S. T. Bacon,

Lock,

No. 24,710.

Patented July 12, 1859.

Fig. 3.

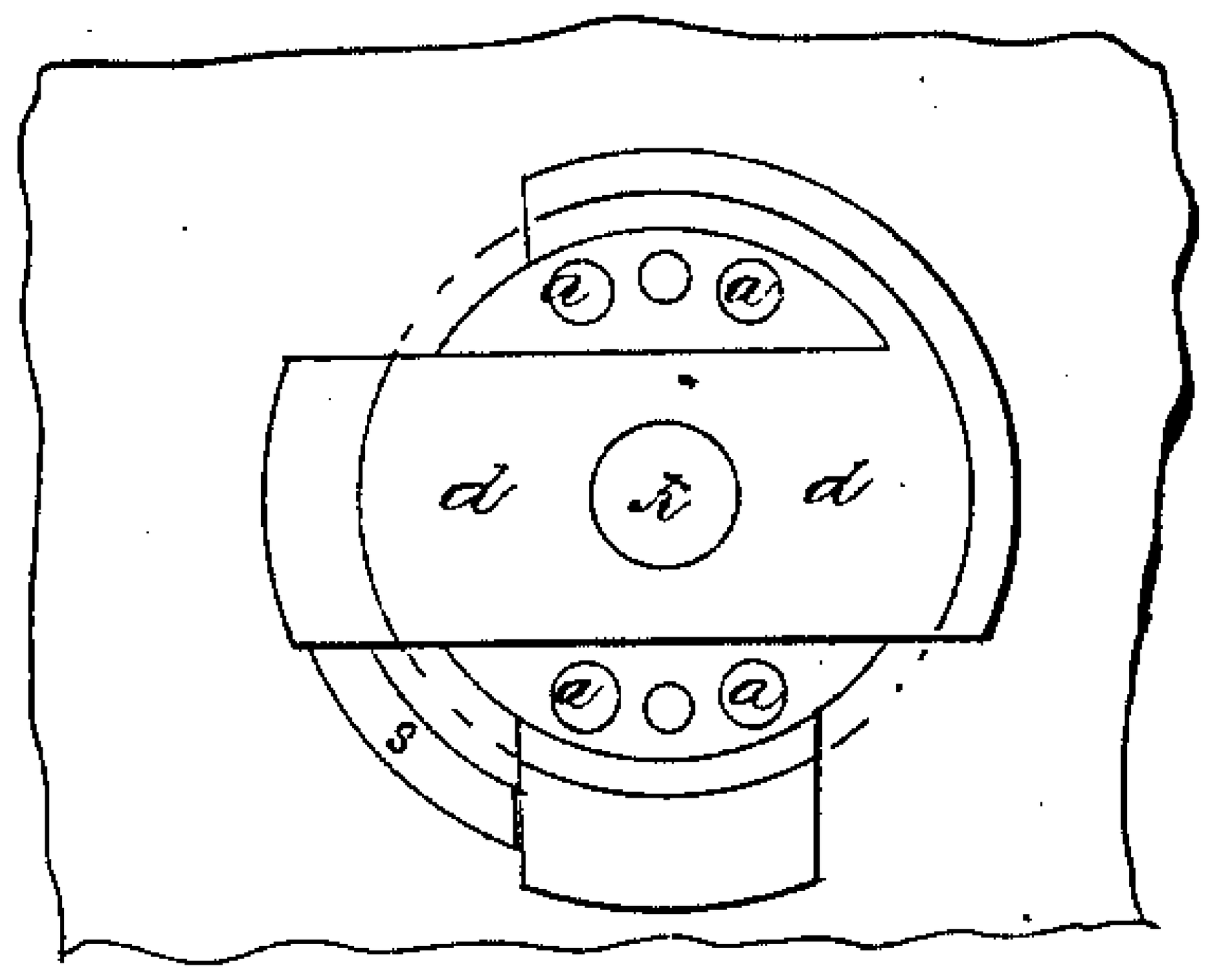


Fig. 6

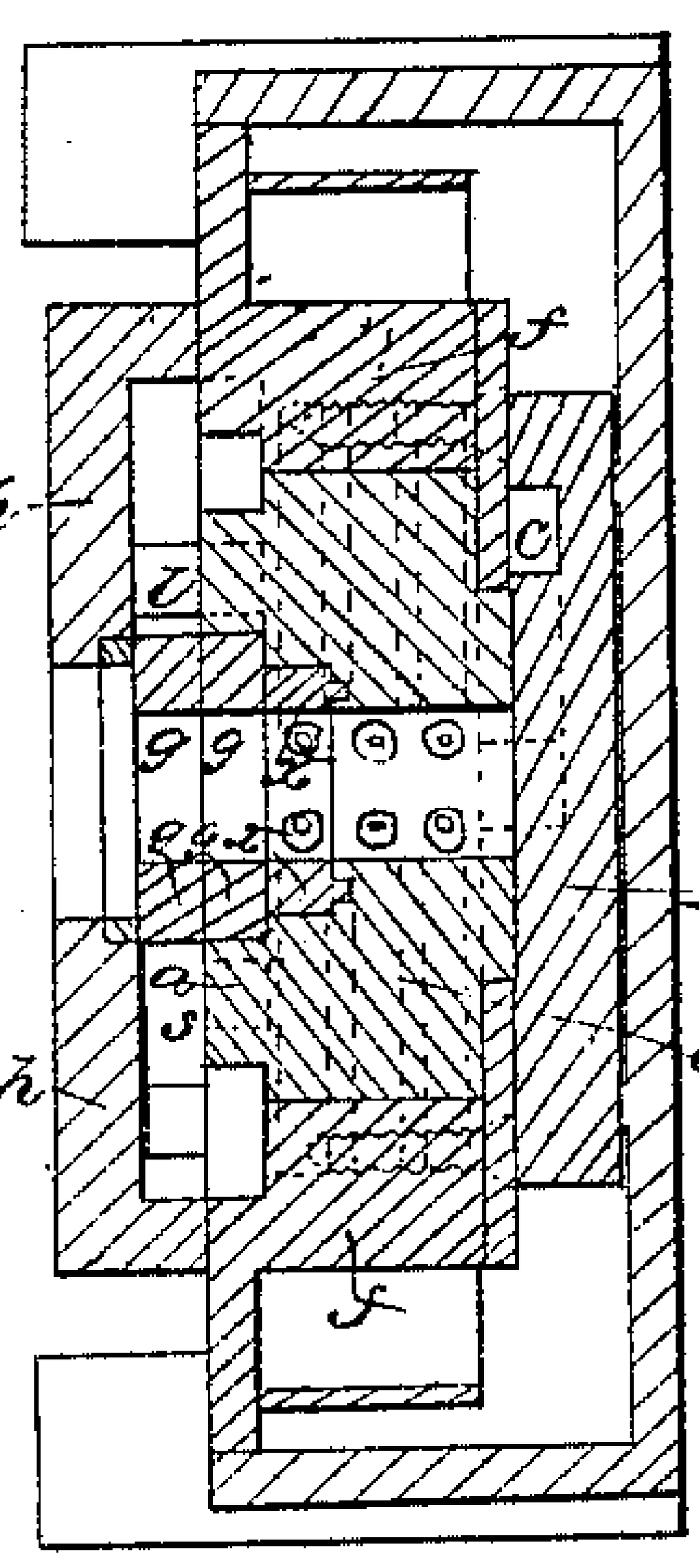


Fig. 2

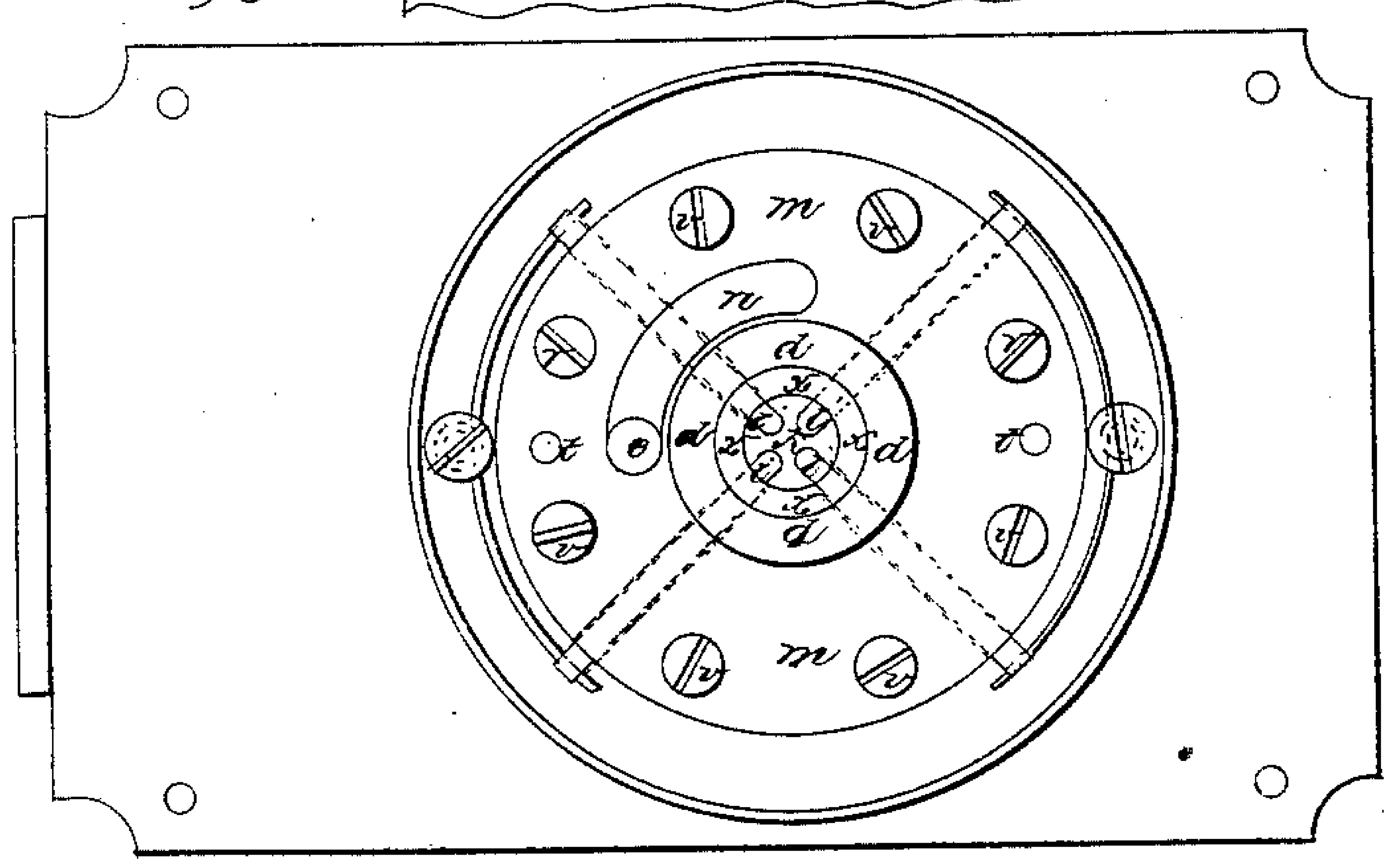


Fig. 1

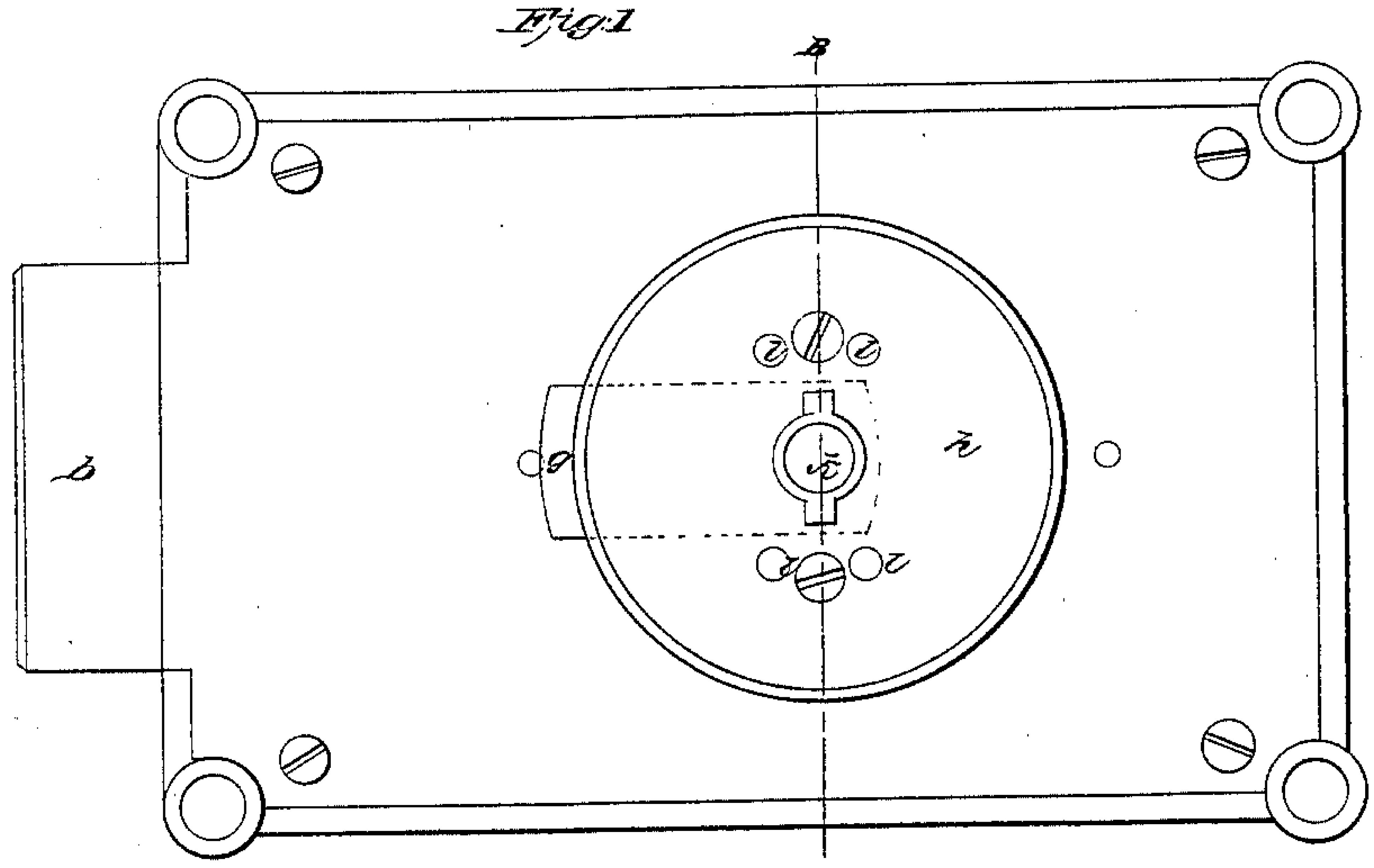


Fig. 5.

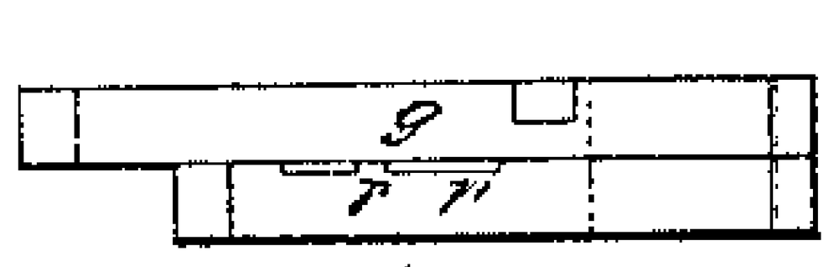
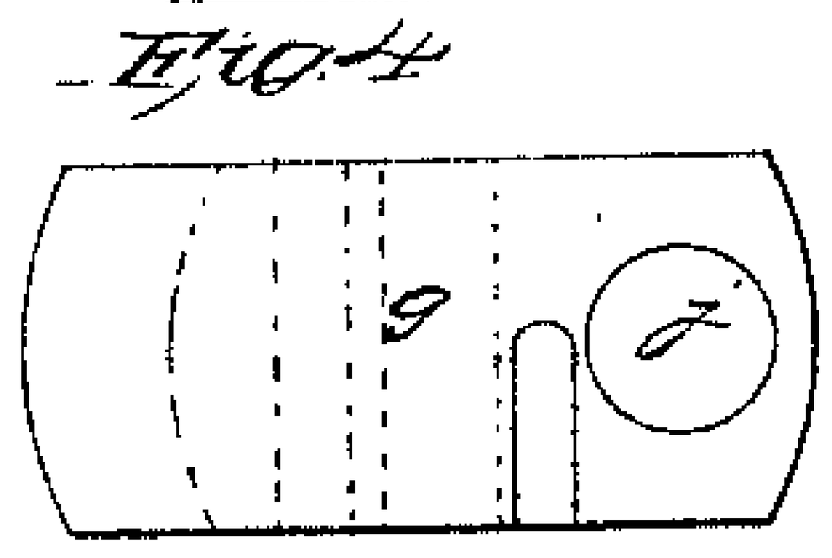


Fig. 4



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UNITED STATES PATENT OFFICE.

S. T. BACON, OF BOSTON, MASSACHUSETTS.

BANK AND SAFE LOCK.

Specification of Letters Patent No. 24,710, dated July 12, 1859.

To all whom it may concern:

Be it known that I, STEUBEN T. BACON, of the city of Boston and State of Massachusetts, have invented certain new and useful Improvements in Bank and Safe Locks, which are described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Plate No. 1. Front view of lock, with bolt thrown out, and key-hole open. Plate No. 2. Inside view of front plate. Plate No. 3. View of inside of cap containing guard to key-hole. Plate No. 4. Plan of guard to key-hole. Plate No. 5. Side view of same. Plate No. 6. Section through lock on A B.

The same letters indicate like parts in all the figures.

The invention now claimed by me consists of a series of improvements, on a lock patented by Linus Yale of Springfield, Massachusetts, the 13th June, 1844, also on the 13th February, 1849, in which the locking bolt *b*. is thrown out and in, by a pin *c*. on the face of what is termed a rotating tumbler *d*. which works in a groove in the face of the bolt, the rotating tumbler *d*. being operated by a key which when inserted, forces out to the required distance a series of radial stops or pistons *i*. *i*. *i*. *i*., that pass through holes *o*. *o*. &c. in a cylindrical or rotating tumbler *d*. *d*. &c., and enter corresponding holes in a surrounding cylinder *f*.

Combined with the rotating tumbler that opens the main bolt *b*. are a sliding bolt or key-hole guard *g*. and turning cap *h*. which key-hole guard being adapted to slide within the turning cap, and the two so connected and adjusted, that the turning cap cannot turn, except when the sliding bolt or key-hole guard is in a central position relatively to the cap and tumbler, *d*. This position of the sliding bolt must be attained before the bolt *b*. can be operated, the sliding bolt being provided with a key-hole *j*. which only coincides with the key-hole *k*. in the rotating tumbler, when the sliding bolt is thrown out to lock the turning cap and tumbler connected therewith; so that when said sliding bolt is in its central position to admit of the turning of the tumbler *d*. it shall cover the key-hole *k*, and prevent admission of instruments.

Employed in combination with the rotating tumbler, *d*, and sliding bolt, or key-hole guard *g*, is a key which after being inserted into the key-hole *k*, admits of having its handle removed, that the key may remain in place and allow the key hole to be closed, by placing the key-hole guard *g*. in a central position relatively to the tumbler.

In combination with the key hole guard *g*, is a turning plate which operates it; also combined with these parts is a key, which when inserted admits of moving the turning plate *h*. and the sliding bolt or key hole guard contained therein in order to close the key-hole *k*.

My invention consists in determining and securing the proper position of the tumbler, which with its pin *c*. throws the main bolt *b* of the lock, which is accomplished in the following manner:

First. Attached to the cap *h* (see Fig. 1) are pins *l*. *l*. *l*. *l*. which closely fit corresponding holes (see Fig. 3.) *a*. *a*. *a*. *a*. in the tumbler *d*, which when the sliding bolt or key-hole guard is thrown forward and takes bearing against the tenon *s*. prevents the displacement of the tumbler in the direction of unlocking.

Secondly. Attached to the cylinder *f* (Fig. 6.) in which the tumbler *d*. rotates is the collar *m*, which has a slot *n*. (Fig. 2.) through which, in the operation of locking and unlocking the pin *c*, attached to the tumbler, traverses in the arc of a circle. This collar is firmly secured to the cylinder by means of the pins, *t*. *t*. and screws, *v*. *v*. &c. and also takes a bearing on the bolt of the lock.

I so position the slot *n*, in the collar *m*, that the tumbler pin *c*. traversing therein, shall determine and arrest the rotation of the tumbler, at the precise point at which the lock is locked, and prevents the displacement of the tumbler, at and beyond the point of locking.

Assuming the lock to be placed upon a bank safe door, a further object gained by the use of this collar *m* is to prevent the displacement of the tumbler inwardly, or from the operator.

It is obvious that the tumbler is now firmly held in an exact locked position, and that force applied to displace it, would be inadequate to overcome the devices described for resisting the same.

I now enlarge beyond the size heretofore used, all the holes throughout the cylinder and tumbler, through which the radial stops or pistons *i*, *i*, *i*, *i*, pass (Fig. 2.). I then enlarge all said holes in the tumbler and

cylinder in each direction from the dividing line between the same, a distance varying from $\frac{1}{32}$ to $\frac{1}{4}$ of an inch, more or less. By this construction and arrangement it is obvious that to bring the pistons to a bearing against the sides of the holes for the purpose of picking the lock will necessitate the displacement of the tumbler to a distance equal to the enlargement of the holes.

My improvement further consists in constructing the sliding bolt or key-hole guard of two or more pieces of metal secured together and hardened with one or more air chambers between them for the purpose of obstructing the communication of heat. (Fig. 5.)

I divide the air chamber or chambers by a narrow ridge or ridges, for the double purpose of giving the key-hole guard increased strength and to prevent the action of drills upon the same. This device is more fully shown by Figs. 4 and 5. For further protection to the lock, a ring or collar *x*, of hardened metal may be inserted in the tumbler around the key hole which will serve to prevent the enlargement of the key-hole, displacement of the pins and other injury to the same.

What I claim as my invention and desire to secure by Letters Patent is—

1. Arresting and holding the tumbler in in exact locked position.

2. Preventing the displacement of the tumbler in the direction of unlocking, by means of pins (*l*, *l*, *l*, *l*,) in combination with the sliding bolt or key-hole guard, and the tenon.

3. Preventing the displacement of the tumbler, at and beyond its locked position by means of the slotted collar, in combination with the cylinder, the tumbler, and the tumbler pin.

4. Preventing the displacement of the tumbler inwardly; by means of the collar in combination with the cylinder, and the bolt of the lock.

5. Enlarging the piston holes throughout the lock for the purpose specified.

6. Enlarging the holes in both tumbler and cylinder, in each direction from the dividing line between them, for the purpose specified.

7. Constructing the key-hole guard of two or more pieces of metal, hardened for the purpose specified.

8. Making one or more air chambers between the several parts of the key-hole guard, for the purpose specified.

9. Dividing the air chamber or chambers, with one or more narrow ridges for the purpose specified.

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