This invention relates to a pin tumbler cylinder lock, and more particularly to an improvement thereon in which the cylinder body is provided with a removable plate located in the bottom side thereof, said plate when removed, providing a slot or opening through which holes may be accurately drilled into the tongue of the cylinder body from the shear line surface.

The object of the present invention is generally to improve the construction and operation of pin tumbler cylinder locks. Another object is to provide a cylinder body having a slot extending from end to end formed in the bottom side thereof to permit drilling from the bottom side of the tongue thereby assuring accurate alignment of holes at the shear line surface; to permit ready insertion of the tumbler springs and top pins in the holes formed in the tongue; to permit rapid re-keying or changing combinations by locksmiths by providing ready access through the slot for changing the bottom pins in the cylinder plug; and further, to provide an insert or retainer cover for the slot.

The invention is shown by way of illustration in the accompanying drawings, in which,

Fig. 1 is a perspective view of a standard form of cylinder.
Fig. 2 is a longitudinal vertical section of the cylinder shown in Fig. 1.
Fig. 3 is a perspective view of our improved form of cylinder.
Fig. 4 is a perspective view of the insert or retainer plate which closes the slot formed in the bottom of the cylinder shown in Fig. 3.
Fig. 5 is an end view of the improved form of cylinder showing the insert or plate in place.
Fig. 6 is a longitudinal vertical section of the cylinder shown in Fig. 3.
Fig. 7 is a longitudinal vertical section of our improved form of cylinder showing all parts assembled and a key inserted.

Fig. 8 is a bottom view of the cylinder partially in section to show the spring actuated detent which prevents rotation of the end cap with relation to the cylinder plug when the cap is adjusted.

Referring to the drawings in detail and to Figs. 1 and 2 in particular, A indicates the cylinder body of a standard form of pin tumbler cylinder lock, and B the tongue formed integral therewith in which are drilled holes or guide-ways 2 for the reception of the top pins and springs. In order to drill the holes 2 it is common practice to drill from the bottom side of the cylinder as shown at 3 in Figs. 4 and 7; the sides of the insert are of course, shaped to conform to the guide-ways 6, so that an interlock is formed when the plate is inserted.

When the cylinder is to be drilled, it is only necessary to insert a drill jig in the bore of the cylinder body and to drill it in the usual manner to form the holes 2, thereby eliminating the operation of drilling the holes 3 and thereafter plugging and soldering them.

After the holes 2 are drilled, the cylinder body is ready to receive the top pins and springs. A top pin loader is used for this operation and when the cylinder body is loaded, it is slid onto a follower bar in the usual manner. The cylinder body plug with a key inserted therein, and the bottom pin tumblers in place is next placed at the end of the follower bar and the cylinder body with the top pins and springs in place is slid over the plug. The retainer plate 7 is then inserted and the end cap 8 together with the driver bar 9 is finally applied and adjusted, and when the cap is adjusted, it is secured in place by the detent or pin 10 shown in Fig. 8. This completes the assembly of the several parts forming the pin tumbler cylinder lock.

Once the improved pin tumbler cylinder lock has been in use, and it becomes desirable or necessary to change the combination, or in other words, to re-key it, a locksmith can quickly and readily make the change without removing the plug from the cylinder body, as all he has to do is to insert the old key and rotate the cylinder plug 180 degrees, or in other words, rotate the bottom pins align with the bottom slot. He then removes the end cap, the driver bar, and the retaining cover plate 7. He may now remove the old key and the bottom pins, insert the new key and the new bottom pins, and then rotate the cylinder plug until the new bottom pins align with the top pins. The operation of re-keying is now finished by inserting the retainer plate and finally the end cap together with the driver bar, thus completing re-keying and reassembly. Master keying and grand master keying is accomplished in the usual manner.

Having thus described our invention what we desire to secure by Letters Patent is:

1. In a pin tumbler cylinder lock having a cylinder body, a rotatable cylinder plug and cooperating top and bottom pin tumblers, a slot formed in the cylinder body on the side opposite the top pin tumblers, said slot extending from end to end of the cylinder body and being wider than the diameter of the holes drilled for the reception of the pin tumblers, and means insertable in the slot to prevent removal of the bottom pin tumblers during rotation of the plug.

2. In a pin tumbler cylinder lock having a cylinder body, a rotatable cylinder plug and cooperating top and bottom pin tumblers, a slot formed in the cylinder body on the side opposite the top pin tumblers, said slot extending from end to end of the cylinder body and being wider than the diameter of the holes drilled for the reception of the pin tumblers, and a retainer plate insertable in the slot.

3. In a pin tumbler cylinder lock having a cylinder body, a rotatable cylinder plug and cooperating top and bottom pin tumblers, a slot formed in the cylinder body on the side opposite the top pin tumblers, said slot extending from end to end of the cylinder body and being wider than the diameter of the holes drilled for the reception of the pin tumblers, guide-ways formed in each side of the slot, and a retainer plate for said slot and slidable when inserted in the guide-ways.

4. In a pin tumbler cylinder lock having a cylinder body, a rotatable cylinder plug and cooperating top and bottom pin tumblers, a slot formed in the cylinder body on the side opposite the top pin tumblers, said slot extending from end to end of the cylinder body and being wider than the diameter of the holes drilled for the reception of the pin tumblers, guide-ways formed in
each side of the slot, a retainer plate for said slot and slidable when inserted in the guide-ways, and means for securing the retainer plate against endwise removal from the slot.

5. In a pin tumbler cylinder lock having a cylinder body, a rotatable cylinder plug and cooperating top and bottom pin tumblers, a slot formed in the cylinder body on the side opposite the top pin tumblers, said slot extending from end to end of the cylinder body and being wider than the diameter of the holes drilled for the reception of the pin tumblers, a retainer plate for said slot, and means for securing the retainer plate against lateral and longitudinal removal from the slot.

6. In a pin tumbler cylinder lock having a cylinder body, a rotatable cylinder plug and cooperating top and bottom pin tumblers, a slot formed in the cylinder body on the side opposite the top pin tumblers, said slot extending from end to end of the cylinder body and being wider than the diameter of the holes drilled for the reception of the pin tumblers, guide ways formed in each side of the slot, a retainer plate for said slot and slidable when inserted in the guide ways, said guide ways also securing the plate against lateral removal, an annular flange on the front end of the cylinder plug, a threaded portion on the inner end of the cylinder plug, and an adjustable nut carried by the threaded end, said nut and the annular flange engaging opposite ends of the retainer plate and securing it against endwise removal.

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