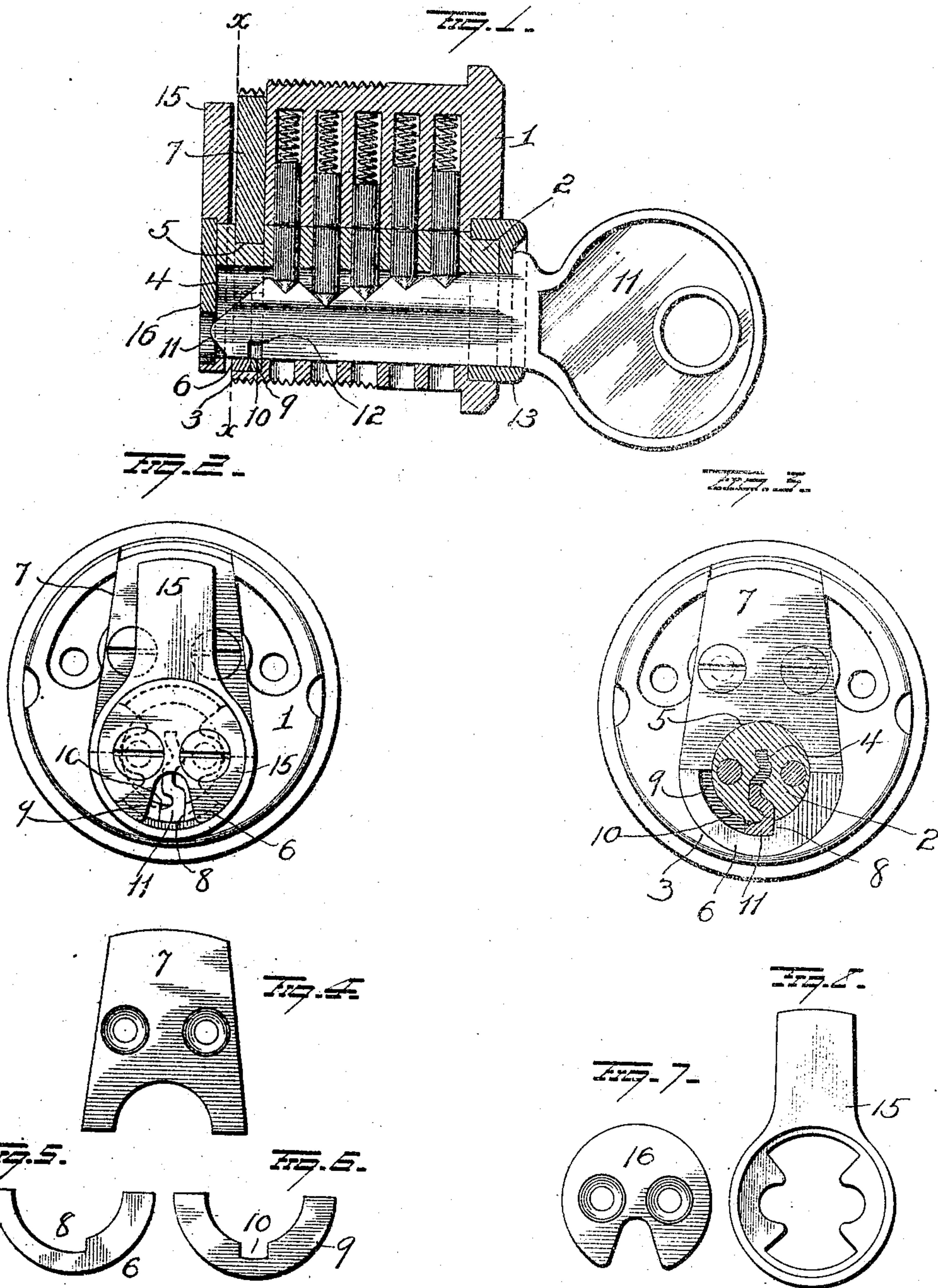


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PIN TUMBLER LOCK.  
APPLICATION FILED MAY 28, 1910.

966,295.

Patented Aug. 2, 1910.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## PIN-TUMBLER LOCK.

966,295.

Specification of Letters Patent.

Patented Aug. 2, 1910.

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*To all whom it may concern:*

Be it known that I, PETER F. AUGENBRAUN, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Pin-Tumbler Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in pin tumbler locks.

In pin tumbler locks as ordinarily constructed, when a key is inserted in the plug and turned, the key is prevented from being withdrawn, by reason of the fact that the tumblers carried by the plug, are out of alinement with the tumbler holes in the cylinder, consequently they cannot be moved longitudinally by the bittings of the key, and as the tumblers engage the bittings of the key, the latter is held against withdrawal. The principal objection to this construction, particularly in the case of locks which are used frequently, is that the tumblers must have some play in their holes, and when a key is inserted and withdrawn these tumblers are pushed first against one side and then against the other of the tumbler holes, which results in a wear and distortion both on the tumblers and holes which causes unsatisfactory action of the tumblers, and ultimately wears out the lock altogether. Again, the abrasion of the key against the walls of the keyway, causes a wearing and enlargement of the latter which also seriously interferes with the proper action of the lock and finally renders it worthless.

The object of the present invention, is therefore, to provide means for taking the strain, and consequent wear, from the tumbler, tumbler holes and plug, and transferring it to the cylinder and key, so that any pulling strain on the key will be transmitted directly to the cylinder.

A further object is to provide means for limiting if so desired, the turning movement of the key and plug.

A further object is to provide means for preventing undue wear upon the key way, by providing the plug with a steel face plate

having the key slot wholly within the periphery of the plate.

With these and other objects in view my invention consists in the parts and combinations of parts as will be more fully explained and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in longitudinal section of my improved lock. Fig. 2 is a rear end view of same. Fig. 3 is a sectional view on the line  $x-x$  of Fig. 1. Fig. 4 is a view of the rear end or face plate. Figs. 5 and 6 are views of the retaining plates. Fig. 7 is a view of the plate for holding the cam in place and Fig. 8 is a view of the cam.

1 represents the cylinder provided with a cylindrical bore for the plug 2, and at its rear or inner end with the lip 3, the latter being concentric with the bore in the cylinder and extending about half way around the bore at the bottom. The cylinder is also provided with the holes or recesses arranged to aline with similar holes in the key plug for the reception of the pin tumblers which latter are of the well known construction and are operated by the key in the usual manner. The plug 2 is cylindrical in shape and is provided with a key way 4 extending throughout its length, and is provided adjacent its inner end with a peripheral groove 5 in which the semi-circular ring shaped plate 6 rests. This ring shape plate snugly rests against the lip 3 on the cylinder 1, and is prevented from outward displacement thereby, and is restrained from turning or rotating on the plug 2 by the steel face plate 7, the lower edge of which forms an abutment against which the ends of the curved retaining plate 6 bear, the steel face plate being secured to the cylinder by screws. The plug 2 is provided with an enlarged outer end or head which bears against the front or outer face of the cylinder, hence when the ring plate 6 is in place within the groove 5 in the plug, it acts as a guide for the plug in the turning movement of the latter and also prevents endwise movement of the plug in the cylinder. The plate 6 is provided on its inner, or concave edge, with a shoulder 8 located adjacent the key way in the plug, when the latter is in its normal position, and in the path of movement of the key for preventing the latter



from turning in one direction. By simply removing the ring plate 6, and turning it over, the shoulder 8 will come on the opposite side of the key way, thus providing for  
 5 either a right or left hand turning movement of the key, but in instances where the key is to make a complete revolution, this shoulder would be dispensed with.

Located between plate 6, and the rear end  
 10 of cylinder 1, and over the lip 3, is the thin steel retaining plate 9, curved in the arc of a circle concentric with the plug 2, and projecting into the groove 5 in said plug. This retaining plate 9, is provided with a slot  
 15 for the passage of the key 11, the slot 10 being located in line with the key slot in the plug, so as to permit the key to be freely entered and withdrawn when the plug is in its normal position. The key 11 is provided  
 20 on its lower edge with a slot 12 so located with relation to the retaining plate 9, that when the key is fully inserted, the slot in the key will be in line with the plate 9, thus permitting the key and the plug to be turned.  
 25 As the key is turned, the plate 9 enters the slot 12 in the key and takes all endwise strain on the key, and thus prevents wear on the tumblers and recesses for the latter, and also prevents any tendency to endwise move-  
 30 ment of the plug due to pulling strains on the key.

By means of the two combined retaining plates 6 and 9, all endwise movement of the key and the plug are guarded against, so  
 35 that no injurious strains can be imposed upon the tumblers or the holes for the latter, thus insuring a better and more positive action of the lock and prolonging its life.

To provide against undue wear of the key  
 40 way, the plug 2 is provided at its outer end with a steel or other hard metal cap or face plate 13 which in the present instance is in the form of a ferrule embracing and secured to the outer end of the plug 2. This cap or  
 45 face plate is provided with a key way 14 conforming in shape and size to the key way in the plug, the key way in said cap or face plate, being wholly within the periphery of the latter, instead of extending through the periph-  
 50 ery of the head of the plug, as is the case in the locks now in use. By this arrangement the steel cap takes the wear both at the sides and top and prevents wear and consequent enlargement of the key way in the softer  
 55 metal of the plug.

The cam 15 is mounted on the inner end of key plug 2 and is secured thereto by the disk 16, the latter resting within a recess in the cam and secured to the end of the plug 2  
 60 by screws.

It is evident that many slight changes might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my

invention hence I would have it understood 65 that I do not wish to confine myself to the exact construction and arrangement of parts shown and described, but,

Having fully described my invention what I claim as new and desire to secure by Let- 70 ters-Patent, is:—

1. In a pin tumbler lock, the combination with a cylinder and its plug, the latter having a peripheral groove, of a plug retain-  
 ing plate removably secured to the rear face 75 of the cylinder with its edge in the groove in the plug.

2. In a pin tumbler lock, the combination with a cylinder having a rearwardly projecting curved lip, and a plug mounted to  
 80 turn in said cylinder and provided with a peripheral groove, of a plug retaining plate supported against said lip with one edge resting in the groove in the plug.

3. In a pin tumbler lock, the combination 85 with a cylinder having a rearwardly projecting curved lip, and a plug mounted to turn in said cylinder, the said plug having a peripheral groove, of a semi-circular re-  
 90 taining plate resting with its concave edge in said groove and its convex edge in contact with said lip, and a plate removably secured to the rear face of said cylinder and forming an abutment for the ends of said  
 95 retaining plate.

4. In a pin tumbler lock, the combination with a cylinder and its plug the latter hav-  
 ing a peripheral groove, of a plug retaining  
 100 plate removably mounted against the rear face of the cylinder with one edge resting in a groove in the plug, the said plate having a shoulder to engage the key for preventing the rotation of the latter in one direction.

5. In a pin tumbler lock, the combination  
 105 with a cylinder and its plug, the latter having a peripheral groove, of a hard metal plate supported against the rear face of the cylinder with one edge in the groove in the  
 110 plug, and a key having a slot to receive said retaining plate when the key is turned.

6. In a pin tumbler lock, the combination  
 115 with a cylinder and its plug, the latter having a peripheral groove, of a semi-circular retaining plate slotted for the passage of the key and resting with its concave edge in the  
 120 groove in the plug and a key having a slot to receive said retaining plate when the key is turned.

7. In a pin tumbler lock the combination  
 125 with a cylinder having a projecting lip at its rear end, and a plug mounted to turn in said cylinder, the said plug having a peripheral groove, of two semi-circular retaining plates, one made of hard metal and both lo-  
 130 cated over the lip on the cylinder with their concave edges in the groove in the plug, the hard metal plate having a slot for the pas-  
 135 sage of the key and the other with a shoul-



der for preventing the key from rotating in one direction, a key having a slot to receive said hard metal retaining plate when the key is turned, and a removable face plate  
5 secured to the rear face of the cylinder and forming abutments for the ends of the retaining plates.

8. A key plug for pin tumbler locks having a hard metal cap, the key slot in the lat-

ter being wholly within the periphery of 10 the cap.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

PETER F. AUGENBRAUN.

Witnesses:

SCHUYLER MERRITT,  
WILLIAM P. MOSELY.