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J. E. SODERGREN

1,758,720

SCREEN

Filed Jan. 14, 1929

Fig. 1

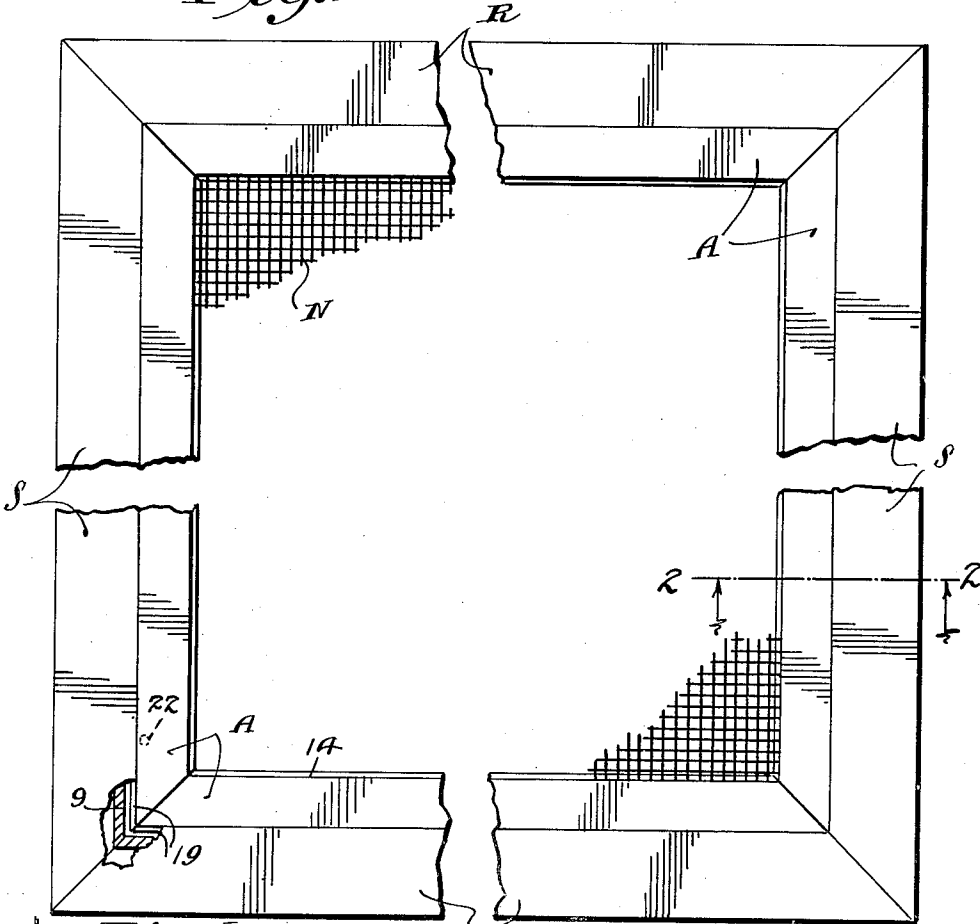


Fig. 5

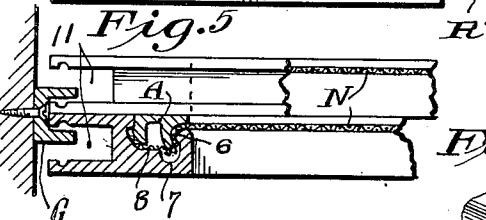


Fig. 5

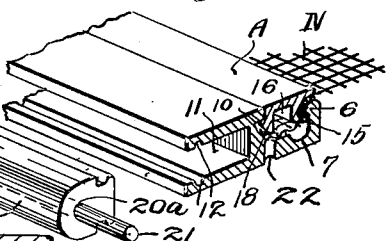


Fig. 4

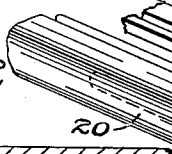
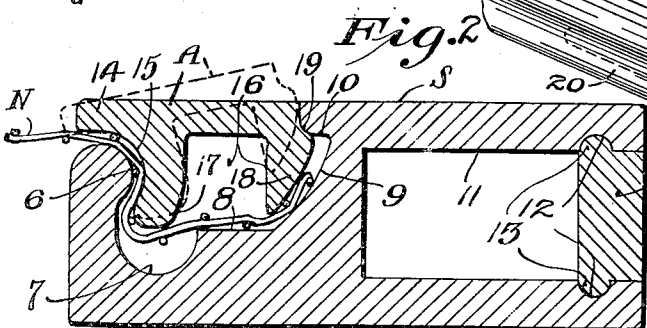


Fig. 2



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SCREEN

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It is an object of my present invention to provide a novel, simple and highly efficient screen for windows and doors, which shall be strong, compact, durable and ornate in appearance.

It is a further object to provide a window or door screen especially adapted to be made of extruded metal stiles and rails and having highly efficient means for clamping, anchoring and stretching the netting without damaging the same.

Another object is to provide a screen of the class described, wherein the netting may be easily released and removed and new netting installed.

Still another object of the invention is to provide a metallic screen preferably having frame stiles and rails provided with highly efficient screen retaining channels, with which anchoring members are adapted to cooperate to clamp and stretch the netting, the resiliency of the netting positively locking the anchoring members in said channels.

Still another object is to provide a screen of the class described adapted to be either swingably or slidably mounted, the netting being so anchored and protected that there will be no chance of friction thereon when two screens are slidably mounted in overlapping relation.

Another object is to provide screen structure including channeled frame stiles and rails, and cooperating anchoring strips adapted to be substantially fulcrumed about the edges of said frame members to clamp and stretch the netting and securely anchor the same in cooperation with the channel, thereby enabling the structure to be quickly and easily put together.

These and other objects and advantages of the invention will be apparent from the following description made in connection with the accompanying drawings, in which like reference characters refer to similar parts throughout the several views, and in which,

Fig. 1 is a fragmentary front elevation of an embodiment of my invention, some portions being broken away and others shown in section;

Fig. 2 is an enlarged cross section taken on

the line 2—2 of Fig. 1, the dotted lines illustrating the manner in which the anchoring strips are applied to cooperate and interlock with the channels for clamping and stretching the netting;

Fig. 3 is a perspective sectional view through one of the stiles or rails of the frame where it is desired to use the screen in a slidable mounting;

Fig. 4 is a perspective view of the filler strip utilized to cooperate and form a hinge where my device is used for swinging screens; and

Fig. 5 is a cross section looking down with some portions broken away to illustrate the mounting for a pair of vertically slidable screens also showing the manner in which the netting is protected against friction from the overlapping screen.

As illustrated, my screen comprises a rectangular frame having the vertical stiles S and the horizontal rails R. I prefer to extrude the rails and stiles from suitable metal, such as aluminum or brass and the ends of said members are mitered and welded or otherwise rigidly secured together to form a frame.

Each of the stiles and rails is provided on one of its faces and adjacent one of its inner edges with a longitudinally extending channel, the actual corner edge of the material being removed and leaving a rounded edge 6 below the face of the member, said channel including, as illustrated, a relatively deep substantially arcuate groove 7 slightly underlying the rounded edge 6, a substantially flat intermediate step portion 8, a sharply inclined bearing surface 9, and a shoulder 10 adjacent the channel face of said member, said shoulder overlying said bearing surface 9. The outer edge of each of the stiles and rails is provided with a relatively deep groove 11 extending, as illustrated, through half the width of each member and said grooved portion on its inner and opposing surfaces and adjacent the outer edge of the member is provided with a pair of relatively small oppositely disposed retaining grooves 12, said oppositely disposed retaining grooves on each member being for the purpose of re-

taining, if desired, an elongated filler strip F which has its inner portion or outwardly extending longitudinal beads 13 received by oppositely disposed grooves 12.

A netting or screening N is clamped, stretched and anchored to the frame provided by stiles S and rails R, by means of a plurality of specially constructed anchoring strips, designated as entireties by the letter A. Each of the strips A has a flat surface adapted to be disposed substantially flush with the channeled faces of the frame members when the screen is clamped and has an inwardly projecting protective flange 14 adapted to overlie the rounded edge 6 of the frame member, said flange 14 being defined at its inner surface by a substantially arcuate rocking surface 15 adapted to be disposed substantially concentric with the rounded edge 6 of the frame member. The inwardly projecting portion of each anchoring strip is channeled at 16 leaving a substantial inwardly projecting netting engaging flange 17 and an elongated wedging element 18. Wedging element 18 has a sharply inclined surface adapted to oppose the inclined bearing surface 9 of the frame member and also has a locking shoulder 19.

When the screens are slidably mounted, as shown in Figs. 3 and 5, the filler strips F are omitted, the grooved portions 11 being adapted to slide in suitable guide members, such as the U-shaped guide members G, shown in Fig. 5. In said Fig. 5, vertically sliding overlapping screens are shown, both screens being guided by the elongated U-shaped members G. It will be noticed that while the frame members may frictionally engage each other, the netting N is adequately protected against frictional engagement by the frame of the overlapping screen by the thickness of the protective flanges 14 constituting parts of the anchoring strips A.

When it is desired to swingably mount the screens, three of the frame elements are provided with the filler strips F closing the grooved portions at the outer edges and the fourth frame member, usually the upper rail R, is preferably provided with a special hinge filler strip H. As illustrated in Fig. 4, said hinge filler strip has an inner portion engageable with the oppositely disposed grooves 12 in the outer edge in the same manner as filler strip F and has also an outwardly projecting enlarged hinge portion 20, which is preferably of semi-circular cross section and has formed therein a longitudinally extending and concentric aperture 20^a. A pin or other suitable pivot member 21 is slidably or rigidly secured if desired within each end of the aperture portion of the member H adapted to be journaled in a suitable bracket. Applicant prefers to utilize the filler strip H for hingedly connecting one edge of the screen to the window or door

frame, but it will, of course, be understood that any other suitable hinge mounting may be substituted.

In each screen a small aperture 22 is formed through one of the stiles or rails extending at right angles to the unchanneled surface of the frame member and communicating with the interior of the channel portion, preferably through the inclined surface 18, in order that a small instrument may be inserted to push out or release one of the anchoring strips from locked position. Obviously, after the first strip has been removed the other three strips may be removed by inserting a hook member in the exposed ends thereof pulled outwardly.

In securing the netting to the frame, the frame is first covered with a sheet of the netting of the proper size and the edges of the netting are disposed within the channel. The several anchoring strips A are then applied in the manner illustrated in Fig. 2, the arcuate rocker surface 15 of each strip being substantially fulcrumed on one of the rounded edges 6 and the strip is then swung inwardly into the channel. This inward swinging causes the flange 17 to cooperate with the stepped portion 8 and the rounded edge 6 of the channel to stretch the screen across the frame. It will be noticed that the netting is extended across the flat surface of the stepped portion and then downwardly over the edge, thus being retained against yielding in an outwardly direction, while the inwardly disposed flange 17 stretches the netting across the frame. The inward swinging of the strips on the fulcrum 6 moreover, due to the inclined surfaces 18 and 9 cause the strip to be clamped tightly against the netting about the rounded edge 6, and moreover when the retaining shoulder 19 of the anchoring strip is locked beneath the shoulder 10 of the frame member cause the anchoring strip to be moved upwardly with its outer surface substantially flush with the channeled face of the frame. The netting is sufficiently resilient to form a tight packing between the anchoring strip and the channel and to moreover yieldingly lock the strip beneath the overhanging rounded edge 6 and the overhanging lip or shoulder 19 at the opposite side of the channel.

Flange 14 overlies the netting and as has been previously stated, protects the same from friction. It will be noticed that in my device no sharp edges are clamped against the screen and there will consequently be no tendency for the screen to fracture during the clamping and stretching action. There is sufficient play between the opposing parts of the anchoring strip and the channel to accommodate the netting, the resiliency of said netting serving to yieldingly lock the strips to the frame.

While my invention has been conceived es-

pecially with the idea of providing a highly efficient screen frame structure, which may be extruded from suitable metal, it is, of course, obvious that the frame and anchoring strips of my device may be pressed or cast or even formed from wood or other suitable material, all within the scope of the invention.

From the foregoing description it will be seen that I have provided a strong and durable screen for doors and windows of compact, ornate appearance adapted to be manufactured economically and functioning in an efficient manner to clamp and stretch the netting and to hold the same against displacement, as well as to permit the netting to be easily and quickly replaced when desired.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of the invention.

What is claimed is:

1. A screen having in combination, a frame comprising rails and stiles rigidly joined together, a channel in one face of said frame having a relatively deep groove adjacent the inner periphery of said frame and having a stepped portion adjacent said groove, anchoring strips for said stiles and rails each having a projecting netting-stretching portion disposed in said deeply grooved portion of said channel and forcing said netting against the stepped portion of said channel.

2. A screen having in combination, a frame constructed of substantially rigid material having a channel in one of its faces adjacent the inner edge thereof, the inner wall of said channel terminating in an edge of arcuate cross section, said edge overhanging said channel, the opposite wall of said channel having an overhanging locking edge, a plurality of anchoring strips for said frame, each having an inner arcuate rocking surface extending longitudinally thereof and adapted to be fulcrumed on the arcuate edge of said channel wall, each strip also having a netting engaging portion projecting into said channel and terminating in spaced relation to the inner wall of said channel, the outer longitudinal edge of each strip having a shoulder below the outer face of the strip adapted to underlie the locking edge of the outer wall of said channel, and a sheet of wire netting having its edges extending between said rocking surface and the arcuate edge of the inner channel wall and about the netting engaging portion, the resiliency of the netting holding said shoulder in engagement with the locking edge of the outer channel wall.

3. A screen having in combination, a frame comprising comparatively rigid rails and stiles joined together, a channel in one face of said frame adjacent the inner edge thereof, the inner wall of said channel having

a rounded edge overhanging said channel and disposed at a lower level than the channeled face of said frame, the opposite wall of said channel having an overhanging locking edge, anchoring strips for the rails and stiles of said frame, each having a flange or lip at its longitudinal inner edge adapted to overlie the top of the rounded edge of the inner channel wall and having an arcuate rocking surface extending longitudinally of said strip inset from said flange and adapted to be fulcrumed on the rounded edge of said wall, said strip also having a netting engaging portion extending into said channel and defined at its inner edge by said rocking surface and terminating in spaced relation to the inner wall of said channel, the outer longitudinal edge of each strip having a shoulder below the outer face of the strip adapted to underlie the locking edge of the outer wall of said channel, and a sheet of wire netting having its edges extending between said flange and said rounded edge of the inner channel wall and about the netting engaging portion, the resiliency of the netting holding said shoulder in engagement with the locking edge of the outer channel wall.

4. A screen having in combination, a frame comprising comparatively rigid rails and stiles joined together, a channel in one face of said frame adjacent the inner edge thereof, the inner wall of said channel having a rounded edge overhanging said channel and disposed at a lower level than the channeled face of said frame, the opposite wall of said channel having an overhanging locking edge, anchoring strips for the rails and stiles of said frame, each having an inner longitudinal edge of arcuate cross section adapted to be fulcrumed on the arcuate edge of said inner channel wall and having a netting engaging portion projecting into said channel, the outer longitudinal edge of each strip having a shoulder below the outer face of the strip adapted to underlie the locking edge of the outer wall of said channel and an inclined wedging surface below said shoulder for forcing the strip laterally and inwardly when fulcrumed on said arcuate edge and a sheet of wire netting having its edges extending between the inner longitudinal edges of said strip and the arcuate edge of said inner channel wall and extending also beneath the netting engaging portion.

5. A screen comprising a frame having a channel in one of its faces adjacent the inner edge thereof, the bottom of said channel having a longitudinal step in the outer portion thereof providing an edge for engaging the wire netting, said channel having an outer wall provided with an overhanging locking edge adjacent the channel face of the frame, a plurality of anchoring strips for said frame, each having a longitudinally extending netting engaging portion projected into the inner portion of the channel and having a

shoulder below the outer face of the strip adapted to underlie the locking edge of the outer wall of said channel and a sheet of wire netting having its edges extending between the inner wall of said channel and the netting engaging portion of the several strips and wrapped about said netting engaging portion and engaging the stepped edges of said channel.

10 In testimony whereof I affix my signature.
JOHN E. SODERGREN.

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