J. D. HUGHES & F. A. RETTIG.

WINDOW GRATING.

APPLICATION FILED AUG. 8, 1908.

951,643.

Patented Mar. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 2

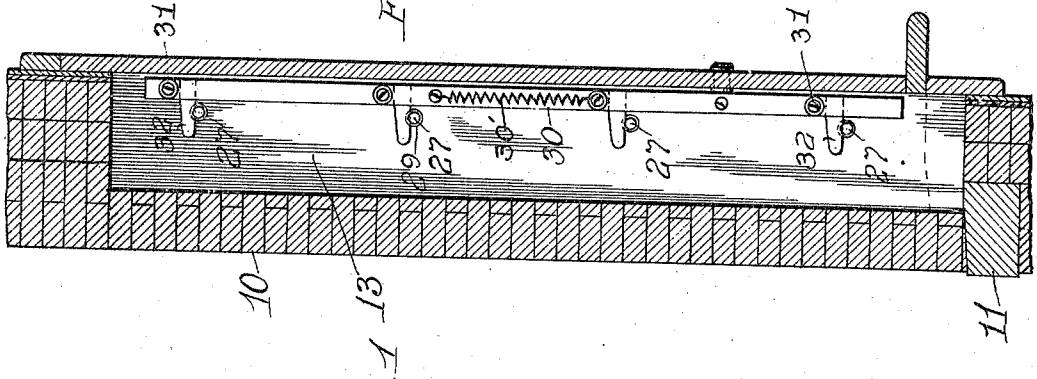
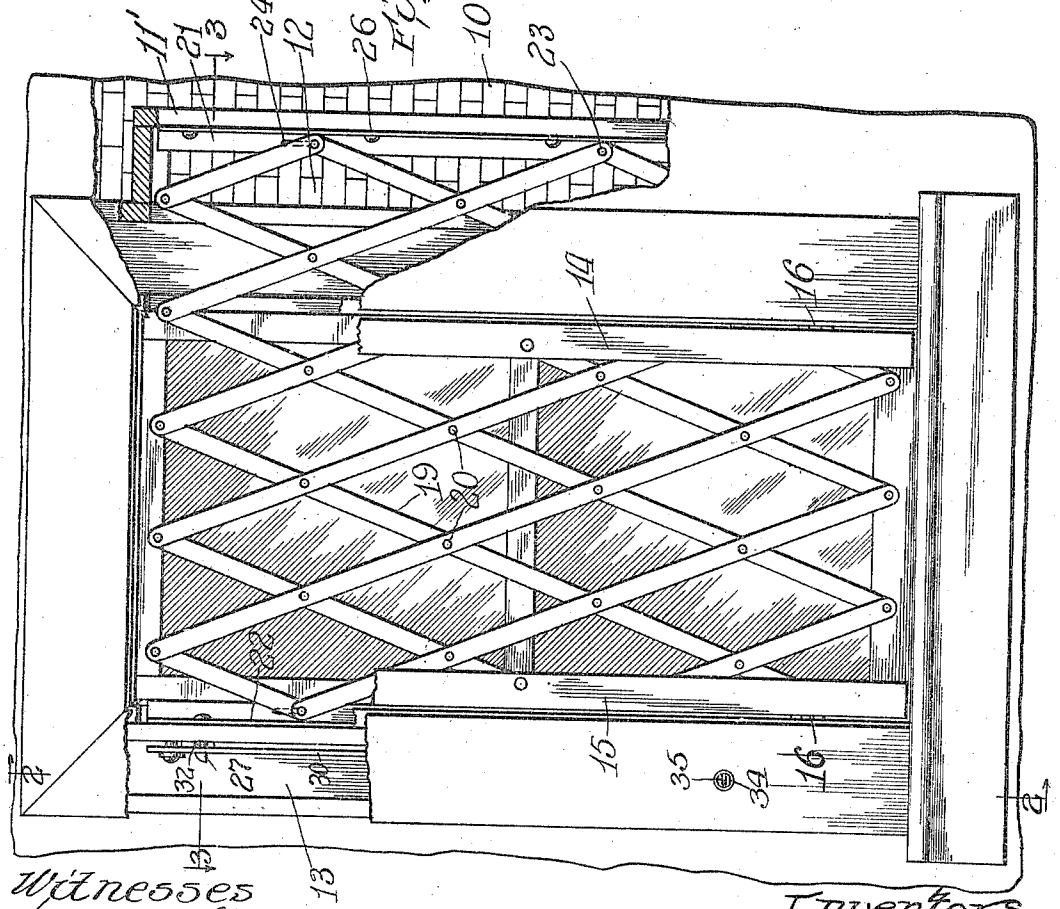


Fig. 1



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2 SHEETS—SHEET 2.

Fig. 3

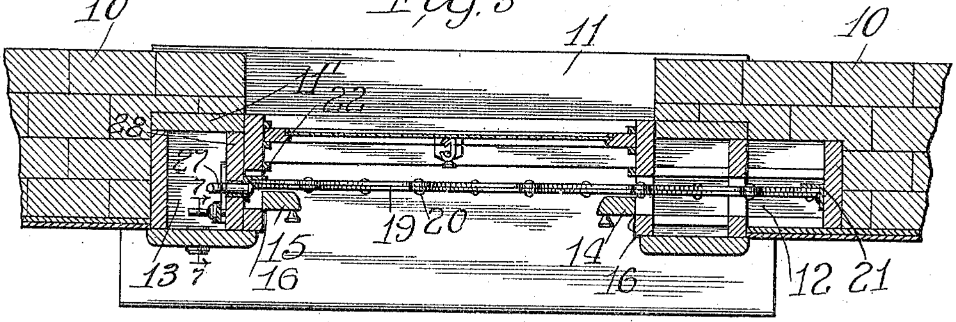


Fig. 4

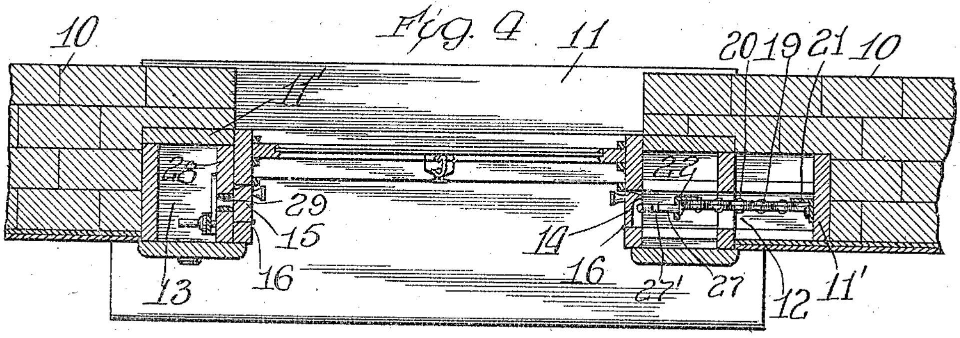


Fig. 5

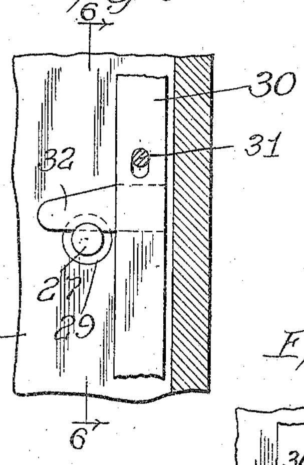


Fig. 6

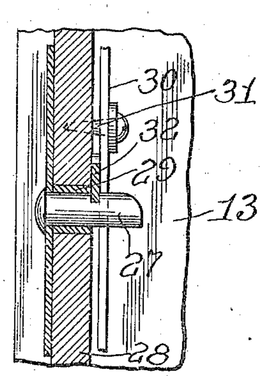
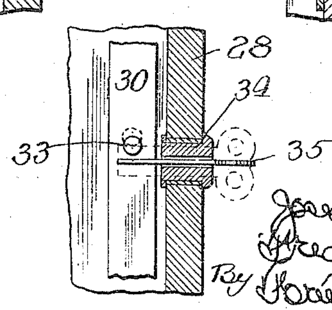


Fig. 7



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UNITED STATES PATENT OFFICE.

JOSEPH D. HUGHES AND FREDERICK A. RETTIG, OF CHICAGO, ILLINOIS.

WINDOW-GRATING.

951,643. Specification of Letters Patent. Patented Mar. 8, 1910.

Application filed August 8, 1908. Serial No. 447,509.

To all whom it may concern:

Be it known that we, JOSEPH D. HUGHES and FREDERICK A. RETTIG, citizens of the United States, both residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Window-Gratings, of which the following is a specification.

Our invention relates to gratings for windows or doors, and has for its salient object to provide a folding grating in association with the casing of a window or door, arranged to fold within and be concealed by the casing when not in use, and, in use, to extend as a barrier across substantially the entire area of the window or door.

A further object of our invention is to provide a grating of the character described which, when folded, lies in a space of small lateral compass, wholly within one side of the casing, and when extended effects locking connection with parts upon the other side of the casing.

A still further object of our invention is to provide such a structure having adequate means of support and retention so that when extended and locked in open position it has connection with rigid bearing and locking parts on opposite sides of the casing at a plurality of separated vertical points, thereby insuring strength to resist efforts to break down such barrier.

Another object of our invention is to provide in conjunction with such a grating structure a multiple point lock, for positively securing the free edge of the grating to the side of the casing remote from its points of permanent attachment, at the several vertically separated points of support, and key-operable from the inside only of the window.

Other objects of our invention will become apparent from the following description, taken in conjunction with the accompanying drawings, wherein—

Figure 1 is an elevation from the inside of a window equipped with our invention, parts being broken away, Fig. 2 is a vertical section on line 2—2 of Fig. 1; Fig. 3 is a horizontal section one line 3—3 of Fig. 1; Fig. 4 is a similar section showing the grating folded or closed, as when not in use. Figs. 5, 6, and 7 are details of parts of the locking mechanism.

In general our invention contemplates the provision, in conjunction with a window frame or casing providing recesses extending vertically on opposite sides thereof, preferably adjacent the face of the casing toward the interior of the building, of a folding grating, arranged when open to extend from its points of anchorage within the recess at one side of the casing across the window opening, transversely and vertically, and into locking engagement with parts on the opposite side of the casing, and when folded to lie all in the same plane as when extended but entirely within the confines of the recess wherein it is anchored, and the further provision of parts upon the casing for covering and completely concealing the recesses in the casing when the grating is not in use.

Also our invention contemplates the anchorage of the grating in such manner as to secure it at several vertically separated points against lateral displacement, and the provision of key-released locking mechanism for engaging and securing the free edge of the grating at several separated points, when the grating is open or in use.

In the specific construction shown, 10 indicates a building wall provided with an opening to be protected by the folding grating, such opening being bounded by a suitable frame 11, herein illustrated as a suitable window casing. The opening in the wall may be provided with a usual closure, such as the customary window sashes herein illustrated, but such ordinary sashes form no part of our invention.

For clearness we will hereinafter arbitrarily designate the side or face of the window frame toward the interior of the building as the inside; that side or edge of the frame to which the grating is permanently secured as the anchorage side; the opposite side as the locking side; the direction at right angles to the plane of the window glass as lateral; and the direction parallel to such window glass as transverse.

On the anchorage side the frame 11 has built out transversely an extension 11′, inclosed on three sides by the building wall, and the frame is constructed to afford on said anchorage side a deep transverse recess, extending vertically the full height of the window-opening, and indicated at 12. On the locking side a shallower recess, 13, is

provided, said recesses alining transversely and being preferably disposed inside of the normal closure or window sashes. Closures, 14 and 15, are preferably provided for the respective recesses 12 and 13, such closures being preferably strips of material matching the window frame, and hinged at their inside edges, as shown at 16, so that when closed they close and conceal the recesses and give the window frame substantially the appearance of being of ordinary, solid construction. Small knobs may be provided upon such closures to facilitate opening them, if desired.

The folding grating herein shown comprises a suitable series of lazy-tong levers, 19, connected at their points of juncture by pivots 20, in usual fashion, such lever system being connected at opposite sides to the similar angle-bars 21 and 22, each such connection being effected through one fixed pivot-joint 23, and other pin-and slot connections, 24, to provide for the lever system terminal attachments which permit it to fold and yet give it adequate strength. The angle-bar 21 is secured to the frame extension 11′ at a plurality of separated points, as by screws 26, and the parts are so proportioned that when the grating is folded in the transverse plane in which it constantly lies, it is entirely concealed within the anchorage recess, and is overlain by the closure 14.

The angle-bar 22 at the locking edge of the grating is provided with a plurality of vertically-spaced projecting studs, 27, and within the locking recess 13 is arranged a rigid, vertical receiving-strip 28, having made therein bushed apertures 29, for the reception of the several studs 27. To the back of this receiving strip a key-operated, multiple-point locking device is secured for locking each of the several studs 27 against withdrawal from its receiving aperture. To this end we provide in the upper surface of each stud a notch 27′ and arranged upon the rear face of the receiving-strip 28 a vertical bar, 30, guidedly supported by pin-and-slot connections 31, and provided with laterally-projecting tongues 32, adapted to engage respectively the notches in studs 27, thereby to form a locking mechanism for all of the studs, operable, as preferred either by gravity, or under tension of a spring 30′. For raising the locking bar to release the studs, any suitable key-controlled mechanism may be employed, the simple device herein illustratively shown comprising a transverse pin 33 protruding from the locking bar 30 in such relation to a key-barrel 34, accessible only from the inside of the window, that when a key 35 is inserted into the barrel with its blade horizontal, and is then rotated a quarter-turn, it lifts the pin 33 and the locking bar.

The operation of our grating will now be apparent. When the window opening should be unobstructed, as in the day-time, the grating is unlocked and folded back into the recess in the anchorage side of the casing, and both the grating and the apertured receiving strip are concealed by the closures for their respective recesses; but when it is desired that the window opening shall be barred, as at night, the recess closures are swung open, the barrier drawn across the window, and the free edge of the grating is secured by the locking device at the several separated points where its studs engage the receiving strip.

While we have herein particularly described our invention as applied to window protection, it will be apparent that it is applicable to any building-opening, and that if preferred the grating might be made to fold vertically instead of transversely, and that numerous changes might be made in the details of construction without departure from the spirit and scope of our invention.

What we claim is:

1. In a protective window structure, the combination of a window frame 11, providing a transverse extension 11′, at one side, and having in its confronting vertical surfaces corresponding narrow openings; planar closures, 14, 15, for said openings, hinged at the corresponding edges of said openings to swing toward each other; a lazy-tongs grating structure, vertically substantially coextensive with the frame, anchored at a plurality of points in the extension 11′, and foldable wholly within said recess to be overlaid by the closure 14; a vertical receiving strip 28 underlying the vertical opening in the opposite frame member, having a plurality of apertures therethrough; studs 27 upon the free edge of the grating; a vertically movable lock-bar 30, mounted on the receiving strip 28; locking projections 32 upon said bar for coöperation with the studs of the grating; a rotatable key-receiving structure 34, in a side face of the frame; and a key 35 for direct coöperation with a projection on the lock-bar 30, to form the sole means of elevating the latter.

2. In a protective window structure, the combination of a window frame 11, providing a transverse extension 11′ at one side and having in its confronting vertical surfaces corresponding narrow openings; planar closures, 14, 15, for said openings, hinged at the corresponding edges of said openings to swing toward each other; a lazy-tongs grating structure, vertically substantially coextensive with the frame, anchored at a plurality of points in the extension 11′, and foldable wholly within said recess to be overlaid by the closure 14; a vertical receiving strip 28 underlying the vertical opening in the opposite frame member, hav-

ing a plurality of apertures therethrough; studs 27 upon the free edge of the grating; a vertically movable locking structure mounted in rear of the receiving strip 28, a key receiving structure in the inner side face of the frame; and a key for coöperation with said locking structure to move the same to unlocking position.

In testimony whereof we hereunto set our hands.

JOSEPH D. HUGHES.
FREDERICK A. RETTIG.

In the presence of—
GEORGE L. CHINDAHL,
GEORGE T. MAY, Jr.