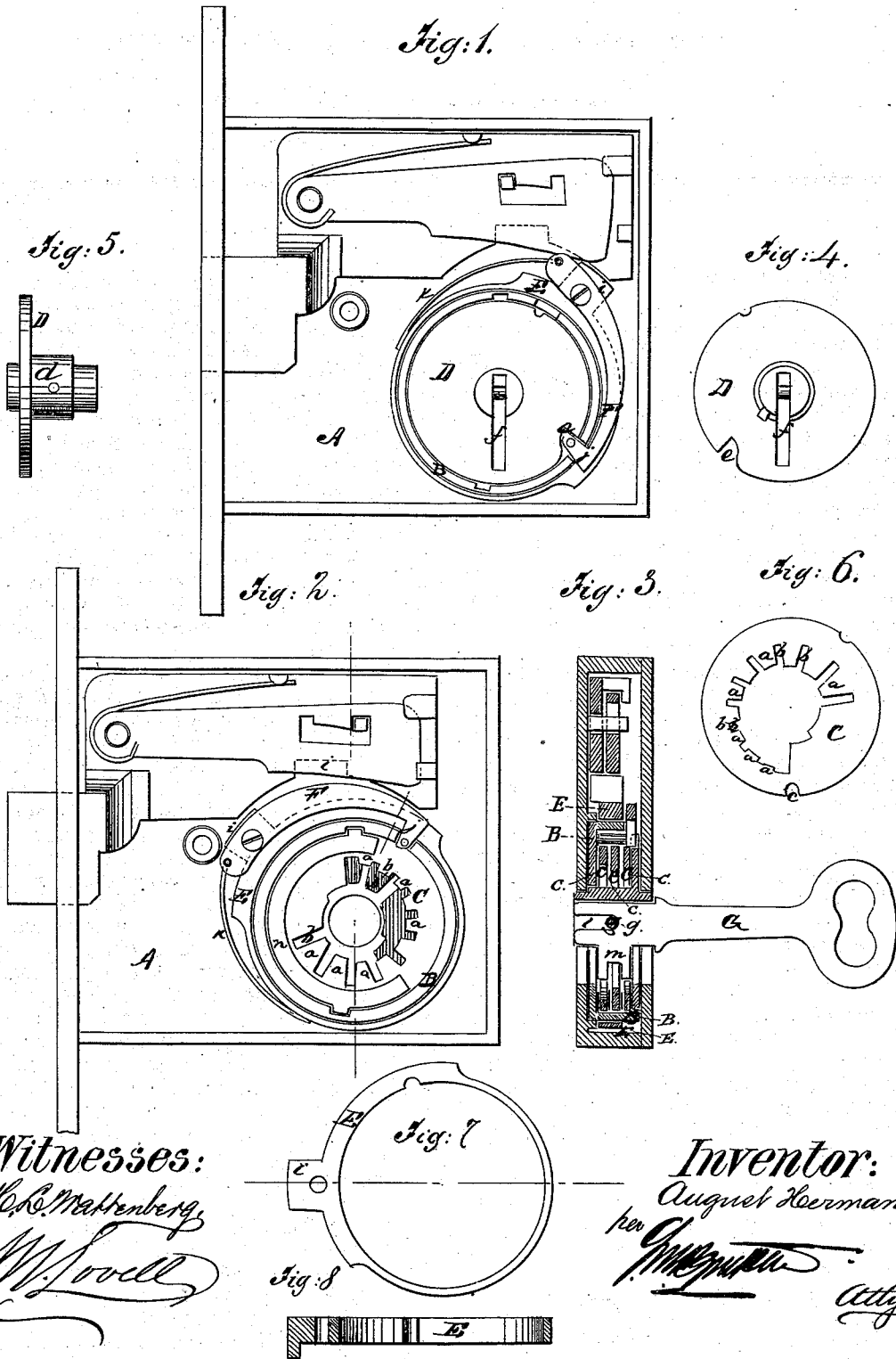


A. HERMANN.

Locks.

No. 156,349.

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Witnesses:
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UNITED STATES PATENT OFFICE.

AUGUST HERMANN, OF STAMFORD, CONNECTICUT.

IMPROVEMENT IN LOCKS.

Specification forming part of Letters Patent No. **156,349**, dated October 27, 1874; application filed April 7, 1874.

To all whom it may concern:

Be it known that I, AUGUST HERMANN, of Stamford, in the county of Fairfield and State of Connecticut, have invented a new and Improved Lock, and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

This invention is in the nature of an improvement in locks; and the invention consists in a lock constructed with a series of wheeled tumblers, each of said tumblers having formed in its interior periphery a graduated series of teeth, of irregular size, and the tumblers retained in position within a curb by means of a revolving disk with a gating therein, and having secured thereto a key-hub.

In the accompanying sheet of drawings, Figure 1 is a side elevation of my improved lock, with front plate removed; Fig. 2, the same, with disk and key-hub removed; Fig. 3, a cross-section of same; Fig. 4, a front elevation of disk; Fig. 5, an edge view of same and key-hub; Fig. 6, plan or top view of tumbler; Fig. 7, plan or top view of talon and ring; and Fig. 8, cross-section of same.

Similar letters of reference indicate like parts in the several figures.

A represents the lock-case, which may be of any desirable size and form, equally adapted to a door-lock or rim-lock. Within the case A is firmly secured a curb, B. Within this curb is placed a series of wheeled tumblers, C. Each of these tumblers has formed in it a series of graduated teeth or projections, *a*, of irregular size, and slots *b*, which radiate from the center of the tumblers; and each of these tumblers has formed in its periphery a gating, *c*. These tumblers are placed into the curb B one upon another, with suitable washers *n* placed between them, forming a stack of tumblers. The tumblers being thus placed in position, they are held within the curb by a disk, D, with a projection or key-hub, *d*, secured to its under side, which is placed within the curb and over the tumblers, the key-hub or projection *d* passing through them to the back plate of the lock. Into the periphery of the disk D is formed a notch or gating, *e*, and into the projection or key-hub *d* and disk is

cut a slot, *f*. Through the projection or key-hub *d*, and at right angles to the slot *f*, is a pin, *g*. Surrounding the curb B is a ring, E, and onto this ring is formed a talon, *i*. Secured to the talon *i* is a fence-lever, F, with a fence, *j*, thereto attached. Affixed to the ring E is a spring, *k*, one end of which engages with the rear end of the fence-lever F. The bolt and dog of my lock, which are of the ordinary construction, need no particular description, since they form no part of my present invention, and they may be constructed and modified as desired; but the construction and arrangement of the tumblers, disk, key-hub, curb, talon, and fence-lever being substantially as above described, their operation is as follows:

The tumblers being placed within the curb, and the disk D, with the key-hub *d* placed thereon, the lock is operated by inserting a flat key, G, having a slot, *l*, cut into its lower end. This slot enables the pin *g* to enter into it, and serves as a stop for the key. The key having been inserted, its bit *m* extends into the slots *b* in the tumblers, and when the gatings of the several tumblers are coincident their slots are likewise coincident with each other, and the gating *e* in the disk D is also in line with the gatings *c* in the tumblers, and by turning the key to the right or left when it is in this way inserted, the talon *i* engages with the bolt and dog of the same and permits the bolt to be drawn and withdrawn, as the lock is locked or unlocked. As the key-hub *d* and disk D are rotated by the action of the key, in the manner above described, the ring E is carried around the curb B, by the action of the fence *j* and fence-lever F, until the talon *i* engages with the bolt and dog of the lock, as before mentioned. When the bolt of the lock is thrown out, or when it is in the locked position, the disk D and the tumblers C are revolved in a reverse direction, so as to throw the fence *j* out of their gatings. The key is then withdrawn, and any effort that may be made to open the lock by unfair means will be frustrated, for, if an instrument or key other than the true key is inserted for the purpose of unlocking it, it will be necessary to bring the gating of each tumbler coincident with the other, and, if the gating in one tum-

bler should be brought in the right position, it is probable that in attempting to adjust the other tumblers the instrument would come in contact with some of the teeth or projections *a* of the tumbler just arranged, and again disturb it before the second tumbler has been adjusted, and so on; and when the tumblers are disarranged the slot *f* in the disk, as also the corresponding slot in the lock-plate, will be more or less obstructed by the projections or teeth *a*, which will prevent, to a great extent, the insertion of a key or instrument into the lock. It will be observed that the disk *D* may be revolved independently of the tumblers, so that the lock cannot be opened excepting by the action of the true key, the shank of which revolves the disk, and the bits of which revolve the tumblers simultaneously.

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

1. A lock, constructed with a series of tumblers, each having a series of graduated teeth of irregular size, and gatings formed therein, substantially as and for the purpose described.

2. In a lock, a series of tumblers, formed with a series of graduated teeth of irregular size, in combination with a revolving disk and key-hub, substantially as and for the purpose described.

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Witnesses:

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