Jan. 8, 1935. H. J. SCHNEIDER 1,987,080

WINDOW SCREEN

Filed July 27, 1933 2 Sheets-Sheet 1

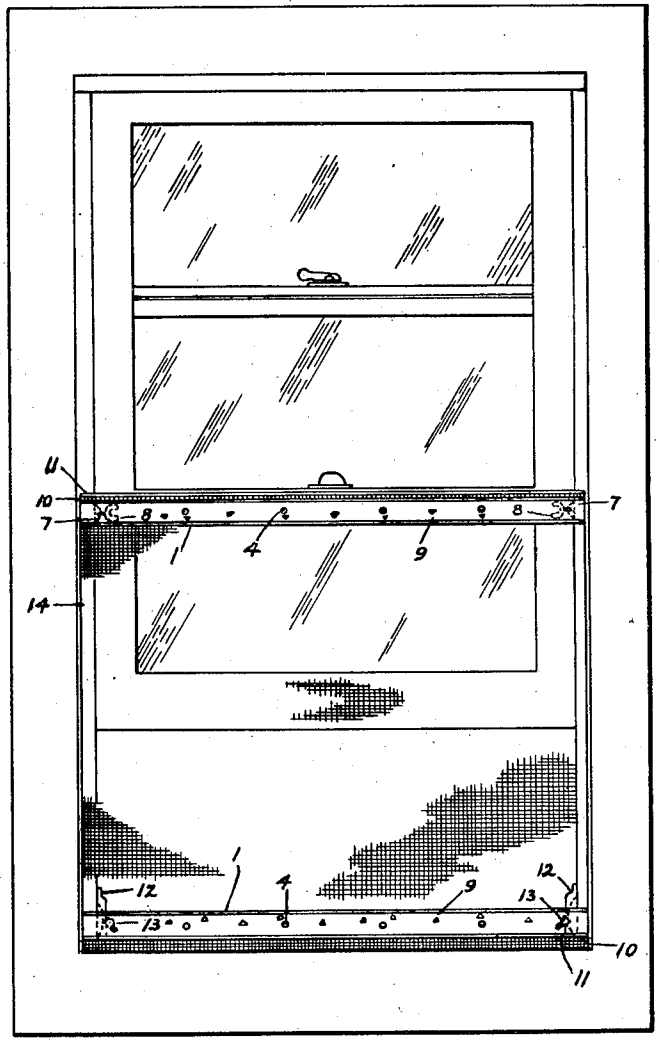


Fig. 1

INVENTOR

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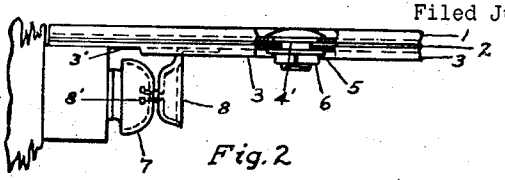


Fig. 2

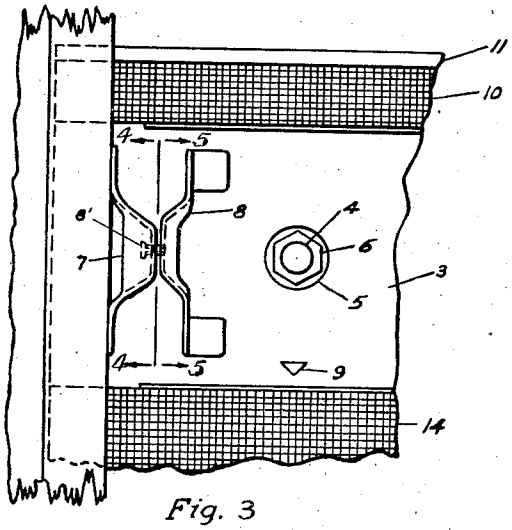


Fig. 3

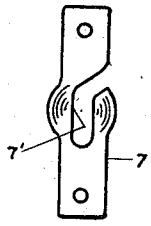


Fig. 4

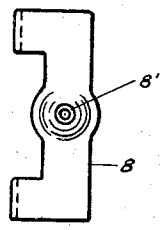


Fig. 5

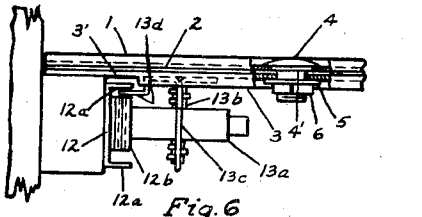


Fig. 6

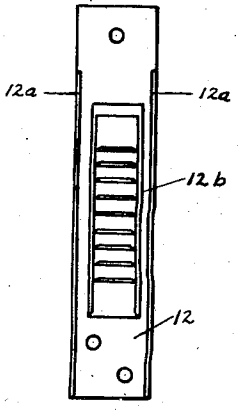


Fig. 8

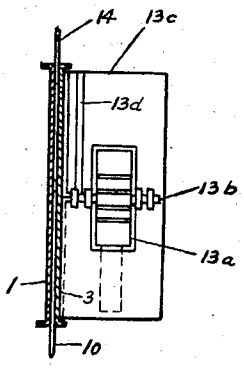


Fig. 9

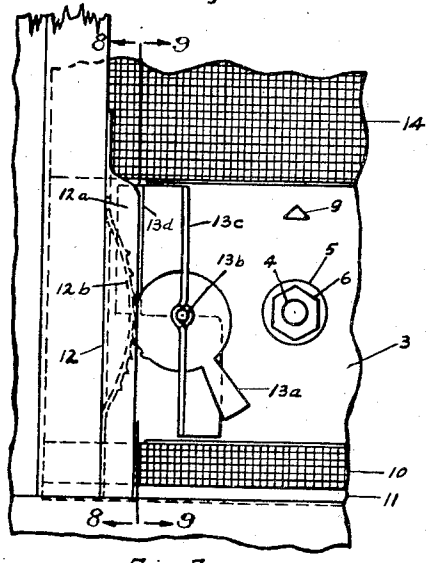


Fig. 7

Harry J. Schneider INVENTOR

Patented Jan. 8, 1935 1,987,080

UNITED STATES PATENT OFFICE

1,987,080

WINDOW SCREEN

Henry J. Schneider, New York, N. Y.

Application July 27, 1933, Serial No. 682,363

10 Claims. (Cl. 156—14)

This invention relates to window screens and involves more particularly a novel construction wherein the window screen may be adjusted to fit various sizes of windows with ease and facility.

At the present time window screens are made to fit only one particular size of window and therefore it is necessary for dealers or manufacturers of window screens to make these screens to order, that is custom made, or else the dealer or manufacturer must keep in stock a very large quantity of window screens of a great many different sizes in order to fit the various different sizes of windows. With this invention a dealer or manufacturer will only have to stock a comparatively small number of sizes in order to meet demands made upon him for a great many different sizes of window screens which are at the present time used.

It is an important object of this invention to provide a window screen to fit any of the various sizes of window frames by simply adding the proper lengths of wire fabric to the frame of the window screen constituting my invention.

Another object resides in the provision of simple, reliable and easily operable means for tensioning the screen fabric and which will permit of the screen being swung outwardly to an open position without completely dismounting the same.

With these and other more detailed objects and advantages in view, as will in part become apparent and in part be hereinafter stated, the invention comprises certain novel constructions as will be subsequently specified and claimed.

For a full and more complete understanding of the invention, reference may be had to the following description and accompanying drawings wherein:

Fig. 1 is an exterior elevation illustrating one embodiment of my improved screen as applied to substantially one-half the vertical length of the window frame.

Fig. 2 is a fragmentary plan view, partly in section, showing the means for mounting the screen at its upper end.

Fig. 3 is a fragmentary interior elevation of the parts illustrated in Fig. 2.

Figure 4 is a detail view of one of the supporting brackets as seen in the direction indicated by the arrows 4—4 in Fig. 3.

Fig. 5 is a similar view of a complementary bracket member as seen in the direction indicated by the arrows 5—5 in Fig. 3.

Fig. 6 is a fragmentary plan view, partly in section, showing one of the adjusting devices at the lower end of the screen.

Fig. 7 is a detail elevation of the device shown in Fig. 6.

Fig. 8 is a detail elevation of one of the parts of the screen adjusting device as seen in the direction indicated by the arrows 8—8 in Fig. 7, and

Fig. 9 is a transverse sectional view through the lower clamp looking in the direction indicated by the arrows 9—9 in Fig. 7.

In the drawings, which are illustrative of one practical embodiment of the invention, in Fig. 1 thereof I have shown my new screen as extending for substantially one-half of the vertical length of the window frame. It will, however, be understood as this description proceeds, that the said invention is applicable as well to a full length screen extending over the entire area of the window frame opening.

Referring in greater detail to the accompanying drawings, the wire mesh fabric indicated at 14 is cut from a roll to approximately the required length. The upper and lower edges of the screen fabric are securely held in clamping devices extending across the entire width of the fabric. Since these clamping devices are of the same construction, the following description of one clamping device will suffice for both.

As seen from reference to Figs. 2 to 9 of the drawings, the screen clamping device consists of two metal bars, 1 and 3 respectively, of shallow channel shaped form. These bars are arranged in opposed relation, with their longitudinal flanges projecting in relatively opposite directions, and on opposite sides of the screen fabric 14 which is interposed between said bars as indicated at 2 in Fig. 2 of the drawings. Each of the clamping bars 1 and 3 has a plurality of prongs or teeth 9, struck therefrom, which are adapted to engage in the mesh of the screen fabric 14, and hold the same against shifting relative to said bars while the clamping bolts indicated at 4 are applied. The outer clamping bar 1, has circular openings therein to receive said bolts each of which is provided with a reduced rectangular shank section indicated at 4', to be received in a similarly shaped opening in the inner clamping bar 3. The bolt head is received in the channel of the outer bar 1 while a lock washer 5, and a nut 6, are engaged upon the inner end of the bolt. Thus by the adjustment of the nuts 6, the two clamping bars are urged into tight clamping engagement against opposite sides of the screen fabric.

The upper and lower flanges of the inner clamping bar 3 are cut away as shown at 3' so that said ends of the bar may closely contact across the width thereof with the outer faces of the vertical sash guide ribs on the window frame as shown in Figs. 2 and 6 of the drawings.

Upon the sash guide ribs at suitable points in accordance with the length of the screen the bracket members are secured. Each of these members in the central portion thereof has a vertically extending slot 7', opening laterally at its upper end toward the outer side of the window frame. A complementary bracket member 8 is suitably fixed to each end of the bar 3 of the upper clamping device and carries a stud indicated at 8' adapted to be inserted into the upper open end of slot 7' in one of the members 7, and removably seated in the lower end of said slot.

In order to compensate for any inaccurate cutting of the screen fabric 14, particularly when it is intended to screen the entire area of the frame opening, I provide the additional relatively short sections of screen fabric indicated at 10 having suitable metallic binding strips 11, applied to one longitudinal edge thereof, while the other edges of said screen sections are securely held between bars 1 and 3 of the respective clamping devices so that the said screen sections 10 will thus project above and below the respective clamps.

To the lower end of each sash guide rib on the window frame a vertically extending channel shape plate 12 is secured and between the parallel flanges 12*a* of this plate, the vertically disposed toothed strip 12*b* is positioned. This toothed strip forms part of a ratchet device for vertically adjusting or stretching the screen fabric 14, and may be conveniently formed as an integral part of the channel plate. It is preferably longitudinally bowed or curved as indicated in Fig. 7 of the drawings.

The other part of each ratchet device consists of a manually operable member 13*a*. This member comprises a disk eccentrically pivoted as at 13*b* in a bracket member or plate 13*c* suitably fixed to the inner bar 3 of the lower screen clamp. This bracket plate is formed with an offset flange 13*d* which has a free sliding fit between one of the flanges 12*a* and the ratchet strip 12*b* of the channel plate secured to the sash guide rib. The adjusting members are provided with peripheral teeth to coact with the teeth of the respective ratchet strips 12*b*. Thus it will be understood that by the operation of the members 13*a* in a clockwise direction, the lower screen fabric clamp will be forced downwardly and thus tightly stretch the screen fabric to a taut condition. The ratchet strips 12*b* are yieldable or resilient, and due to the eccentric mounting of the members 13*a* will be placed under tension, so that they will exert sufficient frictional pressure against the members 13*a* to resist any tendency of said members to casual movement from their adjusted positions, whereby the tightening strain on the screen fabric would be released.

From the above description the manner of operation and the several advantages of my invention will be clearly understood. The brackets 7 are so located or positioned with respect to the outer edge faces of the sash guide strips that when the studs 8' are seated in the slots 7' of said brackets, and the flanges 13*d* are engaged with the flanges 12*a*, the opposite vertical edges of the screen fabric will be held in very close relation to said guide strips. The upper screen section 10 may be slightly bent with respect to the screen clamp to close the space between said clamp and the lower end of the upper window sash. Thus the window frame opening will be effectively screened. When the screen is made to extend the full length of the window frame, the upper and lower sections 10 of the screen may be readily adjusted with respect to the clamping devices, so that the metal binding strips 11 will closely contact with the top and bottom of the window frame. Thus it will be understood that the parts of my new improved window screen may readily be adjusted so as to provide an accurate fit for window frames of various lengths.

In the event the screen fabric should become broken, it may be readily removed from the clamping devices and new fabric substituted therefor. Also by lifting the lower end of the screen to position the flanges 13*d* above the flanges 12*a*, the screen may be swung outwardly to an open position without disengaging the studs 8' from the slots 7'. In the winter the wire fabric may be replaced by cloth fabric and the device used as a ventilator.

When not in use the screen fabric may be tightly rolled and together with the clamping devices stored away in a small space.

I have herein disclosed a simple and practical embodiment of my improvements, which enables the various adjustments to be made with ease and facility and also permits the screen to be readily mounted or removed from its applied position on the window frame. Reference herein to the specific structural features of the invention is largely suggestive and it is therefore to be understood that I reserve the privilege of incorporating the essential features of the invention in various other mechanical forms with resort to such modifications of the illustrative example as may be fairly considered within the spirit and scope of the invention as claimed.

I claim:

1. In combination with a length of screen fabric, clamping devices each comprising rigid members detachably secured to the upper and lower edges respectively of said fabric, brackets adapted to be fixed to opposite sides of a window frame, means on the upper screen clamping device for detachable connection with said brackets, vertically extending ratchet strips adapted to be secured to opposite sides of the window frame at its lower end, and toothed disks rotatably mounted on the lower screen fabric clamping device to coact with the respective ratchet, strips to vertically tension the screen fabric.

2. In combination with a length of screen fabric, clamping devices each comprising rigid members detachably secured to the upper and lower edges respectively of said fabric, brackets adapted to be fixed to opposite sides of a window frame, means on the upper screen clamping device for detachable connection with said brackets, vertically extending, laterally yieldable members adapted to be mounted on opposite sides of the window frame at its lower end, and manually adjustable elements carried by the lower screen fabric clamping device to coact with said yieldable members to vertically stretch the screen fabric, said members being tensioned to frictionally lock said elements in adjusted position.

3. In combination with a length of screen fabric, clamping devices each comprising rigid members detachably secured to the upper and lower edges respectively of said fabric, brackets adapted to be fixed to opposite sides of a window frame,

means on the upper screen clamping device for detachable connection with said brackets, vertically disposed channeled plates adapted to be fixed to opposite sides of the window frame at its lower end, means on the lower screen fabric clamping device removably engaged in the channels of said plates to slidably guide the screen vertically with respect to the frame, and tensioning devices for the screen fabric each comprising coacting relatively movable parts on said channeled plates and the lower screen clamping device.

4. In combination with a length of screen fabric, clamping devices each comprising rigid members detachably secured to the upper and lower edges respectively of said fabric, brackets adapted to be fixed to opposite sides of a window frame, means on the upper screen clamping device for detachable connection with said brackets, vertically disposed channeled plates adapted to be fixed to opposite sides of the window frame at its lower end, means on the lower screen clamping device to engage in the channels of said plates to slidably guide the screen vertically with respect to the frame, a longitudinally bowed, yieldable metal strip in the channel of each plate having ratchet teeth thereon, and manually operable ratchet disks eccentrically mounted on the lower screen fabric clamping device to coact with the respective toothed strips to vertically tension the screen fabric.

5. In combination with a length of screen fabric, clamping devices each comprising rigid members detachably secured to the upper and lower edges respectively of said fabric, brackets adapted to be fixed to opposite sides of a window frame, means on the upper screen clamping device for detachable connection with said brackets, vertically disposed channeled plates adapted to be fixed to opposite sides of the window frame at its lower end, and tensioning devices for the screen fabric each comprising a ratchet strip in the channel of one of said plates, and a manually adjustable ratchet disk eccentrically mounted on the lower screen fabric clamping device to coact with said ratchet strip.

6. In combination with a screen comprising a main screen fabric section, supplementary relatively short upper and lower screen fabric sections, rigid clamping devices extending entirely across the screen between said main and the respective supplementary fabric sections and detachably clamping the same together in spaced apart relation, means for removably mounting the screen upon a window frame with said clamping devices and the screen fabric sections extending upon the outer sides of the sash guide ribs of said frame, and manually adjustable coacting parts on said sash guide ribs and one of the clamping devices for vertically tensioning the main screen fabric section.

7. In combination with a length of screen fabric, a rigid member secured to one end edge thereof, means for removably mounting the screen at its other end upon a window frame, manually operable elements rotatably mounted on one side of said rigid member at its opposite ends, and means adapted to be attached to opposite sides of the window frame, with which the respective elements coact to vertically tension the screen fabric.

8. In combination with pairs of upper and lower supporting and guiding brackets adapted to be fixed to opposite sides of a window frame, a removable panel for said frame having a body of flexible material, means carried by said panel detachably engageable with said brackets, and manually operable elements on the panel releasably and adjustably coacting with means on the brackets at one end of the panel to tension said flexible panel body.

9. In combination with upper and lower pairs of supporting and guiding brackets adapted to be fixed to opposite sides of a window frame, a removable panel for said frame having a body of flexible material, means on the panel pivotally and detachably supported in one pair of brackets, means on the panel slidably engaging the other pair of brackets, and manually operable elements mounted on the panel, releasably and adjustably coacting with means on the latter pair of brackets to tension said flexible panel body.

10. In combination with two panel sections, one of said sections comprising a length of flexible material, a clamping device detachably connecting the other panel section to one end of said flexible panel section in the plane thereof; means adjacent one end of said flexible panel section for removably supporting said panel sections upon a window frame with the opposite edges of said sections extending upon one side of the sash guide ribs of the frame, and relatively adjustable coacting parts on the frame and the other end of said flexible panel section to vertically tension the latter.

HENRY J. SCHNEIDER.