Sept. 29, 1953 H. R. SEGAL 2,653,467

ANTIPICK CYLINDER TYPE LOCK

Filed Nov. 17, 1951

Fig. 1.

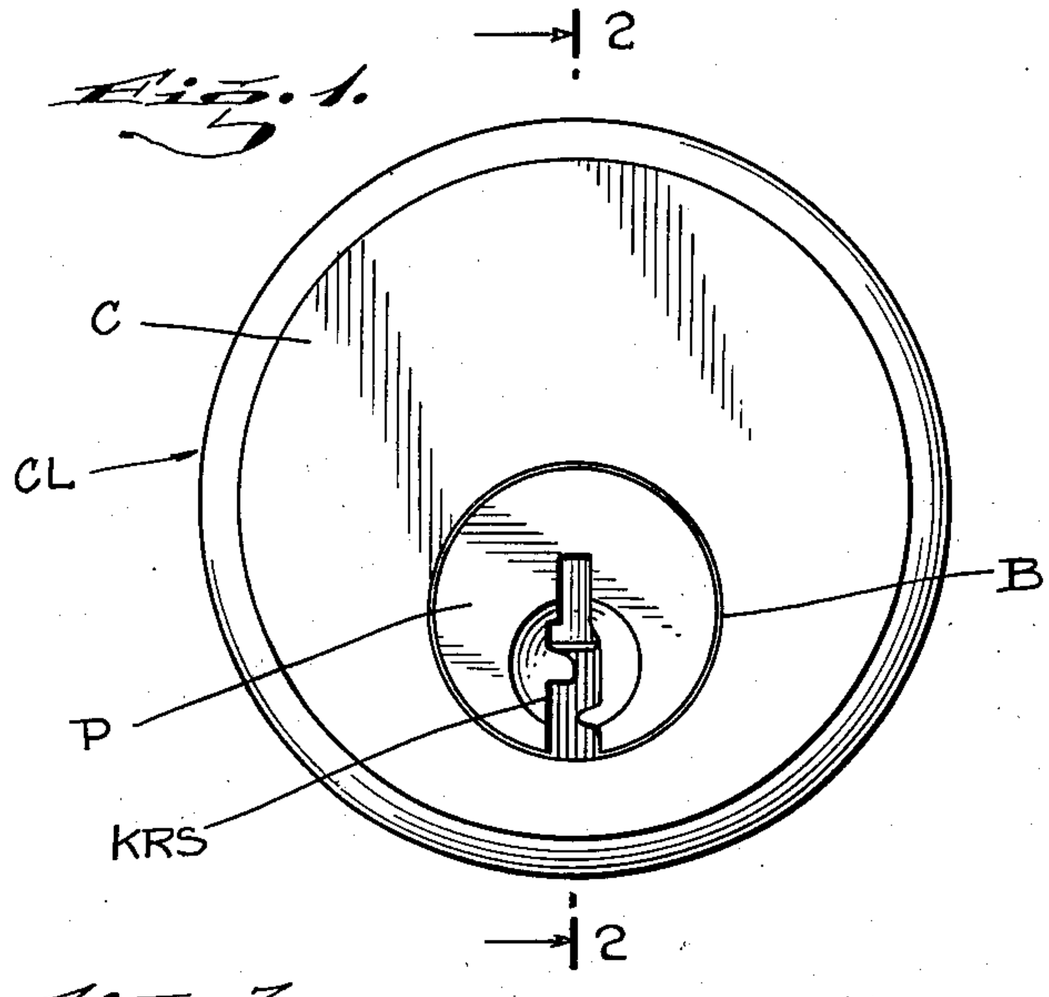


Fig. 4.

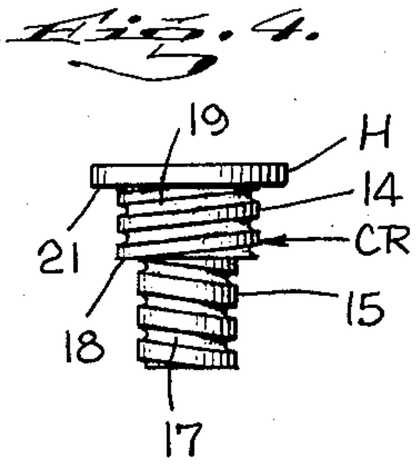


Fig. 5.

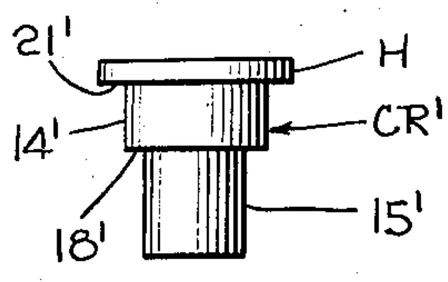
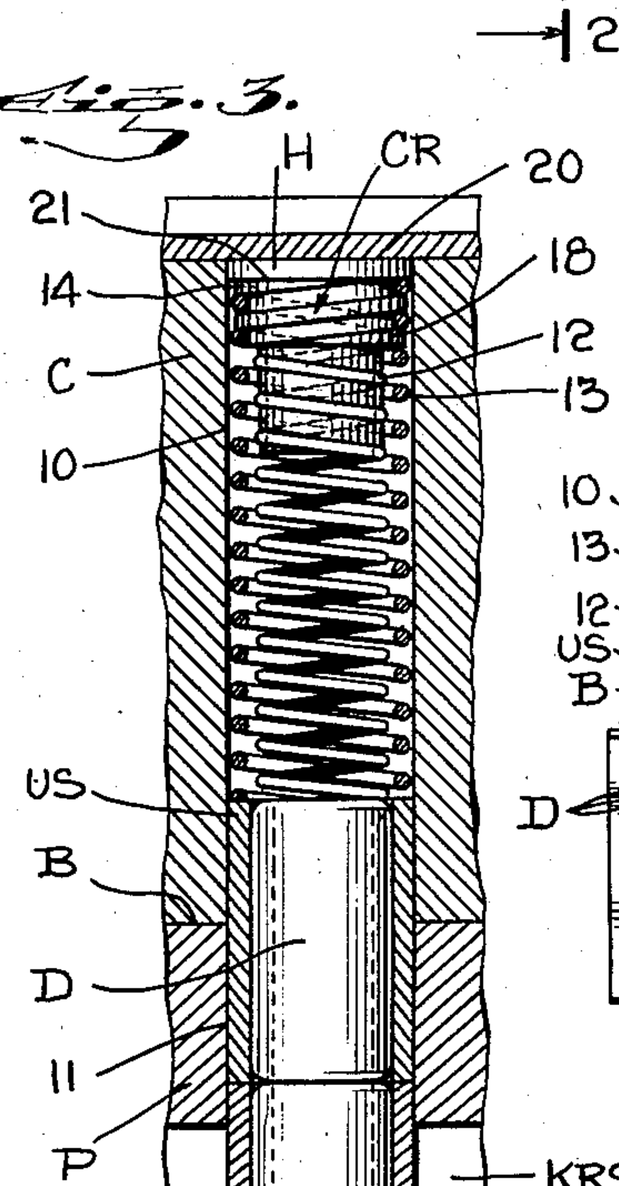


Fig. 3.



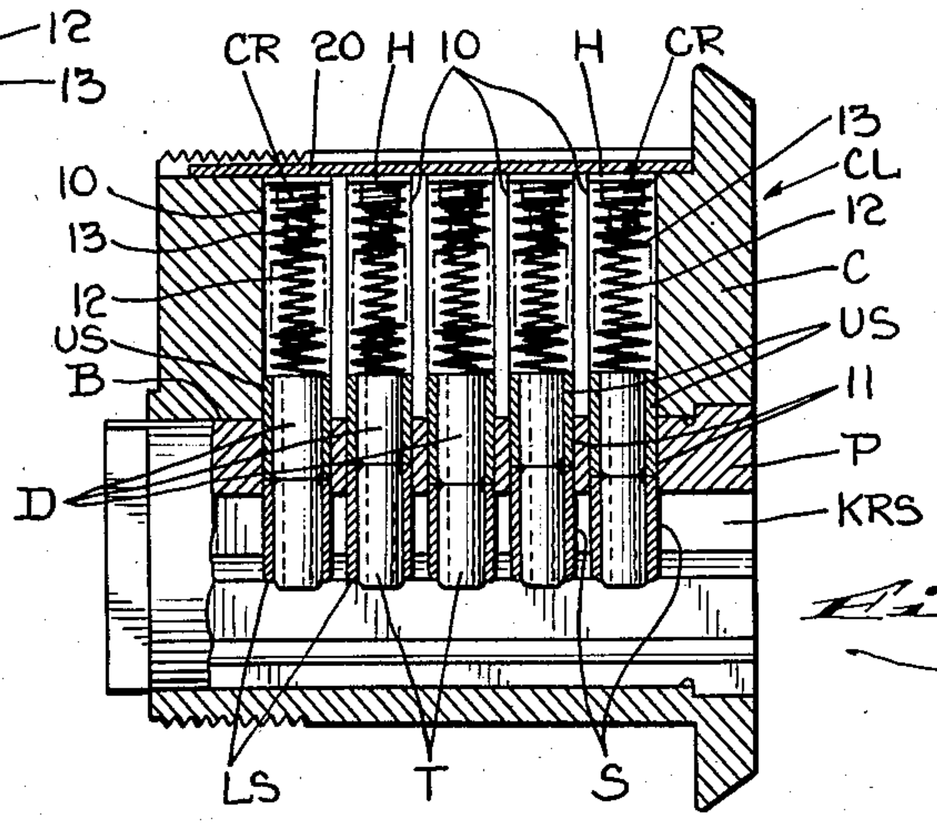
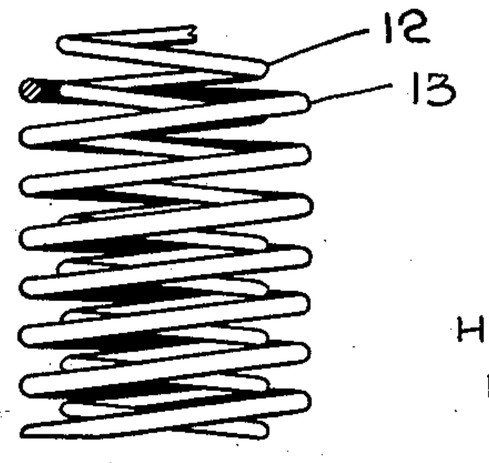


Fig. 2.

Fig. 6.



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ANTIPICK CYLINDER TYPE LOCK

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3 Claims. (Cl. 70—359)

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This invention is an anti-pick cylinder lock wherein upper and lower sets of pin tumblers normally operate to hold the key receiving rotatable plug locked relative to the cylinder at a time when a mating key is out of the plug. One object of the invention resides in the provision of multiple spring carriers arranged within and at the upper ends of spaced openings of the cylinder for retaining oppositely coiled but concentric inner and outer helicoidal springs in a nested but unsnarled relation to effectively cooperate respectively with the upper set of driving tumbler pins and accompanying slidable sleeves slidably guiding this upper set of driving pins and wherein both the slidable sleeves and their accompanying slidable pins serve as means to appreciably depress the lower set of tumbler pins and associates slidable sleeves downwardly into the key receiving slot of the rotatable plug. A more specific object is realized in the provision of an anti-pick cylinder lock characterized by standard parts adapted for convenient and rapid assembly. Other important objects and functional and structural features of the invention will appear from the following detailed description considered in the light of the accompanying drawings wherein:

Fig. 1 is a front elevational view of the cylinder lock according to my invention.

Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary and appreciably enlarged view of Fig. 2.

Fig. 4 is an elevational view of one of the spring carriers and

Fig. 5 is a slightly modified view of Fig. 4.

Fig. 6 is a fragmentary elevational view of the reversely coiled springs.

Illustrative of the embodiment disclosed, the anti-pick cylinder lock is generally designated CL and comprises cylinder or casing C and the rotatable plug P. More specifically, cylinder C includes the longitudinally arranged bore B rotatably guiding the cylindrical plug P which is interrupted by the key receiving slots KRS.

The cylinder is appropriately drilled to provide spaced vertically arranged circular openings 10 adapted to align with the correspondingly spaced circular holes 11 formed in the rotatable plug P.

Slidably guided by the spaced bores constituted by holes 11 are the lower sleeves LS which in turn slidably guide the cylindrical tumbler pins T on which are seated the cylindrical upper set of driving tumbler pins D slidably guided by the upper set of cylindrical tubes or sleeves US

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which in turn are slidably guided by the cylindrical openings 10 of the cylinder C and the aligned holes 11 of the plug.

Inside helicoidal springs 12 act on the driving pins D to shift the latter in part into the plug P. Outside helicoidal springs 13 are seated on the upper sleeves US to also project the same into holes 11 of the plug. By this arrangement the plug is locked against rotation as illustrated in Figs. 2 and 3.

However, the upper ends of the pairs of nested inside and outside springs are effectively retained on carriers CR each having a cylindrical head H from which depends a reduced threaded shank 14 in turn having a reduced but oppositely threaded cylindrical stem 15. More particularly the upper end of an inside spring 12 is tightly threaded on a shank 15 which likewise is provided with a helical groove 17 to receive and facilitate threading of the coils of this inside spring frictionally on its carrier until it meets the abutment and overhanging shoulder 18.

Shank 14 of each carrier also embodies a helical groove 19 adapted to snugly and frictionally receive the upper end of an outside spring 13 which may be conveniently threaded on shank 14 until it meets the overhanging and stop shoulder 21 constituted by head H. It follows that each carrier CR has adequately fixed thereon a pair of nested but concentrically arranged helicoidal springs but it should be observed that such pair of springs are oppositely pitched or wound to preclude snarling. Hence each carrier fixedly retains an inside and a companion outside spring disposed in concentric fashion and these parts consequently constitute units bodily and severally insertible into openings 10 of the cylinder or casing C, thus facilitating assembly. Thereafter a conventional closure slab 20 is appropriately fastened to casing C in any well known manner, thereby maintaining the inside and outside springs of all the units effectively compressed to normally and automatically shift the upper set of drivers D and companion tubes US downwardly to project in part into plug P to preclude its rotation.

With a properly mated key inserted into slot KRS tumblers T and companion sleevs LS are actuated, thereby elevating upper sleeves just flush with the bore B of the cylinder, consequently unlocking the plug to permit its rotation by the key.

In Fig. 5, the spring carrier is along the lines of form illustrated in Fig. 4 with the single exception that shanks 14′ and stem 15′ are unthreaded

and companion nested springs (not shown) are frictionally forced thereon instead of being tightly and frictionally threaded in helical grooves as in the case of the carrier shown in Fig. 3.

Various changes may be made in details of construction and arrangement of parts without departing from the spirit of the invention or sacrificing any of the advantages thereof inherent therein.

I claim:

1. In an anti-pick lock, a casing having a longitudinally arranged cylindrical bore and spaced openings normal to said bore and communicating therewith, a cylindrical plug rotatably guided by said bore and including a longitudinally disposed key receiving slot and having spaced holes adapted to register with said openings, an upper set of sleeves slidably guided by said openings, driving pins slidably guided by said sleeves, a lower set of sleeves slidably guided by said holes, tumbler pins slidably guided by said lower set of sleeves, carriers slidably guided within and at the upper parts of said openings, each of said carriers having a reduced shank and a reduced stem depending from said shank, outside helicoidal springs having their upper portions tightly retained on said shanks and having their lower portions abutting the upper faces of said upper set of sleeves, inside helicoidal springs within said outside springs and having their coils pitched oppositely to the coils of said outside springs and having their upper portions tightly retained on said stems and having their lower portions abutting the upper faces of said driving pins, and said springs normally urging said upper set of sleeves and said driving pins to removably project in part into said holes to preclude rotatation of said plug relative to said cylinder.

2. In an anti-pick lock, a casing having a longitudinally arranged cylindrical bore and spaced openings normal to said bore and communicating therewith, a cylindrical plug rotatably guided by said bore and including a longitudinally disposed key receiving slot and having spaced holes adapted to register with said openings, an upper set of sleeves slidably guided by said openings, driving pins slidably guided by said sleeves, a lower set of sleeves slidably guided by said holes, tumbler pins slidably guided by said lower set of sleeves, carriers slidably guided within and at the upper parts of said openings, each of said carriers comprising a head having a reduced and threaded shank and a reduced stem depending from said shank and having threads pitched oppositely to the threads of said shank, outside helicoidal springs having their upper portions interlocked with the threads of said shanks and having their lower portions abutting the upper faces of said upper set of sleeves, inside helicoidal springs within said outside springs and having their coils pitched oppositely to the coils of said outside springs and having their upper portions interlocked with the threads of said stems and having their lower portions abutting the upper faces of said driving pins, and said springs normally urging said upper set of sleeves and said driving pins to removably project in part into said holes to preclude rotation of said plug relative to said cylinder.

3. In an anti-pick lock, a casing having a longitudinally arranged cylindrical bore and spaced openings normal to said bore and communicating therewith, a cylindrical plug rotatably guided by said bore and including a longitudinally disposed key receiving slot and having spaced holes adapted to register with said openings, an upper set of sleeves slidably guided by said openings, driving pins slidably guided by said sleeves, a lower set of sleeves slidably guided by said holes, tumbler pins slidably guided by said lower set of sleeves, carriers slidably guided within and at the upper parts of said openings, each of said carriers having a reduced externally threaded shank and a reduced externally threaded stem depending from said shank, outside helicoidal springs having their upper portions tightly interlocked with the threads of said shanks and having their lower portions abutting the upper faces of said upper set of sleeves, inside helicoidal springs disposed substantially concentrically within said outside springs and having their upper portions tightly interlocked with the threads of said stems and having their lower portions abutting the upper faces of said driving pins, and said outside and inside springs being oppositely pitched and normally urging said upper set of sleeves and said driving pins to removably project in part into said holes to preclude rotation of said plug relative to said cylinder, the stems of said carriers being concentrically arranged in respect to the shanks of said carriers.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
593,436	Rydberg	Nov. 9, 1897
917,365	Schoell	Apr. 6, 1909
1,095,500	Hansen	May 5, 1914
1,095,641	Johnson	May 5, 1914
1,143,906	Hayne	June 22, 1915