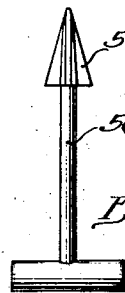
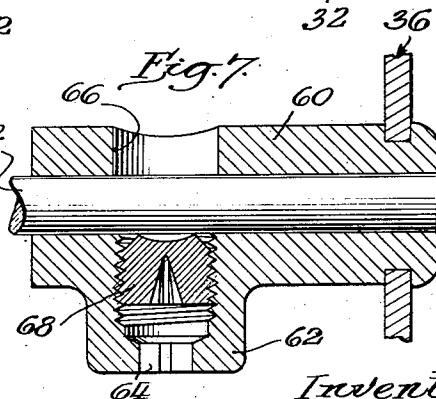
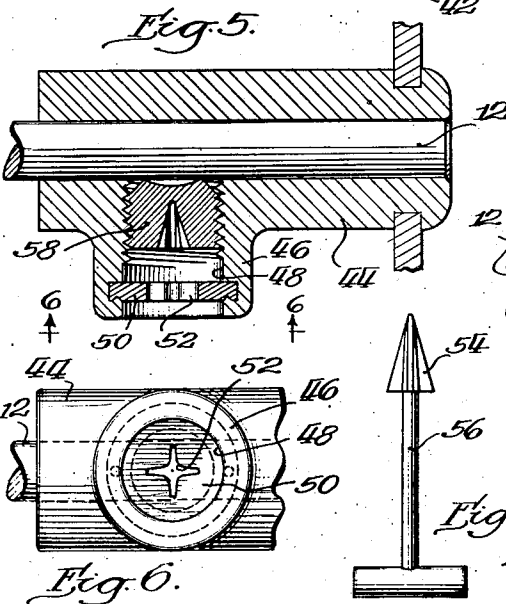
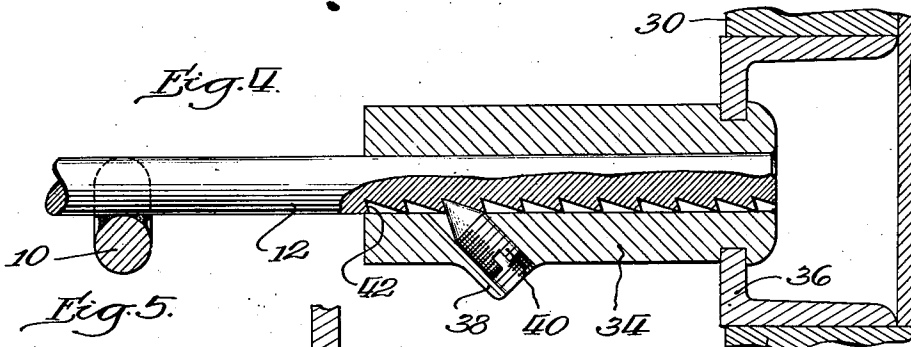
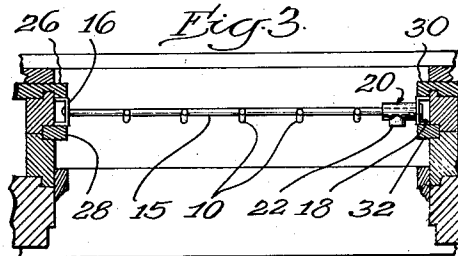
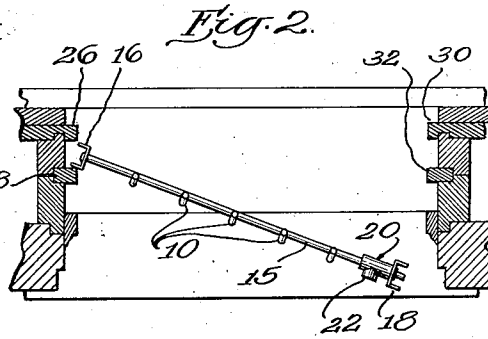
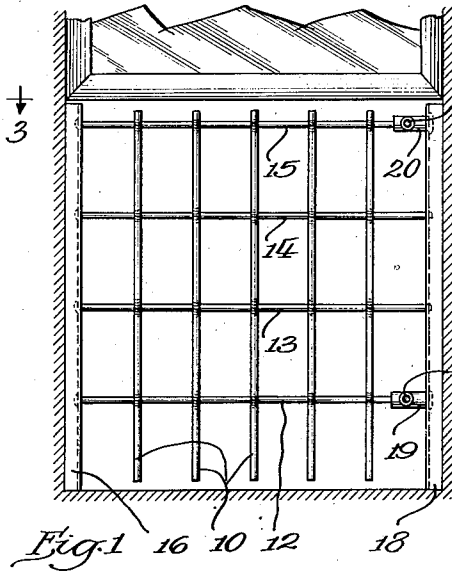


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REMOVABLE WINDOW GRILLE

2,222,667

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## UNITED STATES PATENT OFFICE

2,222,667

## REMOVABLE WINDOW GRILLE

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2 Claims. (Cl. 20—71)

My invention relates generally to removable window grilles, and more particularly to improved means for securing such grilles in a window frame.

It is an object of my invention to provide an improved removable window grille having easily operable means for locking the grille in place.

A further object is to provide an improved form of locking bracket for removable window grilles.

Other objects will appear from the following description, reference being had to the accompanying drawing, in which

Fig. 1 is an elevation of the improved window grille shown in position in a window frame.

Fig. 2 is a transverse, sectional view of a window frame showing the grille during the operation of inserting it in place.

Fig. 3 is a transverse, sectional view on the line 3—3 of Fig. 1, showing the grille in position.

Fig. 4 is an enlarged sectional view showing a modified form of means for securing the grille in position in the window frame.

Fig. 5 is a sectional view similar to Fig. 4, showing a further modified form of the invention.

Fig. 6 is an end view taken looking in the direction of the line 6—6 of Fig. 5.

Fig. 7 is a further modification of the securing means; and

Fig. 8 is an elevation of a key for use with the modified forms of securing means shown in Figs. 5, 6, and 7.

It is desirable in removable window grilles of the type disclosed herein, to have a suitable means for locking the grille in position in the window frame. Thus the grille can readily serve not only the usual purpose of preventing persons and objects from falling from the window, but also as a reasonable protection against burglary. However, it is not feasible or practical to employ any complicated locking mechanism for securing the grille in place, nor is it desirable to utilize any locking mechanism which requires alterations in the window frame.

In view of these requirements, I have devised the simple form of grille shown in Figs. 1, 2, and 3, which consists of a plurality of vertical bars 10 which are welded to horizontal bars 12, 13, 14, and 15. The left-hand ends of the bars 12 to 15 are secured in a vertical channel 16 by peening-over their reduced diameter end portions which project through the web of the channel while the right-hand ends of the horizontal bars are slid-

ably mounted with respect to the vertical channel 18.

Sleeves 19 and 20 are rigidly secured to the channel 18 and are slidable with respect to rods 12 and 15, respectively. These sleeves may have their end portions of reduced diameter projecting through the web of the channel 18 and peened-over so that they will be rigid with the channel. Each of the sleeves 19, 20, is provided with a boss 22 which is tapped to receive a hollow head set screw 24.

In installing the grille, the channel 16 is first inserted between the outside stop piece 26 and the parting bead 28 at the left-hand side of the window frame as shown in Fig. 2, and thereafter the grille is swung outwardly so as to bring the channel 18 in line with the guideway for the upper sash which is formed between the outside stop piece 30 and parting bead 32 at the right-hand side of the window frame. When in this position, the channel 18 is pushed to the right so as firmly to secure the grille against rattling, and the set screws 24 are tightened, using a square end set screw wrench. Since the bosses 22 face inwardly, it is rather difficult to loosen the set screws 24 from the outside of the window. It is also somewhat difficult to spread the channels 16 and 18 sufficiently and tighten them in separated position, to prevent rattling of the grille in the window frame. This is especially true since the casing yokes are not always exactly parallel.

To make it easy to tighten the grille firmly in position, I have provided a modified means for securing the grille in position, such means being shown in Fig. 4, wherein the sleeve 34, which is secured to the right-hand channel 36, is provided with a boss 38. The boss 38 is drilled at an angle of approximately forty-five degrees, and is tapped to receive a cone point set screw 40. The rods 12 and 15, which are slidably mounted in the sleeves, are each provided with a plurality of saw-tooth notches 42 for engagement with the point of the set screw. By means of this construction, the rods are not only more securely retained in position in the sleeves, but in the course of tightening the set screws 40, there is a tendency to separate the vertical channels and press them firmly against the casing yokes.

By the use of this type of fastening means, the grille is rigidly secured in the window frame and will not rattle. Likewise, the fastening means is less easy of access to a person endeavoring to remove the grille from the outside of

the window, since an angle screw driver is necessary in order to unscrew the set screw 40.

In Figs. 5 and 6 is illustrated a modified form of sleeve and means for locking the grille in the window frame, in which the sleeve 44 is provided with a boss 46 having a bore 48. The outer end of the bore 48 is partially closed by a disc 50 which is rigidly secured to the boss 46 and is provided with an X-shaped aperture 52. This aperture is so designed as to receive the head 54 of a driver 56 made generally in accordance with the disclosure of Patent No. 2,046,838 to Phillips. The inner end of the bore 48 is tapped to receive a set screw 58 having a socket conformed to be engaged by the head 54 of the driver 56.

It will be apparent that in the construction shown in Fig. 5, the set screw may be tightened and unscrewed only by the use of a special driving tool, shown in Fig. 8, since the stem of the tool is of lesser diameter than the maximum diameter of the head 54, and thus the head 54 may be inserted through the opening 52 and thereafter rotated to tighten or loosen the set screw. An ordinary driver for screws having sockets of this type cannot be used, because the shank or stems thereof are of too great a diameter to permit their insertion through the opening 52 formed in the disc 50.

In order further to reduce the cost of manufacture and to render the grille less subject to unauthorized removal, the sleeve 60 is provided with an integral boss 62 and the latter provided with an opening 64 of the same shape as the opening 52 shown in Fig. 6. A hole 66 is drilled partially through the sleeve 60 from a point directly opposite the boss 62, and the inner portion of the bore thus formed is tapped to receive a cup center set screw 68 having a recessed head of the type shown in said Phillips patent. It will be observed that the bore 66 is of sufficient diameter to receive the set screw 68 so that the latter may be screwed into the threaded portion of the bore prior to insertion of the rod 12, and after insertion of the latter may be screwed inwardly by means of the tool shown in Fig. 8, so as rigidly to clamp the sleeve to the rod.

While I have shown and described particular embodiments of my invention, it will be apparent to those skilled in the art that numerous alterations and variations may be made without departing from the more fundamental prin-

ciples of my invention. I therefore desire, by the following claims, to include within the scope of my invention all such similar and modified constructions whereby substantially the results of my invention are obtained in substantially the same way.

I claim:

1. In a window grille, the combination of a pair of vertical channels adapted to be inserted in the opposed sash guideways of a window frame, a grille including a plurality of horizontal rod end parts, said grille being permanently secured to one of said channels and having said rod end parts slidable with respect to the second of said channels, and means for rigidly securing at least one of said rod end parts to said second channel, said means comprising a sleeve having a part extending through said second channel and permanently secured thereto, said sleeve having a bore to receive one of said rod end parts and having an opening of irregular conformation, and a set screw threaded in said sleeve and engageable with said rod end part, thereby rigidly to lock said sleeve to said grille and hold said channels separated, said set screw having a socket conforming to said irregularly shaped opening in said sleeve, whereby a tool shaped complementally to said irregular opening may be inserted through said opening for engagement in the socket of said set screw to rotate the latter.

2. In a window grille, the combination of a pair of vertical channels adapted to be inserted in the opposed sash guideways of a window frame, a grille including a plurality of horizontal rod end parts, said grille being secured to one of said channels and having said rod end parts slidable with respect to the second of said channels, and means for rigidly securing at least one of said rod end parts to said channel, said means comprising a sleeve secured to said second channel and having a bore to receive one of said rod end parts, said sleeve also having a boss and a drilled and tapped hole extending from a point diametrically opposite said boss and partially into said boss, and a set screw having a socket of irregular conformation, said boss having an opening in one end thereof conforming to the shape of the socket to receive a tool cooperable with the socket of said set screw but to prevent insertion and effective rotation of tools having other conformations.

EDWARD H. KITZELMAN.