P. F. AUGENBRAUN.

PIN TUMBLER LOCK.

APPLICATION FILED DEC. 28, 1911.

1,020,874. Patented Mar. 19, 1912.

Fig. 1.

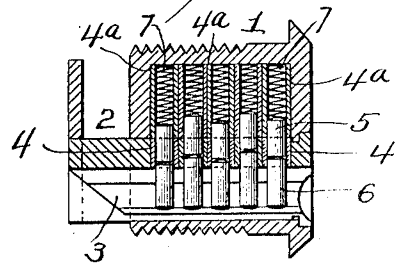


Fig. 2.

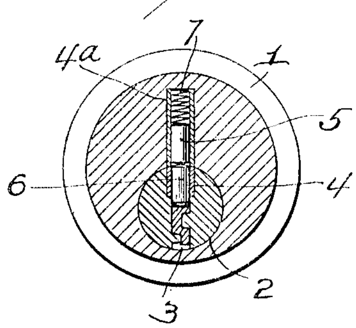


Fig. 3.

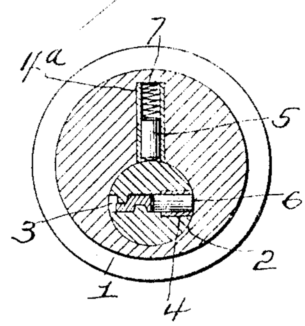


Fig. 4.

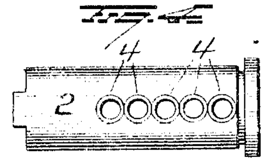


Fig. 5.

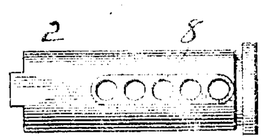
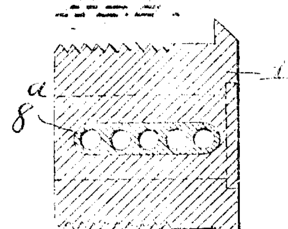


Fig. 6.



WITNESSES

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PIN-TUMBLER LOCK.

1,020,874. Specification of Letters Patent. Patented Mar. 19, 1912.

Application filed December 28, 1911. Serial No. 668,277.

To all whom it may concern:

Be it known that I, PETER F. AUGENBRAUN, a citizen of the United States, residing at 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tumbler locks after the key has been inserted in the plug and the key and plug turned, the key is prevented from being withdrawn by the engagement therewith of the pin tumblers carried by the plug. After the plug has been turned by the key, the pin tumblers are out of alinement with the tumbler recesses 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. It is obvious that in a lock of this type, every time a key is inserted and withdrawn, both the tumblers and the drivers are raised and lowered in their recesses, and that when the key is pushed into place the tumblers tend to bear against one side of the tumbler recess, and when the key is withdrawn, tend to bear against the other, and at the same time to move up and down within the recess. In case of locks which are used very frequently, this action results in considerable wear, and may after a time result in unsatisfactory action of the tumblers.

My invention is intended to protect the operating parts of the lock against derangement owing to wear from long and constant use, and it also results in making the lock secure against attack by boring a hole along the edge of the plug at the juncture of the tumbler recesses in the plug and the cylinder.

The objects therefore of the present invention are first to prolong the life of the lock, and second to add to the security of the lock.

With these and other objects in view, my invention consists in the details of construction and combination of parts as will be more fully described 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 view in transverse section through Fig. 1; Fig. 3 is a similar view showing the plug partly turned and the tumblers and drivers out of alinement; Fig. 4 is a view in elevation of the plug. Fig. 5 is a view in elevation of the plug and Fig. 6 a sectional view of the cylinder, showing blocks having holes for the tumblers, instead of the bushings shown in Figs. 1, 2 and 3.

1 represents the cylinder provided with a cylindrical bore for the plug 2, which latter is cylindrical, and is provided with a key way 3 extending throughout its length, and with an enlarged outer end or head, which rests in a counterbored recess in the cylinder 1, flush or approximately so with the outer face of the cylinder. The plug 2 is provided with a series of recesses, the bottom of which are in open communication with the top of the key way 3 in the plug, so that when a key is entered in the plug it will engage the tumblers in the usual and well known manner. The recesses in the plug aline with similar recesses in the cylinder, and the said recesses in both the plug and the cylinder are lined with the steel or other hardened metal bushings 4 and 4^a, thus protecting the softer metal of the cylinder and plug from the abrading and wearing action of the tumblers 5 and their drivers 6. The bushings 4^a in the cylinder may extend to the tops of the recesses and house the springs 7, or they may extend only far enough to cover the movements of the drivers, while the bushings 4 in the plug extend, preferably from the top of the key way 3 to the outer surface of the plug so as to meet or join the lower ends of the bushings in the cylinder.

Instead of providing the cylinder and plug with a series of recesses each lined with a hard metal bushing as above described, I may insert a steel block 8 in the plug and a similar block 8^a in the cylinder, as shown in Figs. 5 and 6, the two steel blocks, being each provided with a plurality of recesses for the tumblers.

By the use of the bushings or hardened bearings for the tumblers, the life of the lock is prolonged, as the hardened surfaces prevent the wear due to the movements of the tumblers and drivers against the softer

walls of the recesses. The hardened bushings or blocks are a great protection to the security of the lock, as they prevent drilling along the edge of the plug in line with the tumbler recesses, because a drill would be turned aside by these hardened bushings or blocks. No hole, therefore, could be drilled in the line of the tumbler recesses, which is necessary for that method of attack which endeavors to manipulate the tumblers by a thin piece of steel introduced into said drill holes.

In the drawings I show the bushings fitted to every tumbler recess, but this is not essential, as benefit would result from the fitting of one or more of the recesses with such bushings.

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 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 Letters-Patent, is:—

1. In a pin tumbler lock, the combination of a cylinder and plug, hard steel recessed bearings inserted in both of said parts, and pin tumblers mounted to move in said bearings.

2. In a pin tumbler lock, the combination of a cylinder and plug each having alined recesses, a hard metal bushing in each of said recesses, and pin tumblers located and moving within said bushings.

3. In a pin tumbler lock, a plug provided with a tumbler recess, and a hardened bushing fitted into said recess.

4. In a pin tumbler lock, a cylinder provided with a tumbler recess, and a hardened bushing fitted into said recess.

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

PETER F. AUGENBRAUN.

Witnesses:
SCHUYLER MERRITT,
EDITH M. CROZIER.