

H. W. DILG.
Alarm Combination Locks.

No. 157,803.

Patented Dec. 15, 1874.

Fig. 1.

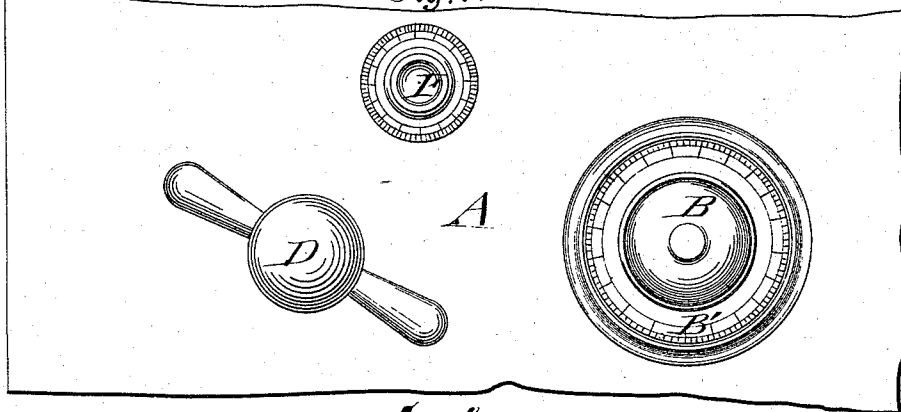


Fig. 2.

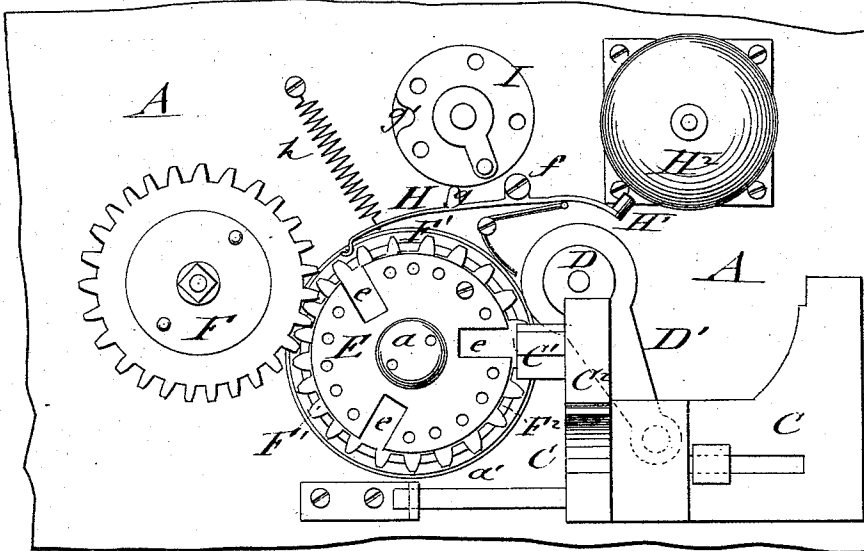
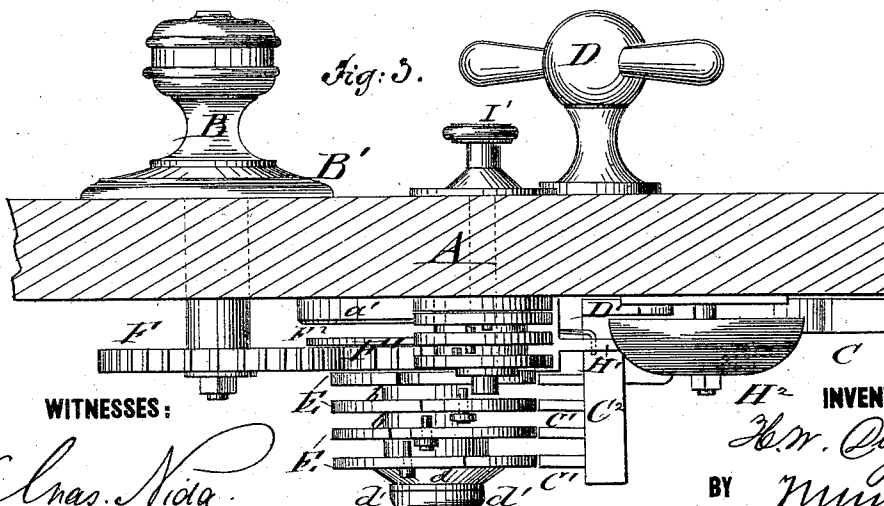


Fig. 3.



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HENRY W. DILG, OF PORTLAND, OREGON, ASSIGNOR TO HIMSELF AND
WILLIAM ZIMMERMAN, OF SAME PLACE.

IMPROVEMENT IN ALARM COMBINATION-LOCKS.

Specification forming part of Letters Patent No. **157,803**, dated December 15, 1874; application filed
July 18, 1874.

To all whom it may concern:

Be it known that I, HENRY W. DILG, of Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Combination Safe-Lock, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a front view of my improved combination safe-lock; Fig. 2, a rear or inner elevation, and Fig. 3 a top view, of the same.

Similar letters of reference indicate corresponding parts.

My invention relates to improvements in burglar and powder proof combination-locks for bank-vaults, safes, &c. The tumblers are provided with false and true slots, which are not radial to the center, but in line with a prolongation of the pins or tongues of the main bolt. A spring-hammer with alarm-bell is connected with the tumbler-wheel, and set by a stud, in connection with alarm-tumblers, so that any attempt at opening the lock without setting them to their combination will be indicated by the continued ringing of the bell.

In the drawing, A represents the door of a vault, safe, or other burglar and fire proof structure, made in the usual manner, and provided with a knob, B, and dial or face-plate B', for setting the tumblers into the required position, according to the combination, which allows the opening of the main bolt C by means of knob D, connected therewith by suitable lever D'. The tumblers E are not applied to the knob-spindle in the usual manner, but are separated therefrom, and placed on an additional spindle, *a*, which is secured, by a base-plate, *a'*, to the inner side of the safe-door A, in such a manner that the position of the same is not indicated at the outside.

The tumblers E may be arranged in any direction from knob D, either above, below, or sidewise, the position of the same being varied in every lock, so that the exact place may not be discovered by a burglar, or be calculated from the position of the other parts, and thus any attempt to get at the tumblers by boring through the door rendered futile in most cases.

The connection of the knob B with the tumblers E is produced by a cog-wheel, F, which

is keyed to the knob-spindle, and made of suitable diameter to gear with a second wheel, F¹, fastened to the lowermost tumbler E on spindle *a*, and protected against drilling by a steel plate, F².

By the use of gear-wheels the order in which the tumblers E revolve is changed, as the lowermost plate is first set in motion, and the uppermost last, and thereby, also, the arrangements of the tumblers on their spindle made more compactly and tightly.

The tumblers E are secured on the spindle *a* by intermediate washer-plates *b*, and a stationary and spring washer, *d d'*, at the top, to give them an easy and solid movement. They are provided, in the customary manner, with driving pins or screws, covered with rubber rings for deadening the sound when they strike each other on setting the combination. A series of perforations allows the adjustment of the driving-screws, while slotted recesses *e* of each tumbler serve for the entering of the pins or tongues C¹ of the main bolt C. The tongues C¹ are applied to a standard or arm, C², of the bolt C in irregular position, for the purpose of entering the slotted recesses *e* of the tumblers without requiring that they are in line with each other. This makes the lock more secure, as it prevents the setting of the tumblers, by a needle or steel instrument, after a hole has been drilled through the door below the lowermost tumbler. The recesses *e* are cut into the tumblers in line with a prolongation of the tongues C¹, and therefore not radial but oblique to their spindle. Several of the recesses *e* are false, for the purpose of preventing any one from taking size of slots, and noting the set combination when the door is open. As only one recess fits on each tongue the right one is more difficult to be found out.

A spring-lever, H, with hammer end H¹, is fulcrumed at *f*, acting with one end on the teeth of the gear-wheel connected to one of the tumblers, and with the other on the alarm-bell H². A projecting stud, *g*, of spring-lever H fits into recesses *g'* of alarm combination, tumblers I, which are turned and set, in similar manner as tumblers E, by an outer knob, I', until all the recesses stand over the stud, and allow the entering of the same by means of

spiral spring *h* of lever *H*. The end of spring-lever *H* is thereby carried away from the gear-wheel *F*¹, and allows the setting of the tumblers without striking the bell.

Whenever the turning of the gear-wheels and setting of the tumblers is attempted without previously setting the alarm-tumblers, a constant ringing of the bell will be produced, which gives the alarm, and prevents any tampering with the lock.

In manufacturing the locks every one is made to differ from the other, as not only the irregular position of the tumbler-recesses and tongues may be made in any number of variations, but also, by the relative position of main knob and tumblers, or tumblers and alarm-tumblers, a great variety in the locks may be produced, so that it would be more difficult, even with a knowledge of the general construction of the lock, to pick or open any special one applied to a vault or safe. The security of these locks is thereby, in a very simple and substantial manner, considerably enhanced.

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

1. The revolving tumblers *E*, arranged on the same spindle, and provided with false and true recesses, in combination with tongues placed in irregular position on the bolt, and fitting only into the true recesses, for the purpose set forth.

2. The combination of tumbler gear-wheel, fulcrumed spring-lever, having projecting stud, separate recessed alarm combination-tumblers, and alarm-bell, for the purpose of causing the ringing of bell when spring-lever is not released from the gear-wheel by setting the combination of alarm-tumblers, substantially for the purpose specified.

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Witnesses:

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