Oct. 6, 1931. E. HANSEN ET AL 1,826,615

KEY FOR DIFFERENT LOCKS

Filed Aug. 5, 1929

Fig. 1

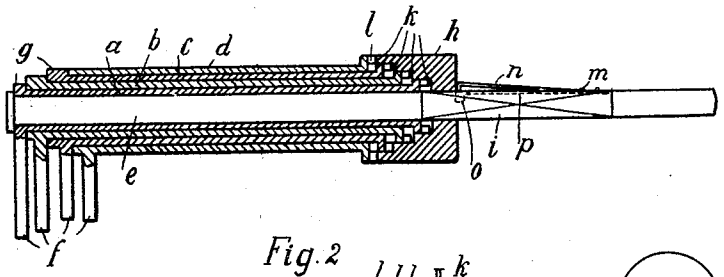


Fig. 2

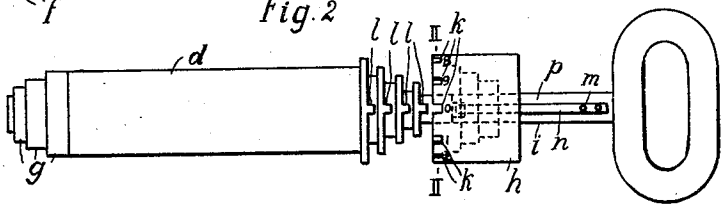


Fig. 3

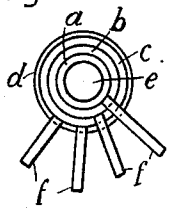
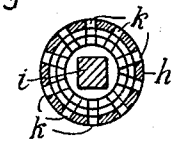


Fig. 4



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UNITED STATES PATENT OFFICE

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KEY FOR DIFFERENT LOCKS

Application filed August 5, 1929, Serial No. 383,469, and in Germany June 13, 1929.

This invention relates to a key suitable for different locks or for combination locks.

The primary object of the invention is to provide a key which may easily be adapted to various desired possible positions of the tumbler. One other object of the invention is to prevent the improper use of the keys, and a further object is to afford facilities for the proper adjustment of the parts of the key in their operative positions or for permitting them to be arranged in an unusual order.

A few constructional forms of the invention are shown in the drawings. Fig. 1 shows in longitudinal section one constructional form of the key. Fig. 2 shows a top plan of the key. Fig. 3 shows an end view and Fig. 4 shows a section according to the line II—II of Fig. 2.

The key shown in Figs. 1 and 2 comprises the sleeve-like shank parts *a*, *b*, *c* and *d*, which are arranged telescopically and rotatably over a shaft or spindle *e* and on the front ends of said shank parts projecting key bits are arranged one behind another.

The front extremities of the sleeves *a*—*d* are kept apart from one another by means of collars *g*. The rear ends of the sleeves are set off stepwise in relations to one another and are arranged opposite to a ring *h*, which is arranged to slide without rotating upon the shaft *e*. For this purpose the part of the shank *i* of the key which serves as a guide for the ring *h* is preferably designed of any other but round section, say square. The front part of the ring *h* is hollowed out in steps and is provided with slots *k* open towards the front. On the ends of the sleeves, *a*, *b*, *c*, *d* adjacent the ring teeth *l* are provided, which engage in the slots *k* when the ring *h* is pushed into the position shown in Fig. 1. The ring *h* is retained in this position by means of an abutment which can either be put into or out of action, for instance by means of a flat spring *n* arranged and fixed at *m* on the shank *e* of the key, the front end of this spring having the tendency to spring outwards. In the shank *e* a groove *p* ending in a recess *o* is provided into which the spring may enter, so as to release the ring *h* and allow it to be withdrawn to released position shown in Fig. 2. The number of the slots *k* may be chosen as desired. For the purpose of differentiating the slots they may be for instance numbered with the numbers 0–9. The number of the sleeves can also be chosen ad-lib, and is dependent upon the number of the desired different positions of the key bits *f*.

For the purpose of making the key ready for use, the ring *h* is pushed back into position shown in Fig. 2, whereupon the sleeves *a*, *b*, *c*, and *d* are turned, until the key bits *f* are adjusted to the desired position. Thereupon the ring *h* is pushed forward into the position shown in Fig. 1, so that the teeth *l* engage into the corresponding slots *k* of the ring *h*, and the latter strikes against the sleeves *a*—*d*. In this position the ring *h* releases the spring *n* which then retains the ring in its operative position.

It will be seen from the foregoing that the invention provides a key in which the angular distance between the bit portions can be changed in any desired manner, so as to dispose said bit portions different relative degrees apart. As a result, the bit portions of the key may be arranged in a manner known only to the owner of the key for locking or unlocking any particular lock. The key may also be used for the unlocking and locking of a number of different locks, by adjusting the bit portions of the key to suit the several locks in connection with which it is used. If desired, the ring *h* may be provided with a suitable scale or indicating marks to facilitate the adjustment of the bit portions to different relative working positions.

Having thus described our invention, we claim:

1. A lock key consisting of a shank having a handle at one end, a nested series of independently revoluble sleeves concentrically mounted to revolve on the shank and terminating forwardly in stepped relation, bits each extending laterally from the forward end of a respective sleeve, and means on the shank adjacent the handle movable longitudinally of the handle to engage the rear ends of said sleeves and hold them in adjusted positions.

2. A lock key consisting of a shank having a handle at one end, a nested series of independently revoluble sleeves concentrically mounted on the shank to revolve relative thereto, said sleeves being arranged at their forward ends in rearwardly stepped relation from the shank outwardly thereof, bits each extending laterally from the forward end of a respective sleeve, radial teeth each carried on the rear end of a respective sleeve, and a locking sleeve slidably mounted on the shank between said first sleeves and the handle and provided with radial slots for engagement with said teeth, said locking sleeve and shank being provided with coacting means for preventing relative rotation of one with respect to the other.

3. A lock key consisting of a shank having a handle at one end, a nested series of independently revoluble sleeves concentrically mounted on the shank to revolve relative thereto, said sleeves being arranged at their forward ends in rearwardly stepped relation and at their rear ends in forwardly stepped relation, bits each extending laterally from the forward end of a respective sleeve, radial teeth each projecting from the rear face of a respective sleeve, and a locking sleeve slidably but non-rotatably mounted on said shank between the handle and sleeves, said locking sleeve having a recess at its forward end provided with internal shoulders each having a series of radial grooves to selectively receive respective teeth.

4. A lock key consisting of a shank having a handle at one end, a nested series of independently revoluble sleeves concentrically mounted to revolve on the shank and terminating forwardly in stepped relation, bits each extending laterally from the forward end of a respective sleeve, means on the shank adjacent the handle movable longitudinally of the handle to engage the rear ends of said sleeves and hold them in adjusted positions, and a spring latch releasably holding said means in sleeve locking position.

5. A lock key consisting of a shank having a handle at one end, a nested series of independently revoluble sleeves concentrically mounted on the shank to revolve relative thereto, said sleeves being arranged at their forward ends in rearwardly stepped relation from the shank outwardly thereof, bits each extending laterally from the forward end of a respective sleeve, radial teeth each carried on the rear end of a respective sleeve, a locking sleeve slidably mounted on the shank between said sleeves and the handle and provided with radial slots for engagement with said teeth, said locking sleeve and shank being provided with coacting means for preventing relative rotation of one with respect to the other, and a spring latch carried by the shank and releasably holding the locking sleeve in engagement with the nested sleeves.

6. A lock key consisting of a shank having a handle at one end, a nested series of independently revoluble sleeves concentrically mounted on the shank to revolve relative thereto, said sleeves being arranged at their forward ends in rearwardly stepped relation and at their rear ends in forwardly stepped relation, bits each extending laterally from the forward end of a respective sleeve, radial teeth each projecting from the rear face of a respective sleeve, a locking sleeve slidably but non-rotatably mounted on said shank between the handle and sleeves, said locking sleeve having a recess at its forward end provided with internal shoulders each having a series of radial grooves to selectively receive respective teeth, and a spring latch carried by the shank and releasably holding the locking sleeve in engagement with the nested sleeves.

In testimony whereof we have affixed our signatures.

ELI HANSEN.
I. PODERŽAJ.