Feb. 8, 1927. 1,617,204

J. P. ERRECALDE

PADLOCK

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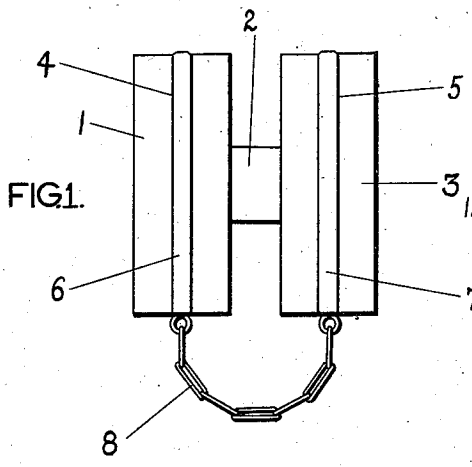


FIG.1.

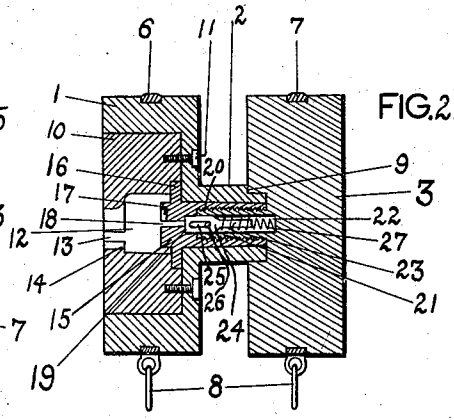


FIG.2.

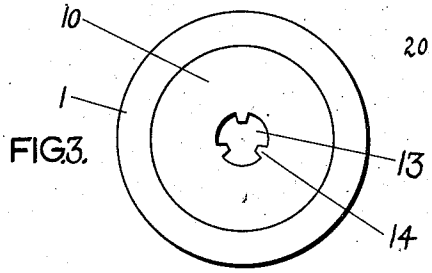


FIG.3.

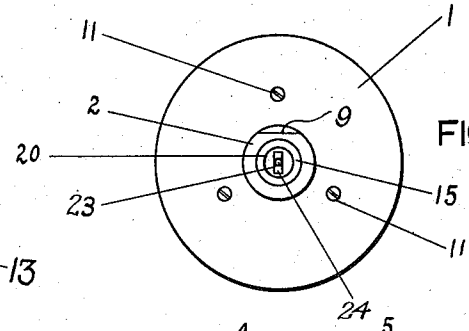


FIG.4.

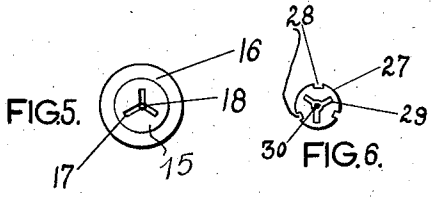


FIG.5. FIG.6.

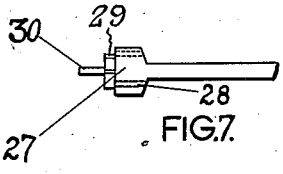


FIG.7.

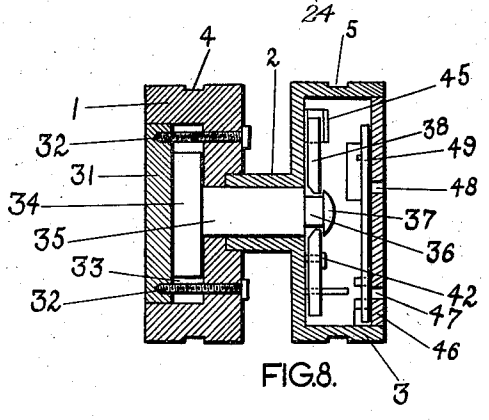


FIG.8.

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PADLOCK

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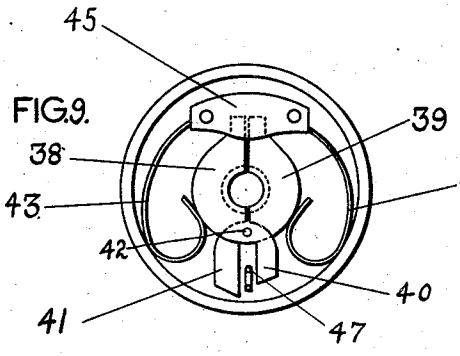


FIG.9.

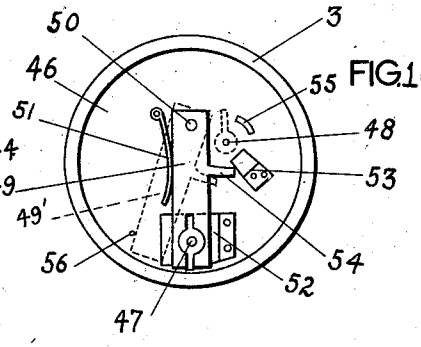


FIG.10.

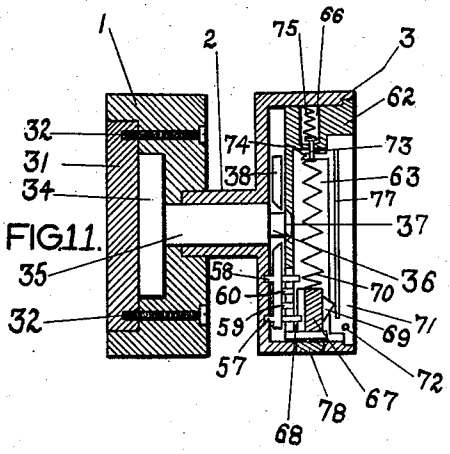


FIG.11.

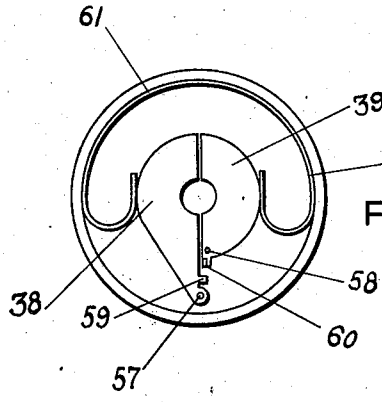


FIG.12.

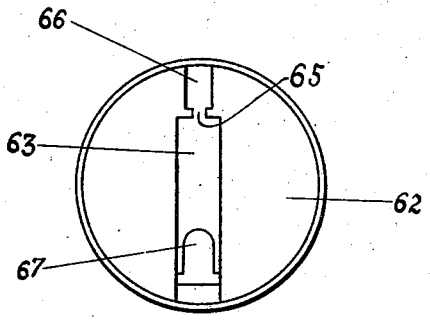


FIG.13.

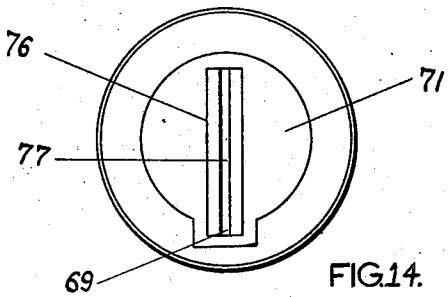


FIG.14.

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Patented Feb. 8, 1927. 1,617,204

UNITED STATES PATENT OFFICE.

JULIO PEDRO ERRECALDE, OF LA ENSENADA, ARGENTINA.

PADLOCK.

Application filed July 14, 1924. Serial No. 725,990.

The present invention relates to improvements in padlocks, its object being to provide an extremely simple and efficient device of the class indicated which may have any of the several general uses of such devices and which is inexpensive to construct, inviolable and possesses many other practical advantages over those now in use.

Other and further improvements and advantages involved in the invention will become apparent in the course of the following description, read in connection with the accompanying drawings, wherein:

Figure 1 is a side elevation of a padlock embodying the invention;

Fig. 2 is a central vertical section;

Figs. 3 and 4 are opposite face views of one of the main parts or members;

Fig. 5 is an end view of a rotatable barrel employed;

Figs. 6 and 7 are, respectively, an end view and a fragmental side view of a key for the padlock;

Fig. 8 is a central sectional view of a modification;

Figs. 9 and 10 show the mechanism disposed within one of the main parts or members thereof;

Fig. 11 is a central sectional view of another modification;

Fig. 12 is a view showing the mechanism disposed within one of its main parts;

Figs. 13 and 14 are views showing certain details relating to the plug or cover provided for the aforesaid part.

As shown in the drawings, the improved padlock comprises two main cylindrical parts 1 and 3, one of which is provided with a female coupling member, in the form of a hollow central extension or sleeve 2, to receive a male coupling member on the other main part. These parts 1 and 3 have circumferential grooves 4 and 5 formed in their side walls, wherein metal rings 6 and 7 are revolubly seated, said rings being suitably connected by means of a chain 8 or the like (Fig. 1) to prevent their loss.

In the construction represented in Figs. 2–4, the coupling sleeve 2 is made integral with the part 1, while the male coupling member is integral with the part 3 and consists of an externally threaded projection or lug 21 having an axial bore 22; the members 2 and 21 being releasably connected by an intermediate rotatable barrel 15 which is formed with a threaded bore 20 to receive member 21. The free outer end of sleeve 2 projects into a recess formed in the inner face of the part 3 and has a shoulder or rabbet 9 at one portion of its edge; the recesses in part 3 encircling projection 21 and being shaped to correspond with the aforesaid sleeve end, as will be understood from Fig. 2, and the outer end of the barrel 15 likewise extending into said recess.

The part 1 is hollowed or recessed to receive a plug or block 10 which is fastened in place therein by screws 11; and this plug is formed, in turn, with a central recess or chamber 12 which alines with the bore of sleeve 2 and opens at one end thereinto and at the other end through the outer face of the plug, the latter opening being indicated at 13 (Figs. 2 and 3) and having its circumferential wall provided with inwardly-projecting radial teeth 14 spaced at equal distances apart. The inner end of the rotatable barrel 15 extends into chamber 12 and is held against endwise movement by means of a circumferential flange 16 (Figs. 2 and 5) with which it is provided, said flange being clamped in a seat formed in the inner face of the plug.

As will be understood from the foregoing, the barrel 15 and the male coupling member or projection 21 are in threaded engagement, the first-named part fitting rotatably within the female coupling member or sleeve 2. In the normal locked position of the parts, relative movement between the barrel and projection is prevented by means of a tumbler 23 which is slidably fitted in the bore 22 of said projection and which embodies a flattened portion 24 that extends into a seat 19 formed internally of the barrel at the inner end of its bore 20; a spring 27 in the forward portion of bore 22 serving to yieldably hold the tumbler in such position, said tumbler being guided during its sliding movements by a cross-pin 26 which is mounted

in the bore of the projection 21 and extends through a longitudinal slot 25 formed in the flattened portion 24 of the tumbler.

To disengage the tumbler and thus enable the rotation of the barrel and consequent unlocking of the parts, a special key is provided which, as shown in Figs. 6 and 7, is formed at the inner end of its stem with an axial extension or pin 30 for insertion into an axial hole 18 in the inner end of the barrel which intersects the seat 19 (Figs. 2 and 5), so that the introduction of the key will thus force the tumbler rearwardly out of said seat. Adjacent pin 30, the key is provided with a cylindrical portion 27 which is so shaped as to enable it to be inserted through the plug opening 13, for which purpose its side wall has parallel grooves 28 to receive the teeth 14; and immediately in front of this portion 27, the key is additionally provided with a set of radiating wards 29 to fit in correspondingly-arranged grooves 17 in the barrel end, which grooves open at their inner ends into the hole 18, so that besides releasing the tumbler 23, the key serves to effect the rotation of the barrel. It is apparent, of course, that these operations can only be carried out by means of a key which is specially constructed to pass through the opening 13 and engage the barrel in the manner just described; but obviously a great number of different arrangements of the teeth 14 and the barrel grooves 17 is possible, so that a different key can be provided for each of a group of padlocks if desired.

In the modification represented in Figs. 8–10, the same main parts are employed, but the coupling sleeve 2 is shown as formed on the part 3, while the male coupling member is carried by the part 1 and consists of a projection or stud 35 which fits revolubly in the said sleeve and is provided with a convex or rounded outer end 37, immediately adjacent which a circumferential locking groove 36 is formed. The inner end of the stud carries an enlarged head 34 which fits revolubly in the chamber 33 in part 1, said chamber being closed by a plug 31 secured in place therein by screws 32.

The other main part 3 is hollow, and has mounted within it a pair of catches 38 and 39 (Fig. 9) which are adapted to straddle the groove 36 and thereby prevent withdrawal of the stud. These catches are formed with tails 40 and 41 which extend across each other and then project downwardly in spaced, parallel relation; the catches being pivoted together at their point of overlap, indicated at 42, which is below the point where they engage the stud groove, so that a suitable key can be inserted through a hole 47 in the back 46 of the part 3 and engaged between the tails 40 and 41, whereupon the rotation of the key will force the tails away from each other with the result that the catches are moved out of the groove and unlock the stud. Normally, however, the catches are held in locking engagement with the stud by means of springs 43 and 44, which are suitably held in place by a bracket 45 fastened to the chamber wall.

As a further security, the device shown in Fig. 10 may be employed, this device comprising a plate 49 pivoted within the part 3 in position to normally close the key-hole 47 and thus prevent the unlocking of the coupling stud. This plate or closure is acted on by a spring 51 which holds it against a stop 52 in the full-line, operative position illustrated in said figure, and it is moved into its open, dotted-line position 49′, in which it abuts against a second stop 56, by means of a separate key. The latter is inserted through a key-hole 48 and, on being turned, successively engages a pair of guides 55 and 53 and then hits against a lug or tail 54 on the plate, the further movement of the key forcing said plate to swing into its dotted-line position, as will be understood.

In the other modification, illustrated in Figs. 11–14, many of the elements employed are the same as those represented in Figs. 8–10 and are designated by the same numerals; the catches 38 and 39 being pivoted at points located one below the other and indicated at 57 and 58, adjacent which points they are provided with the key-engaging lugs 59 and 60 to effect their separation. A single spring 61 is employed, in place of the two springs 43 and 44 shown in Fig. 9.

In this form, the main part 3 is hollow, and is provided with a plug or closure 62 formed with a substantially-rectangular diametral chamber 63 (Fig. 13) which, in turn, communicates at its upper end, by way of a hole 65, with an alining recess 66 of less width than chamber 63. Access to the latter is obtained by means of a lid 71 (Fig. 14) which fits in an opening in the front part of plug 62 and is pivotally mounted therein at one end, as indicated at 72 (Fig. 11), and is provided adjacent its other end with an inwardly-directed finger 74 that extends into chamber 63 and is apertured to receive the end of a bolt 73; said bolt being slidably mounted in hole 65 and subjected to the pressure of a spring 75 arranged in recess 66. This bolt 73 must, of course, be released from finger 74 before lid 71 can be opened, and to effect such operation a master-key (not shown) is employed which is inserted through a hole in the side wall of part 3 and engaged with said bolt.

The lid 71 is further provided with a diametral card-receiving space or seat 76 which is intersected axially by a parallel slot 77, the latter being formed entirely through the lid in order to render a portion of the card

or seal visible from the outside; the card being inserted, of course, at the inside of the lid when the latter is open. This card is designed to be punctured and partly severed when an attempt is made to open the padlock, so that such attempt will be evidenced by the condition of the card; and to effect this, a slide or block 67 is arranged in the chamber 63 and is provided with a cutter 69 (Fig. 11) that is designed to penetrate the card when lid 71 is closed; said block being normally held at the bottom of the chamber by the pressure imposed against it by a spring 70 located in said chamber. The key hole 78 is positioned at the bottom of the chamber, so that when the key is inserted therethrough to engage the lugs 59 and 60 on the catches, it will force the block ahead of it, and the cutter 69 will sever the card as it moves along in the slot 77.

I claim as my invention:—

1. A padlock, comprising two companion, main elements arranged in spaced relation, one element being provided with an internal recess and with a closure member secured in the same; a lateral projection having an enlarged head disposed in said recess and capable of free rotation therein at all times, said head being clamped between the confronting walls of the closure member and recess; a lateral coupling sleeve through which said projection is inserted and in which it rotatably fits, such sleeve being rigidly connected to one of said main elements; and locking means carried by the main element other than the one in which said recess is provided for removable engagement with said projection.

2. A padlock, comprising two hollow, main cylindrical elements, one element provided with a laterally-projecting coupling sleeve, and the other with a lateral projection for insertion thereinto, said projection having a circumferential locking groove adjacent its outer end; a pair of coacting catches pivotally mounted in the interior of the first-named element; spring means for forcing said catches into engagement in said locking groove to prevent the withdrawal of the projection from the sleeve; and means for releasing the two catches simultaneously from such engagement.

3. A padlock, comprising two hollow, main cylindrical elements; a laterally-projecting coupling sleeve rigidly secured to one element; a lateral projection revolubly mounted in the other element for insertion into said sleeve, said projection having a circumferential locking groove adjacent its outer end; a pair of coacting catches pivotally mounted in the interior of the first-named element for swinging movement into and out of said groove; spring means for yieldingly forcing said catches into the groove to prevent the withdrawal of said projection from said sleeve; and means for releasing the two catches simultaneously.

4. A padlock, comprising two hollow, main cylindrical elements, one element provided with a laterally-projecting coupling sleeve, and the other with a lateral projection for insertion thereinto, said projection having a circumferential locking groove adjacent its outer end; a pair of coacting catches disposed in the interior of the first-named element at opposite sides of said projection and mounted for pivotal movement into and out of said groove; and spring means for yieldingly forcing the catches toward each other to engage them in said groove and thereby prevent the withdrawal of the projection from said sleeve, said catches having lugs for engagement by a key to spread them apart so as to disengage said projection.

5. A padlock, comprising two hollow, main cylindrical elements, one element provided with a laterally-projecting coupling sleeve, and the other with a lateral projection for insertion thereinto, said projection having a circumferential locking groove adjacent its outer end; a pair of coacting catches disposed in the interior of the first-named element at opposite sides of said projection and pivotally mounted therein at points located one above the other for movement into and out of said groove; and spring means for yieldingly forcing the catches toward each other to engage them in said groove and thereby prevent the withdrawal of the projection from said sleeve, said catches being provided adjacent said pivot points with lugs for engagement by a key to spread them apart so as to disengage said projection.

6. A padlock, comprising two companion, main elements arranged in spaced relation, each element being provided with an internal recess and with a closure member secured in the same; a laterally projecting coupling sleeve rigidly secured to one element; a lateral projection inserted through said sleeve and rotatably fitting therein, and having an enlarged head which is disposed in the recess in the other main element and is capable of free rotation therein at all times, such head being clamped between the confronting walls of said recess and the corresponding closure member; and locking means carried by and concealed wholly within the recess in the first-named element for removable engagement with said projection to prevent its withdrawal from said sleeve.

7. A padlock, comprising two hollow, main cylindrical elements disposed in spaced, parallel relation and formed with external circumferential grooves; a laterally-projecting coupling sleeve rigidly secured to one element; a lateral projection

for insertion into said sleeve having a head at one end which is revolubly mounted in the other element, the other end of said projection being formed with a circumferential locking groove; a pair of catches pivotally mounted in the first-named element for releasable engagement in said locking groove to prevent the withdrawal of the projection from the sleeve; a ring revolubly seated in each of said external grooves; and a flexible element connecting said rings.

In testimony whereof I affix my signature.

JULIO PEDRO ERRECALDE.