S. Andrews,

Padlock.

No. 15,270. Patented July 8, 1856.

Fig. 3

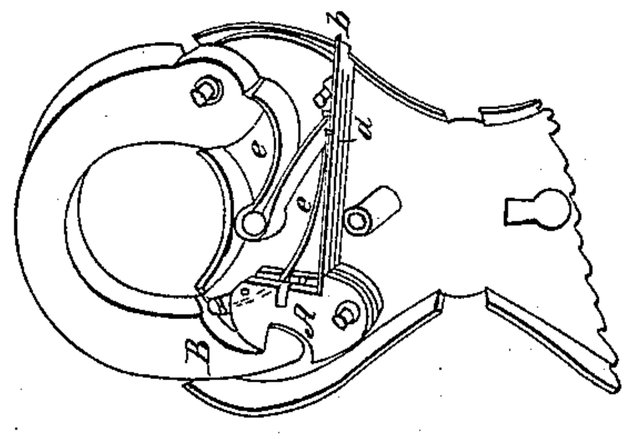


Fig. 7

Fig. 6

Fig. 2

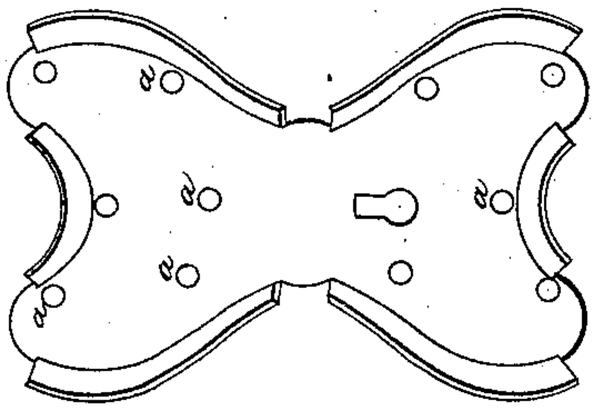
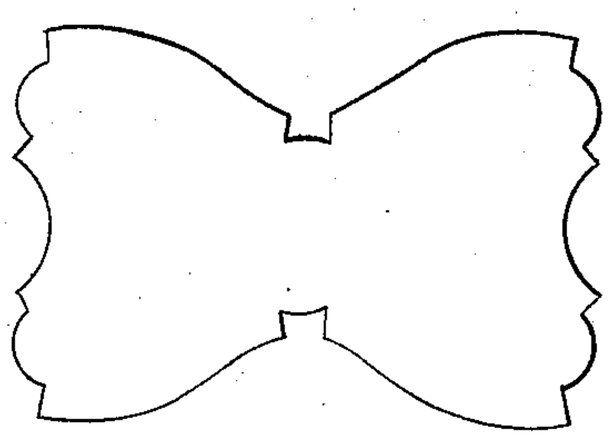


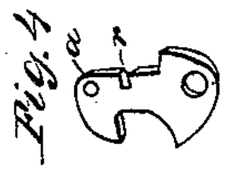
Fig. 5

Fig. 1



Witnesses;
Abram Van Doren
Solomon Andrews Jr

Fig. 4



Inventor;
Solomon Andrews

UNITED STATES PATENT OFFICE.

SOLOMON ANDREWS, OF PERTH AMBOY, NEW JERSEY.

PADLOCK.

Specification of Letters Patent No. 15,270, dated July 8, 1856.

To all whom it may concern:

Be it known that I, SOLOMON ANDREWS, M. D., of Perth Amboy, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Padlocks and in the Manner of Constructing the Same, which I denominate the "American Padlock;" and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

In the construction of this lock I first punch out a plate as shown at Figure 1, and then raise it at its edges as seen at Fig. 2. Then the holes are punched in it (*a*, *a*, *a*,) after which it is half bent, *i. e.*, bent at right angles, when the works and shackle are put in, as shown in the half case Fig. 3, and the front or face plate is bent down to its place and riveted.

Fig. 4, is a top, and bottom hook, and Fig. 5, an intermediate one (*r*, *r*,) rack notches. Any number of these hooks may be used to increase the combinations and safety of the lock. This latter hook, it will be seen, does not extend out as far as the top and bottom hooks, it being shortened to allow the end of the opening spring, Fig. 6, to work under the small wire or rivet which passes through the hole in the top and bottom hooks (*a*, Fig. 4); Fig. 7, the tumbler springs, made by sawing into a plate of spring metal, like comb teeth, or by connecting separate slips together at one end with solder or otherwise, and secured in the lock, by passing through the side of the case (*b*, Fig. 3).

At (*c*, Fig. 3,) is the shackle spring, which passes around the center rivet, one end bearing against the heel of the shackle, and the other end upon the heel of the opening spring, which rests upon the tumbler springs (*d*,) and thus the shackle spring assists the tumbler springs to perform their duty. When any one of the tumbler springs (*d*, Fig. 3,) are raised by a bit of the key, the opening spring (*e*) is brought into action by being lifted so as to draw back the hooks from the shackle, sufficiently for the ends of the tumbler springs to enter the rackings in the hooks, and once entered they will continue to draw back the hooks by their own action in returning to a state of rest; holding the hooks back until they are again drawn forward by the action of the bill of the shackle on the opposite side of the hooks.

The different key bits, whatever may be their length, when the key is turned either forward or backward may each lift a tumbler spring independently of each other and no bolt bit is required; for all the bits of the key may thus act, giving the entire surface of the key bits for tumbler action.

The bolt,—or rather the hooks which are here used as a substitute for a bolt,—is drawn back by means of the inclined or bent end of the opening spring, Fig. 6, operating obliquely upon a small wire passing through the hooks, which is brought into action as before stated by any one of the bits of the key through the intervention of the tumbler springs; either one of which being lifted will lift the opening spring, because it rests its broad surface upon them, and is kept in contact at its heel by the pressure of one end of the shackle spring upon it. The using of all the bits of a key for tumbler action while either one acts as a bolt bit, is a matter of great moment, as it adds so much to the security of the lock where only a small key bit surface can be had. So also this mode of operating to draw back the bolt, and thus cutting off opportunity to make harder pressure upon the bolt to aid in picking adds most materially to its security. This improvement is applicable to other locks than padlocks, and I do not intend to confine it to padlocks.

It will be seen that the body or case of this lock is made of only one piece of metal, it being thus an improvement upon the construction of the clam shell padlock which is composed of two pieces of metal and which have to be raised, cut, and punched separately; thus requiring twice the amount of labor, twice the time in handling of each part, besides twice the waste in cutting out two pieces, instead of one. The economy in this particular is very important, because the amount of labor bestowed on the manufacture of a padlock so much exceeds the cost of materials, especially in a good lock, that we have never been able in this country to compete with the imported padlocks as to price. A padlock, it is believed, is of all things imported the most difficulty for an American manufacturer to compete with successfully; and it is only by invention of improved processes of manufacture combined with an improved construction to save

material, and to adapt the work to machine labor, that we can ever hope to succeed in this article against foreign cheap labor and raw material.

The saving of material in this lock is of considerable importance, and this is attributable to the peculiar construction and arrangement of the works, as well as to the formation of the case. It is a feature which shows great improvement, for while the lock is smaller, and lighter, it is far more lively in its action, safer, and stronger, than any other lock of different construction, not excepting even the clamshell padlock, and the connection of the top and bottom plate (they being but one piece of metal) gives it another advantage for strength even over that.

The hooks are punched out in dies and are similar to each other except in the racking, and the other variation noticed at Figs. 4 and 5. These locks and keys are susceptible of a vast number of combinations, by the use of only a few tools varying in the punching of the rackings, and a greater variety of keys may be made for these padlocks without increase of cost, than has ever before been found possible, it being an improvement in this instance also upon the clam shell lock. In that padlock by making five different spring hooks the number of changes will be the square of five; but in this lock by making five different rackings in one set of hooks the combinations are the cube of five.

This lock possesses, it is believed, every good quality which has ever pertained to a padlock. It is handsome—simple—light—cheap—strong—small in body yet large in shackle—has double shouldered rivets—opens easily with the key—the key may turn forward or backward—is susceptible of an immense number of variations in key and without increase of cost—can be locked without the key, called self locking—locks easily, with very little pressure—the shackle is dovetailed into the case, and it flies out to its full extent, when the true key is applied, called self opening—no extra pressure can be applied to the hooks (the substitute for a bolt) to aid in picking it—it is racked perfectly—cannot be knocked open, and all the springs bear upon each other in such manner as to aid each other, either to secure the shackle when locked, or to open it when the true key is applied—it gives a false impression—and is more safe against picking or false keys than any other—and from the fact that all the springs but the shackle spring, are entirely at rest except when in the act of locking or unlocking, it will doubtless be as durable as the clamshell lock, not one of which has yet worn out though fifteen years in use upon the mails. Should the shackle spring give out it will not injure the security or working of the lock. It cannot be injured by any key which can be introduced into the key hole even though such key have a solid bit and any amount of force applied.

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

1. Making a spring to answer the double purpose of a spring and racked tumbler, which I denominate a spring tumbler.

2. I also claim as my invention, the opening spring, being a spring brought into action by the key for the purpose of drawing back the hooks, or unlocking the lock.

3. I also claim as my invention the combination of the spring tumblers with the hooks in the manner herein set forth, holding back the hooks when unlocked, so as to constitute a perfectly racked tumbler lock, a self locking one.

SOLOMON ANDREWS.

Witnesses:

WM. DUNHAVEN,

ABRAM VAN DOREN.