Sept. 14, 1937. C. C. VEALE ET AL 2,093,104

METHOD OF MAKING LOCK CENTER CAPS

Filed June 14, 1935

FIG. 1

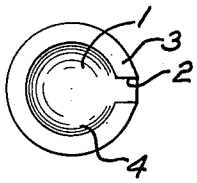


FIG. 2

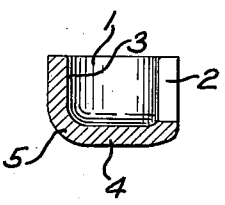


FIG. 3

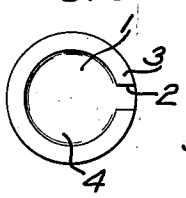


FIG. 4

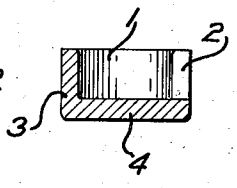


FIG. 5

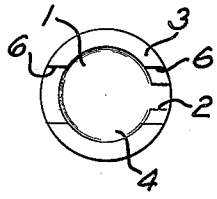


FIG. 6

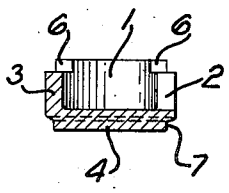


FIG. 7

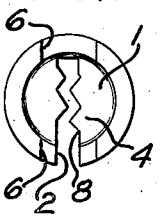


FIG. 8

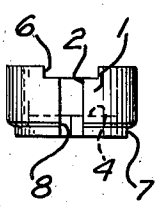


FIG. 9

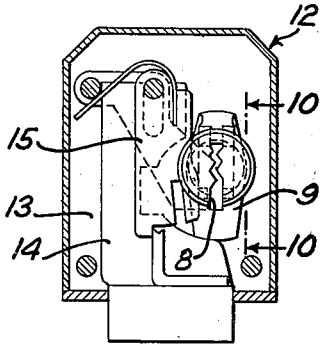


FIG. 10

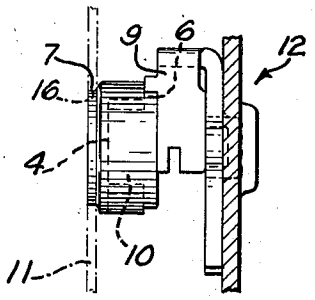


FIG. 11

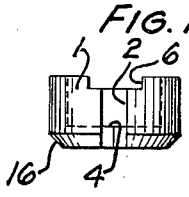
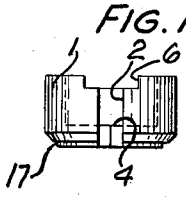


FIG. 12



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Patented Sept. 14, 1937

2,093,104

UNITED STATES PATENT OFFICE

2,093,104

METHOD OF MAKING LOCK CENTER CAPS

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Application June 14, 1935, Serial No. 26,596

2 Claims. (Cl. 113—116)

This invention relates to a method of making lock center caps, and more particularly to a method of making caps for the centers of barrels of rotor center tumbler type locks.

It is an object of the present invention to provide a simple and economical method of manufacturing lock center caps.

In accordance with one embodiment, the invention is utilized to form a cap for a rotor center tumbler type lock having a zig-zag slot therein which is notched or fluted to correspond with flutings in the sides of a key, the cap being cup shaped and having a slot in one of the sides of the cup which is a continuation of the key receiving notch, an annular groove formed in the base of the cup shaped cap at the circumference thereof for cooperation with the lock casing and a pair of diametrically opposed notches cut in the lips of the cap, one of which joins to the slot in the side of the cap for positioning the cap on the barrel or center of the lock.

The invention contemplates forming such a cap by punching the blank with a slot therein and forming it to the general shape of a cup with a slot in one side thereof, drawing and swaging the cap to a predetermined configuration wherein the circumferential groove and the two slots are formed at the base and lip of the cup shaped cap respectively, and thereafter perforating the notch or slot with undulating sides in the base of the cup shaped cap.

A better understanding of the invention will be had by reference to the accompanying drawing, wherein

Figs. 1 and 2 are illustrative of the first step in the production of a cap;

Figs. 3 and 4 are illustrative of the second step;

Figs. 5 and 6 are illustrative of the third step;

Figs. 7 and 8 are illustrative of the fourth or final step in the formation of the cap;

Fig. 9 is a view of a lock with the cover plate removed, showing a cap formed in accordance with the present invention in position in a lock;

Fig. 10 is a fragmentary view taken along the lines 10—10 of Fig. 9 in the direction of the arrows, showing the cap mounted on the lock center, and

Figs. 11 and 12 are side elevational views illustrating an alternate method of making a cap.

Referring now to the drawing, Fig. 1 shows a plan view of a blank 1 stamped from sheet metal stock and having a slot 2 formed therein in the stamping operation, and also being drawn to a substantially cup shaped configuration, wherein the slot 2 is formed in the sides 3 of the blank 1, and a base 4 is formed having a rounded corner adjacent the base and sides as indicated at 5. In this operation as illustrated in Figs. 1 and 2, the slot 2 is cut in the blank 1 and the cup is drawn to the shape shown in Figs. 1 and 2, the sides 3 and the base 4 being of substantially equal thickness.

In the next succeeding step as illustrated in Figs. 3 and 4, the blank 1 is subjected to a second drawing operation wherein some of the material from the sides is drawn or forced down into the base, thereby resulting in a thickening of the base and a thinning of the side walls 3. This thickening of the base is done so that in succeeding steps sufficient material will be in the base portion to permit of forming a circumferential groove in the base of the cap for cooperation with the casing of a lock. This step is illustrated in Figs. 5 and 6, wherein are shown two views of the cap after another punch press operation, wherein locking slots 6 are swaged into the cap, forcing the metal from the side walls 3 of the cap out of its previous position, thereby tending to thicken the side walls which at their junction with the base are restricted so that an annular groove 7 is formed at the junction of the base 4 and the side walls 3 simultaneously with the forming of the locking slots 6. It will be noted by reference to Figs. 5 and 6 that one of the locking slots is in alignment with the slot 2 and the other slot is in a diametrically opposed portion of the side wall 3.

In Figs. 7 and 8 there is illustrated the final step in the formation of a lock cap, that is, the perforation in the base 4 of the blank 1 of the zig-zag or fluted slot or passageway 8 which is adapted in the finished lock to receive a key having corresponding flutings formed in the sides thereof.

An alternate method of forming the cap is to follow the steps shown in Figs. 1 to 4 and to form a taper 16 at the base of the cup shaped blank 1 simultaneously with the formation of the slots 6 and thereafter use a hollow milling cutter to form a circumferential groove 17 at the base of the cup shaped blank. After this milling operation the cap is finished in the same manner as in the other embodiment as illustrated in Figs. 7 and 8.

A cap of the type disclosed herein is adapted for use with a lock of the general type disclosed in the patent to O. A. Shann 1,793,254 patented February 17, 1931, and is particularly adapted for use with a lock center or barrel of the type disclosed in the copending application of A. L.

Schuyler et al. Serial No. 26,597 filed June 14, 1935, wherein the locking slots 6 are adapted to receive an extending portion of the barrel 9, a prolongation 10 of which extends inwardly into engagement with the base 4 of the cap. The circumferential groove 7 cooperates with an aperture 16 cut in the face plate 11 shown in dot and dash lines (Fig. 10) of a lock indicated generally by the numeral 12 to hold the cap in position on the center and to rotatably support it with respect to the face plate. This lock, as pointed out hereinbefore, is of the same general type disclosed in the patent of O. A. Shann and includes a base 13, a lock bolt 14, spring pressed tumblers 15 and the center 9 mentioned hereinbefore.

What is claimed is:

1. A method of making caps for rotor center tumbler type locks comprising punching a substantially circular blank from sheet metal stock and drawing the edges of said blank to form a substantially cup shaped blank with a rounded base and with a sheared slot in its side wall, drawing and swaging the metal of the cup shaped blank to thicken the base, reduce the thickness on the wall and flatten the bottom thereof, simultaneously swaging a circumferential groove in the base of the blank and forming locking slots on the wall of the blank, and perforating a notched key receiving slot in the base of the blank.

2. A method of forming caps for rotor center tumbler type locks which comprises punching a cup shaped slotted member from sheet metal stock; drawing and swaging the metal to thicken the base, reduce the thickness of the wall and flatten the base thereof; swaging a circumferential groove in the base of the member and forming slots in the walls for positioning the cap on a lock center; and perforating a notched key slot in the base of the member.

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