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F. DUSTERWALD

2,430,711

TUMBLER CONTROLLED LOCKING DEVICE

Filed Aug. 30, 1946

Fig. 7

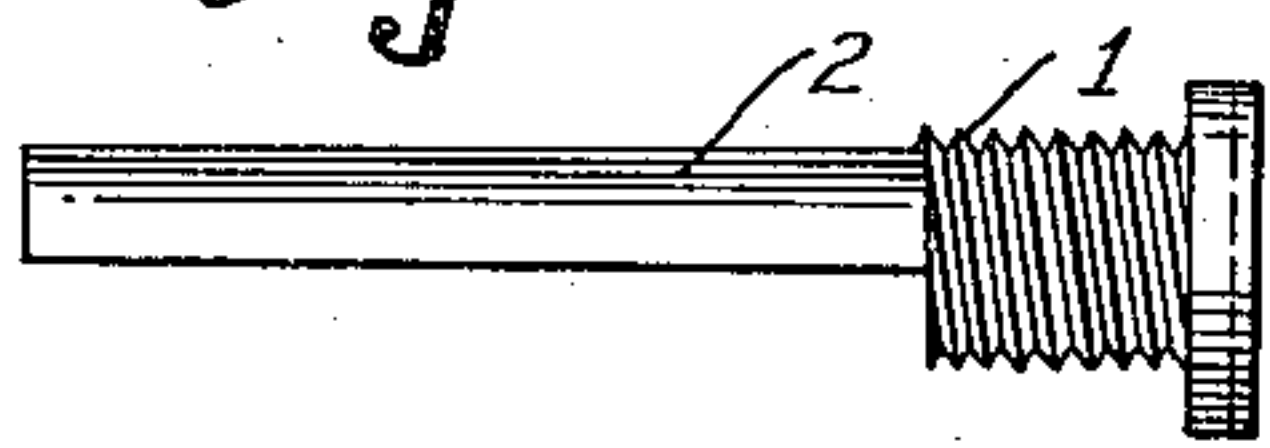


Fig. 6

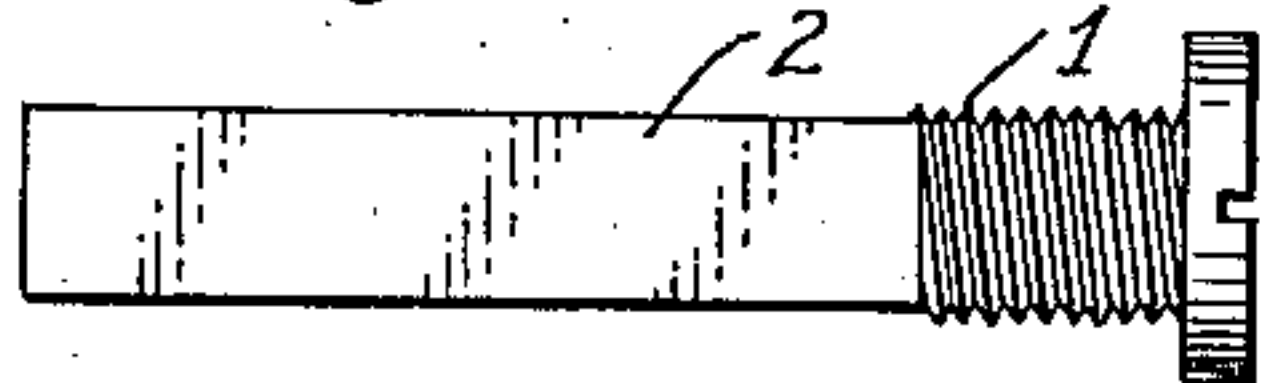


Fig. 1

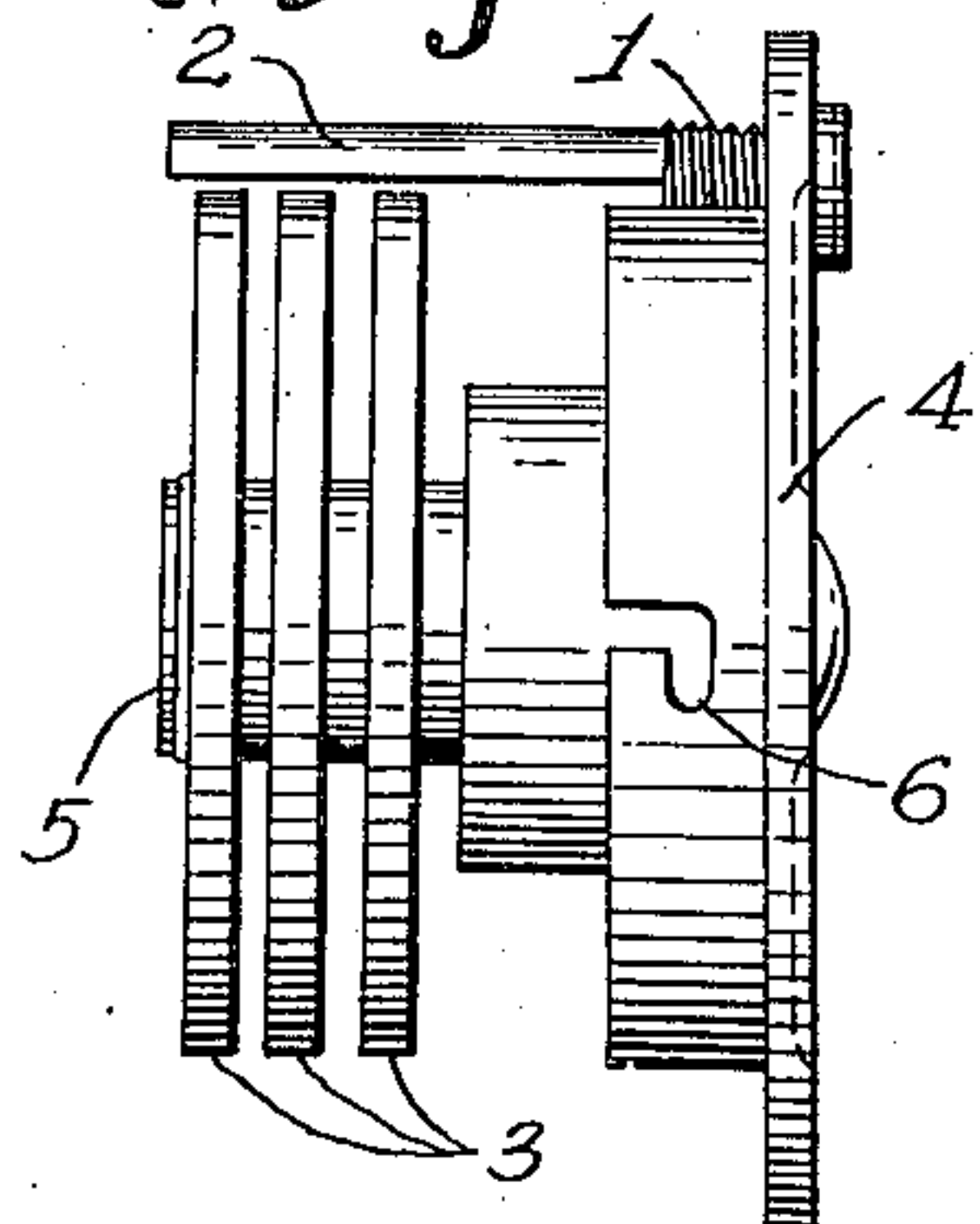


Fig. 2

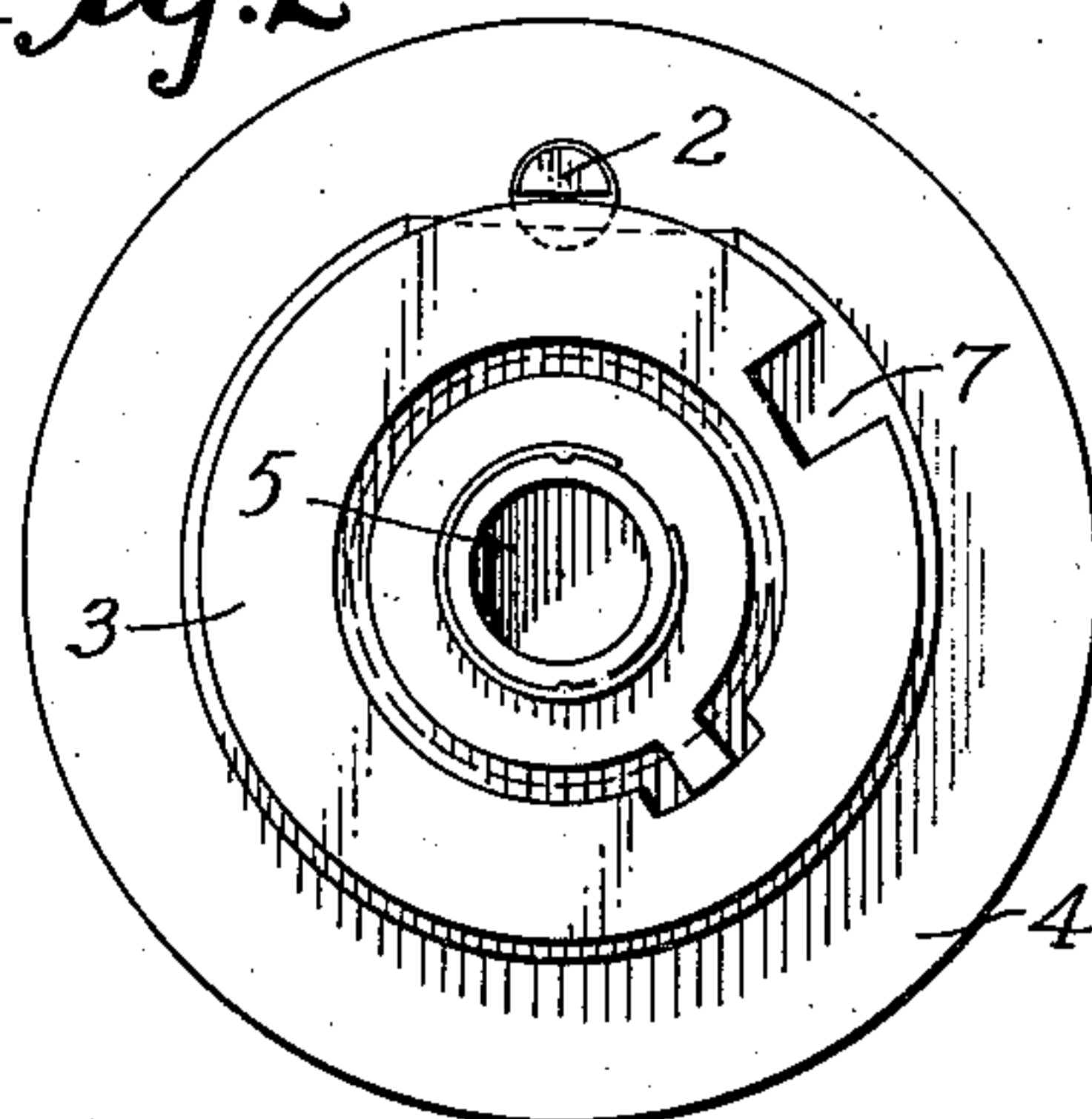


Fig. 3

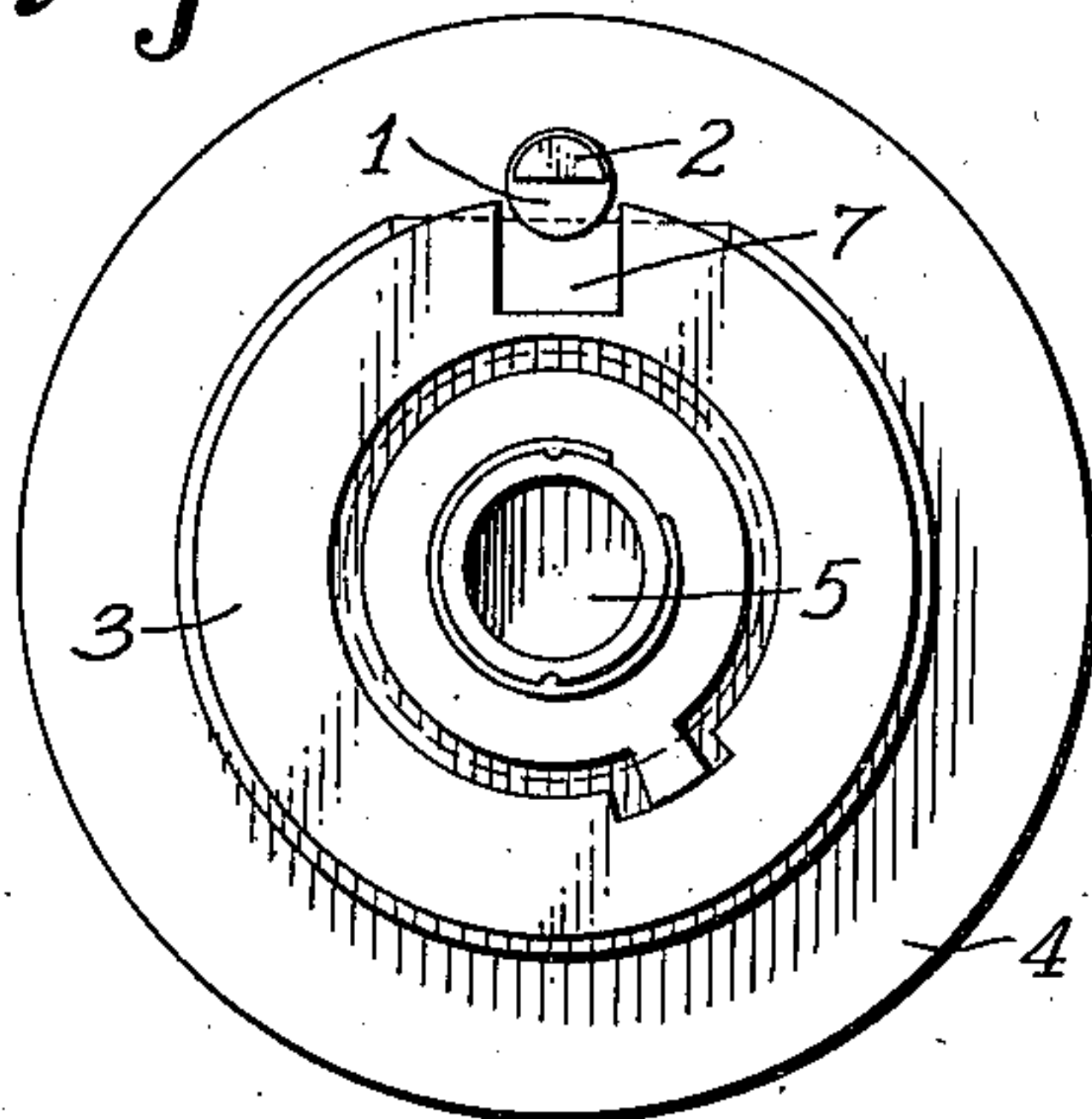


Fig. 5

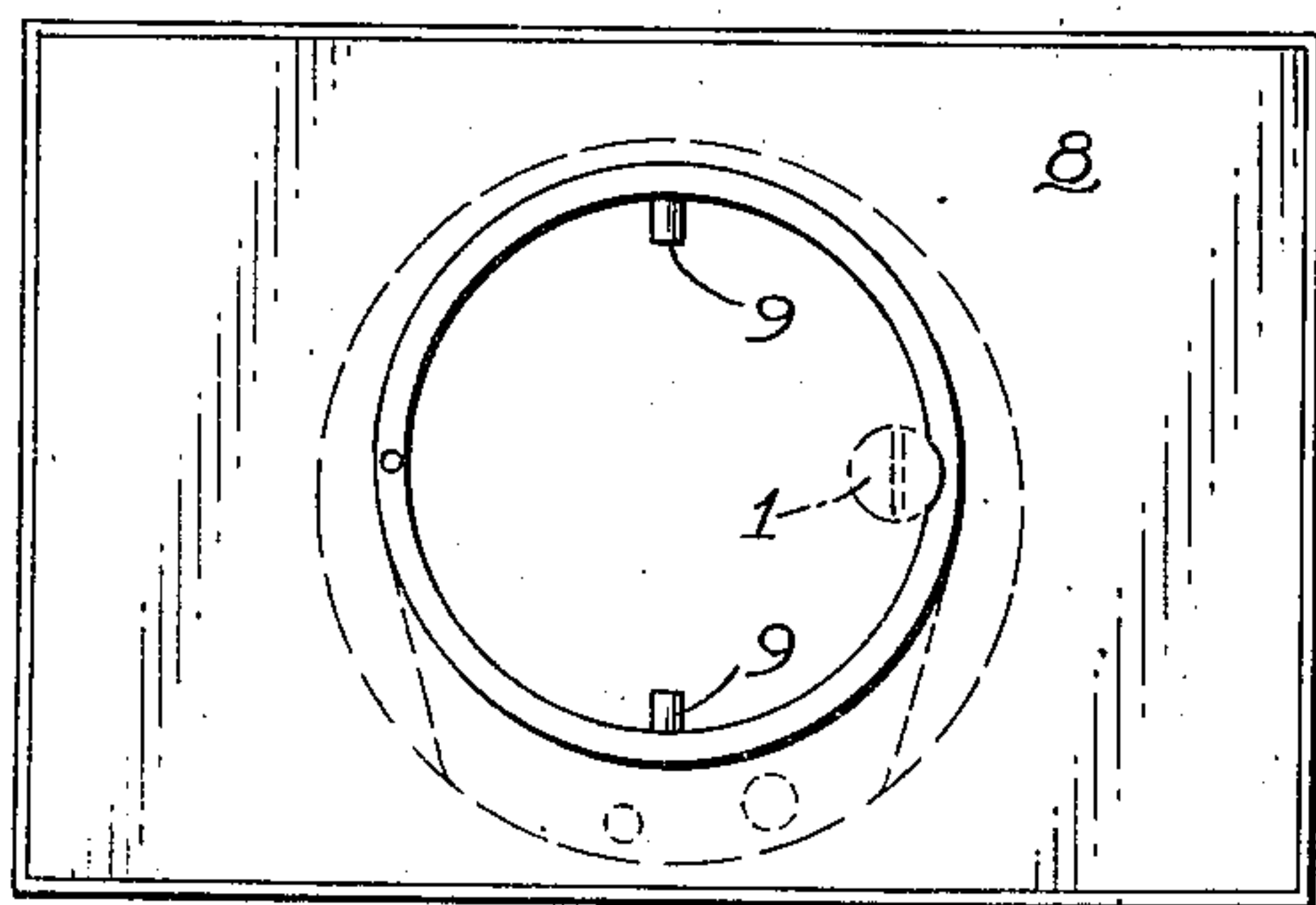
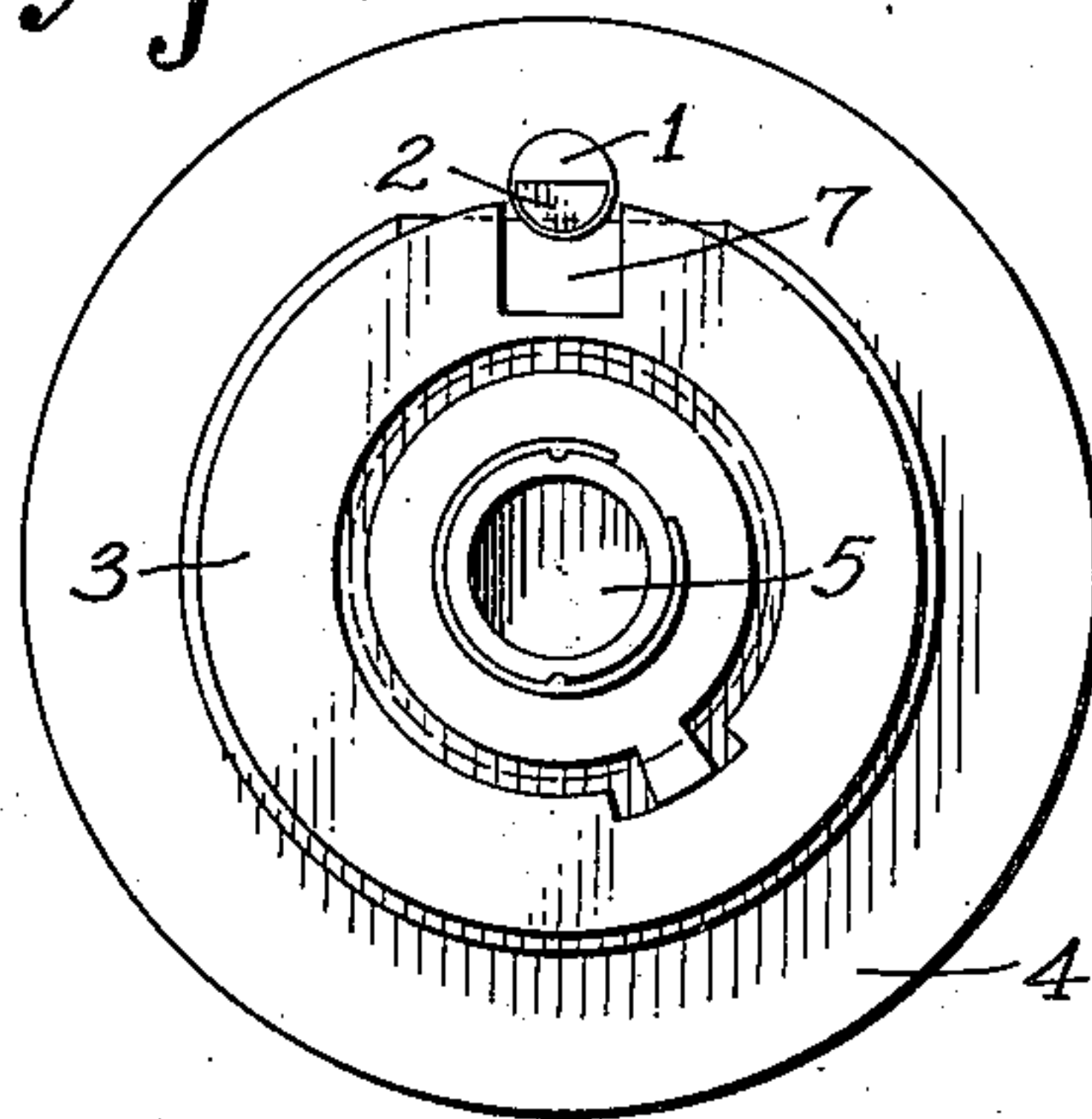


Fig. 4



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TUMBLER CONTROLLED LOCKING DEVICE

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1 Claim. (Cl. 70—333)

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This invention relates to permutation or combination locks such as may be used on safes, vaults and the like, and particularly to the type in which the lock has a plurality of tumblers.

The main object of my invention is to provide a lock of the indicated character which may be so adjusted and controlled that it is proof against tampering by unauthorized parties who might attempt to ascertain the combination of the lock.

Another object is to have such a lock which is simple in construction and operation, and provided with simple means for rendering it safe against outside parties.

An ancillary object is to make such a lock proof against tampering by adjusting it so that it must be arranged with the tumblers in their proper opening combination before the tumbler back of the lock can be removed for inspection.

Other objects and the advantages of the invention will appear in detail as this specification proceeds.

The problem of making locks safe against unauthorized parties is ever present, and advances in this art must constantly be made to prevent losses of money and valuable documents from safes and vaults. Sometimes such parties are able to have access temporarily to safes and vaults when their doors are open, not long enough to raid the safe or vault involved, but still long enough to remove the tumbler back of the lock, take note of the tumbler combination, and quickly replace the back. Then such unauthorized party can at leisure steal to the safe or vault after hours when it is locked, and readily open the door thereof by using the combination thus obtained.

It is an important purpose of this invention to prevent any such improper operations and make it impossible for anyone ignorant of the combination to remove the tumbler back for any reason.

In order to bring out the features of the invention to best advantage, the same is illustrated in the accompanying drawing forming part hereof, and in which;

Figure 1 is a side elevation of a tumbler back of a lock made according to my invention and embodying the novel features thereof in a practical form, certain tumblers being shown in position in association with the back or back plate;

Figure 2 is another elevation of the tumbler back assembly as seen from the left in Figure 1;

Figure 3 is also an elevation similar to that of Figure 2 with parts shifted into different position than in said figure;

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Figure 4 is a further elevation like that of Figure 2 with parts shifted to still another position;

Figure 5 illustrates the back plate of the lock proper;

Figure 6 is a side elevation of an anchoring screw normally retaining the lock and especially the tumbler back assembled and in position in back plate of Figure 5; and

Fig. 7 is another side elevation of the same screw.

Throughout the views, the same reference numerals indicate the same or like parts.

In the practice of my invention, referring to Figure 1, a tumbler back assembly for a permutation or combination lock primarily consisting of a back plate 4 normally secured to the lock plate 8 of Figure 5 by means of a special screw 1 having a shank 2 with a flattened portion along one side thereof. A tumbler shaft 5 projects inwardly from the plate 4 and has a group of similar tumblers 3, 3, 3 mounted thereon, their edges being rather close to the flattened shank 2 of the anchoring screw 1. The assembly is readily inserted into the opening in lock plate 8, having a pair of opposite bayonet slots 6 (one shown in Figure 1) adapted to engage with the two opposite pins 9, 9 shown in Figure 5, forming bayonet joints which allow the tumbler assembly to be inserted and slightly turned on its axis to set it in place in plate 8 in well known manner.

Each of tumblers 3, 3, 3 has a side slot 7 cut into the edge thereof, so that when the tumblers are all in the position shown in Figure 2, the side slots are off to one side and do not register with any part of screw 1, the edges of the tumblers preventing rotation or unscrewing of this screw. The arrangement is such that when all the tumblers are in proper position for opening the door upon which the lock is fixed, then also their slots 7, 7, etc. are in line as shown in Figure 3, where it is obvious that, as the slots register with the position of the screw, the latter may be turned from the position of its shank 2 in said figure to actual rotation as indicated in Figure 4, the slots 7 forming a clearance allowing such rotation and unscrewing of said screw, until the tumbler back is released from the lock plate 8.

It is thus evident that only a person knowing the combination of the lock can so align the tumblers accordingly and thereby simultaneously align the clearance slots 7 to allow unscrewing of anchoring screw 1 and removal of the tumbler back.

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Variations may be resorted to and parts may be modified or used without others within the scope of the appended claim.

Having now fully described my invention, I claim:

In a permutation or combination lock having a rotatable tumbler assembly including a tumbler shaft carrying a group of tumblers, and a tumbler back plate carrying said shaft and adapted to be secured to a lock plate in the door of a safe or vault, the features which include having the tumblers individually cut at their edges to form a clearance slot upon each corresponding in angular position in all the tumblers when the latter are all aligned according to the combination of the lock for opening the same, and an anchoring screw normally extending inward through the lock plate and tumbler back plate in substantial parallelism with the tumbler shaft and having a flattened shank which is disposed in such prox-

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mate position to the edges of the tumblers that the latter prevent rotation and unscrewing of said screw when the unbroken portions thereof are presented to the screw but provide a clearance for rotation thereof when the clearance slots of all the tumblers are simultaneously registered with the position of said screw upon the tumblers being all brought into line according to the combination of said lock.

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