

(Model.)

2 Sheets—Sheet 1.

E. J. COLBY.

LOCK AND KEY.

No. 354,097.

Patented Dec. 14, 1886.

Fig. 1.

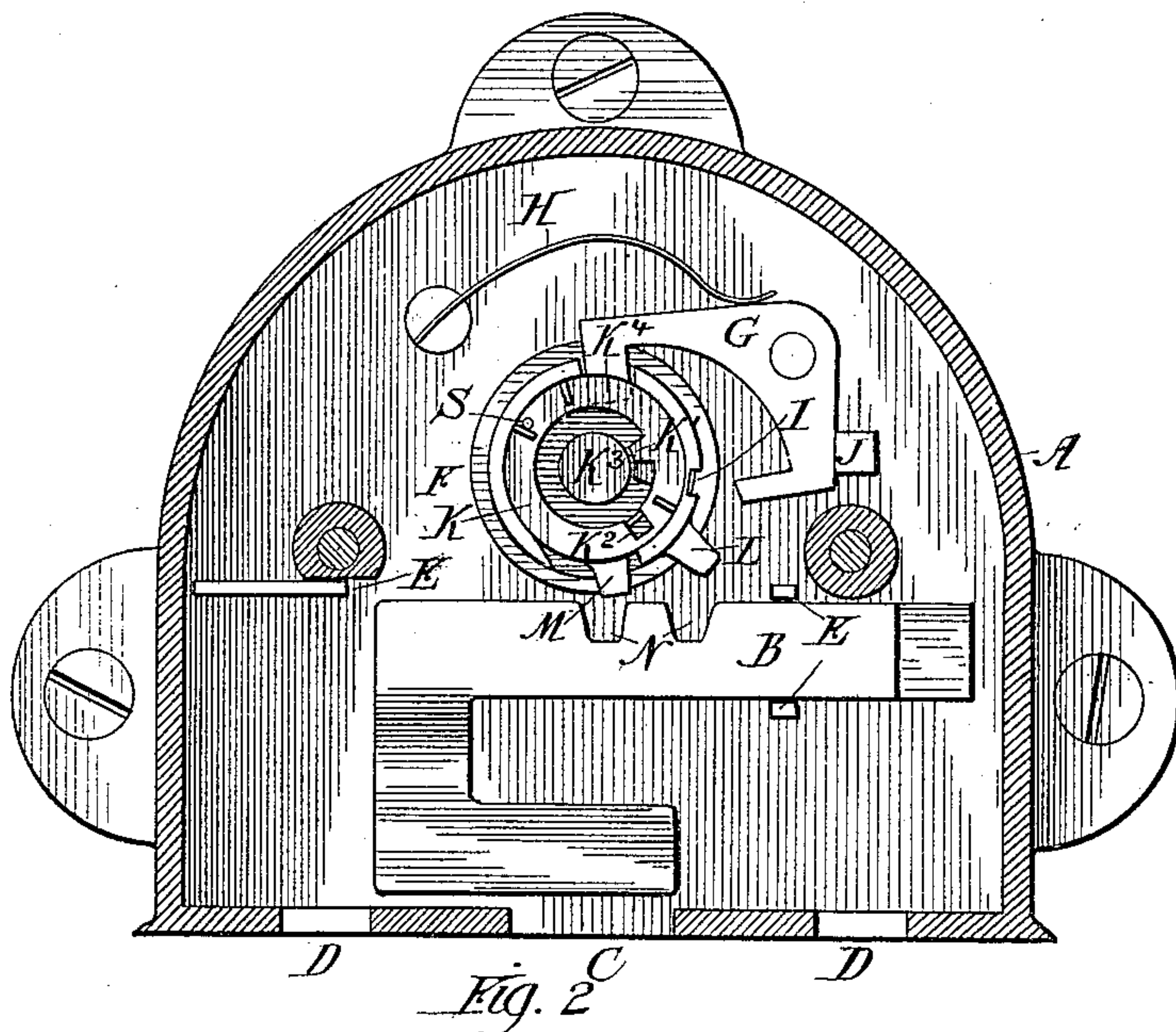


Fig. 2.

Fig. 3.

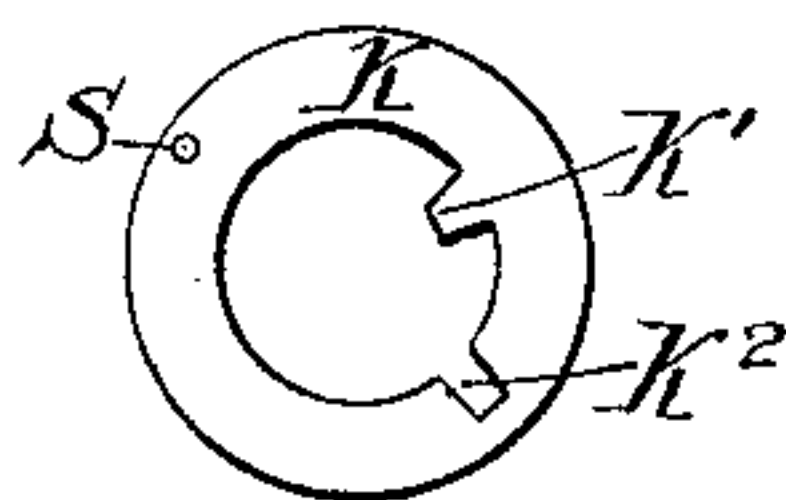


Fig. 4.

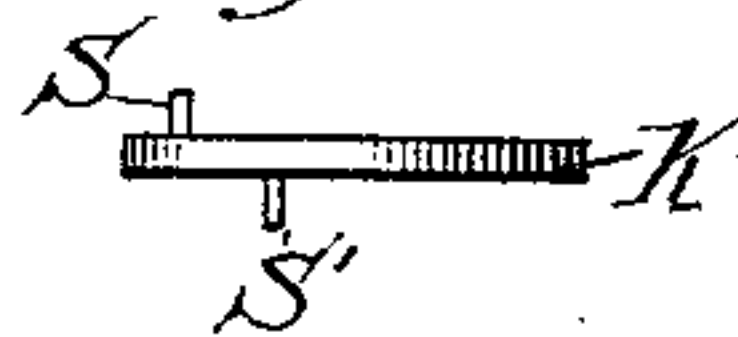


Fig. 5.

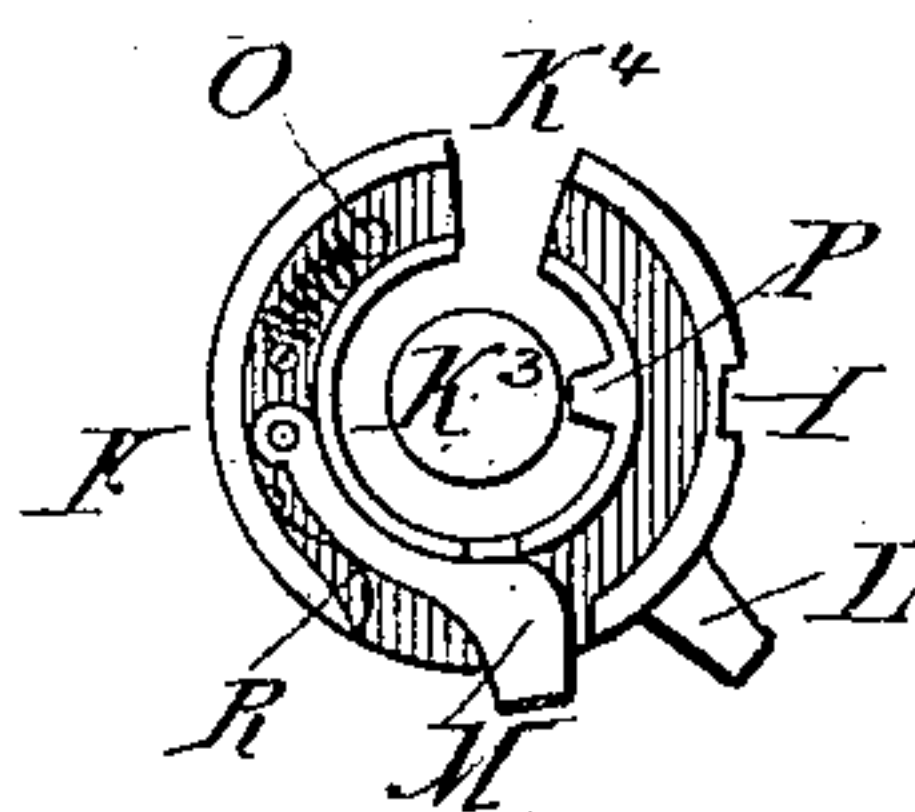
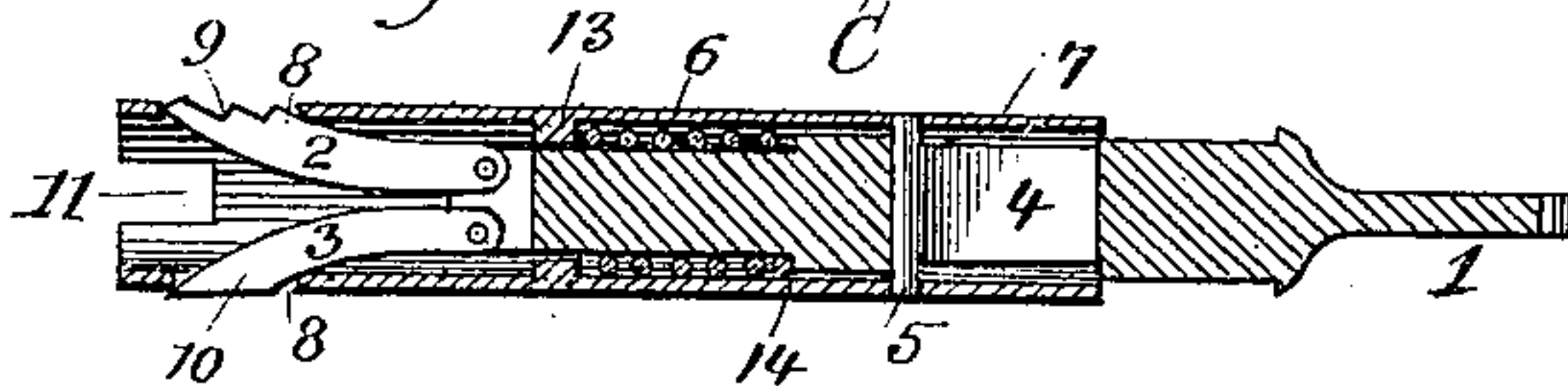


Fig. 6.



Witnesses:

Frank J. Blanchard

Chas. S. Burton

Inventor

Edward J. Colby

By Francis M. Parker,
Attorney.

(Model.)

2 Sheets—Sheet 2.

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Fig. 7.

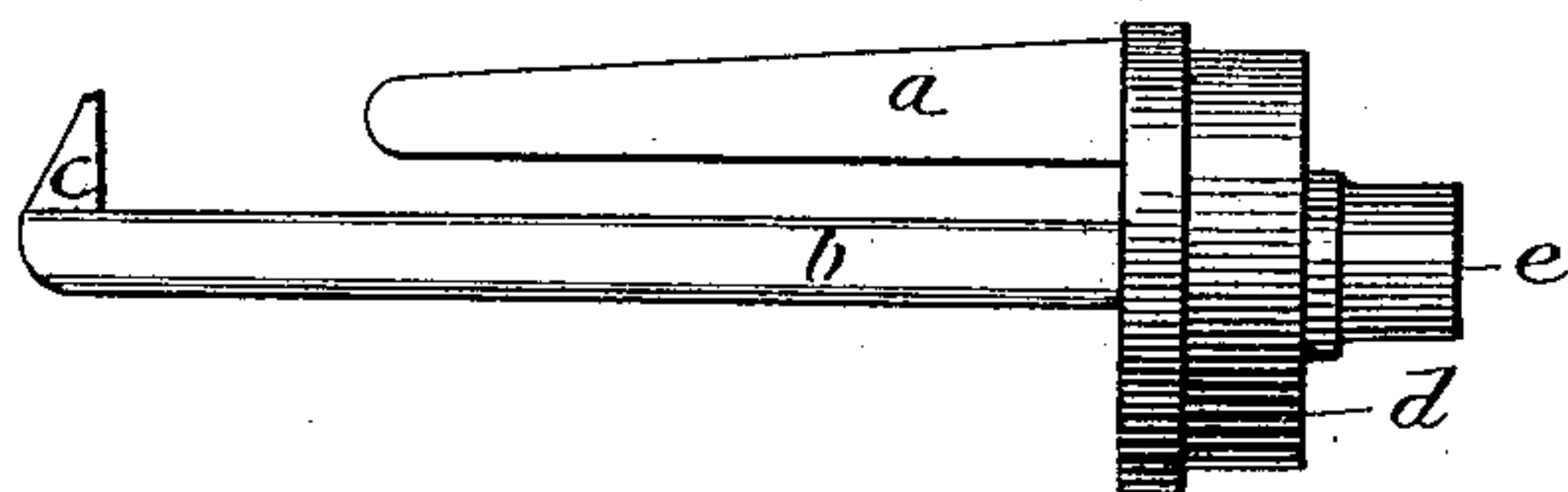


Fig. 8.

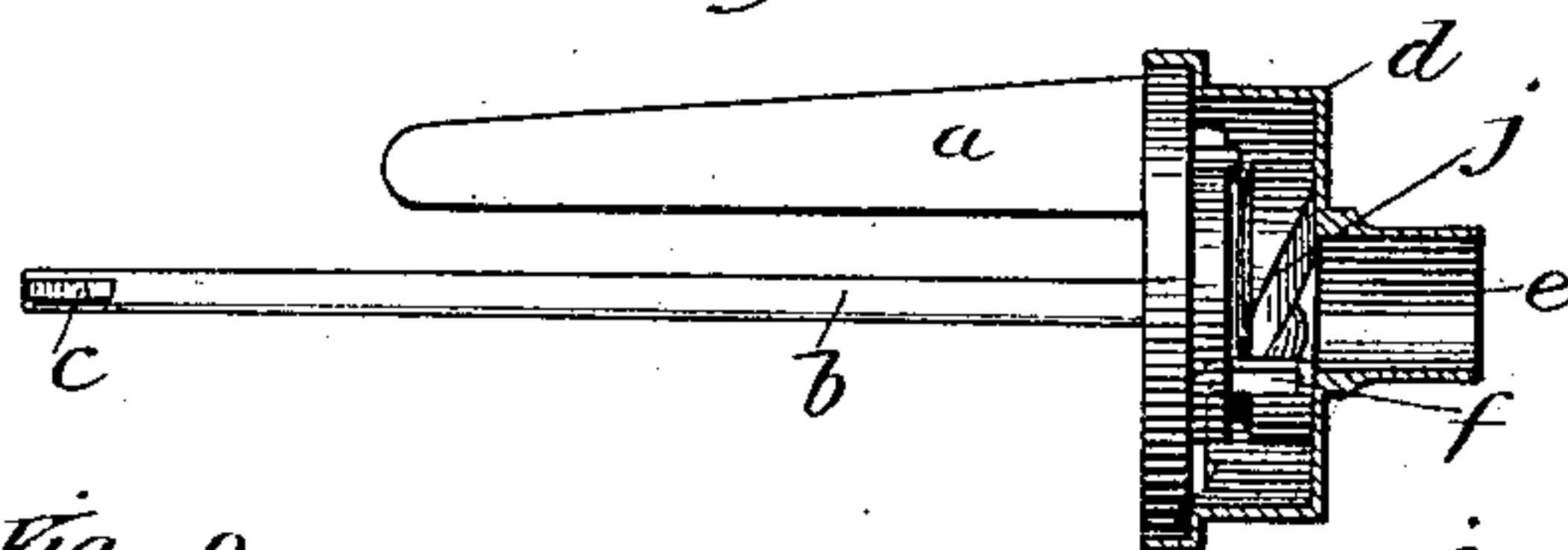


Fig. 9.

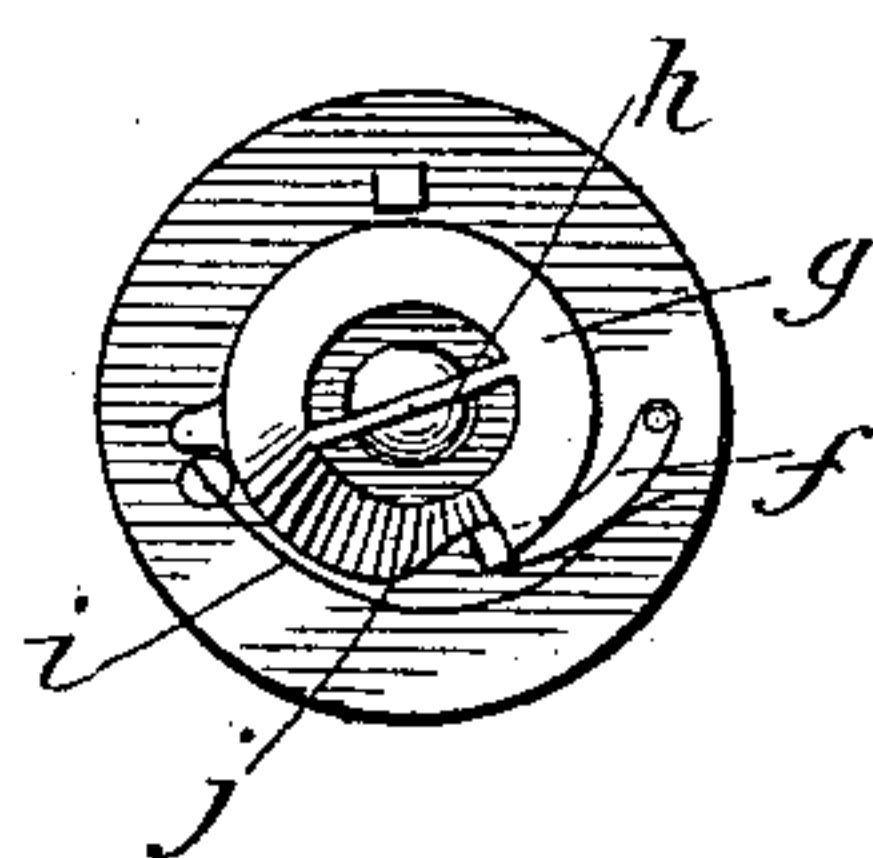


Fig. 10.

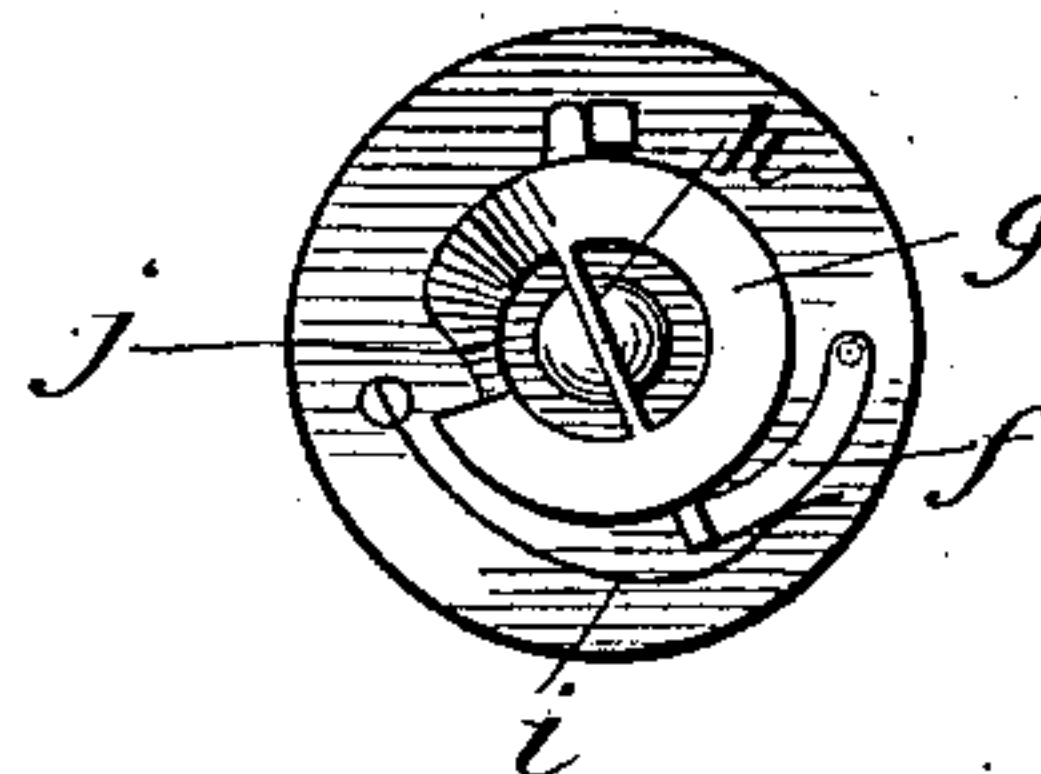


Fig. 11.

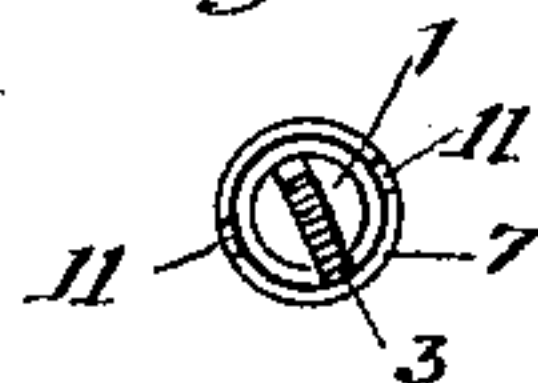
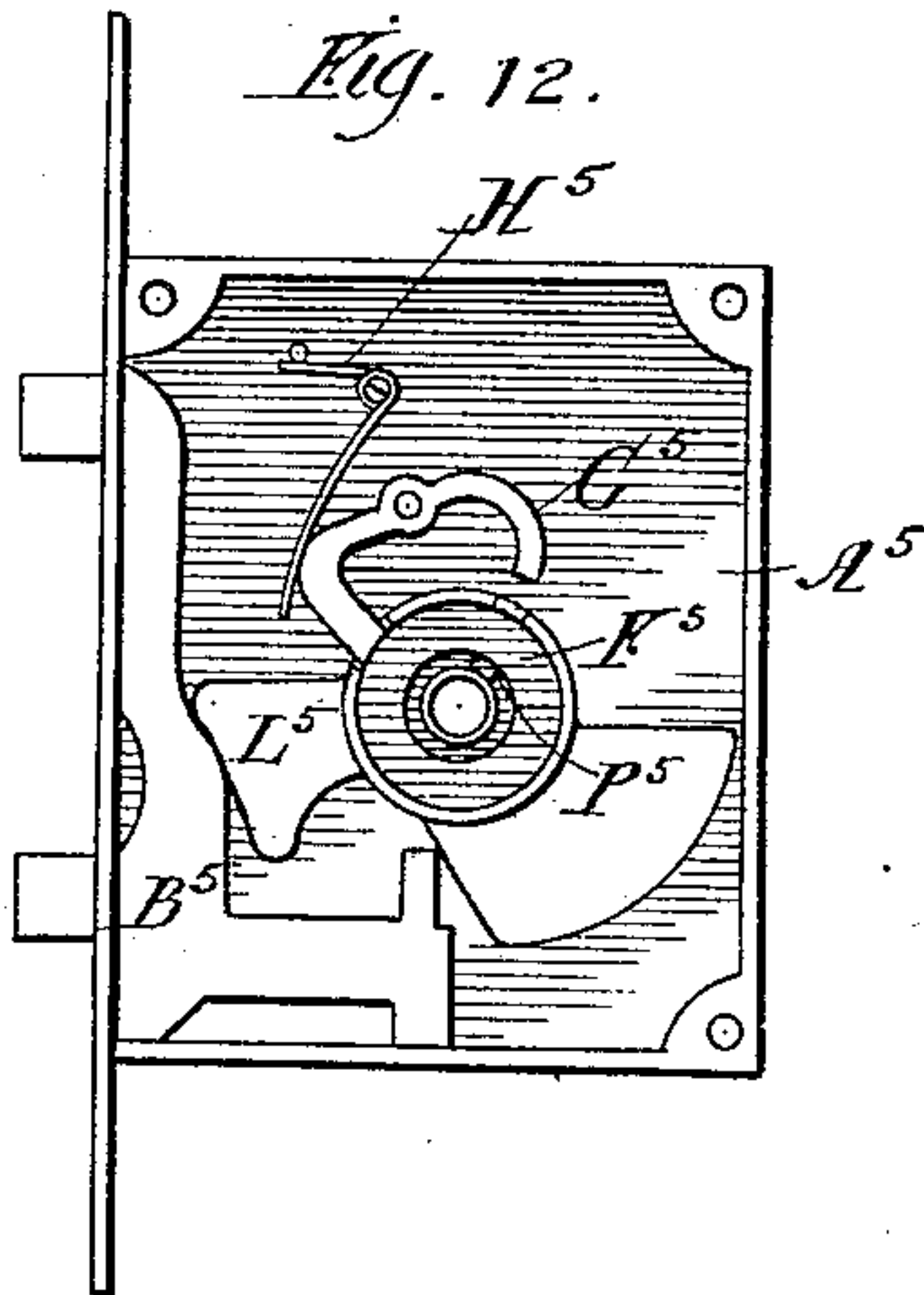


Fig. 12.



Witnesses:

Frank J. Blanchard
Chas. S. Burton

Inventor:

Edward J. Colby
By Francis W. Parker,
Attorney.

UNITED STATES PATENT OFFICE.

EDWARD J. COLBY, OF CHICAGO, ILLINOIS.

LOCK AND KEY.

SPECIFICATION forming part of Letters Patent No. 354,097, dated December 14, 1886.

Application filed February 6, 1886. Serial No. 190,993. (Model.)

To all whom it may concern:

Be it known that I, EDWARD J. COLBY, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Locks and Keys, of which the following is a specification.

My invention relates to or can be applied to all kinds of locks, and has for its objects to provide a new tubular key with extensible bits, and a lock with a central bolt-actuating barrel, the key and barrel co-operating to make a safe and simple and cheap lock. I attain these objects by the mechanism illustrated in the accompanying drawings.

Figure 1 is a plan view of a trunk-lock, with side of case removed and containing my invention. Fig. 2 is a section through same. Fig. 3 is a plan view of the face-plate. Fig. 4 is a side view of same. Fig. 5 is a plan of barrel with face-plate removed. Fig. 6 is a section of the key. Fig. 7 is a side view of a key-hole latch; Fig. 8, a section of same; Fig. 9, an end view of same, Fig. 8; Fig. 10, an end view of parts, as in Fig. 7. Fig. 11 is an end view of the key. Fig. 12 is a view of my invention as applied to a different kind of a lock.

Like parts are indicated by the same letter. A is the case; B, the bolt; C, the catch-aperture; D D, the guide-apertures; E E, bolt-guides; F, a central barrel pivoted in the case so as to rotate. G is a pivoted tumbler flexibly held by the spring H and adapted to engage the slots I and K¹ in the rim of the barrel, as shown.

J is a lug to limit the throw of the tumbler.

L is a permanent dog on the barrel. M is a retreating dog on the same, pivoted and flexibly held by the spring R.

N N are slots in the bolt to receive the dogs.

O is a spiral spring secured at one end to the barrel and at the other to the face-plate K.

K' is a lug on the face-plate; K², a slot in the same; P, an inner lug on the barrel; K³, a central stem to engage the end of the key and guide the same.

S is a pin which limits the movement of the face-plate, and S' is a pin which engages the end of the spring O.

A' is the aperture in the face of the lock.

1 is a key-stem. 2 and 3 are bits pivoted thereto, and having respectively the irregular end 9 and the plain end 10, said bits adapted to pass through the apertures 8 8.

6 is a spiral spring encircling the stem and bearing on the shoulders 13 and 14.

7 is a tube. 4 is a slot in the stem, and 5 is a pin passing therethrough to hold the parts together.

11 is a slot in the lower end of the tube. The tube could be of any length, have any number of slots, apertures, and bits arranged in any desired manner.

a is a feather rigidly secured to the part d.

b is a stem having the bit c rotating on the part d, and at its upper end it has the raised annulus g with the slot or recess j and the bridge h.

f is a tumbler pivoted to the part d, and held by a spring, i. The key-hole is e. In this case the key has two slots, as shown in Fig. 11, and when it is inserted and turned it raises the tumbler and then rotates the stem. This device can be used to close and secure the key-holes of ordinary locks.

Fig. 12 shows a modification, in which the parts are as follows: A⁵ is the case. B⁵ is the bolt; G⁵, the tumbler; H⁵, its spring; F⁵, the barrel without face-plate or spring-dog; L⁵, the dog; P⁵, the inner lug.

The use and operation of my invention are as follows: The parts are put together as shown in the drawings. The bolt is thrown into place so as to lock the article to which it is attached. The parts are then at rest. The tumbler is in the slot in the barrel, so as to arrest its motion, and if moved it cannot shoot the bolt because the spring-dog is so far retreated as not to engage the bolt. To shoot the bolt will require a key, which will throw the tumbler out of the slot, but not far enough to engage the secondary slot and at the same time to throw out the spring-dog. The key must also have a slot to engage the lug on the face-plate, and its bits must emerge at such an angle as will permit them to engage the dog and tumbler when the slot passes downward on the inner lug. A permanent dog or tooth on the barrel may be used with or substituted for the spring-dog. The tumbler may be compound, as shown, in which case the bit

will require an irregular form or outline, so as to engage each member of the tumbler at the same time and move each a suitable distance. Of course, a series of dogs and a series of 5 of tumblers could be used, and also a series of slots in the end of the key.

My invention can be applied to any kind of a lock.

The key is inserted, the slot engages the lug 10 on the face-plate, the key is then turned until the lugs on the face-plate and the inner lug fall into the same line, and the key is then pushed in and pressure applied to its outer end. By this action the extensible bits are 15 thrown out, thereby throwing out the dog and releasing the barrel from the compound tumbler. The key and barrel are then turned around and the bolt thus operated. Some of the features shown could be dispensed with 20 and modifications made.

I claim as my invention and desire to secure the following:

1. In a lock, the combination of a case, a bolt, a central barrel, and a bolt-actuating dog 25 carried thereby, with a spring adapted to hold said dog within the barrel when out of use.

2. In a lock, the combination of a case, a bolt, and a central barrel having a recess in its outer surface, and a tumbler pivoted to the 30 case and adapted to engage the recess and arrest the barrel.

3. In a lock, the combination of a case, a bolt, a tumbler pivoted to the case and adapted

to engage the barrel, and a barrel carrying a retreating bolt-actuating dog and slotted to 35 receive the dog and release the tumbler.

4. In a lock, the combination of a case, a bolt, a rotating barrel and a dog carried thereby and adapted to engage and operate the bolt, and a lug on the inner end of said barrel to 40 engage the key.

5. In a lock, the combination of a case, a bolt, and a centrally-pivoted barrel having a lug and a rotating face-plate thereon, said face-plate being provided with a lug which can be 45 brought into line with the lug on the barrel by rotating said plate.

6. A tubular key having extensible bits with irregular outlines, as shown.

7. The combination of a tubular key having 50 extensible bits, a lock-case, a bolt, and a rotating barrel having a key-lug and a retreating dog, so that by inserting and rotating the key the dog is thrown out and the barrel is rotated to move the bolt. 55

8. The combination of a tubular key having slots in the end of the tube and extensible bits, with a lock having a case, a bolt, and a rotating barrel, which is provided with a face-plate, an inner lug, and a spring retreating 60 dog, and a tumbler pivoted to the case and adapted to engage and arrest the barrel.

EDWARD J. COLBY.

Witnesses:

FRANCIS W. PARKER,
WILLIAM F. WIEMERS.