May 11, 1943. H. G. RAMSELL ET AL 2,318,887

KEY FOR CYLINDER LOCKS

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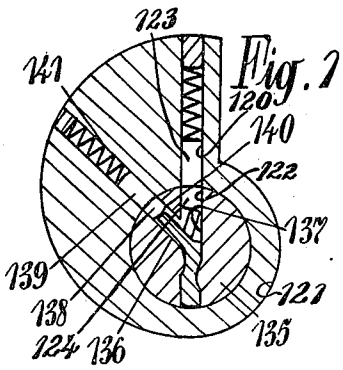


Fig. 1

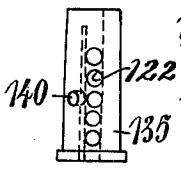


Fig. 2

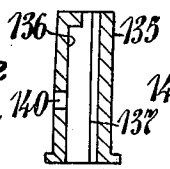


Fig. 3

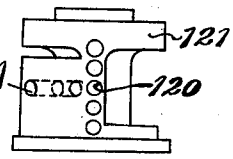


Fig. 4

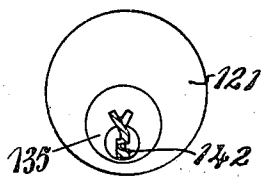


Fig. 5

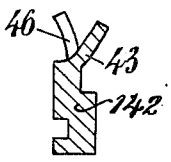


Fig. 6

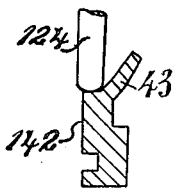


Fig. 7

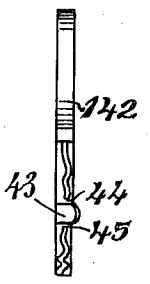


Fig. 9

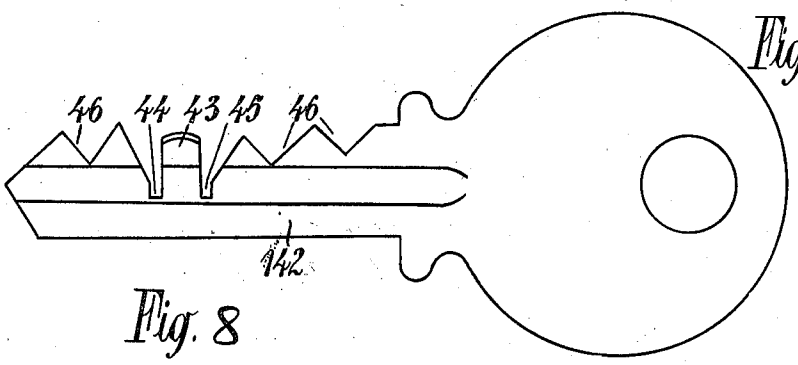


Fig. 8

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KEY FOR CYLINDER LOCKS

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Application April 20, 1939, Serial No. 268,866
In Great Britain April 28, 1938

6 Claims. (Cl. 70—401)

This invention relates to keys for use with cylinder locks, and more particularly, for use with cylinder locks of a particular construction employing pin tumblers.

Even more particularly, our invention relates to a key adapted for use with a pin tumbler cylinder lock having a series of tumblers and drivers mounted in the usual vertical bores, and one or more pin tumblers and drivers in bores formed at an angle to the usual vertical bores, and with the key ways whereby the said pin tumblers and drivers are operated, being in communication. For cooperation with a lock of this type, the key of our invention is formed with one or more offset projections in its blade, and with the edge of the projections bitted for cooperation with the pin tumblers and drivers which are mounted in the said angular bores we have just described, the remainder of the blade of the key being adapted for cooperation with the usual pin tumblers and drivers mounted in the vertical bores of the cylinder.

For a description of our invention we shall refer to the drawing wherein Fig. 1 is a cross section of a pin tumbler lock showing the key of our invention mounted within a cylinder of the type having vertically positioned pin tumblers and drivers, and angularly positioned pin tumblers and drivers. Fig. 2 is a plan view of the key plug of the cylinder lock of Fig. 1, and Fig. 3 is a section through the same key plug. Fig. 4 is a plan view of a cylinder lock of Fig. 1 while Fig. 5 is a front elevation thereof, with the key cut away and its section indicated. Figs. 6 and 7 are enlarged sections of the key, while Figs. 8 and 9 are respectively an elevation and a plan view of the key.

Referring now more particularly to the drawing, the cylinder lock 121 of my invention is provided with a key plug 135 having the usual vertical keyway broaching 137 and a supplementary keyway broaching 136 at an angle thereto, and with portions of each of the broachings being coincident. In alignment with the usual vertical broaching 137 there are a series of bores 120 in the cylinder 121, and a series of bores 122 within the key plug 135. Mounted for operation in the said bores are the usual drivers 123 and tumblers 124. Communicating with the supplementary broaching 136 there is a bore 140 within the key plug 135, and a bore 141 in the cylinder 121. In these bores there is mounted a pin tumbler 138 and a driver 139.

Those skilled in the art will readily appreciate that the supplementary broaching 136 may be terminated before it reaches the end of the plug 135 and that the bores 140 and 141 of the key plug and cylinder may be formed at any desired point, and may lie in the same transverse plane as one of the vertically arranged tumblers and drivers, or in an offset transverse plane.

For cooperation with a lock of the type we have herein set forth, we utilize the key best shown in Figs. 8 and 9 and designated by reference numeral 142. The key 142 is of the usual type well known in the art with the exception that it has a special projection 43 which is formed by bending over or offsetting a part of the blade of the key, the degree of offsetting being such so as to align the projection 43 with the supplementary broaching 136. With such an alignment, the projection 43 is adapted to operate the pin 138 and the driver 139 and to release the key plug 135 for rotation, it being appreciated that the remaining bittings 46 of the key blade will cooperate with the usual vertical tumblers and drivers 124 and 123.

To aid in the forming of the projection 43, the key blade may be cut as illustrated at 44, 45 in Fig. 8, this greatly facilitating the bending over operation, as will be appreciated. If desired, the base of the projection 43 may be adapted for positioning one of the vertical tumblers 124 as is best illustrated in Fig. 7. In such a case, it will be possible to utilize an angular tumbler and driver in the same plane as a vertical tumbler and driver.

When the projection 43 is in the middle of the key blade as in Fig. 8, and its base is deep relatively to the key blade, then the contour of the key edge to each side of the projection must be so related to the bitting or recess formed at the base of the projection as to cam the tumblers upwardly from the said bitting when the key is inserted or removed from the key plug. When the projection is at the bow end of the key, naturally only the contour of the key at one side of the projection must be so particularly formed.

We believe that our invention and its operation will now be readily understood.

We claim:

1. A key for a lock comprising a blade the edge of which is bitted for cooperation with a series of tumblers, a portion of said blade leading to said edge being offset out of the plane of the remainder of said blade whereby the edge of said offset portion may be bitted to cooperate with a tumbler angularly related to the said series of tumblers cooperating with the bittings of the remainder of the edge of the blade.

2. A key for a lock comprising a blade the edge of which is bitted for cooperation with a series of tumblers, a portion of said blade being offset out of the plane of the remainder of said blade whereby the edge of said portion may be bitted to cooperate with a tumbler angularly related to the said series of tumblers cooperating with the bittings of the remainder of the blade, the key blade at the base of said offset portion being formed so as to be adapted for bitting also to cooperate with a tumbler comprising one of said series of tumblers.

3. A key for a lock comprising a blade the edge of which is bitted for cooperation with a series of tumblers, a portion intermediate the length of said blade being offset out of the plane of the remainder of said blade whereby the edge of said portion may be bitted to cooperate with a tumbler angularly related to said series of tumblers cooperating with the bittings of the remainder of the blade, the key edge contour to each side of the base of said offset portion being so formed relatively thereto as to cam upwardly the said series of tumblers which press against said base as said key is inserted and withdrawn from the keyway of the plug with which it cooperates.

4. A key for a lock comprising a blade the edge of which is bitted for cooperation with a series of tumblers, a portion of said blade being offset out of the plane of the remainder of said blade whereby the edge of said portion may be bitted to cooperate with a tumbler angularly related to said series of tumblers cooperating with the bittings of the remainder of the blade, the key edge contour at one side of the base of said offset portion being so formed relatively thereto as to cam upwardly the said series of tumblers which press against said base as said key is withdrawn from the keyway of the plug with which it cooperates.

5. A key for a lock comprising a blade the edge of which is bitted for cooperation with a series of tumblers, a portion intermediate the length of said blade being offset out of the plane of the remainder of said blade whereby the edge of said portion may cooperate with a tumbler angularly related to said series of tumblers cooperating with the bittings of the remainder of the blade, the key blade at the base of said offset portion being formed so as to be adapted for bitting also to cooperate with a tumbler comprising one of said series of tumblers, the key edge contour to each side of the base of said offset portion being so formed relatively thereto as to cam upwardly the said series of tumblers as they press against said base when the key is inserted and withdrawn from the keyway of the plug.

6. A key for a lock comprising a blade the edge of which is bitted for cooperation with a series of tumblers, a portion intermediate the length of said blade being offset out of the plane of the remainder of said blade whereby the edge of said portion may cooperate with a tumbler angularly related to said series of tumblers cooperating with the bittings of the remainder of the blade, the key blade at the base of said offset portion being formed so as to be adapted for bitting also to cooperate with a tumbler comprising one of said series of tumblers, the key edge contour at one side of the base of said offset portion being so formed relatively thereto as to cam upwardly the said series of tumblers as they press against said base when the key is withdrawn from the keyway of the plug.

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