

(Model.)

2 Sheets—Sheet 1.

H. G. VOIGHT.
CYLINDER LOCKS AND KEYS.

No. 480,299.

Patented Aug. 9, 1892.

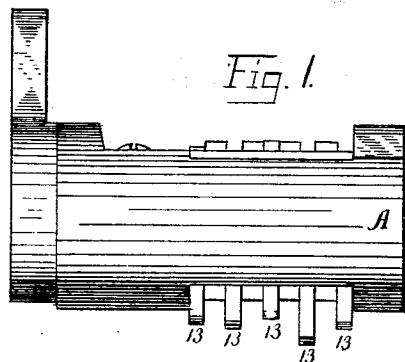


Fig. 1.

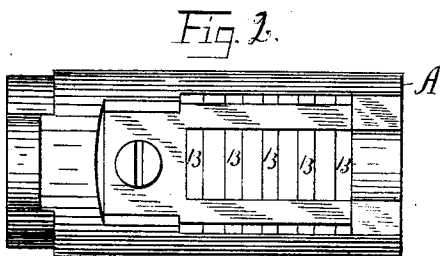


Fig. 2.

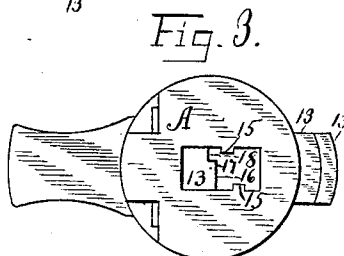


Fig. 3.

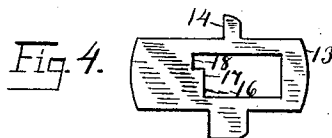


Fig. 4.

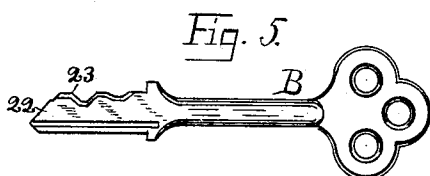


Fig. 5.

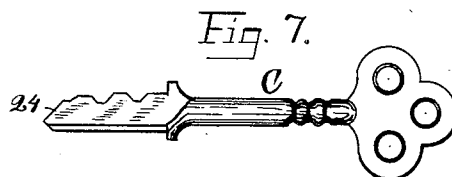


Fig. 7.



Fig. 6.



Fig. 8.

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Fig. 9.

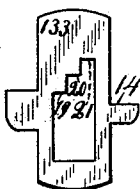


Fig. 10.

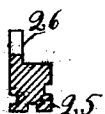


Fig. 11.

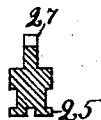
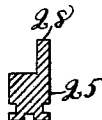


Fig. 12.



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UNITED STATES PATENT OFFICE.

HENRY G. VOIGHT, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE RUSSELL & ERWIN MANUFACTURING COMPANY, OF SAME PLACE.

CYLINDER LOCKS AND KEYS.

SPECIFICATION forming part of Letters Patent No. 480,299, dated August 9, 1892.

Application filed September 15, 1891. Serial No. 405,793. (Model.)

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Cylinder Locks and Keys, of which the following is a specification.

My invention relates to improvements in cylinder locks and keys; and one of the objects of my improvement is to adapt a series of different keys to one lock, while at the same time each key is also adapted to a special lock of its own.

In the accompanying drawings, Figure 1 is a side elevation of my cylinder-lock without its case. Fig. 2 is a plan view of the same. Fig. 3 is an end view. Fig. 4 is a detached broadside view of one of the tumblers. Fig. 5 is a side elevation, on a reduced scale, of one of the keys for said lock. Fig. 6 is a plan view of the same. Fig. 7 is a side elevation of another key for said lock. Fig. 8 is a plan view of the same. Fig. 9 is a detached broadside view of another tumbler for one of my locks, the same being on a scale corresponding with that of Figs. 1 to 4. Fig. 10 is a transverse section of one of the keys for the lock having the tumbler Fig. 9, the plane of section being through that part of the key that sets said tumbler. Fig. 11 is a like view of the master-key for a set of said locks, and Fig. 12 is a like view of a key for a similar lock in said set.

The class of cylinder or pin-tumbler locks is so well known that I consider it unnecessary to show the boltwork of the lock and its connection with the tumbler-cylinder A or even the case for said cylinder; neither do I consider it necessary to show and describe in detail the internal construction of the cylinder, as it is in its general construction of an ordinary and well-known form.

The tumblers 13 are constructed of flat sheet metal with a side arm 14. They are arranged to move transversely to the cylinder, so that their ends may project from or be brought even with the periphery of the cylinder, and they are pressed in one direction by means of springs within the cylinder, substantially as in ordinary pin-tumbler or cyl-

inder locks. For example, a spiral spring may be set in the cylinder, with one end pressing upon the arm 14 of the tumbler to force the tumbler in an endwise direction. The cylinder is provided with the usual longitudinal keyway, only I make it wider than usual, and I prefer to form wards 15 of any ordinary construction at the outer end of said keyway, as shown in Fig. 3. Each tumbler is also provided with a general keyway, at one end of which I form a plurality of sub-keyways, as 16, 17, and 18 in Fig. 4 and at 19, 20, and 21 in Fig. 9.

I prefer to make the keys as shown in Figs. 5 to 8, in which the key B has two blades 22 and 23 arranged side by side, with a groove between them, said blades being connected by a back common to both, while their bitted edges stand facing in the same general direction. Suppose one lock is placed on the front or main door of a house or flat and different locks on the different rooms. The blade 22 of the key B may be bitted to fit the front-door lock—say, for instance, on that line of sub-keyways of the tumblers within which is the sub-keyway 16, Figs. 3 and 4—while the other blade 23 is bitted to fit some particular lock of one of the different rooms, said blade passing through the tumbler on a line corresponding in position with the sub-keyways 18. Another similar key may be formed for all the rooms, one blade of which, corresponding in position to the blade 23, is bitted to fit its own lock, while the other blade, like the blade 22 in the key B, is bitted to fit the front-door lock, and so on for the different room-keys. The sub-keyways in the tumbler of the front-door lock which come in the line of the blades for the room-locks, as at 18, may be cut deeply enough to be idle when the key is inserted in said front-door lock, whereby a greater range will be given for bitting the room-keys with various changes. Thus it will be seen that each room-key will fit only its own lock on any room, while at the same time the different keys for each room will any of them fit the front-door lock. In addition to said keys I make a master-key C with one central blade 24, as shown in Figs. 7 and 8, and I cut or form the middle sub-keyways 17 in the front-

door lock and all the room-locks alike, so that the master-key may be bitted to pass them all. The middle sub-keyways and that on one side—as, for instance, at 17 and 16 in Fig. 4—
 5 may be alike, in which case the blade of the master-key will be bitted like the blade 22 of the two-bladed room-keys; but they may be bitted differently, if desired, by making the sub-keyways for the master-key and front-door key in different planes for all or part of
 10 their tumblers. If desired, the middle sub-keyway and the master-key may be omitted. Thus it will be seen that a series of different keys are all made to pass one lock, which is
 15 substantially the reverse of a master-key lock, wherein one key operates a number of locks.

In order to illustrate the further adaption of my lock the tumblers of which have a plurality of sub-keyways, I have shown one tumbler 133 and a transverse section of three different keys for a master-key lock. The general form of the lock is the same as shown in
 20 Figs. 1 to 3. The sub-keyways at one end of the general passage-way or opening in the tumblers is divided into three sub-keyways 19, 20, and 21. The back 25 of all the keys is of a width to fit the general key-passage, and its sides and bottom may be grooved for different guards in different locks. In the key
 25 Fig. 10 the blade 26 projects from the back near one side and is bitted to act on the tumblers on the line of the sub-keyways 19. When there are three sub-keyways in the tumblers for a master-key lock, half of the
 30 keys for the locks in the set would have their blade at one point—as, for instance, on the left, as at 26 in Fig. 10—and the locks would have their tumblers differently bitted on the corresponding line of the sub-keyways 19, so
 35 that no two keys would pass the same lock, while the other half of the keys would have the blade at another point—as, for instance, on the right, as at 28 in Fig. 12—and the locks have their tumblers differently bitted on the
 40 corresponding line of sub-keyways 21, whereby twice as many changes can be made in the different locks than could be the case if the biting were all on one line. The master-key would have its blade on still a different point—
 45 as, for instance, the middle, as at 27 in Fig. 11—and the tumblers in all the locks bitted to fit said key-blade on the corresponding line of sub-keyways 20. The ward-grooves in the master-key, Fig. 11, may be made wide enough
 50 to take in the wards of the different locks. While I have shown the master-key as fitted to act on the middle line of sub-keyways, it is only essential to a master-key lock that the master-key be fitted to act on one line of sub-
 55 keyways, either the middle or one of the side lines, and the other keys fitted to act on the

other lines of sub-keyways. While three or more sub-keyways give a greater number of changes in the different locks of the set, it is evident that the same construction can be
 65 embodied in a set of master-key locks having only two lines of sub-keyways, one for the master-key and the other for the individual keys.

Having thus described different constructions and applications for carrying out the general plan of a lock or set of locks having a plurality of sub-keyways, other constructions and applications of the same will be readily suggested to those skilled in the art,
 75 and I consider it unnecessary to further describe the same.

I claim as my invention—

1. In a cylinder-lock, a set of tumblers having a general keyway and a plurality of sub-
 80 keyways, substantially as described, and for the purpose specified.

2. A key for cylinder-locks, having two blades arranged side by side, with their bitted edges facing in the same general direction,
 85 one of which is bitted to fit one lock and the other of which is bitted to fit a different lock, substantially as described, and for the purpose specified.

3. The improvement in cylinder locks and keys, which consists of a set of locks, a set of keys, each of which is fitted to one lock in said set without fitting the other lock thereof,
 90 and a main door-lock common to all of said keys, substantially as described, and for the purpose specified.

4. The improvement in cylinder locks and keys, which consists of a set of locks and a main door-lock, the tumblers of which are provided with sub-keyways on two different
 100 lines, and a set of two-bladed keys, one of which is bitted to act in common on one line of said sub-keyways in said set of locks and in the main door-lock and the other blade of which is bitted to the different locks on the
 105 other line of sub-keyways, substantially as described, and for the purpose specified.

5. The improvement in cylinder locks and keys, which consists of a main door-lock and set of room-locks, the tumblers of which have
 110 three sub-keyways, a set of two-bladed keys, one blade of which is bitted to fit the main door-lock and the other to fit one room-lock in said set, and a master-key common to all of said room-locks and main door-lock, substantially
 115 as described, and for the purposes specified.

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Witnesses:

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