

W. T. HARTMAN.  
KEY STOP FOR LOCKS.  
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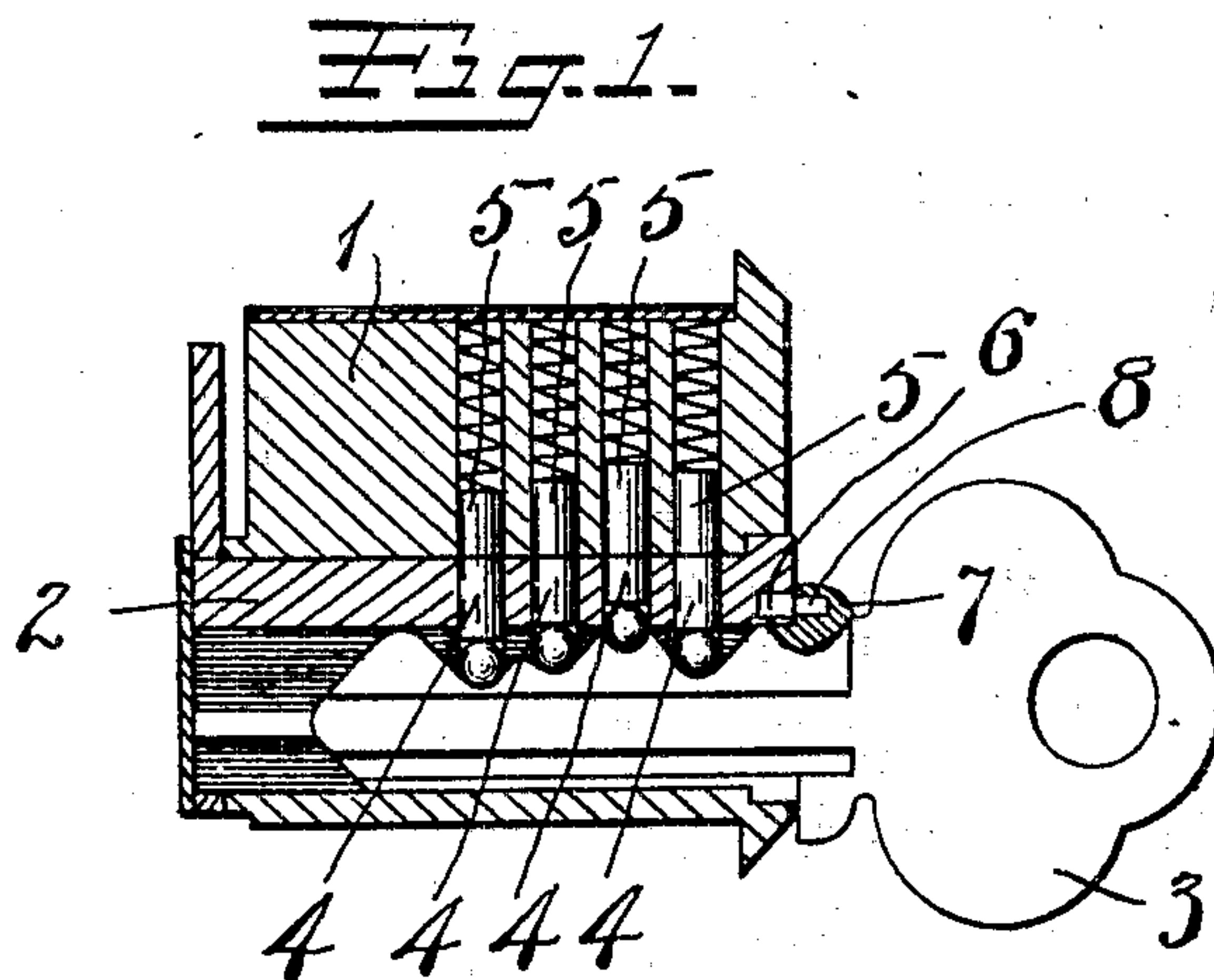


Fig. 2.

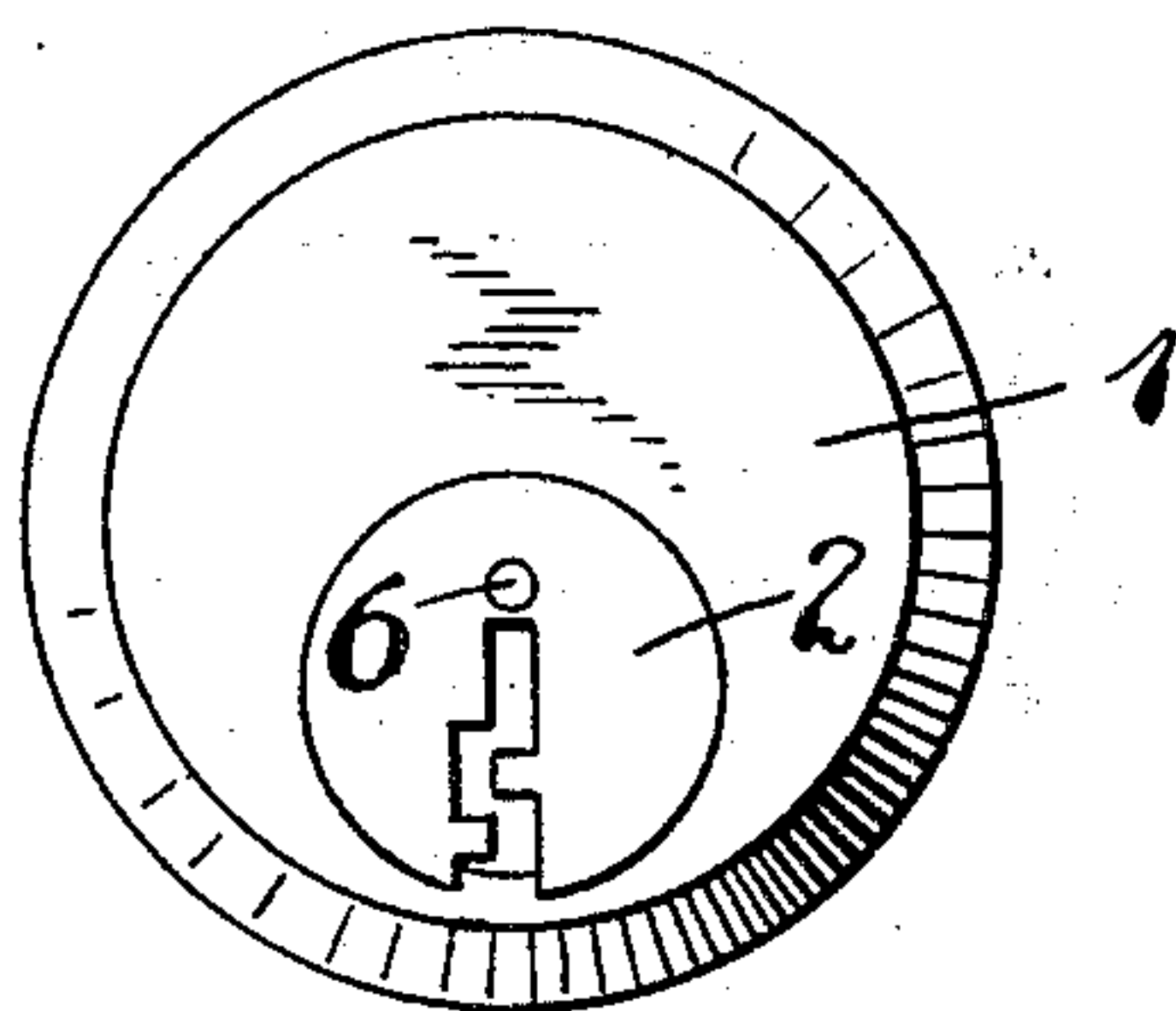
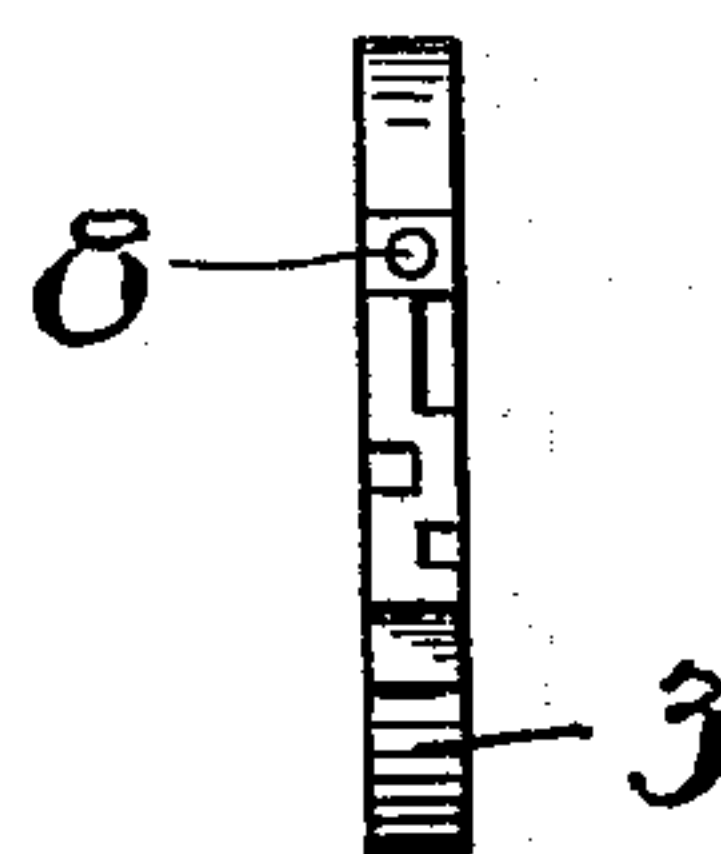


Fig. 3.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## KEY-STOP FOR LOCKS.

No. 929,668.

Specification of Letters Patent.

Patented Aug. 3, 1909.

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*To all whom it may concern:*

Be it known that I, WILLIAM T. HARTMAN, a citizen of the United States, residing at New Britain, county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Key-Stops for Locks, of which the following is a full, clear, and exact description.

My invention relates to improvements in locks, and particularly in pin-tumbler locks, sometimes called "cylinder" locks.

The object of the invention is to provide means to guard against undue wear resulting from the repeated insertion of a key.

In locks of this character the plug portion, and the keys therefor, are ordinarily made of comparatively soft metal, for example brass. I have found that the repeated pushing in of the key tends to wear into that part of the plug encountered thereby, or wear away the key stop, with the result that the key enters to a greater extent than originally designed for the accurate positioning of the several pin tumblers. This results in a failure of the tumblers to aline with accuracy for unlocking. To overcome this defect and to allow for wear and imperfection, some manufacturers resort to the rounding off of the adjacent ends of the tumblers and followers along the line of breakage between the plug and the cylinder. This supposed remedy, however, has its objection in that it makes the unlawful manipulation of the lock comparatively easy. By my improvement, the abutting ends of the pin tumblers and followers may be squared, so that an absolute accuracy of alinement must be effected before the plug is released. Inasmuch as the slightest wear on the key stop, or upon the face of the plug where said stop engages, will permit the key to advance to an undue extent, it follows that the absolute alinement on the breaking line of all of the pins and followers can be obtained (after wear) only by careful manipulation of the key, which is a burden that the ordinary user seriously objects to. Indeed, when such undue wear occurs, the user assumes that the lock is defective, and either discards it or attempts to have the trouble corrected. To correct the trouble, the ordinary method resorted to by locksmiths is to remove the tumblers and followers and round up the ends, impairing greatly the efficiency of the lock and

making the unlawful operation of the same an easy matter. By my invention these objectionable features are eliminated.

In the accompanying drawings, Figure 1 is a longitudinal section of a cylinder lock of conventional form, showing a key therein, and also illustrating my improvement applied thereto. Fig. 2 is an end elevation of the lock with the key removed. Fig. 3 is an end elevation of the key.

1 is the main body or cylinder.

2 is the plug rotatable therein and provided with the usual slotted key-way.

3 is the key.

4—4 are pin tumblers, carried by the plug 2.

5—5 are spring-pressed followers carried by the cylinder 1. As shown, the abutting ends of the tumblers and their companion followers are squared, which is a decidedly preferred construction where a secure lock is desired.

6 is a pin, or key stop-facing, carried by the plug 2, preferably at its outer end, where it is engaged by the bow shoulder of the key 3 when the latter is pushed in. This pin or stop 6 is made of relatively hard material such as steel.

7 represents the bow shoulder of the key 3 and 8 is a pin or stop-facing at the forward end thereof, the same being of relatively hard material, such as steel and arranged to take up against the hardened stop-facing 6 of the plug when the key is pushed in. By providing these hard abutment surfaces, wear at this point is effectively prevented, with the result that when the key 3 is pushed in, the biting thereon is always arranged in exactly the correct position, relatively to the pin tumblers, to operate them to precisely the desired extent to bring the breaking line between the tumblers and followers coincident with the line of division between the plug 2 and main body 1. Where heretofore, the plug 2, or the bow shoulder 7 of the key, where the latter encounters the plug, has become dented or worn, my improvement absolutely prevents this wear or denting, and the great difficulties occasioned thereby are entirely avoided. If the plug 2, or key 3, happens to be made of sufficiently hard material to withstand this wear, of course one or the other of the hardened stops 6—8 might be omitted. I have shown the preferred loca-



tion of the stop feature, although of course it will be appreciated that said location might be changed.

What I claim is:

5 1. In a cylinder lock, a rotatable plug having a key-way therein, tumblers in said plug, and a key-stop carried by said plug in the path of said key to limit the inward excursion of the latter, said stop being made of  
10 harder material than the material of the plug.

2. In a cylinder lock, a rotatable plug having a key-way therein, tumblers in said plug, and a key-stop carried by said plug in the  
15 path of said key to limit the inward excursion of the latter, said stop being made of harder material than the material of the plug and being arranged at the entrance to said plug.

20 3. In a cylinder lock, a rotatable plug having a key-way therein, tumblers in said plug, and a key-stop carried by said plug in the path of said key to limit the inward excursion

of the latter, said stop being made of harder material than the material of the plug and  
25 being arranged at the upper side of the key entrance to said plug.

4. In a pin tumbler lock, a cylinder, a plug rotatable therein, said plug having a key-way, tumblers adjacent to said key-way and  
30 in said plug and arranged to be operated by a key, a key adapted to said key-way and arranged to be inserted therein from the outer end of the plug, a stop carried by said plug at  
its outer end and adjacent to said key-way, 35 said stop being of harder material than the material of the plug, a key, and a stop carried by the key arranged to engage a stop  
carried by the plug, said stop carried by the key being of harder material than the mate- 40 rial of said key.

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Witnesses:

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