

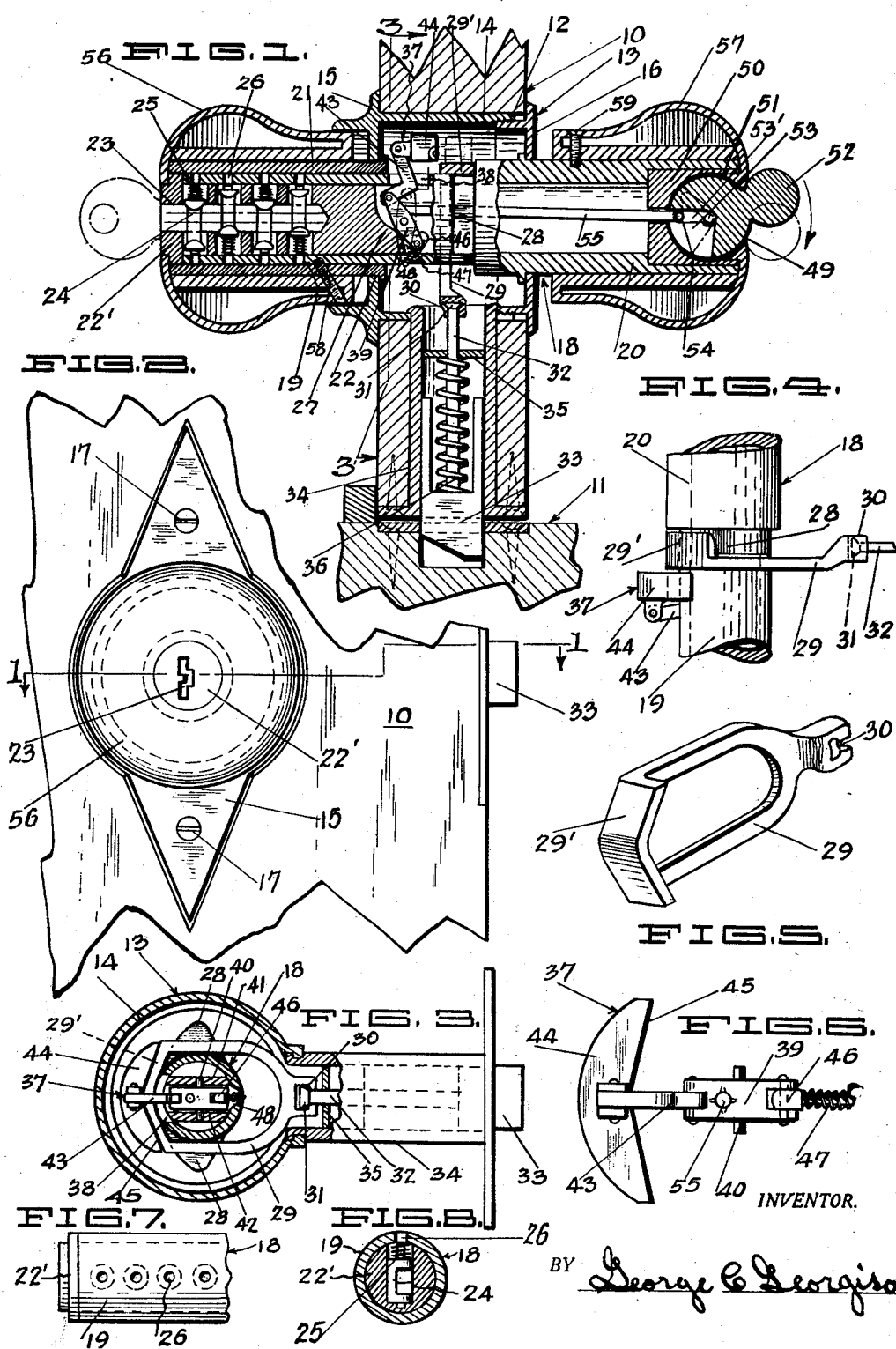
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DOORLOCK

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UNITED STATES PATENT OFFICE

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DOORLOCK

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The present invention relates generally to improvements in locks but more particularly to tumbler locks for hinged closures such as doors and the like.

5 The primary object of the invention is to provide a simplified lock for doors and like closures in which the number of working parts is reduced to a minimum and which includes positive latching means arranged to
10 latch the mechanism from the inside of the room to render the tumbler mechanism thereof inoperative.

Another object of the invention is the provision of a door lock which is positive in operation, is strong and durable, and that may
15 be easily and quickly applied as a unit to any door.

The invention possesses other objects and features of advantage, some of which, with the foregoing will be set forth in the following description of the preferred form of my invention which is illustrated in the drawings accompanying and forming part
20 of the specification. It is to be understood that I do not limit myself to the showing made by the said drawings and description, as I may adopt variations of the preferred form within the scope of my invention as set forth in the appended claims.

25 Referring to the drawings:

Figure 1 is a horizontal sectional view showing my improved lock in place, a portion of the door and jamb being shown with the bolt projecting from the door edge as
30 in locked position;

Figure 2 is a fragmentary elevation showing the outside door knob of the lock and the lock mounting therefor consisting of pointed plates arranged on opposite sides of
35 the door;

Figure 3 is a sectional detail of the bolt actuating cam and associated parts, the section being indicated by the line 3—3 in Figure 1;

40 Figure 4 is a plan view of a portion of the shank and the bolt actuating cam together with the bolt yoke and the latching means therefor;

Figure 5 is a perspective view of the bolt
45 actuating yoke;

Figure 6 is a detail of the lock tripping mechanism;

Figure 7 is a detail of a portion of the the tumbler barrel showing the arrangement of the tumbler openings therein; and
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Figure 8 is a transverse section of the the tumbler barrel showing one of the tumblers in position.

Referring with greater particularity to the drawings, the numeral 10 represents a fragmentary portion of a door mounted in the usual frame 11 and provided with an opening 12 of suitable size to accommodate the lock shell 13. This shell embodies two members screwed together as indicated at 14 and
60 having integrally formed plates 15 and 16 adapted to fit against opposite sides of the door 10, said plates being arranged for securement to the door by means of screws 17, as shown in Figure 2.
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The shank 18 of the lock extends through bearings formed in the plates 15 and 16 and comprises, a tubular member embodying a tumbler section 19 and a section 20, said section 19 being mounted in a sleeve 21 which
70 is in turn rotatably mounted in a bearing opening 22 formed in the plate 15.

The barrel 19 is provided with a plug 22' having a key slot 23 and a plurality of spring-pressed tumblers 24 embodying flattened pins
75 25 adapted to enter the openings 26 in the barrel 19 and to normally lock the plug 22' with the shank, the inner end of said plug having a cam section 27 for the purpose hereinafter specified.
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The shank 18 is provided intermediate its ends with a double ended cam-member 28, as clearly shown in Figure 3, and a yoke member 29 embraces the shank and is provided at its inner end with a V-shaped lip 29' adapted to normally engage the shank 18 when the bolt is in locked position, the outer end of this yoke terminating in an enlarged section providing a slotted recess 30 adapted to receive the head 31 of the bolt rod 32, said rod
85 32 being connected to the bolt 33 in any suitable manner.

The bolt 33 operates in a suitable housing 34 which is mortised into the door 10 and communicates with the interior of the shell
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13. A partition 35 is mounted in the housing 34 and is provided with a guide opening through which the rod 32 operates, the bolt being normally urged to locked position by means of a coil spring 36 encircling the rod 32 and bearing against the partition 35 at its inner end and the bolt 33 at its outer end.

The latching mechanism 37 is inserted through a slot 38 formed in the shank, Figures 1 and 3, and said mechanism includes a bifurcated lever 39 having a centrally disposed bearing pin 40 mounted for slight rocking movement in the bearing members 41 and 42, said lever having pivotally mounted in its upper end a bell-crank lever 43, which lever 43 projects through the slot 38 and in turn is pivotally secured to a latching cam 44, Figures 1, 3 and 6.

The latching cam is provided with an inner V-shaped edge 45 corresponding in shape to the V-shaped lip 29' of the yoke and this cam is adapted to seat upon said lip to prevent the withdrawal of the bolt when the cam is moved laterally by the lever 39, as herein-after more fully set forth.

The lower end of the lever is provided with a pivoted pin 46 which pin is encircled by a small coil spring 47 and the end of said pin fits into a counter-sunk opening 48 formed in the wall of the shank, so that when said lever 39 is moved beyond center on either side of a vertical line drawn through the pin 40 it will be held in that particular position by the urge of spring 47.

A suitable night latch 49 is carried by a bearing-block 50 which block is inserted into the inner end of the section 20 of the shank, said member being fitted into a socket 51 formed in said block and adapted for rotational movement therein by means of a projecting handle 52.

The latch member 49 embodies a substantially V-shaped recess 53 having a slot 53' therein adapted to receive the laterally disposed extension 54 formed on the end of the rod 55, so that by manipulating the handle 52 to the full line position shown in Figure 1, the lever 39 to which the outer end of said rod is pivotally attached is forced outwardly by virtue of the coil spring 47, thus causing the latching cam 44 to release the lip 29' of the yoke 29 and freeing the bolt for subsequent actuation by the movement of cam 28.

Handles, or knobs, 56 and 57 are secured to opposite ends of the shank 18 by means of set screws 58 and 59, respectively, the set-screw 58 extending through the knob 56, sleeve 21 and the tumbler-barrel section 19 in order that the entire shank may be rotated from either side of the door by means of the knobs 56 or 57.

It is obvious from the foregoing description that when the key is withdrawn from the key slot 23 the tumbler pins will enter the barrel openings 26 and lock the plug 22'

against movement relative to the tumbler barrel, the cam section 27 of the plug, of course, being in contact with the upper end of the lever 39 and the member 44 being seated upon the lip 29' of the yoke 29, thereby preventing withdrawal of the bolt 33.

The night latch may be operated from the inside of the structure by pressing downwardly on the handle 52 which causes the tripping of the mechanism 37 and its consequent functioning in the same manner as above described.

In normal locked position the cam 27 would bear against the upper end of lever 39, but when the key is inserted in the lock and the plug is turned thereby, the cam 37 changes its position to that shown in Figure 1, this movement throwing the lever 39 backwardly and releasing the yoke 29, so that by manipulating the door knob 56 in either direction the cam 28 will cause the withdrawal of the bolt 33.

I claim:

1. In a lock of the class described, a lock shell, a tubular shank member rotatably borne by said shell, a spring actuated bolt operatively associated with said shank, a yoke carried by said bolt having a V-shaped lip and embracing said shank, cam means carried by said shank and adapted to engage said yoke to draw the bolt, and a V-shaped latching member borne by said shank and slidable over said lip for locking said yoke to the shank to render the same inoperative.

2. In a lock of the class described, a lock shell comprising members adapted to be screw-seated together and having integrally formed plates, bearings formed in said shell members, a tubular shank mounted in said bearings and adapted for rotation therein, a spring actuated bolt operatively associated with said shank, a yoke carried by said bolt having a V-shaped lip and embracing said shank, a double acting cam formed on said shank and adapted to engage said yoke to draw the bolt, latch means including a V-shaped member and actuating means therefor mounted in said shank and adapted to engage said V-shaped lip on yoke to render the shank inoperative and prevent the withdrawal of the bolt, and means for tripping said latch means to free said yoke and render the same operative.

3. In a lock of the class described, a lock shell, bearings formed in said shell, a tubular shank extending through said bearings and having a yoke embracing its intermediate portion, a V-shaped lip formed on said yoke, a cam borne by said shank and adapted to engage said lip when the shank is rotated, a spring actuated bolt connected to said yoke, means for rendering said yoke inoperative comprising a V-shaped member adapted to slide over said lip, and a tumbler mechanism carried by said shank and adapted to release

said means to render the shank and yoke operative so that the bolt may be withdrawn by the actuation of said shank.

4. In a lock of the class described, a lock
5 shell, bearings formed in said shell, a tubular shank extending through said bearings, knobs mounted upon the ends of said shank, a double acting cam formed on said shank, a yoke embracing said shank and having a lip
10 normally engaging said cam, a spring actuated bolt carried by said yoke, and latch means operatively associated with said yoke and adapted to clamp said lip against said cam to prevent turning of the shank and the
15 withdrawal of the bolt.

5. In a lock of the class described, a shell comprising threaded sections adapted to be screw-seated together, bearings formed in the ends of said shell sections, a shank mounted in said bearings and embodying an intermediate cam-member, a yoke embracing said shank and having a lip adapted to engage said cam, a spring actuated bolt carried by said yoke, and means for preventing the
20 withdrawal of said bolt comprising a latch-member adapted to slide over said lip to prevent the actuation of said yoke by said cam.

In testimony whereof I hereunto affix my signature.

30 GEORGE C. GEORGINSON.

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