

(No Model.)

2 Sheets—Sheet 1.

W. F. TROAST, S. R. SLAYMAKER & J. B. AMWAKE.
PADLOCK.

No. 540,006.

Patented May 28, 1895.

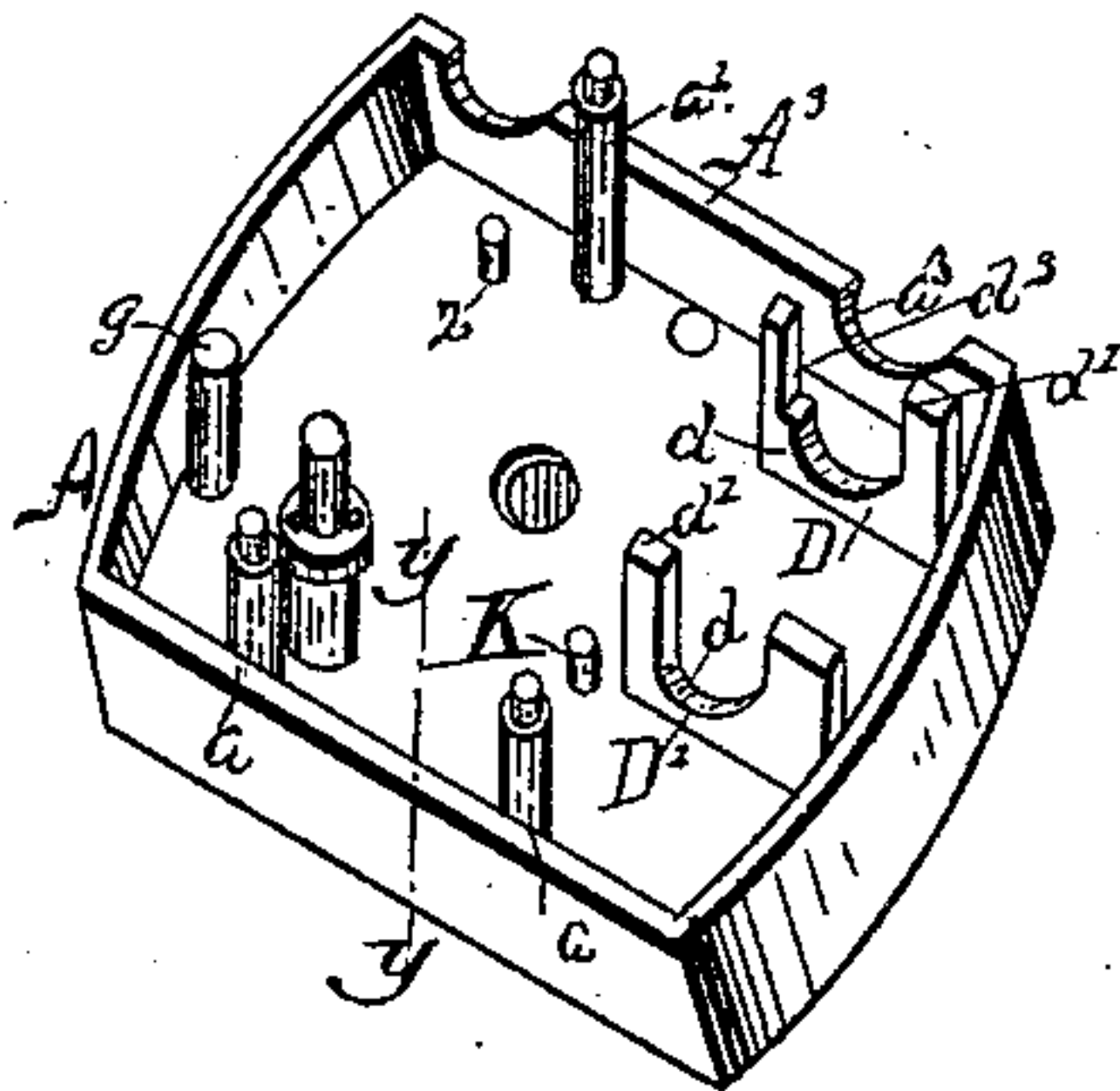


FIG. 1.

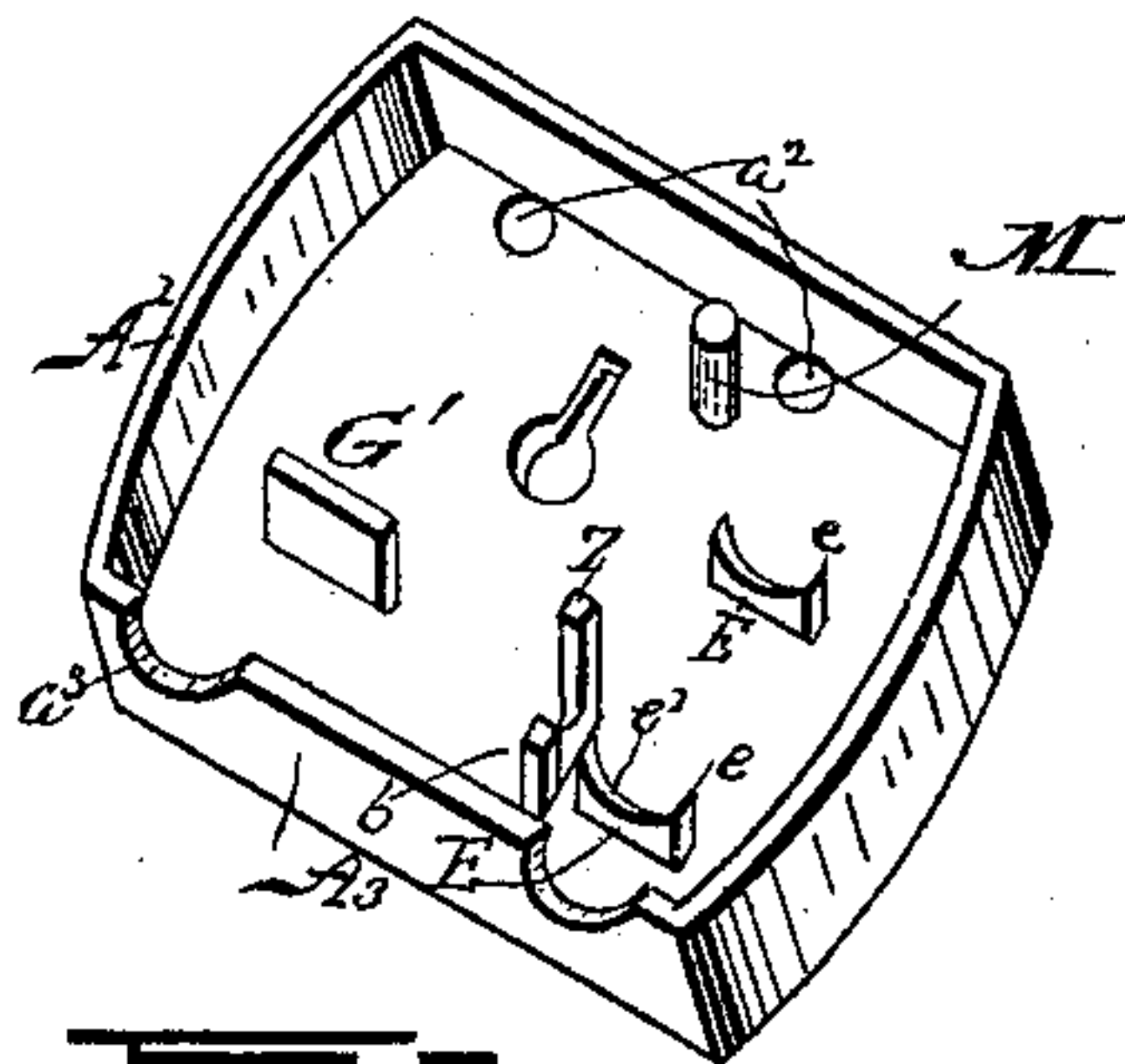


FIG. 2.

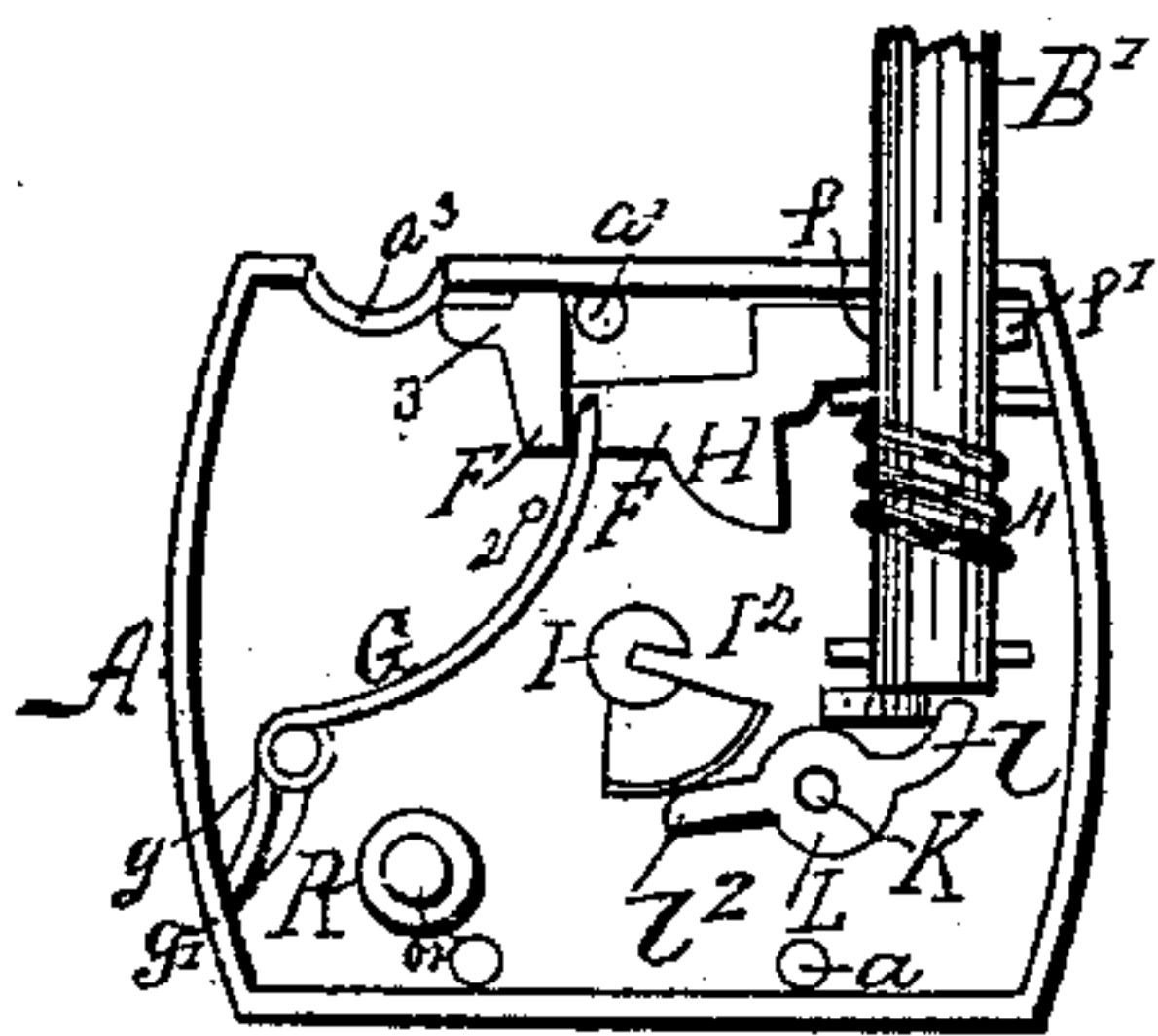


FIG. 3.

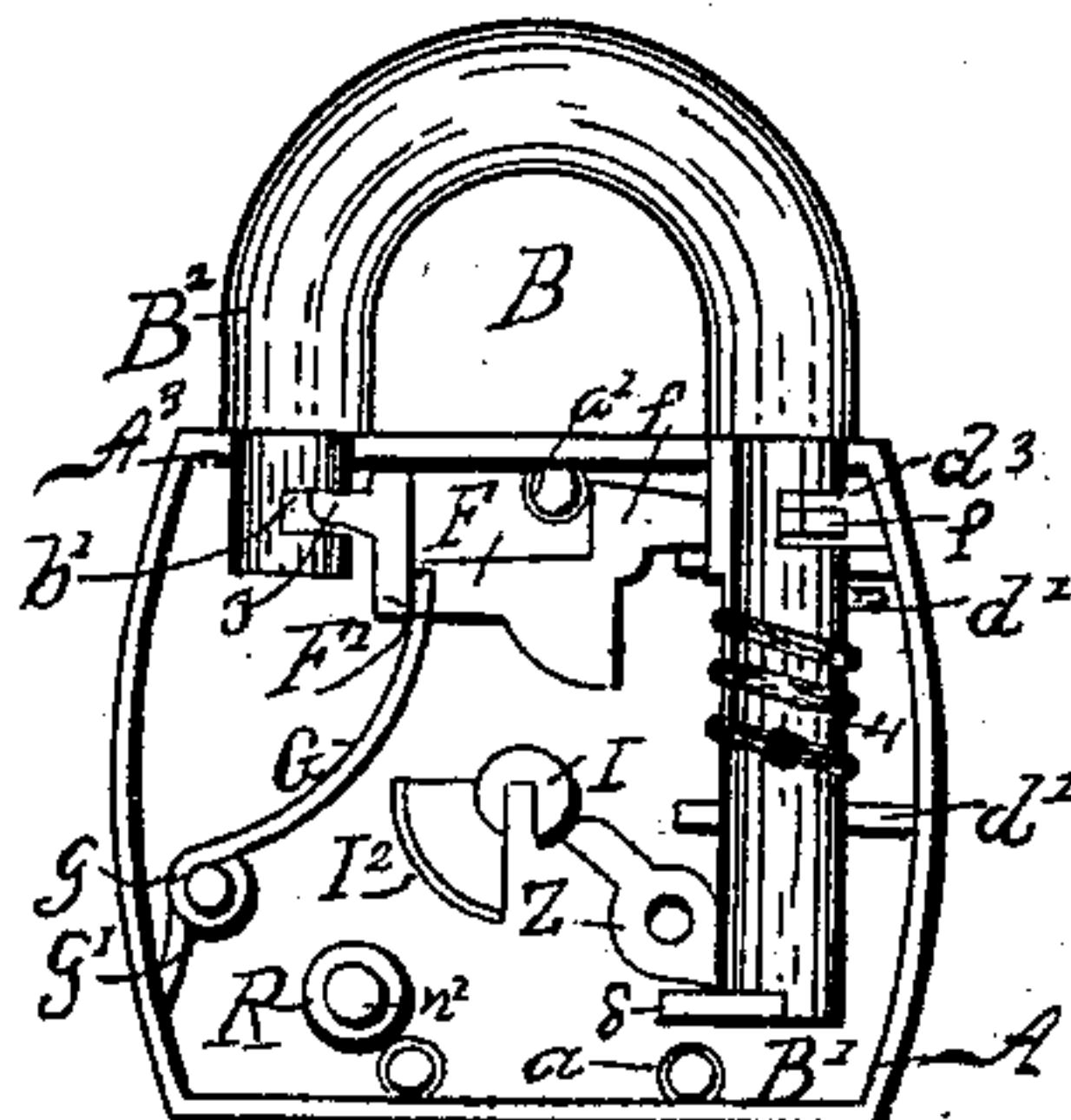


FIG. 4.

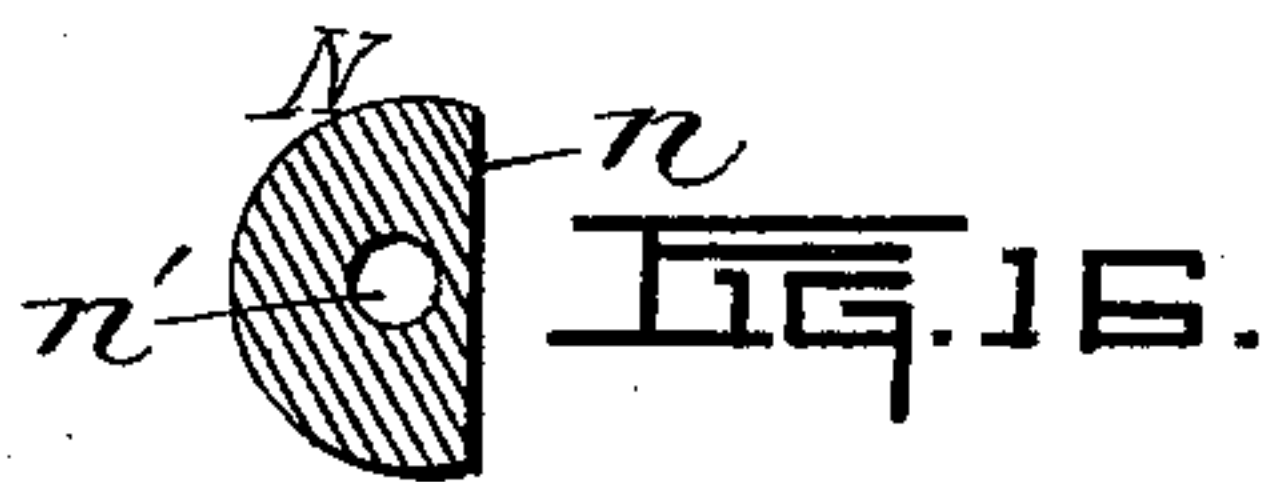


FIG. 16.

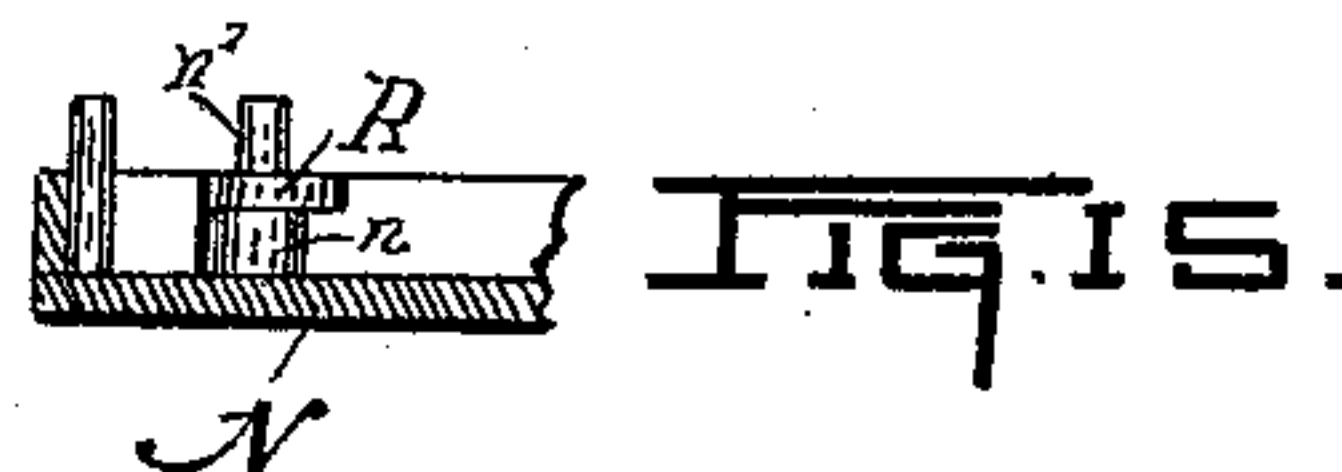


FIG. 15.

Fig. 17.



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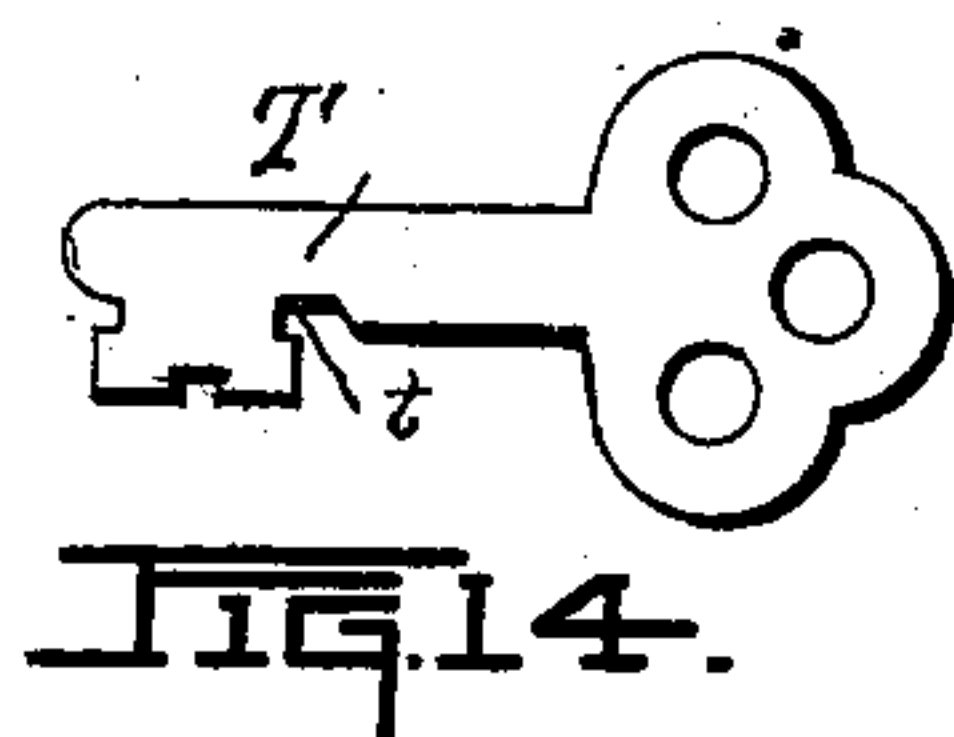
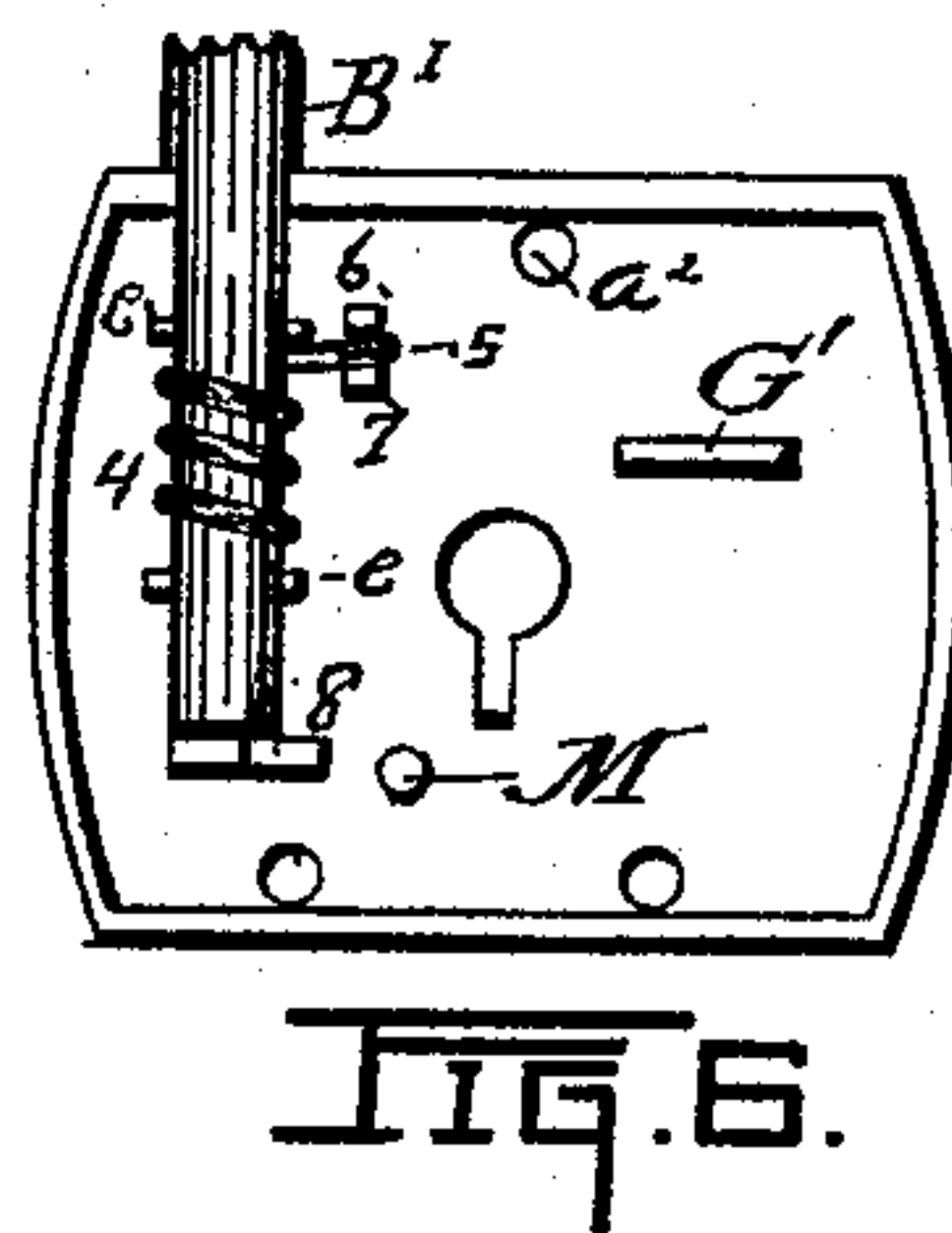
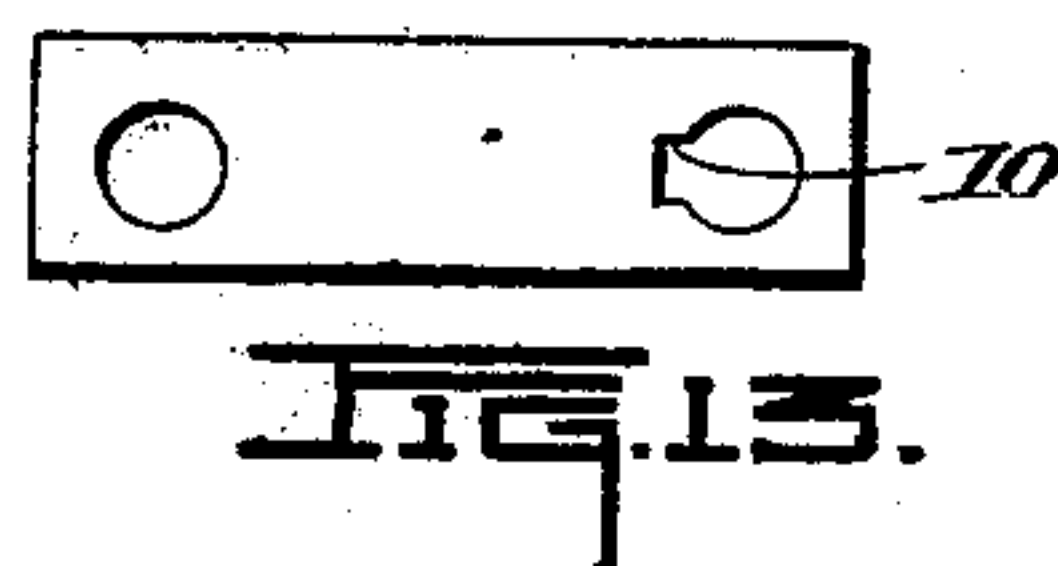
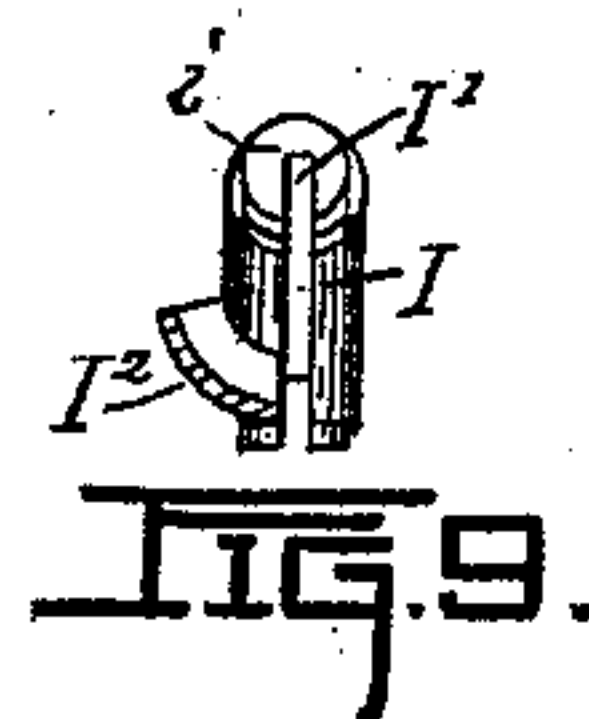
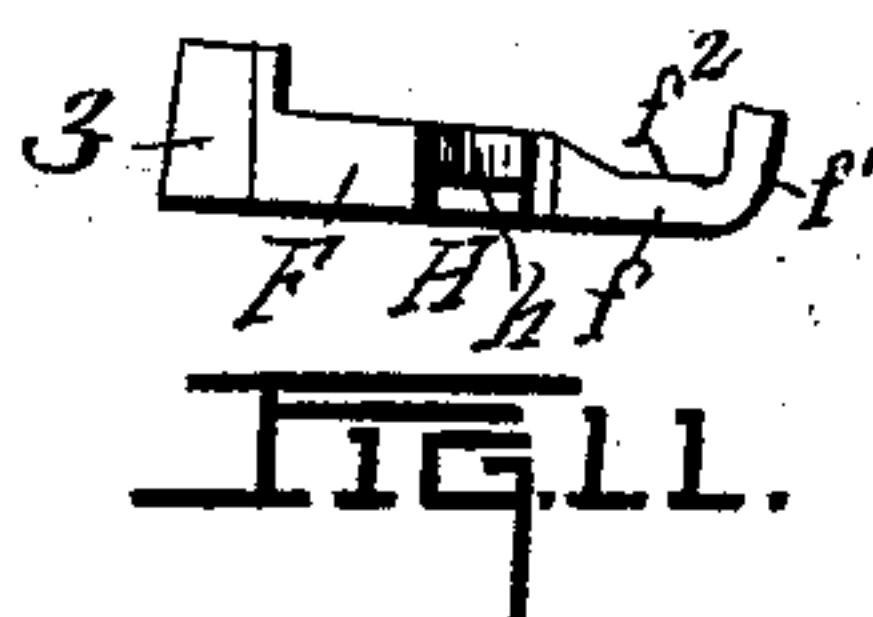
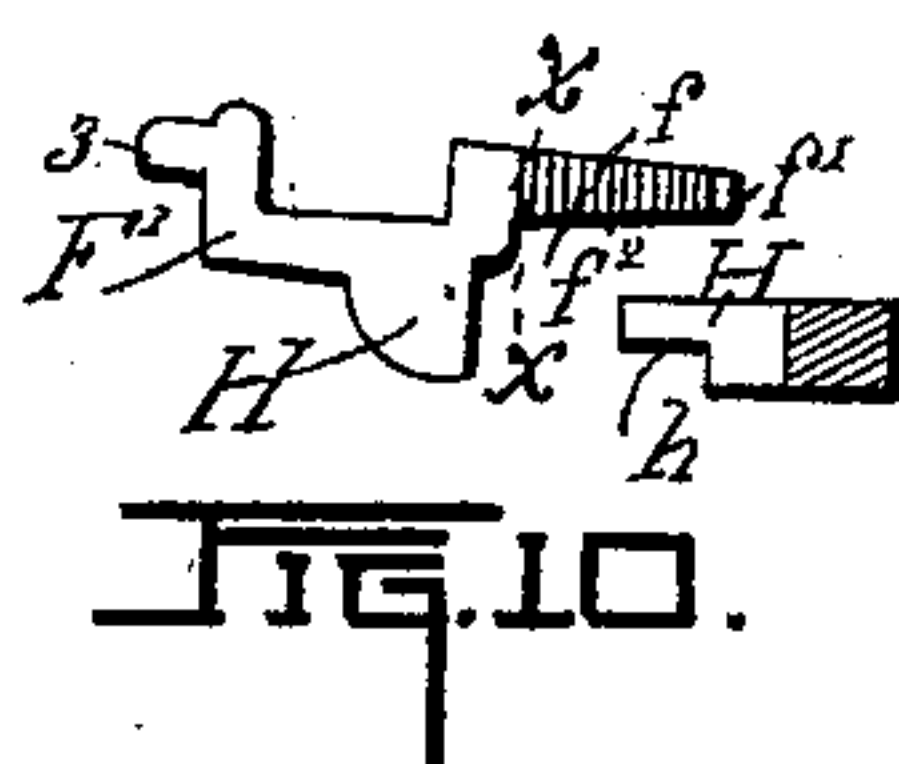
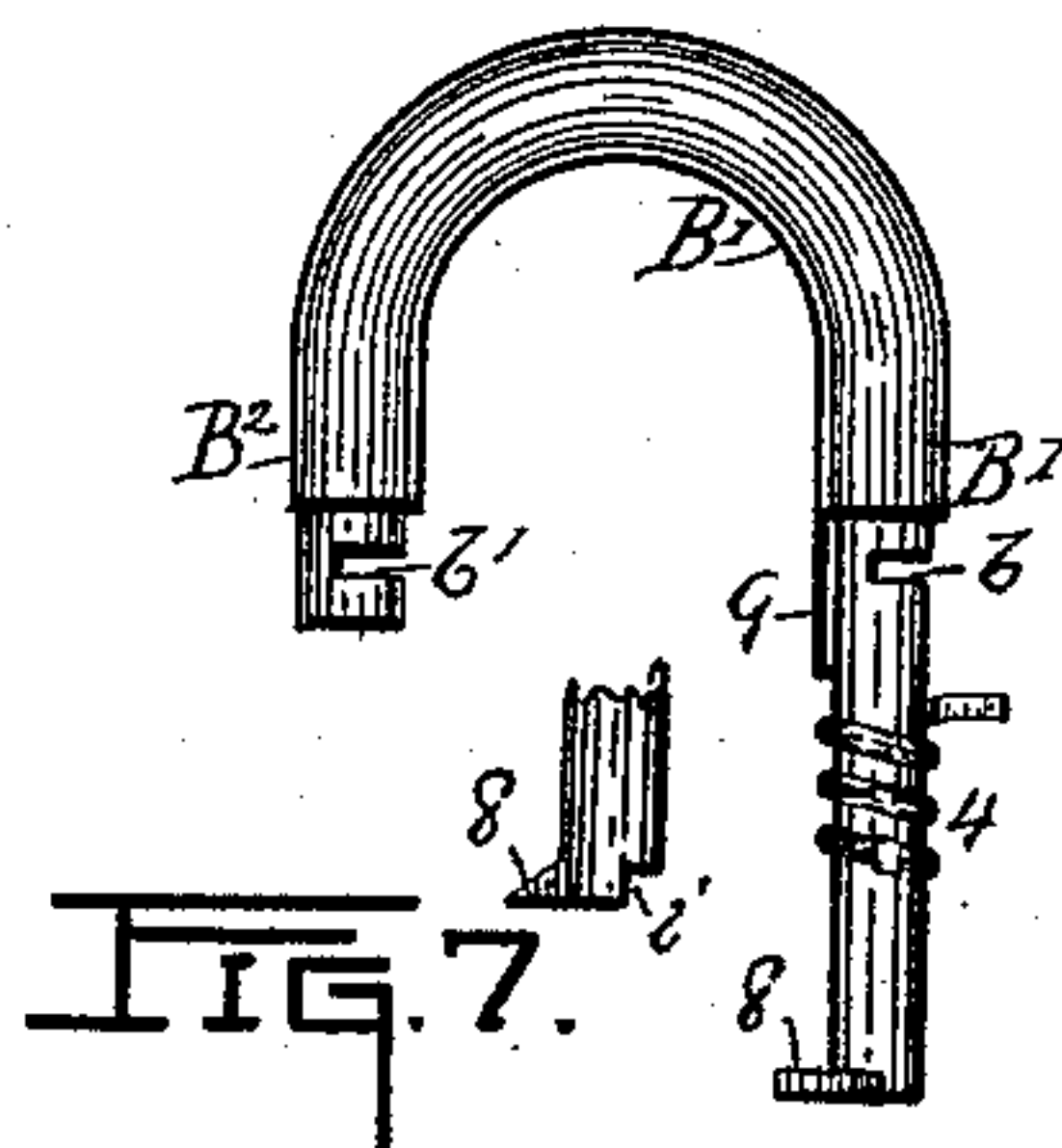
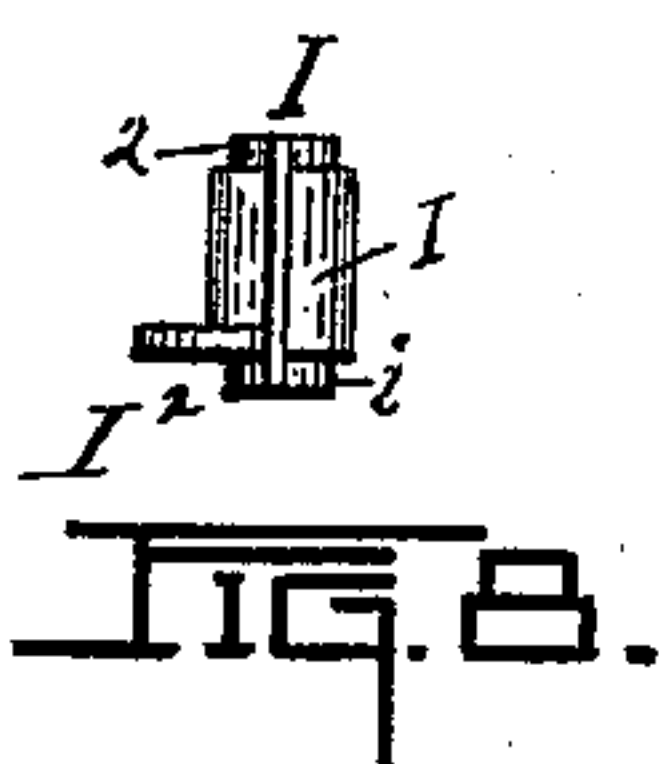
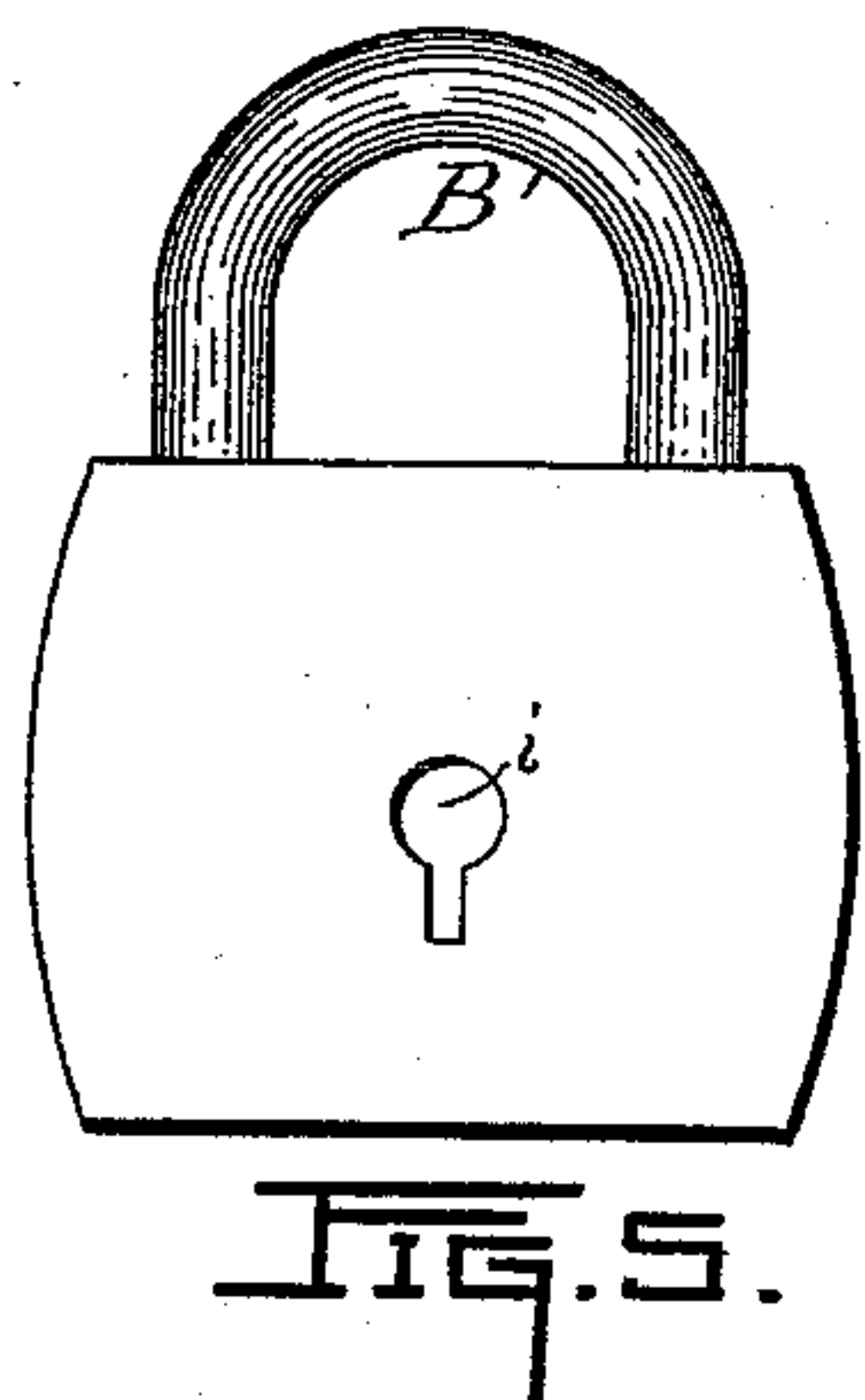
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UNITED STATES PATENT OFFICE.

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PADLOCK.

SPECIFICATION forming part of Letters Patent No. 540,006, dated May 28, 1895.

Application filed September 19, 1894. Serial No. 523,519. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. TROAST, SAMUEL R. SLAYMAKER, and JACOB B. AMWAKE, citizens of the United States, residing at Lancaster, in the county of Lancaster, State of Pennsylvania, have invented certain Improvements in Padlocks, of which the following is a specification.

This invention relates to improvements in that class of padlocks in which the detachable end of the shackle may be swung sideways; and the invention consists in the construction and combination of the various parts, as hereinafter fully described and then pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of the interior of the back of the case, the operating parts being removed. Fig. 2 is a perspective inner view of the front of the case. Fig. 3 is a plan view of the back of the case with the operating parts in place, showing the fast arm of the shackle in the position occupied by it when the swinging arm thereof is detached from the case; and Fig. 4, a similar view showing the short arm of the shackle locked in the case. Fig. 5 is a face view of the lock. Fig. 6 is a plan view of the inside of the front of the case, showing the long arm of the shackle therein and the manner of securing the spring. Fig. 7 is a side view of the shackle and an edge view of the lower part of the long arm thereof; Fig. 8, a side view of the key-guide, and Fig. 9 a perspective view thereof. Fig. 10 shows a top view of the locking-bolt detached and a section on broken line $x x$ thereof; Fig. 11, an inner edge view of the locking-bolt, and Fig. 12 a perspective view of the lifting-lever. Fig. 13 is a top view of the lock-case, and Fig. 14 is a side view of the key. Fig. 15 is a section of a portion of the back of the case on broken line $y y$ of Fig. 1, and Fig. 16 an enlarged horizontal section of the base of the key-ward just below the cap thereof. Fig. 17 is a face or top view of the ward-plate detached.

Similar letters and numerals indicate like parts throughout the several views.

The case of this lock is divided centrally through the edge.

Referring to the details of the drawings, A represents the back of the case, and A' the front thereof.

B indicates the shackle, having a long or fast arm, B', and a short or swinging arm, B².

With the back of the case there are formed the usual rivet pins a and a' , and in the front of the case are corresponding rivet-holes, a^2 . The openings for the arms of the shackle are made in the top plate A³ of the two halves of the case, being formed by registering semi-circular recesses, a^3 , in the edges thereof, as is common.

In the back A of the case, beneath the recess a^3 through which the long arm of the shackle passes, are two ribs, D and D', having in the center curved bearings d , in which the said shackle arm moves, and at the ends posts d' , which extend above the sides of back A and meet like posts e of corresponding ribs E of the front of the case. Ribs E also have curved bearings e' , which register with bearings d and thereby form a bearing entirely around said long arm.

Rib D and the top plate A³ of the back of the case form a channel, d^3 , in which is located the stem f of the locking bolt. Stem f passes under or behind the long arm of the shackle and has on its free end a stud, f' , which engages a notch, b , in said arm when the shackle is locked in the case. The upper surface of the stem is concave, as shown at f^2 of Figs. 10 and 11, that it may fit closely to the shackle arm. At its inner end the stem is offset from the body F of the bolt, as is also the head F' at the opposite end of said body, to permit the latter to pass the rivet-pin a' . Head F' has a lip, 3, on its forward end that engages notch b' in the short arm of the shackle and locks it in the case, the head being extended in front of the body of the bolt that lip 3 may be enlarged to have a greater bearing in notch b' and to form a shoulder for engagement by a spring, to be described. The head extends somewhat above the lip to form a bearing against top plate A³ and maintain the lip in position to engage the notch in the shackle arm.

When the short arm of the shackle is free from the case lip 3 is held back from the opening for said short arm by the engage-

ment of stud f' with the side of the long arm of said shackle. As the short arm is inserted the long arm is also pressed inward until notch b is opposite stud f' , when said stud and lip 3 are automatically engaged with their respective notches by the spring G. This spring is coiled around a post, g , located below and in front of the bolt, and has one end pressing against the back of head F' and the other, g' , against the adjacent side of the case. The end of the spring acting on the bolt is held in engagement therewith by a rib, G' , in the top of the case, as is usual. This rib also bears lightly against the end of head F' and guides the same in its movements. On the lower edge of the body of the bolt and adjacent to stem f there is a downwardly extending tongue, H , having the edge toward the head of the bolt beveled and a recess or passage, h , formed in its lower side.

The extremities of both arms of the shackle are reduced in size, as is usual. Around the long arm is coiled a spring, 4, having its lower end riveted into a groove in said arm and the upper end 5 engaged between two lugs, 6 and 7, in the top of the case, as shown in Fig. 6. The spring is so wound around the arm of the shackle that its own pressure serves to keep it in engagement with lugs 6 and 7. As the shackle is forced from the lock this spring acts to turn the short arm thereof about the long arm as a pivot, its swing being limited by the contact of a lip, 8, on the lower end of the long arm with the back of the case. The long arm of the shackle is also prevented from being forced too far out of the case by the engagement of lip 8 with the side of rib D' . The upper coil of the spring bears against the under side of rib D , and when the shackle is drawn out of the case, so as to clear the short arm therefrom, and is in the proper position, the spring acts to automatically draw both arms of the shackle down into the case.

To prevent the lowering of the shackle when the short arm is free and turned to a side, a rib, 9, is cast on the long arm of the shackle below the shoulder formed by the reduced end thereof and of somewhat greater length than the reduced end of the short arm of said shackle. When the shackle is locked in the case this rib passes through a notch, 10, in the wall of the opening in the case engaged by said long arm, and when the short arm is withdrawn from the case and the shackle turned the end of rib 9 rests on the top of the case and prevents the lowering of the shackle.

Near the center of the lock is located a revolvable key guide, I , having a hub, i , at each end, one of said hubs engaging a socket in the back of the case and the other an opening at the upper end of the key-slot in the front plate. The key is flat, and when it is inserted in the key-opening it also engages slot I' of the guide I , which is revolved by the key. The use of the key-guide is not restricted to

a flat key, as it may readily be adapted to use with keys of any other desirable shape.

Below rib D is a stud K , on which is fulcrumed a lever, L . The arm l of this lever curves upward and takes under a recess, l' , in the bottom of the long arm of the shackle, while its other arm, l^2 , extends toward the key-guide and lies in the path of a wing, I^2 , on the bottom of said guide. The lever swings loosely on its pivot, but is held in position on stud K by a stud M on the front plate of the case.

In operating to open the lock, the key T is inserted in the slot of the key-guide and turned, the wing I^2 being located to travel in front of the key. This wing passes through recess h of tongue H , and the key, following after, engages the beveled edge of said tongue, forcing the bolt back and disengaging the stud f' and lip 3 from the notches in the arms of the shackle. As this is done—the wing having engaged the lever with the bottom of the long arm—the wing revolves the lever and raises the shackle until the short arm thereof clears the case, when it is swung around by the action of spring 4. To relock the shackle in the case the short arm is turned until it is over its opening into the same, when, the rib 9 being over the notch in the top of the case, spring 4 draws the shackle home.

To one side of the key-guide is a device for preventing the use of false keys. It consists of a circular base, N , having the side toward the key-guide cut away, as shown at n , to permit the ward of the key to pass, and in the center of the base is a post, n' . These parts are cast with the back of the case. A circular ward plate, R , having an opening, r , in the center to receive post n' , is fastened down on the base by riveting over bits of metal of the post. This ward engages the notch t of key T . The changes in the wards are made by casting the base N higher or lower. The advantage about this construction is that the base is cast with the case and the ward quickly riveted thereon, avoiding all the filing and trimming necessary to produce other changes.

We do not confine ourselves to the details of construction or precise arrangement of parts herein shown and described, as it is obvious that many changes can be made therein without departing from the principle of our invention.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a padlock, the combination, with the shackle, of a transversely sliding bolt, a head on one end of the bolt projecting beyond the side thereof and having a lip thereon constructed to engage a notch in the short arm of the shackle, a stem on the bolt passing beneath the long arm of the shackle and having a concave upper surface, a stud on the extremity of the stem bearing against the side of said long arm and adapted to engage a notch therein when the bolt enters the notch

in said short arm, a spring bearing on the back of the bolt-head, and a device constructed to lift the long arm of the shackle and eject the short arm from the case, substantially as and for the purpose specified.

2. In a padlock, the combination, with the shackle, of a transversely sliding bolt adapted to engage a notch in the short arm of said shackle, a device constructed to lift the long arm of the shackle and eject the short arm from the case, and a spring coiled around said long arm and having one end secured in said long arm and the other in the case, said spring being so arranged as to revolve the shackle after the ejection of said short arm, substantially as and for the purpose specified.

3. In a padlock, the combination, with the shackle, of a transversely sliding bolt adapted to engage a notch in the short arm of said shackle, a device constructed to lift the long arm of the shackle and eject the short arm from the case, a spring coiled around said long arm and having one end secured in said long arm and the other in the case, said spring being so arranged as to revolve and retract the shackle, and a shoulder on the long arm located to bear on the top of the case when said short arm is ejected and swung aside, substantially as and for the purpose specified.

4. In a padlock, the combination, with the shackle, of a sliding bolt, means for securing the bolt in a retracted position, a spring engaging the bolt with said short arm, a device constructed to lift the long arm of the shackle and eject the short arm thereof from the case, and a spring coiled around said long arm and having one end secured therein and the other in the case, said spring being so arranged as to revolve and retract the shackle, substantially as and for the purpose specified.

5. In a padlock, the combination, with the shackle, of mechanism for locking the same in the case, and a lever having one end taking under an arm of the shackle and the other end adapted to be actuated by a key, substantially as and for the purpose specified.

6. In a padlock, the combination, with the shackle, of mechanism for raising the shackle in the case, and a revoluble key-guide operated by the key and having a wing thereon adapted to actuate said mechanism.

7. In a padlock, the combination, with the shackle, of a transversely sliding bolt constructed to engage a notch therein, a spring

coiled around the long arm of the shackle and adapted to revolve the shackle, a lip on said long arm adapted to limit the revolution of said shackle, a device constructed to lift said long arm and eject the short arm from the case, substantially as and for the purpose specified.

8. In a padlock, the combination, with the shackle, of a transversely sliding bolt constructed to engage a notch therein, a spring coiled around the long arm of the shackle and adapted to revolve and retract the shackle, a shoulder on said long arm located to bear on the top of the case when the short arm is swung therefrom, a lip on said long arm adapted to limit the revolution of the shackle, a lever having one end taking under the long arm of the shackle, and a key actuating the other end of said lever, substantially as and for the purpose specified.

9. In a padlock, the combination, with the shackle, of a transversely sliding bolt, a head on one end of the bolt projecting beyond the side thereof and having a lip thereon constructed to engage a notch in the short arm of the shackle, a stem on the bolt passing beneath the long arm of the shackle, a stud on the extremity of the stem bearing against the side of said long arm and adapted to engage a notch therein when the bolt enters the notch in the short arm, a spring bearing against the back of the bolt-head, a spring coiled around said long arm and adapted to revolve and retract the shackle, a shoulder on the long arm located to bear on the top of the case when the short arm is swung therefrom, a lip on the long arm adapted to limit the revolution of the shackle, and a lever having one end taking under said long arm and the other lying in the path of a revoluble key-guide, all substantially as and for the purpose specified.

10. In a padlock, the combination, with the key, of a ward comprising a base cast with the lock-case, a post on said base, and a ward plate riveted on the post and projecting beyond said base on the side toward the key, substantially as and for the purpose specified.

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