

No. 688,070.

Patented Dec. 3, 1901.

W. G. DENN.  
LOCK.

(Application filed Aug. 19, 1901.)

(No Model.)

Fig. 1.

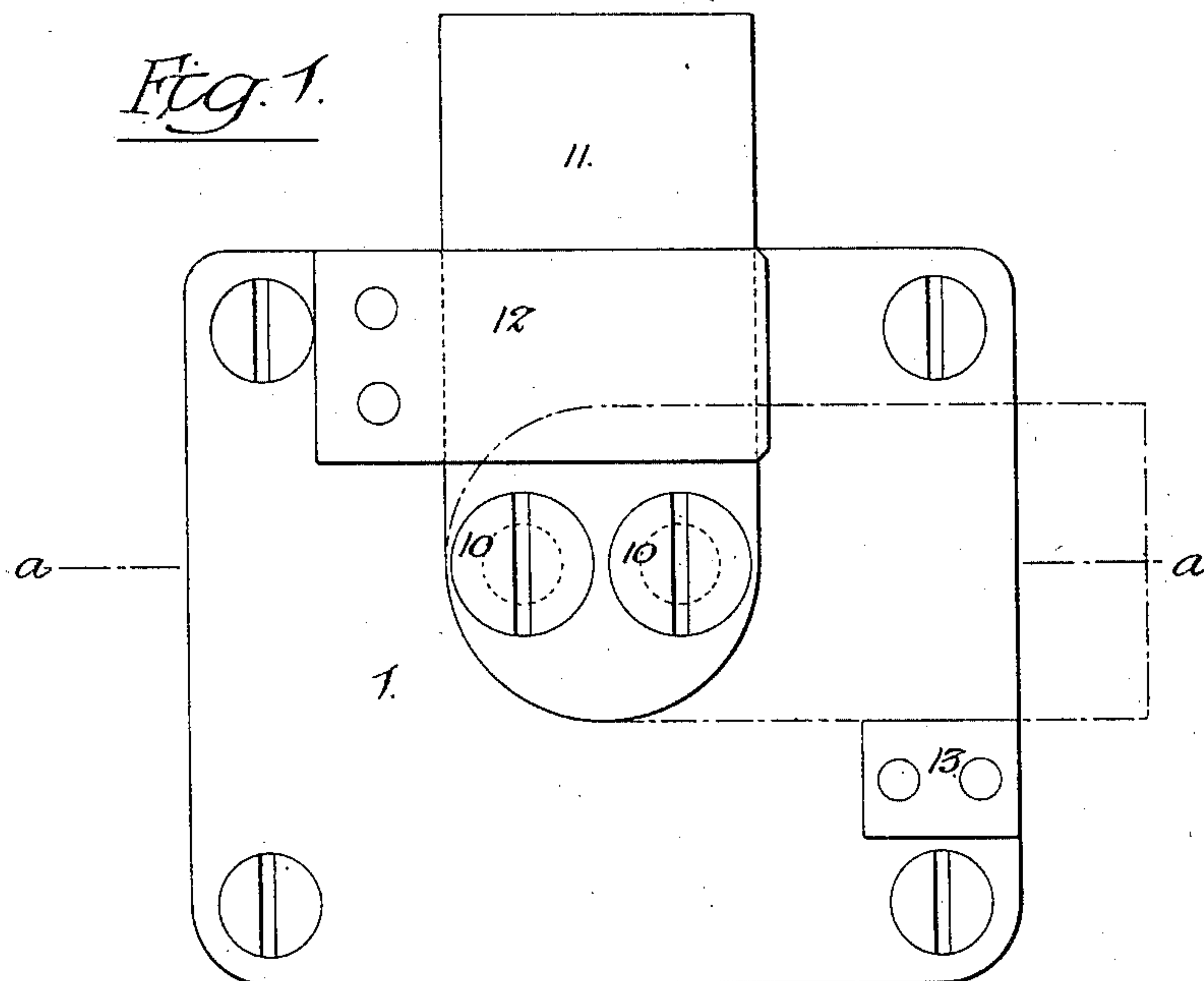


Fig. 5.

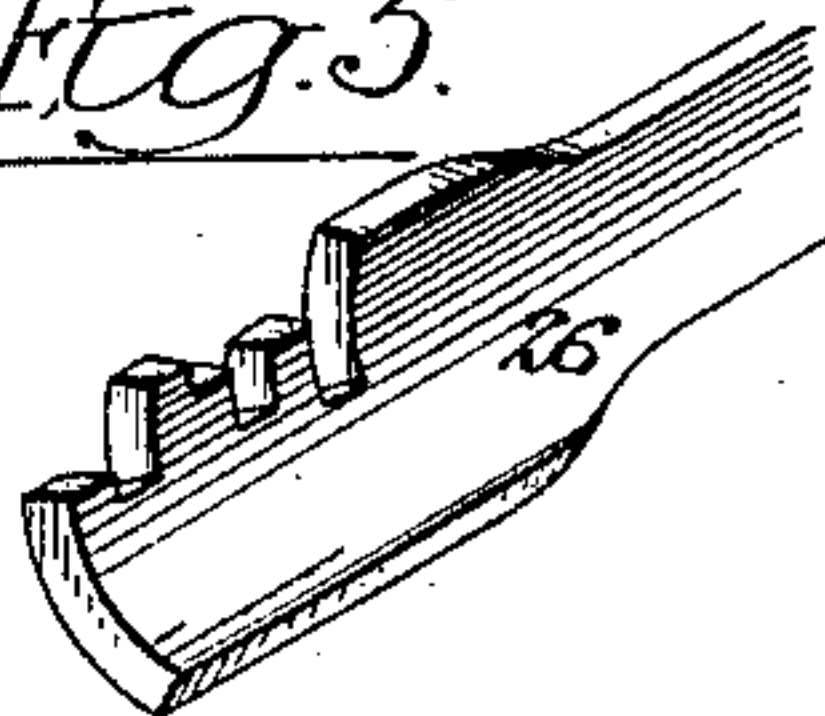


Fig. 2.

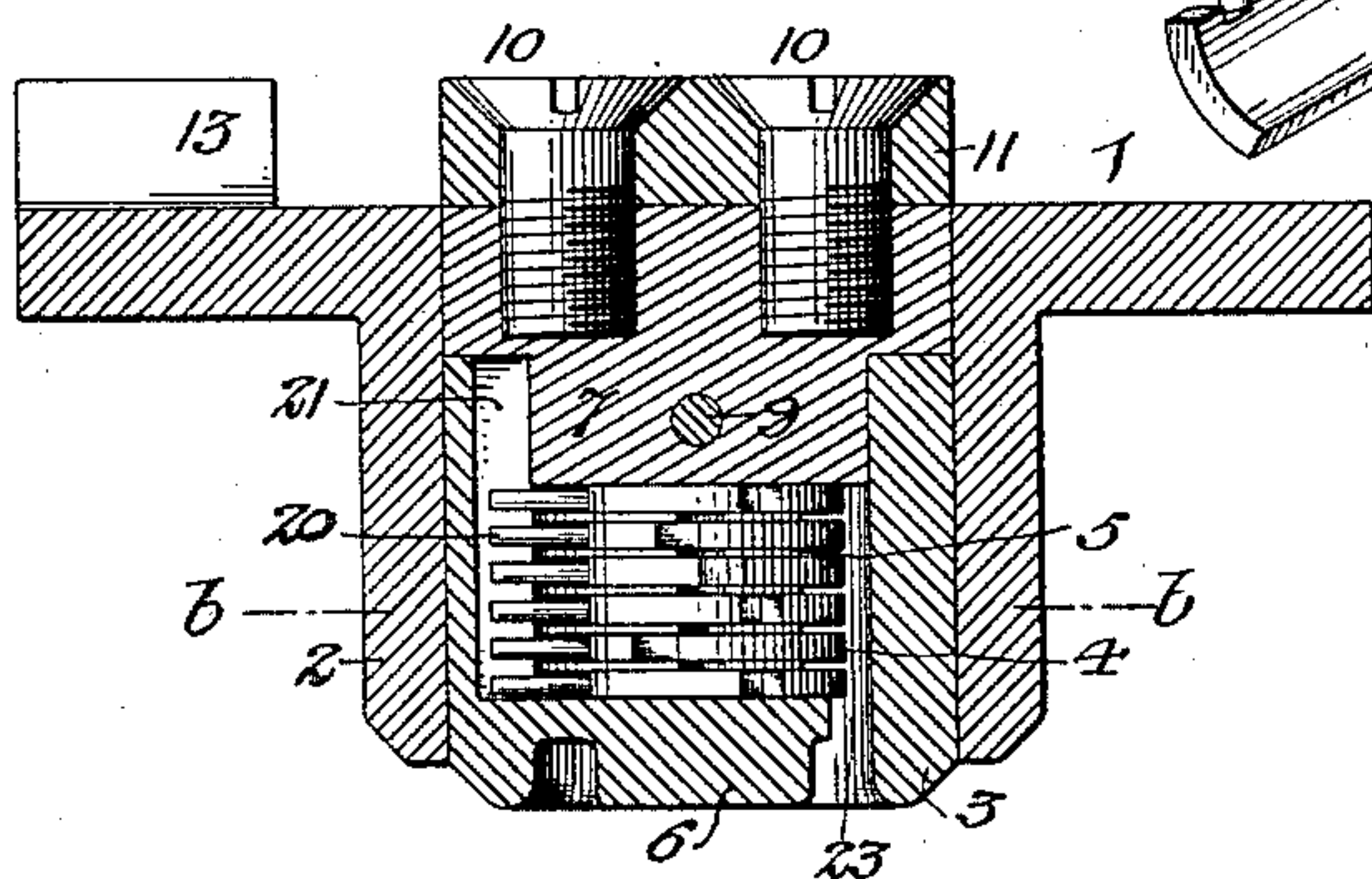


Fig. 3.

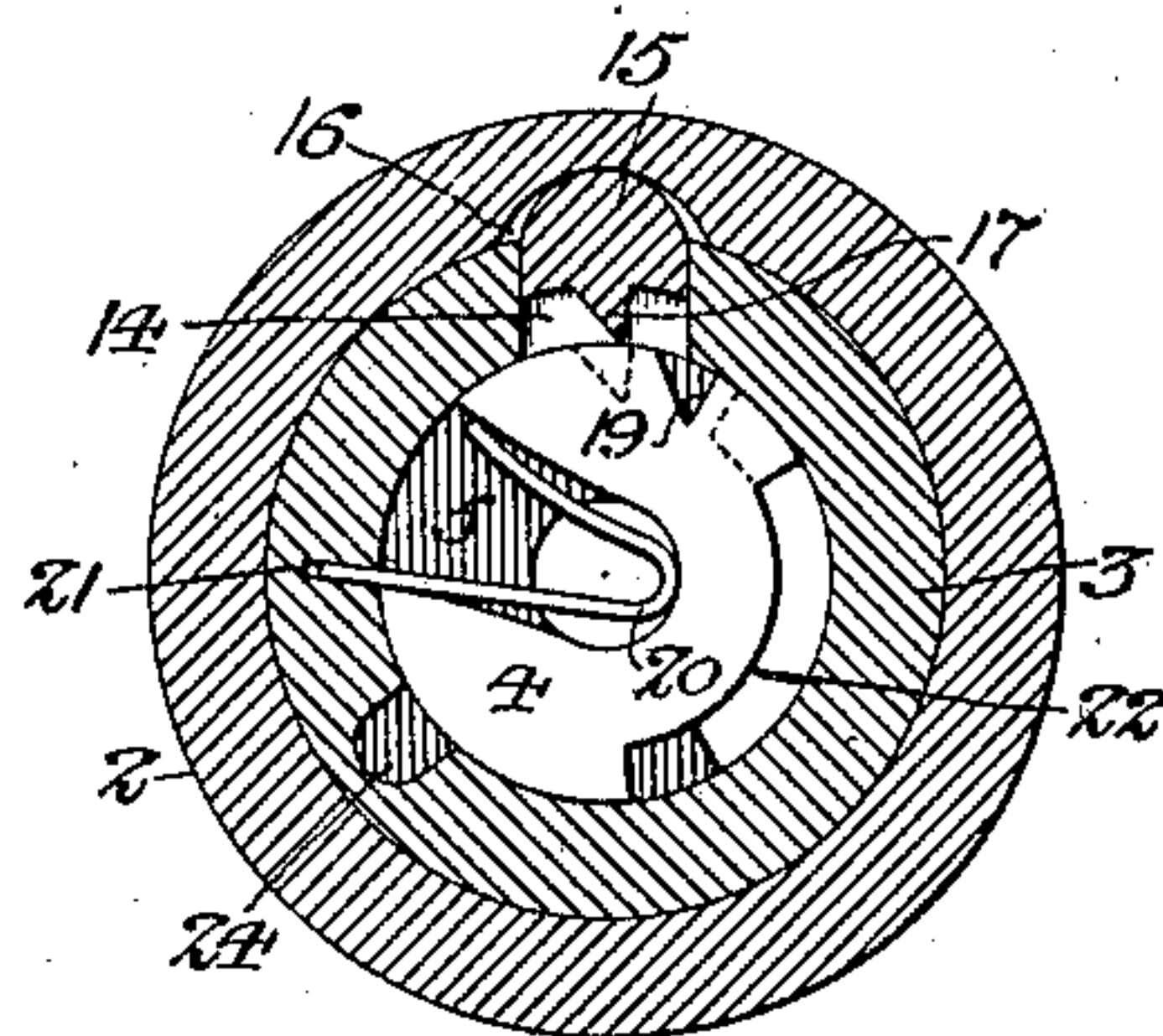
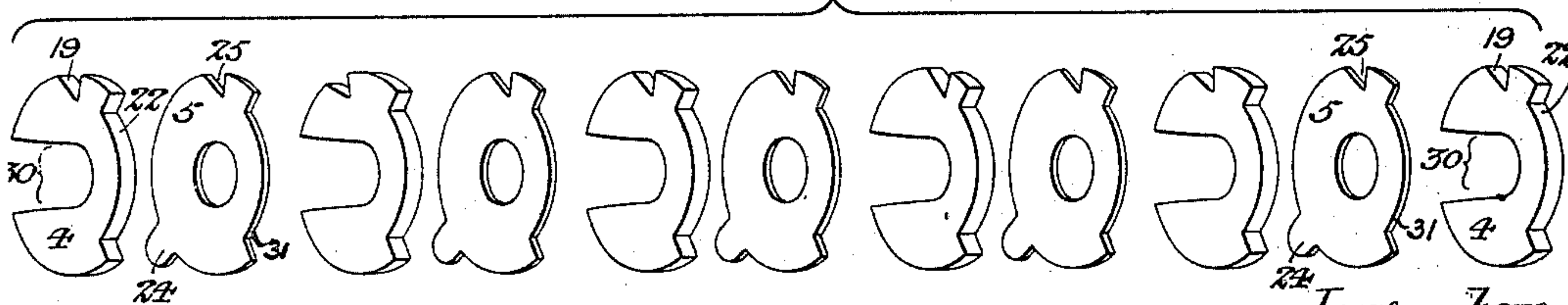


Fig. 4.



Witnesses:-

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# UNITED STATES PATENT OFFICE.

WALTER G. DENN, OF PHILADELPHIA, PENNSYLVANIA.

## LOCK.

SPECIFICATION forming part of Letters Patent No. 688,070, dated December 3, 1901.

Application filed August 19, 1901. Serial No. 72,558. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER G. DENN, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain  
5 Improvements in Locks, of which the following is a specification.

The object of my invention is to construct a spring tumbler-lock of simple construction, compact form, and general application, an object which I attain as hereinafter set forth,  
10 reference being had to the accompanying drawings, in which—

Figure 1 is a back view of my improved lock. Fig. 2 is a sectional plan view of the  
15 same on the line *a a*, Fig. 1, but showing the lock reversed. Fig. 3 is a transverse section on the line *b b*, Fig. 2. Fig. 4 is a perspective view of the tumblers and washers of the lock detached from each other, and Fig. 5 is  
20 a perspective view of part of the key of the lock.

1 represents the back plate of the lock, which has at the front a projecting cylindrical casing 2, in which is contained the cylindrical tumbler-carrier 3 of the lock, the latter containing a series of tumblers 4, separated by interposed washers 5 and held in place longitudinally in the tumbler-carrier between the closed front end 6 of the latter and a plug  
25 7, which is inserted into the rear end of said tumbler-carrier and is held in place therein by means of a transverse pin 9 or in some other suitable way. To the enlarged head of this plug 7 is secured, by means of bolts or  
35 screws 10 or in any other convenient way, the bolt 11 of the lock, which consists of a simple arm engaging with the keeper when adjusted to one position—for instance, the position shown by full lines in Fig. 1, but free from  
40 engagement with the keeper when moved to the other position, as shown by dotted lines in Fig. 1, suitable stops 12 and 13 limiting the movement of the bolt 11 in either direction, and the stop 12 also overlapping the  
45 bolt 11 on the rear side, so as to brace the same when it is in the locking position.

To a longitudinal slot 14 in the tumbler-carrier 3 is adapted a sliding dog 15, which when the bolt is in the locked position can  
50 enter a rounded or beveled recess 16 in the cylindrical projection 2 of the lock-case, that

portion of the dog which enters said recess being also rounded or beveled, whereby the turning movement of the tumbler-carrier 3 in the cylinder 2 will cause the dog to be forced  
55 inwardly into the slot 14 of said tumbler-carrier.

On the inner face of the dog 15 is a projecting lug 17, and in the periphery of each of the tumblers 4 is formed a notch 19. Hence  
60 when all of the tumblers have been adjusted so as to bring their notches in line beneath the rib 17 of the dog said rib can enter the notches on the inward movement of the dog and rotatable movement of the tumbler-carrier will be permitted, such movement being  
65 obstructed, however, at other times.

Each of the tumblers is normally held in the locking position shown in Fig. 3 by means of a spring 20, contained within a slot 30  
70 formed in the tumbler, one end of this spring bearing upon one of the walls of said slot, as shown in Fig. 3, and the other end of the spring being adapted to a longitudinal slot 21 in the tumbler-carrier 3, as also shown in  
75 Fig. 3.

The periphery of each of the tumblers 4 is recessed, as shown at 22, so as to form a segmental keyway between the tumblers and the inner face of the tumbler-carrier 3, this keyway being extended through the end of the  
80 tumbler-carrier, as shown at 23 in Fig. 2.

Each of the washers 5 is prevented from rotating by means of a lug 24, which enters a longitudinal slot or groove cut in the inner  
85 face of the tumbler-carrier 3, and each washer has a peripheral recess 25 for the reception of the lug 17 of the dog 15 and also a peripheral recess 31 for the reception and play of the segmental key 26, which is bitted on the  
90 forward edge, as shown in Fig. 5, to correspond with the location of the notches in the various tumblers of the lock.

When the key is inserted in the keyway and moved therein so as to bring its bitted  
95 edge into contact with the upper end of the peripheral recess 22 of each tumbler, said tumblers will be moved so as to bring their notches in line with the lug of the dog, and thus permit the inward movement of the latter and the turning of the tumbler-carrier so  
100 as to open the lock. The forward movement



of the tumblers under the action of the key compresses the springs 20, and when the key is moved backwardly the recoil of these springs acting upon the tumblers causes the  
5 beveled faces of the notches 19 to eject the lug 17 of the dog 15 as soon as said dog comes into line with the recess 16 in the cylindrical casing 2—that is to say, when the bolt 11 is again restored to locking position. The  
10 springs 20 finally move the tumblers to their normal position, which is determined by contact of the lower wall of the spring-receiving slot 30 of each tumbler with that portion of the spring adjacent to the end which enters  
15 the slot 21.

A lock of the character described is of simple construction and is extremely compact, owing to the fact that the tumbler-actuating springs are contained within the recesses of  
20 the tumblers, and hence do not increase the diameter of the tumbler-carrier. The same tumbler-carrier can, moreover, be employed in locks of varying depth, it being only necessary to increase the thickness of the head  
25 of the plug 7 to accord with the depth of lock desired, so that one size of tumbler-carrier is available for all of the different sizes of locks.

Having thus described my invention, I claim and desire to secure by Letters Patent—  
30 ent—

1. The combination, in a lock, of the rotatable tumbler-carrier, its dog, the notched tumblers having spring-receiving slots and  
35 tumbler-actuating springs contained within

said slots, and engaging with the tumbler-carrier, substantially as specified.

2. The combination in a lock, of the rotatable tumbler-carrier, its dog, the notched  
40 tumblers recessed to form a keyway and having spring-receiving slots, and tumbler-actuating springs contained within said slots and engaging with the tumbler-carrier, said  
45 springs also serving as stops to limit the backward movement of the tumblers, substantially as specified.

3. The combination of the back plate of the lock and its projecting casing, the tumbler-carrier rotatably mounted in said casing, a  
50 bolt consisting of an arm secured to said tumbler-carrier and stops on the back plate for limiting the swinging movement of said arm, substantially as specified.

4. The combination of the back plate of the lock and its projecting casing, the tumbler-  
55 carrier rotatably mounted in said casing, a bolt consisting of an arm secured to said tumbler-carrier, and stops on the back plate for limiting the swinging movement of said arm,  
60 one of said stops overlapping and serving as a brace for the bolt when the same is in the locking position, substantially as specified.

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

WALTER G. DENN.

Witnesses:

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