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ADJUSTABLE GRILLE

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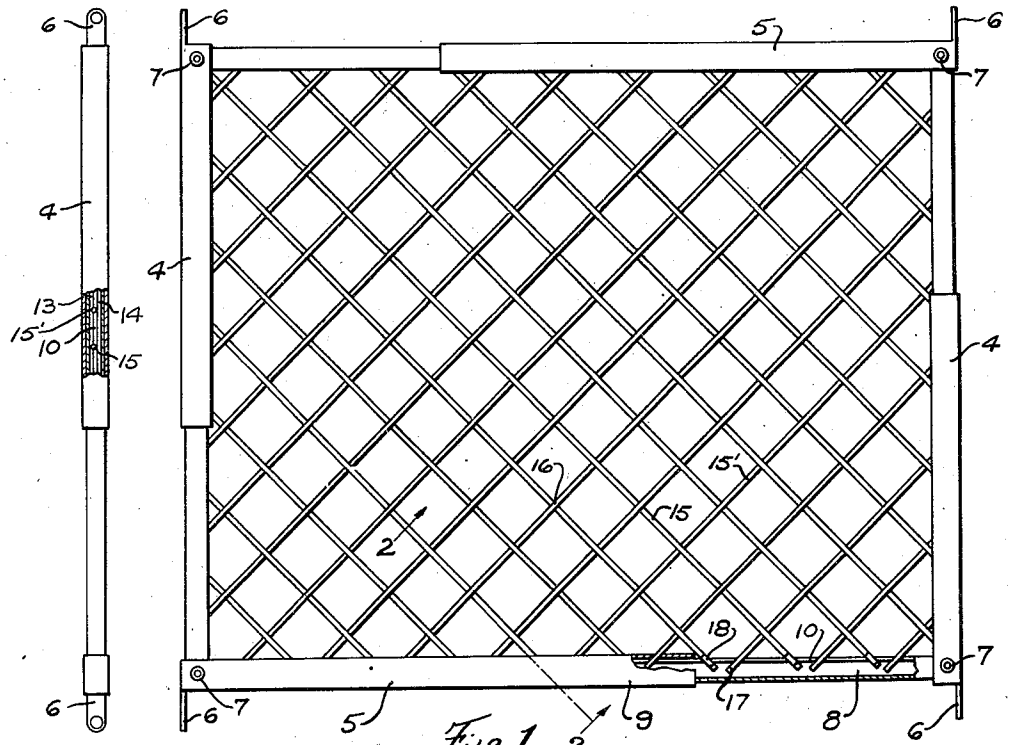


Fig. 1

Fig. 4

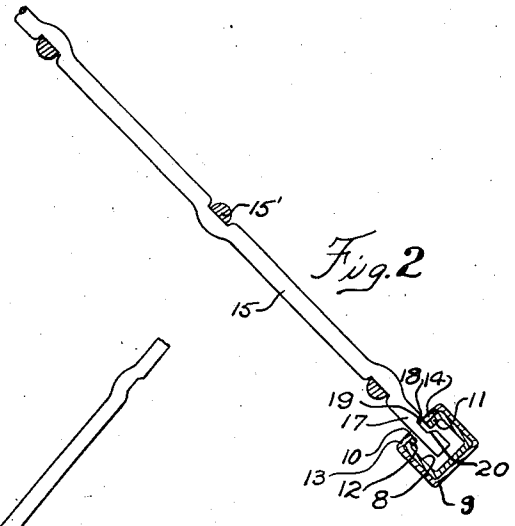


Fig. 2

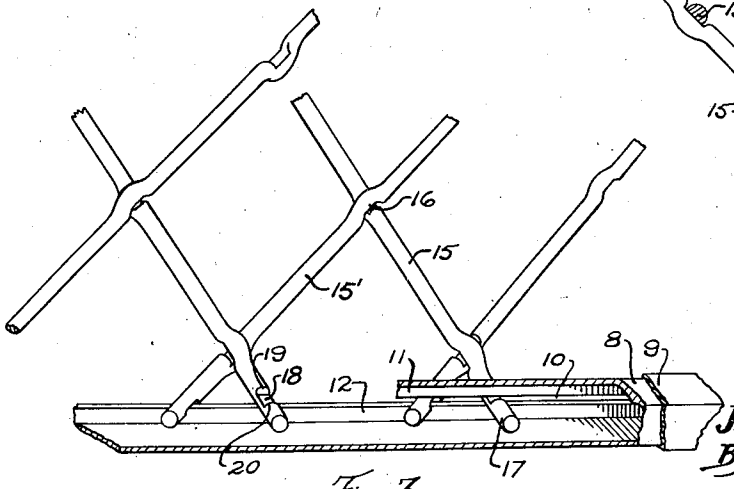


Fig. 3

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ADJUSTABLE GRILLE

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6 Claims. (Cl. 20—71)

This invention relates to improvements in grilles or wire screens generally heavier than those used about buildings for the exclusion of flies and mosquitoes.

The object of this invention is to provide a heavy woven wire grille to prevent human pilfering and to prevent the passage of animals and birds through door, window and other openings and also to protect doors that are roughly abused by passing people.

A particular and important object is to provide a woven wire grille which is adjustable in size horizontally and vertically to fit any opening.

A further object is to provide a telescoping frame tubular in cross section and longitudinally slotted on its inner side for the insertion therein of the ends of the woven wires by a sliding movement from the end of the slot only, and to reduce the thickness of the wires adjacent their ends whereby they will enter a slot narrower than the normal thickness of the wires and whereby the reduction in thickness will form shoulders which prevent longitudinal movement of the wires in the slot.

I accomplish the above and other objects which will hereinafter appear by the structure illustrated in the accompanying drawing, in which

Fig. 1 is a view in side elevation of a grille embodying my invention, in which view portions of the frame are broken away to illustrate the attachment of the wires to the frame;

Fig. 2 is a side elevation of one of the grille wires, on a larger scale than in Fig. 1, showing the frame in cross section to which one end of the wire is attached;

Fig. 3 is a fragment of the grille in perspective on the same scale as Fig. 2, showing the frame broken away and sectioned to better illustrate the attachment of the wires thereto; and

Fig. 4 is an end elevation.

Like characters of reference indicate like parts in the several views of the drawing.

The grille frame, as shown in Fig. 1, is rectangular in shape and comprises two spaced apart vertical rails 4, which are joined together at their outer ends by two spaced apart horizontal rails 5. The vertical rails are here shown as provided with perforated ears 6 by which the grille is secured by screws or nails to the frame of the opening where it is installed for use.

The intersecting corners of the grille frame rails are perforated and pivotally secured together by hollow rivets 7.

The two vertical rails 4 and the two horizontal rails 5 are each formed of two tubular members, here shown as rectangular in cross section though not necessarily so made. One of said members 8 telescopes with a sliding fit in the other member 9, whereby the rails may be made longer or shorter to correspondingly vary the shape of the frame.

All of the rails 4 and 5 are formed with a narrow centrally located longitudinal slot 10 on their inner sides, providing flanges 11 and 12 on each side of the slot of the inner member 8, and 13 and 14 on each side of the slot of the outer member 9 (see Fig. 2).

The frame between the vertical rails 4 and horizontal rails 5 is filled with grille wires 15 and 15' woven together in an open mesh as shown.

The wires are oppositely offset at their intersections as shown at 16 and are flattened at their bottom contacts to secure pivotal movement between the wires without them slipping on each other when the size of the frame is adjusted. These bends all occur outside of the frame, and the wires are continued without bending, that is, straight or normal with the body of the wire for an appreciable distance from the last offset 16. The straight ends 17 thus provided are too wide to enter the longitudinal slots 10 of the frame, but notches 18 are formed in them between the offset 16 and end of the wire, reducing the thickness of the wire so that the reduced portion may be slidingly entered into slot 10 from the end of the slot as shown, and shoulders 19 and 20 formed with the notches acting as stops to hold the frame immovably in the notches and to prevent the withdrawal of the wires from the frame except through the ends of slots 10 in the reverse manner of their original assembly.

The notches 18 may be formed by cutting the material of the wire away but preferably they are formed under pressure in order not to weaken the wires.

In reality the wires 15 and 15' are identical in structure and the reverse offsets and end notches are obtained by simply reversing the sides of the wires in weaving the grille. By reason of the cross wires 15 and 15' being reversed as stated, the notches 18 of a row of wire ends will be on alternate opposite sides of the grille, and they will be so aligned as to provide a track-like formation along which the flanges bounding the slot 10 of the frame will slide with great freedom and accuracy.

In the operation of my improved grille the size may be increased in a required direction to reach across an opening. It will be correspondingly shortened in the opposite direction. These

changes are freely made by reason of the telescoping frame members and the sliding adjustment of the wires in the slots of the frame from which they cannot escape. The parts are retained in proper relation by the corner pivots.

The shoulders 20 keep the wires from being withdrawn from the frame and the shoulders 19 keep the ends of the wires from entering too far which is equally important for the reason that unless thus restrained the wire ends, in making an adjustment in the size of the grille, would be forced against the inner far side of the channel of the frame sufficiently to cause a locking friction.

While I have herein shown and described my invention in the best form as now known to me, it is obvious that structural changes may be employed without departing from the spirit of the invention and I, therefore, do not desire to be limited to that precise form beyond the limitations as may be imposed by the following claims.

I claim:

1. In a woven wire grille, a wire having spaced depressions on alternate opposite sides of the wire, both ends of the wire being in alignment with the axis of the wire and notched to form shoulders with a reduced thickness therebetween.

2. In a woven wire grille, a wire having spaced depressions on alternate opposite sides of the wire, both ends of the wire being in alignment with the axis of the wire and notched to form shoulders with a reduced thickness therebetween, the notches at the ends of the wire being formed to have flat portions between shoulders.

3. In a woven wire grille, a wire having spaced depressions on alternate opposite sides of the wire, both ends of the wire being in alignment with the axis of the wire and notched to form shoulders with a reduced thickness therebetween, the depressions and the notches at the ends of the wire being formed to have flat portions between shoulders.

4. A grille comprising a rectangular frame having a plurality of frame members telescoping one within the other and each slotted longitudinally and centrally on its inner side, a plurality of interwoven grille wires each having an end in alignment with the axis of the wire and notched to form shoulders with a reduced thickness of wire therebetween and having said end extending through said slot with the slot in the notch between the shoulders of the notch.

5. A grille comprising a rectangular frame having a plurality of hollow frame members of rectangular cross section, said frame members telescoping and slidable one within the other and each provided with a slot extending longitudinally and centrally thereof on its inner side, and a plurality of interwoven grille wires of greater diameter than the width of said slot having free ends in alignment with the axis of each respective wire extending through said slot and notched at the slot for passage therethrough.

6. A grille comprising a rectangular frame having a plurality of frame members telescoping one within the other, and each of said frame members having a slot on its inner side, a plurlity of interwoven grille wires of greater diameter than the width of the slot having their free ends in alignment with the axis of each respective wire extending through said slot and notched at the slot for passage therethrough, and all of said wires being offset in opposite directions at their intersections and flattened at their contacting portions in said offsets.

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