

(No Model.)

2 Sheets—Sheet 1.

H. G. VOIGHT.  
MASTER KEY PIN LOCK.

No. 587,564.

Patented Aug. 3, 1897.

Fig. 1.

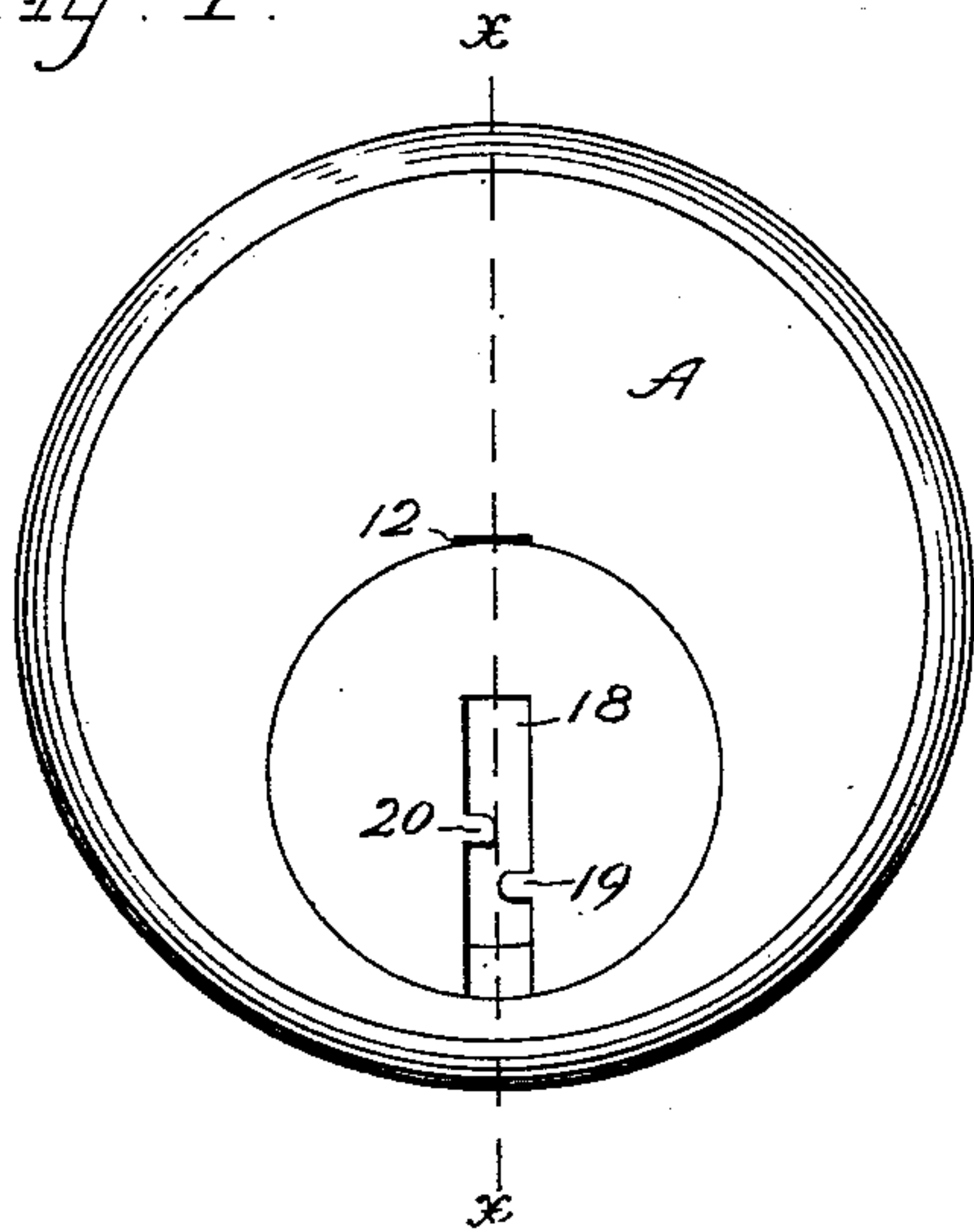


Fig. 2.

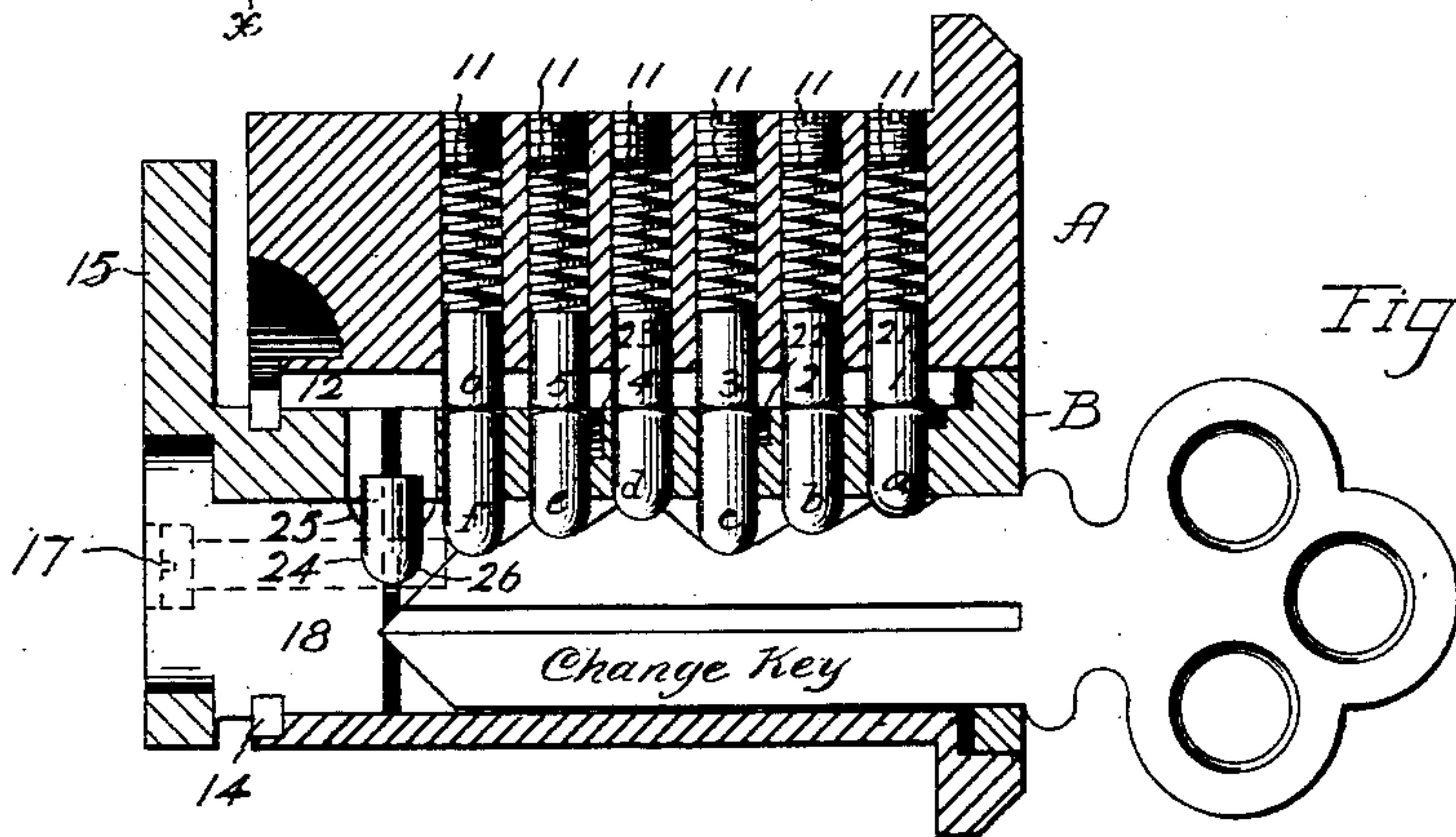
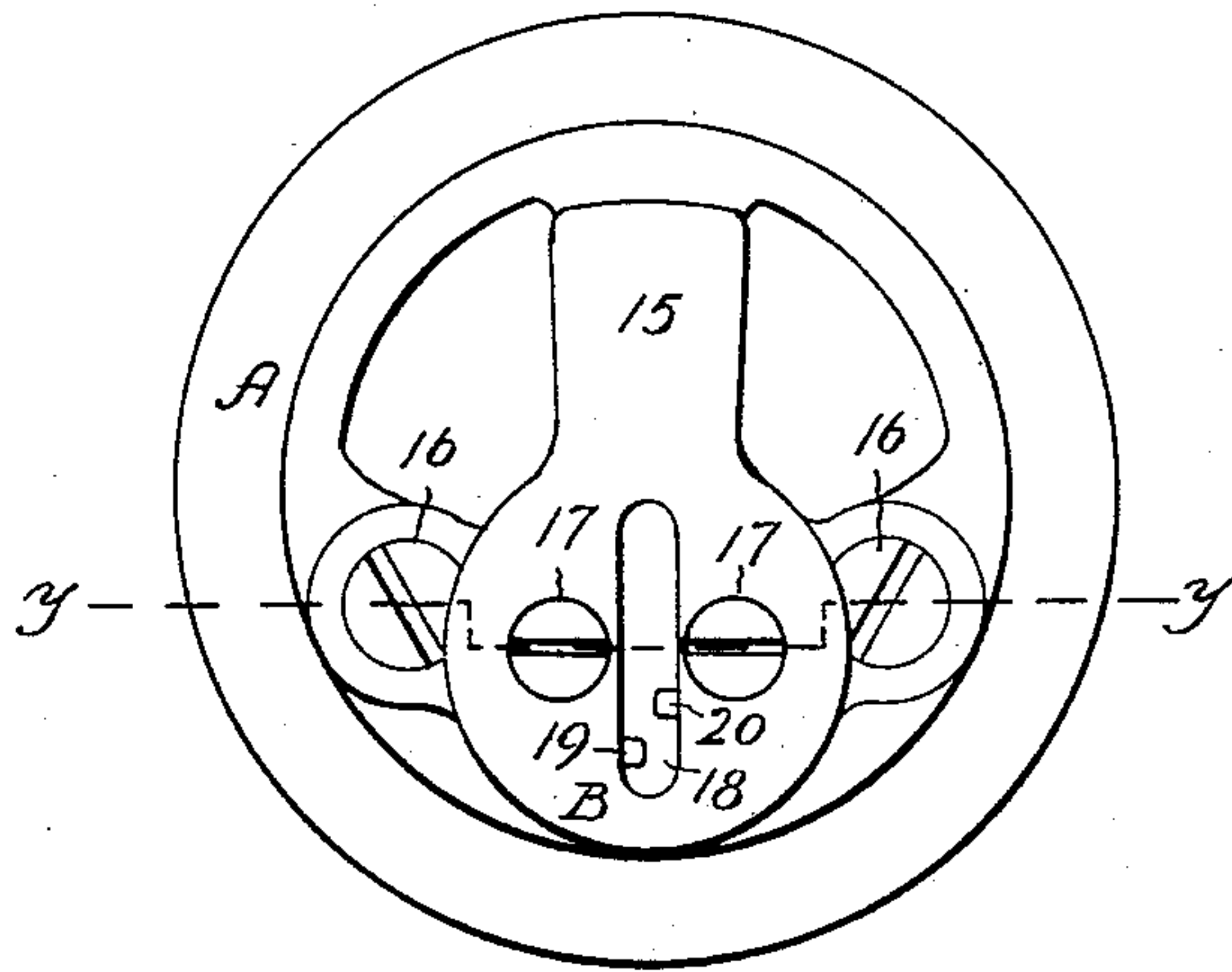


Fig. 3.

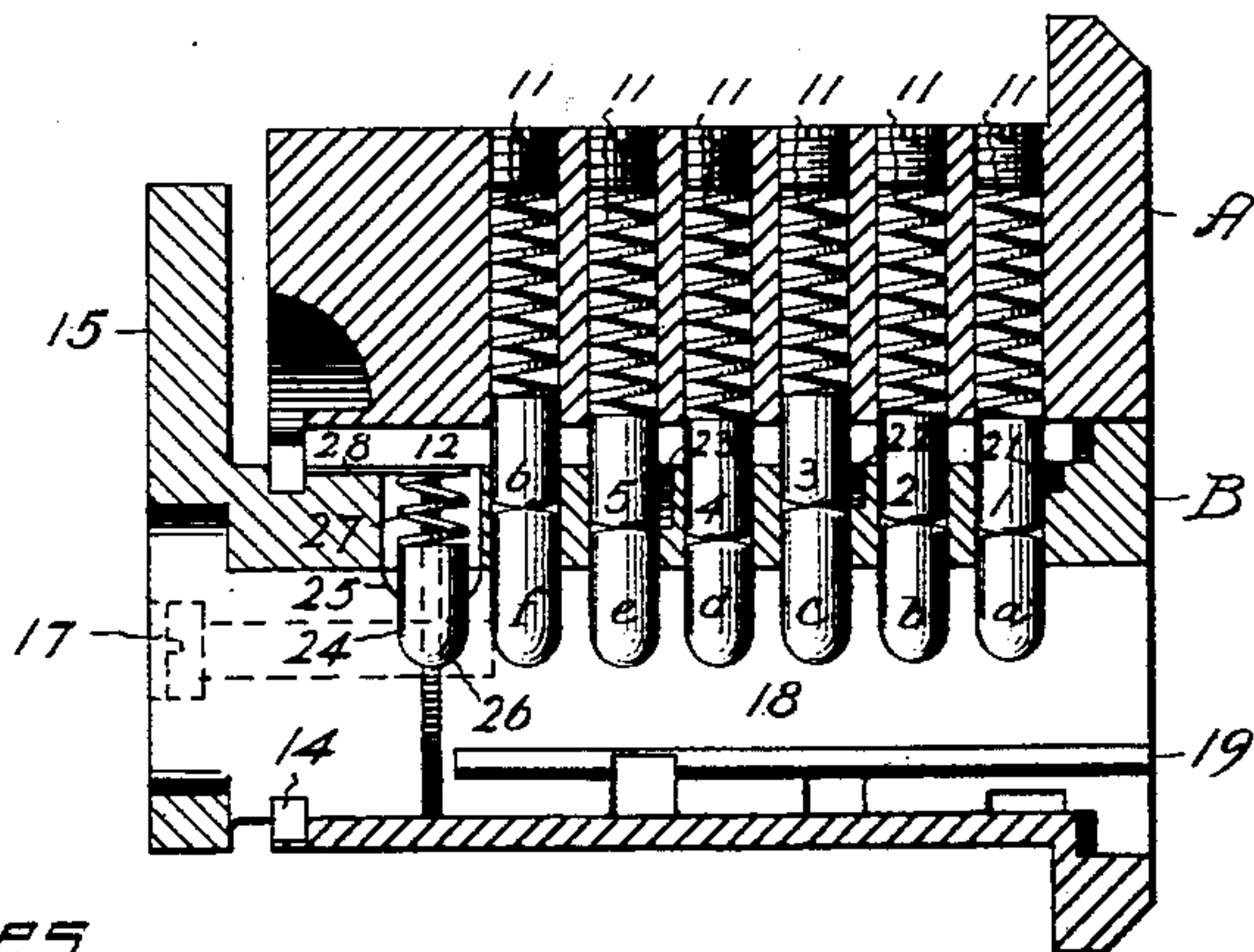


Fig. 4.

WITNESSES

Chas. Steiner  
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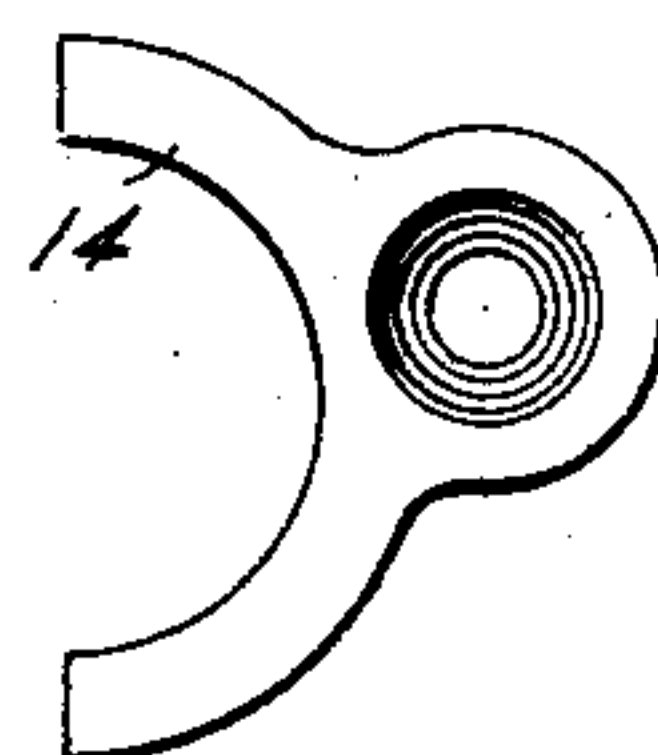
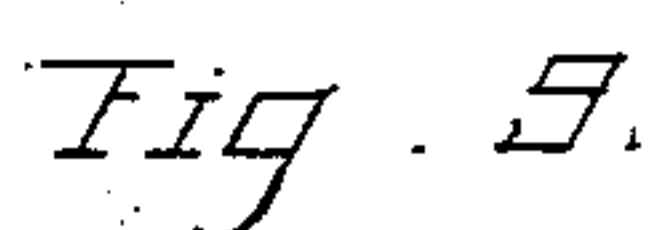
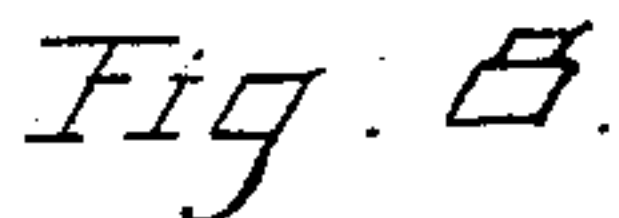
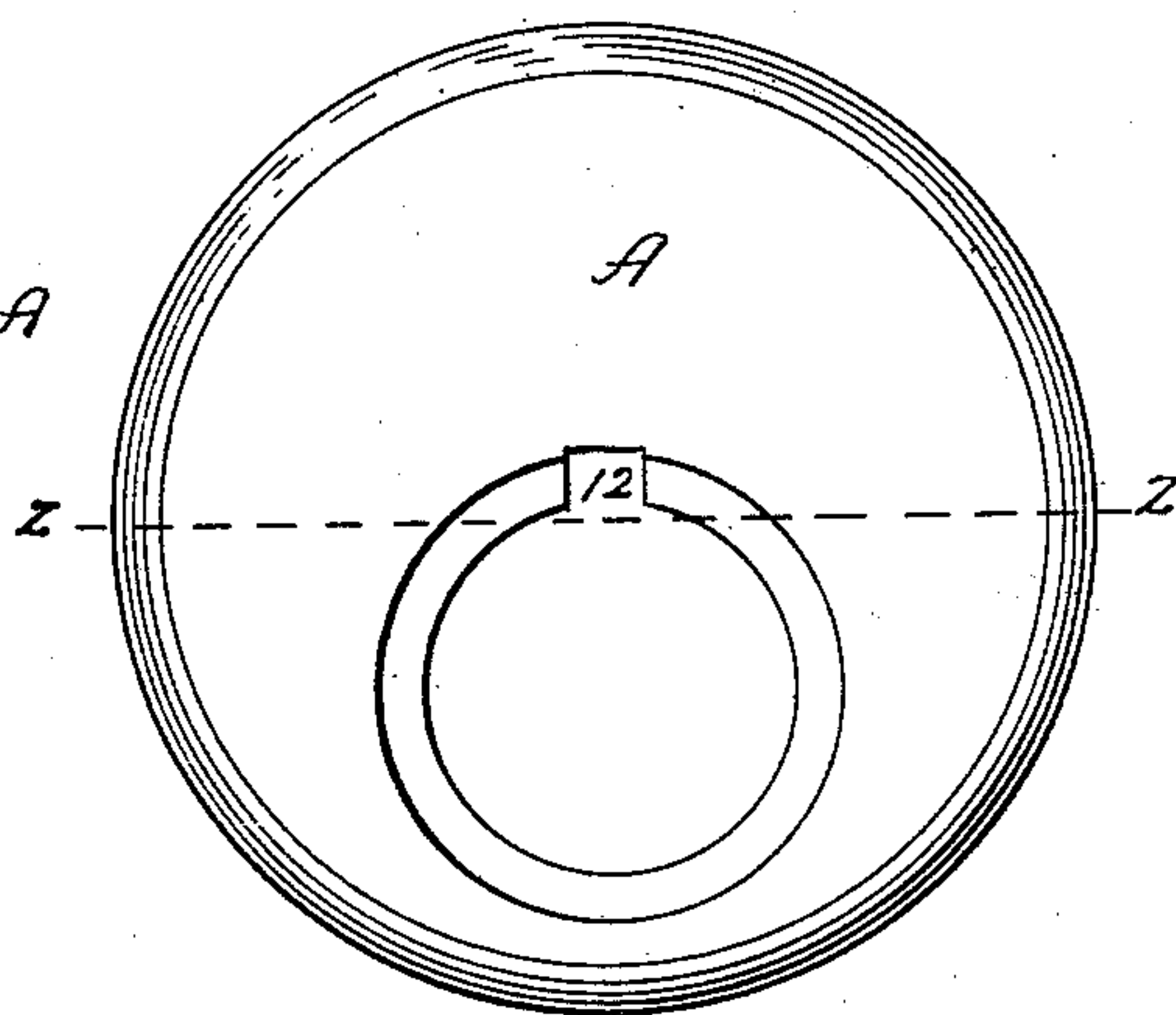
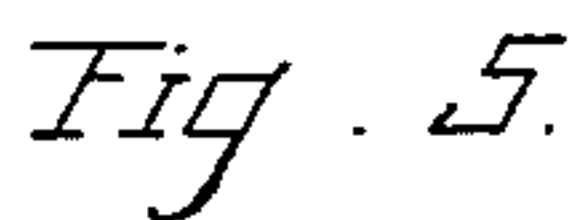
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2 Sheets—Sheet 2.

No. 587,564.

Patented Aug. 3, 1897.



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# UNITED STATES PATENT OFFICE.

HENRY G. VOIGHT, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE  
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## MASTER-KEY PIN-LOCK.

SPECIFICATION forming part of Letters Patent No. 587,564, dated August 3, 1897.

Application filed March 25, 1897. Serial No. 629,175. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Master-Key Cylinder-Locks, of which the following is a specification.

My invention relates to improvements in master-key cylinder-locks; and the main object of my improvement is to arrange the pin-tumblers for bringing their divisions all upon one line when a special key is used and on different lines when the master-key is used.

In the accompanying drawings, Figure 1 is a front elevation of my lock. Fig. 2 is a rear elevation of the same. Fig. 3 is a longitudinal section thereof, partly in elevation, on the line *x x* of Fig. 1, together with a special key properly inserted therein ready to turn the plug. Fig. 4 is a like view without any key. Fig. 5 is a like view with the master-key inserted in the lock ready to turn the plug. Fig. 6 is a horizontal section, partly in elevation, on the line *y y* of Fig. 2. Fig. 7 is a front elevation of the case with the plug removed. Fig. 8 is a sectional view of the case on the line *z z* of Fig. 7, showing the upper portion of said case; and Fig. 9 is a detached view of one of the holding-wings for the plug.

A designates the case, having the case-tumblers 1 2 3 4 5 6 and springs 11 substantially as in other locks of this class, and B is the plug or cylinder fitted within the bore of said case. A longitudinal groove 12 is formed in said case in line with the inner ends of its tumbler-recesses 13, Fig. 8, and tumblers, the said groove being the full width of the diameter of said tumblers. The plug B is divided transversely into two parts, the front tumbler-bearing portion having the plug or cylinder tumblers *a b c d e f* set therein, while the rear part carries the usual wing or dog 15 for acting on the lock-bolt. (Not shown.) Said rear part of the cylinder is provided with an annular groove, and the case is provided with holding wings or plates 14, extended into said groove and secured to the case in any proper manner—for example, by screws 16—whereby the plug or cylinder may be rotated in the case under certain conditions, but its rear

part cannot be moved longitudinally in the case to any appreciable degree. The rear and front parts of the plug or cylinder are held together so as to necessitate their simultaneous rotation and at the same time permit an independent longitudinal movement of the front part. This is accomplished by means of the screws 17, which pass loosely through holes in the said rear part and are snugly screwed into holes in the front part, so that the said screw may move longitudinally with said front part, while the rear part does not so move. The cylinder or plug is also provided with the usual keyway 18, either with or without guards 19 and 20. The cylinder or plug is also provided with three circumferential grooves 21, 22, and 23, each groove being of a width to let the pin-tumblers pass through it, or, rather, let the grooves pass by the tumblers, as one end thereof rests within said groove. The tumbler-sockets are so arranged that when the forward end of the plug is at the extreme end of its outward movement the sockets and tumblers in the case and plug correctly register with each other, and the division-line of all the tumblers when the plug is in this position must be on the line of its main periphery.

The grooves 21 22 23 are each formed a little forward of their respective tumbler-sockets, so that there is a partial tumbler-socket on one side of each groove, and when the forward end of the plug is at the limit of its inward movement the grooves will register with their nearest case-tumbler, and the division-line of such tumblers must now be at the bottom of said grooves. In the confronting faces of the front and rear parts of the plug or cylinder is a special tumbler-socket 24, having shoulders 25 above its lower end, the socket below said shoulders being of such diameter that when the two parts of the plug are in the position shown in Figs. 3 and 4—that is, moved away from each other—the tumbler 26 will drop to the bottom of said socket and substantially fill it, so that the outer or front end of the plug cannot be moved inwardly until said tumbler is lifted up out of the way and lifted high enough so that its lower end may be above the shoulders 25, as shown in Fig. 5. If desired, instead of a pin-tumbler the



special tumbler 26 may be a simple ball, as indicated by the broken circle in Fig. 5. If desired, the tumbler 26 may be provided with a spring 27, as shown in Fig. 4, said spring being held in its socket by the plate 28 or in any ordinary manner, but such spring is not essential, as gravity alone may be depended upon for moving said tumbler into the position shown in Figs. 3 and 4. Said tumbler in this position wedges in between the confronting faces of the front and rear parts of the plug, so that the said front part cannot move longitudinally. The change-key may now be inserted, and it is made so short that it does not move the special tumbler. The tumblers are operated by this key so that the division between all of the case and cylinder tumblers is on the periphery of the plug, as shown in Fig. 3. For other change-locks belonging to the same suit or set the changes are made in the tumblers 1*a*, 3*c*, and 5*e*, leaving the tumblers 2*b*, 4*d*, and 6*f* the same in all of the locks.

The master-key is longer than the change-key, so that when inserted it lifts the special tumbler 26 up above the shoulders 25 to permit the front part of the cylinder or plug to be forced inwardly into the position shown in Fig. 5. The fact that the tumblers of the plug and case are slightly out of longitudinal alinement does not materially change their action. It is obvious that the several tumblers must move up and down as the keys are being inserted with a tendency to force the cylinder or plug inwardly, and if the plug-tumblers should enter the round portion of the tumbler-sockets in the case they would be liable to bind therein and prevent the inward movement of the plug. The groove 12 is for the purpose of preventing such binding. This groove is deep enough so that the ends of the cylinder or plug tumblers are never forced into the tumbler-sockets in the case lying above said groove, and at the same time it is narrow enough to hold the cylinder or plug against rotation when the case-tumblers enter it, the width of said groove corresponding with the diameter of said tumblers.

The master-key brings the ends of the tumblers 2*b*, 4*d*, and 6*f* to the periphery of the plug the same as the change-key, while the ends of the tumblers 1*a*, 3*c*, and 5*e* are even with the bottoms of the grooves 21 22 23. It is necessary to notch the back of the master-key, as at 29 30 31, to register with the said grooves and permit the back of the key to pass the projecting ends of the case-tumblers 1, 3, and 5. Upon withdrawing the master-key the forward part of the plug is pulled out again and the special tumbler 26 drops down between the two parts of the plug to lock

it against longitudinal movement when the change-key is used.

I claim as my invention—

1. A cylinder-lock having its plug or cylinder divided transversely but connected for rotating together, the part bearing the plug-tumblers being adapted to move longitudinally for operating in one of its positions with the change-keys and in its other position with the master-key substantially as described.

2. A cylinder-lock having a plug provided with circumferential grooves a little to one side of part of its tumbler-sockets, the case, the plug and case tumblers, and means for moving said plug longitudinally to bring the ends of the plug-tumblers into position for operating either on the line of the main periphery of the plug or at the bottom of said grooves as desired.

3. A cylinder-lock having its plug divided transversely with one part arranged to move longitudinally, the special tumbler arranged to wedge between said two parts and hold the plug against longitudinal movement, and also to be removed therefrom by a key when it is desired to move the plug longitudinally substantially as described.

4. The combination of the case, plug, case and plug tumblers, the said plug being divided transversely with its two parts connected to rotate together while the tumbler-bearing portion may move longitudinally, and means substantially as described for locking the longitudinally-moving part of said plug against longitudinal movement when the change-key is used and for unlocking to permit a longitudinal movement thereof when the master-key is inserted substantially as described.

5. The combination of the case having a longitudinal groove in the line of the inner ends of its tumbler-sockets the width of said groove substantially corresponding to the diameter of the tumblers, the longitudinally moving and rotating plug, and tumblers for said case and plug substantially as described.

6. The combination of the case having tumblers, the two-part plug within said case the front part thereof having tumblers and the rear part of said plug having an annular groove, a wing or plate 14 on said case extended into said groove, and means to necessitate the simultaneous rotation of the said two parts of the plug and yet permit the outer part to move longitudinally at times, substantially as described.

HENRY G. VOIGHT.

Witnesses:

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M. S. WIARD.