

F. SOLEY.

PADLOCK.

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956,213.

Patented Apr. 26, 1910.

Fig. 1.

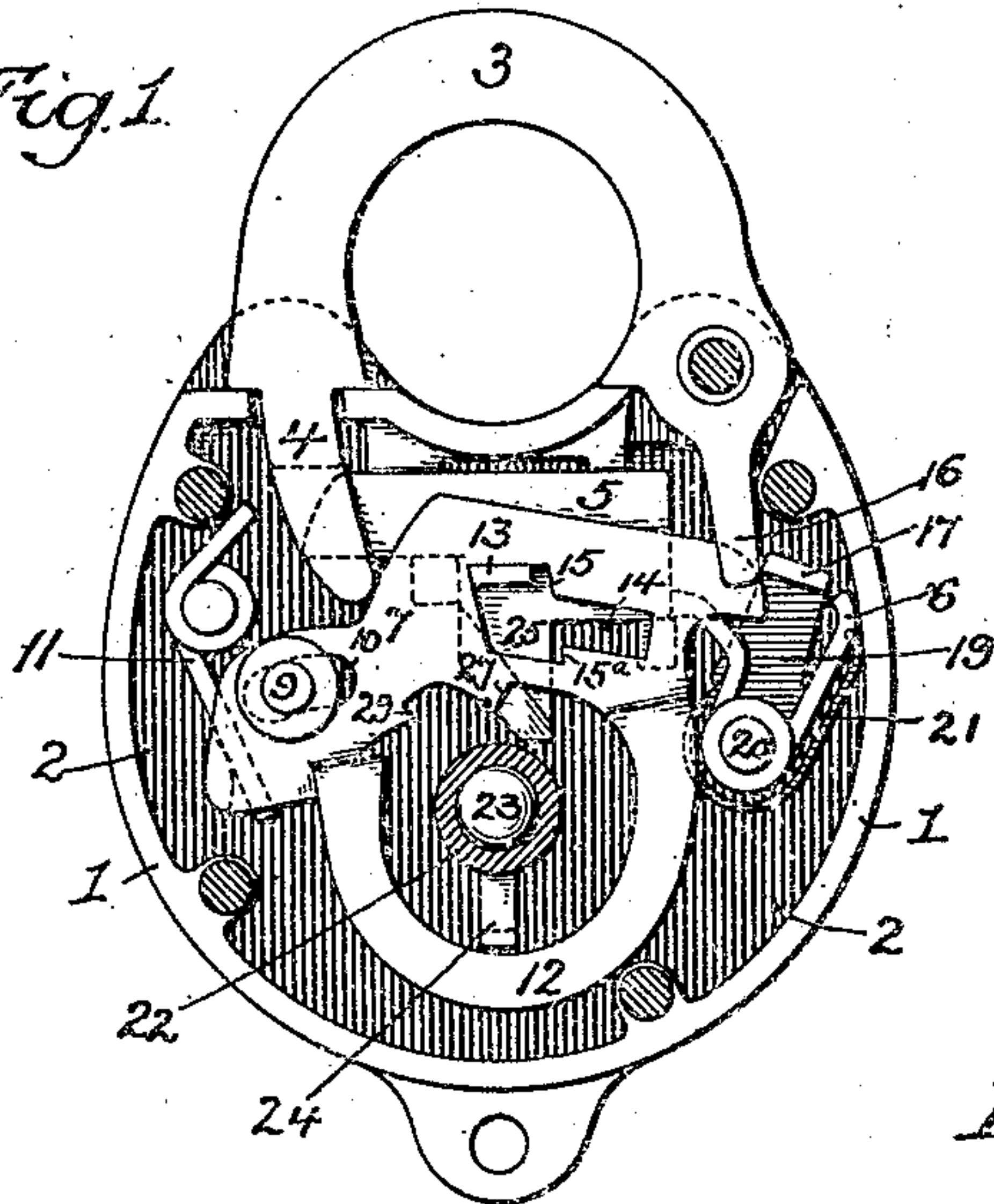


Fig. 2.

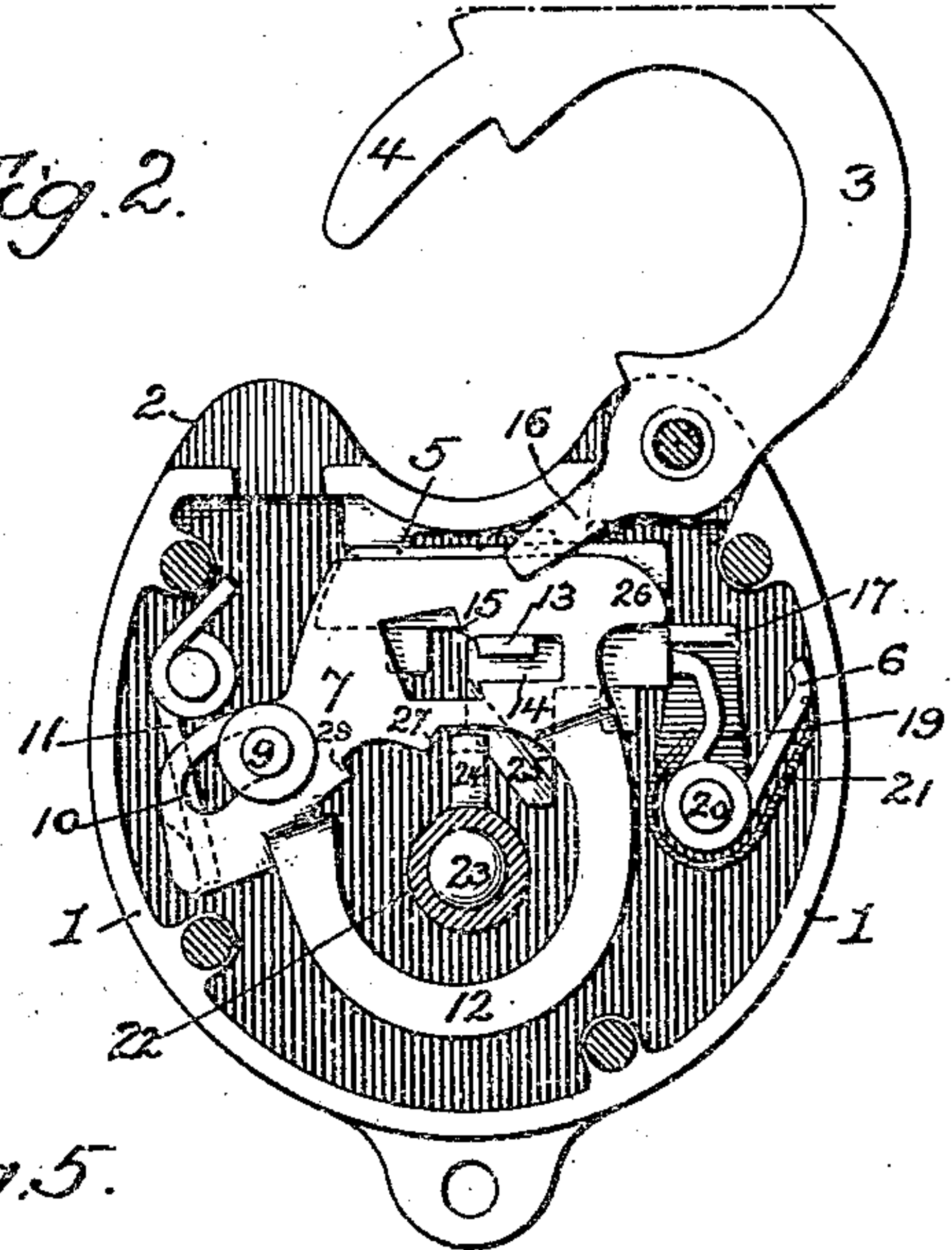


Fig. 5.

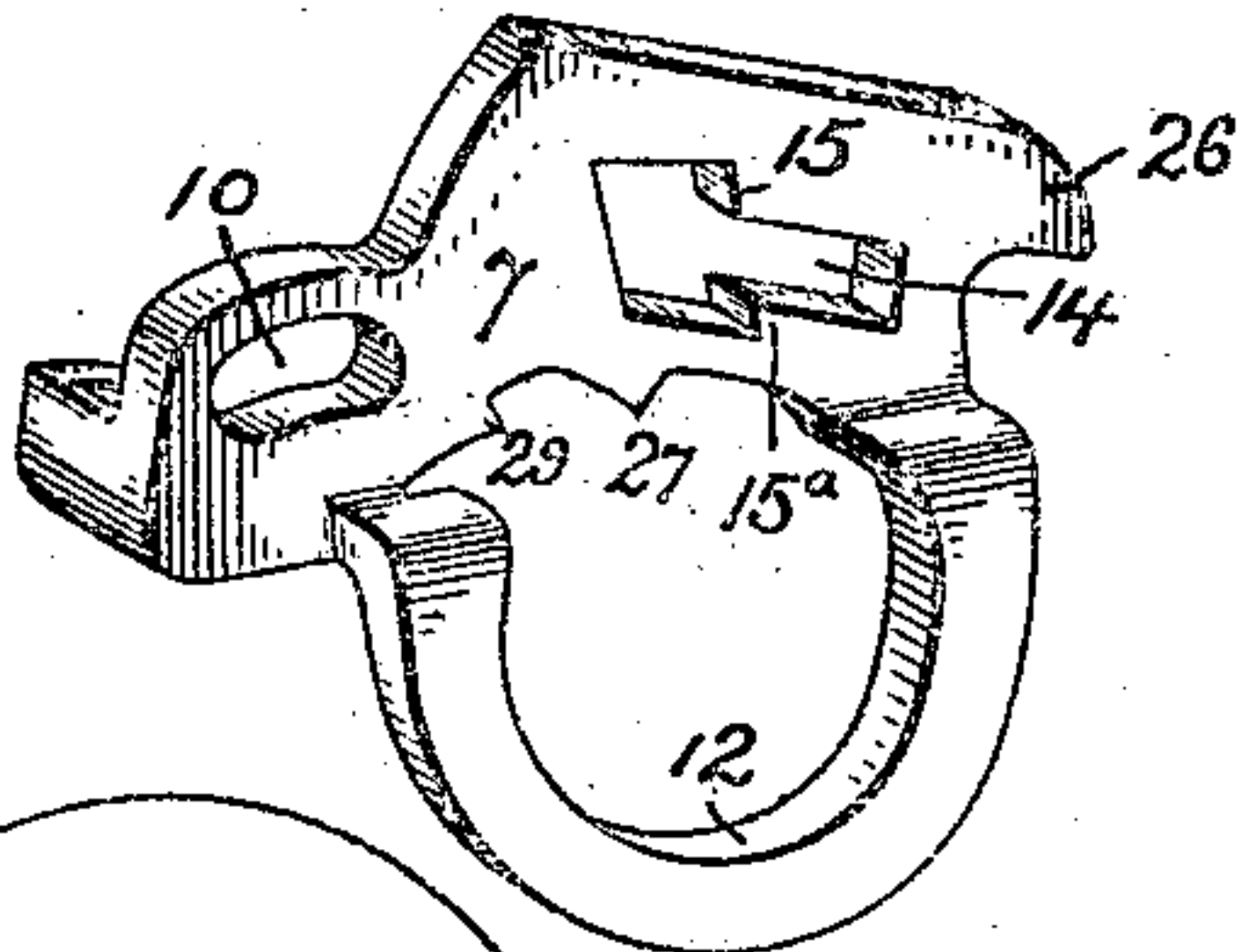


Fig. 4.

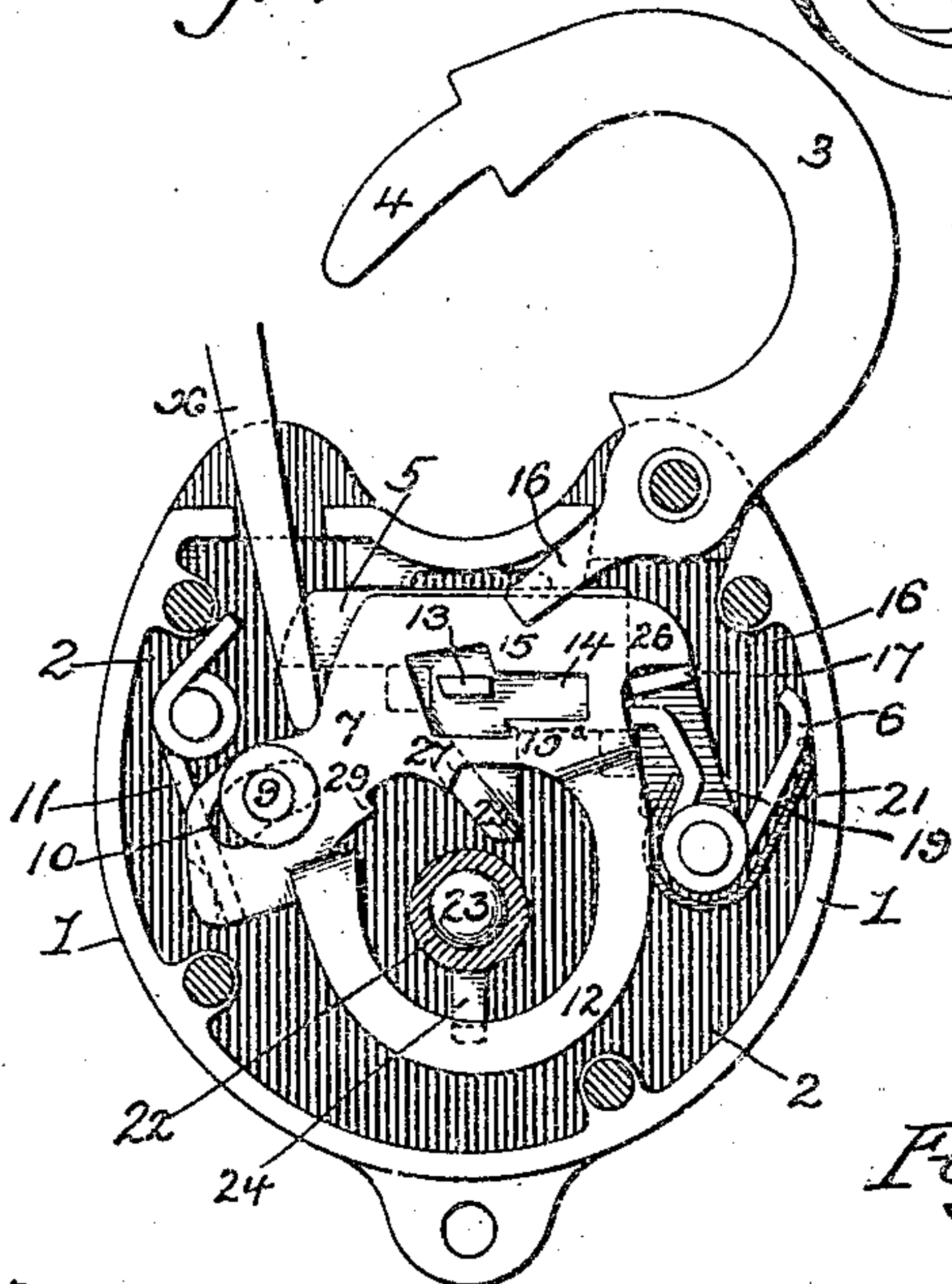


Fig. 3.

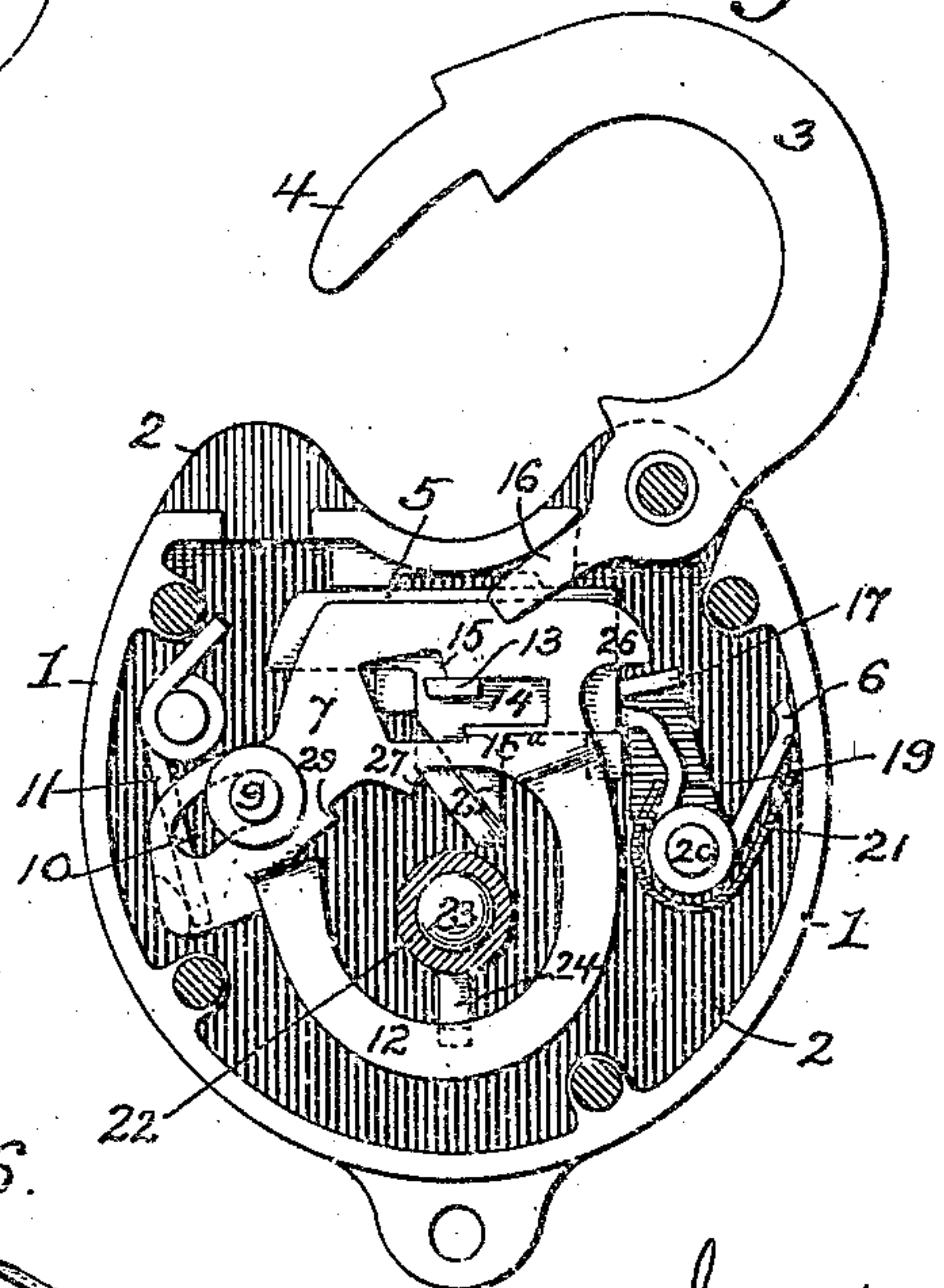
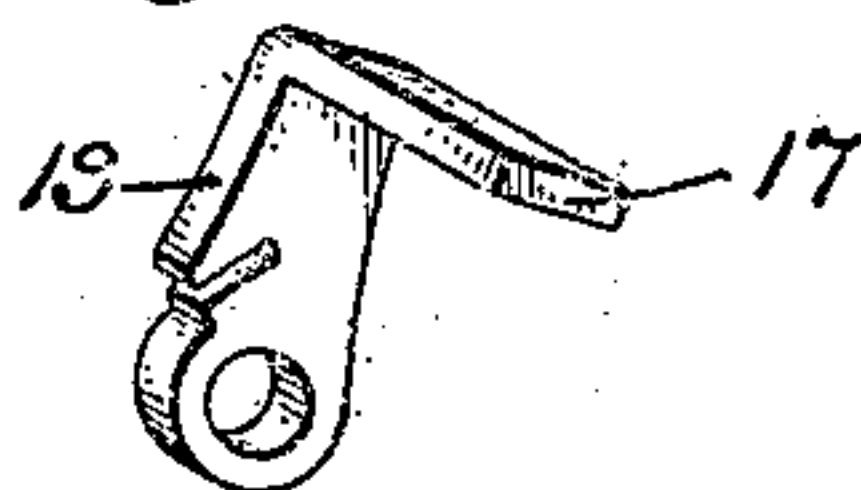


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANK SOLEY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO MILLER LOCK COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

PADLOCK.

956,213.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK SOLEY, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Padlocks, of which the following is a specification.

My invention relates to a padlock for use in cases where, after the lock has once been opened by the use of the key, it is desirable to prevent the removal of the key until the lock has been again closed and fastened, my invention consisting of a certain combination of parts whereby this result is attained.

In the accompanying drawing—Figure 1 is a view of the lock with cover plate removed and the parts shown in the locked position; Fig. 2 is a similar view showing the parts as adjusted by the key to effect release of the shackle of the lock; Fig. 3 is a similar view showing the position of the parts after the key has been still further turned and is retained by the tumbler so as to prevent its withdrawal from the keyhole; Fig. 4 is a similar view showing the position of the parts when the tumbler has been pushed back in an attempt to release the key, and Figs. 5 and 6 are perspective views of different elements of the locking mechanism.

In the drawing, 1 represents the shell of the lock and 2 one of the side plates of the same, preferably formed integral with said shell, the other side plate being detachable but otherwise similar to the side plate 2. The pivoted shackle 3 has a nose 4 for entering the interior of the lock casing, said nose having therein an opening for the reception of the forward end of the bolt 5. This bolt is guided transversely in the lock casing and is normally projected by a spring 6 acting on the rear end of the bolt.

Lying in front of the bolt 5 is a tumbler 7, which is pivotally mounted upon a stud 9 in the lock and has a slot 10 for the reception of said stud whereby the tumbler can have both a swinging movement and a sliding movement back and forth across the face of the bolt 5, the tumbler being normally retained in its forward position by the action thereupon of a spring 11.

Depending from the tumbler is a yoke 12,

which may be in a different plane from the body of the tumbler, as shown in Fig. 5, so as to lie closer to the front face of the lock in order to permit the bit of the key to pass behind it (see Figs. 3 and 4). Projecting from the face of the spring bolt 5 is a stump 13 which is contained in a slot 14 in the tumbler, said slot being enlarged at its forward end so as to form shoulders 15 and 15^a.

The shackle has a tail 16 which is acted upon by a lug 17 on a lever 19, the latter being pivoted to a stud 20 in the lock and acted upon by a spring 21 which tends to project it so as to impart to the shackle a constant tendency to swing upward or outward, the lug 17 being also acted upon by the rear end of the bolt 5, when the latter is retracted.

When the lock is closed, the stump 13 on the bolt 5 occupies the enlarged forward end of the slot 14 in the tumbler 7, and is in position to engage the shoulder 15 of said tumbler, as shown in Fig. 1, consequently the spring bolt cannot be retracted in order to release the shackle until said tumbler has first been lifted sufficiently to permit the stump 13 to pass rearwardly between the shoulders 15 and 15^a.

The key 22 engages a keypost 23 in the lock casing and when turned clockwise the bit 24 of the key first engages the under side of the tumbler 7 and lifts the same so as to raise its shoulder 15 out of engagement with the stump 13 on the bolt and bring the contracted portion of the slot 14 into line with said stump, further movement of the key then causing the bit of the same to engage a depending finger 25 on the bolt and move said bolt rearwardly so as to free it from engagement with the nose of the shackle and permit of the opening of said shackle, as shown in Fig. 2. As soon as the tumbler has been lifted so as to bring the stump 13 of the bolt 5 into line with the contracted portion of the slot 14, the tumbler is moved forward by its spring 11 and a shoulder 27 on the under side of the tumbler drops in front of the bit of the key, so as to prevent the turning of the latter backwardly. (See Fig. 2.) Further forward movement of the key releases the finger 25 of the bolt and the said bolt is then projected by the action of its

spring 6, as shown in Fig. 3. The tumbler 7 is now held up by reason of the contact of the stump 13 of the bolt with the upper wall of the contracted portion of the slot 14 in the tumbler, when the tumbler is in this position its depending yoke 12 covers the lower portion of the keyhole and overlaps the bit of the key, as shown in Fig. 3, thereby preventing withdrawal of the key through the keyhole.

If any attempt is made to release the key by pushing back the tumbler 7 by means of an implement *x* inserted through the shackle opening, as shown in Fig. 4, the enlarged portion of the slot 14 might be brought into line with the stump 13 on the bolt 5, but the tumbler cannot drop to carry its yoke 12 below the bit of the key, for when the tumbler is thus retracted, a hooked rear end 26 of said tumbler projects over the lug 17 of the lever 19 and said lug serves to support the tumbler in the elevated position. When, however, the shackle of the lock is closed and engaged by the bolt 5, the heel 16 of said shackle pushes the lug 17 out of the way, and the tumbler 7 can drop so as to carry its yoke 12 below the bit of the key, as shown in Fig. 1, thus clearing the keyhole and permitting the key to be withdrawn.

If an improperly bitted key is used in an attempt to open the lock, the tumbler 7 will, if the bit is too long, be lifted so as to bring the shoulder 15^a on the lower wall of the slot 14 into position to engage the stump 13 on the bolt 5 and thereby prevent the retraction of the latter, and the shoulder 27 will prevent the key from being turned backward so as to withdraw it from the lock. If the bit is too short the shoulder 15 of the tumbler will not be lifted sufficiently to clear the stump 13, and a supplementary shoulder 29 on the tumbler will prevent the turning backward and removal of the key, consequently any attempt to tamper with the lock by the use of an improper key will be detected.

I claim:

1. The combination of the lock casing and shackle with a shackle-engaging bolt and a bolt-retaining tumbler having a depending yoke for retaining the bit of the key, and a shoulder for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt.

2. The combination of the lock casing and shackle with a shackle-engaging bolt and a bolt-retaining tumbler having a depending yoke for retaining the bit of the key, and a plurality of shoulders for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt.

3. The combination of the lock casing and shackle with a shackle-engaging bolt, and a bolt-retaining tumbler having a depending

yoke for retaining the bit of the key, said tumbler being mounted so as to have both a swinging and a sliding movement upon its pivot.

4. The combination of the lock casing and shackle with a shackle-engaging bolt, a bolt-retaining tumbler having a depending yoke for retaining the bit of the key, said tumbler being mounted so as to have both swinging and sliding movement upon its pivot, and a spring causing the tumbler to slide in one direction.

5. The combination of the lock casing and shackle with a shackle-engaging bolt, and a bolt-retaining tumbler having a depending yoke for retaining the bit of the key, and a shoulder for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt, said tumbler being mounted so as to have both swinging and sliding movement in the lock case.

6. The combination of the lock casing and shackle with a shackle-engaging bolt, and a bolt-retaining tumbler having a depending yoke for retaining the bit of the key, and a plurality of shoulders for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt, said tumbler being mounted so as to have both swinging and sliding movement in the lock case.

7. The combination of the lock casing and shackle with a shackle-engaging bolt, a bolt-retaining tumbler having a depending yoke for retaining the bit of the key, and a shoulder for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt, said tumbler being mounted so as to have both swinging and sliding movement in the lock case, and a spring causing the tumbler to slide in one direction.

8. The combination of the lock casing and shackle with a shackle-engaging bolt, a bolt-retaining tumbler having a depending yoke for retaining the bit of the key, and a plurality of shoulders for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt, said tumbler being mounted so as to have both swinging and sliding movement in the lock case, and a spring causing the tumbler to slide in one direction.

9. The combination of the lock casing and shackle with a shackle-engaging bolt, a tumbler part of which forms a depending yoke for retaining the bit of the key, and means whereby said tumbler retains the bolt in the projected position and is supported in an elevated position by the bolt when the latter is retracted.

10. The combination of the lock casing and shackle with a shackle-engaging bolt, a tumbler having a depending yoke for retain-

ing the bit of the key, and means whereby said tumbler retains the bolt in a projected position and is supported in an elevated position by the bolt when the latter is retracted, said tumbler also having a shoulder for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt.

11. The combination of the lock casing and shackle with a shackle-engaging bolt, a tumbler having a depending yoke for retaining the bit of the key, and means whereby said tumbler retains the bolt in a projected position and is supported in an elevated position by the bolt when the latter is retracted, said tumbler also having a plurality of shoulders for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt.

12. The combination of the lock casing and shackle with a shackle-engaging bolt, and a tumbler having a depending yoke for retaining the bit of the key, and means whereby said tumbler retains the bolt in a projected position and is supported in an elevated position by the bolt when the latter is retracted, said tumbler being mounted so as to have both swinging and sliding movement in the lock casing.

13. The combination of the lock casing and shackle with a shackle-engaging bolt, a tumbler having a depending yoke for retaining the bit of the key, means whereby said tumbler retains the bolt in a projected position and is supported in an elevated position by the bolt when the latter is retracted, said tumbler being mounted so as to have both swinging and sliding movement in the lock case, and a spring for causing the tumbler to slide in one direction.

14. The combination of the lock casing and shackle with a shackle-engaging bolt, a tumbler having a depending yoke for retaining the bit of the key, means whereby the tumbler is caused to retain the bolt in a projected position and is supported in an elevated position by the bolt when the latter is retracted, said tumbler being mounted so as to have both a swinging and sliding movement in the lock casing and being provided with a shoulder for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt.

15. The combination of the lock casing and shackle with a shackle-engaging bolt, a tumbler having a depending yoke for retaining the bit of the key, means whereby the tumbler is caused to retain the bolt in a projected position and is supported in an elevated position by the bolt when the latter is retracted, said tumbler being mounted so as to have both a swinging and sliding movement in the lock case and being pro-

vided with a plurality of shoulders for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt.

16. The combination of the lock casing and shackle with a shackle-engaging bolt, a tumbler mounted so as to be free both to swing and slide in the lock casing and having a depending yoke for engaging the bit of the key, means whereby the tumbler is caused to retain the bolt in a projected position and is supported in an elevated position by the said bolt when the latter is retracted, a spring causing the tumbler to slide in one direction, and a shoulder on the tumbler for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt.

17. The combination of the lock casing and shackle with a shackle-engaging bolt, a tumbler mounted so as to be free both to swing and slide in the lock casing and having a depending yoke for engaging the bit of the key, means whereby the tumbler is caused to retain the bolt in a projected position and is supported in an elevated position by the said bolt when the latter is retracted, a spring causing the tumbler to slide in one direction, and a plurality of shoulders on the tumbler for preventing rearward movement of the bit of the key when the tumbler is adjusted before the retraction of the bolt.

18. The combination of the lock casing and the shackle with the shackle-engaging bolt, a bolt-retaining tumbler having a depending yoke, means upon the bolt for supporting the tumbler in position to cause said yoke to overlap the key bit and retain the key in the lock, and acted upon by the bolt for independently supporting said tumbler in its retaining position when the support of the bolt is removed therefrom.

19. The combination of the lock casing and the shackle having a projecting heel, a shackle-engaging bolt, a bolt-retaining tumbler having a depending yoke, means upon the bolt for supporting the tumbler in position to cause said yoke to overlap the key bit and retain the key in the lock, and means for independently supporting the tumbler in its retaining position when the support of the bolt is removed therefrom, said means being removed from said supporting position by the heel of the shackle when the latter is closed.

20. The combination of the lock casing and shackle having a projecting heel, a shackle-engaging bolt, a bolt-retaining tumbler having a depending yoke, means upon the bolt for supporting the tumbler in position to cause said yoke to overlap the key bit and retain the key in the lock, means upon the tumbler for preventing the backward turning of the key when the tumbler

has been adjusted before the retraction of the bolt, and means for independently supporting the tumbler in its retaining position when the support of the bolt is removed
5 therefrom, said means being removed from such supporting position by the heel of the shackle when the latter is closed.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

FRANK SOLEY.

Witnesses:

HAMILTON D. TURNER,
KATE A. BEADLE.