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SELF-SERVE AND CHECK BY KEY LOCK

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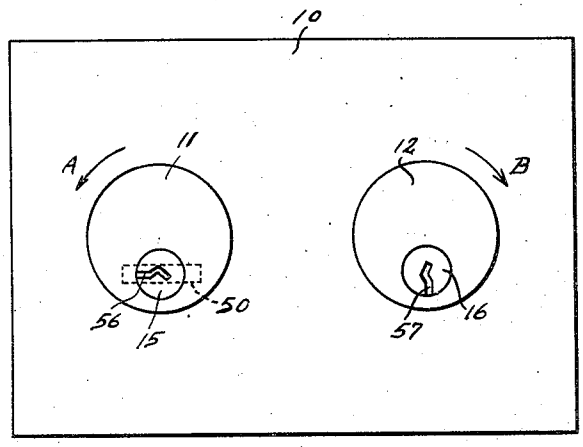


FIG. 1

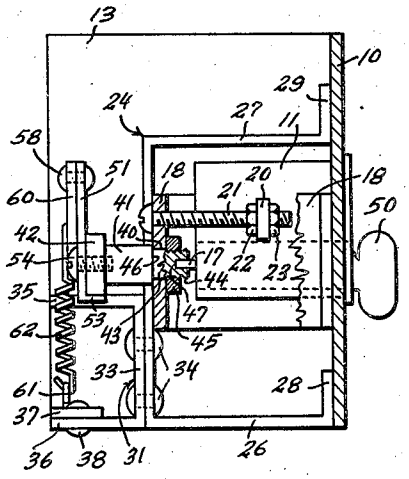


FIG. 3

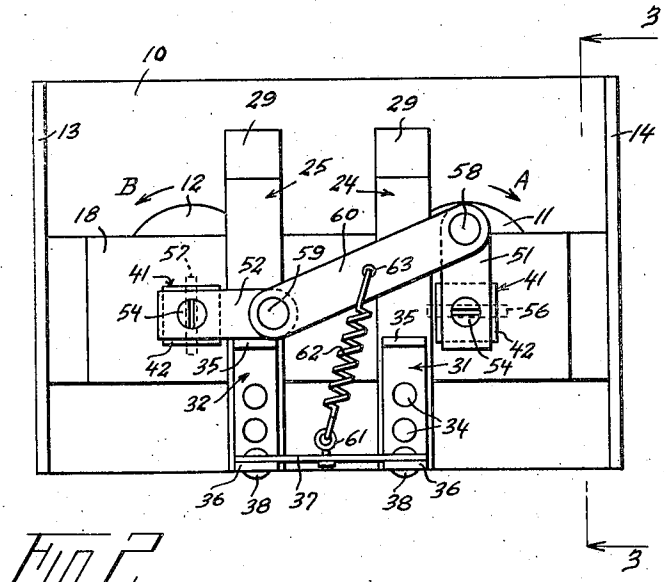


FIG. 2

Hampton Grainger
INVENTOR

BY Carl Miller
ATTORNEY

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SELF-SERVE AND CHECK BY KEY LOCK

Hampton Grainger, Detroit, Mich.

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6 Claims. (Cl. 70—262)

This invention relates to a locking device and check system.

The principal object of this invention is to provide on a panel a pair of inter-cylinder locks each operated by a different key and so interrelated that one key is always held in locked non-removable relation in its cylinder lock while the other may be removed or inserted, from or into its respective cylinder lock, and vice-versa, so as to provide a simple check system for the taking of an object which is securely chained or fastened to one of said keys. Thus, with the key attached to the object held in locked relation to its cylinder lock, a person provided with a key to the other cylinder lock may upon desiring to take the object insert said key into said other cylinder lock, turn the same, to permit movement of the first mentioned cylinder lock to a position where the key held therein may be removed with said object; the key in said other cylinder lock being then held therein against removal to serve as a check indicating the person responsible for the taking of said object.

With the foregoing and other objects in view, the invention resides in the novel arrangement and combination of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is illustrated in the accompanying drawing, wherein:

Figure 1 is a front elevational view of a panel provided with a pair of cylinder locks.

Figure 2 is a rear elevational view of the panel showing connecting mechanism between the cylinder locks.

Figure 3 is a transverse sectional view taken on line 3—3, Figure 2.

Referring to the drawing, 10 denotes the key panel which is to be affixed to any suitable supporting structure such as a wall, and mounted on the panel 10 are two cylinder locks 11 and 12. Formed on the panel 10 are two parallel side walls 13 and 14, which with the panel 10 define a housing for the support of the key lock mechanism to be hereinafter described. The cylinder locks 11 and 12 are of any conventional type each provided respectively with a rotating key receiving sleeve 15 and 16 and projecting stem 17. Between the side walls 13 and 14 there is a partition wall 18 arranged parallel to the panel 10 and in spaced relation to the inner ends of the cylinder locks, as clearly shown in Fig. 3; the partition wall 18 being rigidly secured to the panel 10 in any desired manner. Each of the cylinder locks is provided with a pair of diametrically opposed ears 20 (only one of which is shown in Fig. 3) each adapted to receive the end of a bolt 21 supported by the partition wall 18. Lock nuts 22 and 23 provided on the bolts 21 serve to securely fasten the cylinder locks 11 and 12 to the panel 10 in the manner readily apparent. In order to reinforce and strengthen the partition wall 18 there is provided a pair of vertical supporting brackets 24 and 25 disposed between the vertical center planes passing through the centers of the cylinder locks 11 and 12, see Fig. 2. Each supporting bracket comprises a lower horizontal leg 26 lying flush with the lower edge of the panel 10 and an upper horizontal leg 27 lying somewhat below the upper edge of the panel 10, both legs terminating in abutment flanges 28 and 29 respectively for attachment to the panel 10 in any desired manner not shown.

On each of the supporting brackets 24 and 25, there is respectively mounted a rearwardly extending channel shaped stop member 31 and 32, the web 33 of each being fastened to its respective supporting bracket by rivets 34. The upper leg 35 defines a stop for a purpose to be hereinafter described, and the lower leg 36 of each serves as a support for one end of a strap 37 rigidly fastened to said legs as by the rivets 38. The stop or leg 35 and the support or leg 36 are parallel and extend horizontally to the vertical support brackets 24 and 25.

Provided in the partition wall 18 are a pair of circular openings 40 (only one of which is shown), each arranged co-axial with the axis of the key sleeves 15 and 16 of the cylinder locks. A stub shaft 41 formed to provide at one end a square head 42 and at its other end portion, a reduced diameter portion 43 threaded at its end as at 44 is rotatably positioned within each of the circular openings 40, the reduced diameter portion 43 having bearing engagement in said opening. A nut 45 on the threaded end 44 serves to hold the stub shaft 41 on the partition wall 18, endwise or axial movement of the stub shaft being prevented by the nut 45 in one direction and by the shoulder 46 on the stub shaft in the other direction. The threaded end 44 of the stub shaft terminates in spaced relation to its respective key sleeve and is slotted as at 47 to receive therein the stem 17 of said key sleeve. Thus, a turning movement of the key sleeve by a key 50 inserted therein for opening or closing the cylinder lock

will rotate the stub-shaft 41 in one or the other direction.

On the square heads 42 of the stub shafts 41 there is respectively mounted the arm 51 and 52. The lower end of each arm is provided with a lateral extension or flange 53 for seating engagement with a side of its associated square head, each arm being rigidly secured to its associated square head by means of a screw bolt 54. This construction thus insures a positive connection of the arms with the stub-shafts. The arms 51 and 52 are so related that one is vertical when its associated cylinder lock is closed or locked and the other is horizontal when its associated cylinder lock is open or unlocked. In other words the setting of the cylinder locks 11 and 12 is such that when the key slot 56, see dotted lines Fig. 2, of cylinder lock 11 is horizontal, the cylinder lock 11 is locked and the key in said key slot cannot be pulled out, for this position of the key slot 56 of the key sleeve 15, the arm 51 is attached to the square head 42 of the stub shaft 41 as to lie in a vertical position. For the other cylinder lock 12, the setting requires that its key slot 57, see dotted lines Fig. 2, be vertical so that the key in said slot may be inserted or removed, the cylinder lock 12 being thus open or unlocked, and for this position of the key slot 57 of the key sleeve 16, the arm 52 is attached to the square head 42 of its associated stub shaft 41 as to lie in a horizontal position in a direction towards the arm 51, and in abutment with the stop 35 of its adjacent stop member 32. The arms 51 and 52 are of the same length, and pivotally connected at its ends as at 58 and 59 to the free ends of the arms 51 and 52 is a rigid link 60. On the strap 37 there is an eye 61 to which is attached one end of a tension coil spring 62, the other end of said spring engaging an opening 63 in the center of the link 60. The spring 62 acts to hold the arm 51 or 52 against its respective associated stop.

It is thus seen that the two cylinder locks 11 and 12 are linked together so that when one of the key sleeves is turned approximately 90° the other key sleeve also turns in the same direction approximately 90°, and as the key slots of the key sleeves are set one vertical and the other horizontal it is obvious that a key may be inserted or removed from the vertical key slot while the key placed in the horizontal key slot cannot be removed, as viewing Fig. 2, it will be observed that turning of the arm 51 (which is fixed to the key sleeve of the cylinder lock 11) counterclockwise is prevented by the link 60, the lower end thereof and the arm 52 being in engagement with the stop 35. The arrow A indicates the direction the key is turned to move the key slot 56 to the horizontal position for locking the key and moving the arm 51 to vertical position. Thus to unlock the cylinder lock 11 to permit removal of the key, the key must be turned counterclockwise viewing arrow A. Fig. 2, which movement as indicated above is prevented by the link 60 and arm 52 engaging the stop 35. Further, this limit to movement of the link 60 and arm 52 is occasioned by the fact that the pivot 59 lies below the center line intersecting the axes of the pivot 58 and stub-shaft 41.

The key located in the vertical key slot 57 of the cylinder lock 12 may then be removed, or it may be inserted into the key slot 57 and by turning in the direction of the arrow B viewing Fig. 2, 90° or a quarter turn, the arm 52 is raised to a vertical position and the arm 51 lowered to a horizontal position where it engages its adjacent stop 35, thus locking the key in the cylinder lock 12 and permitting removal of the key in the cylinder lock 11.

This arrangement of the cylinder locks 11 and 12 and their interconnection is susceptible of a variety of uses. For example, the device may be used as a checking system where one of the keys may have chained thereto an object such as a tool, implement, vacuum-cleaner, etc., so that a person provided with a key for the other cylinder lock, upon insertion of said key (referring to Fig. 2) into the cylinder lock 12 and turning thereof, there will result a turning of the key in the cylinder lock 11 to its vertical or unlocked position whereupon it may be removed along with the object fastened thereto. The key held in the cylinder lock 12 serves as a check to indicate who has taken the object. Upon return of the object the key fastened thereto is inserted in its cylinder lock 11 and turned, thus being held therein and permitting removal of the key in the cylinder lock 12, the object being then retained locked to the panel.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A key lock and check device comprising a housing including a panel adapted for attachment to a supporting structure, a pair of cylinder locks mounted on said panel, a partition wall in said housing parallel to said panel, means rigidly securing said cylinder locks to said partition wall and panel, a key receiving cylinder in each cylinder lock, a stub-shaft rotatably supported by said partition wall in opposed co-axial relation to each key cylinder, means connecting each key cylinder with its respective opposed stub-shaft, lever and link means interconnecting said stub-shafts, the arrangement of said lever and link means and the relationship of said cylinder locks being such that when one or the other of said cylinder locks is in an unlocked position the other of said cylinder locks is in a locked position, including a pair of stop means adapted to be alternately engaged by said lever and link means such as to prevent turning of the key cylinder of the cylinder lock in locked position, whereby removal of the key in said key cylinder is prevented.

2. A key lock and check device comprising a housing including a panel adapted for attachment to a supporting structure, a pair of cylinder locks mounted on said panel, a partition wall in said housing parallel to said panel, removable bolt means rigidly securing said cylinder locks to said partition wall and panel, a key receiving cylinder in each cylinder lock, a stub-shaft rotatably supported by said partition wall in opposed coaxial relation to each key cylinder, the end of each stub shaft opposite the key cylinders being slotted, stem means connecting each key cylinder with the slot of its respective opposed stub-shaft, lever and link means interconnecting said stub-shafts, comprising a lever fixed to each stub-shaft, one arranged vertical and the other arranged horizontal and directed towards the vertical lever, and a link connecting the free ends of said levers, the arrangement of said lever and link means and the relationship of said cylinder locks being such that when one or the other of said cylinder locks is in an unlocked position the other of said cylinder locks is in a locked position.

3. A key lock and check device comprising a

housing including a panel adapted for attachment to a supporting structure, a pair of cylinder locks mounted on said panel, a partition wall in said housing parallel to said panel, removable bolt means rigidly securing said cylinder locks to said partition wall and panel, a key receiving cylinder in each cylinder lock, a stub-shaft rotatably supported by said partition wall in opposed co-axial relation to each key cylinder, the end of each stub shaft opposite the key cylinders being slotted, stem means connecting each key cylinder with the slot of its respective opposed stub-shaft, lever and link means interconnecting said stub-shafts, comprising a lever fixed to each stub-shaft, one arranged vertical and the other arranged horizontal and directed towards the vertical lever, and a link connecting the free ends of said levers, the arrangement of said lever and link means and the relationship of said cylinder locks being such that when one or the other of said cylinder locks is in an unlocked position the other of said cylinder locks is in a locked position, including a pair of stop means each adapted to be alternately engaged by a lever such as to prevent turning of the key cylinder of the cylinder lock in locked position, whereby removal of the key in said key cylinder is prevented.

4. A key lock and check device comprising a housing including a panel adapted for attachment to a supporting structure, a pair of cylinder locks mounted on said panel, a partition wall in said housing parallel to said panel, removable bolt means rigidly securing said cylinder locks to said partition wall and panel, a key receiving cylinder in each cylinder lock, a stub-shaft rotatably supported by said partition wall in opposed co-axial relation to each key cylinder, the end of each stub-shaft opposite the key cylinders being slotted, stem means connecting each key cylinder with the slot of its respective opposed stub-shaft, lever and link means interconnecting said stub-shafts, comprising a lever fixed to each stub-shaft, one arranged vertical and the other arranged horizontal and directed towards the vertical lever, and a link connecting the free ends of said levers, the arrangement of said lever and link means and the relationship of said cylinder locks being such that when one or the other of said cylinder locks is in an unlocked position the other of said cylinder locks is in a locked position, including a vertical support bracket arranged adjacent each cylinder lock outwardly of said partition wall, a stop secured to each support bracket, said horizontal lever being mounted on the stub-shaft connected to the key cylinder of the cylinder lock in locked position and engaging its associated stop whereby turning of said key cylinder and removal of the key therein is prevented.

5. A key lock and check device comprising a housing including a panel adapted for attachment to a supporting structure, a pair of cylinder locks mounted on said panel, a partition wall in said housing parallel to said panel, means rigidly securing said cylinder locks to said partition wall and panel, a key receiving cylinder in each cylinder lock, a stub-shaft rotatably supported by said partition wall in opposed co-axial relation to each key cylinder, means connecting each key cylinder with its respective opposed stub-shaft, lever and link means interconnecting said stub-shafts, the arrangement of said lever and link means and the relationship of said cylinder locks being such that when one or the other of said cylinder locks is in an unlocked position the other of said cylinder locks is in a locked position, including a pair of stop means adapted to be alternately engaged by said lever and link means such as to prevent turning of the key cylinder of the cylinder lock in locked position, whereby removal of the key in said key cylinder is prevented, and spring means acting on said lever and link means to hold the same against said stop means.

6. A key lock and check device comprising a housing including a panel adapted for attachment to a supporting structure, a pair of cylinder locks mounted on said panel, a partition wall in said housing parallel to said panel, removable bolt means rigidly securing said cylinder locks to said partition wall and panel, a key receiving cylinder in each cylinder lock, a stub-shaft rotatably supported by said partition wall in opposed co-axial relation to each key cylinder, the end of each stub-shaft opposite the key cylinders being slotted, stem means connecting each key cylinder with the slot of its respective opposed stub-shaft, lever and link means interconnecting said stub-shafts, comprising a lever fixed to each stub-shaft, one arranged vertical and the other arranged horizontal and directed towards the vertical lever, and a link connecting the free ends of said levers, the arrangement of said lever and link means and the relationship of said cylinder locks being such that when one or the other of said cylinder locks is in an unlocked position the other of said cylinder locks is in a locked position, including a vertical support bracket arranged adjacent each cylinder lock outwardly of said partition wall, a stop secured to each support bracket, said horizontal lever being mounted on the stub-shaft connected to the key cylinder of the cylinder lock in locked position and engaging its associated stop whereby turning of said key cylinder and removal of the key therein is prevented, a bar bridging said support brackets and secured thereto, and a tension coil spring fixed at one end to an intermediate portion of said bar and at its other end to an intermediate portion of said link to hold the horizontal lever against its associated stop.

HAMPTON GRAINGER.