No. 898,417. PATENTED SEPT. 8, 1908.

J. P. GERAGHTY.

PERMUTATION LOCK.

APPLICATION FILED NOV. 22, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

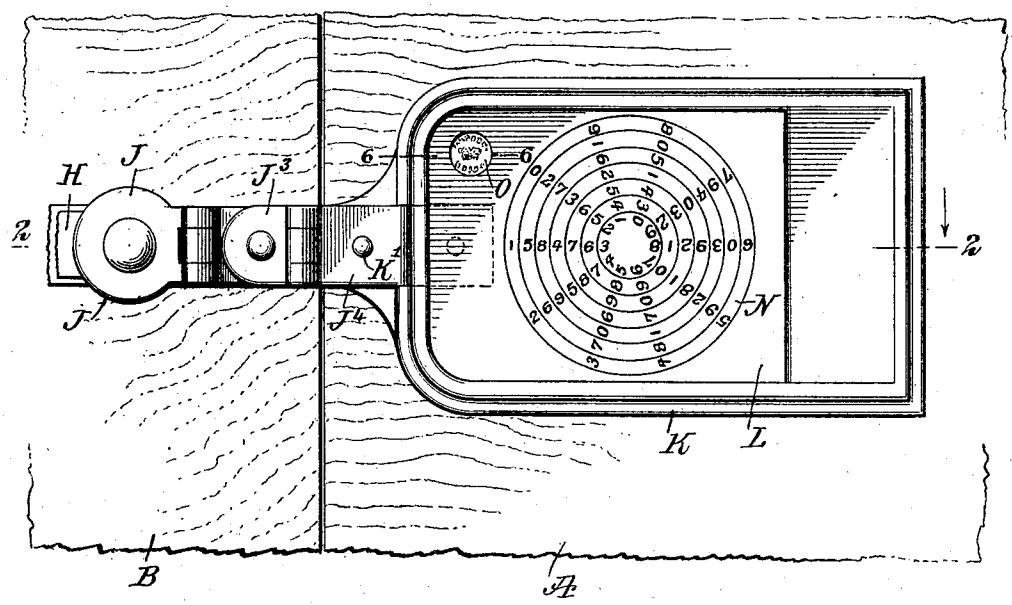
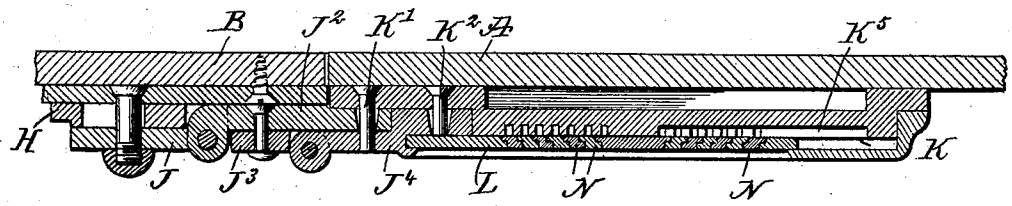


Fig. 2.



WITNESSES

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Fig. 3.

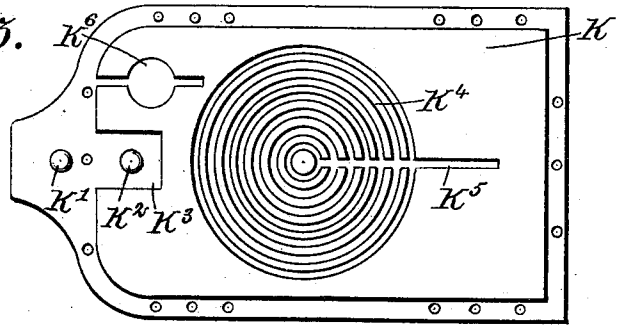


Fig. 4.

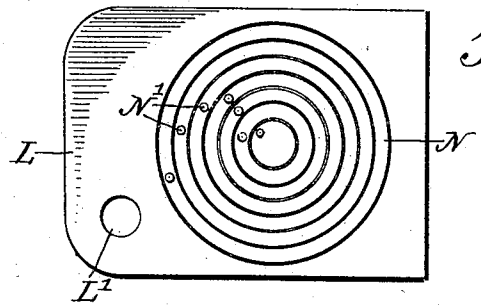


Fig. 5.

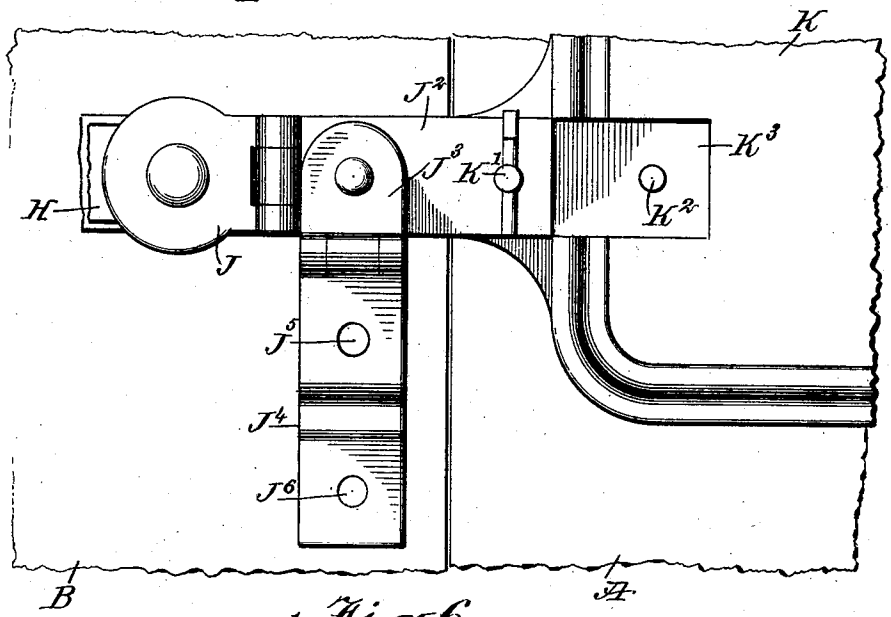
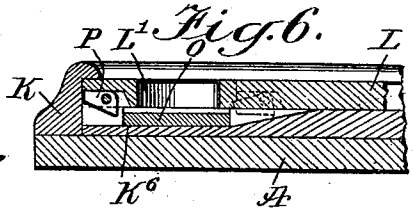


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN P. GERAGHTY, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF FORTY ONE-HUNDREDTHS TO HIMSELF, FORTY ONE-HUNDREDTHS TO CHARLES H. GOOD, TEN ONE-HUNDREDTHS TO JOHN J. GOODLAD, AND TEN ONE-HUNDREDTHS TO EUGENE SULLIVAN, ALL OF JERSEY CITY, NEW JERSEY.

PERMUTATION-LOCK.

No. 898,417. Specification of Letters Patent. Patented Sept. 8, 1908.

Original application filed March 29, 1907, Serial No. 365,331. Divided and this application filed November 22, 1907. Serial No. 403,296.

To all whom it may concern:

Be it known that I, JOHN P. GERAGHTY, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Permutation-Lock, of which the following is a full, clear, and exact description, this being a division of the application for Letters Patent of the United States for a locking device, Serial No. 365,331, filed by me March 29, 1907.

The object of the invention is to provide a new and improved permutation lock, more especially designed for use on railroad car doors and the like, and arranged to render the opening of the lock difficult for unauthorized persons, and to allow ready inspection of the car seal with a view of determining whether the lock has been tampered with or not while the car is in transit.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement as applied; Fig. 2 is a sectional view of the same on the line 2—2 of Fig. 1; Fig. 3 is a face view of the lock frame or casing; Fig. 4 is a face view of the slide of the lock frame or casing, showing the tumblers of the lock; Fig. 5 is an enlarged face view of the improvement showing the slidable member or plate unlocked, and Fig. 6 is an enlarged sectional view of the lock on the line 6—6 of Fig. 1.

The frame or casing K of the lock is shown attached to the side of the car A, adjacent to the door B, and the said frame or casing K is provided with pins K′, K^2, of which the pin K′ is adapted to be engaged by a hinged extension J^2 of an arm J, and the said pins K′, K^2 are also adapted to be engaged by the apertures J^5, J^6 in a locking arm J^4, hinged on an arm J^3, pivoted to the hinged extension J^2 of the arm J above mentioned, and forming part of an actuating device for the member or plate H employed for locking or unlocking the mechanism used for moving the car door B transversely, as more fully shown and described in the application above referred to, so that further description of the same is not deemed necessary.

The pin K^2 extends within a recess K^3 formed on the frame K of the lock, and the said recess K^3 is adapted to receive the free end of the locking arm J^4, thus holding the car door B against longitudinal movement in addition to the extension arm J^2. The free end of the locking arm J^4 is adapted to be covered by a slide or locking plate L, mounted to slide longitudinally in the frame or casing K, and in the said slide L are mounted to turn a plurality of concentric ring tumblers N, provided at their front faces with spaced numerals, say from 0 to 9, and provided at their rear faces with pins N′, projecting into corresponding concentric grooves K^4 formed on the frame K, as plainly indicated in Figs. 3 and 4. The grooves K^4 are intersected by a longitudinally extending groove K^5, which also reaches beyond the outermost groove K^4, as indicated in Fig. 3, and hence when the tumblers N are set to the proper combination, then their pins N′ register with the longitudinal groove K^5, to permit of moving the slide L from the left to the right into an open position, to free the locking arm J^4 or to permit of moving the slide L from the right to the left, to cover the locking arm J^4 when the latter is in a locking position, that is, engages the pins K′, K^2.

When the locking arm J^4 is locked in place by the slide L and one or more of the ring tumblers N are turned to move the corresponding pins N′ out of the slot K^5, then the slide L is held against movement, and consequently the locking arm J^4 is held in a locked position. Thus by the arrangement described a lock is on the car and a movable keeper is mounted on the car door and is adapted to be locked against longitudinal movement by the lock on the car, and this keeper serves to lock the mechanism for moving the car door in a transverse direction in or out of the car door opening.

Although I have shown and described the lock as applied to a car and a car door, it is evident that the said lock may be used on other devices and articles for locking a part in position.

In order to enable a car inspector or other person to readily determine whether the lock has been tampered with or not during the time the car is in transit, a seal O is provided, in the form of a disk of paper or other material, and fitted into a recess K^6, formed on the frame K of the combination lock. The tumbler slide L is adapted to pass over the seal O and is provided with a small aperture L′ for viewing the seal O by the inspector or other person. On the slide L, at or near the left hand end thereof, is arranged a pivoted cutter P which cuts across the face of the seal O when the slide L is shifted from the left to the right, that is, when the combination lock is opened, and hence an inspector can readily determine whether the combination lock has been tampered with, as the seal O then will show a defacing mark, produced by the cutter P on moving the slide L into an open position, as previously explained.

The operation is as follows: When the door B is locked in the car door opening, as illustrated in Figs. 1 and 2, and it is desired to open the door B, then the operator turns the ring tumblers N until they are set to a predetermined combination, to bring the pins N′ in register with the longitudinal groove K^5, and then the operator moves the slide L from the left to the right, so as to uncover the locking arm J^4. The operator now swings the same out of engagement with the pins K′, K^2 and then swings the extension J^2 out of engagement with the pin K′, after which the operator by means of the extension J^2 and the locking arm J^4 imparts a turning motion to the arm J to actuate the actuating device for the movable member or plate H. When it is desired to lock the door in place in the door opening then the extension J^2 and the locking arm J^4 are engaged with the corresponding pins K′, K^2, after which the slide L is moved from the right to the left to cover the free end of the locking arm J^4, and then the operator turns one or more of the ring tumblers N to close the combination lock. Previous to moving the slide L into a closed position, the seal O is placed in the recess K^6, and when the slide L is moved into a closed position then the cutter P rides freely over the face of the seal O without marring the same, the cutter P moving into a left hand side position relative to the seal O, as indicated in Fig. 6.

Although I have shown and described the lock in connection with a car and a car door, it is evident that the lock may be used on trunks, safes and other articles and devices.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A lock comprising a frame having grooves and a slot extending across the grooves, a locking plate movably mounted on the frame, and tumblers mounted in the locking plate and having members engaging the grooves and adapted to register with the slot.

2. A lock comprising a lock frame having grooves and a slot extending across the grooves, a locking plate mounted to slide on the said lock frame, and tumblers mounted in the said locking plate and having pins extending into said grooves and adapted to register with the said slot.

3. A lock comprising a lock frame having concentric grooves and a slot extending radially across the grooves and a distance beyond the outermost groove, a locking plate mounted to slide on the said lock frame, and concentric ring tumblers mounted to turn in the said locking plate, and having pins extending into said concentric grooves and adapted to register with the said radial slot.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN P. GERAGHTY.

Witnesses:
THEO. G. HOSTER,
EVERARD B. MARSHALL.