

# PATENT SPECIFICATION

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DRAWINGS ATTACHED

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## COMPLETE SPECIFICATION

### Improvements relating to Luggage Locks

We, C. W. CHENEY & SON LIMITED, of Factory Road, Birmingham, 19, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to locks for luggage especially suitcases, and has for its object to provide an improved lock.

In accordance with the invention, a lock for luggage comprises a casing provided with an apertured lug and a plate mounted for pivotal movement into and out of the casing and relative to the lug, said plate carrying a bolt spring loaded for engagement with said lug, means for manually retracting the bolt, spring means for urging the plate to a position out of the casing and with the bolt away from said lug, and means for locking the bolt engaged with said lug to prevent manual retraction.

Conveniently the casing is adapted to be located in a well or slot in the suitcase wall and has a top plate or peripheral frame to be mounted flush on the suitcase wall, and the casing may have a pair of related slots either of which can receive a hasp lug or loop so that in the closed position, i.e. in which the bolt engages the lug, said loop or lug is retained in the casing. This may be via a tongue or like projection from the said plate or a sub-assembly including the plate, and which is moved into and out of the engaging position with the hasp during opening and closing of the lock.

Various embodiments of the invention are now more particularly described with reference to the accompanying drawings, wherein:

Fig. 1 is an exploded perspective view of one embodiment;

Figs. 2 and 3 are part-sectional elevations of the embodiment of Fig. 1, showing the lock in two positions;

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Figs. 4 and 5 are respectively a sectional elevation and a plan view with parts removed and broken away for clarity, on an enlarged scale, and of a part only of the complete lock embodiment of Figs. 1 — 3.

Fig. 6 is a view similar to Fig. 4 and

Figs. 7 and 8 are views similar to Fig. 5, these three Figs. 6 — 8 showing the lock in different positions to Figs. 4 and 5.

Fig. 9 is a fragmentary underneath plan view of one part of a sub-assembly, and

Fig. 10 is a perspective view of a first modification.

Referring first to Fig. 1, the lock shown therein comprises a body 10 and a top plate 11, key selector plate 12, knob 13, locking plate retainer spring 14, liner 15, locking plate 16, bolt retraction springs 17, bolt 18, closure plate 19 and canting spring 20, the parts 11—20 forming a sub-assembly and being located in body 10 for pivotal and other movements therein, a pivot pin 21 holding said parts pivotally located.

The body 10 comprises a generally rectangular top plate 25 made as a metal pressing, and designed in use to seat on the suitcase or like wall, for example in a valance or channel thereon. The plate has an integral or attached body shell or casing 26 provided on each side with a hasp reception slot 27 and with aligned holes 28 for the pin 21. Also provided within the shell or casing is a retainer lug 29 with a bolt-receiving slot 30, and externally of the casing two prongs 31 are provided for attachment of the body 10 to the suitcase, for example with the body shell received in a slot in the suitcase wall.

The top plate 11 may be a die-casting or, as shown, a metal pressing, and is rectangular in plan view to be a clearance fit in the shell 26. The top plate has integral side and end walls, the latter being provided with tongues 33 at each end which are, after assembly with

the parts 12 — 20, folded under the closure plate 19 to hold the assembly together, and all of said parts 12 — 19 except knob 14 are then received between the said side walls and end walls. The side walls are apertured at 35 for the pivot pin 21, and have depending lugs 36 as hereinafter described. The top plate has a key hole 37 and an elongated knob slot 38.

The key selector plate 12 has a peripheral flange and a central domed area 39 and a slot 40 which is shaped to control the section of key blade which may be inserted therein. The domed area is freely rotatable in key hole 37.

The knob is a die-casting, but may be fabricated from pressings or made otherwise, and includes a domed head 50 which is manually displaceable along the top plate, but in all possible positions obscures the slot 38 therein. It has a squared shank 51 sliding in slot 38 to prevent rotation, and extends through a slot 52 in the liner 15, and into a hole 53 in bolt 18, being rivetted over therein to retain the knob to the assembly.

The liner 15 is conveniently a die-casting, and incorporates in its thickness a slot 54 aligned with the lug 29 to receive the latter, and a generally parallel slot 55 shaped to accommodate and locate the hair pin spring 14 and hold the limbs thereof slightly stressed. Slot 52, which opens through the whole thickness of the liner 15, opens from one side of slot 55, and a second slot 56 extending through the whole thickness of the plate opens from the opposite side of slot 55 to receive lug 57 on the locking plate 16 as hereinafter described. A well 58 is provided to receive the key selector plate and journal the same, and this has a key hole 59 therein opening through the liner. Adjacent the well is an integral post 60 to journal the locking plate 16.

The liner also has integral depending bosses 61 at each end to be rivetted through holes 62 in the closure plate so that a sub-assembly of parts 15—19 may be made as a unit before assembly of parts 12 and 14 and then addition of parts 11 and 13.

Referring to Fig. 9, the underside of the liner 15 has a pair of parallel shallow recesses 65 extending one on either side of the boss 61 and terminating at shoulder 66 located below slot 55. These accommodate the springs 17, and the thickness of the shoulder 66 is less than one half of the spring diameter.

The bolt 18 is conveniently a metal pressing with a peripheral side wall, a nose 67 shaped to enter slot 30 in lug 29 and bevelled on its lower face for a purpose to be described. At the opposite end it has recesses 68. Each of the recesses registers with an end of a corresponding spring 17, so that sliding of the bolt along the liner causes the springs to be compressed to set up a restoring force which returns the bolt. Such sliding is effected manually by the knob, and takes the bolt nose 67 into and out of the slot 30 in lug 29.

The bolt also has a large key hole 70 to give key clearance and a limit lug 71.

The locking plate 16 is mounted on post 60 via hole 69 and between the liner and plate so as to be angularly movable, i.e. semi-rotatable upon part 60. The plate 16 has a key reception recess 72 at one end opposite to lug 57, and a locking slot 73 between the pivot and said lug. In one possible angular position, called the locked position, as seen best in Fig. 8, the slot 73 embraces lug 71 on the bolt and prevents sliding movement thereof, and in the other position as seen in Figs. 5 and 7 is clear of lug 71 to allow bolt sliding. In the transfer from Fig. 5 to Fig. 8 positions, the lug 57 snaps across the spring 14 which thereby holds the plate 16 in either position.

The closure plate 19 is conveniently a metal pressing with said holes 62, slot 79 corresponding to slot 54, an elongated slot 80 which allows the rivetted over end of shank 51 to slide freely and also gives access for such riveting operation, and a hole 81 which serves to journal the end of a key inserted through the plate 12. The plate 19 has opposite recesses at 82 to give clearance to portions of the spring 20 which is anchored to lug 83 on the plate 19. On opposite sides of hole 81 are dependent tongues 84 of arcuate cross-section which combine with the said lugs 36 of the top plate 11 to provide members to engage in hasp loops or lugs so that, as hereinafter described, said loops or lugs can be held to the lock.

The spring 20 has parallel hair pin type loops with convolutions 85 threaded upon the pivot pin 21 and the loops 86, 87 are spaced apart so that they fit snugly between the sides of the top plate and are located thereby.

The operation of the present lock is that, assuming the lock to be unlocked, when the components are in the positions illustrated in Figs. 2 and 5, a hasp loop or lug entered through either of slots 27 is retained therein by engagement with lugs and tongues 36, so that (because the lock as illustrated is secured to the suitcase body wall and the hasp part to the lid) the hasp (and hence the lid) are held securely together.

The suitcase is opened, by releasing the hasp lug or loop by displacing the knob in the direction of arrow A, Fig. 2, and via the connection of shank 51 with the bolt 18, this draws the nose 67 out of the slot 30. Immediately the canting spring 20, of which the limbs are stressed by the assembly step, cants the assembly 11—19 about pin 20 to the Fig. 3 position. This takes the lugs and tongues 84, 36, out of the hasp loop or lug, freeing the lid for opening.

The canted position as in Fig. 3 gives an immediate indication to the user that the suitcase is not secure.

On reclosing the lid, the assembly 11—19 can be returned to the Fig. 2 position by manual pressure on the end of the top plate adja-

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cent the lug, in the direction B, Fig. 3. This causes the bevelled underside of nose 67 to impact the top of the lug 29, and this in turn causes the displacement of the bolt first to the Figs. 6 and 7 position with sliding of the bolt relative to the liner, and then as soon as the bolt nose registers with slot 30, spring return via springs 17 to the Figs. 4, 5 and 2 position.

The security is rendered more effective, against inadvertent opening, by use of the key-actuated locking plate 16. This operates by inserting the key (shown in chain dot lines 90, Fig. 7 and 8) and turning same to snap the locking plate from the Fig. 7 to the Fig. 8 position, when engagement of lug 71 of the bolt with the locking plate prevents retraction of the bolt.

The modification is shown in Fig. 10, wherein the body 10 is replaced by body 91 which is made as a die-casting, and the prongs 31 are replaced by an integral rivets 92 for the same purpose. This illustration shows an extension 93 forming a housing for one end of a suitcase handle, so that two such Fig. 10 locks may be placed end-to-end and connected by a handle making a convenient unit for attachment to a suitcase.

Alternatively the housing 93 may be omitted and the die-cast body used for a separate unitary lock. Fig. 10 also illustrates an alternative knob shape 94 which is purely a style difference.

#### WHAT WE CLAIM IS:—

1. A lock for luggage comprising a casing provided with an apertured lug and a plate mounted for pivotal movement into and out of the casing and relative to the lug, said plate carrying a bolt spring loaded for engagement with said lug, means for manually retracting the bolt, spring means for urging the plate to the position out of the casing and with the bolt away from said lug, and means for locking

the bolt engaged with said lug to prevent manual retraction.

2. A lock for luggage as claimed in Claim 1, wherein the plate or a sub-assembly including the plate has a lug or tongue moved relative to the casing during said pivotal movement and which serves to hold a hasp part when the bolt is engaged with the lug.

3. A lock as claimed in Claim 1 or Claim 2 wherein said plate is a hollow box-like structure having assembled thereto a liner which pivotally carries a locking plate together with means for holding the same in alternative positions in which the plate allows and obstructs bolt movement.

4. A lock as claimed in Claim 3, wherein the bolt is spring loaded by one or more compression springs trapped between the bolt and the liner.

5. A lock as claimed in Claim 3 wherein the said means for holding the locking plate comprises a hairpin spring accommodated in a slot in the liner.

6. A lock as claimed in any of Claims 3 — 5, wherein the bolt is slidable between the liner and a closure plate.

7. A lock as claimed in Claim 6, wherein the spring means for urging the plate out of the casing comprise a hairpin spring wrapped about the plate pivot pin and secured to the closure plate, with spring tails abutting said casing.

8. A lock substantially as herein described and illustrated with reference to Figs. 1 to 9 of the accompanying drawings.

9. A lock substantially as described and illustrated with reference to Fig. 10 of the accompanying drawings.

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