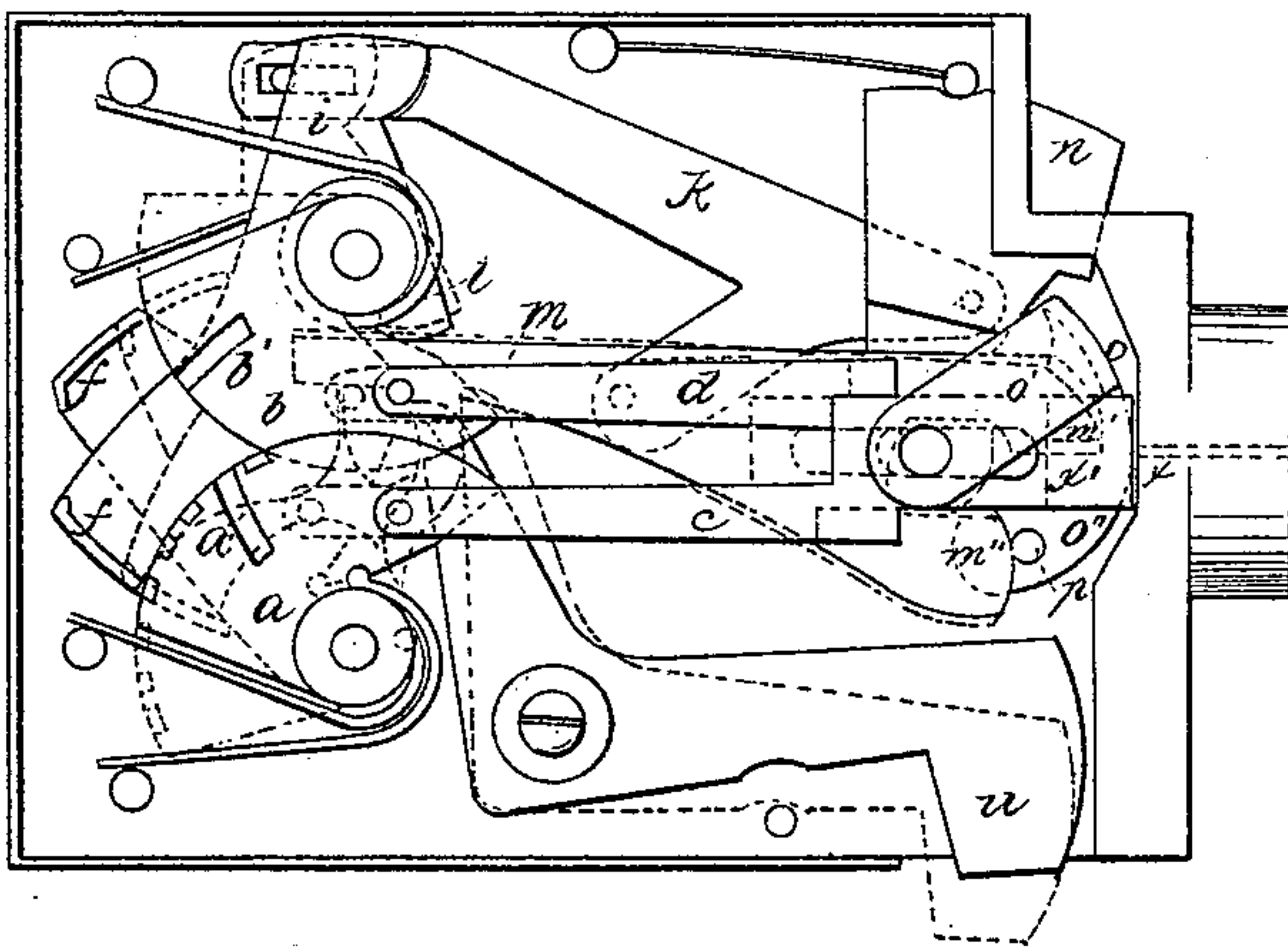


*T. Bowles,*  
*Lock.*

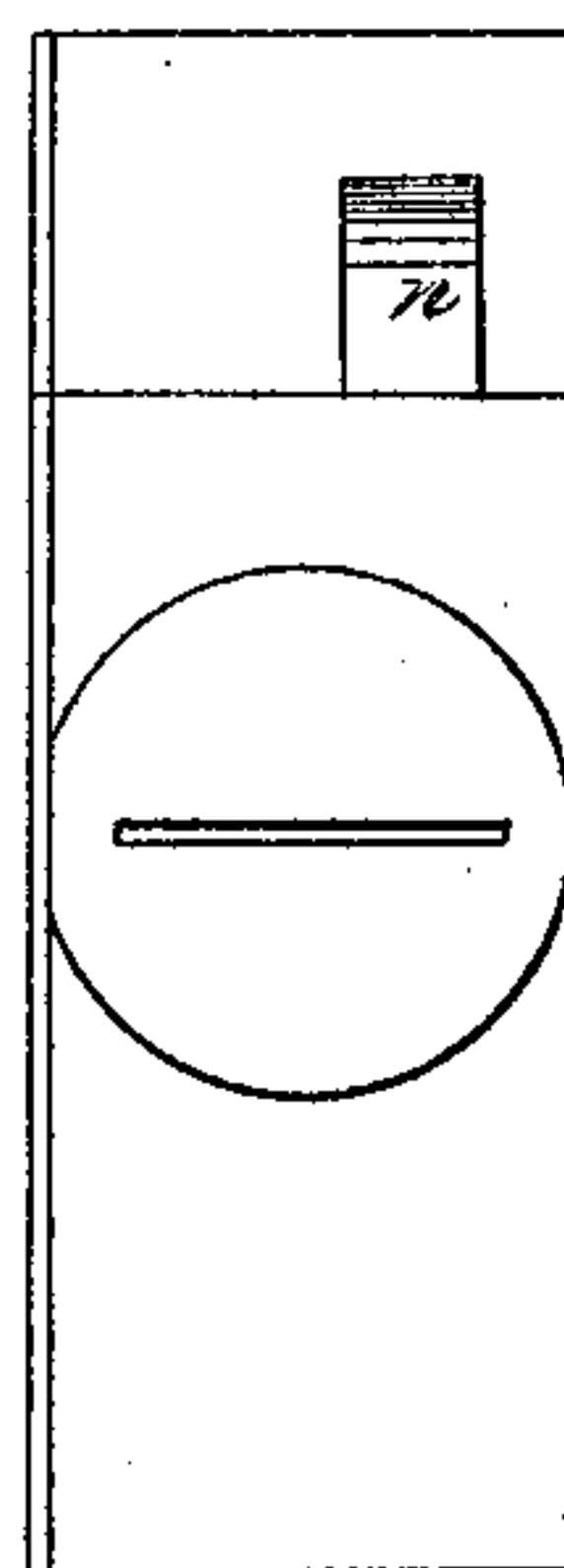
*N<sup>o</sup> 13,968.*

*Patented Dec. 18, 1855.*

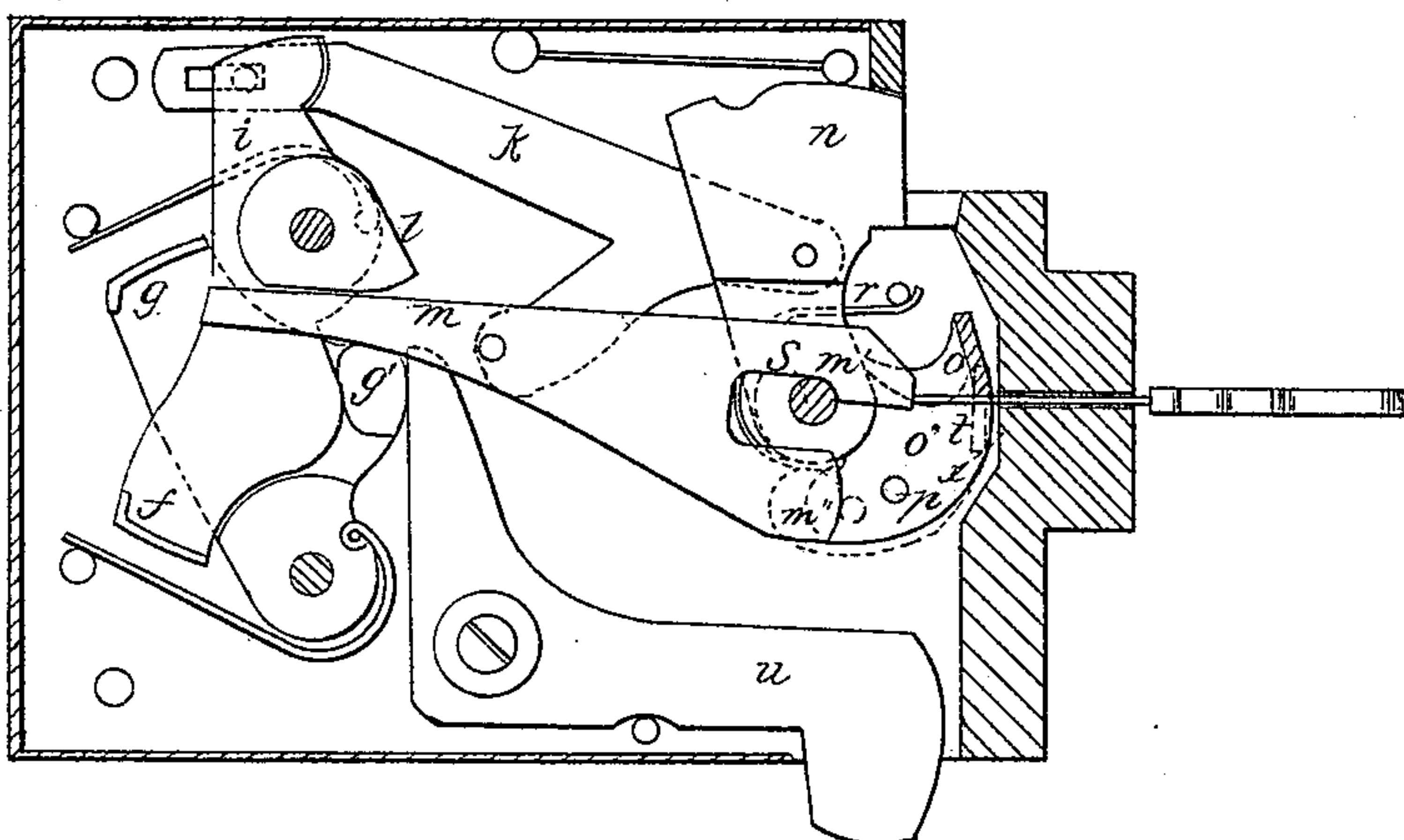
*Fig. 1.*



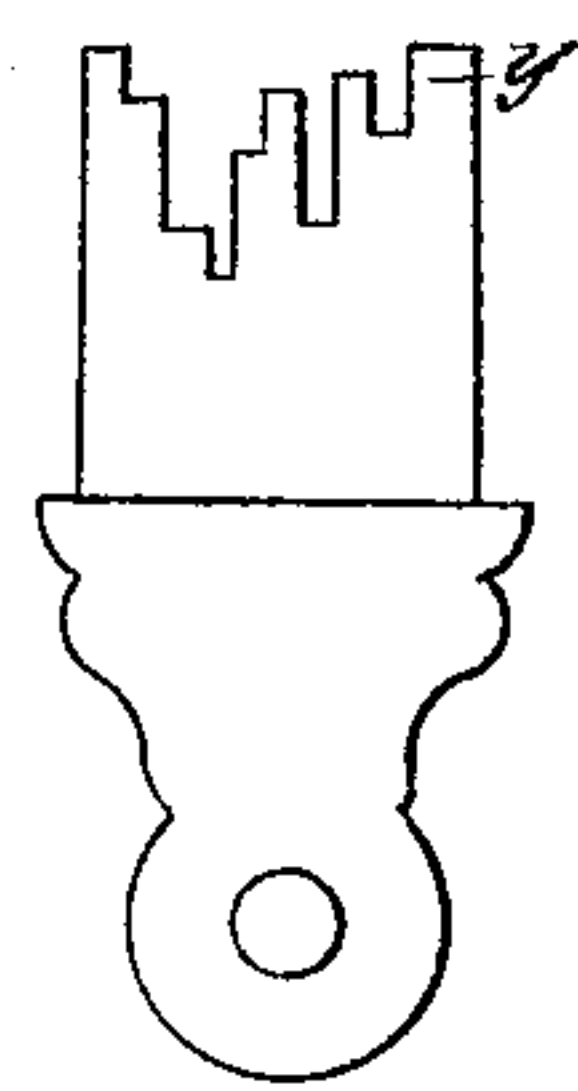
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*





# UNITED STATES PATENT OFFICE.

THOS. BOWLES, OF NEW YORK., N. Y., ASSIGNOR TO R. M. PATRICK.

## LOCK.

Specification of Letters Patent No. 13,968, dated December 18, 1855.

*To all whom it may concern:*

Be it known that I, THOMAS BOWLES, of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Safe-Locks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the annexed drawing, making a part of this specification, in which—

Figure I is a side elevation of my lock. Fig. II is a front elevation of my lock. Fig. III is a side elevation shown as with some parts removed, and similar letters indicate similar parts throughout.

My invention is for certain improvements upon the sector-tumbler lock for iron safes, operated by the direct thrust of a key upon the tumblers, and it is designed to remedy several defects which exist in all that class of locks. The first of these defects is the inability to get at the lock without breaking out the plaster or composition in which the lock is usually embedded within the door; a second is in the position of the tumblers or sectors. These are placed so near to the front edge of the lock, that they are not fully protected from fire, and as the key acts directly upon them in operating, they are in a situation to be easily tampered with for packing. Another defect is the ease with which when unlocked an impression or pattern for the constructing of a key can be taken, there being at that particular time no safeguard whatever. It is only to thrust in a row of short wires until their ends strike against the tumblers and draw them all out so as to preserve those positions, when the exact form for the edge of the key will be obtained. It will be remembered that a key is only used to open this description of locks, the fastening or throwing out of the bolts being effected by a knob, upon the door. My first improvement then, consists in removing the sector-tumblers to a distance from the key-hole so that the lock will be lengthened out sufficiently to extend through the thickness of the safe door, and (since it is not desirable to lengthen the key) operating upon them by a series of links extending horizontally forward and terminating against the front plate of the lock at the key-hole, and to which plate they stand at a right angle. The next improvement is in the manner of guarding the key-hole when unlocked.

This is accomplished by the disengagement of a blind or shutter in the act of opening, which shutter falls down and closes the key-hole on withdrawing the key, so that not even the proper key, nor any instrument, can be inserted until after the door has been again locked.

The construction and operation is as follows. In this class of locks, as for instance in Goffin's, the tumblers are all placed upon one axis and immediately back of the key-hole. In my lock the two kinds are separated into two sets, and turn upon pins at the back of the lock one above the other and as shown in Fig. I where (a) represents the notched tumblers and (b) those with smooth edges. To each sector forming a tumbler a link is attached at or near the edge setting toward the front. These lie horizontally and terminate just back of the key-hole and as shown at (c) (d). To support the end near the key-hole and at the same time allow of the proper play back and forth, slots are cut through which a pin (E) passes from the side plates. The pushing back of these links (c) (d) in their proper order turns the tumblers until the deep notches (a') and (b') in each are brought into line, when the two dogs or catches (f) and (g) drop in and hold them in that position. In Goffin's locks, as soon as the dogs drop into the deep notches the bolt is at the same time withdrawn and is thus unlocked, but in my lock the bolt must be pushed back by the key in order to liberate the shutter guard to the key-hole although in locking the bolt is operated by the movement of the dogs while being disengaged from the notches (a' and b'). The dog (g) has its axis on the pin holding the lower set of sectors, while (f) has its axis upon the upper. These stand last upon the pins and against one of the side plates, as shown in the section Fig. III, in which the tumblers are not represented. The dog (g) has a projection (g') which strikes against (f) so that both are made to move by a motion imparted to (g'). The dog (f) has two projections which are connected with the parts for operating the bolt and shutter. One of these is at (i), and effects the movement of the bolt by means of a peculiar shaped link (k); the other is at (l) and operates upon a lever, shown at (m). This lever is supported by the link (k) from a branch extending downward terminating



at a pin near (*m*) Fig. III, as shown. The front end is widened out and divided into two branches or forks (*m'* *m''*). The use of this lever is to throw back the bolt in the operation of unlocking, and to remove the shutter from behind the key-hole, in the operation of locking. The bolt is shown at (*n*) and is a stout piece of metal hinged to the pin (*E*) upon which it vibrates. In locking, the upper front corner projects through the end plate, as shown at (*n*) Fig. I, and is withdrawn as at (*n*) Fig. III, in unlocking. The shutter is shown at (*o*). It is a flat bar extending across the thickness of the lock and is situated just behind the slot forming the key-hole. It plays upon the pin (*E*) to which it is attached by two arms (*o'*) (*o''*), one on either side. The arm (*o''*) is spread out something in the form of a sector, near the corner of which is a pin (*p*) whereby it is acted upon by the end (*m''*) of the lever (*m*), a spring (*r*) tending to force the shutter always down. In Fig. III the positions of the parts are represented as when unlocked, the key however not having yet been withdrawn. A right angled lever, seen at (*u*), has one end terminating against the projections (*g'*) and the other through a hole in the bottom plate near the front of the lock.

The operation will be as follows: The raising of the projecting end of (*u*) causes the other to press against (*g'*) and forces the dogs (*f*) and (*g*) out of the notches (*a'*) and (*b'*) of the tumblers (Fig. I). The arm (*i*) by the movement of the dog (*f*) advances and presses against a recess in the link (*h*) thereby thrusting out the corner (*n*) Fig. I, of the bolt. At the same time the lever (*m*) is also carried forward and as the fork (*m''*) pushes against the pin (*p*) the shutter is raised from the position shown at (*t*) Fig. III, to (*o*). The projection (*l*) also strikes upon the tail of the lever (*m*) depressing it and raising the opposite end so that the lower edge of the fork (*m'*) will be above the level of the key hole as shown Fig. I. The locking is now complete, and the ends of the several links (*c*, *d*) press flush against the back of the key-hole-plate (*x*).

The art of picking this kind of lock consists in bringing all the tumblers into such position that the slots (*a'* and *b'*) will stand in line to receive the dogs, and of course a mold of the position of the tumblers when locked would amount to nothing, they being all in one line. To unlock, the operation is

as follows: The key Fig. IV is inserted into the key-hole, as shown in Fig. III. Each of the projections formed by the irregularly cut edge strikes upon the end (*x*) of the links (*c* and *d*) except the one marked (*y*) in Fig. IV, which does not at the first come into play. The key thrust in pushes back those links more or less according to the form of the same and as required to bring the several cuts (*a'* *b'*) into line, the extent being shown at (*x'*) Fig. I. The point (*y*) will then have gone under the fork (*m'*) of the lever. At this moment the cuts (*a'* and *b'*) will be in line to receive the dogs which are driven in by the force of their spring. This moves the piece (*i*) back to the position shown in Fig. I by the red lines, there being a slot in (*k*) to allow the guide pin to play without moving the latter. The other projection (*l*) also rises, thus relieving the tail of the lever which however does not now follow, as its other end (*m'*) is supported by the key under it. The bolt can now be pushed back. For this purpose the key is withdrawn so far as is necessary to remove (*y*) from under the fork (*m'*) when that end immediately drops as far as permitted by the rise of the tail which is arrested by the projection (*l*). Thrusting the key in, the point (*y*) now strikes the end (*m'*) and pushes it along and being attached to the link (*h*) the bolt (*n*) is withdrawn. The movement of (*m*) carries the other point of the fork (*m''*) away from the supporting pin (*p*) of the shutter, which now drops toward the key-hole, but is arrested by striking the key, the lower edge resting upon it as shown at (*o*) Fig. III. On pulling the key out the shutter falls to (*t*) and closes the hole, the pin (*p*) dropping against (*m''*) ready for action in the next movement for locking.

I claim—

1. The shutter (*o*), so arranged that being brought into action when the bolt is withdrawn it shall cover the key hole while the bolt is so withdrawn, as set forth.

2. I also claim the arrangement for withdrawing the bolt by a distinct movement of the key after the tumblers have been set, such arrangement consisting of the lever (*m*) in combination with the link (*h*) and the bolt (*n*) as described.

THOS. BOWLES.

Witnesses:

J. P. PIRSSON,  
S. H. MAYNARD.