April 28, 1931. A. W. GREENLEY 1,803,272

PROTECTED GRATING

Filed June 10, 1929

Fig. 1.

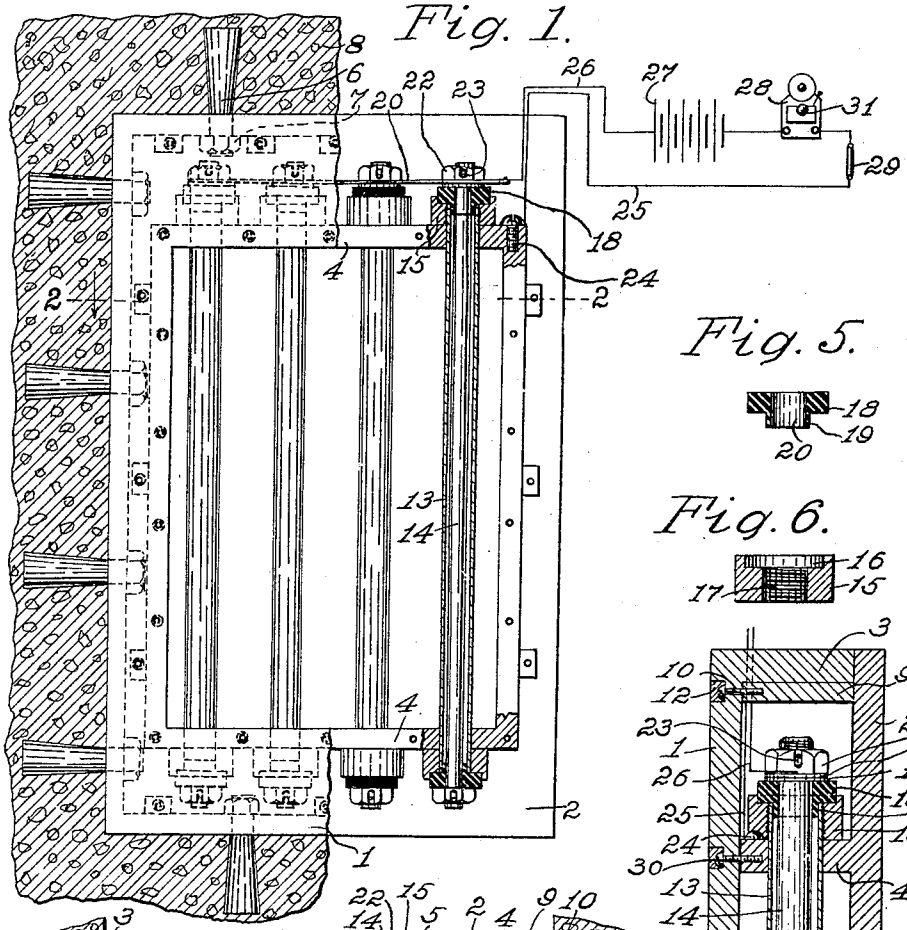


Fig. 5.

Fig. 6.

Fig. 4.

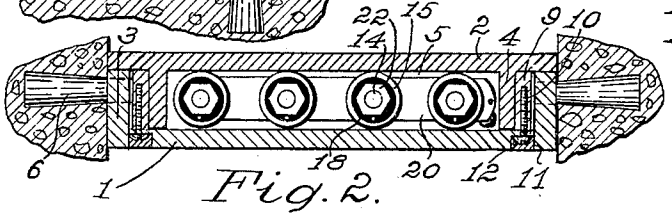


Fig. 2.

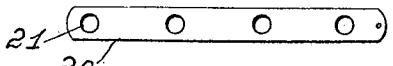


Fig. 3.

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UNITED STATES PATENT OFFICE

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PROTECTED GRATING

Application filed June 10, 1929. Serial No. 369,821.

My invention relates to improvements in protected gratings, and the object of my improvement is to supply for buildings such as jails and the like, banks, vaults, offices or other structures, means for preventing a successful breaking down of such gratings by the exercise of unauthorized force applied thereto, by combining with the gratings electrically operable alarm or signaling devices, whereby such an infringement of the grating in any case is made known at a distance immediately and before parts are ruptured sufficiently to permit a passage therethrough.

Another object is to render the protecting means as combined with a window or other frame, or other supporting or inclosing means, of simple and inexpensive construction, not attackable from within or without a building, and securely mounted and attached to the building structure so as to be irremovable without destruction in whole or in part of said structure together with the grating.

Another object is to provide within the frame frame hollow housings unattackable from the inside of the building, electrical connections for all of the grating bars in circuit with a source of electrical current and a signaling device, whereby when any one of said bars is attacked by a file or other conductive rupturing means, or by a jimmy or other bending appliances, the circuit will be infallibly closed at once and will remain so, while the signaling device is in continuous operation.

Other objects as to effective and convenient detail elements used in the invention will be more fully pointed out in the description and in the appended claims.

I have successfully demonstrated my invention by the means which are hereinafter described and claimed, and which are illustrated in the accompanying drawings, in which Fig. 1 is a view, partly in outside face elevation and partly in vertical transverse section, with parts broken away, of my invention as applied to and combined with a window frame, its grating bars, and the structure wall to which both are affixed. Fig. 2 is a horizontal section of the same taken on the broken line 2—2 of said Fig. 1, looking in the direction indicated by the arrow. Fig. 3 is a plan of the conducting bar, Figs. 5 and 6 details of the connections therefor, and Fig. 4 an enlarged section of the device top.

My invention is not restricted to the precise construction, dimensions and arrangement of parts herein shown and described, nor to the various details thereof, as the same may be modified or rearranged in various particulars without departing from the spirit and scope of my invention, one practical embodiment of which has been herein illustrated and described without attempting to show all of the various forms and modifications in which my invention might be embodied.

My invention is particularly adapted to the protection of the cross-bars of jail windows, to give instant warning of any attempt of an occupant of a cell to file or otherwise cut apart a window bar by any file or other metal tool which is electrically conductive, or to bend or break the same by any lever or the like.

I have therefore exemplified my invention in the said drawing figures, in which the numeral 8 denotes a concrete wall of a jail or other construction, having a window opening in which is rigidly mounted and secured an all metal window frame made up of conducting metal mated sections 1 and 2, the section 1 being the outer and section 2 the inner one of the frame. As shown in said Fig. 2, the inner frame is the same size superficially as the outer frame section 1, the latter having a large window opening which is opposite and registers with a like window opening in the inner section 2. The outer section 1 has along its inner margin inwardly directed flanges 3 which contact with the abutting faces of the wall opening. These flanges may be apertured to be traversed by anchor-bolts 6 whose conically enlarged stems are embedded in the fresh concrete of the wall 8 initially to be then securely anchored therein when the concrete solidifies. The bolts may have heads or securing nuts engaging the inner faces of said flanges as shown by the dotted lines at 7.

The inner frame section 2 has outwardly directed flanges 4 spaced from its outer edges and which terminally engage the inner face of

the outer section 1 when the sections are assembled, thus closing the central registering openings of the sections, but providing a boxed in interspace all around between the flanges 3 and 4, which interspace is wider at the top and bottom parts of the frame.

When the sections 1 and 2 are thus assembled, with the section 1 fastened to the wall 8 by said anchor-bolts 6 or any other suitable fastenings, the sections may be fastened together by means which are not attackable from within a cell. On the outer faces of the flanges 4 are elongated bosses 9 within the interspaces of the two flanges 3 and 4, and which have interiorly threaded holes to receive threaded stems of headed screws 10. The outer ends of said holes are widened to open outwardly at 11 to accommodate the screw heads, and when the latter are seated, the pits or enlarged openings 11 may be filled with solder, thus locking the screws, and aiding in preventing their removal from the outside by any ordinary means. Additional pits 11 and headed screws as at 30 may be used to fasten the plate 1 to the edges of the flanges 4, as shown in Fig. 4, with like solder fillings for the pits.

However, previous to the assembling of the frame sections 1 and 2 as above described, grating bars are connected between the upper and lower parts of the inner flanges 4 as follows.

The opposed flanges are apertured to fit and receive the vertically disposed laterally spaced tubes 13 therethrough to project therebeyond a short distance with their terminations threaded exteriorly to receive the cupped nuts 15 with the threads of their hollows 17 in mesh with said terminations. The numeral 18 denotes a hollow insulating plug or spacer having a diminished stem part 19 which is seated within and fits an open termination of a tube 13. The wider head of the insulating member 18 is seated in a socket 16 in the upper face of the nut 15 in each case. The members 18 are clamped by the castellated nuts 22 removably secured by split-pins 23. Upon the tops of the upper members 18 may be placed washers 19*a*, and upon these an apertured conducting bar 20, and said nuts and split-pins to fasten them.

The numeral 14 denotes a solid steel conducting bar positioned centrally within the tube 13 to project terminally therebeyond with threaded terminations to receive the castellated nut 22 secured also by a split-pin 23. The single bar 20 receives the vertical bars 14 through and contacting with its opening walls, but is insulated from the outer tubes by the insulating members 18.

The numeral 24 denotes a binding screw in a threaded socket near an upper corner of the flange 4 to secure one end of a conductor 25 leading out between the frame members or sections and through the wall by way of a switch 29 and bell signal 28 with light signal lamp 31 in circuit to one terminal of the battery 27. Another conductor 26 leads from said battery and between the frame sections to an end of the apertured common conducting bar 20. Instead of a battery 27, if desired the circuit may include a generator, with a step-down transformer, if necessary.

In case an attempt is made to file the compound bar 13 and 14 across, the file after notching the tube 13 will contact electrically with the inclosed bar 14, thus closing the circuit by way of the metal flange 4 at one end, and by the apertured conducting bar 20 at the other end of the circuit. Any bar 13—14 when so operated upon will likewise close said circuit, to thus actuate the combination signaling devices 28 and 31, which may be in a distant station. If a jimmy or other lever is used to bend and break said combination bars 13 and 14, the thinner tube 13 will be bent against and close the circuit because of making contact with the inner bar 14.

It will be observed that the assembled frame sections 1 and 2 have therebetween all around an interspace in which is contained the bolt heads or nuts 7, also the end connections of the tubes 13 and the bars 14, where they are isolated and cannot be reached by a tool or otherwise from either within or without a cell.

This invention with any necessary minor modifications may be used in the general wall of a vault or other wall construction, or in a vault or other door thereof of a safe, and will be protected under the same principles.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. In a device of the character described, a hollow metal frame composed of opposed comating face-plates respectively having spacing flanges constituting a circumferentially hollow structure and having no joints presented to attack from within a supporting structure, certain inner opposite flanges being apertured to receive and fit traversing ends of grating members to be secured thereto by means wholly within the frame structure, and means for fastening said face-plates together penetrating said structure only from without the supporting structure.

2. In a device of the character described, a hollow frame composed of chambered parts connected terminally by rigid connections, anchoring projections mounted around the periphery of the frame for interlocking insertion within the substance of a supporting structure, and divisional devices rigidly connected between opposite members of the frame.

In testimony whereof I affix my signature.

ALVIN W. GREENLEY.