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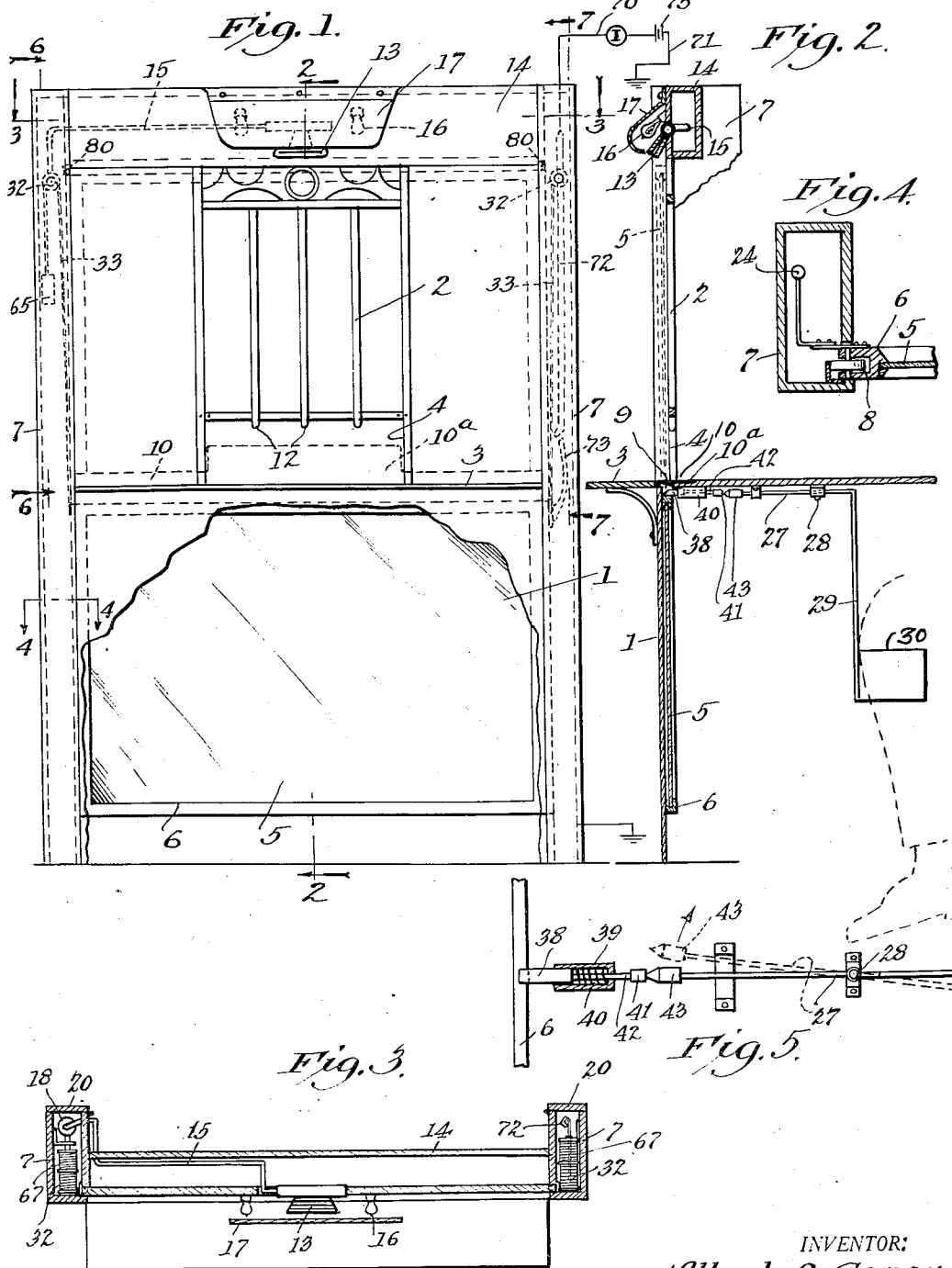
A. A. GAREY

SAFETY DEVICE

1,645,131

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2 Sheets-Sheet 1



INVENTOR:

*Albert A. Garey*

BY

*R. W. Smith*  
ATTORNEY.

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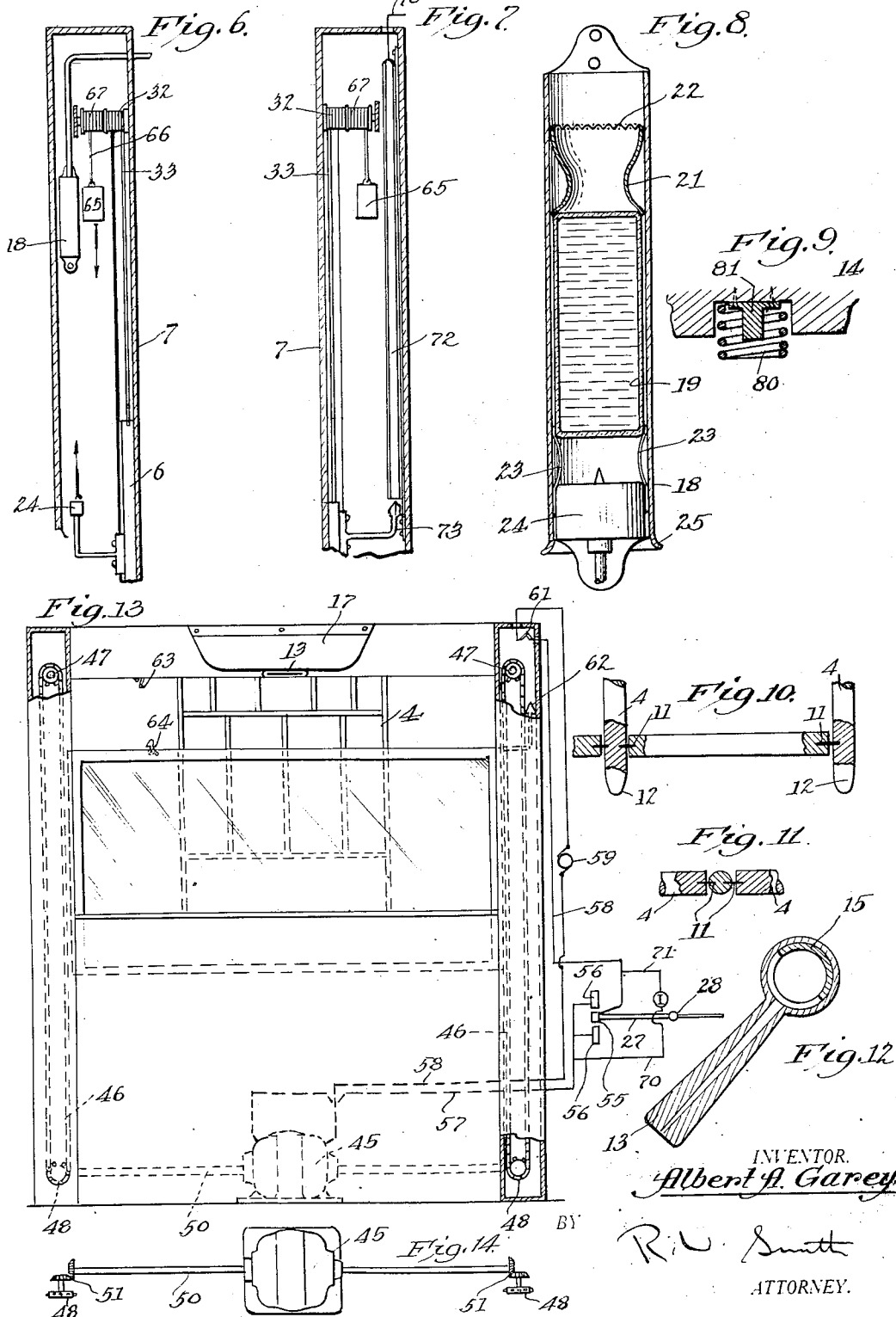
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2 Sheets-Sheet 2



## UNITED STATES PATENT OFFICE.

ALBERT A. GAREY, OF ALTADENA, CALIFORNIA.

## SAFETY DEVICE.

Application filed February 6, 1926. Serial No. 86,552.

This invention is a means for frustrating attempts to "hold up" a teller in a bank; and it is the object of the invention to provide mechanism which may be readily actuated by concealed movement of the teller, and which when operated will positively prevent a thief obtaining access to money in the possession of the teller.

It is a further object of the invention to provide mechanism associated with the usual grille of a teller's cage, and normally concealed but adapted for instantaneous operation under the control of the teller to present a positive and bullet-proof barrier between a thief and the interior of the cage.

More particularly it is the object of the invention to provide a bullet-proof shield which is normally concealed by the counter of the teller's cage below the grille, and which upon operation of controlling mechanism by movement of a part of the teller which is concealed by the counter, is positively shifted to a position overlying the grille so as to prevent an intended thief either intimidating the teller or reaching through the grille and obtaining access to money.

It is a still further object of the invention to provide for incapacitating the intended thief by means which become operative when the controlling mechanism is shifted; and to also give a general alarm by the operation of the controlling device.

The invention will be readily understood from the following description of the accompanying drawings, in which:

Fig. 1 is a front elevation of the invention.

Fig. 2 is a vertical section on the line 2—2 of Fig. 1.

Figs. 3 and 4 are transverse sections on the lines 3—3 and 4—4 of Fig. 1.

Fig. 5 is a plan view of the releasing mechanism.

Figs. 6 and 7 are vertical sections on the lines 6—6 and 7—7 of Fig. 1.

Fig. 8 is a vertical section through the frangible container and its support.

Fig. 9 is a vertical section through one of the cushioning means for the protecting barrier.

Fig. 10 is a front elevation, partly in vertical section, of the grille for a cage.

Fig. 11 is a horizontal section through the grille.

Fig. 12 is a transverse section through the spray nozzle of the construction.

Fig. 13 is a view similar to Fig. 1 but showing a modification of the invention.

Fig. 14 is a plan view of the operating mechanism for the construction shown in Fig. 13.

In the drawings I have shown the invention as applicable to a usual teller's cage such as are used in banks; the lower portion of the front of the cage being closed as shown at 1, and the upper portion of the front of the cage being open and protected by a grille 2. The usual counter 3 is positioned at the junction of the closed and open portions of the front of the cage, and the grille 2 forms the usual opening 4 above the counter and through which money may be exchanged between the teller and a customer.

A barrier, shown as bullet-proof glass 5 mounted in a sash 6, is normally concealed in back of the closed portion of the cage, and is adapted to slide upwardly and completely overlie the grille 2 and the open portion of the front of the cage. The side frames of the cage may form channels 7 for guiding the sash; and anti-friction means shown as roller bearings 8 are preferably provided between the sliding sash and its guideways.

The counter 3 has a slot 9 extending the width of the cage for the passage of the sash as it is shifted to operative position; and this slot is normally concealed by a hinged cover 10, which may be swung upwardly and outwardly against the grille 2 but which when in normal position rests upon the counter and simulates the appearance of a usual part of the same. The cover 10 is swung upwardly by the sash 6 as the latter is initially elevated, and the cover thus forms an immediate barrier protecting the opening 4. The portion of the cover in alinement with the open front of the cage may be of increased width as shown at 10<sup>a</sup> in order to overlie substantially the entire opening 4.

The base bar of the grille which is at the top of opening 4, and the vertical bars of the grille which are connected thereto, are preferably joined by pins 11 which will break under excessive impact; and as a consequence if a thief shoves a gun through the opening 4, it will be struck by either the sash 6 or the cover 10 as they are elevated to operative position, and will be tilted upwardly against

the base bar of the grille which will yield by the breaking of pins 11, so as not to impede the upward tilting of the gun but permit the same to be discharged harmlessly over the head of the teller in the cage. The lower ends of the vertical bars of the grille which project below the base bar as shown at 12, preferably taper and are rounded off so as not to impede a gun when it is tilted upwardly as previously described, but deflect the gun against a section of the base bar which will readily yield by the breaking of pins 11.

The invention also includes means for incapacitating an intended thief who attempts to "hold-up" a teller in the cage; and the incapacitating means is preferably actuated by the elevation of sash 6. As an instance of this arrangement, tear gas may be sprayed into the eyes of the intended thief, the gas being supplied from a frangible container which is broken by elevation of the sash, and the gas then being forced through a spray nozzle by the continued elevation of the sash. The spray nozzle 13 opens through the top bar 14 of the cage which is above grille 2, and is journaled on a horizontal supply pipe 15 which is concealed in bar 14, so that the spray nozzle may be adjusted to discharge directly into the eyes of a person standing in front of the grille of the cage. Usual lights 16 are provided on the top bar of the cage, and the shade 17 which overlies the same preferably partially conceals the spray nozzle 13 so that it will be inconspicuous.

The supply pipe 15 for the spray nozzle extends into the hollow interior of one of the side frames 7, and communicates with a cylinder 18 which is adapted to receive a glass receptacle 19 containing tear gas or the like. The lower end of cylinder 18 is open for insertion of the glass receptacle, which may be placed in the hollow side frame through a door 20. The glass receptacle abuts against a restricted neck 21 in the cylinder 18, and a perforated partition shown as a screen 22 is disposed between the restricted neck and the supply pipe 15. The glass receptacle is held against the neck 21 by spring fingers 23 in the lower portion of cylinder 18, which will yield to permit insertion of the glass receptacle and will then spring to operative position below the same to prevent the receptacle dropping from the cylinder.

The glass receptacle is broken against the neck 21, and the tear gas is forced through pipe 15 by means of a plunger 24 which is carried by the sash 6 and slides in cylinder 18 when the sash is elevated. The open lower end of the cylinder preferably has a bell-mouth 25 to guide the entrance of the plunger; and when the glass receptacle is broken by the plunger the broken glass is stopped by screen 22, and the released tear

gas is forced by the plunger through pipe 15 and is sprayed from nozzle 13.

Elevation of sash 6 is preferably controlled by a trip which is concealed from an intended thief by the counter 3 and the closed front 1 of the cage, but which is accessible to a concealed part of the teller standing in his cage. For this purpose a lever 27 is pivoted at 28 to the underside of counter 3, and the rear end of the lever extends downwardly as shown at 29 and terminates in a vertical plate 30 which is adapted to be struck by the knee of the teller for swinging the lever 27 to one side or the other.

In the form of the invention illustrated in Fig. 1 the sash 6 is elevated by spring drums 32 which are mounted in the hollow interiors of side frames 7 and are connected to the sides of the sash by cables 33. When the sash is lowered the spring drums 32 are tensioned; and the sash is held in lowered position until released by movement of lever 27, whereupon the sash is quickly elevated by the spring drums in order to overlie the entire upper part of the front of the cage and consequently protect the bank teller from an intended thief.

The trip which normally retains the sash in lowered position is shown as a latch 38 slidable in a casing 39 on the underside of counter 3 and normally overlying the sash.

A spring 40 tends to retract the latch in order to disengage it from the sash, and the latch is held against the action of the spring and in projected operative position, by engagement between a head 41 on the latch plunger 42 and a wedge shaped head 43 on the end of lever 27. When the lever is swung to a medial position the point of wedge 43 engaging the head 41 prevents retraction of the latch, but the slightest swinging of the lever to one side or the other, permits the head 41 to slide along one side or the other of the wedge 43 in order to retract the latch and thereby permit elevation of the sash.

In the modification of the invention illustrated in Fig. 13 the sash 6 is elevated by an electrical motor 45. For this purpose endless sprocket chains 46 are fixed to the sides of sash 6 and engage sprocket wheels 47-48 at the top and bottom of the hollow interior of side frames 7. The sprocket chains are moved for elevating the sash by a driving connection between motor 45 and the lower sprocket wheels 48 in the respective side frames 7. This driving connection is shown as a motor shaft 50 having bevel gear driving connections 51 for the respective sprocket 48.

The circuit for motor 45 is closed through shifting of lever 27 by abutment of the knee of the teller against plate 30 as previously described. For this purpose an electrical contact 55 is substituted for the head 43 on

lever 27; and one or the other of spaced contacts 56 is engaged by contact 55 when the lever is shifted in either direction from its normal median position in which contact 55 is spaced between the contacts 56. The contacts 56 lead to one terminal of motor 45 as shown at 57, and the contact 55 leads to the opposite terminal of the motor as shown at 58, with a suitable source of electrical energy in the circuit as shown at 59.

After the motor circuit has been closed by striking the plate 30, and the sash 6 has been raised to operative position by the motor 45 turning the sprocket chains 46, the circuit through the motor is automatically broken, preferably by means of normally contacting spring fingers 61 placed in the circuit and positioned so that an insulated wedge 62 on the sash will spread the fingers apart for breaking the circuit as the sash reaches its upper limit of travel. After the sash is elevated and the motor circuit is broken, the sash is held against dropping by a latch 64 on the sash which is automatically engaged by a catch 63 on the top bar 14.

In either form of the invention described, the sliding sash may be counterweighted, the weights 65 preferably moving up and down in the hollow interiors of side frames 7, and being connected to cables 66 which are fixed at their opposite ends to the sides of the sash and extend over pulleys 67. Bumpers are preferably provided for cushioning the impact of sash 6 against the top bar 14 when it reaches its elevated position, and for this purpose coil springs 80 surrounding rubber cores 81 may be set in the bar 14 so that the sash will strike and compress the springs and then abut against the rubber cores.

The invention preferably also provides for closing an electrical circuit to a central burglar alarm system when the plate 30 is shifted for elevation of the sash. For this purpose the respective sides 70-71 of a circuit for the central alarm system are connected to normally spaced contacts 72-73 in the form of the invention illustrated in Fig. 1, and may be connected to the leads 57-58 in the form of the invention shown in Fig. 13. It will thus be seen that in Fig. 13, closing of the circuit 57-58 to elevate the sash will also close the circuit 70-71 for the central alarm.

In the form of the invention shown in Fig. 1, the circuit 70-71 includes a source of electrical energy 75, and the normally spaced contacts 72-73 engage upon initial elevation of the sash for closing the alarm circuit. As an instance of this arrangement the contact 72 may be a strip suspended in the hollow interior of one of the side frames 7 above the normal inoperative position of sash 6, and the contact 73 which is normally spaced from contact 72 may be carried by

the sash for immediate engagement with its cooperating contact when the sash is elevated. The contacts preferably remain in engagement throughout elevation of the sash for continuous signalling of the central alarm.

It will thus be seen that I have provided a construction wherein concealed movement of a teller in a cage, will immediately move a bullet proof barrier between the teller and an intended thief; and will elevate a gun pointed at the teller so that it will discharge harmlessly into the air. The construction also provides for sounding of a central alarm by the concealed movement of the teller, as well as the discharge of a suitable tear gas into the eyes of the intended thief. The teller may thus protect himself against intimidation by a thief, and also protect the money in his cage against a thief reaching through the grille and seizing the same; and the concealed movement of a teller whom a thief is attempting to "hold up", will also set in operation measures which will assist in capturing of the thief, both by incapacitating the thief through the discharge of tear gas and the summoning of help by the sounding of the central alarm.

I claim:

1. The combination of a partition forming a counter and having an opening in the partition extending upwardly from the counter, a grille for the opening terminating in spaced relation above the counter, the counter having an opening therethrough, a hinged closure for the counter opening adapted to swing upwardly and outwardly against the frame of the partition for closing the space between the grille and the counter, and a barrier normally concealed by the partition and adapted for elevation through the counter opening to swing the hinged closure upwardly and outwardly with the barrier overlying the grille.

2. The combination of a partition forming a counter and having an opening above the counter, a grille for the opening terminating an appreciable distance above the bottom of the opening, said grille comprising uprights and a lower cross bar, the counter having an opening, a closure for the counter opening adapted to swing upwardly and outwardly to substantially vertical position against the grille for closing the space between the bottom of the grille and the bottom of the partition opening, a barrier normally non-obstructing the partition opening, and means for forcibly and suddenly elevating the barrier through the counter opening to swing the closure for the counter opening against the grille and overlie the partition opening by the barrier, said lower cross bar of the grille being connected to the uprights by means adapted to break for release of the cross bar under impact of

a medium projected beneath the cross bar into the path of travel of the closure for the counter opening so that said medium is elevated by the upwardly swinging closure.

- 5 3. The combination of a partition forming a counter and having an opening above the counter, a grille for the opening terminating an appreciable distance above the bottom of the opening, said grille comprising  
10 ing uprights and a lower cross bar, the counter having an opening, a closure for the counter opening adapted to swing upwardly and outwardly to substantially vertical position against the grille for closing the space  
15 between the bottom of the grille and the bottom of the partition opening, a movable barrier normally non-obstructing the partition opening, means for counterbalancing

movement of the barrier, and spring means cooperating with the counterbalancing means for forcibly and suddenly elevating the barrier through the counter opening to swing the closure for the counter opening against the grille and overlies the partition opening by the barrier, said lower cross bar of the grille being connected to the uprights by means adapted to break for release of the cross bar under impact of a medium projected beneath the cross bar into the path of travel of the closure for the counter opening so that said medium is elevated by the upwardly swinging closure. 20 25 30

In testimony whereof he has affixed his signature to this specification.

ALBERT A. GAREY.