

No. 860,333.

PATENTED JULY 16, 1907.

P. C. RYAN.

PADLOCK.

APPLICATION FILED JAN. 31, 1907.

Fig. 1

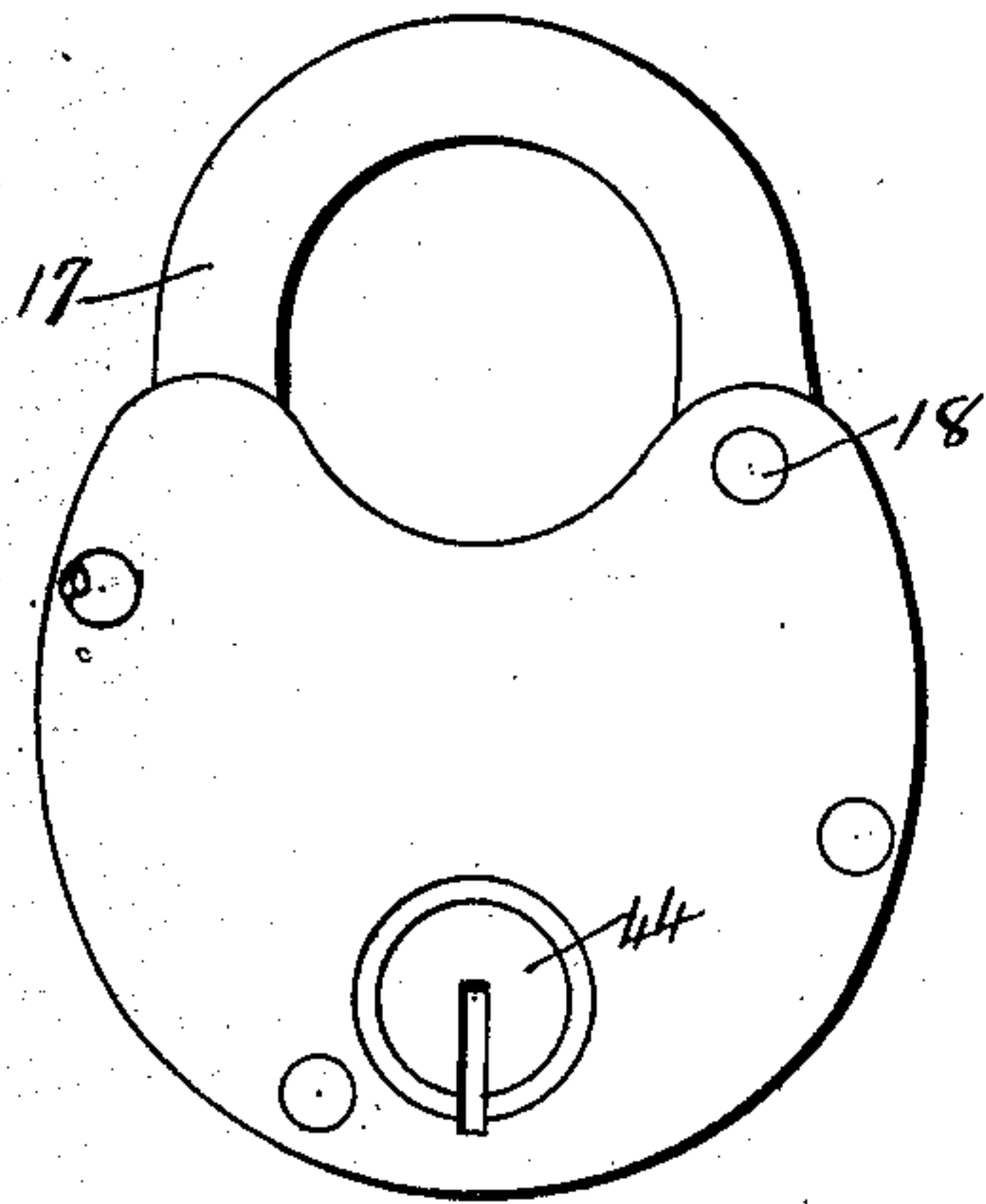


Fig. 2

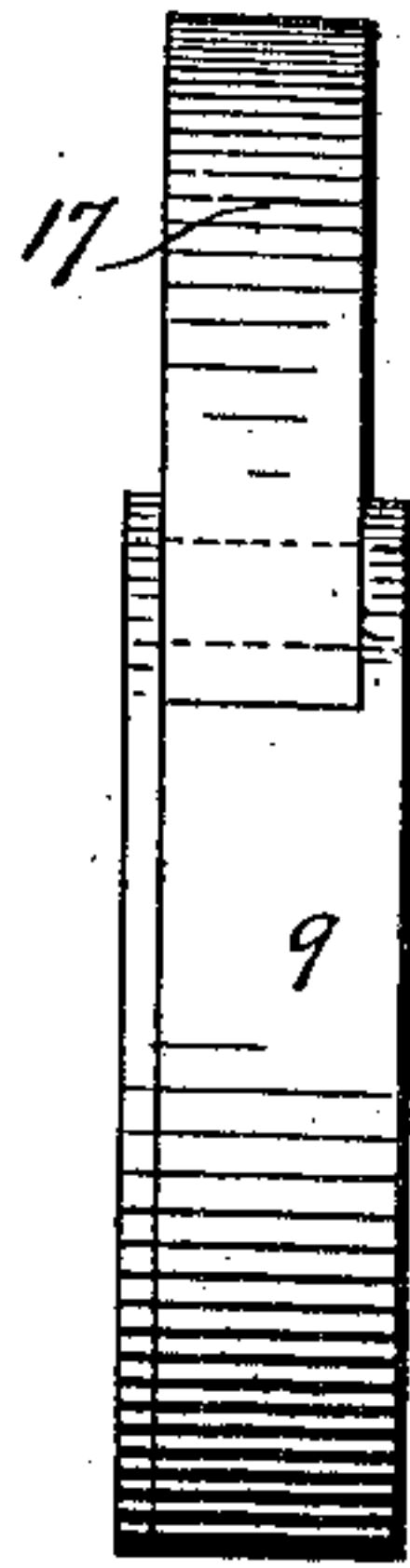


Fig. 3

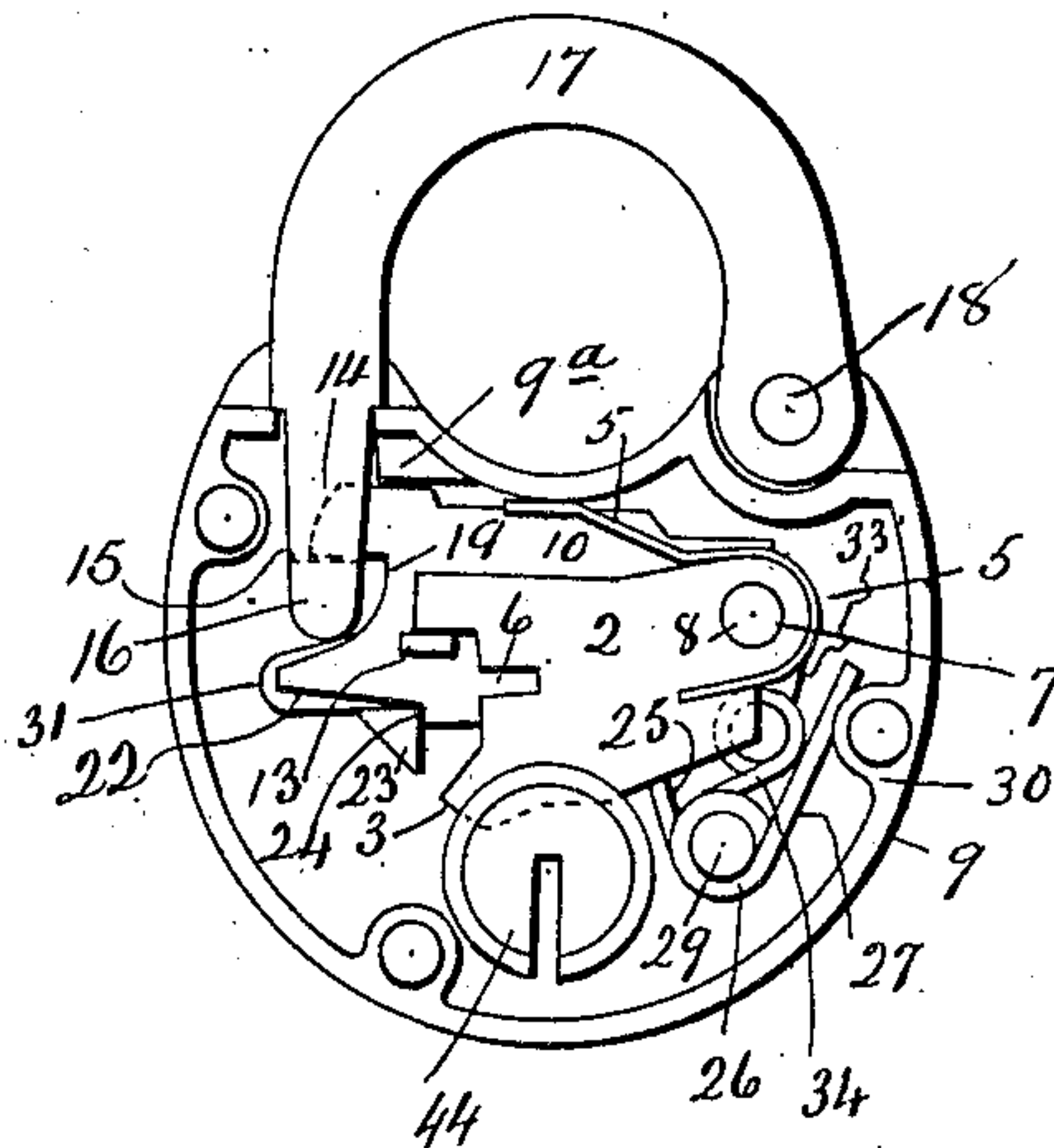


Fig. 4

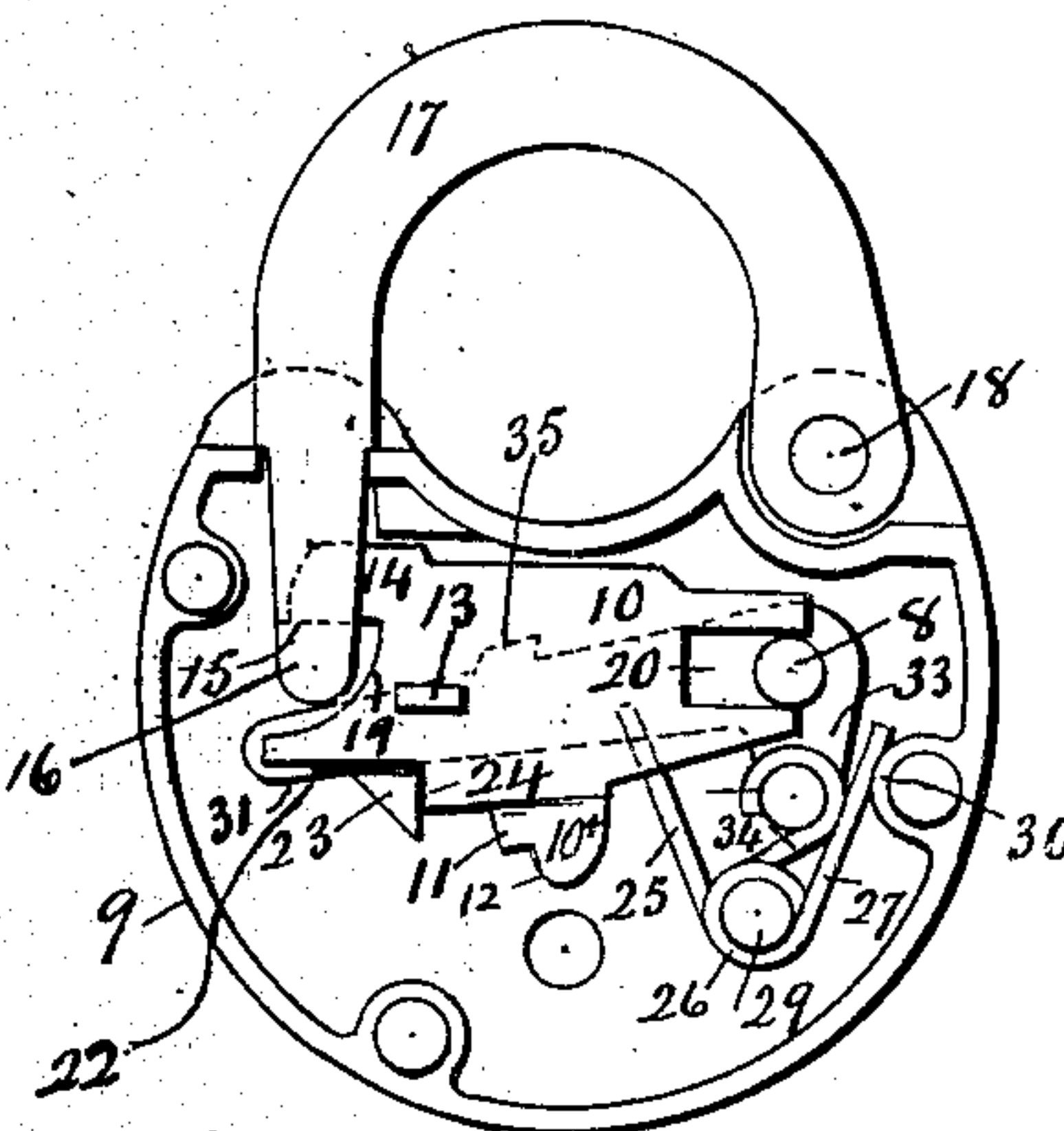


Fig. 5

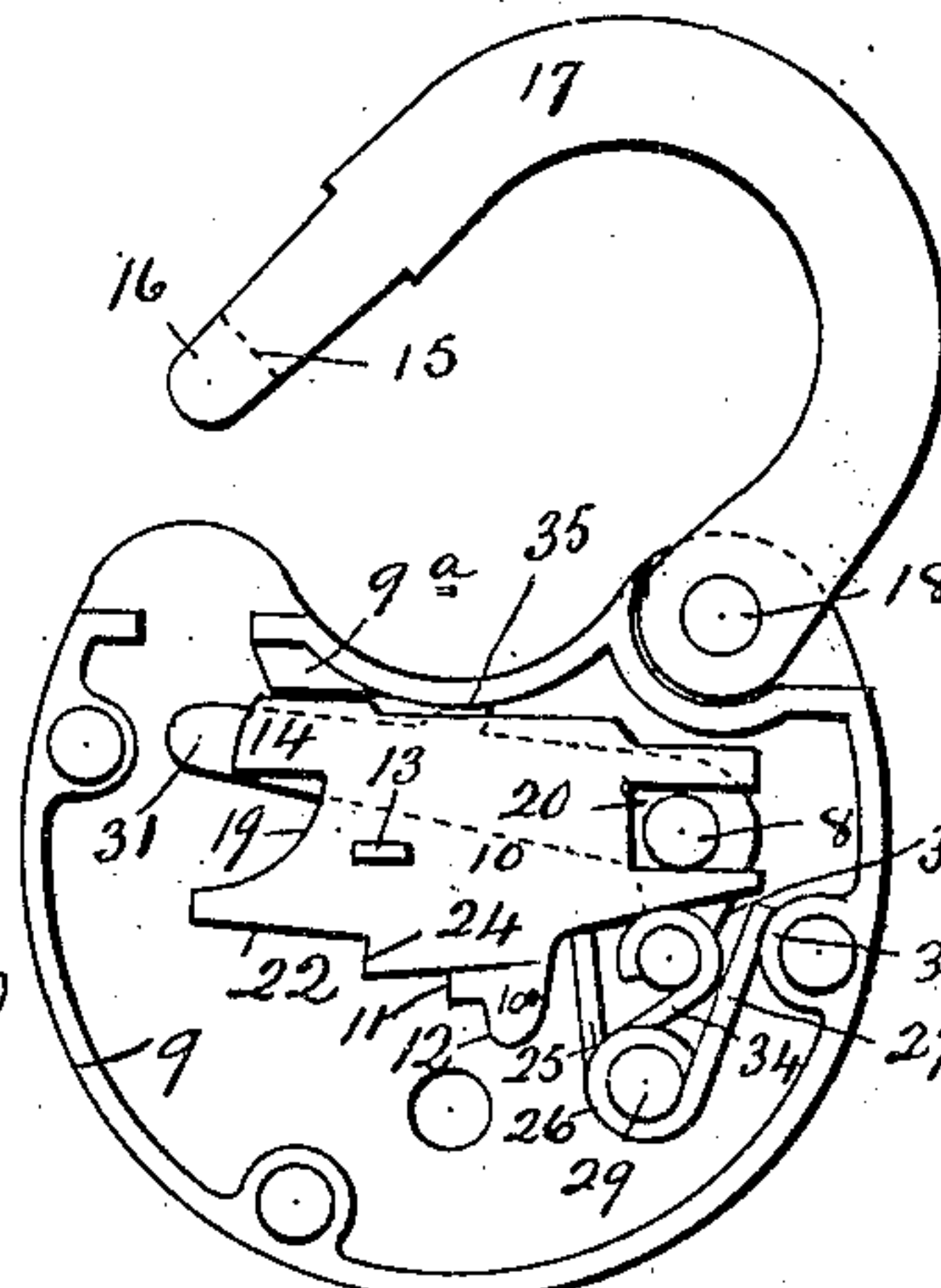


Fig. 7

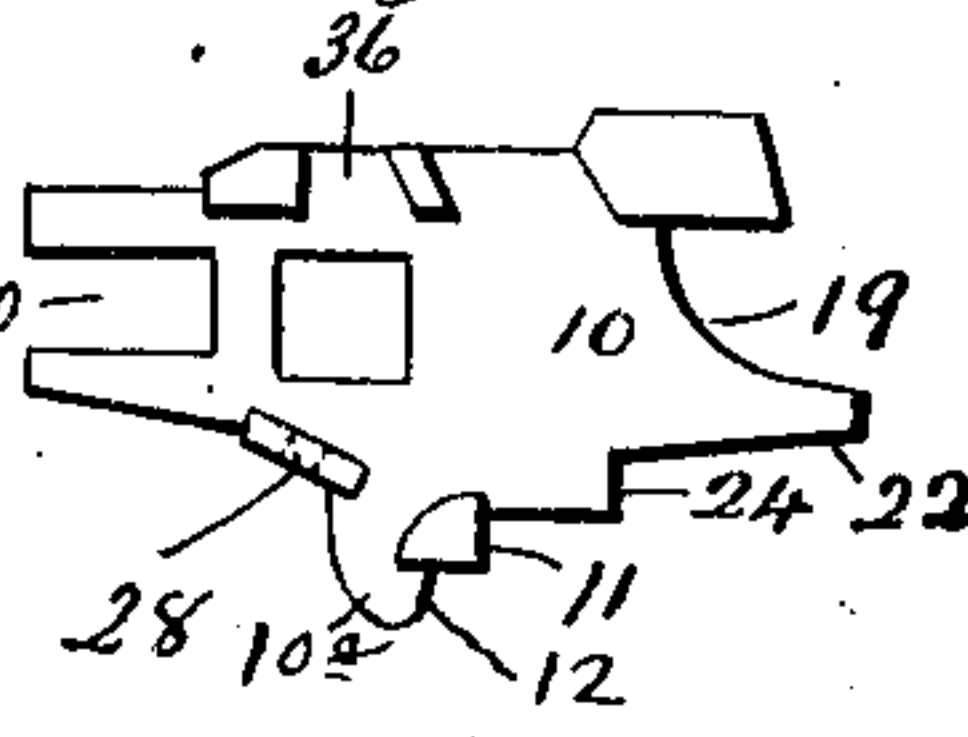


Fig. 12



Fig. 8

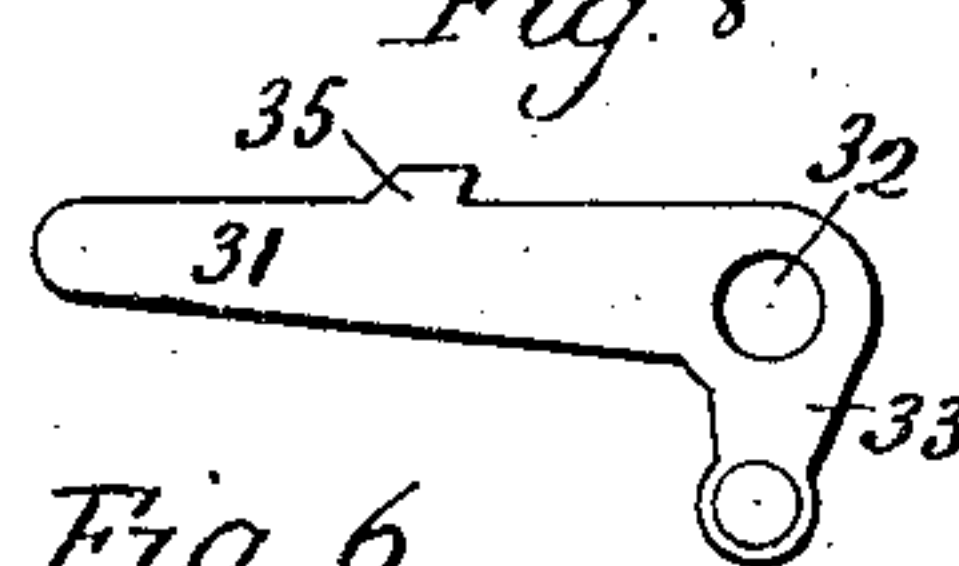


Fig. 9

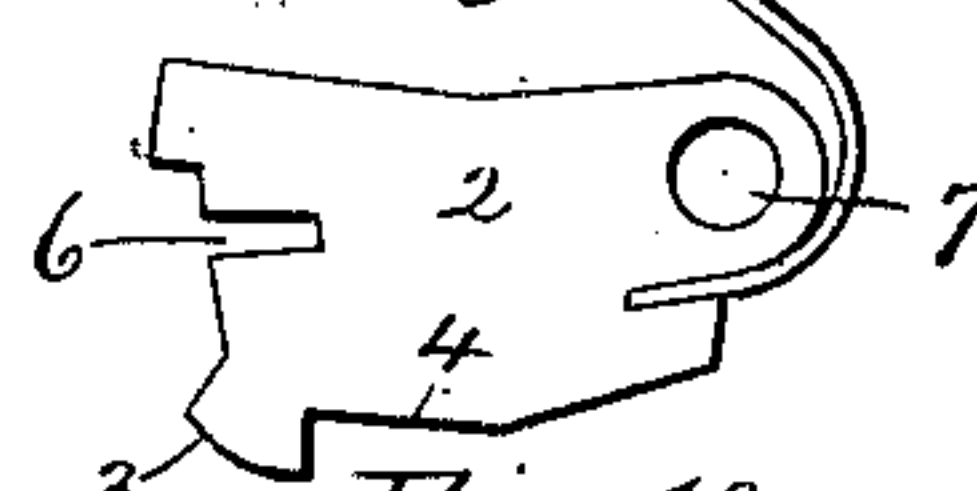


Fig. 13

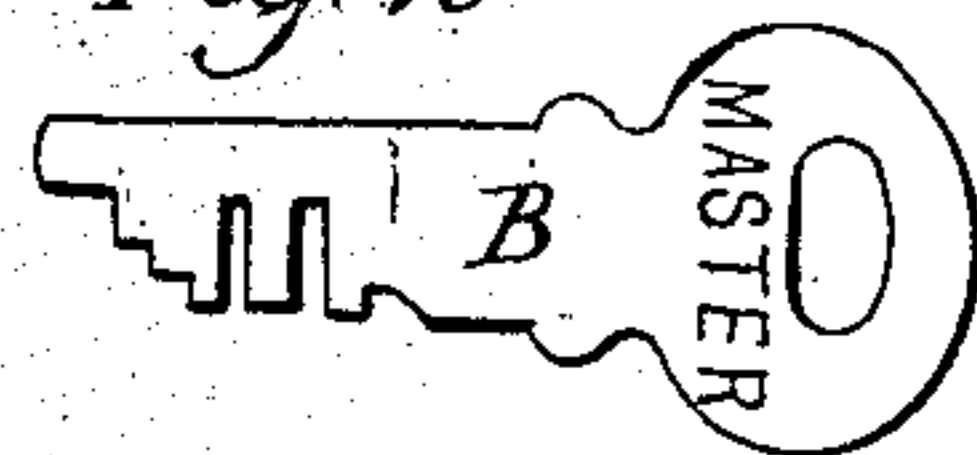


Fig. 6

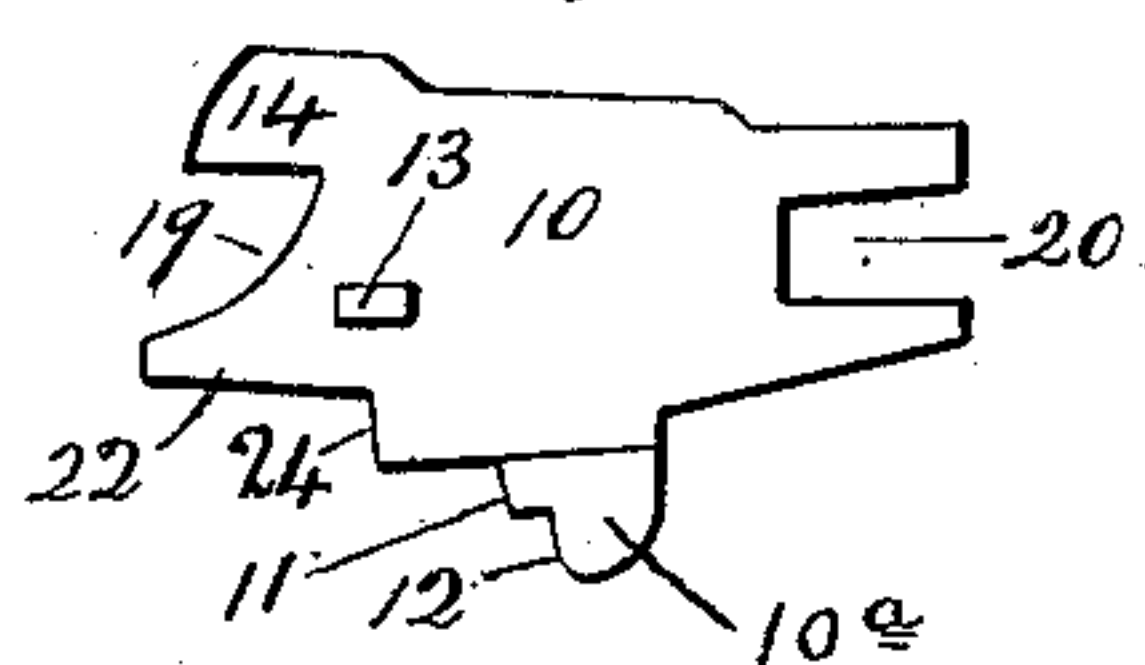


Fig. 10

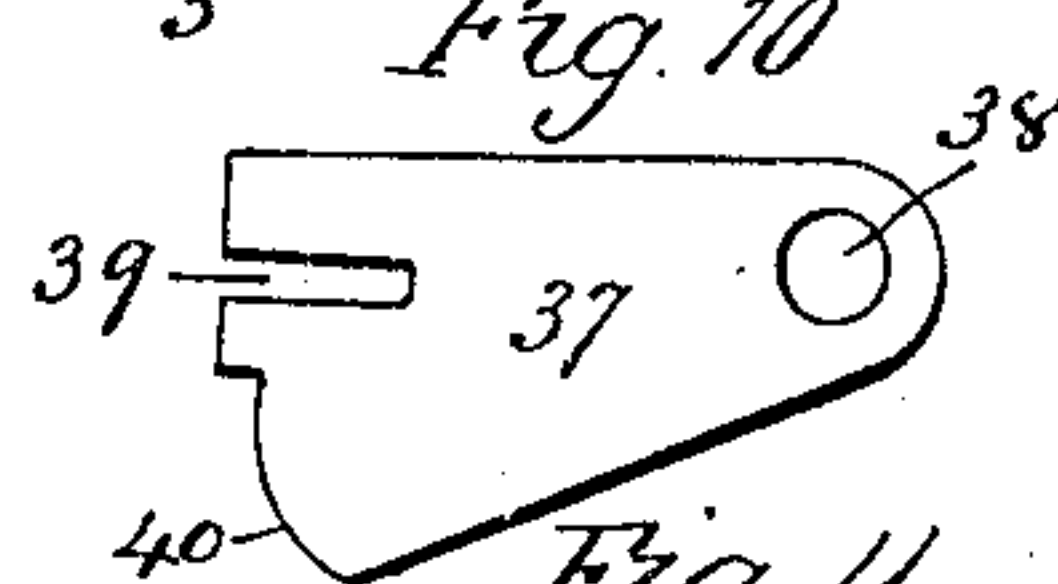
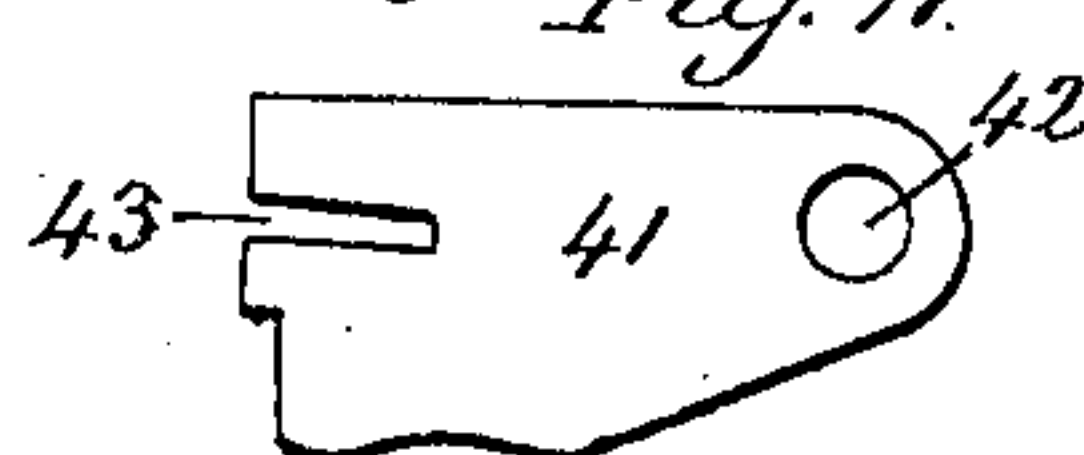


Fig. 11



Witness.
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UNITED STATES PATENT OFFICE.

PHILIP C. RYAN, OF TERRYVILLE, CONNECTICUT, ASSIGNOR TO EAGLE LOCK CO., OF
TERRYVILLE, CONNECTICUT, A CORPORATION.

PADLOCK.

No. 860,333.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed January 31, 1907. Serial No. 355,099.

To all whom it may concern:

Be it known that I, PHILIP C. RYAN, a citizen of the United States, residing at Terryville, in the county of Litchfield and State of Connecticut, have invented a new and useful Improvement in Padlocks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a view in front elevation of a padlock constructed in accordance with my invention. Fig. 2 an edge view thereof. Fig. 3 a view thereof with the cover of the case removed. Fig. 4 a similar view with the mechanism of the lock stripped down to the bolt and its pawl and showing the parts in their locked positions. Fig. 5 a similar view showing the parts in their unlocked positions. Fig. 6 a detached plan view of the bolt. Fig. 7 a reverse view thereof. Fig. 8 a detached plan view of the pawl. Fig. 9 a detached plan view of one of the tumblers. Fig. 10 a detached plan view of the secondary tumbler. Fig. 11 a corresponding view of the dummy tumbler or spacer. Fig. 12 a view of the pass-key. Fig. 13 a view of the master-key.

My invention relates to an improvement in flat key master keyed padlocks, the object being to produce a simple, compact, durable and reliable lock having a wide range of permutation.

With these ends in view my invention consists in the construction and combination of parts to be hereinafter described and pointed out in the claims.

In carrying out my invention as herein shown, each of the tumblers 2 is formed with a pass-key face 3 and a master-key face 4, the latter being entirely independent of the former and located to the right of it as clearly shown in Fig. 9. In other words, these faces are located in line, one in advance of the other, and each takes the full thickness of the tumbler. I shall use, as I may say here, the term "face" instead of the term "key-notch" or the term "key-sweep" which are also employed to designate the feature of lock construction which I prefer to call the "face". Otherwise than as above specified, the said tumblers 2 are of ordinary construction, being furnished with a spring 5 and formed with a slot or gate 6 and with a stud hole 7 adapting the tumbler to be pivotally mounted upon a stud 8 fixed in the lock-case 9. The sliding-bolt 10 of my improved lock is formed with a depending lug 10^a shaped to form a pass-key shoulder 11 and a master-key shoulder 12, the said shoulders being independent of but adjacent to each other and the latter being located to the right of the former in the same way that the master key face 4 of the tumbler 2 is located to the right

of the pass key-face 3 thereof. The said shoulder 11 is located above the shoulder 12 or at a different elevation therefrom. Thus constructed the bolt 10 is positively withdrawn or moved back by the direct action upon it of the respective flat pass and master keys A and B without dependence upon any spring or other intermediate part for the purpose. Otherwise than as above described, the bolt 10 is of ordinary construction, being provided with a stump 13 to enter the gates or slots 6 of the tumblers 2 and formed with a locking-finger 14 which enters a locking-notch 15 formed to receive it in the inner face of the nose 16 of the shackle 17 which swings upon the stud 18. At its left hand end the bolt is cut away to form a clearance notch 19 for the reception of the nose 16 of the shackle, while its right hand end is formed with a longitudinally arranged guide-slot 20 receiving the stud 8 which prevents the bolt from being laterally displaced at its right hand end. The bolt is held against lateral displacement at its left hand end by the engagement of the upper edge of its said finger 14 with a portion of the case 9 at the point 9^a therein, and by the engagement of its parallel bearing surface 22 with a post 23 located in the case at a point about opposite the said point 9^a. The bolt is also formed with a stop-shoulder 24 engaging with the said post 23 and limiting the movement of the bolt, from right to left under the action of the bolt spring which consists of an arm 25, a coil 26 and an arm 27, the arm 25 being entered into a hole 28 in the lower edge of the bolt, the coil 26 being set over a stud 29 in the case 9, and the arm 27 being engaged with one of the sockets 30 cast into the case. The said bolt rests upon and rides back and forth over a pawl 31 adapted at its left hand or free end to be engaged directly by the nose 16 of the shackle 17. At its right hand end the said pawl is formed with a stud hole 32 for the reception of the stud 8 upon which the pawl swings. An arm 33 depending from the right hand end of the pawl is engaged by one end of the pawl-spring 34 which is mounted upon the stud 29 aforesaid. The action of the pawl spring 34 is to constantly tend to lift the pawl so as to enter the locking lug 35 thereof into a locking-slot 36 formed upon the rear face of the bolt 10, whereby the bolt is locked in its retracted position against the tendency of its spring to move it from right to left into its locking position.

To increase the number of permutations, I may employ one or more secondary tumblers 37 (Fig. 10) each formed with a stud hole 38 for being pivotally mounted upon the stud 8, with a slot or gate 39 and with a pass-key face 40 but no master-key face. The "combination" of the lock is changed, so far as these secondary tumblers are concerned, by shifting them with respect to the tumblers 2. I am therefore obliged to employ,

in corresponding number, dummy tumblers or spacers 41 (Fig. 11) each being formed with a stud hole 42 and with a slot or gate 43. When one of the secondary tumblers 37 is shifted, its place must be occupied by a dummy tumbler or spacer 41 so as to maintain the right positions of the regular tumblers with respect to the cuts in the keys. In other words, the secondary tumblers and dummy tumblers or spacers will always replace each other. The number employed may be varied, but ordinarily one secondary tumbler and one dummy tumbler or spacer will be sufficient. It will be understood that the dummy-tumbler or dummy tumblers, if more than one be employed, will never extend far enough toward the revolving key center 44 to be engaged by the keys A and B.

When the pass key A is entered into the key-center and turned from left to right, the pass-key faces 3 of the tumblers 2 will be engaged and the tumblers swung so as to bring their gates or slots 6 into registration with the stump 13. A continuation of the same movement of the pass-key will engage it with the pass-key shoulder 11 of the bolt which will then be positively moved from left to right against the tension of the bolt-spring, until the locking-finger 14 of the bolt has been retracted from the locking-notch 15 of the shackle 17 which will then be ejected, as it were, by the upward movement of the pawl 31 under the tension of its spring 34 as the lug 35 of the pawl moves into the locking-notch 36 of the bolt. The pass key A is now turned backward from right to left and withdrawn from the lock. The secondary tumbler 37 is correspondingly operated by the pass-key at the same time with the tumblers 2. When the master-key is inserted into the lock and turned from left to right, it engages with the pass-key faces 3 of the tumblers 2 and secondary tumbler or secondary tumblers 37 and moves the same more or less, but not so as to bring their slots or gates into registration with the stump 13. That does not take place until the key has engaged and co-acted with the master-key faces 4 of the tumblers the gates 6 of which are

then registered with the stump 13. The key then engages with the master-key shoulder 12 of the bolt and positively moves the same from left to right until the shackle has been released and thrown out as before. The master key is not turned backward for its removal, but from left to right until it has made a full revolution with the key-center 44 after which it is removed from the lock.

I claim:—

1. In a master-keyed padlock, the combination with one or more tumblers each provided with a pass-key face and a master-key face located in line or one in advance of the other; of a bolt provided with a pass-key shoulder and a master-key shoulder located adjacent to each other but at different elevations and respectively adapted to be engaged by pass and master keys for the positive retraction of the bolt thereby.

2. In a master-keyed padlock, the combination with one or more tumblers each provided with a pass-key face and a master-key face located in line or one in advance of the other, the latter being located to the right of the former, of a bolt provided with a pass-key shoulder and a master-key shoulder located adjacent to each other but at different elevations and respectively adapted to be engaged by pass and master keys for the positive retraction of the bolt thereby, and a spring for moving the bolt from right to left into its locking position, whereby the bolt is positively retracted from left to right against the tension of the said spring, by its respective keys.

3. In a master keyed padlock, the combination with a series of tumblers each formed with a pass-key face and a master-key face located in line or one in advance of the other, of a bolt formed with a pass-key shoulder and a master-key shoulder located adjacent to each other but at different elevations and respectively adapted to be directly engaged by pass and master keys for the positive retraction of the bolt thereby, and one or more secondary tumblers and a corresponding number of dummy tumblers or spacers for interposition between the said tumblers first mentioned.

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

PHILIP C. RYAN

Witnesses:

OTIS B. HOUGH,
HARRY C. CLOW.