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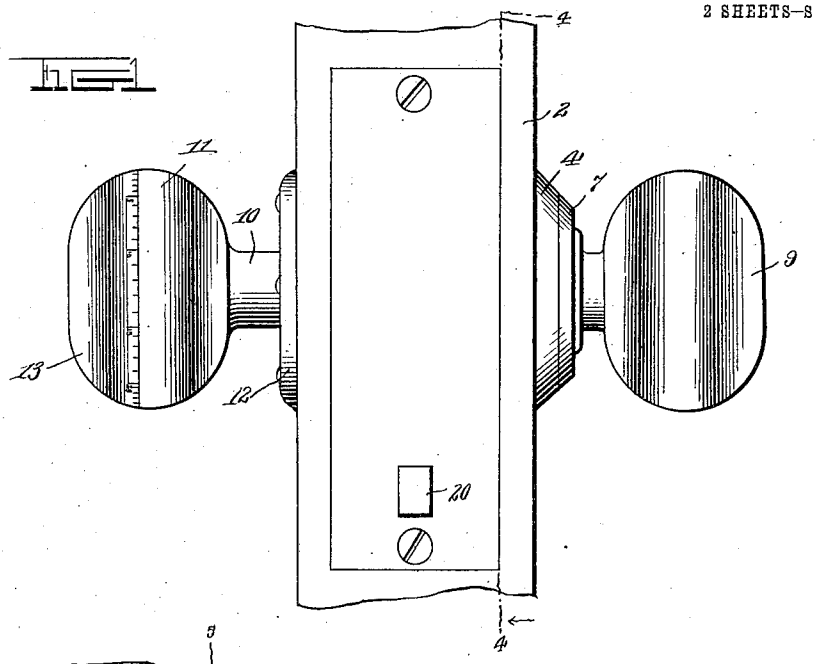
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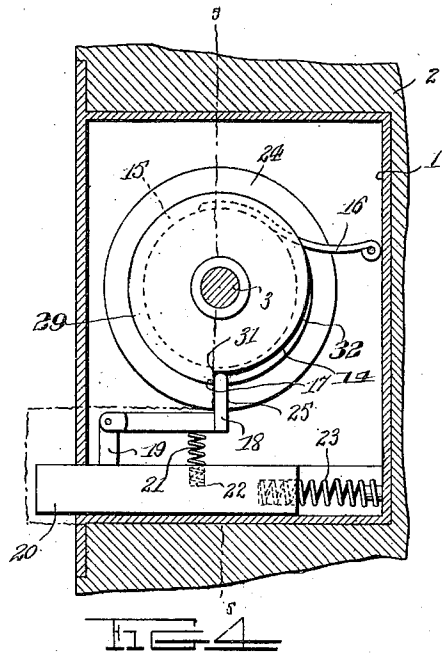
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1,083,008.

Patented Dec. 30, 1913.

2 SHEETS—SHEET 1.





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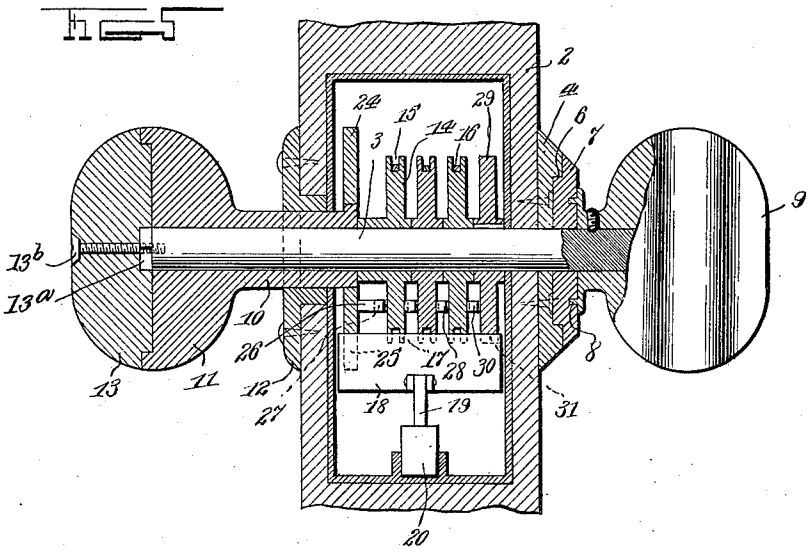
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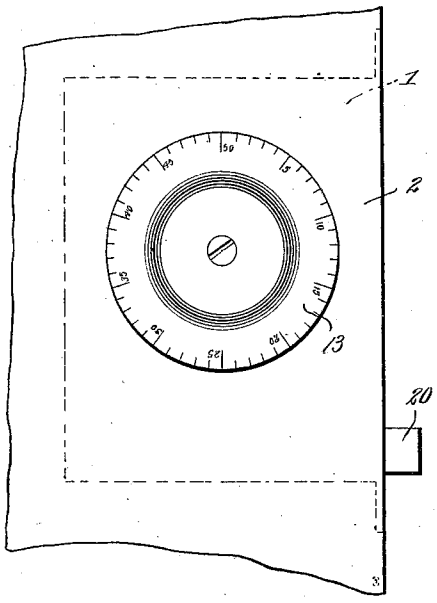
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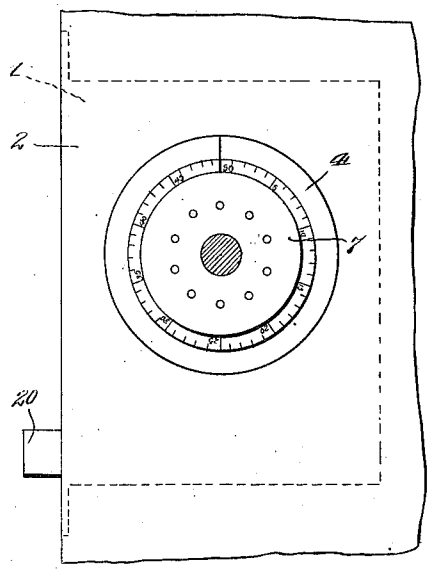
1,083,008.

Patented Dec. 30, 1913.

2 SHEETS—SHEET 2.







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UNITED STATES PATENT OFFICE.

AUGUST FISCHER, OF LA FAYETTE, INDIANA.

PERMUTATION-LOCK.

1,083,008. Specification of Letters Patent. Patented Dec. 30, 1913.

Application filed November 11, 1910. Serial No. 591,832.

To all whom it may concern:

Be it known that I, AUGUST FISCHER, a citizen of the United States, residing at La Fayette, in the county of Tippecanoe and State of Indiana, have invented new and useful Improvements in Permutation-Locks, of which the following is a specification.

This invention relates to permutation locks and the object of the invention broadly is to provide a tumbler controlling shaft which also is adapted to operate and release the latching bolt.

A further object of the invention is the provision of a permutation lock which may be operated independent of the tumblers from the inside at all times and means for locking the latching bolt from operation from the outside.

Further objects of the invention will appear as the following specific description is read in connection with the accompanying drawing which forms a part of this application, and in which:

Figure 1 is an edge elevation of a door showing the invention applied thereto in the form of a mortise lock. Fig. 2 is a detail inside elevation of the door showing the inner knob in elevation. Fig. 3 is a detail outside elevation of the door the knob removed. Fig. 4 is a vertical section through the lock taken on the line 4—4 of Fig. 1. Fig. 5 is a vertical section taken on the line 5—5 of Fig. 4.

Referring more particularly to the drawings and especially to Figs. 1 to 5, 1 represents the casing which is adapted to be set into a mortise formed in the door 2 and which is provided with an operating shaft 3 passing through the center thereof and through a dial plate 4 which is secured to the door on the outside thereof. The dial-plate is recessed as shown in Fig. 5 so as to receive an annular shoulder 6 formed on the dial 7 which is provided with a plurality of apertures adapted to receive the locking pins 8 carried by the operating knob 9 which is removably mounted upon the shaft 3 for the purpose of changing the combination. The opposite end of the shaft is journaled in a sleeve 10 which has a half knob 11 secured to its outer end and this sleeve is extended into the casing and journaled in a disk 12 secured to the door. The outer end of the shaft 3 has connected to its screwed end 13^a by a screw 13^b a half knob 13 which completes the inner knob of the door and which is provided with graduations so that the tumblers 14 upon the shaft may be properly set from the inside when necessary.

There are three tumblers shown all of which are provided with peripheral grooves 15 adapted to receive tension springs 16 carried by the casing to prevent their accidental turning upon the shaft and each disk is provided with an inwardly extending notch 17 which is adapted to be engaged by an operating pawl 18. This pawl is pivoted upon an upstanding lug 19 carried by the latching bolt 20 and is normally held in engagement with the disks by a spiral spring 21 which is seated in the recess 22 formed in the upper face of the latching bolt. The latching bolt is normally projected as shown, by a spiral spring 23 arranged between its rear end and the rear end of the casing 1.

Keyed to the sleeve 10 is a disk 24 having a notch 25 extending inwardly from its periphery which is adapted to constantly receive the pawl 18 so that by turning the sleeve through the half knob 11 the bolt may be retracted against the tension of the spring 23. This disk 24 is somewhat larger than the adjoining disks or tumblers and being in constant engagement with the pawl 18 needs no pins, it is, however, provided with a pin 26 which lies in the path of a similar pin 27 carried upon the adjoining disk 14 so that the adjoining disk will have its notch 17 in position to receive the pawl when the pin 27 is in engagement with the pin 26. The disks or tumblers 14 are provided with pins 28 extending on either side thereof and adapted to overlap the pins on adjoining disks so as to interconnect said disks at certain times when the shaft is rotated.

Rigidly secured to the shaft 3 is a cam 29 which is provided with a laterally extending pin 30 adapted to contact with the pin 28 on the adjoining disk and operate the same and other disks so that by the alternate rotation in opposite directions the tumblers or disks may be set into position with their notches 17 adapted to receive the pawl 18. The cam 29 is also provided with a shoulder 31 which is adapted to contact with the pawl 18 when all of the disks have their notches engaged by the pawl so that the rotation of the knob 9 to the left will cause the retraction of the pawl and the bolt 20.

In the operation of the device we will say

that the combination is 51, 52, 60 and 20. By rotating the knob 9 to the left until the dial 7 has the 51 mark in register with the zero line, the pin 27 will be brought into engagement with the pin 26 and the notch in the disk adjoining the disk 24 will be alined so as to receive the pawl, the pawl being held out of said notch by the remaining disks. Rotation in the opposite direction will by the engagement of the overlapping pins on the disks bring the notch of the next disk into alinement with the notch of the first disk and ready to receive the pawl as the dial has its mark 52 brought into register with the zero line. Rotation to the left again will cause the third disk to be set with its notch alined to receive the pawl and upon another rotation of the knob to the right the cam will be carried around until the number 20 on the dial is alined with the zero line. By rotating the knob to the left the bolt may then be retracted. If the knob is further rotated to the right the cam surface will wipe the pawl out of engagement with all of the notches and thereby prevent the operation of the bolt until the combination is again set.

Having thus described the invention, what is claimed is—

1. A lock comprising a casing, a shaft journaled therein, a plurality of tumblers on the shaft, a knob secured to the shaft, a knob loosely mounted on the shaft, a latching bolt, means operated by said loosely mounted knob for retracting the latching bolt, means for interlocking the tumblers with said means, and means for throwing said bolt operating means to inoperative position.

2. A lock comprising a casing, a shaft journaled therein, a plurality of tumblers on the shaft, a knob secured to the shaft, a knob loosely mounted on the shaft, a latching bolt, means operated by said loosely mounted knob for retracting the latching bolt, means for interlocking the tumblers with said means, and a cam wheel connected to the shaft for throwing said bolt operating means to inoperative position.

3. A lock comprising a casing, a shaft journaled therein, a plurality of tumblers on the shaft, a knob secured to the shaft, a second knob loosely mounted upon the shaft, a latching bolt, means for operating said latching bolt, means permanently connecting the loose knob with the latching bolt operating means, means to interlock the tumblers with said latching bolt operating means whereby the same may be operated from the shaft, and means to disconnect the latching bolt operating means from the tumblers.

In testimony whereof I affix my signature in presence of two witnesses.

AUGUST FISCHER.

Witnesses:
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TERESA WALL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."