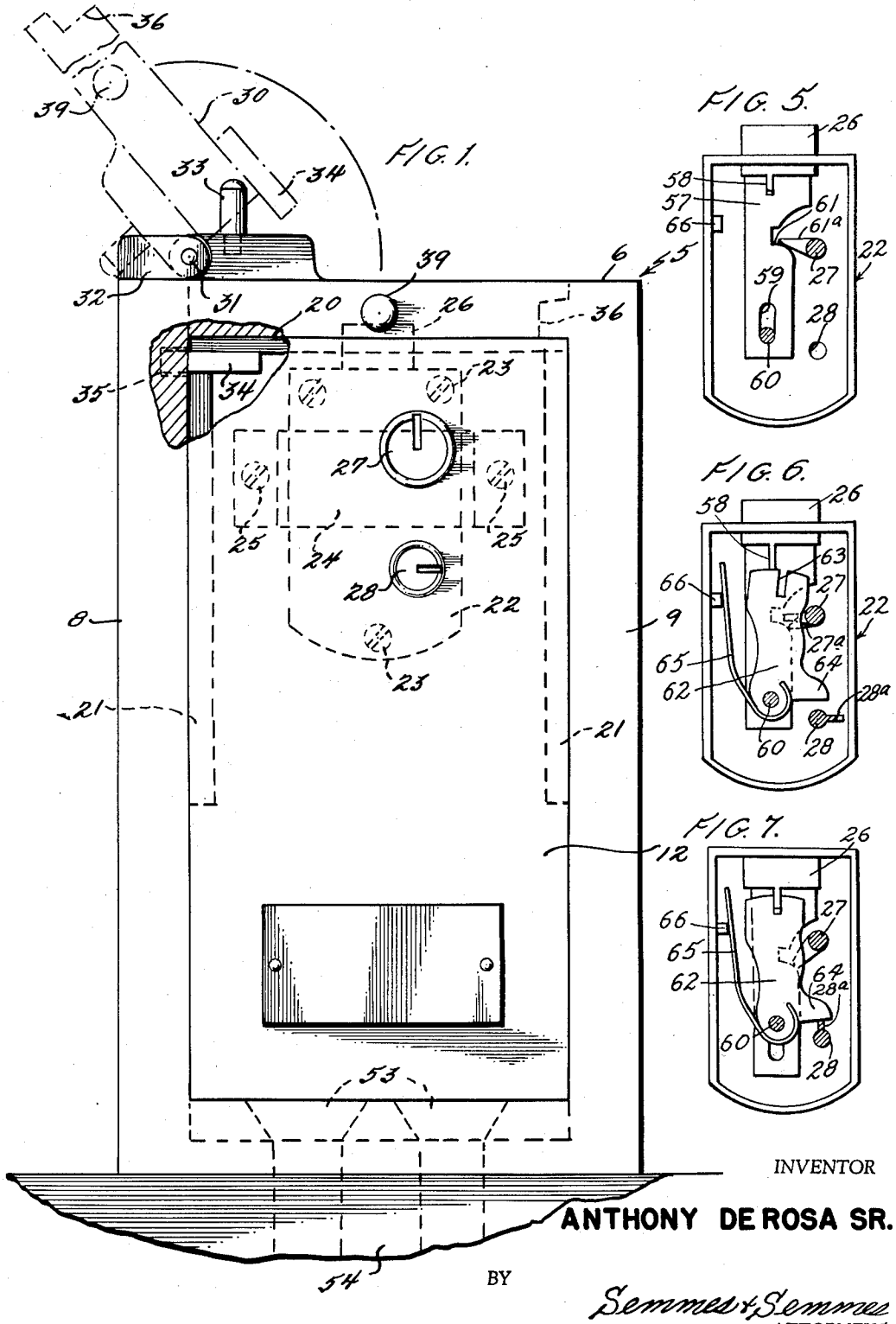
July 17, 1956 A. DE ROSA, SR 2,754,777

TRUCK SAFE

Filed Sept. 18, 1953 2 Sheets-Sheet 1



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TRUCK SAFE

Filed Sept. 18, 1953 2 Sheets-Sheet 2

FIG. 2.

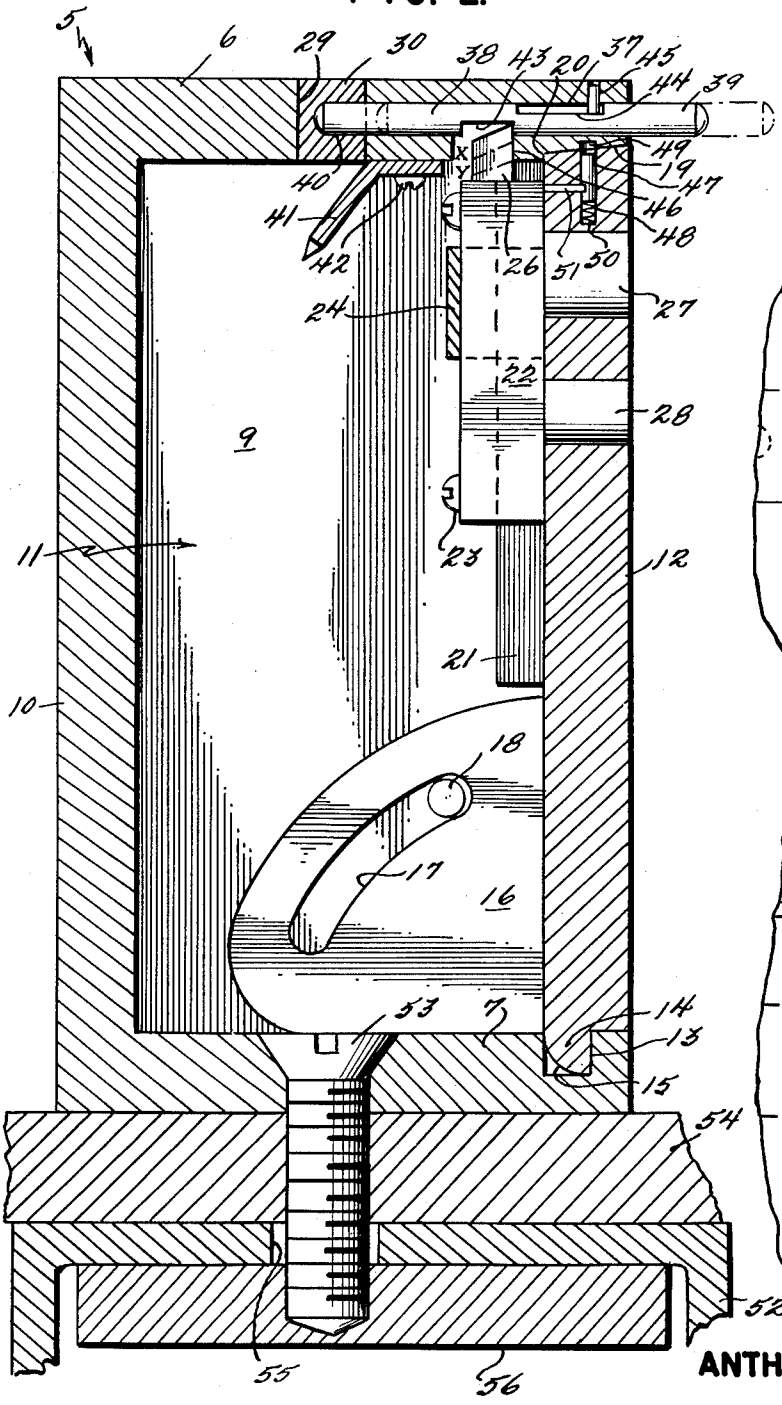


FIG. 3.

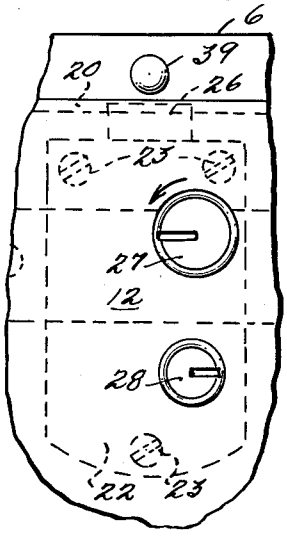
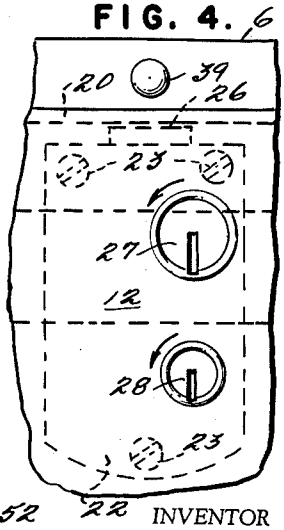


FIG. 4.



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TRUCK SAFE

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8 Claims. (Cl. 109—51)

This invention relates to safes having multiple controlled locking systems wherein the simultaneous manipulation of at least two independent keys or combination sets, is required, to open the main access door.

More particularly, the invention consists in new and useful improvements in a truck or vehicle mounted safe having a money-receiving chamber, closed by a main access door which is provided with a single lock mechanism under the combined control of two independently operated keys, one of which is also adapted to independently control the opening of a deposit slot guard in the top of the chamber.

In the operation of many business enterprises, truck deliveries of merchandise is a generally accepted service, and frequently the truck drivers are required to collect considerable sums of money in the course of a day's deliveries. The collection, transportation and final accounting for these funds has presented two major problems, namely, the protection of the collected money from hold-up and robbery during the driver's run and secondly, the protection of the driver in the verification of his day's collections when he delivers the money to his home base of operation.

An object of the present invention is to provide a very simple, compact and inexpensive form of truck safe adapted to be rigidly mounted on the chassis of a conventional truck and of such construction and design that the desired strength is secured and its removal from the truck is impossible without first opening the main access door.

Another object of the invention is to provide a truck safe wherein the main access door is provided with a single lock bolt mechanism having two independently operating key noses, one under the control of the driver's key and the other under the independent control of the manager or auditor's key, the joint manipulation of both keys being required to open the access door.

A further object of the invention is to provide a truck safe of this type having a deposit slot guard which is under the single control of the driver's key, the main lock bolt being designed to coact with a slot guard lock so that the latter may be released by manipulation of the driver's key without affecting the locking relationship of the main lock bolt, with respect to the access door. Thus, while the deposit slot guard is under the sole control of the driver's key, the unlocking of the main access door cannot be accomplished without the manipulation of both the driver's key and the manager's key so that the driver must be present when his collections are turned over to the manager and verified.

Still another object of the invention is to provide a separate re-locking device for the main access door which becomes operative only in the event the main lock bolt mechanism is forcibly knocked out in the course of a robbery.

With the above and other objects in view which will appear as the description proceeds, the invention consists in the novel features herein set forth, illustrated in the

accompanying drawings and more particularly pointed out in the appended claims.

Referring to the drawings in which numerals of like character designate similar parts throughout the several views:

Fig. 1 is a front elevational view showing the locking mechanism and the hinged slot guard in dotted lines;

Fig. 2 is a transverse sectional view through the safe body, showing the truck mounting means and the dual control locking mechanism;

Fig. 3 is a fragmentary detail showing the position of the main lock bolt after a quarter turn of the driver's key; to release the slot guard;

Fig. 4 is a similar view showing the relative positions of the two keys in the final unlocked condition;

Figs. 5, 6 and 7 are diagrammatic illustrations of one form of dual key lock which may be employed in connection with the present invention. Fig. 5 shows the lock mechanism with the bolt in locked position and the tumbler removed. Fig. 6 shows the lock mechanism with the bolt partially retracted by the first key with the tumbler limiting further movement thereof, and Fig. 7 shows the positions of the parts when the bolt is fully retracted.

In the drawings, 5 generally represents the safe housing which is preferably rectangular in shape and consists of top and bottom walls 6 and 7 respectively, the side walls 8 and 9, and a rear wall 10, all preferably composed of relatively thick steel plate welded together to form a box-like chamber 11. The front of the chamber 11 is closed by a main access door 12, formed of a solid steel plate of a thickness comparable to that of the chamber walls, and adapted when closed, to fit within the confines of the front edges of the top, bottom and side walls as shown in Fig. 2.

The upper face of the bottom wall 7 is recessed adjacent its forward edge, as at 13, to receive a downwardly projecting transverse flange 14 formed on the lower edge of the door 12, the rear edge of said flange being rounded as at 15 to permit the door 12 to be swung outwardly at its upper end. The door is hingedly connected at its lower end by means of a pair of gusset type hinges 16 which are welded to the inner face of the door at each of its side edges and project inwardly along the inner faces of the side walls 8 and 9. Each of the hinges 16 is provided with an arcuate slot 17 adapted to engage a fixed pin or stud 18 which projects inwardly from the side walls 8 and 9, thus controlling the outward swinging movement of the door 12.

The upper edge of the door 12 is provided with a slight inward bevel to fit within a complementary, inwardly-inclined recess 19 at the front edge of the top wall 6, the inner edge 20 of the recess 19 serving as an abutment to limit the closing movement of the door. To further define the inner limits of the closing movement of the door and provide reinforcement therefore, each of the side walls 8 and 9 is provided with a vertically extending striker 21 lying in the same vertical plane with the shoulder or abutment 20 at the upper end of the door. Thus, when the door is in closed position, it is uniformly supported along its top, bottom and sides to prevent it from being forced inwardly and as its outer face lies flush with the corresponding edges of the top, bottom and side walls of the chamber 11, it cannot be pried outwardly.

A double nosed key lock unit 22 is held in place on the inner face of the door 12, adjacent its upper edge by means of screws 23 and is reinforced by a channel shaped lock strap 24 secured to the door by screws 25. The specific construction of the lock per se, forms no part of the present invention and therefore it is illustrated more or less diagrammatically. For purposes of understanding the invention, it is sufficient to state that the lock 22 is provided with a vertically slidable lock bolt 26, the

movement of which is controlled by two independent key actuated mechanisms **27** and **28**, the key noses of which are disposed in suitable openings in the door **12** with their respective key slots presented at the outer face of the door.

As an example of one form of dual key lock mechanism, which may satisfactorily be employed in connection with this invention, reference is made to the patent to A. Kirks No. 329,456 issued November 3, 1885. For convenience, Figs. 5, 6 and 7 of the accompanying drawings diagrammatically illustrate a suitable adaptation of the Kirks' lock to the present invention, certain parts of the patented lock having been eliminated as unnecessary to its use here.

The lock bolt **26** is provided with a longitudinal extension **57**, slidably mounted in the casing of the unit **22**, its longitudinal movement being limited by a slot **59**, through which passes a bolt **60**, fixed in the unit **22**. One longitudinal edge of the extension **57** is recessed as at **61** for engagement by a cam **61***a* under the control of a key in mechanism **27**. As seen in Fig. 6, a tumbler **62** is pivotally mounted on bolt **60**, along side of extension **57**, said tumbler being provided at one end with a slot **63** adapted to be moved into and out of alignment with a rib **58** on the lock bolt **26**. The shifting of the tumbler **62** is accomplished by the insertion of a second key **28***a* in mechanism **28**, a toe **64** being provided on one edge of the tumbler for engagement by the key **28***a*. A leaf spring **65**, fastened in the housing of the unit **22** by means of a mounting post **66**, is secured at its opposite end to the tumbler **62** and normally tends to rock the tumbler in clockwise direction as seen in Fig. 6, upon withdrawal of the key **28***a*.

It will thus be seen that by the insertion of the first key **27***a* in mechanism **27**, the cam **61***a* can initially retract the lock bolt **26** only to the limited extent permitted by the rib **58**, which abuts the end of the tumbler **62**. However, upon the insertion of a key **28***a* in mechanism **28**, the tumbler **62** is rotated on its bolt **60**, through the medium of the toe **64**, to align the slot **63** with the rib **58**. When in this aligned position, the continued manipulation of the first key **27***a* will completely retract the lock bolt **26** as shown in Fig. 7. Thus, neither key alone, can completely retract the lock bolt **26**.

The operation and dual control of the lock mechanism **22** will be described later on after a more complete discussion of its related features.

The top wall **6** is provided with a transverse deposit slot **29**, adapted to receive and be closed by a slot guard or closure **30**, hinged at one end as at **31** (Fig. 1) so that when closed, it lies flush with the upper surface of the top wall **6**. The hinge structure **31** consists of two opposed trunnions rotatably supported in complementary bearings in a pair of spaced bosses **32** which are welded to the upper face of the top wall **6** of the safe. A lift pin **33** is screwed into the upper face of the slot guard **30** to facilitate the opening of the guard.

On the underside of the slot guard **30** adjacent its hinged end, there is welded a rearwardly projecting lug **34**, the projecting portion of which is adapted to engage and interlock with a recess **35** in the side wall **8** of the chamber. Thus, when the slot guard **30** is in closed position its hinged end is reinforced by these interlocking elements. The forward end of the slot guard **30** is recessed at at **36**, on its underside so as to register with a complementary steplike recess at the corresponding end of the slot **29**, limiting the inward movement of the slot guard **30**.

The forward edge of the top wall **6** is drilled rearwardly to provide a horizontal cylindrical plunger recess **37**, adapted to slidably receive a locking plunger **38**, the outer end **39** of which normally protrudes a sufficient distance from the recess to provide a finger grip. A recess **40** in the adjacent edge of the slot guard **30** is aligned with the cylindrical recess **37** and is adapted to receive the inner end of the plunger **38** when the latter is forced to its innermost position as shown in full lines in Fig. 2, thus locking the slot guard **30** in closed position. Upon the outward movement of the plunger **38** to the position shown in dotted lines in Fig. 2, its inner end is retracted from the recess **40** and the slot guard may be swung upwardly on its hinge to the position shown in dotted lines in Fig. 1. In this position, the deposit slot **29** is open to receive bills or coins and in order to prevent the fishing out of money which has been deposited, the under side of the top wall **6** is preferably provided adjacent the slot **29**, with a saw tooth guard or baffle **41**, secured in place by screws **42**. As will be seen in Fig. 2 this baffle **41** is directed forwardly at an angle and underlies the slot **29**, permitting the insertion of money through the slot but forming an obstacle to anyone undertaking to remove money through the slot.

The slot guard plunger **38** is under the sole control of the driver of the truck and its locking and unlocking is co-related to the dual control lock unit **22** previously referred to. For this purpose the under side of the plunger **38** is provided intermediate its ends, with a transverse keeper recess or notch **43** adapted to receive the upper end of the lock bolt **26** when the latter is in its fully extended position as shown in full lines in Fig. 2. Here it will be seen that the upper end of the lock bar **26** is inclined so as not to interfere with the opening of the door **12** when it is swung outwardly on its hinges. However, when in fully extended position, the inclined end of the lock bolt extends sufficiently into the plunger recess **43** to prevent more than a slight outward movement of the plunger until the lock bolt is retracted. A second recess **44** in the top side of the plunger **38**, coacts with a stop pin **45** to prevent complete withdrawal of the plunger from the recess **37**.

One of the important features of the present invention lies in the adaptation of a dual control lock mechanism, whereby a common lock bolt serves as the locking mechanism for the slot guard **30** under the sole control of one key operating a key nose in mechanism **27**, but maintains the main access door **12** in completely locked condition until the lock bolt is retracted by the joint operation of independently operable keys in mechanisms **27** and **28**. As will be seen from Fig. 2, when the lock bolt **26** is fully extended it passes through a keeper slot **46** in top wall **6** and projects into the recess **43** in plunger **38** and so long as it remains in this position, retraction of the plunger **38** is prevented and the slot guard **30** remains locked. The design of the lock unit **22** is such that a quarter turn of the driver's key in mechanism **27**, in counterclockwise direction initially retracts the lock bolt **26** to the position shown in Fig. 3 removing the end of the lock bolt from the plunger recess **43** to free the plunger **38** so that it can be retracted from the recess **40** in the slot guard **30**. The position of the lock bolt **26** shown in Fig. 3 and in dotted line *x* in Fig. 2, represents the limit of downward movement which may be accomplished by the independent action of the driver's key in mechanism **27** and in this position it will be seen that the forward face of the projecting lock bolt **26** still lies in firm engagement with the adjacent edge of the keeper recess **46** so that the access door **12** remains in fully locked position.

The access door **12** cannot be opened until a second key is inserted in mechanism **28** and the latter turned a quarter turn in counterclockwise direction. The design is such that upon turning a key in mechanism **28** a quarter turn, the lock bolt is released so that a further turn of the driver's key in mechanism **27** completes the retraction of the lock bolt **26** to the position shown in Fig. 4 and at *y* in dotted lines in Fig. 2. In this position it will be seen that the end of the lock bolt has cleared the keeper slot **43** and the access door **12** may be swung outwardly on its hinges **16**.

As an added precaution against the unauthorized opening of the door **12** in the event lock mechanism is ham-

mered out, so that the bolt **26** is not effective, a re-locking mechanism is provided. This consists of a vertical, cylindrical plunger **47** reciprocably mounted in a recess **48** which is drilled vertically in the top edge of the door **12**. A notch **49** is provided in the adjacent surface of the top wall **6** and aligned with the recess **48** so that the plunger **47**, under the influence of a coil spring **50** in the bottom of the recess **48**, is normally urged upwardly into the notch **49**. However, the engagement of the auxiliary plunger **47** with the notch **49**, is normally prevented by a projecting finger **51** fixed to the inner face of the lock housing **22** and extending inwardly through a slot in the door **12** where it engages a peripheral notch in the auxiliary plunger **47**.

Thus, in the event the lock unit **22** is hammered out, the finger **51** is retracted from the notch in plunger **47** permitting the spring **50** to force the plunger upwardly into the notch **49** so that the door **12** is re-locked.

As before explained, the safe of the present invention is primarily designed for use in trucks and it may be mounted on the truck body or chassis in any suitable manner designed to prevent the removal of the safe from the truck. One form of such mounting is illustrated in the drawings where **52** represents a convenient portion of the truck chassis or body channel.

A plurality of heavy screws or bolts **53** extending through complementary openings in the bottom wall **7** of the safe are inserted from the interior of chamber **11**. The safe bottom rests upon a floor board **54** into which the screws **53** pass and register and the truck channel is provided with registering openings **55** through which the screws pass for insertion in a clock plate **56** on the underside of the channel. It will be noted that the bottom of the safe lies flush with the upper surface of the floor board and the screws **53** terminating within the block **56**, cannot possibly be reached without the safe door **12**.

It will thus be seen that I have provided a rigid and efficient safe structure particularly adapted for use in connection with delivery trucks or the like and one which provides a maximum of security from holdups. Furthermore, my particular adaptation of a dual control lock mechanism affords full protection to both the truck driver and the home office in the vertification of collections.

From the foregoing it is believed that my invention may be readily understood by those skilled in the art without further description, it being borne in mind that numerous changes may be made in the details of construction without departing from the spirit of the invention as set forth in the following claims.

I claim:

1. A safe comprising a housing having top, bottom, side and rear walls forming a deposit receiving chamber, a main access opening in the front portion of said housing, a door for said opening, a deposit slot in the top wall of said housing, communicating with said chamber, a closure for said slot, a retractable plunger engageable with said closure for locking the latter in closed position, a keeper slot in said top wall adjacent the inner face of said door, a registering keeper notch in said plunger, a dual control lock unit on said door comprising a single lock bolt, simultaneously engageable with said keeper slot and keeper notch, a first key actuated mechanism, operable to initially retract said bolt from said keeper notch to free said plunger, means limiting the initial retraction of said bolt, and a second independent key actuated mechanism, operable to release said last-named means and permit complete retraction of said bolt, to disengage said keeper slot.

2. A safe comprising a housing having top, bottom, side and rear walls forming a deposit receiving chamber, a main access opening in the front portion of said housing, a door for said opening, a deposit slot in the top wall of said housing communicating with said chamber, a closure for said slot, a horizontal cavity in said top wall, a locking recess in said slot closure adapted to register with the inner end of said cavity when the closure is seated, a plunger slidable in said cavity and retractably engageable with said locking recess, a keeper slot in the underside of said top wall, opening into said cavity intermediate its ends, a keeper notch in the underside of said plunger, normally in register with said keeper slot, a dual control lock unit fixed to the inner face of said door adjacent its upper end, said unit comprising a single lock bolt perpendicular to said plunger and vertically slidable between two extreme positions, said bolt, when fully extended, passing through said keeper slot with its end lying in said keeper notch, to concurrently limit the retraction of said plunger and prevent the opening of said door, said unit including a first key actuated mechanism operable to initially retract said bolt from said keeper notch, to release the plunger from said slot closure, means limiting the initial retraction of said bolt, and a second independent key actuated mechanism, operable to release said last-named means, whereby said first key actuated mechanism is permitted to complete the retraction of said bolt to disengage said keeper slot.

3. A safe comprising a housing forming a deposit chamber, a main access opening in the front of said housing, a door for said opening, a deposit slot in the top of said housing, communicating with said chamber, a closure for said slot, a manually actuated locking plunger slidably mounted in the top of said housing, retractably engageable with said closure, a lock unit fixed to the inner face of said door adjacent its upper end and comprising a single lock bolt, perpendicular to said locking plunger, a keeper notch in said plunger, a keeper slot in the top of said housing, said lock bolt being extendible through said slot into said notch for concurrently locking said door and preventing retraction of said plunger, said lock unit including a first key actuated mechanism operable to initially retract said bolt from said keeper notch, means limiting the initial retraction of said bolt, and a second independent key actuated mechanism adapted to release said last named means and permit complete retraction of said bolt to disengage said keeper slot.

4. A safe comprising a housing forming a deposit chamber, a main access opening in the front of said housing, a door for said opening, a deposit slot in the top of said housing, communicating with said chamber, a closure for said slot, a manually actuated locking plunger slidably mounted in the top of said housing retractably engageable with said closure, a lock unit fixed to the inner face of said door adjacent its upper end, comprising a single lock bolt perpendicular to said locking plunger, a keeper notch in said plunger, a keeper slot in the top of said housing, said lock bolt being extendible through said slot and into said notch for concurrently locking said door and preventing retraction of said plunger, a first key actuated mechanism operable to initially retract said bolt from said keeper notch, means limiting the initial retraction of said bolt, a second independent key actuated mechanism adapted to release said last-named means and to permit complete retraction of said bolt to disengage said keeper slot, a re-locking plunger in said door slidably mounted for projection into a complementary recess in said top, spring means normally urging said re-locking plunger into engagement with said recess, means normally locking said plunger in retracted position, said means being releasable upon the displacement of said main lock mechanism.

5. A safe as claimed in claim 4, including means accessible only from the interior of said chamber for securing the safe to a truck body.

6. A safe comprising a housing forming a deposit chamber, a main access opening in the front of said housing, a door for said opening, hinged at its lower end and adapted to be received within the confines of said opening, an elongated deposit slot in the top of said housing communicating with said chamber, a closure for said slot adapted to be received within the confines of said

slot, and hingedly connected at one end, a manually actuated locking plunger slidably mounted in the top of said housing, retractably engageable with said closure, a lock unit comprising a lock casing fixed to the inner face of said door adjacent its upper end and including a single lock bolt, perpendicular to said locking plunger, a keeper notch in said plunger, a keeper slot in the top of said housing, said lock bolt being extendible through said slot and into said notch for concurrently locking said door and preventing retraction of said plunger, said lock unit having a first key actuated mechanism operable to initially retract said bolt from said keeper notch, means limiting the initial retraction of said bolt, and a second independent key actuated mechanism adapted to release said last-named means and permit complete retraction of said bolt to disengage said keeper slot.

7. A safe as claimed in claim 6, wherein said door is provided in its upper edge with a vertically slidable re-locking plunger aligned for engagement with a complementary recess in said top, spring means normally urging

said re-locking plunger into engagement with said recess, a notch in the periphery of said re-locking plunger, and a detent slidably disposed in said door and normally maintained in engagement with said notch by abutment with said lock casing, said detent being releasable from said notch upon displacement of said casing to permit the shifting of said re-locking plunger into locking position.

8. A safe as claimed in claim 6, wherein said slot closure is provided with a rearwardly projecting lug on the under side of its hinged end, adapted when closed, to interlock with a complementary recess in the adjacent wall of said housing.

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