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Wellekens

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[45] **March 13, 1973**

[54] PADLOCK TYPE LOCKS

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[21] Appl. No.: **152,216**

[52] **U.S. Cl.** .....**70/38 A,** 70/371
[51] **Int. Cl.** **E05b 67/22**
[58] **Field of Search**.....70/38, 39, 369, 371

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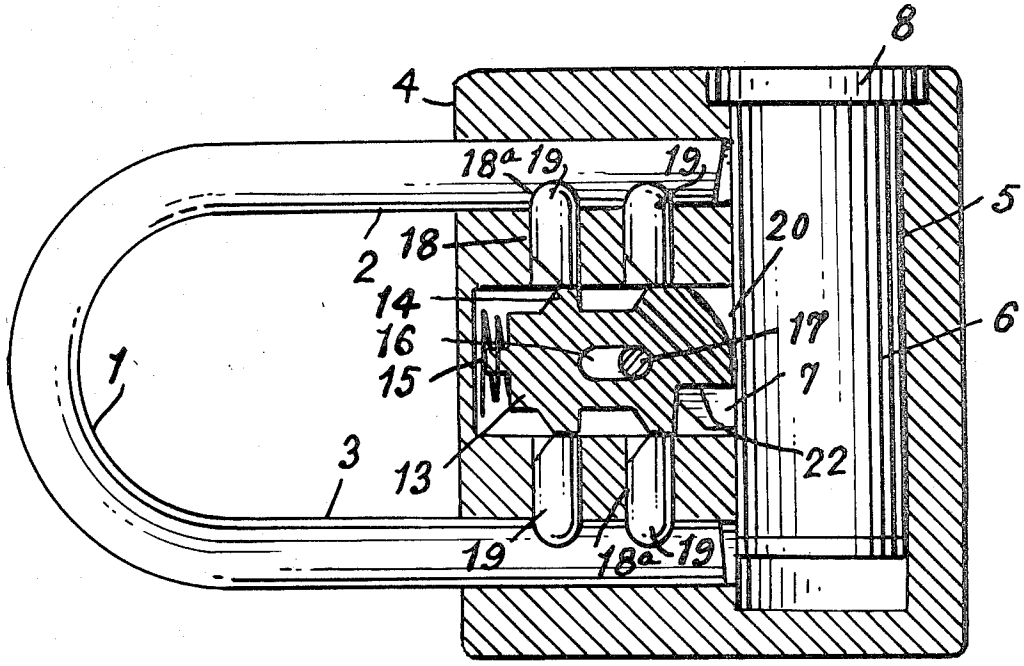
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[57] **ABSTRACT**

A lock of the padlock type comprising, in one embodiment of the invention, a substantially U-shaped yoke having legs provided with notches, the notched parts of the legs entering a housing which bridges the space between the legs. The housing has a cavity containing a movable, spring-biased plug that is effective when in one position, to hold locking pins in position to engage the notches in the legs. The plug when in another position permitting movement of the pins to disengage them from the notches. A lock casing fits in the housing and normally blocks movement of the plug to maintain the parts in locking position and when the lock casing is partly or completely removed from the housing it permits movement of the plug to allow shifting of the pins in order to disengage them from the notches in the legs. The lock mechanism in the lock casing includes a retractible latch engageable with the plug to hold the lock casing from withdrawal out of the housing unless a suitable key is used to retract the latch. In another embodiment of the invention, the lock casing has a part of a spline engaging one of the legs of the yoke, the spline becoming disengaged from the yoke by axial shift of the lock casing and the lock carries a latch holding the lock casing against axial movement until release of the latch by operation of a key in the lock.

4 Claims, 10 Drawing Figures



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SHEET 1 OF 2

FIG. 1.

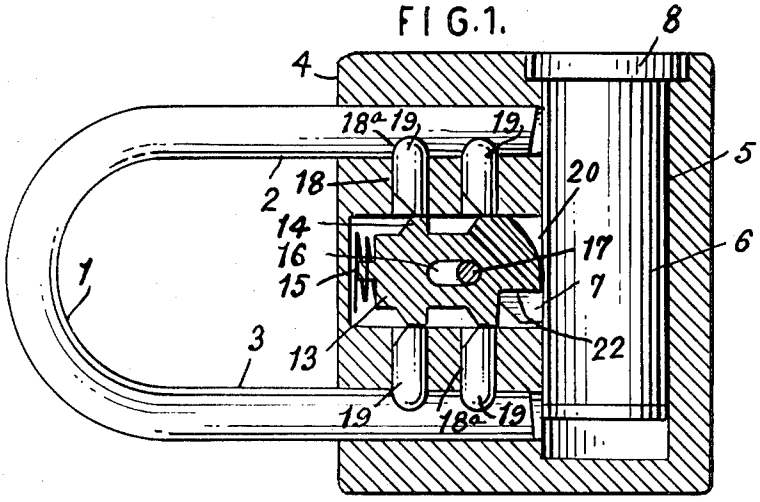


FIG. 2.

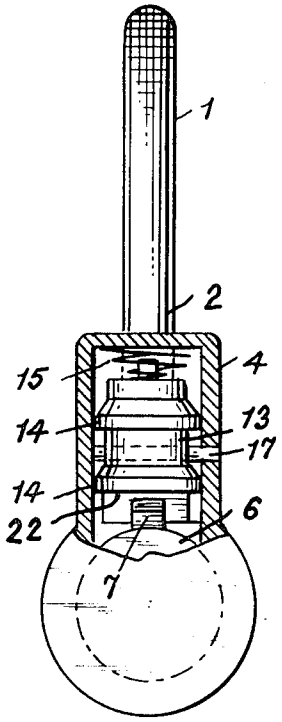


FIG. 3 FIG. 4.

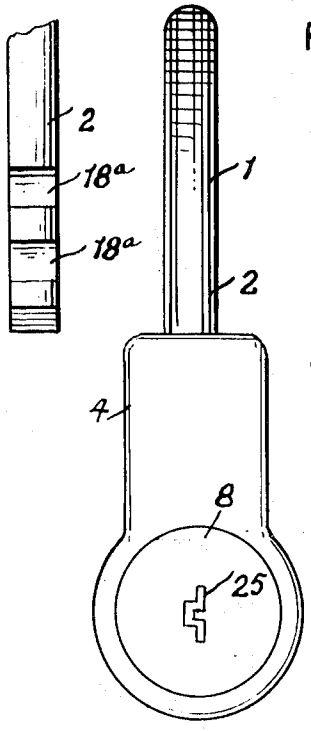


FIG. 5.

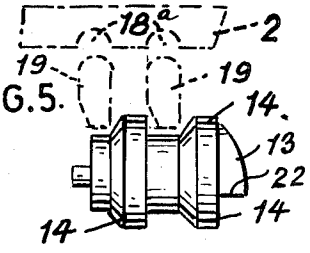


FIG. 6

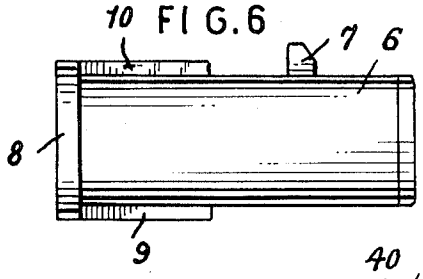
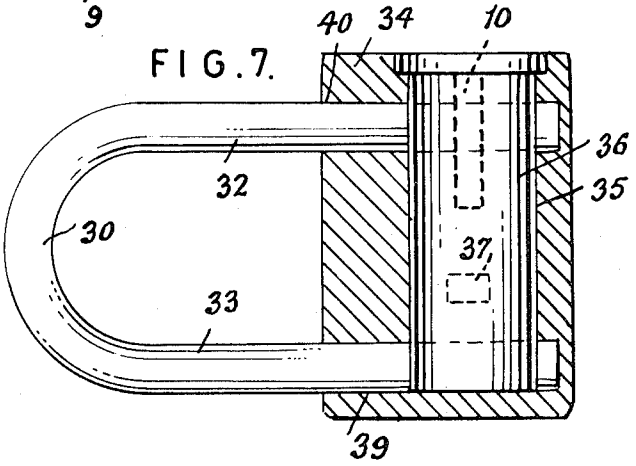


FIG. 7.



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FIG.8.

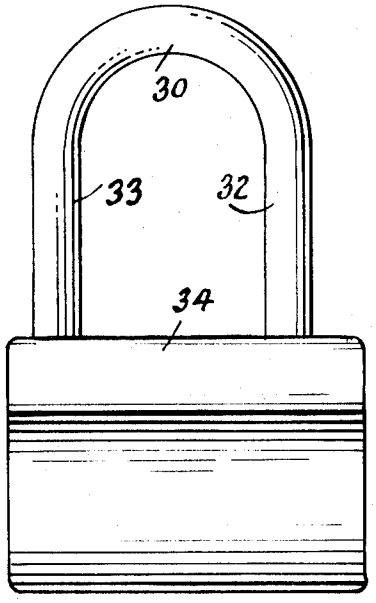


FIG.9.

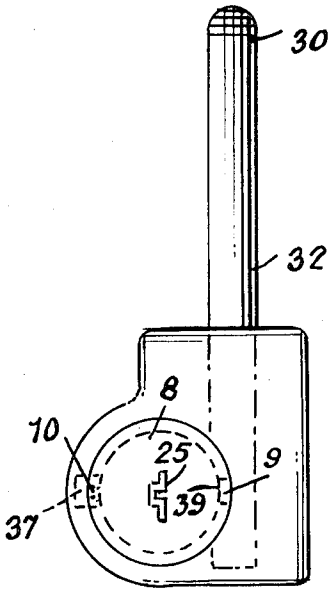
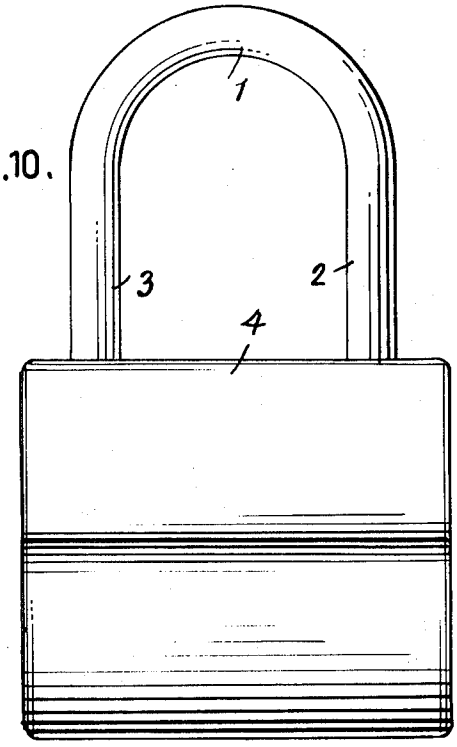


FIG.10.



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PADLOCK TYPE LOCKS

It is an object of the invention to provide a lock of a construction which enables it to function as a padlock; which is of simple and sturdy construction; which permits its combination to be readily changed whenever desired, or which may have its operating parts replaced whenever required and by simple operation.

More particularly, the invention contemplates the provision of a yoke that is received in a crosswisely extending housing, the housing receiving an axially shiftable lock casing latched in the housing and the housing containing elements engaged by the lock casing in a manner to prevent axial shift of the lock casing until the latching connection between the housing and such elements is freed by key operation.

DESCRIPTION

In the accompanying drawings, wherein illustrative embodiments of the invention are shown,

FIG. 1 is a sectional view through a lock of the padlock type constructed in accordance with the invention;

FIG. 2 is a side view of the lock with a portion of the housing broken away to disclose construction;

FIG. 3 shows an end portion of one of the legs of the lock yoke;

FIG. 4 is a side view of the lock as seen from the top of FIG. 1;

FIG. 5 is a view of the lock plug;

FIG. 6 is a side view of the lock casing;

FIG. 7 is a sectional view of another embodiment of the invention;

FIG. 8 is a front elevational view of the lock shown in FIG. 7;

FIG. 9 is a side elevational view of the same;

FIG. 10 is a front elevational view of the lock of FIG. 1.

Referring to FIGS. 1 to 6 of the drawings, there is shown therein a lock made in accordance with the invention and which includes a substantially U-shaped yoke or frame 1 provided with integrally connected spaced legs 2 and 3. These legs 2 and 3 are adapted to be bridged or connected by a housing 4. When the housing 4 is in place and connects the arms 2 and 3, a closed loop is the result, which thus forms the lock into padlock shape and enables it to perform all of the required functions of such a lock.

Provided through a part of the housing 4 is a bore or passage 5 which is closed at one end and which receives a cylindrical lock casing 6 containing lock mechanism which operates a laterally projecting retractible latch 7,

The locking mechanism contained in the cylindrical casing 6 may preferably but not necessarily, be of a construction similar to that disclosed in my U.S. Pat. Nos. 3,260,080 and 3,464,241. Such type of locking mechanism is one in which the combination of the lock can be speedily and easily changed whenever it is desired to enable the lock to be operated by a different key. Thus, an advantage of the present invention resides in the fact that when the possibility exists that the lock might be opened by persons having unauthorized possession of a suitable key, the combination of the lock can be quickly changed and this can be done without difficulty or extensive effort so that a differently contoured key will be required in order to open the lock.

The lock casing 6 is provided at one end with a disk-shaped head 8 and with diametrically opposite splines 9 and 10 which can enter slots provided in the wall of the bore 5 for their reception.

Located in the housing 4 and extending transversely of the bore 5 is a cylindrical recess or cavity 20 which receives a slidably mounted plug 13 provided with ribs or lugs 14 in spaced relation. Located behind the plug 13 is a coil spring 15 which tends to bias the plug 13 to its open position while the lock casing 6 is partly or wholly withdrawn from out of the bore 5.

The plug 13 is formed with a slot 16 (FIG. 1) which receives a cross pin 17 that serves to limit the sliding movement of the plug.

Provided in the housing 4 are lateral holes 18 extending from the recess 20 and each of the holes 18 receives a tumbler pin 19, said tumbler pins in the locked condition of the lock, entering notches 18*a* in the legs 2 and 3 of the yoke 1. This arrangement holds the yoke from separation from the housing 4.

The lock is shown in its locked position in FIG. 1, wherein it will be seen that the plug 13 is being forced to the left against the bias of the spring 15 by contact with the lock casing and the latch 7 to thereby locate the lugs 14 in such positions that they hold the tumbler pins 19 against inward retractive movement and they maintain the outer ends of the tumbler pins in the notches 18*a* provided in the legs of the yoke. As long as the parts are maintained in the position shown in FIG. 1. and just described, the yoke cannot be separated from the housing 4 and the device can perform the locking functions of any padlock.

When it is desired to open the lock and detach or separate the yoke 1 from the housing 14, a suitable key is inserted in the key slot 25 and is turned to retract the latch 7 from the position shown in FIG. 1. When the latch is retracted the lock casing 6 can then be wholly or partly withdrawn from the bore 5 and at least to an extent to clear the recess 20. If the lock casing 6 need only be partly withdrawn, stop means can be provided to limit its withdrawal movement to an extent required. When the lock casing 6 is axially moved as above described, the spring 15 will move the plug 13 to the right as viewed in FIG. 1, and the lugs 14 on the plug 13 will be moved to the right under the bias of the spring 15 and said lugs will then be located out of the path of the tumbler pins 19 as shown in FIG. 5, permitting the pins to be moved out of the notches 18a in the legs 2 and 3 and the yoke 1 to be then separated from the housing 4.

When the lock casing is again inserted in the bore 5 of the housing 4, the plug 13 will be forced to the left in FIG. 1 by the lock casing 6 and this will force the tumbler pins 19 into engagement with the notches 18*a* to lock the yoke 1 in place in the housing 4. The latch 7 will take under the shoulder 22 on the plug 13 thus preventing the axial withdrawal movement of the lock casing 6 until the latch 7 is again retracted by the use of a kit.

In the embodiment shown in FIGS. 7, 8 and 9, the yoke is shown at 30, the same having the two integrally connected legs 32 and 33, The housing shown at 34 has two cavities 39 and 40 which respectively receive the legs 32 and 33 of the yoke.

Extending transversely of the cavities **39** and **40** is a bore or recess **35** which receives the lock casing **36** shown in FIG. **6**. When the housing **34** is fitted on the yoke **30** as shown in FIG. **7**, the legs **32** and **33** extend past and to one side of the lock casing and one of the splines **9**, **10** extends into a notch provided in one of the legs of the yoke.

The lock mechanism in casing **6** has a latch **37** which engages with a complementary recess in the housing and holds the lock casing against axial movement until the latch is retracted by a suitable key entered in the key slot **25**. As an alternative the latch might be positioned to engage with one or the other of the legs **32** or **33** to prevent axial movement of the lock casing.

The locking position of the lock is shown in FIGS. **7**, **8** and **9**. There the latch **37** is shown in its extended position and it engages with a complementary recess in the housing **34** and holds the lock casing against axial movement. At the same time, one of the splines **9**, **10** on the lock casing **35** engages notch **39** extending across the leg **32** and holds the yoke against separation from the housing **34**.

When it is desired to separate the housing **34** and yoke **30**, a suitable key is inserted in the key slot **25** and is turned to retract the latch **37**, thus freeing the lock casing from connection to the housing **34** and permitting the lock casing **36** to be either wholly or partly withdrawn from the housing. The withdrawal movement of the lock casing **36** will cause the engaged spline **9** to be moved beyond the leg of the yoke with which it is engaged, thus permitting the yoke **30** to be separated from the housing **34**.

The restoration of the lock to locking position merely requires the insertion of the legs **32** and **33** of the yoke into the cavities **39** and **40** while the lock casing **36** is either partly or wholly withdrawn from the cavity **35**. The latch **37** is then engaged with the recess in the housing to accommodate it to hold the lock casing fully inserted in the housing while one of the splines on the lock casing engages a leg of the yoke. That is the locked condition of the lock.

What is claimed is:

1. A padlock having a U-shaped yoke provided with spaced legs, a housing extending between and connecting the legs, the housing containing tumbler pins, the yoke having recesses into which the tumbler pins enter to hold the yoke connected to the housing, a tumbler-moving element movable in the housing, spring means biasing said element to a position wherein it permits movement of the tumbler pins away from the legs, a cylindrical lock casing slidably adjustable in the housing and operating to maintain the tumbler-moving element in locking position against the bias of the spring means, a latch for holding the lock casing against axial movement until the latch is retracted by operation of a key in the lock mechanism contained within the lock casing.

2. A lock according to claim **1**, wherein the tumbler-moving element is a spring-biased plug provided with projections blocking movement of the tumbler pins when the lock casing is in a locked position, means for limiting the shifting movement of the plug and means on the plug engaged by the latch to hold the lock casing against withdrawal movement.

3. A padlock comprising, a U-shaped yoke having integrally connected spaced notched legs and connecting the legs, a housing fitted over the legs and having movable locking pins engaging the notches in the legs, the housing having a cavity in which a plug has a limited sliding movement, spring means for biasing the plug to a position wherein it permits movement of the locking pins, a cylindrical lock casing fitted in the housing and having a latch engaging the plug to hold the lock casing from withdrawal out of the housing, said plug having projections engaging ends of the pins to hold said pins in a projected position to engage with the notches in the legs, the plug being shiftable under the bias of the spring means when the lock casing is at least partly extended out of the housing to free the locking pins and permit them to be disengaged from notches in the legs.

4. A padlock having a U-shaped yoke provided with spaced legs, a housing extending between the legs and connecting the legs, the housing containing a plurality of tumbler pins for engagement with the legs, the legs of the yoke having recesses into which the tumbler pins enter to hold the yoke connected to the housing, a plug slidable in the housing in a direction parallel to the longitudinal axes of the legs, said plug being spring-biased in a direction to free the pins from engagement with the legs, the plug having lugs engageable against the pins when the plug is in a locking position, the lugs being spaced apart for a distance sufficient to permit entry of the pins between them to an unlocking position when the plug is moved to its unlocking position under the bias of its spring means, a cylindrical lock casing slidably adjustable in the housing and operative to maintain the plug in locking position against the spring bias, a latch for holding the lock casing against axial movement until the latch is retracted by operation of a key inserted in the lock mechanism contained within the lock casing.

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