adjusted in size.

Another object of the invention is to provide a screen which will extend across the entire opening of the window and which will permit the opening of both the upper and the lower sashes.

Another object of the invention is to provide a window screen which can be easily and quickly placed in position or removed and which when not in use can be stored in a very small space.

Another object is to provide a screen that can be readily, easily and conveniently placed in position from the inside of the building. Another object is to provide a screen that will admit the maximum amount of light. Another object is to provide a screen that can be painted quickly by dipping.

The invention has other objects which are more particularly pointed out in the following description.

Referring now to the accompanying drawings:

Fig. 1 is a view showing the screen in position;

Fig. 2 is a view showing the screen before being placed in the window;

Fig. 3 is an enlarged sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is a sectional view through one end of the screen showing the attachment to one form of window commonly used in frame houses;

Fig. 5 is a face view of one form of holding device for holding the screen in place;

Fig. 6 is a perspective view of the holding device shown in Fig. 5;

Figs. 7 and 7ª are views similar to Fig. 4 showing an attachment to the form of window commonly used in brick or stone houses;

Fig. 8 is an enlarged view showing the holding pieces for the sides of the wire mesh;

Fig. 9 is a sectional view taken on line 9—9 of Fig. 8;

Fig. 10 is a view showing another means for adjusting the screen;

Fig. 11 is an enlarged view of the rotating part shown in Fig. 10;

Fig. 12 is an end view of the rotatable part shown in Figs. 10 and 11;

Like numerals refer to like parts throughout the several figures.

Referring now to the drawings I have shown a screen consisting of the wire mesh 1 attached to the two cross or end pieces 2 and 3. This wire mesh is preferably made up of the proper size so that its free edges 4 and 5 may be properly bound. The end pieces 2 and 3 may be of any desired construction, capable of performing the desired function. In the drawings I have shown these end pieces as consisting of single pieces of metal, the metal of each bent back upon itself, the looped end 6 projecting at an angle from the body portion as shown in Fig. 3. The wire mesh passes up between the two overlapping portions as illustrated in this figure and is held in position by fastening devices 7 which pass through the two overlapping portions of the end piece and may also pass through the holding devices. The outer overlapping part of each end piece is preferably made longer than the inner, and is bent inwardly as shown at 6ª so as to hold that portion of the wire mesh between the two end pieces in substantial alignment with the inner overlapping member of the top and bottom end pieces so that said wire mesh will engage the edges of the window frame, thus preventing any cracks at the edges of the screen between the screen and the frame. These fastening devices may be pins, screws, bolts or the like. I prefer to project the wire mesh beyond the fastening devices 7 so that the screen may be adjusted for length. If it is desired to lengthen the screen the fastening devices 7 may be removed and the wire mesh pulled out at one or both ends to secure the desired length. If it is desired to shorten the screen the wire mesh may be pushed in farther. The fastening devices are then replaced so as to hold the parts in their adjusted position. This adjustment may be made to make the screen accurately fit the window space, and it may also be made in certain cases where the screen is somewhat too long to secure the desired tension. In this latter case it will be shortened so that when properly stretched it will close the window space.

Some means is provided for fastening this screen in position. The screen extends across the entire open space of the window and is fastened to the frame as illustrated in Figs. 1, 3 and 4. In the construction shown the top of the screen is fastened to the upper part of the window frame by suitable holding devices 8 (see Figs. 3 and 5). One form of holding device is illustrated in the drawing and consists of a piece of metal having an opening 9 for a screw, rivet, bolt or the like for fastening it to the end piece. This piece of metal is bent so as to form the angular section 10, and this angular section is again provided with a bent end 11. The angular section 10 and the bent end 11 are provided with a slot 12 which preferably extends to the end of the bent end 11, the slot having an open end at the end of the piece 11. The holding devices are fastened to the end pieces 2 and 3 by suitable fastening devices which may be the fastening devices 7 and which pass through the openings 9. The angular sections 10 of the holding devices are then fastened to suitable parts of the window frame at the top and the bottom. Some means is provided for holding the screen taught. I secure this result by the construction illustrated in the following manner. The holding devices 8 are fastened to the cross pieces so that the angular sections at one end are separated by a space from the part of the window to which they are fastened. Fastening devices 14, which are preferably screws of some kind are then inserted in the slots 12 and screwed into the frame piece 15 of the window. These fastening devices are adjusted until the screen is taught and the parts are made of such proportions as to permit this. I prefer to have the angular section 10 bent in such way that the angle between it and the main body of the holding device is less than ninety degrees. These holding devices are placed on the inside of the screen so that the screen may be attached from the inside, and this inclination causes the screen to be drawn inwardly as the screw is tightened down, insuring a tight fit between the end pieces and the edges of the wire mesh, and the parts of the window frame they engage.

When this form of window screen is placed on the usual form of window in a frame house, the edge of the end piece engages the face of the window frame piece 15 as shown in Fig. 4.

When the screen is used in connection with windows commonly used in brick or stone houses, the end piece may be made to engage the vertical face 15^a of the window frame piece 15^b. In this construction it will be seen that the inclination of the angular piece 10 causes the end piece to be drawn tight against the face 15^a when the fastening device 14 is tightened, because as said fastening device is tightened it exerts pressure upon the angular piece 10, the inclination of such angular piece tending to cause it to move so as to bring the fastening device 14 closer to the main body of the holding device. The face 15 resists this movement and thus a tight fit is insured. The tightening of the fastening devices 14 also causes the lower end piece of the screen to move downwardly to secure a taught screen.

When the screen is used in connection with a window like that shown in Fig. 7 I may invert the holding device as shown in Fig. 7^a. By means of this construction the end pieces may be brought near to and below the face of the frame piece 15^b, the end pieces being held in position by the holding devices so that said end pieces will not obstruct the light entering the window. The holding devices 8 are also provided at the upper end of the screen and fastened to the upper part of the window frame as hereinbefore set out.

By having slots 12 open at the end, the fastening devices or screws may be left in the window frame if desired when the screen is removed, as it is only necessary to loosen them and then move the screen so that they will come out of the slots 12. Any desired number of these fastening devices may be used. I prefer to have them arranged say every six inches. In this event the end pieces 3 may be made up in stock in long pieces and then may be cut in any desired lengths for the screens when they are to be made up, and in that event there will be a sufficient number of fastening devices thereon.

It is desirable particularly with long screens to provide means for holding the wire mesh at the sides. I have shown holding pieces 16 for this purpose. These holding pieces are provided with teeth 17 (see Figs. 8 and 9) which are bent at an angle to the body portion. The body portion is provided with one or more openings 18 for fastening devices 19, for fastening the holding pieces to the window. The openings 18 are preferably elongated openings and the fastening devices 19 are preferably screw eyes. When this construction is used for example, the teeth of the holding pieces may be placed in the mesh of the wire mesh and then pulled over until the openings 18 come opposite the screw eyes. The heads of the screw eyes may be in position to pull under these elongated openings and then the screw eyes are turned so as to hold the holding pieces in place. Any desired number of these holding pieces may be used and it will be seen that by means of them the screen is held taut against the window frame at the edges.

In Fig. 10 I have shown another arrangement for adjusting the screen. In this construction one of the end pieces is provided

with a space extending therethrough, and the wire mesh passes into this space 20. I provide in this space a rotatable piece made up of two sections 21 and 22. This may be a split rod or of any other form. The end of the wire mesh is placed between the sections and they are then rotated to wind the wire mesh about them. The amount of adjustment of the screen will depend upon the amount of the wire mesh wound about these sections. The sections may be arranged with squared or non-circular ends so that a wrench may be applied to them as shown in Fig. 12. After the proper adjustment is made the fastening devices 7 may be tightened so as to clamp the wire mesh to hold the parts in their adjusted position.

The invention provides a window screen which is easily adjustable to the space of the window frame and to such space which is usually occupied by a storm sash. The screen also admits a maximum degree of light due to the fact that it does not have the obstructing frame necessary with the ordinary screen.

I have described in detail a particular construction embodying the invention but it is of course evident that the parts may be varied in many particulars, without departing from the spirit of the invention as set forth in the claims hereto appended, and I therefore do not limit myself to the particular construction shown.

I claim:

1. A window screen comprising a piece of wire mesh, cross pieces connected with the opposite ends thereof, the wire mesh being held in position by the cross pieces, and having portions thereof bent at an angle to the main body portion and projecting laterally therefrom, said bent portions engaging fixed portions of the window frame, holding devices connected with said cross pieces, said holding devices having portions which engage the exterior faces of the cross pieces and which are out of engagement with the wire mesh, said holding pieces having bent parts which project laterally from the cross pieces and which are adapted to be attached to portions of the window frame at the top and bottom.

2. A window screen comprising a piece of wire mesh, cross pieces connected with the opposite ends thereof, the wire mesh being held in position by the cross pieces, holding devices connected with said cross pieces and adapted to be attached to portions of the window frame at the top and bottom, fastening devices engaging said holding devices for fastening them to the window frame, the portions of the holding devices engaged by the fastening devices being inclined and inwardly directed with respect to the window opening so that when the fastening devices are tightened, the wire mesh will be pulled inwardly to make a tight joint at the edges with the window frame.

3. A window screen comprising a piece of wire mesh, end pieces connected with the ends of said wire mesh, each end piece consisting of a piece of metal bent back upon itself so as to provide two parallel clamping overlapping portions, the wire mesh passing between these overlapping portions, and fastening devices for fastening the end pieces to the wire mesh, said fastening devices being provided with laterally projecting parts having slots therein, the ends of said laterally projecting parts being bent to an angular position.

4. A window screen comprising a piece of wire mesh, cross pieces connected with the opposite ends thereof, said cross pieces made of metal and consisting of overlapping portions, the screen being connected between the overlapping portions and projecting therefrom at one end of the overlapping portions, the other end of the overlapping portions being bent at an angle and projecting laterally, said laterally projecting ends engaging the top and bottom members of the window sill.

5. A window screen comprising a piece of wire mesh, two overlapping metal portions at each end of said wire mesh between which the mesh is received, a third metal portion at each end of the wire mesh connected with the other portions, said third portions having their ends bent laterally, and means for connecting said laterally bent ends to the window frame.

Signed at Chicago, county of Cook and State of Illinois, this 17th day of November, 1920.

JOHN W. MARSHALL.