

(No Model.)

H. D. HINCKLEY.
LOCK TUMBLER.

No. 563.926.

Patented July 14, 1896.

Fig. 1.

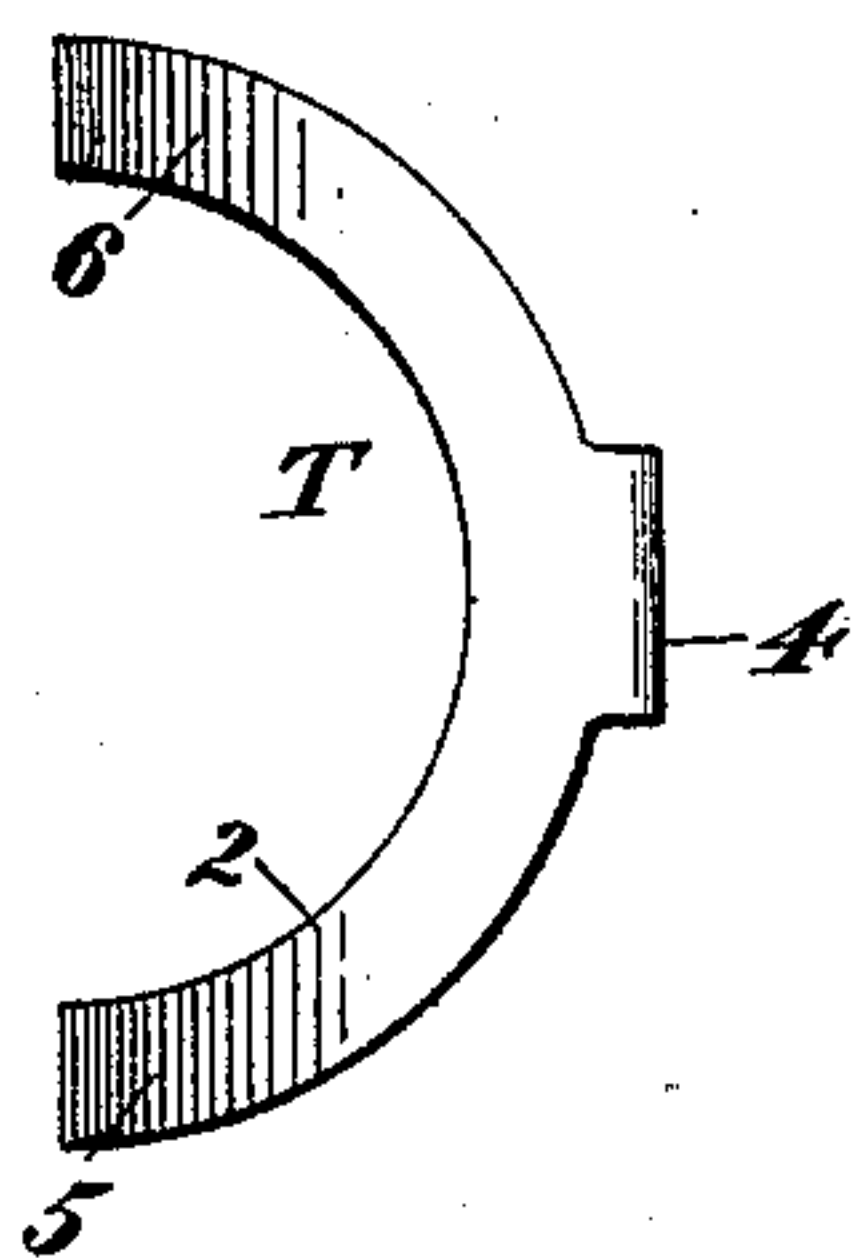


Fig. 2.

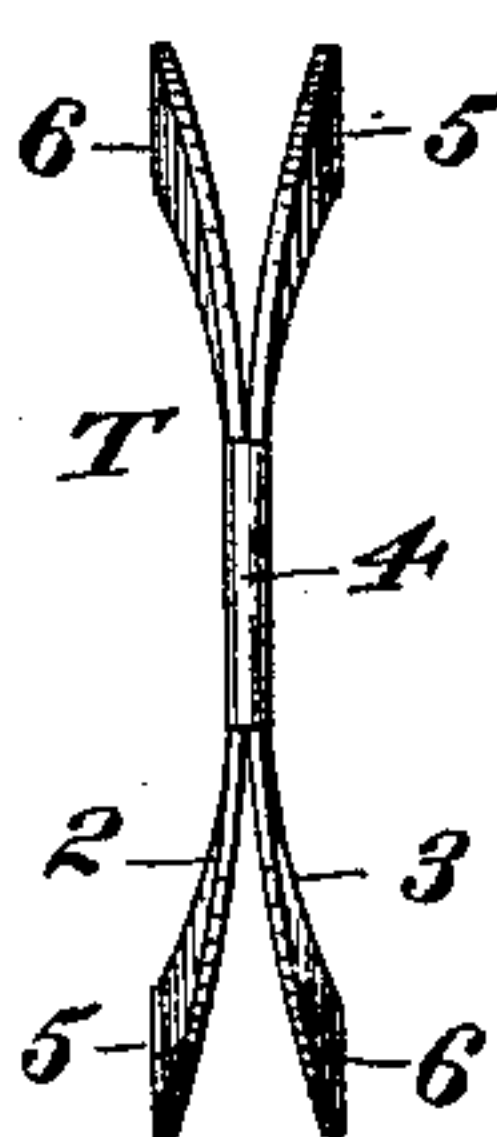


Fig. 3.

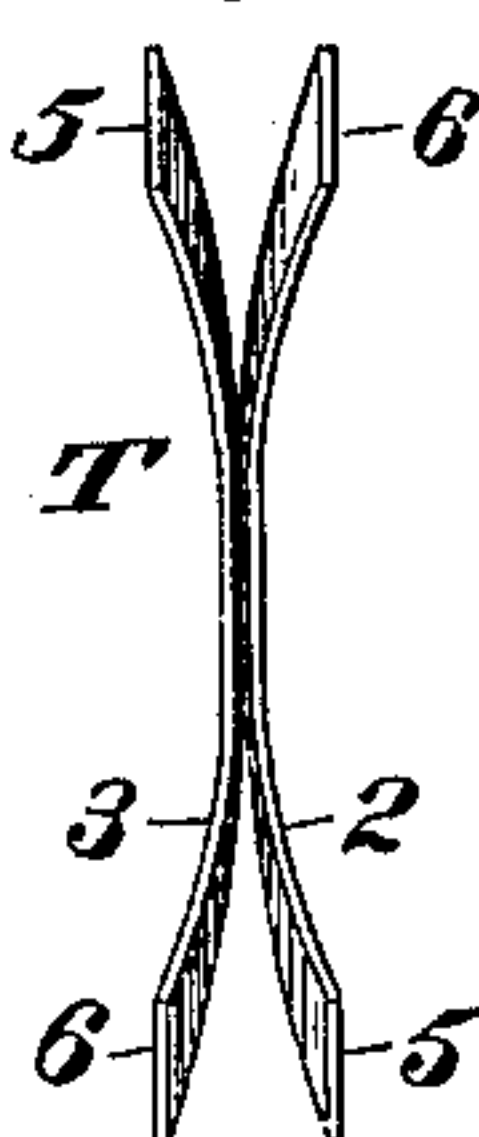


Fig. 4.

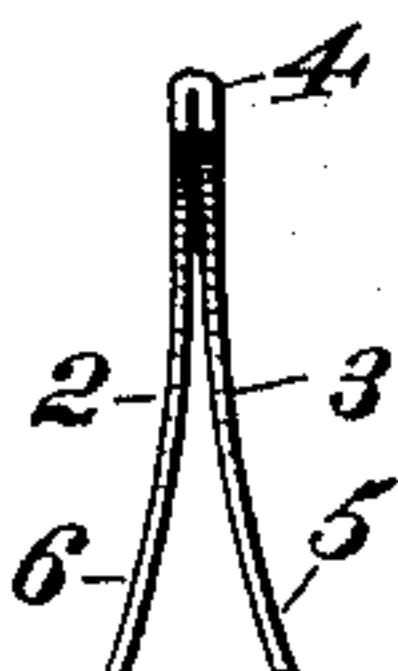


Fig. 5.

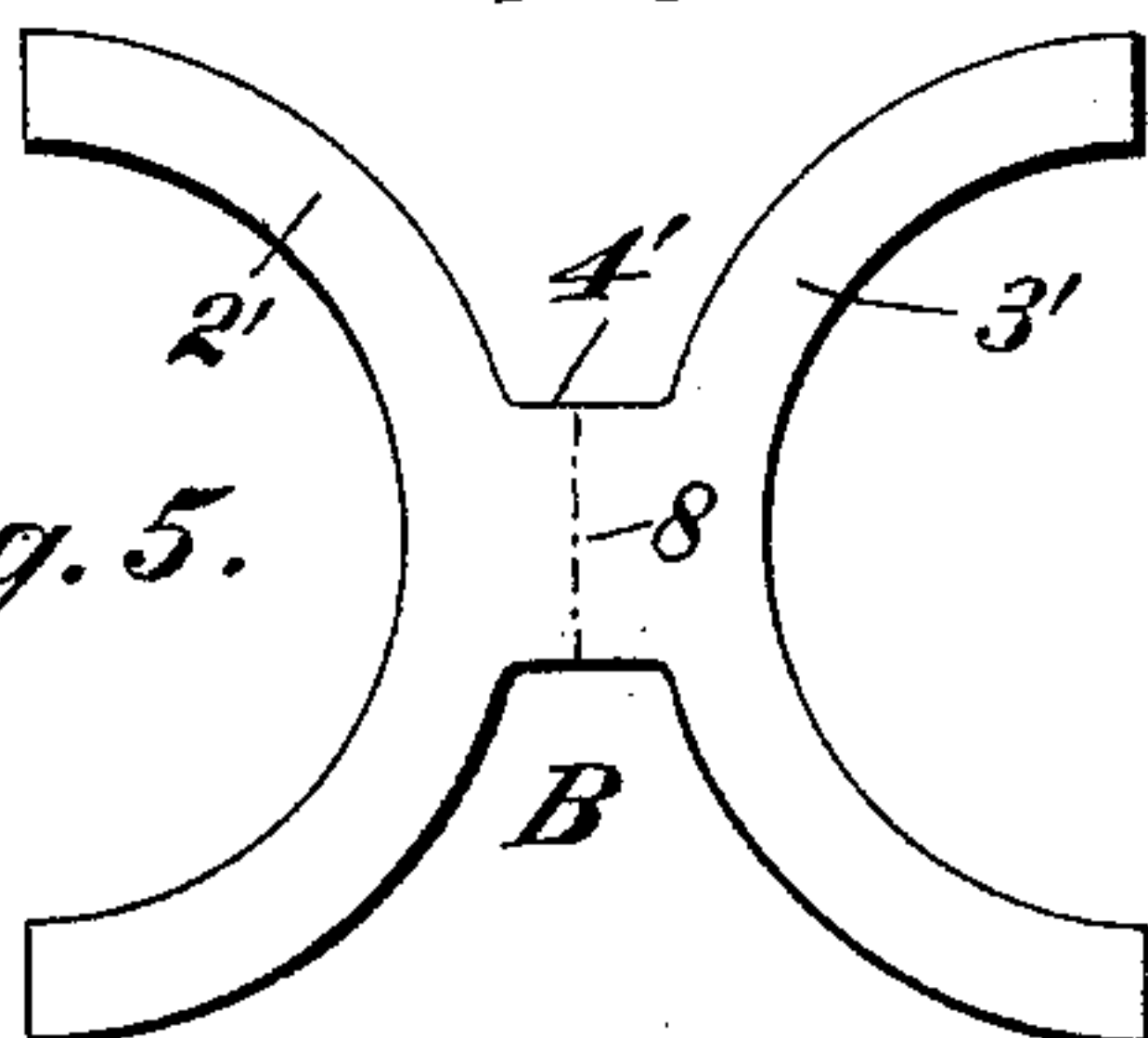
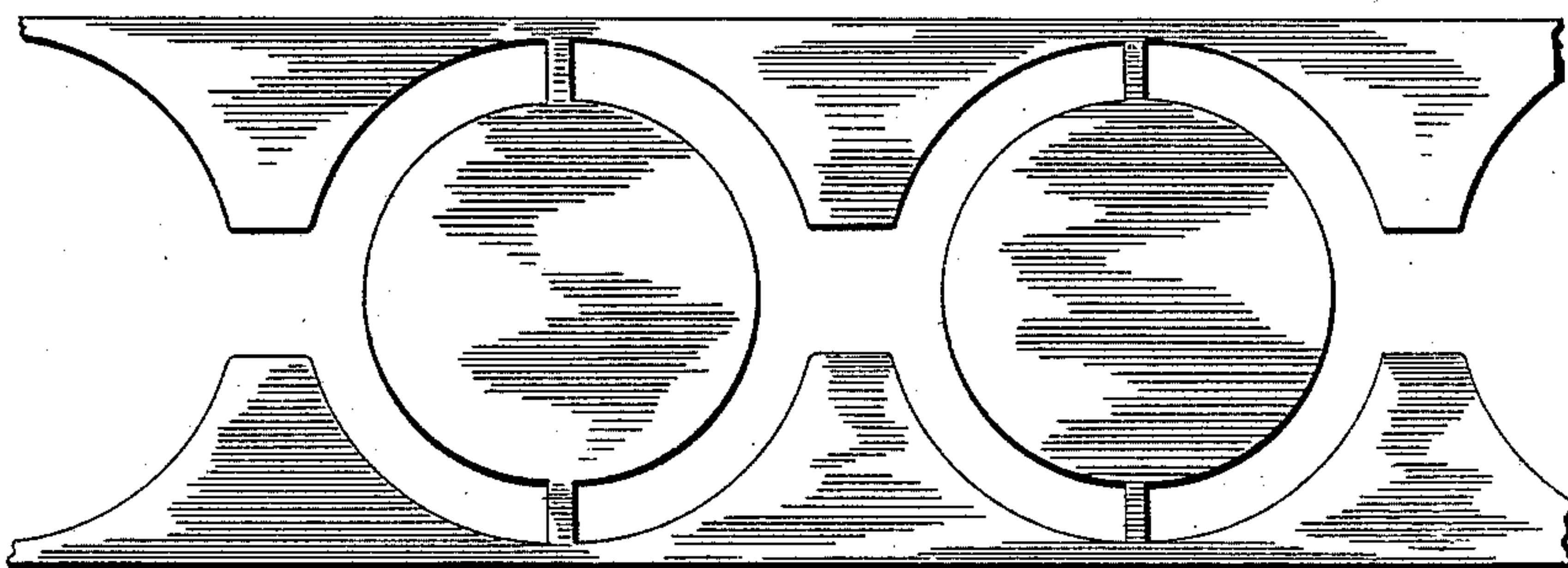


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY D. HINCKLEY, OF HARTFORD, CONNECTICUT.

LOCK-TUMBLER.

SPECIFICATION forming part of Letters Patent No. 563,926, dated July 14, 1896.

Application filed May 4, 1896. Serial No. 590,150. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. HINCKLEY, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Lock-Tumblers, of which the following is a specification.

This invention relates to lock-tumblers of a class adapted for use in connection with tumbler-actuators in locks such as described and claimed in my prior application, Serial No. 579,213, filed February 14, 1896, to which reference may be had, the tumbler comprising a part of my present invention being shown and partly described in connection with the lock in the aforesaid application; and the invention further relates to tumbler-formative blanks.

One object of my present invention is to produce a lock-tumbler of the class specified comprising two segmentally circular resilient plates joined together at their peripheries substantially midway of their lengths by a substantially U-shaped connecting-web, which extends outward beyond the outside edges of said plates and constitutes a resilient connector adapted for spreading the segmental plates relatively in a plane crosswise of the plane of their longitudinal axes, the construction of said tumbler being such that the outer ends of the two plates are relatively shiftable in the plane of the longitudinal axes of said plates, and whereby the inner edges of said plates are spreadable relatively to each other from end to end.

A further object of the invention is to produce a sheet-metal blank of a construction adapted for facilitating the manufacture of the lock-tumbler herein specified.

In the drawings accompanying and forming part of this specification, Figure 1 is a side view of a tumbler constructed in accordance with my present invention. Fig. 2 is an edge view of the tumbler as seen from the right hand in Fig. 1. Fig. 3 is an edge view of the tumbler as seen from the left hand in Fig. 1. Fig. 4 is an edge view of the tumbler as seen from above in Figs. 1, 2, and 3. Fig. 5 is a plan view of the sheet-metal blank from which the tumbler shown in Figs. 1 to 4, inclusive, is constructed; and Fig. 6 is a

plan view of the strip from which the tumbler-formative blank is stamped and showing said strip in the condition it appears after a series of such blanks have been stamped therefrom.

Similar characters designate like parts in all the figures of the drawings.

The lock-tumbler, which is designated in a general way by T, consists in the preferred form thereof (shown in Figs. 1 to 4, inclusive,) of two segmentally circular duplicate plates 2 and 3, joined together at their outer edges substantially midway of their lengths by a U-shaped connector 4, which extends outward some distance beyond the outside edges of the two plates 2 and 3. These two plates 2 and 3 will in practice be constructed of sheet-steel, and will have their outer ends 5 and 6 relatively spread or bowed outward in the plane of their lengths, as shown in Figs. 2, 3, and 4, and tempered in this condition to form locker-arms, which normally spring outward beyond the side faces of the middle portion of the locker and are adapted for engaging the side walls of the tumbler-guides of the bolt-actuator when said tumblers are assembled in working positions in said actuator.

By joining the two plates 2 and 3 together at their extreme outside edges, substantially midway of their lengths, by a U-shaped connector, which, in practice, will be formed integral with said plates and of spring metal, said connector constitutes a means for spreading said plates relatively to each other from end to end, said connector being tempered to exert an outward stress upon said plates. This peculiar construction of the two parts of the tumblers is of material importance, as it causes the tumblers to exert a torsional stress from end to end within the guideway of the bolt-actuator when assembled therein, which not only tends to retain the tumbler in place in said guideway when the bolt-actuator is in place in the lock-case, but also facilitates the removal of the bolt-actuator from said case without disturbing the operative positions of the tumblers, and also facilitates the setting up of the lock.

Practical experiments have demonstrated to me that tumblers of this class should be made of very thin sheet metal, highly tem-

pered, as, for one reason, it is very desirable that the tumblers of a lock should occupy very little space, and would also be extremely sensitive.

5 My improved tumbler is constructed of a blank B, (see Fig. 5,) which will, in practice, be of spring-steel stamped or cut from a thin metallic plate P, such as shown in Fig. 6. This blank comprises the two oppositely-dis-
10 posed segmentally circular parts or plates 2' and 3', joined at their adjacent edges near the middle portion thereof by a connecting-web 4'.

To form the tumbler from the blank B, said
15 blank is bent or folded over on the line 8 at the middle portion of the web 4', which brings the two segmental parts 2' and 3' in substantial parallelism, one over the other, after which the outer ends thereof are spread apart, as
20 shown in Figs. 2 and 3; and the tumbler is tempered in this condition, so that the extreme outer ends of the tumbler tend to spread sidewise, and the middle portions of said tumbler also tend to spread in a path
25 substantially concentric to bight of the U-shaped connector, which is located beyond the outside edges of said plates.

Having described my invention, I claim—

30 1. A lock-tumbler comprising two segmental, resilient plates having their outer edges joined together substantially midway of their lengths by a U-shaped resilient connector

which extends outward beyond said edges and is constructed to spread said plates relatively to each other.

2. A lock-tumbler comprising two substantially duplicate segmental plates having their outer edges located in a common plane and having their extreme outer adjacent ends bowed outward in opposite directions, rela-
40 tively, to form opposing locker-arms; and a connector joining the outer edges of and extending outward beyond the outside edges of said plates and constructed to spread said plates relatively to each other.

3. A one-piece tumbler-formative blank comprising two oppositely-disposed segmental, sheet-metal plates joined at their inner adjacent edges near the middle portion there-
of by a web.

4. A tumbler-formative blank comprising two corresponding segmental sheet-metal plates curved edgewise in relatively opposite directions and joined at their adjacent edges midway of their lengths by a resilient web of
55 a thickness corresponding to the thickness of the plates and constructed to be folded or bent on a line tangent to the plane of the adjacent edges of the plates to bring the two plates into concentric relation.

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