

H. AHREND.  
Pad-Locks.

No. 146,856.

Patented Jan. 27, 1874.

Fig. 1.

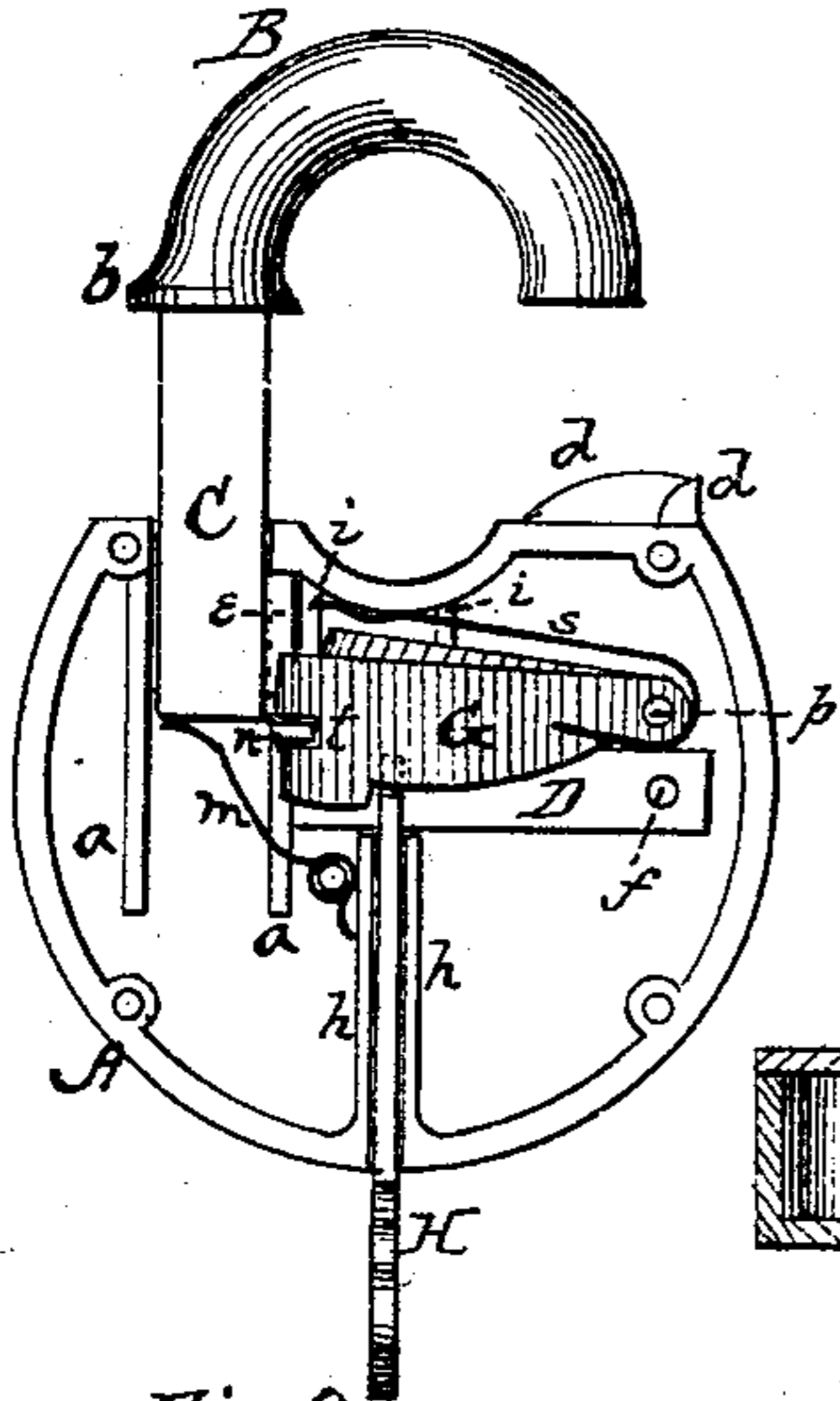


Fig. 3.

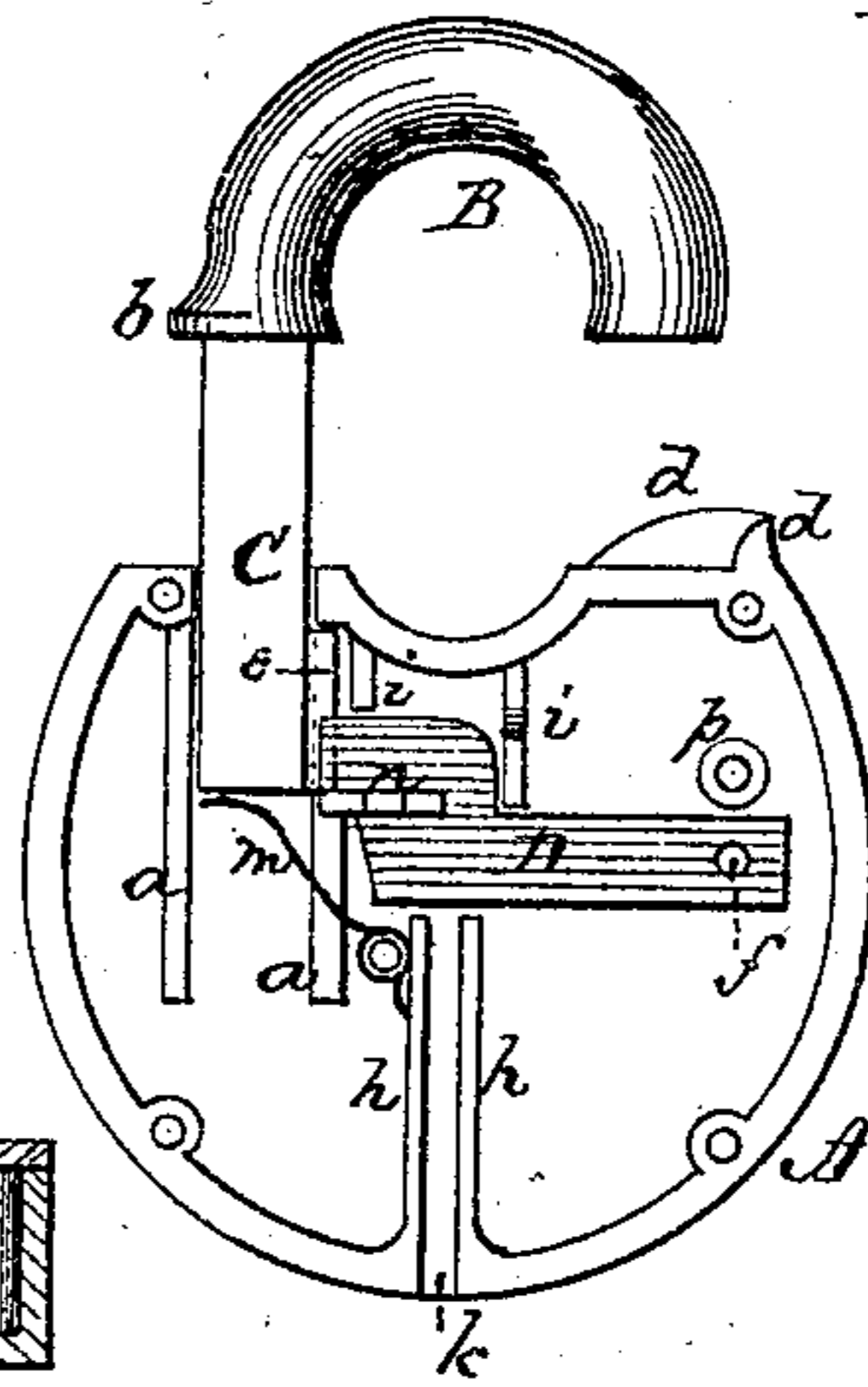


Fig. 5.

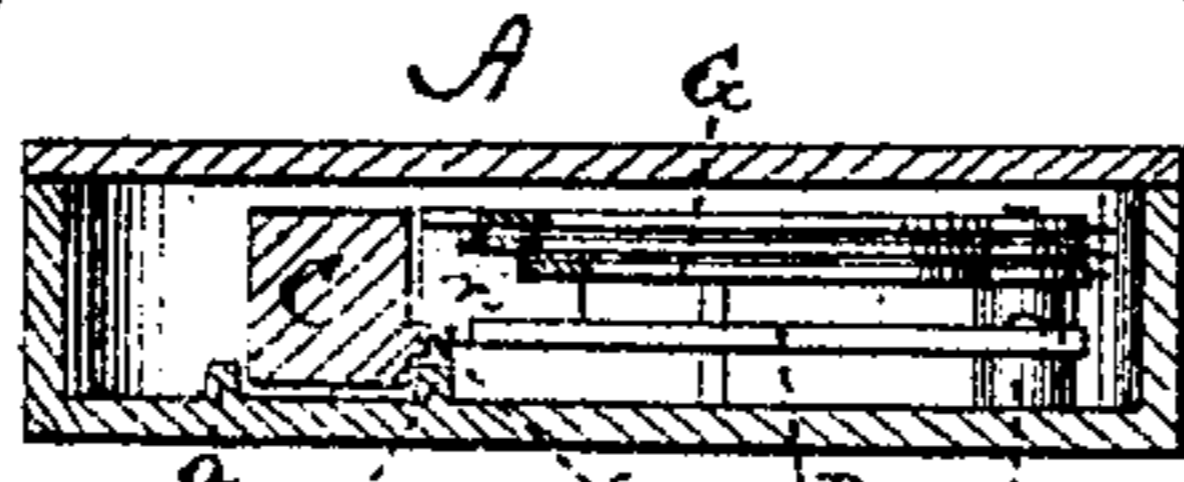


Fig. 6.

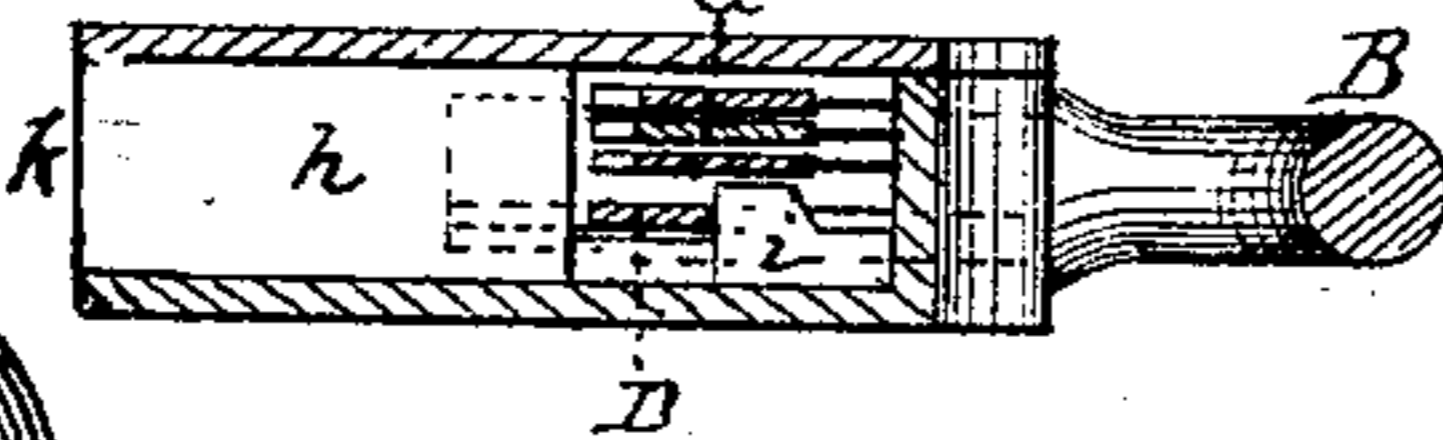


Fig. 2.

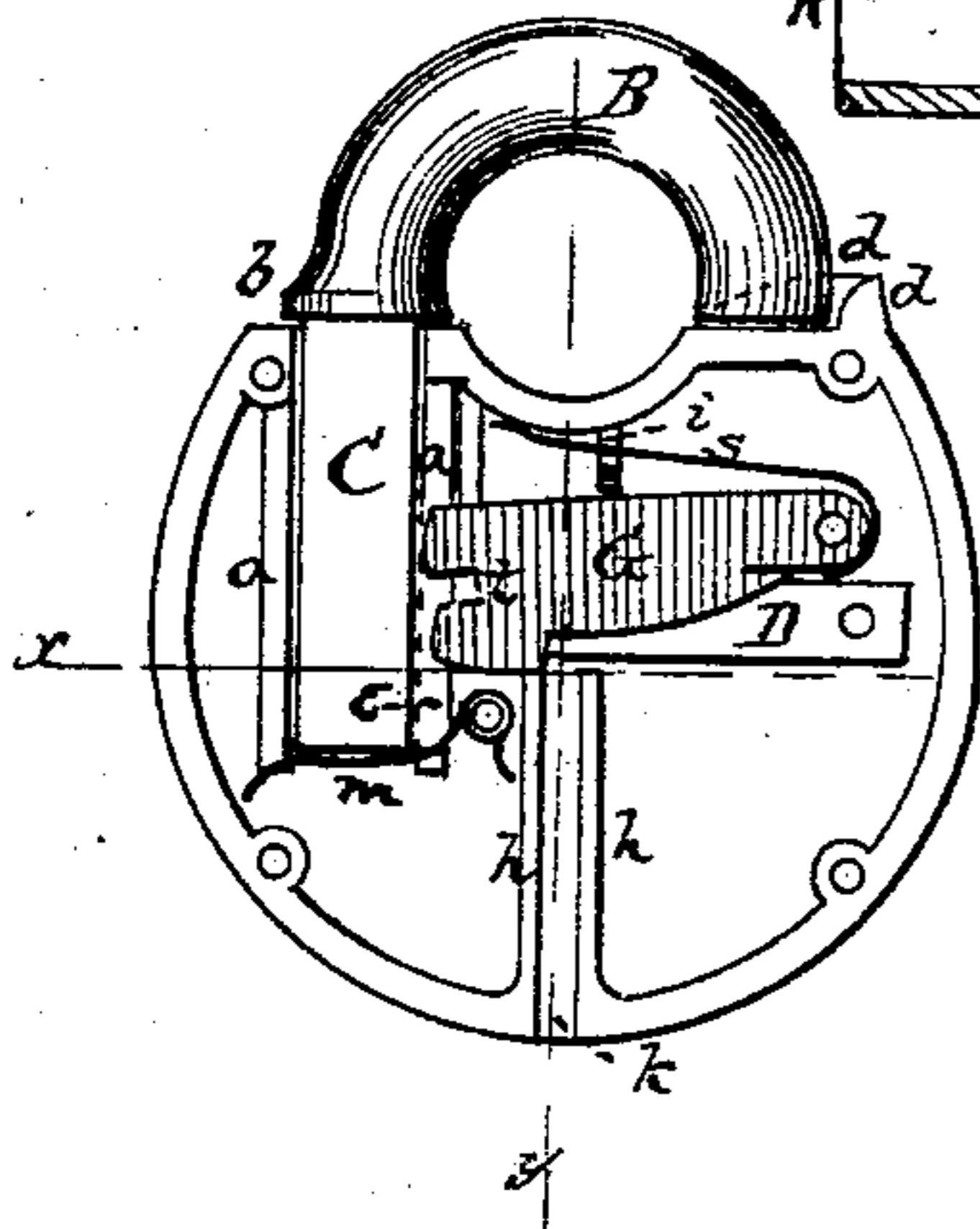


Fig. 4.

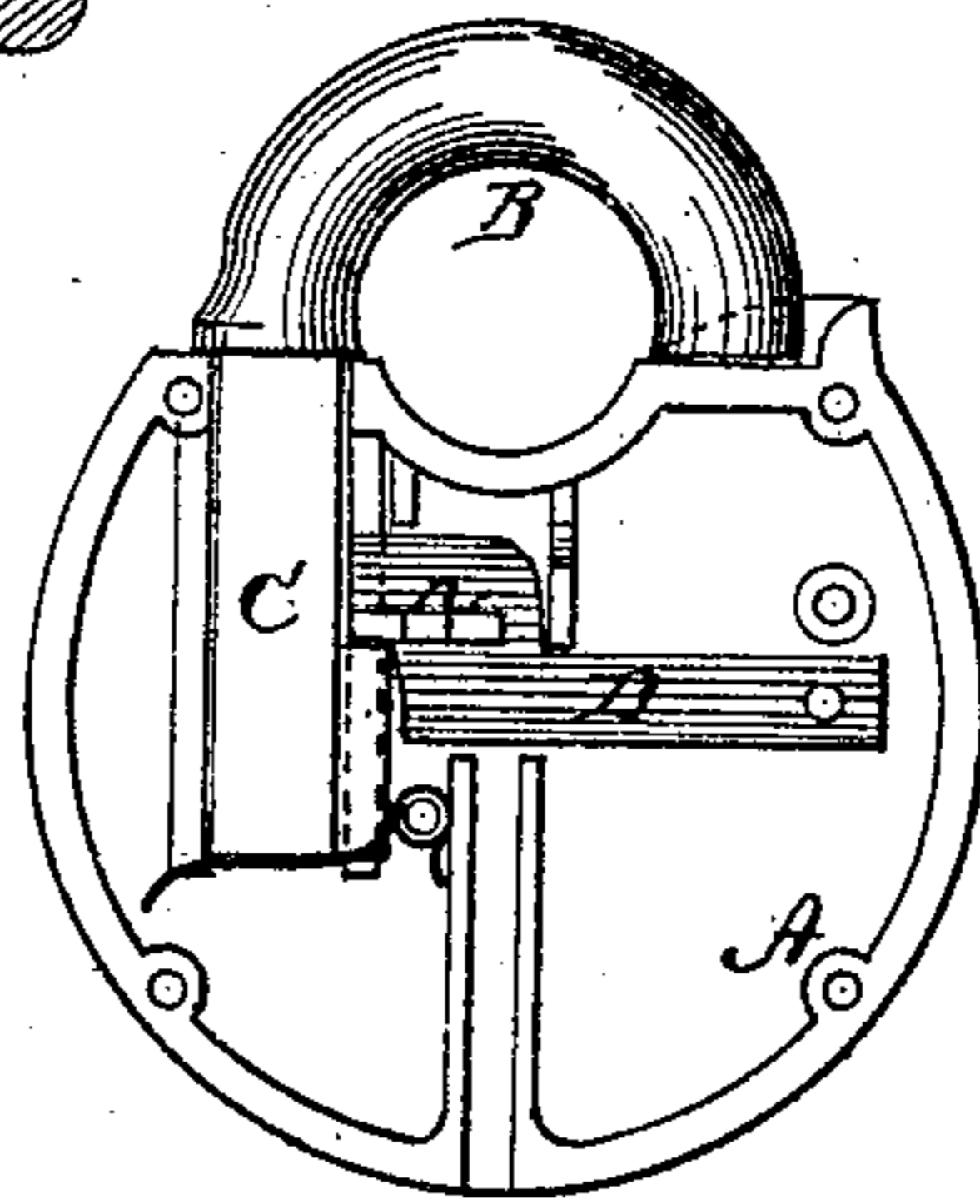


Fig. 7.

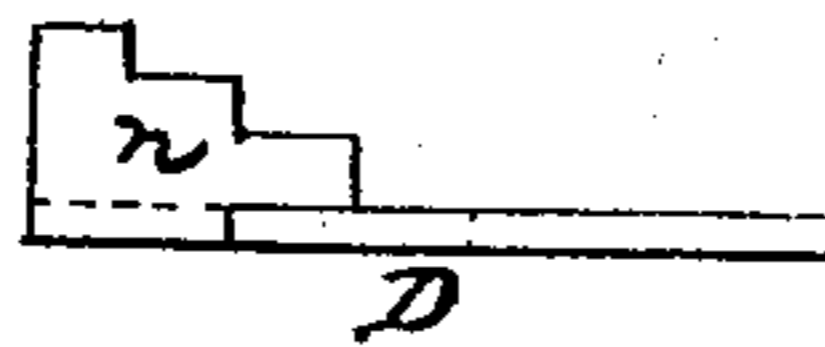
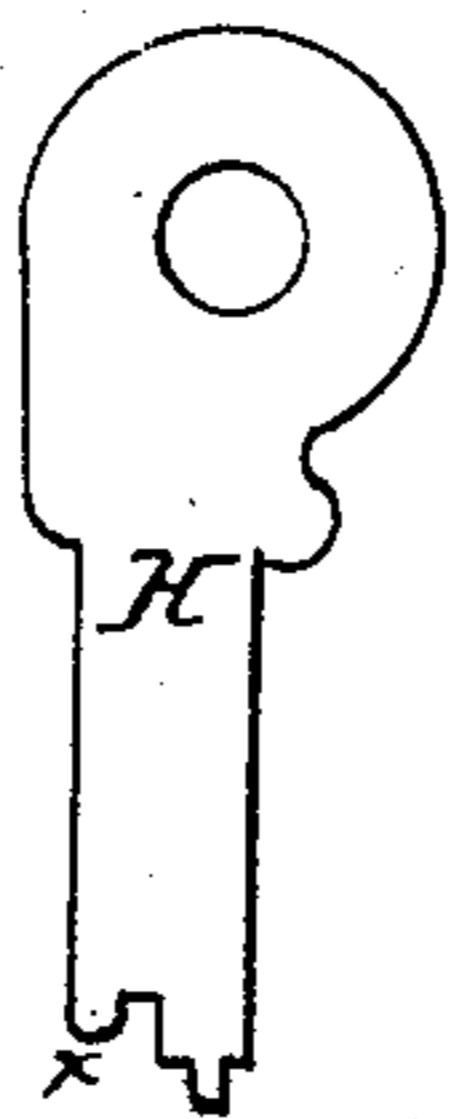


Fig. 8.



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# UNITED STATES PATENT OFFICE.

HERRMANN AHREND, OF NEWARK, NEW JERSEY, ASSIGNOR TO ROMER & COMPANY, OF SAME PLACE.

## IMPROVEMENT IN PADLOCKS.

Specification forming part of Letters Patent No. 146,856, dated January 27, 1874; application filed January 8, 1874.

*To all whom it may concern:*

Be it known that I, HERRMANN AHREND, of Newark, county of Essex and State of New Jersey, have invented certain new and useful Improvements in Locks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of padlocks which are provided with a series of tumblers and a spring-bolt to hold the shackle locked; and the nature of this invention consists in providing the spring-bolt with a projection in step form to catch in the tumblers, the bolt working laterally to raise the projection or stud at one motion into all the tumblers. It also consists in the general construction and arrangement of the lock, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which this invention appertains to make and use the same, its construction and operation will now be described, reference being had to the accompanying drawing, in which—

Figure 1 is an inside view of the lock, showing the shackle open. Fig. 2 is a similar view of the lock, showing the shackle closed. Fig. 3 is an inside view of the lock with the tumblers removed, showing the shackle open. Fig. 4 is a similar view with the tumblers removed, showing the shackle open. Fig. 5 is a section through the line *x x*, Fig. 2. Fig. 6 is a section of the lock through the line *y y*, Fig. 2. Fig. 7 is a view of the spring-bolt, showing the step projection or stud. Fig. 8 is a view of the key.

A represents the lock-case, made in any desirable or suitable shape. B represents the shackle, provided at one end with a straight square shank or stem, C, which passes into the lock-box between the guides *a a*. The end of the shackle from which the shank extends is made somewhat enlarged or beveled, so as to project, on all sides, beyond the opening through which the shank passes; and hence no water or dirt can enter into the lock, whether it is open or closed, this end of

the shackle forming a water-shed, *b*, while, at the other end of the shackle, the lock-case is closed, and provided with projections *d d* around three sides of the end of the shackle, to hold the same firmly in its position. On one side of the shank or stem C is a projecting lip or flange, *e*, which rests upon one of the guides *a*. D represents the spring-bolt, or the bolt formed of a piece of spring metal, riveted at one end to a stud or post, *f*, within the lock-case. This spring-bolt is constructed substantially as shown in Figs. 3 and 4, and guided in its movements laterally by means of flanges or guides *h h* and *i i*, the former two of which form a passage-way for the key when inserted through the key-hole *k* in the bottom of the case.

The bolt D springs downward to catch on the upper end of the lip or flange *e*, to hold the shackle locked when pressed down. When the bolt is raised up to clear the flange *e*, a spring, *m*, under the end of the stem C, throws the shackle upward, opening the lock.

On the upper side of the bolt D, close to the stem C, is a stud or projection, *n*, which is made in step form, as shown in Figs. 5 and 7, and having one step for each tumbler employed in the lock. G G represent the tumblers, all pivoted at one end on a stud, *p*, and each having a spring, *s*, to keep it downward against the flanges *h*, which thus also form stops for the tumblers. In the free end of each tumbler is a slot, *t*, and the slots in the various tumblers are at unequal distances from the lower edges of the tumblers. H represents the key, provided with suitable wards, and the lower ward *x* of the same is rounded or beveled, as shown in Fig. 8.

To unlock the lock, the key is inserted through the key-hole *k*, up through the passage formed by the guides *h h*, and the beveled ward *x* of the key forces its way under the bolt D, while, at the same time, the other wards of the key place the tumblers G G in such a position as to receive the steps of the projection *n*, and, at the same time, the spring *m* throws out the shackle.

Through the stud or projection *n* working laterally, the lock is made very secure, as, by

having steps on the stud, it must be raised at one motion into all the tumblers at once; and, by having a narrow and long passage from the bottom of the lock, the inside works may be moved quite a distance from the key-hole, thereby making the lock still more secure.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The spring-bolt D, provided with the stud or projection *n* in step form, and working laterally, in combination with a shackle and a series of tumblers, substantially as and for the purposes herein set forth.

2. The combination of the shackle-stem C with flange *e*, bolt D with step-stud *n*, tumblers G G, having slots *t t*, and the key *k*, having a beveled ward, *x*, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HERRMANN AHREND.

Witnesses:

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