

2 Sheets-Sheet 2.

W. Stephenson,
Lock.

No 5,766.

Patented Sep. 12, 1848.

Fig: 13.

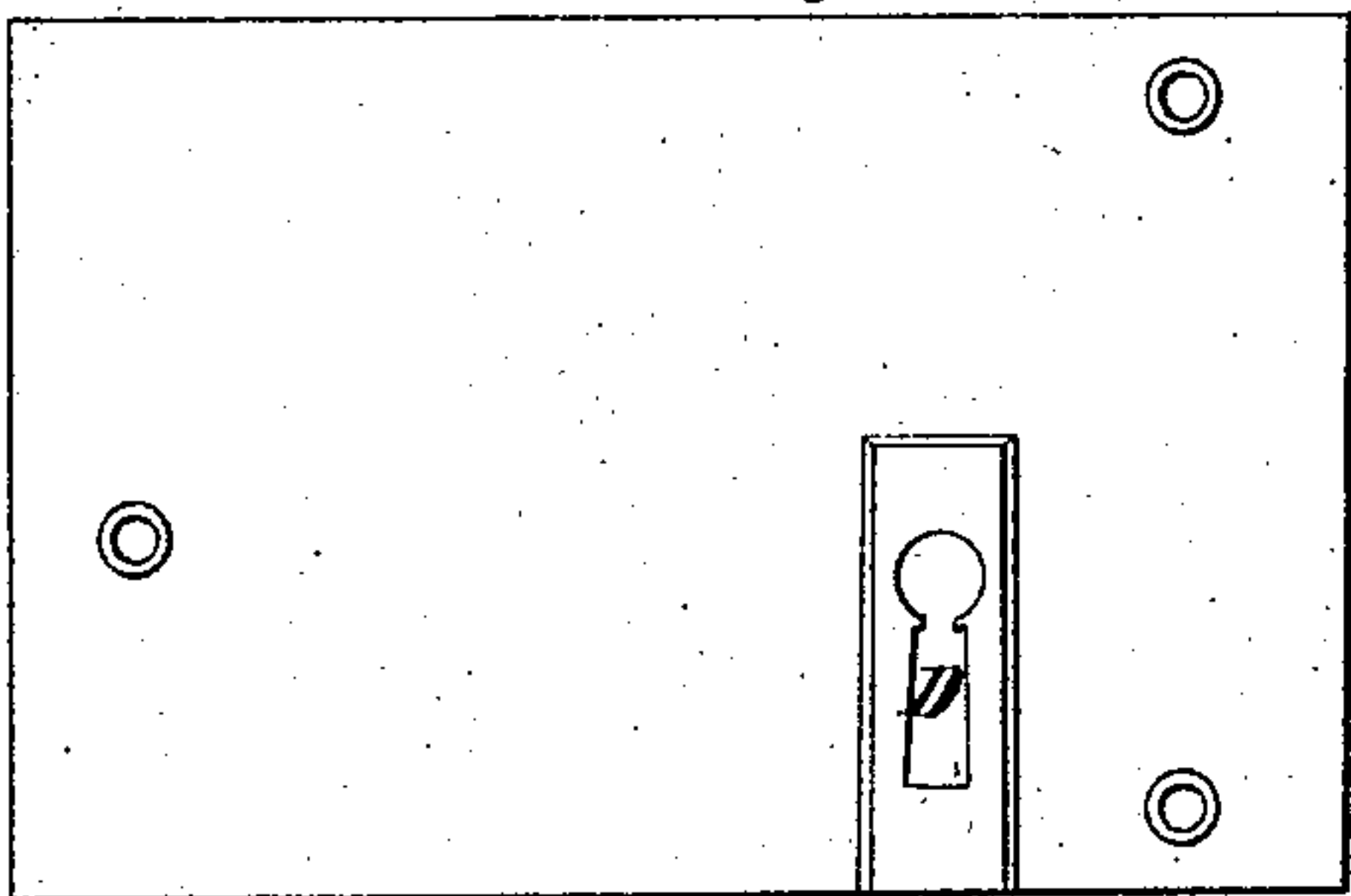


Fig: 14.

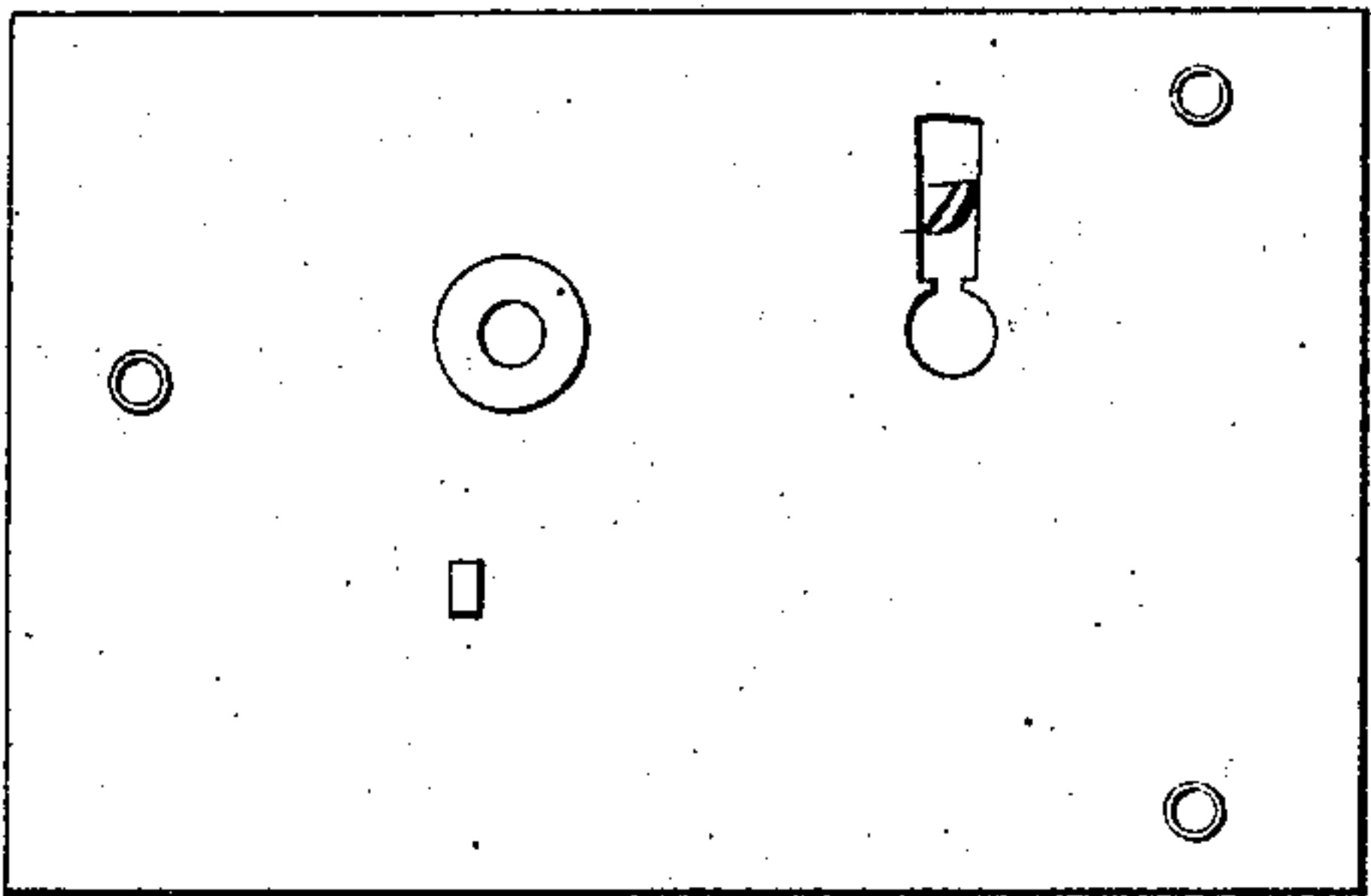


Fig: 15.

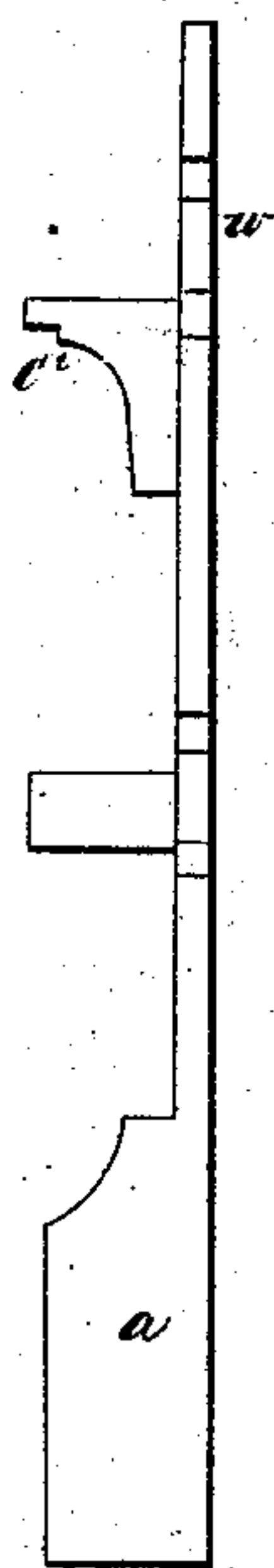


Fig: 10.

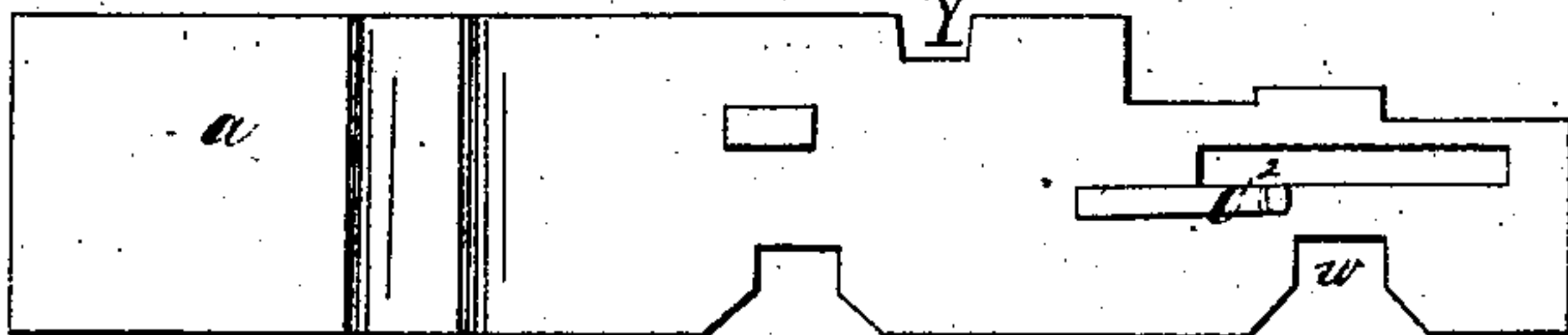


Fig: 12.

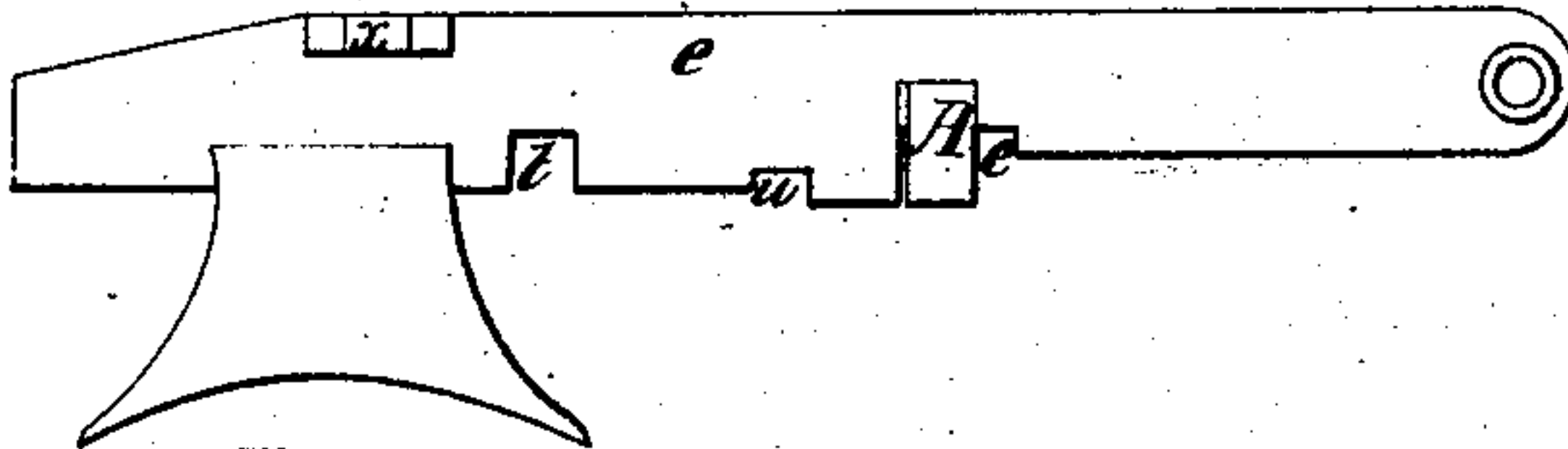


Fig: 11.



UNITED STATES PATENT OFFICE.

WILLIAM STEPHENSON, OF CINCINNATI, OHIO.

DOOR-LOCK.

Specification of Letters Patent No. 5,766, dated September 12, 1848.

To all whom it may concern:

Be it known that I, WILLIAM STEPHENSON, of the city of Cincinnati, county of Hamilton, and State of Ohio, have invented a new and useful Improvement in Door-Locks, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a view of the interior of the lock showing the bolt thrown out from the box by turning the key from the outside of the lock and the circular plate in the position that it must be made to assume when the key is being inserted and withdrawn and the ordinary tumblers of the lock down and the inside tumbler up, and the slide to which the dog is attached raised and the lower end of the dog in contact with the periphery of the revolving plate, the cap plate of the lock which comes next the door being removed in order to show these several parts of the lock, and the key hole in the back plate of the lock to insert the key on that side. Fig. 2, represents in black lines the position of the slide and tumbler when the bolt is thrown out from the inside of the lock, the dotted lines showing the position of the slide and tumbler when the bolt is thrown in from the inside, the dotted lines showing the position of the slide and also of the dog on the notched plate when the key is turned to its position of insertion and the bolt thrown in. Fig. 3, is a vertical transverse section of the lock through the center of the circular revolving plate on the dotted line $x x$ of Fig. 1, showing the box, bolt, tumbler, revolving plate and case attached to it, springs, slide dogs and arms. Fig. 4, is a plan showing the underside of the revolving notched plate and the key case attached or combined with it. Fig. 5 is a side elevation of the notched plate and case. Fig. 6, is a plan of one of the tumblers. Fig. 7, is a side elevation of the bits of the key. Fig. 8 is an end elevation of the key. Fig. 9, is an elevation of the mortised slide that moves over the shanks of screws or inserted into the box and to which the vibrating dog is attached for holding the notched plate from turning back. Fig. 10, is a view of the bolt detached from the lock; Fig. 11, the slides; Fig. 12, the inner tumbler. Fig. 13, is a view of the outside of the cap plate. Fig. 14 is a view of the inside of the cap plate. Fig. 15 is a side elevation of the bolt.

Similar letters in the several figures refer to corresponding parts.

In this lock the box B' , bolt a , tumblers b and springs T are made and arranged in the usual manner; therefore I shall not give a particular description of these parts.

My improvements relate principally to the manner of constructing, arranging, and operating a revolving circular notched plate having an incasement on its under side to admit the key which turns with the key and plate; a slide and vibrating dog; a slide and tumbler; certain pins or projections in the bolt and revolving plate; and a slide to which the dog is attached; and certain notches and corresponding projections for entering the same.

In this lock there is a revolving plate g having a number of notches h in its periphery to admit the points of the reversing dog p (to be presently described) for the purpose of preventing the key from being turned back toward the key hole, just before commencing to raise the tumblers, one of said notches h^2 being designed to receive the arm A of the inner tumbler e in order to prevent the key from being turned on the outside at the key hole D when locked on the inside at the key hole C and also for preventing the withdrawal of the key before it shall have performed a complete revolution on its axis; said plate having a case l for the key secured to its outside and turning with it on which wards m are formed that enter corresponding grooves n in the key and on which are formed wings o to prevent the lock being picked, the plate also having two projections i, j , on the same side the case is on, one of said pins i being designed to strike against the projection B on the slide q to change the position of the dog p , also to stop the key at its proper place to be taken out of the lock by coming in contact with the projection B and also for preventing the key from being turned when an attempt is made to open the lock by any false instrument when the bolt is locked by striking against the projection c^2 on the bolt a ; the other pin j which is nearer the center of the plate is for the purpose of preventing the plate and key being turned around should an attempt be made to get an impression of the tumblers and notch in the bolt when the bolt is in, by striking said projection c^2 . The bearings of this revolving plate are in the inner and outer plates of

the lock. The bearing next the cap is formed by an extension of the tubular or cylindrical portion of the case through the circular plate. The bearing next the inner plate of the lock is formed on the inner end of the tubular portion of the case and revolves in a circular bearing in the inner plate of the lock. See 33, in Fig. 3.

The vibrating and sliding dog p for holding the revolving notched plate is a curved bar of metal attached to a slide q by a center pin p' on which it vibrates and is placed near the edge of the revolving plate.

The slide q for changing the position of the dog is attached to a block E at the end of the lock near the edge of the revolving plate by pins E' on which it moves back and forth by the action of the projection i on the circular plate striking the projection B on the slide, being perforated with oblong mortises to allow it to move on said pins E' .

The spring r for reversing the position of the dog is attached at one end to the end of the lock, the other end bearing upon the back of the dog to change its position when moved by the slide.

The slide d for holding the inner tumbler e up, when the bolt is moved from the inside of the lock, is pierced with two oblong openings d' which permit it to slide back and forth on two studs 22 inserted into the inner plate of the lock and is notched on its lower edge at d^2 to admit the bit of the key to move it to the right and left. It has also a projection or tooth s on its upper edge which keeps the tumbler e out of the way of the bolt when the latter is moved from the outside.

The inner tumbler e is attached to the inner plate of the lock by a pin e' passed through its smaller end on which it turns and has three notches on its lower edge lettered e^2 , t , u and two projections or arms A , x on its side. The notch e^2 nearest the pin on which it turns is merely to admit it to pass by the stud s on which the bolt a slides. The notch u next to it is to keep the slide in its place by admitting the projection s of the slide to enter it and also to keep the slide up so that the bolt can be moved from the outside. The third notch t is deeper than the others, to permit the short arm x of the tumbler to fall into the notch y of the bolt when locked on the inside to prevent the bolt from being moved from the outside of the lock.

The pin C^2 on the bolt a near the mortise notch w is designed for the purpose of preventing the opening of the lock from the outside by means of any false instrument by the projection i on the revolving plate g striking against it, and also for the prevention of taking an impression of the tumblers and bolt when the bolt is in, by means of the projection j on the revolving plate g

striking against the said pin C^2 as before mentioned and thus arresting the motion of the plate g , it being prevented from turning back by the dog p falling into notch h . The division plate v inside of the lock reaching from the bottom of the lock to the tumblers and bolt, between the outside and inside key holes is to prevent the introduction of any instrument to pick the lock when locked on the inside.

The key is similar to other keys with the exception that there is a groove n on each side of the bit to receive the wards or projections m in the bore of the case.

Operation: To throw the bolt out to lock the door adjust the lock by placing the circular plate g in such position as to bring the pin i above the projection B on the slide of the dog p , the slide being forced down as far as it will go, the upper arm of the dog being against the circular plate g (as represented by dotted lines in Fig. 2). Now insert the key and turn it in the direction to push the bolt out. Just before the bit of the key touches the tumblers b and the bolt a the dog p (acting against the periphery of the revolving plate) falls into one of the notches h and prevents the key from turning back, the key being turned in the same direction still farther the dog continues to fall into the notches h until the bolt is thrown out, and the motion of the key being continued until it arrives nearly opposite the key hole the pin i strikes the projection B of the slide q and moves the slide up to reverse the position of the dog p which is effected by moving it against the point of the spring r , which is made to bear against the dog alternately on either side of its center p' as the slide is moved up and down by the motion of the circular plate.

To move the bolt in, the key is turned in the opposite direction, the operation of the lock being the same as when locking. In locking and unlocking this lock the key must always be brought opposite the place of insertion in order to be turned in a contrary direction.

If it be attempted to get an impression of the tumblers by means of a skeleton key or any other instrument; or if an attempt be made to open the lock by a false key—if the false key or other instrument do not move the bolt at the first trial the pin i will strike against the pin C^2 on the bolt a and thus will prevent the key being turned either way—effectually preventing the person endeavoring to take the impression from withdrawing his key,—or false instrument. Should an attempt be made to get an impression of the tumblers when the lock is unlocked, and the plate g be turned the inner pin j on the plate g strikes the pin C^2 on the bolt a and the dog p falls into a notch h and the key cannot be turned either way.

In locking the bolt on the inside the key not only operates on the tumblers *b* and bolt *a* as in ordinary locks but the inner part *z* of the key-bit raises the tumbler *e* and moves the slide *d* so that the bolt *a* is moved out (the slide *d* being moved with the bolt) the tumbler *e* is let down and a projection *x* on the tumbler falls into the notch *y* in the bolt and secures the bolt from being moved by the same key, or any other means, from the outside and remains in that position until the bolt is moved in by means of the key to unlock the lock from the inside, which is done by turning the key in opposite direction.

When the bolt is thrown out from the inside the bent arm *A* of the tumbler *e* falls into a notch *h*² in the revolving plate *g* so that the key cannot turn the said plate *g* from the outside, nor can the lock be unlocked or picked from the outside,—by any key or instrument, when thus held by the arm *A*.

Having thus fully described the manner in which I combine and arrange the respective parts of my lock and the manner in which they operate when the bolt is moving in or out, what I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. The application of the circular revolving notched plate *g* and the pins *i* and *j*

thereon—the slide *g* and dog *p* constructed and operating substantially as herein described and set forth.

2. I likewise claim the employment of the additional pin *C*² inserted into the bolt *a* in combination with the pins *i* and *j* in the revolving plate *g* arranged and operating substantially in the manner and for the purposes herein fully set forth.

3. I also claim the application of the slide *d* in combination with the additional tumbler *e* constructed and operating substantially in the manner and for the purposes herein set forth.

4. I likewise claim the combination and arrangement of the additional arm *A* on the tumbler *e* in connection with the circular revolving plate *g* arranged and operating in the manner and for the purpose set forth.

5. I claim the arrangement of the division plate *v* between the inner and outer key hole of the lock to prevent the lock being picked when locked on the inside as described and set forth.

I hereby disclaim all invention to the other parts of the lock as heretofore known and used.

W. STEPHENSON.

Witnesses:

WM. P. ELLIOT,
WASHINGTON FENWICK.