Nov. 22, 1966 I. A. FULKS 3,286,664

HOLDUP-PROOF BOOTH

Filed March 16, 1966 5 Sheets-Sheet 1

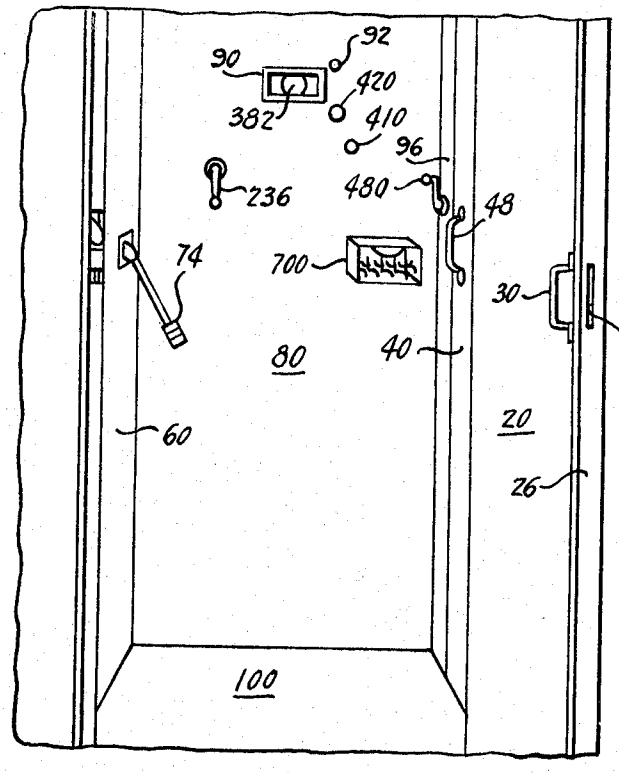


FIG. 1

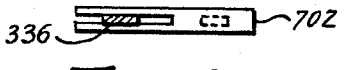


FIG. 6

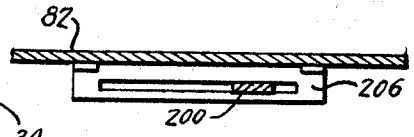


FIG. 8

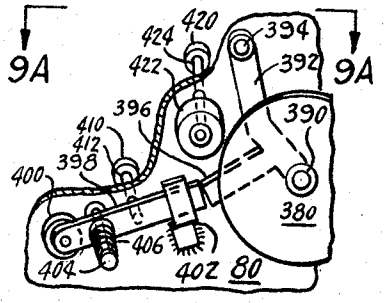


FIG. 9

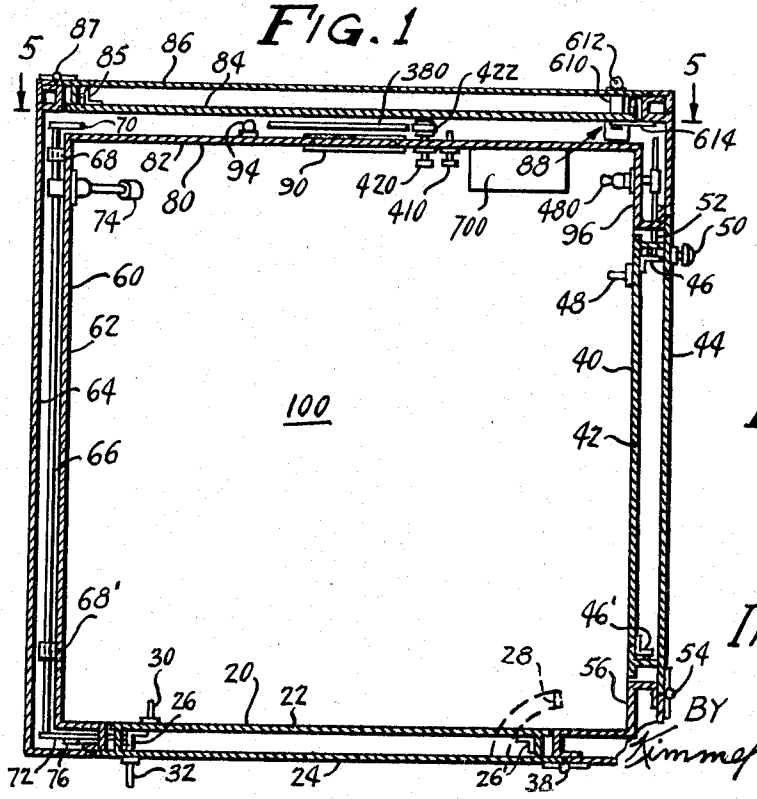


FIG. 2

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HOLDUP-PROOF BOOTH

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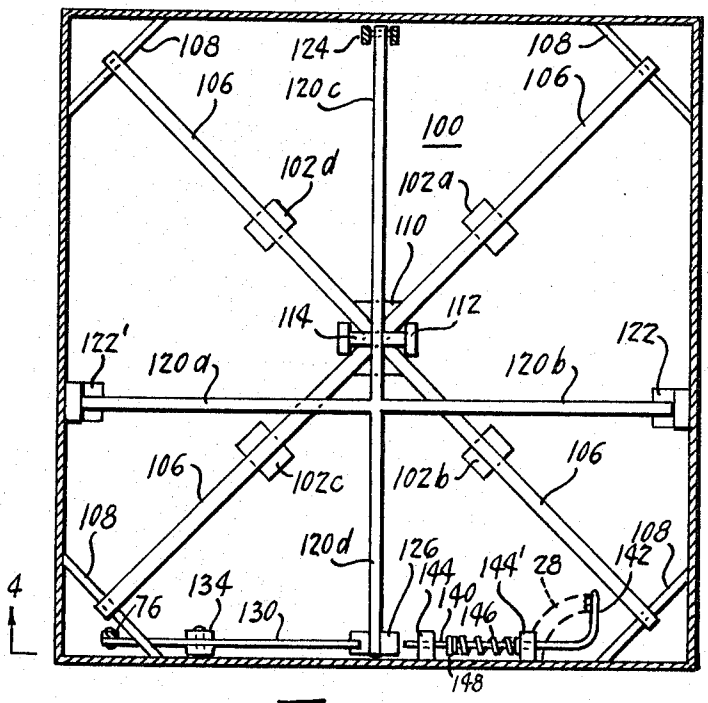


FIG. 3

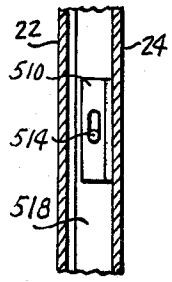


FIG. 12

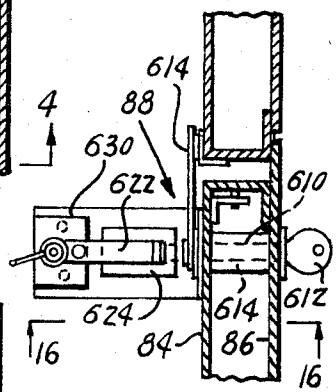


FIG. 15

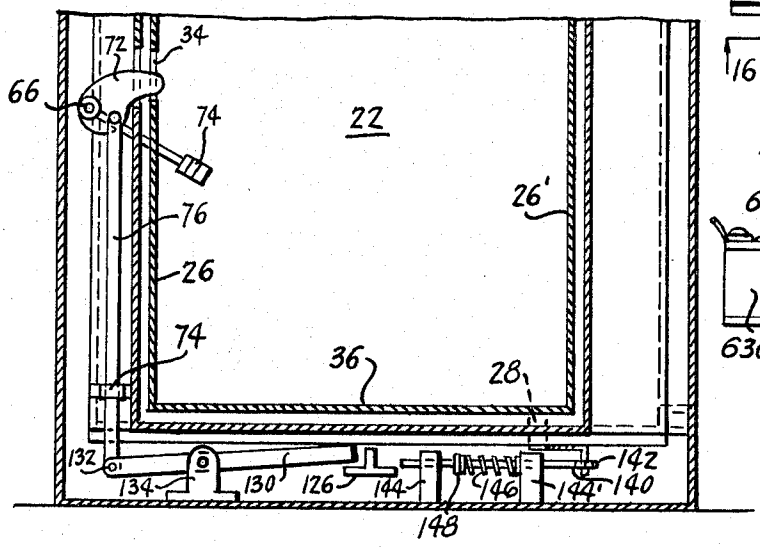


FIG. 4

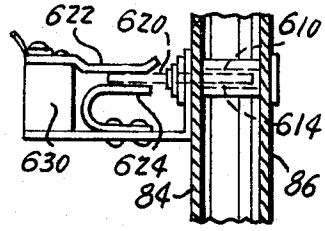


FIG. 16

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HOLDUP-PROOF BOOTH

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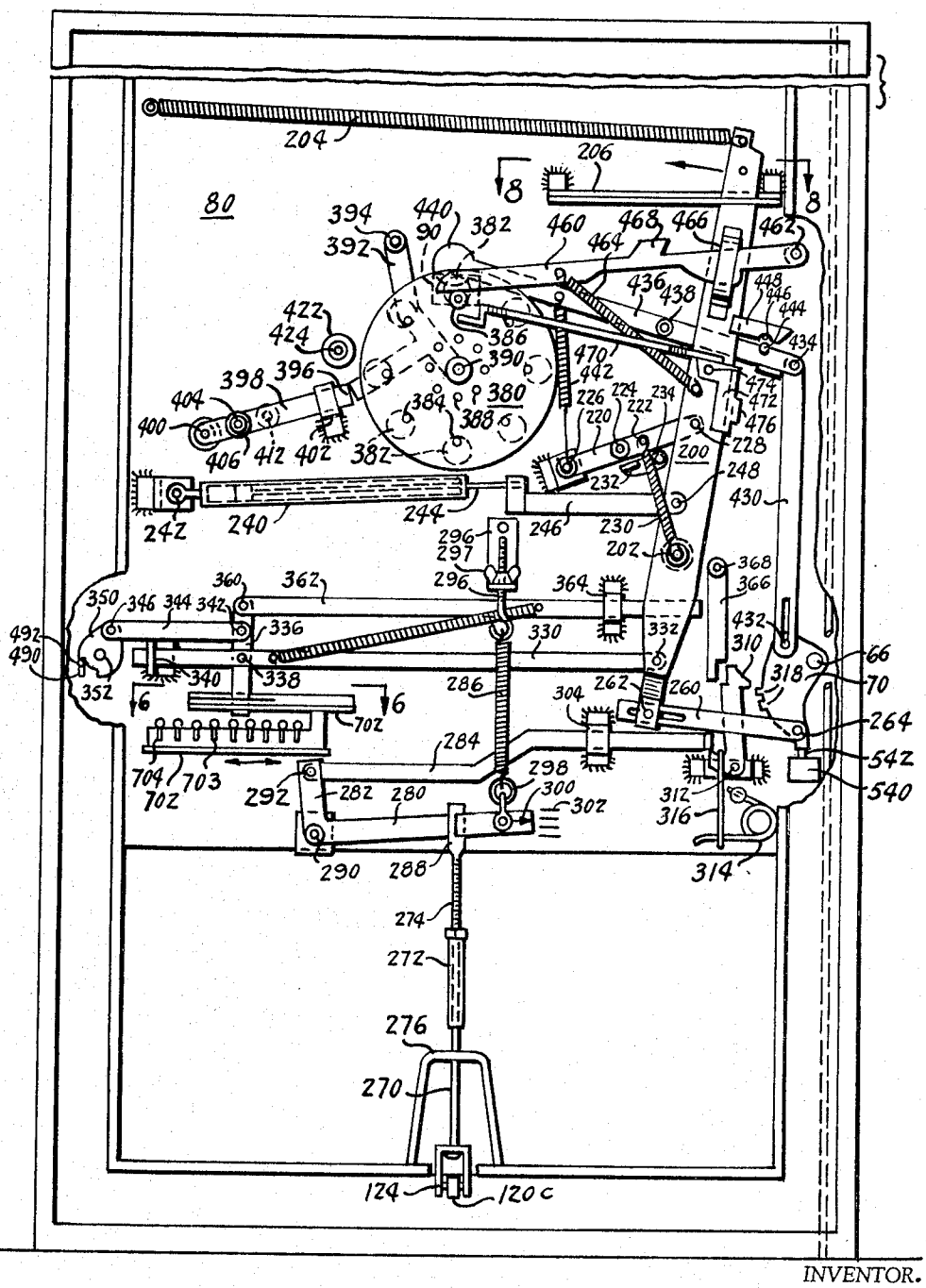


FIG. 5

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HOLDUP-PROOF BOOTH

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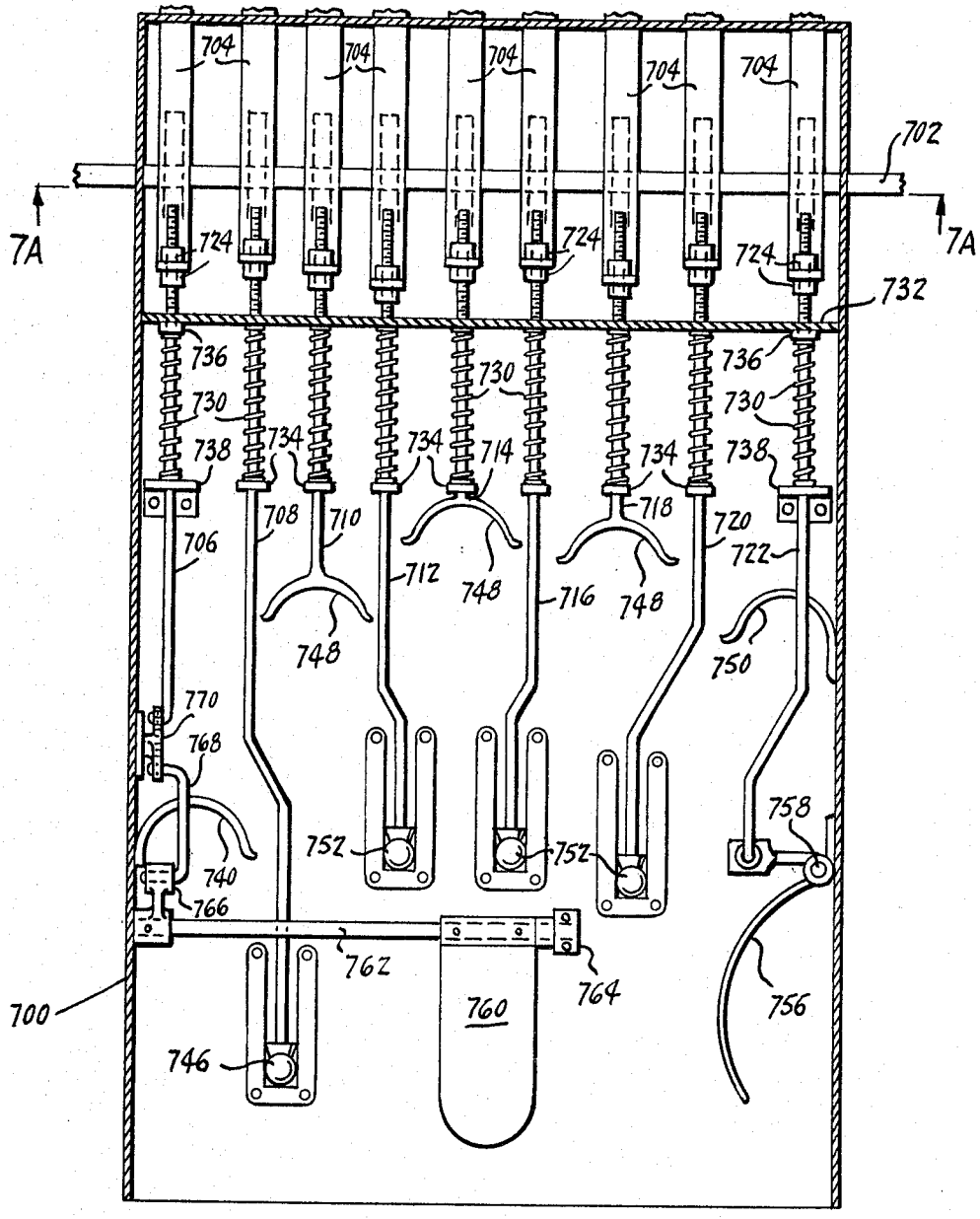


FIG. 7

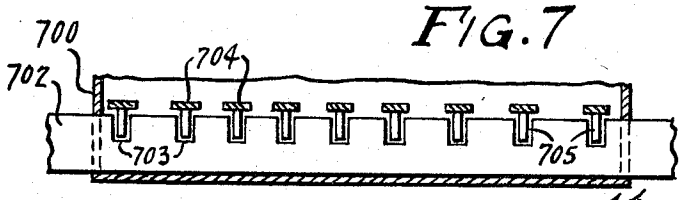


FIG. 7A

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HOLDUP-PROOF BOOTH

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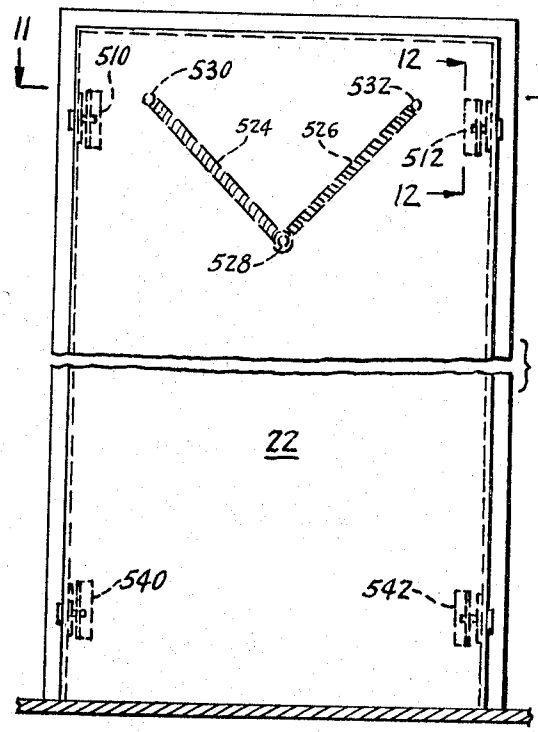


FIG. 10

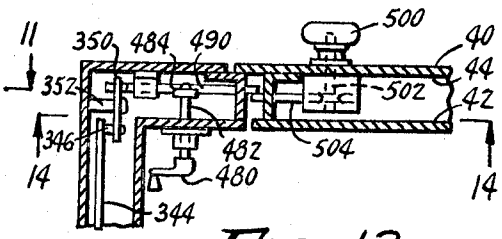


FIG. 13

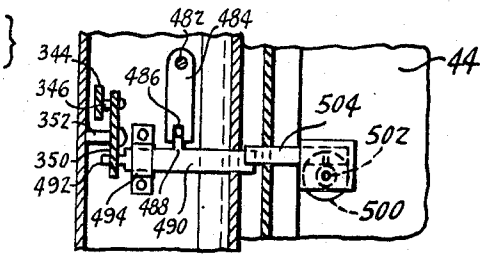


FIG. 14

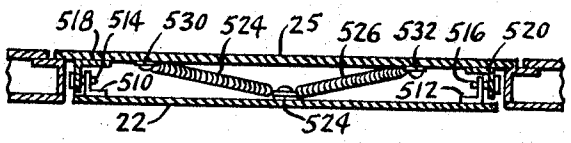


FIG. 11

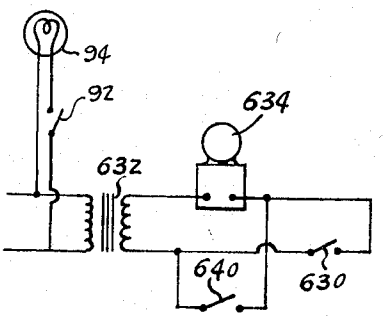


FIG. 17

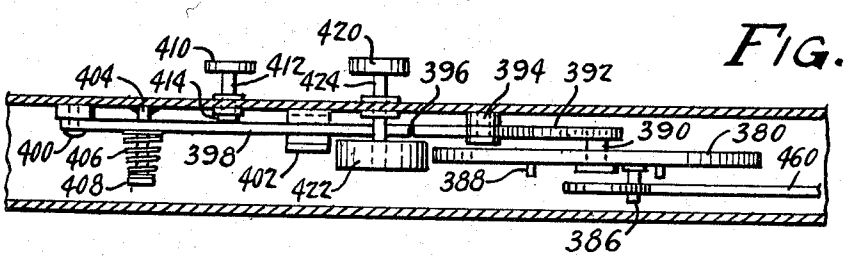


FIG. 9A

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United States Patent Office 3,286,664 Patented Nov. 22, 1966

3,286,664

HOLDUP-PROOF BOOTH

Ira A. Fulks, 5430 Sinclair Road, Columbus, Ohio

Filed Mar. 16, 1966, Ser. No. 534,698
9 Claims. (Cl. 109—7)

This is a continuation-in-part of application Serial No. 336,996, filed January 10, 1964, now abandoned, the disclosure of which is incorporated herein.

This invention relates to improvements in holdup proof devices, and more particularly has reference to novel improvements in a holdup or burglar proof booth and the like through which access may be had only by authorized persons to a room, security area or the like, which is protected by the said booth.

Devices of the general type are known in the prior art; however it has always been a problem to make a device of such complexity and dependability as to prevent operators from disclosing to unauthorized persons the secret or combination of how to gain access to an area secured by such holdup proof devices, whether such combination be given away by dishonest operators or by an honest operator under compulsion. The present invention is an improvement over my U.S. Patent No. 1,989,591, issued January 29, 1935, and comprises a new master mechanical mechanism and plural linkage means for more effectively actuating revolving mechanisms in response to characteristics of the operator to be hereinafter described. The present invention provides not only more effective operating mechanisms but additional safeguards over those provided by my prior patent, referred to above, the disclosure and drawings of which are expressly incorporated herein.

It is an object of this invention to provide a burglar proof device having at least two interdependent locking means for an enclosure which will automatically prevent opening of the enclosure and will lock both parties in when more than one person enters and attempts to operate the device.

A further object of this invention is to provide a burglar proof device and an energized circuit and alarm system for an enclosure of the class described, which does not depend for its operation on tumbler and pin combination means conventionally known to locksmiths.

A still further object of this invention is to provide a burglar proof locking apparatus which depends for its operative combination on non-verbal characteristics.

It is a still further object of this invention to provide a burglar proof locking apparatus which depends for its operative combination upon physical characteristics of the operator.

It is a further object of this invention to provide a burglar proof device which depends for its operation upon the ability of the operator to remember and to recognize photographs or other pictorial representations which are difficult or impossible to describe with sufficient clarity to permit a third party to substitute himself for the operator.

Further objects of this invention and advantages will be apparent to those skilled in the art from the following specification relating to the drawings annexed hereto:

FIGURE 1 of the drawings is a front view of the burglar proof booth showing the inside of the booth and the open front door.

FIGURE 2 is a top view in partial section of the booth in section showing the relation of the operating mechanisms inside the booth.

FIGURE 3 is a bottom view in partial section of the holdup-proof booth showing the locking mechanisms for the floor of the booth from below the floor.

FIGURE 4 is a partial sectional view of the lower part of the booth taken substantially along lines **4—4** of FIGURE 3, showing a side view of the locking mechanism of the floor of the booth.

FIGURE 5 is a view of the operating mechanism chamber from the back taken substantially along line **5—5** of FIGURE 2.

FIGURE 6 is a top view in partial section of the hand lock operated slide mechanism taken substantially along line **6—6** of FIGURE 5.

FIGURE 7 is the hand lock mechanism shown in my prior patent.

FIGURE 7A is a side view of the slide lock bar of the hand lock mechanism of FIGURE 7.

FIGURE 8 is the top partial sectional view of the slide mechanism of the master lever taken substantially along line **8—8** of FIGURE 5.

FIGURE 9 is a part sectional perspective view of the picture reel shown in FIGURE 5.

FIGURE 9A is a top partial sectional view of the picture reel and associated mechanism.

FIGURE 10 is an elevational view of the interior floating panel portion of one of the doors of the holdup-proof booth of the present invention.

FIGURE 11 is a partial sectional and plan view of the interior panel and spring suspension means of FIGURE 8 taken along line **11—11** of FIGURE 10.

FIGURE 12 is a sectional view of FIGURE 11 showing the slotted bracket and pin suspension means between the interior and front panel portions of the door means of the invention taken along lines **12—12** of FIGURE 10.

FIGURE 13 is a part sectional and plan view of the exit door locking mechanism shown in FIGURE 2 enlarged to further show the detail of the invention.

FIGURE 14 is a side plan view of the exit door locking mechanism shown in FIGURE 13 taken substantially along line **14—14**.

FIGURE 15 is a plan sectional view showing the rear service panel means and the key alarm switch means for servicing the master lock mechanism compartment of the invention.

FIGURE 16 is an elevational view showing the lock switch and lock means as installed in the service panel taken along line **16—16** of FIGURE 15.

FIGURE 17 is a schematic electrical diagram for energizing the picture viewing light and lock alarm means of the invention.

Reference is now made to FIGURES 1 and 2, in particular for a general description of the function of the holdup-proof booth. As best shown in FIGURE 2, the booth comprises an enclosed area having an entrance door **20**, an exit door **40**, walls **60** and **80** and a floor **100**. The booth also has a ceiling of conventional structure not shown. The door **20** comprises panels **22** and **24** which are held in upright parallel position by upright members **26** and **26'**. The door is also provided with an operating arm **28**, the function of which will be described hereinafter. Door **20** may be provided with handles **30** and

32 for opening and closing the door. Upright 26 of door 20 may also be provided with a slot 34, as best shown in FIGURES 1 and 4, and a supporting member 36 across the bottom to which operating arm 28 is connected, as best shown in FIGURE 4. The purpose of slot 34 will be described hereinafter. Entrance door 20 is pivotally connected by hinge 38 to corner member 56.

The holdup-proof booth is also provided with an exit door 40 comprising panels 42 and 44 held in parallel upright position by supports 46 and 46' as best shown in FIGURE 2. Door 40 may be provided with a handle 48 on the inside and with a knob 50 on the outside for operating bolt 52 to open the door, in a manner to be described hereinafter. The exit door 40 is pivotally connected by means of hinge 54 to corner member 56.

Panels 22 and 42 may, in the preferred embodiment, be slidably mounted for vertical movement in a manner to be described hereinafter.

Wall 60 comprises an inner panel 62 and an outer panel 64. Included within wall 60 is an operating shaft 66 rotatably mounted in supports 68 and 68' having secured at a first end thereof a cam 70 and at a second end a cam 72, the latter cam being best shown in FIGURE 4. An operating lever 74 is secured to shaft 66 for pivotally moving cams 70 and 72. Cam 72 is pivotally connected to rod 76 and rod 76 is slidably secured by a keeper 78. It will be apparent from FIGURE 4 that cam 72 may selectively lock door 20 in a manner to be described hereinafter. The function of operating rod 76 will be described in connection with the operation of the floor 100. The operation of cam 70 will be described hereinafter.

Wall 80 comprises an inner panel 82, an intermediate panel 84 and an outer panel 86. Outer panel 86 and intermediate panel 84 are held in vertical parallel relationship by upper members 85 and 85' and form a door which pivots by means of hinge 87 and is locked by means of a lock shown generally at 88. The access door formed by panels 84 and 86 and locked by lock 88 is provided for access into the master locking mechanism chamber. The operation of lock 88 will be described hereinafter. The master lock mechanism is mounted on the back side of wall 80. The operating controls mounted on the front of panel 80 include hand lock 700, window 90 through which may be viewed a picture 382, the light switch 92 which turns on light 94, crank 236, knob 410 for operating a picture wheel as will be described hereinafter, and a pusher 420. In addition, on corner section 96 there is a bolt crank 480, which will be described later.

In the preferred embodiment some or all of panels 22, 24, 42, 44, 62, 64, 82, 84, and 86 are made of a bullet proof material.

FIGURE 3 shows the bottom side of floor 100 including elements 102*a*, *b*, *c*, and *d*, attached to the bottom side thereof. Floor 100 rests by means of elements 102 upon crossbars 106 which, in turn, are supported at the corners by braces 108. Secured at the intersection of crossbars 106 is a member 110 having downwardly extending projections 112 and crossbar 114 which rests against crossbeam 120. Crossbeam 120 has extending elements 120*a* and 120*b* which are pivoted by bearings 122 and 122'. Crossbeam 120*c* is attached at a pivot point 124 while member 120*d* of crossbeam 120 has affixed at the end thereof a locking plate 126. Thus it will be seen that when weight is applied to floor 100 a force is exerted by means of elements 102 downwardly upon crossbars 106 and through member 110 and bar 114 to crossbeam 120 thereby tending to cause beam 120 to pivot on elements 120*a* and *b* in bearings 122. Element 120*c* tends to move downwardly while element 120*d* tends to move upwardly. Crossbars 106 are preferably made of a semirigid material which is flexible enough to exert a force downwardly at the center of element 110; however, crossbeam 120 is preferably constructed of a heavy rigid material whereby it is possible by fixing the end of element 120*d* to prevent elements 120*c* and 120*d* from pivoting about elements 120*a* and 120*b* in bearings 122.

Referring now, in particular, to FIGURE 4, it will be seen that lever 130, which is pivotally connected at 132 to rod 76 and pivotally mounted at fulcrum 134, is in the position shown in FIGURE 4 and locking plate 126 is free to move upwardly. However, when operating handle 74 is moved upwardly causing shaft 66 to rotate thereby moving cam 72 in an upward direction, rod 76 will cause lever 130 to pivot at 134 thereby fixing locking plate 126 in the position shown. It will be seen then that when handle 74 is in the upward position, that is when cam 72 does not engage door 20 at slot 34, a weight on floor 100 will be ineffective to cause crossbeam 120 to pivot.

In addition to the operation of lever 130 which, in effect, may lock floor 100 in a fixed position, floor 100 may be locked in a fixed position by means of rod 140 having a curved end 142, as best shown in FIGURE 3. Rod 140 is slidably received by members 144 and 144' and is biased toward locking plate 126 by means of spring 146 which is secured by keeper 148. Rod 140 is caused to disengage locking plate 126 by operating arm 28 which is attached to door 20. It will be seen, then, that when door 20 is fully closed, as shown in FIGURES 3 and 4, rod 140 does not engage locking plate 126; therefore, beam 120 is free to rotate about elements 120*a* and 120*b* in bearings 122. If, however, door 20 is even partially open, even a half an inch, rod 142 will engage locking plate 126 thereby preventing any pivotal motion of crossbeam 120. It will thus be seen that, first, unless door 20 is fully closed, and secondly, door 20 is locked by means of cam 72, force exerted by the weight of an operator on floor 100 will be ineffective to cause pivotal movement of crossbeam 120.

Referring now to FIGURE 5, which shows the master lock mechanism from the rear, as would be viewed through the master lock mechanism access door. The predominating element of the master lock mechanism is a master lever 200 which is pivotally mounted upon pin 202. The basic concept of the master lock mechanism is that the master lever 200 must be permitted to pivot about pin 202 before the exit door 40 can be open. If, however, master lever 200 pivots excessively about pin 202 both the entrance door 20 and the exit door 40 are caused to be locked, in a manner to be described hereinafter, thereby confining the person within the booth until another person secures his release from the outside. Thus, it is possible, not only to prevent entry into a vault or other secured area but to confine a person who attempts to enter the secured area without authority.

Referring again to FIGURE 5, master lever 200 is biased to the left, as viewed in FIGURE 5, by means of spring 204. Master lever 200 is slidably mounted in guide 206 as better shown in FIGURE 8. Master lever 200 is fixed in the position shown in FIGURE 5 by a toggle formed of elements 220 and 222 pivotally connected at 224. Member 220 is pivotally connected by means of pin 226 to panel 82 while member 222 is pivotally connected to master lever 200 by means of pin 228. Member 222 is biased in a downward position by means of spring 230 which is attached to pin 202. Pivotal movement of master lever 200 in response to bias spring 204 is permitted when pusher cam 232 is operated by means of pin 234 and crank 236, the latter being best shown in FIGURE 1. When crank 236 is operated, pusher cam 232 bears against the pivotal point 224 permitting toggle elements 220 and 222 to pivot about point 224 as master lever 200 pivots in a counterclockwise direction as viewed in FIGURE 5.

Lever 200 is further biased by a stop or check 240, of the type commonly used for closing doors, for producing a smoother operation. Stop 240 is connected at one end by a pin 242 and the piston rod 244 is operably connected to master lever 200 through rod 246 which, in turn, is pivotally connected to master lever 200 at pin 248.

Master lever 200 is pivotally and slidably connected to lever 260 by means of pin 262. Lever 260 is, in turn, pivotally connected to cam 70 by means of pin 264. The slidable connection between master lever 200 and lever 260 permits cam 70 to rotate as lever 74 is moved causing shaft 66, on which cam 70 is mounted, to rotate while the master lever 200 is in the locked position as shown in FIGURE 5. When master lever 200 is permitted to pivot about pin 202 in response to bias spring 204, the lower end of master lever 200 is permitted to move by the slidable connection with lever 260. After master lever 200 has been permitted to pivot about pin 202, as will be described hereinafter, it may be returned to the position shown in FIGURE 5 by the action of lever 260 as cam 270 rotates in response to movement of lever 74, as best shown in FIGURES 1 and 2. Thus, a clockwise rotation of cam 70, as shown in FIGURE 5, causes lever 260 to move to the left engaging pin 262 thereby causing master lever 200 to pivot clockwise to the position shown in FIGURE 5.

If, however, excessive weight, for example the weight of more than one person, is applied to floor 100, as shown in FIGURES 1 and 4, operation of lever 74 to cause a clockwise rotation of cam 70 is prevented in the manner now to be described. As described previously, crossbeam 120 is pivotally connected at the end of member 120c by connection 124, as best shown in FIGURE 3 and FIGURE 5. If floor 100 is freed for downward movement causing beam 120 to pivot with a downward motion on connection 124, rod 270 which is adjustably connected to rod 274 by linkage means 272, is caused to move downwardly. Rod 270 is guided by bracket 276. Downward motion of rod 270 and rod 274 operates a scale mechanism comprising a lever 280 having an upstanding portion 282, rod 284, and bias spring 286. Lever 280 is engaged by keeper 288 and pivotally connected at pin 290 to panel 82. The upstanding portion 282 of lever 280 is pivotally connected to lever 284 by pin 292. The upper end of bias spring 282 is secured by means of hook 294 to a bracket 296 which is fixed to panel 82. The lower end of bias spring 286 is pivotally secured to lever 280 by means of pin and clevis 298. Lever 280 carries index 300 which cooperates with indicia 302 on panel 82 to permit reproducible adjustment of the sensitivity of the scale mechanism. Adjustment of the scale mechanism is made by linkage 272 and by wing nut 297 to limit the amount of weight which may be upon the floor 100 and yet permit operation of cam 70 by means of lever 74. After proper adjustment, if excessive weight is applied to floor 100, as by the entrance of two persons, lever 280 will be caused to be moved downwardly beyond the adjusted point thereby causing rod 284, which is slidably engaged by keeper 304, to contact catch 310 which is pivotally mounted by pin 312 and biased by means of spring 314 through hook 316. Excessive motion to the right, as viewed in FIGURE 5, of rod 284 as the result of excessive weight of floor 100, causes catch 310 to engage teeth 318 on cam 70 thereby preventing clockwise rotation of cam 70. It will be apparent then, that if cam 70 is locked in the position shown in FIGURE 5, cam 72 which is mounted on the opposite end of shaft 66 engages door 20 by slot 34 thereby locking the entrance door preventing the persons from exiting through the entrance door by which they entered. Thus, if two persons attempt to enter the vault they are captured within the holdup-proof booth.

An unauthorized person may also be captured in the booth if the measurements of his hand do not conform to the dimensions of the hand of the person authorized to enter the vault through the booth as will now be described. Rod 330 is pivotally connected near the lower end of master lever 200 by means of pin 332. Rod 330 is further pivotally connected to lever 336 by means of pin 338 and is slidably engaged in bracket 340. Lever 336 is pivotally connected by means of pin 342 to rod 344 which is in turn pivotally connected by means of pin 346

to cam 350. Cam 350 pivots about a pin 352 and operates in a manner to be described hereinafter. Lever 336 is also pivotally connected by means of pin 360 to rod 362 which is slidably held by keeper 364. At its lower end lever 336 is slidably engaged by slide lock member 702 of lock 700 which will be described hereinafter. Briefly, slide lock member 702 is selectively freed for movement in response to the position of slide lock keys 704. Slide lock keys are in position to permit free slidable motion of slide lock member 702 only when the measurements of the operator's hand conform to preselected dimensions. If slide lock member 702 is freed for movement when the toggle formed by elements 220 and 222 is broken by operation of the cam pusher 232 and master lever 200 pivots about pin 202 in a counterclockwise movement, lever 336 causes slide lock member 702 to move to the right, as viewed in FIGURE 5, thereby permitting lever 336 to pivot about pin 360 causing cam 350 to rotate in a clockwise direction. If the master lever 200 is not permitted excessive movement, as will be described hereinafter, the operation just described will permit the entrance door to be unlocked, in a manner to be described hereinafter and will not lock the entrance door. If, however, slide lock member 702 is not free to move then lever 336 is caused to pivot about its engagement with slide lock member 702 thus causing excessive movement of lever 344 and consequently excessive clockwise rotation of cam 350 thereby locking the exit door in a manner to be described hereinafter and also causing rod 362 to move to the right, as viewed in FIGURE 5, pushing pivotal lever 366, which is pivoted about a pin 368, against catch 310 causing catch 310 to engage teeth 318 thereby locking the entrance door in the manner previously described. It will be apparent, then, that if more than one person attempts to enter the vault or if a person whose hand measurements do not conform to the preset dimensions attempts to enter the vault, then the entrance door will be locked in the manner just described.

The operation of hand lock 700, shown in FIGURE 7, will now be described. The central operating member of lock 700 is slide lock member 702, shown in FIGURES 5, 6, 7 and 7A. Slide lock member 702 is provided in an upper horizontal portion with a slot for slidable connection with lever 336, as shown in FIGURES 5 and 6, and in a lower vertical portion with a plurality of key slots 703 as best shown in FIGURES 5 and 7A. Slide lock member 702 may be selectively released for slidable movement for locked in position according to the positions of slide lock keys 704 as best shown in FIGURES 7 and 7A. Lock engaging keys 704 have downwardly extending projections 705 which engage slots 703 of the slide lock member 702. Portions of the downwardly extending projections 705 are notched at selected points thereby permitting slide lock member 702 to move freely when all the notches in downward extensions 705 are aligned with slide lock member 702. It will thus be seen that if even one of the notched portions of downward extension 705 on lock key 704 is improperly placed, slide lock member 702 will be locked in a fixed position. Lock keys 704 are adjustably connected to operating rods 706, 708, 710, 712, 714, 716, 718, 720 and 722 by means of nuts 724. Operating rods 706 through 722 are biased by means of springs 730 to maintain lock 700 in the locked position, that is fixing slide lock member 702, at all times except when an authorized person having hand measurements which conform to the preset dimension of hand lock 700. Spring members 730 bias the operating rods 708 through 720 between flanges 734 and operating rods 706 and 722 between flanges 736 and brackets 738. In operation, hook 740 engages the operator's thumb and serves as a stop. Upstanding rod 746 engages the operator's hand between the thumb and forefinger, causing rod 708 to move lock engaging member 704 rearwardly from the partition 732. Yoke members 748 engage the three center fingers of the operator's hand and through rods

710, 714 and 718 cause lock engaging member 704 to move rearwardly away from partition 732. Upstanding rods 752 engage the operator's hand between the respective fingers and through operating rods 712, 716 and 720 cause lock engaging members 704 to move rearwardly away from the partition 732. Hook 750 engages the operator's little finger and serves as a stop. Lever 756 is pivoted at pin 758 and pivotally connected to rod 722. Lever 756 engages the operator's hand and, through rod 722, causes lock engaging member 704 to move toward the partition 732. Pedal 760 is depressed by the palm of the operator's hand causing shaft 762, which is pivotally mounted in bracket 764, to rotate pivot bracket 766 thereby operating rod 768 and pivot member 770. Thus it will be seen that when pedal 760 is depressed by the operator's hand lock engaging member 704 is moved toward the partition 732 through pivotal shaft 762, rods 768 and 706.

As will be seen from the above description of hand lock mechanism 700, the slide lock member 702 will be free to move only when the measurements of the operator's hand conform to the present dimensions of the hand lock mechanism so that the notches in downward extensions 705 of slide lock keys 704 are all positioned to permit free slidable motion of slide lock member 702. The hand lock mechanism 700 is in all essential respects identical to the hand lock mechanism described in my prior patent particularly in FIGURES 8, 10 and 11. The drawings and description of the hand lock mechanism of my prior patent are expressly incorporated herein by reference.

I now return to the description of other features of the master lock mechanisms, making particular reference to FIGURES 5, 9 and 9A. Located behind wall 80 and window 90 as shown in FIGURE 1, is a picture profile lock including a picture wheel 380, as best shown in FIGURE 5, having on the side adjacent panel 82 a plurality of pictures 382. Wheel 380 has a plurality of threaded orifices 384 on the side distant from panel 82. A screw or bolt member 386 may be threadably secured into any selected threaded orifice 384. In addition, wheel 380 has a plurality of pins 388 extending therefrom. Picture wheel 380 is rotatably mounted by means of pin 390 on swinging lever 392 which is, in turn, pivotally mounted to panel 82 by means of pin 394. Swinging lever 392 contacts lever 398 at a point 396. Lever 398 is pivotally mounted by a pin 400 to panel 82 and is received by keeper 402. As best shown in FIGURES 9 and 9A, lever 398 is biased toward wall 80 by a spring 406 which is maintained in position by pin 404 and keeper 408. Lever 398 is maintained a distance away from panel 82 by an enlarged portion 414 on rod 412 of pusher 410. It will be noted from FIGURE 5 that wheel 380 and lever 392 would tend to pivot on pin 394 to the left as viewed in FIGURE 5 if it were not that lever 398 held lever 394 in the position shown. It will be seen that if pusher rod 410 is operated, that is pushed toward wall 80, lever 398 will move against the bias of spring 406 and, as best shown in FIGURES 9 and 9A, will move away from panel 82 thereby disengaging lever 392 at point 396 and permitting wheel 380 to swing against operating wheel 422 which is mounted on shaft 424 having a knob 420 which extends into the operator's compartment, as shown in FIGURE 1. As will be seen from FIGURES 1, 5, 9 and 9A, the operator may, by operating pusher rod 410, release lever 392 permitting wheel 380 to contact operating wheel 422. The operator then may operate knob 420 thereby causing the picture wheel 380 to rotate to a desired position. The interrelationship of wheel 380 and its associated mechanisms with the remainder of the master lock mechanism will now be described.

Flag 440 is normally located between panel 82 and picture 382 on wheel 380 so that a person entering the booth may not view picture 382 until the booth is closed. When the booth is closed and locked, flag 440 is raised in a manner now to be described. Rod 430 is slidably and pivotally connected to cam 70 by means of a pin 432 and, at the other end, is pivotally connected to a lever 436 which pivots about a pin 438. Flag 440 is fixedly attached to the end of lever 436. Thus it will be seen that when cam 70 is in the position shown in FIGURE 5, that is when the door is locked, flag 440 is raised permitting the operator to view the pictures. When the booth is unlocked, however, cam 70 is rotated in a clockwise position. In this position lever 436 carrying flag 440 moves downward under the tension of bias spring 442 covering the pictures. In addition, lever 436 carries a pin 444 which coacts with notch 446 in member 448 which is fixedly attached to master lever 200 thereby preventing counterclockwise motion of master lever 200 unless cam 70 is in the locked position, as shown in FIGURE 5.

On the side of wheel 380 opposite flag 440 a lever 460 rests against bolt 386 and is pivoted at the opposite end by pin 462. Lever 460 is biased downwardly by means of spring 464 connected between lever 460 and master lever 200. Lever 460 is slidably engaged by means of keeper 466 on master lever 200, and carries on it a catch 468. In operation, when all things are in readiness and the operator breaks the toggle formed by toggle rods 220 and 222 thereby permitting master lever 200 to move to the left under the influence of bias spring 204, master lever 200 and keeper 466 slide to the left, as viewed in FIGURE 5, along lever 460 until keeper 466 engages catch 468. At this point the counterclockwise rotation of master lever 200 is arrested. This is the normal operating result. If, however, the picture wheel 380 is not rotated to the proper position, that is the correct picture is not showing in the window 90, then bolt 386 will not be in the position as shown in FIGURE 5. Unless bolt 386 is in the position shown, then lever 460 will move downwardly in response to the biasing action of spring 464 this downward movement of lever 460 will lower the level of catch 468 so that it will slip freely through keeper 466 thus the counterclockwise rotation of master lever 200 will not be arrested at the point previously indicated. Master lever 200 will then rotate to the left until arrested by slide keeper 206. This excessive counterclockwise rotation of master lever 200 locks both the entrance door and the exit door in a manner to be described hereinafter. Thus, one who is unauthorized and does not know which picture to select will be locked in the booth.

Before describing the mechanism for locking the entrance and exit doors in response to excessive counterclockwise rotation of master lever 200, I will now describe the means and operation for resetting master lever 200 to the position shown in FIGURE 5. If the correct picture was selected and bolt 386 is in the correct position, then master lever 200 may be reset merely by operation of lever 74 causing cam 70 to rotate in the clockwise direction in the manner previously described. If, however, an unauthorized person has attempted to operate the mechanism and is therefore locked within the booth, it is necessary to gain entrance to the master lock mechanism chamber, in a manner to be described hereinafter, and to move master lever 200 back to its set position manually.

When master lever 200 is returned to its proper set position as shown in FIGURE 5, it is desirable to cause picture wheel 380 to rotate to remove the selected picture from in front of the window thereby making it impossible for a later person to enter the booth and merely leave the picture in the former position. This is done automatically upon the clockwise resetting movement of master lever 200 by means of a hook rod 470 which is fixedly secured to bracket 472. Bracket 472 is pivotally mounted by means of pin 474. Excessive downward motion of hook rod 470 is prevented by keeper 476 on master lever 200. As master lever 200 rotates in a

counterclockwise direction about pin 202, hook rod 470 engages pins 388 on picture wheel 380. When master lever 200 is returned to its set position by clockwise rotation, hook rod 470 engaging pins 388 causes picture wheel 380 to rotate. In addition, picture wheel 380 and lever 392 are pulled toward master lever 200 and away from operating wheel 422 permitting lever 398 to re-engage lever 392 at point 396. Thus, the picture wheel 380 is returned to the position shown in FIGURE 5.

The locking of the entrance door 20 in response to excessive counterclockwise rotation of master lever 200 will now be described. Under normal circumstances, one who is not familiar with the pictures on picture wheel 380 would not be successful in operating hand lock mechanism 700; nevertheless, whether or not hand lock mechanism 700 is operated, the excessive movement of master lever 200 in a counterclockwise direction causes the lower end of master lever 200 to swing to the right, as shown in FIGURE 5. This causes lever 330, which is pivotally connected to master lever 200 by means of pin 332, to move to the right. Even if slide lock member 702 is free to move the excessive motion of master lever 200 will cause levers 330, 336, and 362 to move to the right engaging swinging pivot lever 366 which pushes catch 310 toward cam 70 engaging teeth 318 thereon. Thus cam 70 is locked preventing the person in the booth from operating lever 74 and, consequently, his exit through door 20. By the same operation, that is the movement of rods 330 and 362, and lever 366, rod 344 is caused to move excessively to the right causing cam 350 to pivot excessively thereby locking the exit door in a manner to be described below.

Reference is made particularly to FIGURES 13 and 14. FIGURE 13 is a top view in partial section of the locking arrangement for the exit door into the vault or security area. FIGURE 14 is a side view in partial section of the lock mechanism for the exit door. Handle 480, best shown in FIGURE 13, is attached by means of shaft 482 to a lever 484, best shown in FIGURE 14, having a notch 486 in the bottom thereof which engages a projection 488 on rod 490. Rod 490 has on the end thereof a lug 492 which is shown in FIGURES 13 and 14 and in FIGURE 5. Lug 492 is engaged by the notch in cam 350, as best shown in FIGURE 5. When cam 350 is in the position shown in FIGURE 5, that is in the normal locked position before operation of the master lever, movement to the left, as viewed in FIGURE 14, is prevented. On the other hand, if cam 350 is rotated to the fullest extent, as for example by excessive counterclockwise rotation of master lever 200 or normal rotation of master lever 200 while hand lock mechanism 700 is in the locked position, then cam 350 will move to engage the lower part of rod 490 thus preventing one from opening the door. If, however, the cam 350 is moved only partially, as it would be in normal correct operation, lug 492 will be centered in the notch in cam 350 and the entire rod 490 will be free to move through the notch in cam 350 in response to movement of the handle 480 by the operator in the booth. Movement to the left, as viewed in FIGURE 14, will permit bolt 492 to disengage bolt 504 thus permitting the exit door 40 to be opened.

Door 40 may be opened by one outside the booth at any time merely by turning knob 500 and thereby operating rod 504 by means of shaft 502, in the manner of a conventional door lock.

As mentioned previously in the preferred form of the invention, the doors 20 and 40 are preferably made of bulletproof panel materials. In addition, in the preferred embodiment the inner panels of doors 20 and 40 are slidably mounted on the uprights of the doors to permit the panel to slide vertically. The panels are biased upwardly; however, if an unauthorized person attempts to gain entrance to the booth by carrying his weight on the door panes to avoid placing his weight on the floor, with the consequent operation of the scale locking mechanism, then the door panels will move downwardly exerting the weight on the floor. The construction of the doors is described now with particular reference being made to FIGURES 10, 11 and 12. The description hereinafter is made with reference to door 20; however, it is to be understood that door 40 is constructed in a similar manner, and in addition, the walls of the booth may be similarly constructed. Referring now to FIGURES 10 and 11, panel 22 is provided with angle iron brackets 510 and 512 through which pins 514 and 516 extend. Pins 514 and 516 are fixedly secured to upright members 518 and 520. Panel 22 is biased in an upward direction by means of springs 524 and 526 which are attached to panel 22 by means of a pin 528 and to the outside of the door, panel 24, by means of pins 530 and 532. It will be understood, of course, that similar angle iron brackets 540 and 542 are provided in the lower portion of panel 22, as shown in FIGURE 10. It will be seen then, that panel 22 will move downwardly bearing the person's weight against the floor in the same manner as if the person was standing on the floor.

With reference now particularly to FIGURES 15, 16 and 17, the operation of the lock for the rear panel access door to the master lock mechanism chamber will be described. Lock 88 is shown generally in FIGURE 2, and is shown with more particularity in FIGURE 15 and FIGURE 16. Lock 88 comprises a key slot lock 610 for receiving key 612 and is of a modified commercial variety. When the correct key 612 is inserted in the slot 610 turning the key will cause pivotable bolt 614 to turn in response to the key's turning thereby permitting the door formed by panels 84 and 86, as shown in FIGURE 2, to be opened. Insertion of the key 612 into the slot 610 causes a slidable insert 620 as best shown in FIGURE 16, to move between contacts 622 and 624 thereby completing an electrically conductive path between the said contacts. Contacts 622 and 624 are part of a switch 630 which is shown schematically in FIGURE 17. As will be apparent from FIGURE 17, the closing of switch 630 will complete the circuit from transformer 632 through switch 630 to the bell alarm means 634. Thus even though a correct key is used an alarm is given if an attempt is made to open the access door to the master lock mechanism chamber. In addition to switch 630 a second switch 640 is shown which is closed with similarly completed circuit from transformer 632 to alarm means 634. Switch 640 is shown in FIGURE 5 having a pushbutton 642 which is operated by cam 70. Thus, when the person enters the booth and locks the door thereby moving cam 70 into the position shown in FIGURE 5, pushbutton 642 is depressed closing the normally open switch contacts 640 completing the circuit between transformer 632 and bell 634 thus giving an alarm. FIGURE 17 also shows the schematic representation of switch 92 shown in FIGURE 1 and of light 94 shown in FIGURE 2. The purpose of light 94 is to permit the operator to more clearly view the pictures 382 on the picture wheel 380.

In order to more clearly explain the operation of the mechanisms of the holdup proof booth the following two examples will be given: First, the operation of the booth by an authorized person in the normal manner will be described and, second, the operation of the mechanisms if an unauthorized person attempts to enter the booth will be described.

First, as the operator approaches the booth he may open the door 20 by turning the handle 32. Of course, it would be possible to equip the door 20 with a conventional key lock on the outside thereby requiring the operator to have a key and preventing unauthorized persons from initially gaining entry into the booth thereby precluding mere curiosity seekers from entering the booth. When the operator has entered the booth he first closes door 20 by means of handle 32. When door

20 is fully closed operating arm 28 engages hook 142 on locking rod 140, best shown in FIGURE 4, causing locking rod 140 to move to the right thereby freeing locking plate 126 on one side for upward movement in response to the weight of the operator.

The operator then locks door 20 by moving lever 74 downwardly causing shaft 66 to rotate cam 72 into slot 34. The rotation of cam 72, best shown in FIGURE 4, in addition to locking door 20 causes lever 130 to pivot on fulcrum 134 thereby releasing the other side of locking plate 126 for upward movement in response to the weight of the operator on floor 100. The downward movement of lever 74 in addition to locking door 20 by means of cam 72 causes cam 70 to rotate in a counterclockwise direction moving the lower portion downward against pushbutton 542 on switch 540 giving an alarm to indicate that a person is attempting to enter the security room or vault. This would prevent persons who may be working in the vault from being surprised and may give an indication to other persons to be on the lookout for a possible attempt by an unauthorized person to enter the vault.

The downward motion of lever 74 and the consequent rotation of cam 70 causes rod 430, shown in FIGURE 5, to move downwardly lifting flag 440 from in front of the pictures in the manner previously described. The operator then turns lights 94 on by means of switch 92 thereby enabling him to clearly view the pictures 382 on picture wheel 380. It would then be necessary for the operator to operate pusher 410 causing lever 398, FIGURES 5 and 9, to disengage lever 396 thereby permitting picture wheel 380 to move into engaging relationship with operating wheel 422. Operating wheel 422 may then be turned by means of knob 420 in the operator's compartment as shown in FIGURE 1. The operator must be able to recognize the designated picture in order to place it in front of the window in the proper position. Having selected the correct picture, the operator then must place his right hand in hand lock mechanism 700, shown in FIGURE 1, and with his left hand operate the pusher cam 232, shown in FIGURE 5, by means of crank 236, shown in FIGURE 1.

When pusher cam 232 is operated, the master lever 200 is permitted to move to the left in response to spring 204 and bias mechanism 240 until keeper 466 contacts catch 468 thereby arresting the motion of master lever 200. As shown in FIGURE 5, this counterclockwise rotation of master lever 200 operates through rod 330, lever 336, and rod 344 to rotate cam 350 until the lug 492 is centrally located in the notch in cam 350. This operation assumes that the hand of the operator has the proper dimensions and that slide lock member 702 moves freely. The operator may then turn handle 480, shown in FIGURES 1 and 13, thereby causing bolt 490 to move through the notch in cam 350 and, at the other end, disengage rod 504. This frees the exit door 40. The operator can then open exit door 40 merely by pushing on it and can enter the security area or vault. Of course, since the alarm was given upon the operation of lever 74, the persons inside may be on the alert in the most unlikely event that an unauthorized person could gain entrance in spite of the protective devices of the holdup-proof booth.

When the operator wishes to exit through the booth he merely enters the booth through door 40, closes the door, and raises lever 74. The raising of lever 74 unlocks the exit door 20 and, in addition resets master lever 200 for the next operation and turns wheel 380 to a different position as previously described. The operator then may make an exit through door 20.

In the next example it is assumed that an unauthorized person is attempting to gain entry into the vault through the holdup-proof booth. The person opens door 20 and enters the booth in the normal manner. Of course, if door 20 is equipped with the ordinary commercial door lock, now shown for purposes of clarity, the person may, in addition, be required to possess a key of the proper type. Once in the booth, the person then closes door 20 and enters in the normal manner freeing one side of locking plate 126, as shown in FIGURE 4, for movement in the normal manner. When the person then operated lever 74 door 20 would be locked behind him by the mechanism previously described. Assuming the least favorable circumstance, that is where the unauthorized person has information which might be available from an operator who had either voluntarily or under coercion divulged his information, the operator then turns on light 92 and perhaps operates pusher 420.

Since it is virtually impossible to describe the characteristics of a single picture, especially as would be the normal case in a holdup-proof booth where the pictures were all of very great similarity, it would be extremely difficult if not impossible for one to select the correct picture. The picture wheel 380 is shown having eight pictures thereon; however, this number may be enlarged. In addition, many visual devices may be used on picture wheel 380. Thus it will be seen that it would be very easy to provide pictures or other visual devices which are virtually incapable of verbal description but which may be recognized by an operator. It should be pointed out that the unauthorized person has only one chance and if the correct picture is not selected he will be locked in the booth as described.

Assuming the unauthorized person selects an incorrect picture, he then operates crank 236 thus permitting master lever 200 to move to the left, but since the bolt 386, as shown in FIGURE 5, is not in the proper position, lever 460 will fall below its normal position and keeper 466 will not engage catch 468 and master lever 200 will move to its extreme position until stopped by slide guide 206. As previously described, this excessive movement of master lever 200 causes excessive motion of rod 330 and consequently of lever 336, rod 344 and rod 362, having the effect of locking the entrance door by causing catch 310 to engage teeth 318 on cam 70 and by causing cam 350 to rotate excessively so that the bolt 490 is not free to move through the notch in cam 350. Thus, not only is the exit door locked bu the entrance door as well and the unauthorized person is locked in the booth and cannot escape until the door is opened by a person from within the vault.

There is, of course, a very small possibility that the unauthorized person may accidently select the correct picture thereby placing bolt 386 in a proper position and preventing excessive motion of master lever 200; however, the person must also insert his right hand into hand lock mechanism 700 in order to free slide lock member 702 for movement. Since the operating member of lock 700 can be very precisely adjusted to conform to the measurements of the authorized operator's hand, there is virtually no probability than an unauthorized person would coincidentally be able to operate the lock. Thus, since the unauthorized person could not operate the lock, slide lock member 702 could not be free for movement and even if master lever 200 moved only the correct distance the failure of slide lock member 702 to move would cause lever 336, as shown in FIGURE 5, to pivot about its lower end engagement with slide lock member 702 causing rod 344 to rotate cam 350 about pin 352 to engage the lower portion of bolt 490 thereby locking the exit door. In addition, the pivotal action of lever 336 would cause bar 362 to move to the right engaging lever 366 and causing catch 310 to engage teeth 318 on cam 70 thereby locking the entrance door. Thus it will be seen that an unauthorized person would be locked in the booth in the manner previously described even though he should accidentally select the correct picture on picture wheel 380.

It will be apparent to those skilled in the art there may be many variations of the preferred embodiment described herein without departing from the spirit of the invention. For example, as new and improved bulletproof materials

are developed they may be used in the construction of the booth to give greater safety to those who may be enclosed therein or to prevent one enclosed therein from endangering persons on the outside. In addition, the various operating mechanisms may be modified slightly without departing from the concept of the invention.

I claim:

1. A holdup proof booth for denying entry into a security area to all but authorized persons and for incarcerating unauthorized persons who attempt to enter the security area by means of the booth comprising:
an enclosed booth,
an entrance door into said booth,
an exit door from said booth,
a lock mechanism chamber,
locking means for selectively locking the entrance door,
locking means for selectively locking the exit door,
a master lever locking mechanism in the chamber comprising:
a master lever mounted for pivotal movement,
means interconnecting the entrance door lock with the master lever for maintaining the entrance door in a locked condition in response to selected modes of operation of the master lever,
means interconnecting the exit door lock with the master lever for maintaining the exit door in a locked condition in response to selected modes of operation of the master lever a picture profile lock mechanism including a picture wheel having thereon a plurality of visual devices at least one of which is visible from within said booth, and
means interconnecting the pivoted master lever with the picture profile lock mechanism for selectively covering and uncovering the visual device visible from the booth and for controlling the mode of operation of the master lock mechanism in response to the setting of the picture profile lock mechanism.

2. The holdup proof booth of claim 1 including:
a normally locked hand lock mechanism responsive to the physical dimensions of a hand for selectively unlocking when a hand having predetermined dimensions is inserted therein,
means interconnecting the hand lock mechanism with the pivotally mounted master lever for selectively controlling the operation of the master lever in response to the locked or unlocked condition of the hand lock mechanism.

3. The holdup proof booth of claim 1 wherein the means interconnecting the pivotal master lever and the picture profile lock mechanism comprises a pivotally mounted lever slidably received by the picture profile lock mechanism for selectively controlling the mode of operation of the pivotal master lever.

4. The holdup proof booth of claim 3 including:
a normally locked hand lock mechanism responsive to the physical dimensions of a hand for selectively unlocking when a hand having predetermined dimensions is inserted therein,
means interconnecting the hand lock mechanism with the pivotal master lever for selectively controlling the operation of the master lever in response to the locked or unlocked condition of the hand lock mechanism.

5. The holdup proof booth of claim 4 including:
an entrance door to the lock mechanism chamber,
a lock and alarm means for the lock mechanism chamber entrance door comprising:
chamber door locking means and
means responsive to operation of the chamber door locking means for actuating an alarm when an attempt is made to operate the chamber door locking means.

6. The holdup proof booth of claim 5 wherein the picture profile lock mechanism comprises:
a plurality of pictures on said picture wheel,
means on said picture wheel for selectively receiving said pivotally mounted lever for interconnecting the pivotal master lever and the picture profile lock mechanism, said selective receiving means corresponding to one of the pictures on the picture wheel for maintaining the pivotally mounted interconnecting lever in position for arresting the pivotal motion of the master lever only when a predetermined picture corresponds to a predetermined location,
means for rotating the picture wheel,
means for selectively maintaining the picture wheel out of operative contact with said picture wheel rotating means,
means for illuminating the picture wheel,
and wherein the means interconnecting the hand lock mechanism and the pivotal master lever comprises:
a slidable lock member,
a first lever engaging the slidable lock member,
a first rod pivotally connected to the first lever and pivotally connected to the pivotal master lever,
and wherein the means interconnecting the exit door locking means and the pivotal master lever comprises:
said first rod,
a second rod pivotally connected to said first lever operatively connected to said exit door locking means,
and wherein the means interconnecting the entrance door locking means and the pivotal master lever comprises in addition to said first lever and said first rod
a third rod pivotally connected to said first lever,
a second pivotally mounted lever for selective engagement with said third rod,
a pivotally mounted catch for engaging means operatively connected to the entrance door locking means and
means biasing said pivotally mounted catch in a first direction.

7. A holdup proof booth for denying entry into a security area to all but authorized persons and for incarcerating unauthorized persons who attempt to enter the security area by means of the booth comprising:
an enclosed booth,
an entrance door into said booth,
an exit door from said booth,
a lock mechanism chamber,
locking means for selectively locking the entrance door,
locking means for selectively locking the exit door,
a master lever locking mechanism in the chamber comprising:
a master lever mounted for pivotal movement,
means interconnecting the entrance door lock with the master lever for maintaining the entrance door in a locked condition in response to selected modes of operation of the master lever,
means interconnecting the exit door lock with the master lever for maintaining the exit door in a locked condition in response to selected modes of operation of the master lever,
a normally locked hand lock mechanism, said hand lock mechanism being responsive to the physical dimensions of a hand for selectively unlocking when a hand having preselected dimensions is inserted therein, and
means interconnecting the hand lock mechanism with the pivotally mounted master lever fot selectively controlling the operation of the master lever in response to the locked or unlocked condition of the hand lock mechanism.

8. The holdup proof booth of claim 7 including:
a movable floor in said enclosed booth,
a scale mechanism,
means interconnecting the movable floor and the scale mechanism,
means interconnecting the scale mechanism with the entrance door lock for maintaining the door locked in response to a weight on the floor in excess of a predetermined amount.

9. The holdup proof booth of claim 7 including:
an entrance door to the lock mechanism chamber,
a lock and alarm means for the lock mechanism chamber door comprising:

chamber door locking means,
means responsive to operation of the chamber door locking means for actuating an alarm when an attempt is made to operate the chamber door locking means.

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