Sept. 29, 1953 H. ABRAMS 2,653,492

BIMETALLIC KEY BLANK

Filed Aug. 10, 1951

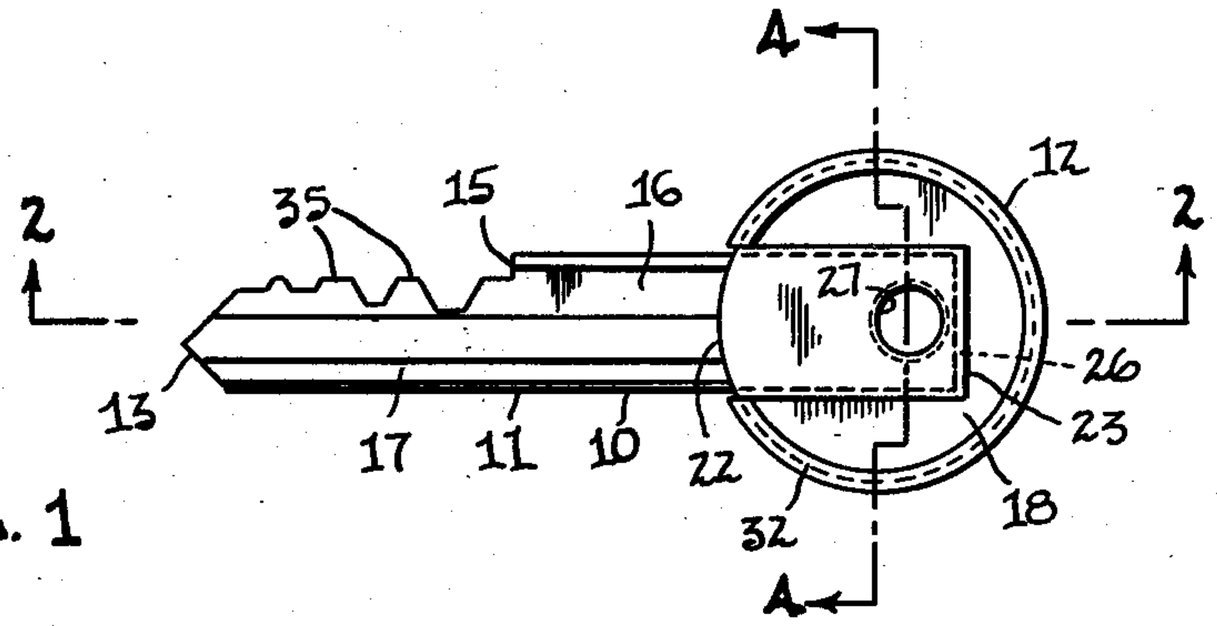

FIG. 1

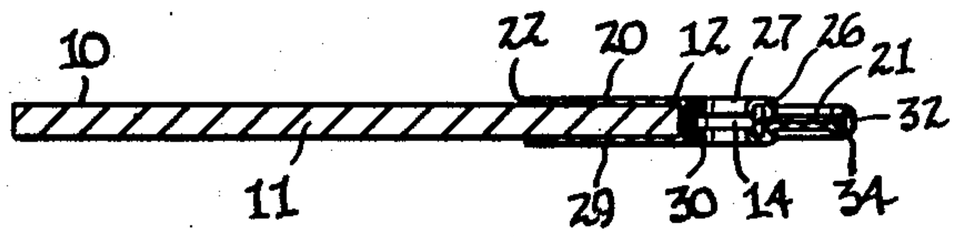

FIG. 2

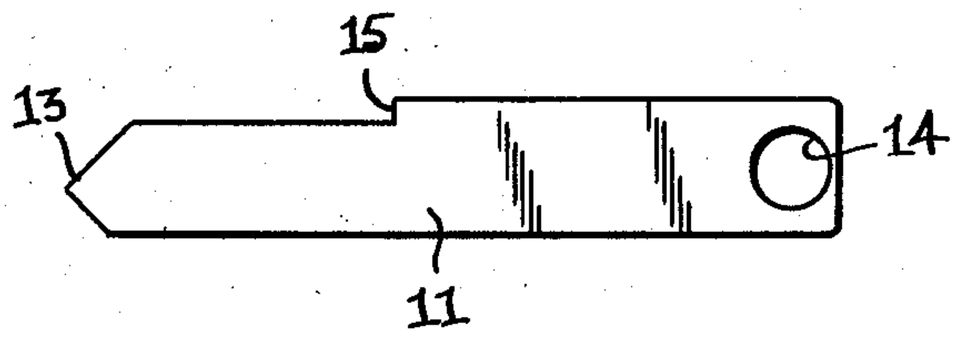

FIG. 3

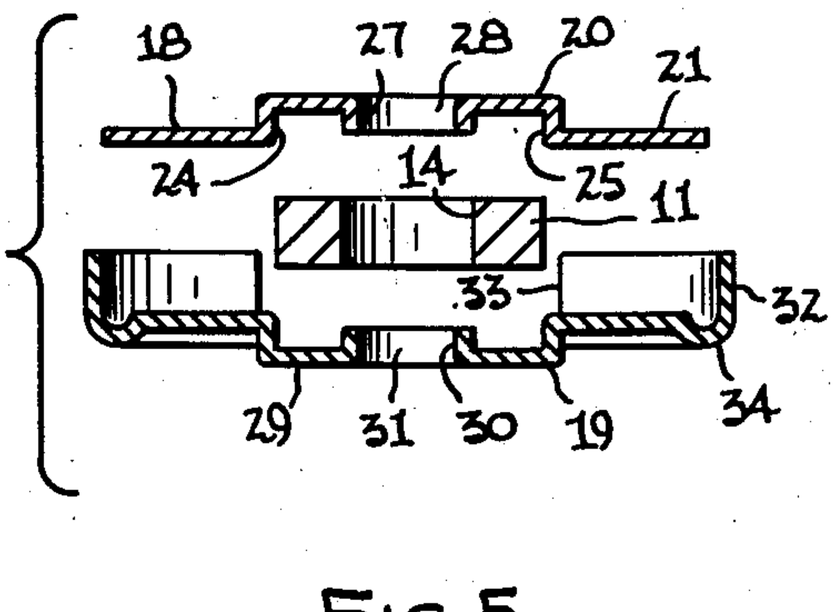

FIG. 5

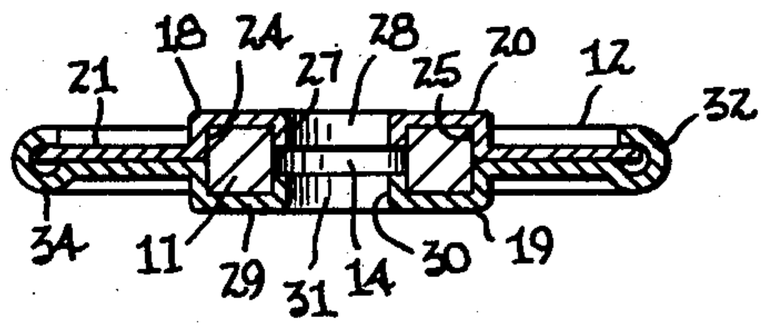

FIG. 4

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Patented Sept. 29, 1953

2,653,492

UNITED STATES PATENT OFFICE

2,653,492

BIMETALLIC KEY BLANK

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Application August 10, 1951, Serial No. 241,273

7 Claims. (Cl. 76—110)

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This invention relates to key blanks and the manufacture of the same, and more particularly to key blanks formed of dissimilar stock material.

In the manufacture of key blanks for ultimate use in locks such as those of the pin tumbler type, it has heretofore been the practice to punch the entire blank out of a selected kind of stock or material, such as brass, aluminum or noble metal alloys. It has been found that the above-mentioned metals have the requisite physical and chemical characteristics which experience has proven are necessary in a key blank.

Principal among these characteristics is that the shank of the key must be corrosion-resistant and malleable. The need for corrosion-resistance is self-evident, as the key must be free from rust or scaling and must maintain its dimensional stability for an extended period of time. The blank must also be malleable or readily workable, so that the finishing operations performed thereon by the locksmith shall not be unduly difficult.

The aforementioned characteristics are required, however, only with respect to the working portion of the key, that is, the shank. The handle portion or knob of the key need not conform to these requirements, as it is used only to grasp the key. No work or finishing operation is necessary by the locksmith on the knob portion of the key, therefore it need not be as malleable as the shank. Therefore, the use of the identical metal for the knob as is used for the shank, is wasteful, unnecessary and uneconomical.

Normally, the metals and metal alloys heretofore mentioned as usable for key blanks, are in abundant supply and little concern is shown if such metals are used wastefully. However, in periods when the supply of such metals is scarce, it is necessary to practice the utmost frugality in the use of metals and husband the supply thereof. This obviously means that these metals should, under such circumstances, be used only in those applications where their physical and chemical characteristics are indispensable.

It is a primary object of my invention to provide a key blank structure in which the critical key blank metals are used solely for the insertable portion of the key, i. e., the shank and a less critical metal is utilized for the non-insertable portion of the key, i. e. the knob.

Another object of my invention is to provide a unitized key blank consisting of dissimilar metals.

Still another object of my invention is to provide a key blank of the character described having a knob portion of dissimilar metal secured in a novel manner to a shank portion of more critical metal.

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A further object of my invention is to provide a key blank which will be more economical to manufacture as it will employ lesser amounts of the more expensive metals.

Other objects and advantages of my invention will be apparent during the course of the following description. In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a plan view of a finished key blank embodying the features of my invention.

Fig. 2 is a longitudinal cross-sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a plan view of the shank portion of the key blank prior to assembly.

Fig. 4 is a transverse cross-sectional view taken on line 4—4 of Fig. 1, and

Fig. 5 is an exploded view of the parts shown in Fig. 4.

Referring more particularly to the drawings, the reference character 10 designates a finished two-piece key consisting of a shank 11 and a knob portion 12.

As best seen in Fig. 3, the shank 11 is initially blanked out of a strip of suitable metal such as brass or the like, and is substantially rectangular in form, coming to an apex or point 13 at one end thereof. The opposite end of the shank has a punched out hole or aperture 14 formed therethrough which may, as indicated, be circular.

Intermediate the two ends a shoulder or abutment 15 is formed which serves as a stop for the insertable portion of the finished key, as shown in Fig. 1.

The shank is then processed through cutters to form the milled grooves 16 and 17 which extend longitudinally of the shank 11 and conform to the contour of the keyhole opening.

The knob 12 of the key blank 10 is formed out of two formed circular disks 18 and 19 which may be of light gauge steel or the like. As best seen in Figs. 4 and 5, the male disk 18 is provided with a rectangular embossment 20 which conforms to the shape of the shank 11 and is complementary thereto. The height of the embossment 20 is such that the marginal portion 21 of disk 18 will extend over the sides of the shank for a distance substantially equivalent to one-half the thickness of the shank 11. The embossment 20 commences at the edge 22 of the disk 18 and extends diametrically to a point 23 short of the opposite

edge of the disk 18, thereby providing three side walls to embrace the shank. The parallel side walls 24 and 25 embrace the sides of the shank 11, and the rear wall 26 abuts the end of the shank.

The embossment 20 has a circular aperture 27 formed therein, having a dependent flange 28 which is of such size as to nest within the aperture 14 of the shank 11.

The female disk 19 is complementary to the disk 18 and similarly is provided with a shank-embracing embossment 29 and an aperture 30 having a dependent flange 31 which nests in aperture 14. In addition, the disk 19 is provided with a marginal flange 32 which is recessed as at 33 to clear the shank 11.

The flange 32 is adapted to be bent into overlying relation to the disk 18 so as to secure the parts 18 and 19 together on the shank 11. Fig. 5 shows the parts prior to assembly, and Fig. 4 shows the parts assembled with the flange 32 rolled or crimped over the disk 18, to form the knob 12. A circular embossment or bead 34 is formed in the disk 19 adjacent the flange 32 and thus both sides of the knob 12 have substantially the same appearance, the bead 34 being the counterpart of the rolled flange 32. Further, the rolled flange 32 and the bead 34 provide raised edges on the knob 12 to prevent slipping of the user's fingers when the knob is grasped.

The key blank can then be readily converted to a finished key by cutting the shank to provide the proper combination of ridges 35, as seen in Fig. 1.

It will be noted the assembled key blank 10 results in a rigid integrated combination of the shank 11 and the knob 12. The side walls of the embossments 20 and 29 provide a cavity in which the shank 11 is securely embraced so that it is held in axial alignment with the knob and any relative transverse or twisting movement of the shank is prevented. The flanges 28 and 31 which project into the aperture 14 of the shank, prevent any relative longitudinal movement of the shank and thereby the shank is completely immobilized relatively to the knob and rigidly integrated therewith. As an additional feature to prevent longitudinal movement of the shank in one direction, the rear walls, such as the wall 26 of the embossments 20 and 29 abut the rear edge of the shank 11.

It will thus be apparent that I have provided a bimetallic key blank in which the scarce and expensive metals are used solely where they are required, that is, for the insertable or shank portion of the key, and a less expensive and more abundant metal is utilized for the non-insertable or knob portion of the key. The key thus provided is economical to manufacture and is sturdy and durable.

Having thus described my invention, I claim:

1. A key blank comprising a shank having an aperture adjacent one end thereof, and a knob secured to said end of said shank, said knob consisting of a pair of disks permanently secured in face to face abutment with each other, each of said disks having an embossment forming a shank-receiving cavity, the walls of said cavity abutting said end and opposite sides of said shank to a depth substantially equal to one-half the thickness of the shank, and a projection provided on each of said disks and extending into said aperture in abutment with the wall thereof

whereby said knob completely encloses said end portion of said shank and is immovably secured thereto.

2. A key blank comprising a shank having an aperture adjacent one end thereof, and a knob secured to said end of said shank, said knob consisting of a pair of disks permanently secured in face to face abutment with each other, each of said disks having an embossment forming a shank-receiving cavity, the walls of said cavity abutting opposite sides of said shank to lock said shank against transverse movement relatively to said disks, and each of said disks having an opening therein defined by an annular flange integral therewith, said flanges extending into said aperture to lock said shank against longitudinal movement relatively to said disks.

3. A key blank as defined in claim 2 in which said walls of said cavity and said annular flanges extend substantially to a plane defining one-half the thickness of said shank.

4. A key blank comprising a shank having an aperture adjacent one end thereof, and a knob secured to said end of said shank, said knob consisting of a pair of disks disposed in face to face abutment with each other, each of said disks having an embossment forming a shank-receiving cavity, the walls of said cavity abutting opposite sides of said shank to lock said shank against pivotal movement relatively to said disks, a projection provided on each of said disks and extending into said aperture in engagement with the wall thereof to lock said shank against longitudinal movement relatively to said disks, and an annular flange integral with one of said disks and bent into overlying relationship to the other of said disks to permanently secure said disks to each other.

5. A key blank as defined in claim 4 in which the thickness of said shank is substantially greater than the thickness of each of said disks.

6. A key blank as defined in claim 5 in which said disks are made of metal and said shank is made of dissimilar metal.

7. A key blank comprising a shank having an aperture adjacent one end thereof, and a knob secured to said end of said shank, said knob consisting of a pair of flat elements permanently secured in face to face abutment with each other, each of said elements having an embossment forming a shank-receiving cavity, the walls of said cavity abutting opposite sides of said shank to lock said shank against transverse movement relatively to said elements, and each of said elements having an opening therein defined by an annular flange integral therewith, said flanges extending into said aperture to lock said shank against longitudinal movement relatively to said elements.

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