2 Sheets—Sheet 1.

G. WINTER.

COMBINATION LOCKS.

No. 181,756. Patented Aug. 29, 1876.

Fig. 1.

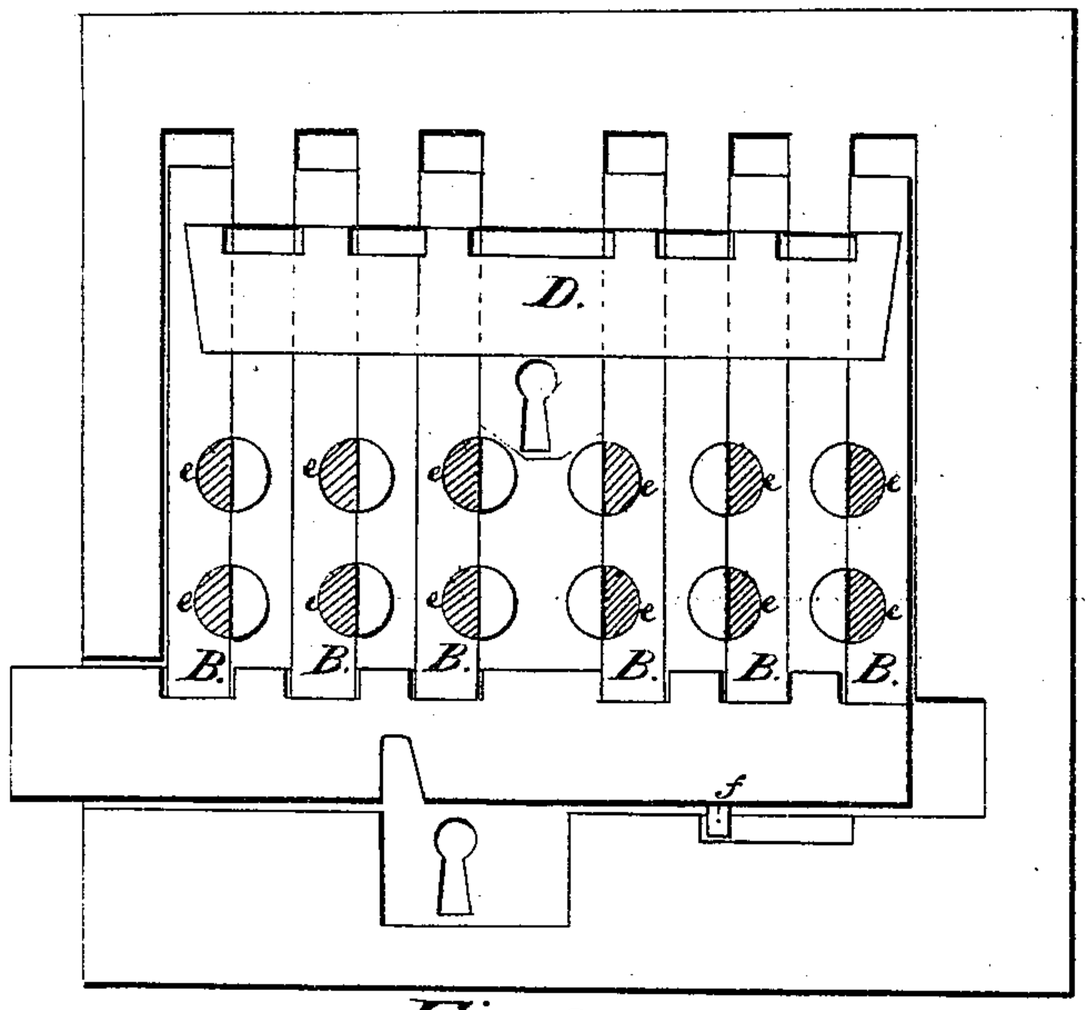


Fig. 2.

Fig. 4.

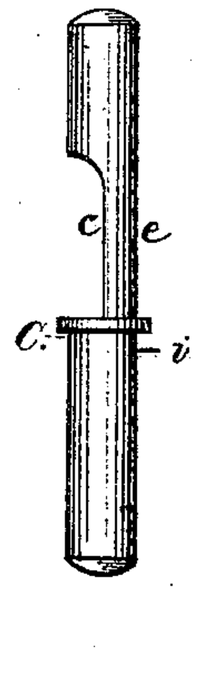
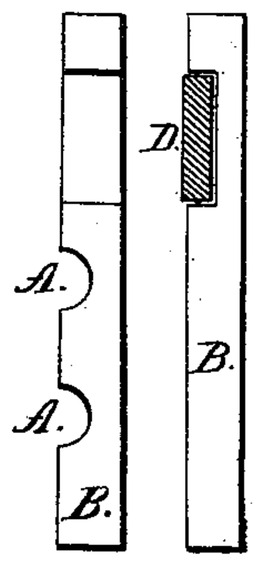


Fig. 5



Attest:

Balland, C. Dobbins
George. H. Dickerson

Inventor:

George. Winter

2 Sheets—Sheet 2.

G. WINTER.

COMBINATION LOCKS.

No. 181,756. Patented Aug. 29, 1876.

Fig 3.

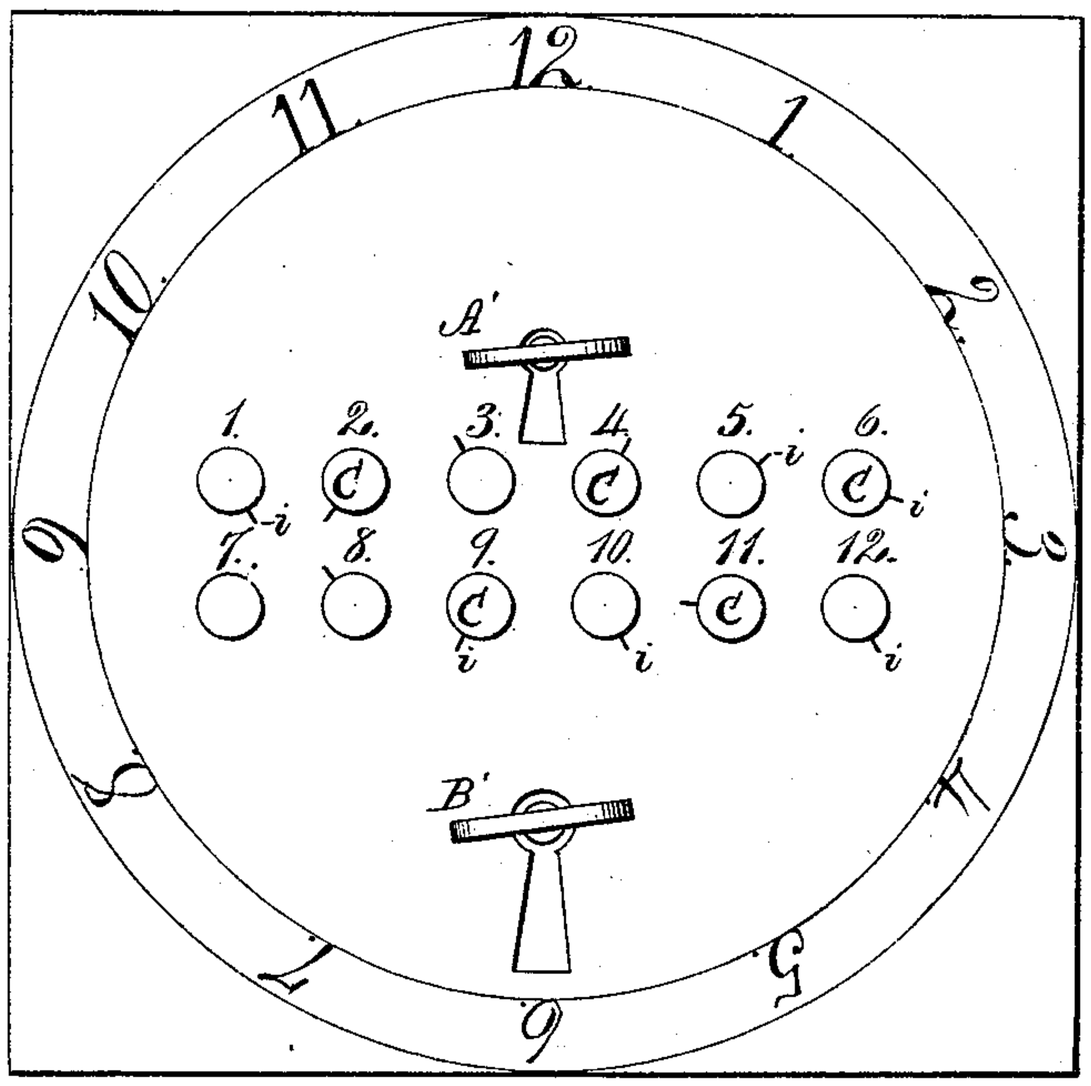
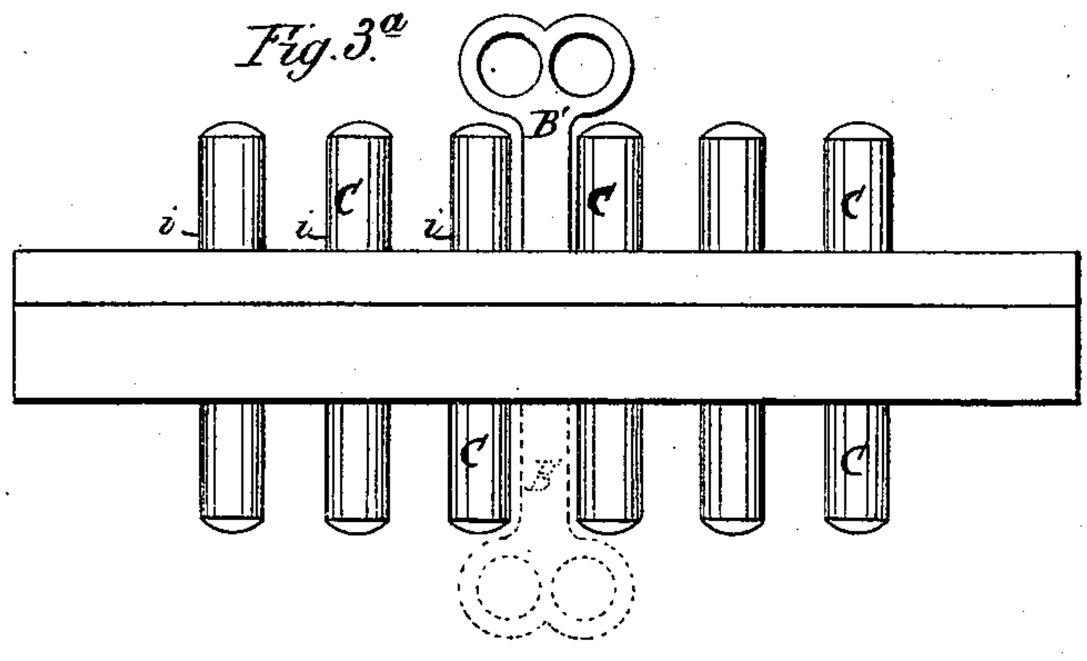


Fig. 3ª



Attest:

Ballard & Dobbins
George W. Dickerson

Inventor:

George. Winter

UNITED STATES PATENT OFFICE.

GEORGE WINTER, OF FLOYD COUNTY, VIRGINIA.

IMPROVEMENT IN COMBINATION-LOCKS.

Specification forming part of Letters Patent No. **181,756**, dated August 29, 1876; application filed March 2, 1876.

To all whom it may concern:

Be it known that I, GEORGE WINTER, of the county of Floyd and State of Virginia, have invented a new and useful Improvement in Door-Locks, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

In this invention the bolt is locked by a series of sliding dogs or tumblers, provided with semicircular grooves, to receive rotating pins, having semi-cylindrical portions.

When the pins are adjusted in one position the dogs may be raised simultaneously out of the notches in the bolt, thus allowing the latter to be withdrawn into the case; but when adjusted in another position, the dogs are held locked, the semi-cylindrical portions of the pins in such case entering the grooves in the dogs. The position of the pins is indicated by a series of fingers pointing to numerals inscribed on the face of the lock.

Referring to the drawing, Figure 1 is a plan view of the lock with one side removed, and the bolt shot and the dogs or tumblers engaged therewith. Fig. 2 is a similar view, showing the bolt withdrawn, and the dogs or tumblers disengaged from it. The upper portion of the lock-case is broken away. Fig. 3 is a plan view of the lock. Fig. 3ª is an end view. Figs. 4 and 5 are detail views of a locking pin and dog, respectively.

It should be understood in the outset that the pins for locking the dogs that engage with the sliding bolt are made of such length as to project from opposite sides of the lock, so that the combination on which the tumblers are set is indicated on both sides of the lock. The lock is, therefore, adapted to be operated from either side of a door, when properly attached thereto.

The bar D, by which all the dogs or tumblers B are simultaneously raised, is operated by a key, A′, and the sliding locking-bolt X by another key, B′, Fig. 3. The dogs or tumblers B consist of a series of straight bars, which are arranged parallel in grooves of the lock-case, perpendicular to the bolt X. Each dog has two half-round transverse grooves, A, and is recessed at the upper end, Fig. 5, to receive the lifting-bar D.

It is evident the said bar cannot be raised except all the dogs be free to slide in their respective grooves, and the withdrawal of the bolt X can only be effected when the dogs have been raised clear of it, as represented in Fig. 2.

The dogs are locked in their places—*i. e.*, held engaged with the notches of the bolt—by means of pins C. These pins are cylindrical in form, and each cut out on one side to the extent of one-half their diameter, as at *c*, Fig. 4.

When inserted through the case of the lock the solid semi-cylindrical portion *e* coincides in position with the semicircular grooves in the dogs B. It will hence be perceived that when the pins are all adjusted, as shown in Fig. 1, the dogs are locked in place; but by turning them half round, the part *e* would free the grooves A, and allow the dogs to be moved up, and the bolt withdrawn, as shown in Fig. 2. In other words, the dogs are locked or free to move, according as the semi-cylindrical portion *e* of the same is turned into or out of the corresponding grooves A in the dogs B.

A circular rib on the pins prevents their withdrawal from the lock-case, and the outward movement of the bolt X is limited by a stop-pin, *f*.

The means of determining when all the pins C are adjusted properly to allow the free movement of the dogs and the withdrawal of the bolt are the fingers *i*, Fig. 3, which project radially from the pins. When these fingers point to certain numerals inscribed in a circle on the faces or sides of the lock-case, the dogs may be disengaged from the bolt.

In this instance they are set on the following combination: $\frac{1}{6}$, $\frac{2}{8}$, $\frac{3}{11}$, $\frac{4}{1}$, $\frac{5}{2}$, $\frac{6}{3}$, $\frac{7}{12}$, $\frac{8}{10}$, $\frac{9}{7}$, $\frac{10}{5}$, $\frac{11}{9}$, $\frac{12}{4}$, the upper row of numbers indicating the pins, and the lower row the numbers on the circle.

When any of the fingers *i* point to any other number than those above indicated, the bar D cannot be raised, and hence the dogs or tumblers hold the bolt shot. The combi-

nation may be changed by changing of the fingers *i* in the pins C, so as to point to other numbers.

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

The combination of the pins, provided with radial fingers, and having a semi-cylindrical portion, *e*, the sliding dogs having notches, and the semicircular grooves, the bar D, and notched bolt X, as shown and described, to operate as specified.

This 22d day of February, 1876.

GEORGE WINTER.

Witnesses:

BALLARD C. DOBBINS,

GEORGE W. DICKERSON.