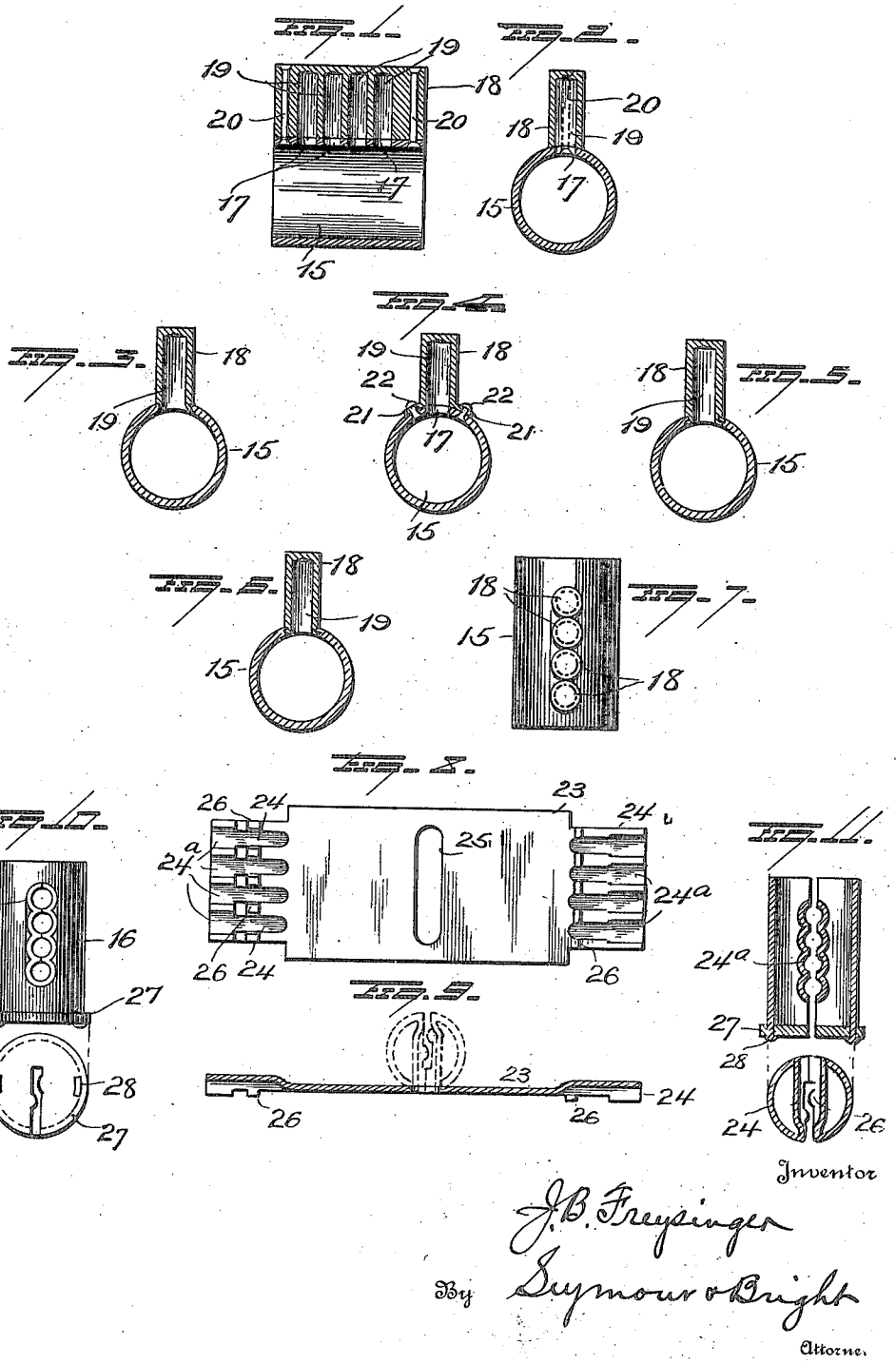
J. B. FREYSINGER.

PIN TUMBLER LOCK.

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Inventor

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# UNITED STATES PATENT OFFICE.

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## PIN-TUMBLER LOCK.

Application filed January 19, 1922. Serial No. 530,336.

*To all whom it may concern:*

Be it known that I, JOHN B. FREYSINGER, a citizen of the United States, and a resident of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Pin-Tumbler Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in pin tumbler locks, the object being to construct the cylinder and plug of stamped and folded sheet metal, so as to provide a strong and satisfactory lock at a minimum of expense, and it consists of the parts and combination of parts as will be more fully explained and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in longitudinal section of one form of cylinder and tumbler and tumbler driver housing embodying my invention; Figure 2 is a view in transverse section of the same; Figures 3, 4 and 5 are views in transverse section of modified forms; Figure 6 is a view in transverse section and Figure 7 a view in plan of another modification; Figure 8 is a view in plan of the blank from which the key plug is made; Figure 9 is a view in longitudinal section of same and showing, in dotted lines the blank folded to produce the plug; Figure 10 is a view in plan and also end elevation and Figure 11 a view in longitudinal section and also a transverse section of the key plug.

In the construction disclosed in Figures 1 to 5 inclusive, 15 represents the cylinder made of tubing or sheet metal, bent into circular form to receive a plug 16 which is perferably constructed as shown in Figures 8 to 11 inclusive, and which will be hereinafter referred to in detail.

In the construction shown in Figures 1, 2 and 4, the edge of the sheet from which the cylinder 15 is formed, are preferably united by brazing or otherwise, and the cylinder is provided with a plurality of holes 17 for the passage of the pin tumblers not shown, but which may be of the well known type. 18 is the pin or tumbler housing, which may be made of a solid block as shown in Figures 1 to 5 inclusive, rigidly secured to the cylinder. This housing 18 is provided with a plurality of tumbler chambers 19 communicating with the tumbler openings 17 in cylinder 15, and the housing may be secured to the cylinder by the rivets 20 passing through the ends of the housing 18 and adjacent wall of the cylinder 15, or the housing may have flanged side edges 21 curved to conform to the contour of the cylinder and secured to the latter by rivets 22. Instead however of riveting the tumbler housing to the cylinder, the latter may be left open at the top to receive the lower edge of the housing, and the two secured together by spreading the open end of the housing from the inside as shown in Figure 3 so as to underlap the edges of the cylinder, or the housing may be grooved to receive flanged edges of the cylinder as shown in Figure 5.

Instead of making the tumbler housing of a single block, I may use a series of independent tubes, one for each tumbler, as shown in Figures 6 and 7, the open ends of the tubes being threaded or driven into holes formed in the cylinder.

The cylinder and tumbler housing thus formed are secured to the face plate of the lock (not shown) in any approved manner.

The key plug 16 is also of sheet metal and is made from a blank 23 shown in Figure 8. This blank is rectangular in shape with slightly narrowed or reduced ends 24 which are fluted as shown at $24^a$, and is provided with an elongated central transverse opening 25 which receives the reduced ends 24 when the blank 23 is folded into cylindrical form as shown in dotted lines in Figure 9. The flutes or curved seats $24^a$ in the reduced ends of the blank 23 are so located with relation to each other, that when the blank is bent into circular form and the reduced ends 24 passed through the center to form the key way in the plug as shown in the end view Figure 11, the flutes or curved seats on the two ends aline or come together to form the housing for the drivers and tumblers. The walls of the curved tumbler housings are so shaped or provided with projections as shown at 26, in Figures 9 and 11, to obstruct the key way and prevent the entrance of any key not grooved or otherwise shaped to receive and pass the said obstruction. The plug thus formed is closed at its outer end by the face plate 27 riveted to two or more lugs 28 integral with the end of the cylinder and projecting therefrom, the said

face plate having a key slot conforming in shape to the slot in the plug.

With this construction the cylinder and plug may be stamped from any thin, rolled or drawn metal to the exact size so that when assembled the plug will have a close fit in the cylinder thus greatly reducing the cost of manufacture without sacrificing strength or durability in the finished lock.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. In a pin tumbler lock the combination of a sheet metal cylinder having tumbler openings, a tumbler housing separate therefrom and secured to the same, the tumbler housing having tumbler openings in alinement with the openings in the cylinder, and a sheet metal plug the ends of which are bent inwardly to form the key slot.

2. In a pin tumbler lock, the combination of a sheet metal cylinder having tumbler holes, tumbler housing separate from said cylinder and secured to the same, and also provided with tumbler openings, a key plug made of bendable metal and having tumbler openings adapted to aline with the openings in the said cylinder and housing, the ends of said plug being bent inwardly to form the key slot in the plug.

3. In a pin tumbler lock, the combination of a sheet metal cylinder having holes for the tumblers, tumbler housing separate from said cylinder and secured thereto the said housing having tumbler holes in line with the holes in cylinder, and a sheet metal key plug provided with tumbler openings adapted to aline with the tumbler openings in the cylinder, the ends of said sheet metal plug being bent inwardly to form a key slot and fluted to form recessed seats for the tumblers.

4. A key plug for a pin tumbler lock made from a sheet metal blank having reduced ends and a centrally located transverse slot, the reduced ends being fluted, the said blank being bent into cylindrical form and the reduced fluted ends passed centrally through the cylinder and into the slot to form recesses or seats for the tumblers and also a key slot for the key.

5. A key plug for pin tumbler locks made from a sheet metal blank having reduced ends the latter being fluted and provided with projections, the said blank being bent into cylindrical form and the reduced and fluted ends passed centrally into the cylinder and forming recessed seats for the tumblers and also the walls of the key way, the said projections on said ends projecting into the key way or slot.

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

JOHN B. FREYSINGER.

Witnesses:

CHAS. A. BERRY,

CHAS. LEDIN.