



Espacenet

Bibliographic data: GB430168 (A) — 1935-06-14

Improvements relating to padlocks

Inventor(s):

Applicant(s): JAMES HARRY CASTELL ± (JAMES HARRY CASTELL)

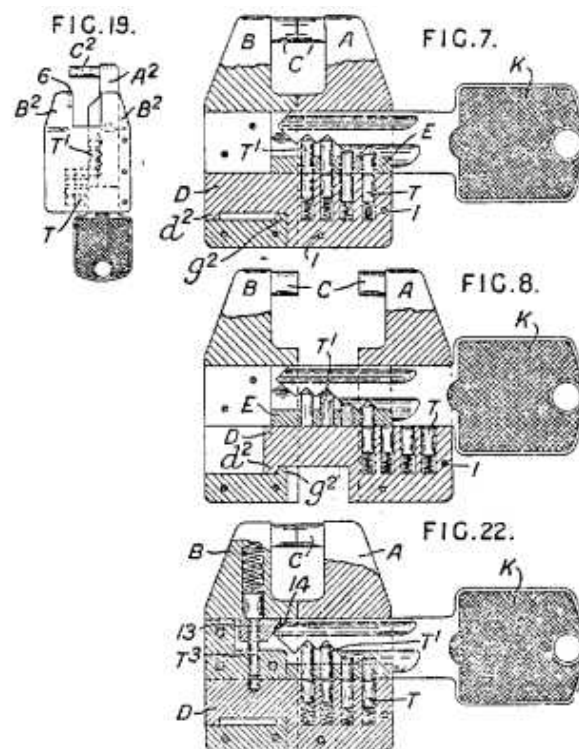
Classification: - **international:** **E05B27/00**
- **cooperative:** **E05B27/0028 (EP)**

Application number: GB19330035191 19331214

Priority number(s): GB19330035191 19331214

Abstract of GB430168 (A)

430,168. Padlocks. CASTELL, J. H., 42, Tavistock Square, London. Dec. 14, 1933, No. 35191. [Class 44] A padlock is made with two parts A, B with dowels so that the parts can only be separated by sliding, thus separating axially the two parts of the shackle C. The dowel arm D is secured by rivets 1 to the part A and has recesses for the locking plungers T of the pin tumbler lock. The dowel arm E is fixed to the part B and has recesses for the setting tumblers; it also has a key way of sinuous transverse section. When the key K is inserted the locking plungers are depressed as shown in Fig. 7 so that the key can be pressed further forward, without rotation, to move the part B to separate the parts of the shackle C as shown in Fig. 8. The stops d^{2} , g^{2} limit the movement of the parts, and the key cannot be withdrawn until the parts are again in their locked position. When the parts are locked a wire may be passed through holes in the parts A, E and sealed. In a modification the end 14 of the key K, Fig. 22, engages a cam part 13 to operate an additional locking plunger T^{3} which moves in the opposite direction to the locking plungers T. In another modification, the



part A<2>, Fig. 19, which carries the shackle C<2> is moved by the key in a direction at right angles to the axis of the shackle. A recess 6 in the part B<2> receives the free end of the shackle.

**Espacenet**

Description: GB430168 (A) — 1935-06-14

Improvements relating to padlocks

Description of GB430168 (A)

The EPO does not accept any responsibility for the accuracy of data and information originating from other authorities than the EPO; in particular, the EPO does not guarantee that they are complete, up-to-date or fit for specific purposes.

PATENT SPECIFICATION

Application. Date: Dec. 14, 1933. No. 35191/33. 430,168 Complete Specification Left: Dec. 13, 1934.

Complete Specification Accepted: June 14, 1935.

PROVISIONAL SPECIFICATION

Improvements relating to Padlocks I, JAME, S HARRY CASTELL, of 42, ment when opening the lock.

Tavistock Square, London, W.C.1, a In the other half of the body and preBritish Subject, do hereby declare the ferably in its lower portion are arranged nature of this invention to be as spring actuated split plungers of the kind follows:- used in the known cylinder lock which, This invention relates to a padlock when the padlock is closed, project verusing a non-rotatable key and is charac- tically upwards into recesses in the aforeterised by the feature that after insertion said dowelling arm, thereby locking the of the key to effect release of the locking two halves of the body and shackle rigidly member or members a further movement together.

of the key in continuation of the original With the known type of cylinder lock movement is necessary to open the shackle. the key, after having depressed the split 60 The invention in its preferred form plungers so that all the divisions coincide comprises a padlock using a non-rotatable with the periphery of the actuating barrel, key and formed in two halves, preferably is turned to operate the lock. With this of generally similar appearance, the said invention the key, after depressing the halves being adapted to move away from plungers so that the divisions are all in 65 or towards each other in a straight line line horizontally with the bottom edge of to effect opening and closing respectively. the projecting arm, is pressed further into To this end each half is constructed with the lock body, this action opening the lock a member dowelling into its fellow, one by separating the two sliding halves of the of which members is provided

also with body and shackle, and allowing the upper 70 split plungers and springs co-operating portions of the plungers to be pushed with recesses in the other member to along with the dowelling arm. To allow effect locking in a manner already known of this being done the key has an extended in cylinder locks. Each half is further neck to correspond with the amount of constructed so that a portion of each meets operating movement. 75 a co-operating portion in the other to form To withdraw the key it is necessary to a shackle when the lock is closed. close the lock seeing that the key can only In carrying the invention into effect the be withdrawn when the upper and lower lock body is split through its thickness portions of the plungers are opposite to and vertically downwards, thereby form- each other. 80 ing two halves generally similar in ex- In another form of this invention the ternal shape and appearance, each com- lock body is made in one piece and the key plete half comprising half the lock body is inserted into a locking member reand half the shackle. tained in position by spring plungers, On the inner edge of one half of the from which locking member an extension 85 body is formed a dowelling arm of rec- projects in the form of a U-shaped shackle tangular or other suitable section so used in many padlocks, this extension arranged as to project slidably through being so attached to the locking member the width of the other half of the body, that on unlocking, it may be rotated cothe projection being slotted longitudinally axially with the locking member. This 90 to receive the key, and the end of it pre- form also is characterised by the feature ferably made flush with the outside edge that linear movement of the key and lockof the lock body when the lock is closed. ing member is necessary for the release of This construction allows the two halves to the shackle.

slide horizontally in operation, a suitable Dated the 14th day of December, 1933.

stop being arranged to limit the move- J. H. CASTELL.

COMPLETE SPECIFICATION

Improvements relating to Padlocks 1, JAMES HIARRY CASTELL, a British W.O.1, do hereby declare the nature of Subject, of 42, Tavistock Square, London, this invention and in what manner the 2 430,168 same is to be performed, to be particu- The shackle may be fixed to one main larly described and ascertained in and by part, and when closed abut against the the following statement:- other, or it may be in two sections car-

This invention relates to padlocks of ried by the respective parts and abutting that type in which the locking mechanism when closed. The key fits a key-way 70 comprises a combination of locking plun- formed in one of the dowel arms and its u'ers which, in order to open the lock, have operative edge is cut appropriately to to be set by means of a sliding key the actuate, in known manner, the setting operative edge of which is cut so as to plungers; the said operative edge prefergive the desired combination of axial ably has an extension which retains the 75 movements to the plungers. In existing extreme locking plungers in their recesses, padlocks of this type the plungers are and the arrangement is such that the key mounted in a barrel to which unlocking can be withdrawn only when the parts are angular movement can be imparted only in the locked position.

when the sliding movement of the in- The invention also includes means for 80 serted key has appropriately set the re- ensuring additional security against pickspective plungers; and the shackle can ing the lock comprising a reverse only be fully opened after angular move- plunger actuated by the final unlocking ment has been imparted to

the barrel movement of the key, and also improve the key angularly relatively to the parts in details of construction as delineated. Thus linear and axial movements are described and claimed herein.

are necessary to fully open the lock. I have, in the accompanying drawings, The objects of the present invention are illustrated by way of example so as to improve the construction and action thereof, as applied to a padlock which that the manipulation necessary to insert whilst suitable for general purposes is 90 degrees and lock, or to unlock and remove, the specially suitable for locking the doors of padlock; is so simplified that it can be used in the case of prepayment meters.

usually be effected by the fingers of one hand. In the drawings Fig. 1 is a perspective view of the invention comprising improvements in a padlock closed, with the key in position 95 a in padlocks of the type herein referred to, ready for insertion.

according to which relative movement Fig. 2 is a similar view and shows the relative movement between the two parts of the lock in key inserted and the lock opened.

opening and closing is a limited linear movement Fig. 3 is an elevation, to an enlarged scale, and partly in section on the line III, III of Fig. 4, and shows the padlock - tumblers, and the opening movement of the lock in the closed position.

the key relatively to the lock is also a linear movement only and parallel to the plane, whereby the locking plungers Fig. 6 an inverted plan. 105 may be freed and the lock be fully opened Fig. 7 is a view similar to Fig. 3, that after imparting linear movement only to the key, partly in section on the line III, III of Fig. 4, and shows the key inserted and the locking mechanism released.

the plungers, or to the shackle. Fig. 8 is a view similar to Figs. 3 and 7, but shows the main parts separated to which has fixed to it or made integral open the shackle.

with it a dowel arm, the other end of Fig. 9 is a sectional elevation on the which is a sliding fit in a recess in the line IX, IX of Fig. 8, and other part; the adjacent long edges of Fig. 10 is a corresponding plan view. 115 the dowel arms preferably abut and are a sliding fit, and two sets of recesses are so as to indicate clearly in position the formed, one in each dowel arm, which sets dowel arms which they respectively carry.

of recesses are in alignment when the lock Fig. 12 is an elevation, and is closed, and carry the usual locking and Fig. 13 a plan view of the dowel arm 120 setting plungers carried by the part B. In the preferred modification further Fig. 14 is an elevation of a making-up.

linear movement of the key relatively to piece fitting the slot in the dowel arm of the fixed part of the lock affects the opening movement of the other part of the lock; and the underside of the key is so attached to the part B and adapted to be shaped that during this further movement engage the locking piece of the part A.

it serves to retain in locking position any Fig. 15 is an elevation, and locking plungers which may be freed from Fig. 17 a plan of the dowel arm carried their setting plungers. by the part A.430,168 8 Figs. 18 to 21 illustrated, to a smaller B, the lower part of the slot in B is made scale, a modification;- up by the locking piece G having a corFigs. 18 and 19 being elevations, show- responding locking projection g2 which ing the lock parts in different positions; by engagement with the locking piece d2 Fig. 20 a plan view, and limits the sliding movement between A 70 Fig. 21 a section on the line XXI, XXI and B; the piece G is secured in position of Fig. 19. by rivets 3.

Figs. 22 to 24 illustrate a further modi- When the parts described have been fication;- assembled as described, and the lock Figs. 22 and 23 being elevations in closed, the arrangement is as shown in 75 part section on the line XXII, XXII of Fig. 3; the springs S acting on the lockFig. 24, and showing the lock parts in ing plungers T force these and the setting different positions; and plungers T1 into the positions shown in Fig. 24 being an elevation in section on Fig. 3, and the padlock is retained in the the line XXIV, XXIV of Fig. 22. locked position by the locking plungers T 80 A and B are the two main parts of the each one of which is located partly in a lock and in the example illustrated are recess d3 in the dowel arm D and partly milled from bar-metal; each carries one in an aligning recess e3 in the dowel half of the shackle C, and is so shaped arm E.

that the half shackles are integral with In this position of the lock the abutting 85 the respective parts; the two parts of the faces of the shackle pins are in abutting shackle abut closely together when the contact, and any attempt to separate them lock is closed, and take the place of the by a shearing action is resisted by the pivoted bow-shaped shackle in the ordin- effective way in which the dowel arms ary form of padlock. resist shearing action; and in order to still 90 The parts A and B are slotted as shown further strengthen the arrangement in in Figs. 4 and 5 to accommodate the this respect the portion d5 of the dowel dowel arms as hereinafter described. arm D projects beyond the portion A and The dowel arm D is fixed to the part A enters the slot in the part B (see Fig. 6) and is provided with a set of recesses d3, thus taking advantage of the full shearand each recess takes a spring S and a ing strength of the arm D; in addition to locking plunger T. The arm D is riveted this the abutting faces of the parts of the by rivets 1, or otherwise secured in posi- shackle pin may be dowelled or made of tion in the lower end of the slotted part spigot-and-socket construction.

of A. When the key K is inserted, as shown 100 The dowel arm E is fixed to the part B in Fig. 7, its operative edge k1 is so shaped and is provided with a key-way e2 of by cutting that its inclined surfaces desinuuous transverse section corresponding press the successive setting plungers T with the transverse section of the key K so that when the key is fully inserted, which is inserted in the key-hole e4 in E. as shown in Fig. 7, the top ends of the 105 The arm E is provided with a series of plungers T, and the lower ends of the recesses e3 to take the setting plungers TP. plungers T1 are in alignment with the When the padlock is closed pairs of the plane of section between the faces d1 and recesses d3 and e3 and pairs of locking e1 of the two dowel arms; this leaves the plungers T and setting plungers T1 are part A free to be moved outwardly into 110 respectively in axial alignment (see Figs. the position shown in Fig. 8, its limiting 3 and 7). position being determined by the engageThe slot e2 of the dowel arm is con- ment of the locking pieces g2, d2. Durtinued, to facilitate tooling, as at e21 (see ing such movement, in the ordinary way, Fig. 13) and in assembling the slot e2' is the two extreme right-hand locking plunfitted with a making-up piece F (see Figs. gers T on passing the extreme edge e5 of and 14), the rivets 2 securing the arm E the dowel arm E would be free to be to the part B passing through the said pressed upwardly by their

springs, but the arm and making-up piece and securely plain part k2 of the key is so shaped that attaching the dowel arm E to the part B. it aligns with the plane of section el, dl, 120 When the parts A and B are brought and holds these plungers in proper alignment together the projecting part of the dowel ment as shown in Fig. 8.

arm E is a sliding fit in the clearance It will be noted that the angular space formed in the slot of the part A. recesses formed in the operative edge Al The projecting part of the dowel arm D of the key, engage with the tops of the 125 fits into the slot in the part B, the faces setting plungers T'; the latter cannot be dl of D and el of E being a close sliding depressed since they rest on the plain fit. The dowel arm D has a projecting portion of the dowel arm ID, and as the stop piece d2, and after it has been in- key cannot be raised since its upper edge serted in the slotted portion of the part is in contact with the upper portion of 180 at 430,168 the slots -in A and B, it is not possible ta slidable therein, the shackle C02 is atwithdraw the key until the re-locking has tached to the part A2 and the direction been effected, that is to say, until the of sliding motion of A2 relatively to B2 parts are moved into the position shown is at right angles to the axis of the in Figs. 3 and 7. shackle, instead of being parallel thereto 7({ Where it is desired to obtain additional as in the modification described, and the security by sealing the closed lock, a hole axes of the respective tumblers T, T1 in H may be drilled in the part A, and a order to permit of this motion, are parallel corresponding hole H' may be drilled in to the axis of the shackle, and the keythe part E so that the holes come into hole is located at the bottom of the lock 75 alignment when the lock is closed; the opposite to the shackle end.

sealed wire is passed through the holes. The part B2 is suitably shaped to form, In the example illustrated the shackle on the one side an extended jaw to guide is shown in two sections carried respec- the part A2, and on the other side to form tively by the parts A and B; obviously, a jaw which is recessed at 6 to take the 80 however, the shackle may be a single pin end of the shackle C2. In other respects secured to the part A, or the part B, and the action is similar to that described in making, when closed, abutting contact connection with the modification first with the jaw surface of the other part. referred to.

In the example illustrated the shackle is Locks constructed according to the inshown as composed of two plain pins, and vention in which there is sliding movein the modification suggested may be a went only, are particularly well adapted, single plain pin, where, however, the in order to afford additional security nature of the article to be locked requires against the lock being fraudulently maniit, the shape and configuration of a single pulated to carry a reverse " lockingR 90 or double shackle pin may be modified to tumbler (or tumblers) which, when opersuit. ated by the key, is moved in a direction In the drawings the abutting surfaces opposite to that in which the main turnare shown plain surfacesbut for additional blers are moved by the key; a suitable security the abutting surfaces between modification of this type is shown in CFigs. 95 the two parts of the shackle or the abut- 22 to 24.

tin- surfaces between the shackle and the The construction is substantially simijaw may, as stated, have dowel pins or be lar to that described in connection with of spigot-and-socket construction. The Figs. 1 to 17 except that the parts B. E2 dowel arms D and E are shown of rectan- and F2 corresponding to B, E and F in 100 gular section, which is suitable for a con- Figs. 1 to 17, are so shaped and the jaw struction in which the parts are tooled portion of the part B is recessed as at 1 0 from bar metal, obviously- however, the to take a " reverse " spring-controlled parts E and D may be of

cylindrical cross-section of the plunger T3, the head 11 of which is sectioned and fits cylindrical recesses in the housing in the recess 10, and is pressed 105 parts A and B, and the configuration of downwardly biased spring 12, there is the latter modified accordingly. formed on or rigidly fixed to the plunger In the example illustrated the direction T3 a cam part 13 having a chamfered edge for the sliding movement of the key, the face against which the corresponding direction of the sliding movement between chamfered face 14 formed on the end of 110 the two main parts A and B are parallel the key engages.

to each other and parallel to the centre In the locked position (shown in Fig.

line of the shackle, that is to say, the 23) the lower end of the tumbler T3 enshackle is opened by axial movement; ob- gages a- recess 15 formed in the part D visously, however, where the shackle pin which is attached to the part A as deis attached to one of the two parts A or B scribed so that the plunger T3 locks and abuts against the other part the together the parts A and B. and it will shackle may be opened by a transverse or be seen that after the key has been inshearing motion, in which case the diree- sserted, and has aligned the tumblers T tion of movement of the key and the so as to free the lock, the lock is still held 120 direction of the relative movement be- closed by the tumbler T3. but that furtween the parts A and B would be at ther movement of the key causes the right angles to the axis of the shackle, in chamfered edge 14 hereof to engage with which case the key would be inserted the corresponding chamfered edge of the from the lower end of the padlock and part 13 and so lift the tumbler T3 to the 125 not from the side. This arrangement is position shown in. Fig. 22, and thus pershown in Figs. 18 to 21. The part A2 of mit the lock to be opened.

the lock, corresponding with the part A Having now particularly described and in the modification first - described, is ascertained the nature of my said invenhoused within - the part B2 so as to be tion and in what manner the same is to 130 430,168