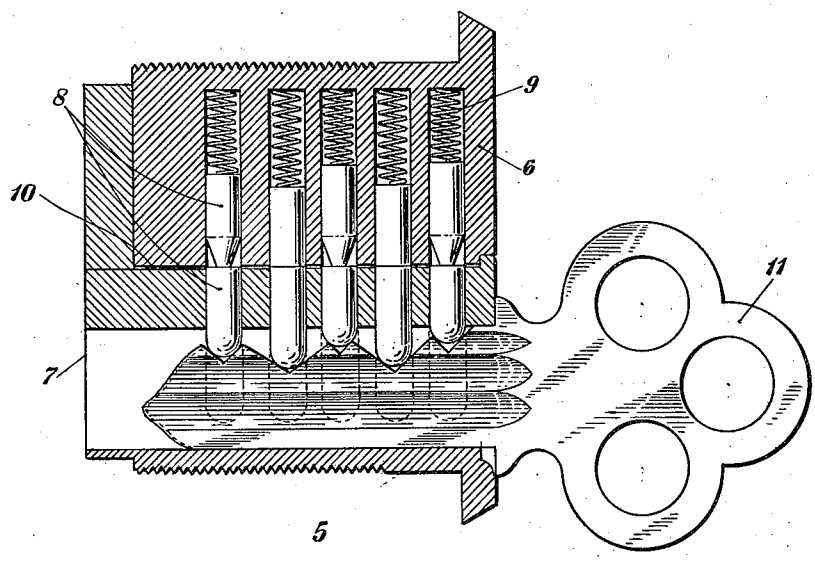
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LOCK

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# UNITED STATES PATENT OFFICE.

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## LOCK.

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This invention relates to improvements in locks, and more particularly to pins or tumblers therefor.

Considerable loss has been experienced by the fraudulent picking of locks by twisting the barrels of the locks, and manipulating the tumblers or pins by wire in such manner, that they are caught against the edges of the barrels in which they fit so that the barrels may be turned and the locks opened.

Accordingly it is an object of this invention to provide means, including a combination of pins or tumblers, to obviate the fradulent picking of locks in this manner.

This and further objects will be apparent from the following description, when considered in connection with the accompanying drawing in which an embodiment of the invention is illustrated.

The figure in the drawing illustrates a side elevation in section, of one form of lock with which the improved arrangement is adapted to be used.

It has been customary in pin tumbler lock construction, especially in locks designed for quantity production, to bevel or taper the ends of the cylindrical pins in the stationary part of the lock. This has been done in order to insure that when the key is withdrawn from the lock and the barrel is not completely returned to its normal position, the beveled or tapered pin tumblers will be pushed back into place, alining the two parts of the tumblers, and locking the barrel against further movement. The bevel or taper also serves to take care of any slight inaccuracies in the alinement of the parts, due to quantity production methods.

It has been found that pin tumblers with beveled or tapered ends are readily picked. This is done by exerting a slight torque on the barrel and working each pin tumbler up and down with a wire. The beveled or tapered ends of the cylindrical pins were then caught against the edges of the chambers in the barrel into which they fit. By tampering with the lock in this manner the pin tumblers are lined up one by one, by means of this beveled or tapered portion, and the barrel may be turned and the lock opened.

Pin tumblers of cylindrical form, and not having beveled or tapered ends, are employed in locks, but these are found to be inexpedient in certain cases because the production methods used on these types of lock do not permit of sufficient accuracy to properly line up the tumblers with the chambers into which they fit.

In the form of lock shown in the drawing, for the purpose of illustration, a casing 5 is provided. This casing is mounted in the usual manner in the wall of a door, or the like, and is provided with a flange 6, which projects slightly from the outer surface of the mounting wall. The lower portion of the casing has a cylinder or barrel 7, mounted therein, in a manner which will permit it to be rotated, and this barrel contains the usual keyhole for the reception of a key.

A series of holes or pin chambers are formed in the casing 5 and a corresponding series in the barrel 7. While in the present instance these chambers are shown as five in number more or less chambers may be provided, as desired. Tumblers or pins 8 are contained and adapted to be reciprocated in each of these chambers. Each pin is divided into two parts. The upper part may be termed the driver and the lower part the pin. Above each driver is a comparatively light spring 9 which tends to press the drivers and pins in a downward direction. In their normal positions the drivers intersect the joint between the casing 5 and the barrel 7, and prevent the rotation of the latter. To open a lock under normal conditions, all the pins must be raised simultaneously to just the proper height. This is accomplished by a key 11, such as illustrated, which has the proper combination of corrugations to operate the pins as outlined. The key 11, indicated, has its blade or portion which enters the lock, corrugated in longitudinal lines, and the lock has formed in it a keyhole of sinuous cross-section conforming to that of the key.

The lock shown in the drawing is provided, for the purpose of illustration, with a central tumbler and terminating tumblers having driver portions with beveled or tapered ends engaging with their associated lower pin portions. The intermediate tumblers are unbeveled or untapered, and the drivers and pins present a continuous symmetrical cylindrical surface throughout. The tapered driver portions of the tumblers, with their self-alining properties, will line up the coinciding chambers in the casing and barrel, thus permitting the intermediate untapered driver members to snap into place when the key is

withdrawn. This materially increases the difficulty of picking a lock in the manner described because the untapered driver portions of the tumblers do not have the tendency of slipping upward in their chambers by reason of any torque which may be exerted on the barrels.

While there is shown and described herein a certain form of the invention, by way of illustration, it is understood that it is not limited or confined to the precise details of construction herein described and delineated, as modification and variation may be made within the scope of the claims without departing from the spirit of the invention.

What is claimed is:

1. A lock comprising a casing, a movable barrel therein, a plurality of chambers in the casing, a corresponding set of chambers in the barrel adapted to be brought into alinement therewith, a member movable in each of the alined chambers comprising a pin and a driver, certain of the drivers being beveled at their meeting points with their associated pins, and other of said drivers being unbeveled at such points.

2. A lock comprising a casing, a movable barrel therein, a plurality of chambers in the casing, a corresponding set of chambers in the barrel adapted to be brought into alinement therewith, a member movable in each of the alined chambers comprising a pin and a driver, certain of the drivers being beveled at their meeting points with their associated pins, and other of said drivers being unbeveled at such points, whereby the beveled drivers aline themselves with their associated pins and the unbeveled drivers obviate the tendency of slipping upward by reason of torque exerted on the barrel.

In testimony whereof, I have signed my name to this specification this 16th day of February 1927.

WILLIAM H. EDWARDS.