

July 20, 1926.

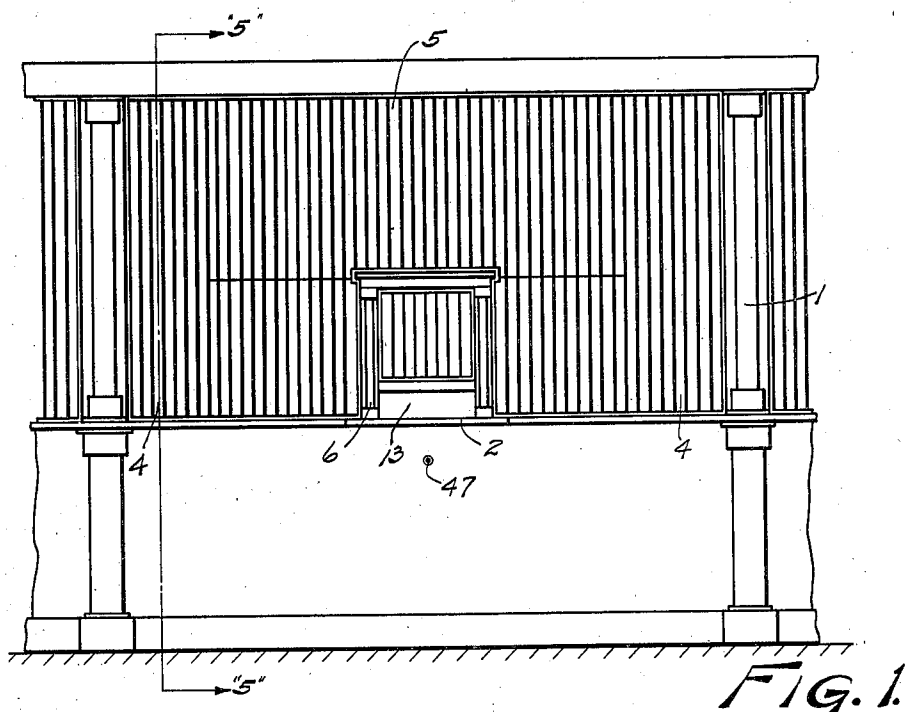
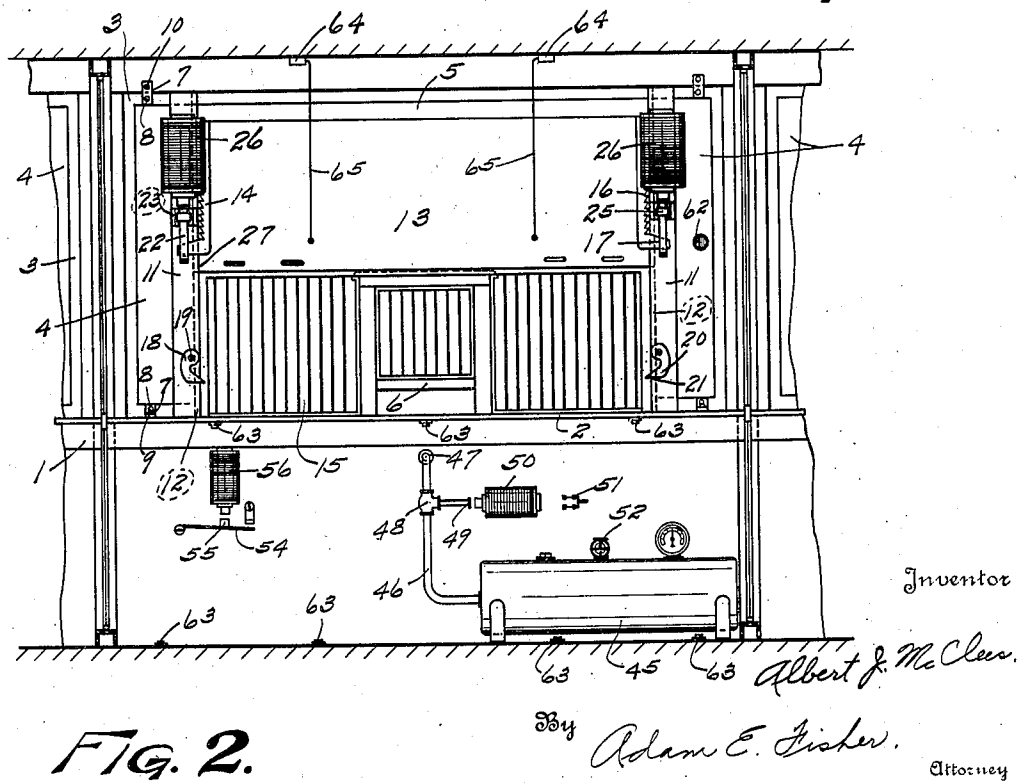
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A. J. McCLEES

BANK PROTECTING APPARATUS

Filed March 18, 1925

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

FIG. 4

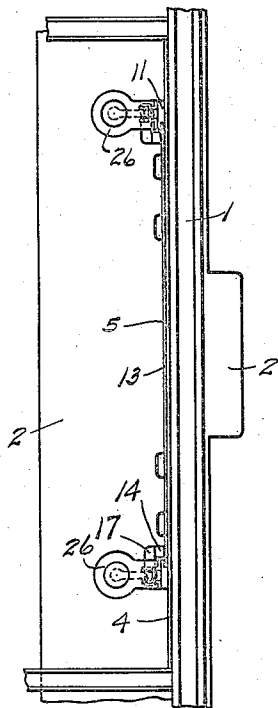
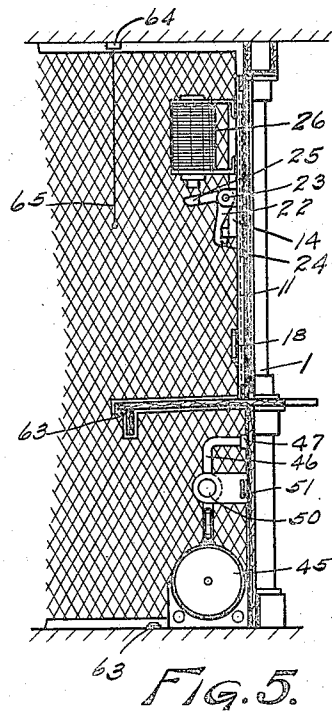
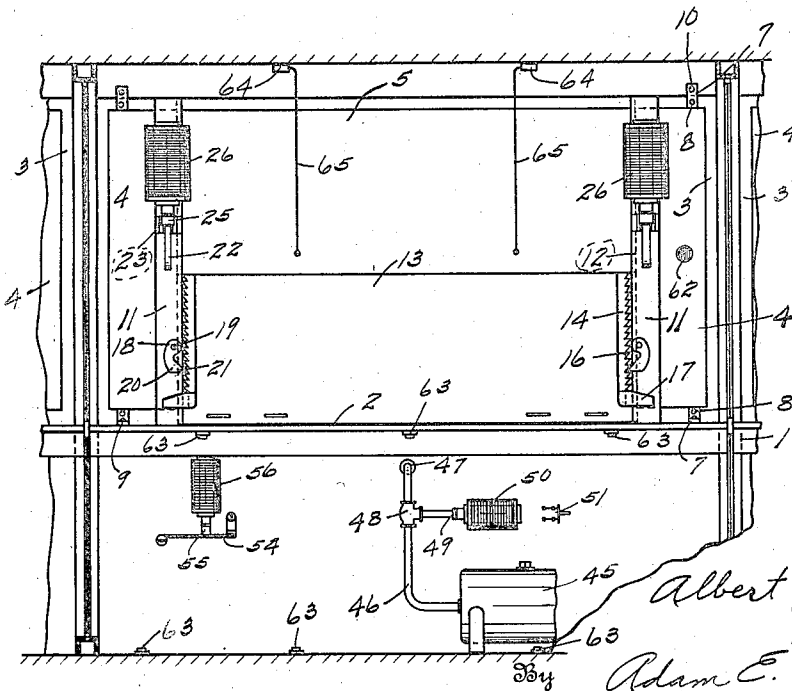


FIG. 3.

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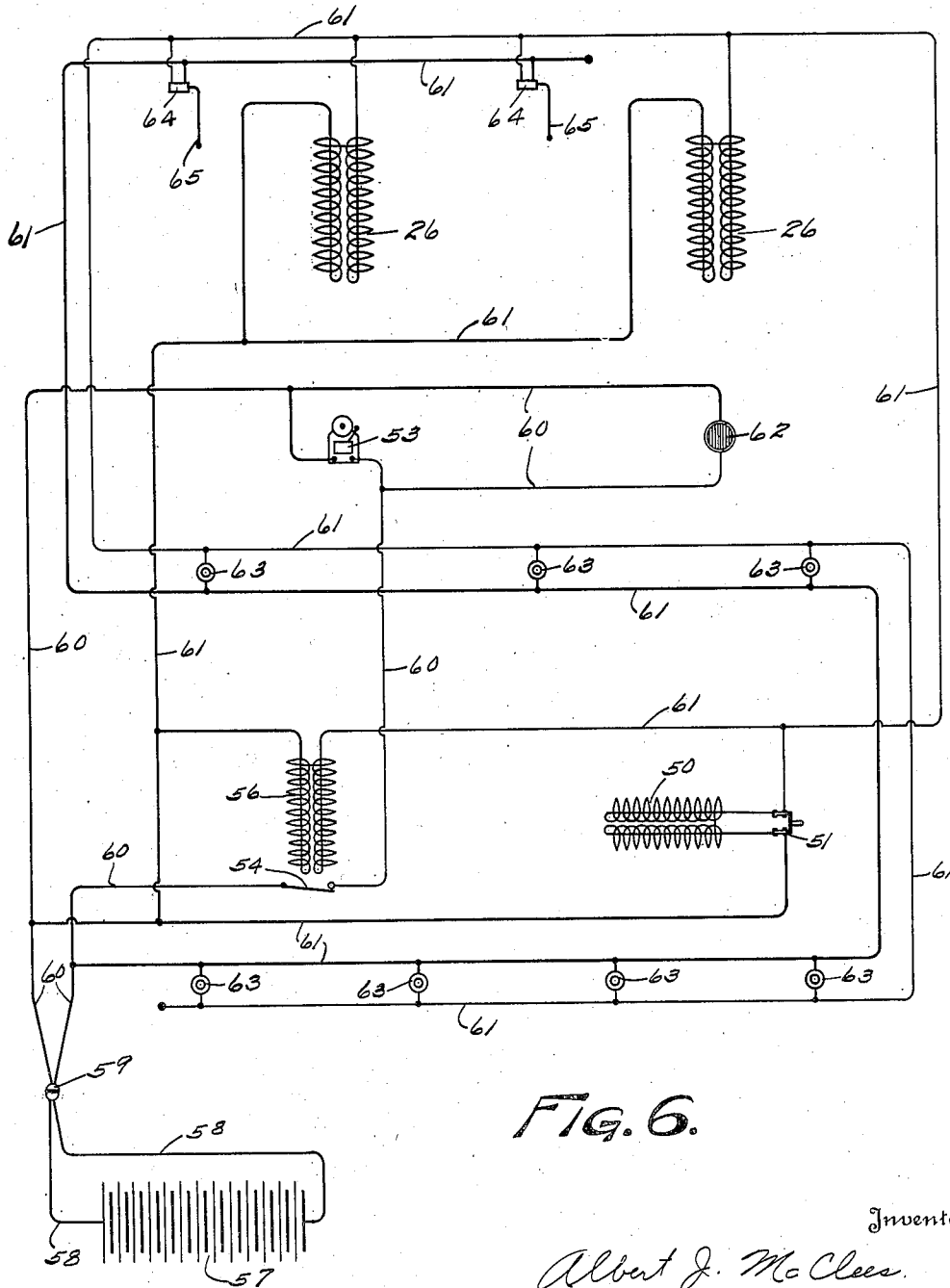
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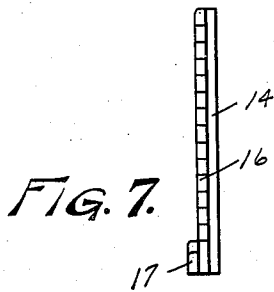


Fig. 7.

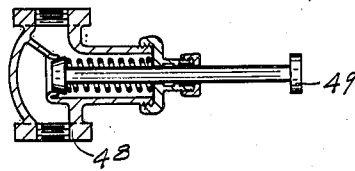


Fig. 8.

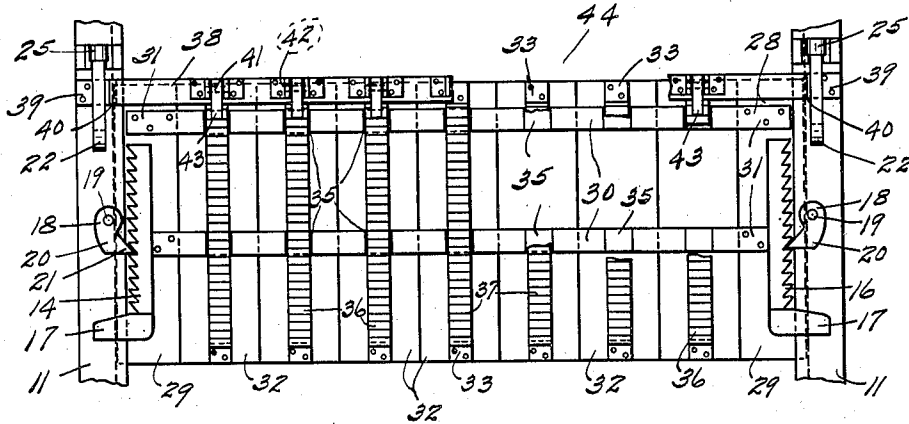


Fig. 9.

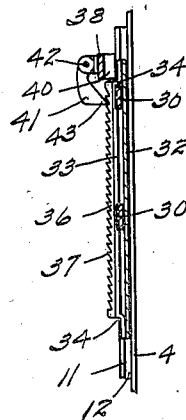


Fig. 10.

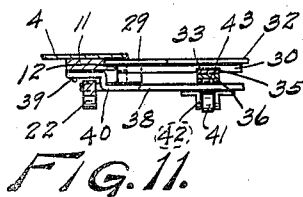


Fig. 11.

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UNITED STATES PATENT OFFICE.

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BANK-PROTECTING APPARATUS.

Application filed March 18, 1925. Serial No. 16,585.

This invention relates to and constitutes a bank or counting house protecting apparatus or equipment, and has for its prime object the provision of means for protecting the bank officers and employees back of the cage or palings from the attacks of robbers or bandits.

Another object is to provide a system of electro-magnetically controlled gravity shutters constructed of any suitable bullet proof material, such as hardened steel, specially prepared glass or fabric, or the like, and slidably mounting the same back of the bank palings and windows thereof in such manner that when the shutters are elevated the said windows and railings will stand normally open and unobstructed, but when the shutters are dropped, the said windows and palings will be entirely covered and closed, and so effectually guarded against the assaults of robbers.

Another object is to provide an auxiliary, electromagnetically controlled alarm bell to be located in any preferred place, as at the front of the bank building.

A further object is to provide a similarly controlled gas throwing or projecting means, whereby a "sleeping" gas or the like may be projected into the room in front of the shutters, as the latter are lowered, for the purpose of rendering bandits unconscious who may be in front of the shutters.

A still further object is to so electrically coordinate these various protective means, that all may be operated simultaneously upon the mere closing of any one of a plurality of switches which may be located as desired upon the counters, desks or floor, in various parts of the room.

In the drawing—

Figure 1 is a front view of a bank paling showing this invention incorporated at the back thereof, with the solid shutter in closed position;

Figure 2 is a rear elevation of the paling and apparatus, showing the solid shutter in raised position;

Figure 3 is a rear elevation, showing the shutter in lowered position;

Figure 4 is a top plan view;

Figure 5 is a vertical cross section on the line 5—5 in Figure 1;

Figure 6 is a diagrammatic lay-out of the various elements, switches and conductors;

Figure 7 is a detail of a preferred form of latch and ratchet support for the shutter;

Figure 8 is a detail of the magnetically controlled valve for releasing the gas from the gas tank;

Figure 9 is an elevation of a modified structure in the way of a frame supporting a plurality of sliding panels, the same to serve in lieu of the solid shutter illustrated in the other views. In this view a section is broken out to show the arrangement of the cross bars;

Figure 10 is a vertical section of the modified structure shown in Figure 9;

Figure 11 is a section plan view of a guide strip and a portion of the panelled shutter.

In carrying out this invention a two-part bullet proof shield is provided and mounted vertically back of the cage or palings 1, above the counter or desk 2. This two-part shield may be made of any desired and suitable material, as hard sheet steel, special glass, or any other bullet proof substance, and the shield includes a frame 3 having end supports 4, connected by a raised and horizontally disposed panel 5 extending above the tellers' windows 6, thus leaving the open space 15 between the panel 5 and the counter or desk 2. If desired this panel 5 may be extended up clear to the ceiling. The frame 3 is permanently secured in place in any conventional manner, as by the straps 7 bolted or riveted at 8 to the frame 3 and at 9 and 10 to the top of the desk 2 and top of the paling 1, respectively. Guide strips 11, having inwardly turned slide-ways or grooves 12 are fastened vertically to the frame 3 adjacent the inner edges of the supports 4, and at the back thereof, and extend from the top of the frame 3 to the bottom thereof. The remaining part of the two-part shield referred to consists of a shutter 13, which is slightly wider and longer than the opening 15, and is slidably mounted at its ends 27 within the slideways 12 of the frame 3, and thus is adapted to be raised above the windows 6 or dropped down over the windows and exposed paling and grille work in a manner to be later described. A flat ratchet bar or strip 14 is rigidly fastened across each end of the shutter 13 adjacent to and with the teeth 16 turned outwardly towards the strips 11, and these ratchet bars should be bolstered out sufficiently that their teeth 16 will clear the outer face of the said strips 11. The teeth 16 are all pointed upwardly, but at the lower end of each of the bars 14 a

squared shutter supporting tooth or lug 17 is provided for a purpose to be explained. At suitable points upon the guide strips 11, ratchets or detents 18 are pivoted upon pins or studs 19 and so weighted in their shanks 20 that their teeth 21 will smoothly coact with the teeth 16 of the rack bar for the purpose of permitting the shutter 13 to readily drop when released for that purpose, but will prevent the shutter from being again raised, until the detents 18 are freed from the teeth 16. Angular latches 22 are pivoted at 23 upon the strips 11 at points immediately above the opening 15, or so that the shutter 13 when raised will clear the tops of the windows 6. These latches are formed with lips 24 turned upwardly as shown and so adapted to engage the under sides of the squared teeth 17, when the shutter 13 is fully raised, and thereby releasably hold that shutter in elevated position. The shanks 25 are of magnetic metal and are extended laterally and disposed beneath electro-magnets 26 fastened in suitable position upon the frame 3, or where desired. The length of the shanks 25 should be so proportioned to the strength of the magnets 26, that the latter will suffice when energized to raise the shanks 25 and release the latch lips 24 from the teeth 17 and so allow the shutter 13 to fall.

In lieu of the solid shutter 13 so far described, a panelled shutter 44 may be employed as illustrated in Figures 9 and 10. This consists of a sliding frame 28 made up of end strips 29 connected medially by two horizontal cross bars 30 fastened by their ends at 31 to the said strips 29. The upper bar 30 is positioned at the top of the strips 29, and the lower bar 30 down towards the middle of the strips 29. A plurality of panels 32 are then vertically and slidably mounted at the front of these bars 30, being held in sliding engagement therewith by means of metal straps 33, bent at their ends as shown at 34 so as to embrace the bars 30, and by those ends rigidly, medially and vertically secured to the back faces of the panels 32. Guide notches 35 are cut across the bars 30 in which the straps 33 slide, the said notches serving to help hold the panels in proper vertical alignment with each other. Thus when the frame 28 is elevated, all of the panels 32 will hang in horizontal alignment, being held suspended by the straps 33. Ratchet bars 36 are rigidly fastened to the outer or back faces of the straps 33, the teeth 37 thereof being turned upwardly. A stationary pawl bar 38 is extended horizontally across the top ends of the panels 32 and at the back thereof, the ends of this bar 38 being fastened at 39 to the guide strips 11 of the frame 3, and being bolstered out at 40 sufficiently to permit a free clearance for the vertical move-

ment of the frame 28, panels 32 and straps 33. Downwardly directed pawls 41 are pivoted at 42 to the pawl bar 38, and are weighted so that their teeth 43 will normally engage the ratchet bars 36. Thus the panels 32 may readily slide downward through the frame 28, but cannot be again raised while the pawls are in contact with the ratchet bars. In this structure the previously described ratchet bars 14 of the solid shutter 13 are similarly secured to the end strips 29; and in all other respects the operation and control of this panelled shutter 44 is the same as that for the solid shutter 13, so far as the movement of the shutters as a whole are concerned; but it will be seen that upon the release and downward movement of the panelled shutter, should any obstruction be thrust under the lower edges of any of the panels, those particular panels alone would be affected, and held relatively elevated, while the remaining panels all slide clear down to the top of the desk 2; and all the panels would be held locked in their downmost position, until released.

A gas tank 45 is mounted in any suitable location, as back of the paling under the desk 2; and this tank is provided with a hose 46 and nozzle 47 extended out through the front of the paling 1. A valve 48 is set in the hose line, the same having an extended magnetic metal stem 49 disposed opposite to an electro-magnet 50, in such manner that when the magnet is energized, the stem 49 will be moved, thereby opening the valve and permitting gas to flow from the tank 45 out into the room at the front of the cage or paling. A hand switch 51 is incorporated in the electric line leading through the magnet 50, so that the described gas operating mechanism may be disconnected from the rest of the apparatus, if desired. The tank 45 is charged through a feed valve 52. Any form of "sleeping gas" or the like may be used. An electric alarm bell 53 may be located at any desired points, (not shown), as on the outside of the building or in the police station. A switch 54 is incorporated in the line controlling the alarm bells, with a magnetic metal stem 55 disposed adjacent an electromagnet 56; so that when this magnet is energized the switch 54 will be closed and will sound the bell alarm continuously. From any suitable source of electric energy, as from the battery 57, conductors 58 are extended to a socket and plug connection 59, from which lines 60 are run through the bell 53, and a shunt line 61 is extended through the magnets 26, 50 and 56, the purpose being that the bell once started, may ring steadily, even after or should the said magnets, once energized, become dead again. A number of electric red lights 62 may be located along the desk 2, opposite the various tellers' windows, or elsewhere as

desired, and incorporated in the electric line 60 of the bell 53, as an additional means of alarm.

A multiple switch system is provided, including a number of button switches 63 located at various points on the desk 2, and elsewhere as may be desired, and likewise a number of pull switches 64 mounted on the ceiling and controlled by chains 65 depending therefrom; all or any one of said switches being adapted to close the circuits through the conductors 58.

In operation, upon the appearance of bandits, an officer or employee simply closes one of the said switches, using the button switches if convenient, or the pull switches if he is compelled to "throw up his hands." The resulting closed circuit, energizes the several magnets, causing the shutter to drop, the gas to be discharged, the alarm bell to ring, and the red lights to show.

While I have herein described a certain specific manner and method of constructing and assembling the elements of my invention, it is understood that I may vary from the same in minor details, not departing from the spirit of my invention, so as best to construct a practical device for the purpose intended, as defined in the appended claims.

I claim:

1. In combination with a bank-cage paling and counter, a protecting apparatus therefor, comprising a bullet proof frame permanently mounted on the counter at the back of the paling, the said frame having an opening therein over the counter; a bullet proof shutter mounted on the frame and adapted for vertical sliding movement across the frame opening, the said shutter consisting of a frame and a plurality of narrow panels mounted therein side by side and adapted for vertical sliding movement therein; means for releasably supporting the shutter in raised position; and electro-magnetic means for releasing the shutter from its said supporting elements.

2. In combination with a bank-cage paling and counter, a protecting apparatus therefor, comprising a stationary bullet proof supporting frame secured to the counter and paling, the said frame having an opening therein over the counter; a movable frame mounted for vertical sliding

movement across the opening of the stationary frame; a plurality of bullet proof vertically disposed panels mounted for vertical sliding movement across the said movable frame; means for releasably supporting the movable frame in raised position on the stationary frame; means for securing the movable frame in its lowered position on the stationary frame; means for releasably locking against upward movement the individual panels of the movable frame, at any point of their downward travel; and electro-magnetic means for releasing the supporting means of the movable frame.

3. In combination with a bank-cage paling and counter, a protecting apparatus therefor, comprising a stationary bullet proof frame fastened to the counter and paling, the frame having an opening therein over the counter; a movable frame mounted for vertical sliding movement across the opening of the stationary frame, the said movable frame including end strips and horizontal cross bars; a plurality of bullet proof vertically disposed panels mounted across the movable frame, and supported and adapted for vertical sliding movement thereon by means of straps secured at their ends to the panels and embracing the horizontal bars of the movable frame; ratchet bars on the said panel straps, the teeth thereof being turned upwardly; a pawl bar extended across the top of the stationary frame and fastened by its ends to the stationary frame; downwardly turned pawls pivoted to the pawl bar and normally engaging the ratchet bars of the panel straps; ratchet bars at the ends of the movable frame, the teeth thereof being turned upwardly; frame supporting lugs at the lower ends of the last mentioned ratchet bars; pawls pivoted to the stationary frame and adapted to engage the ratchet bars of the movable frame; latches on the stationary frame and adapted normally to engage the said frame supporting lugs, the said latches having extended magnetic shanks; electro-magnets mounted opposite the shanks of the latches and adapted when energized to release the latches from the said frame supporting lugs; and means for energizing the said electro-magnets.

In testimony whereof, I affix my signature.

ALBERT J. McCLEES.