

May 2, 1944.

G. GULDBRANDSEN

2,348,129

DOOR KNOCKER

Filed Sept. 3, 1942

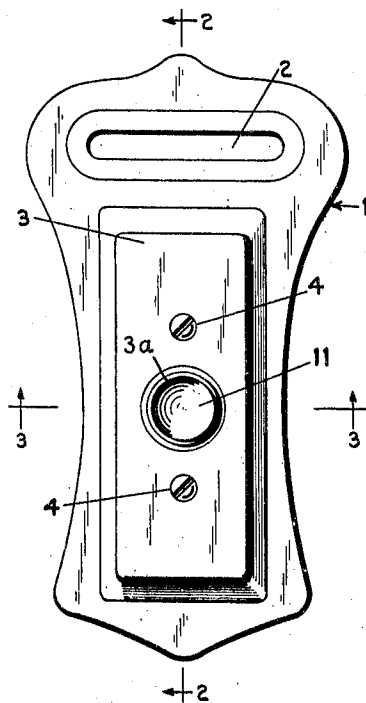


Fig. 1.

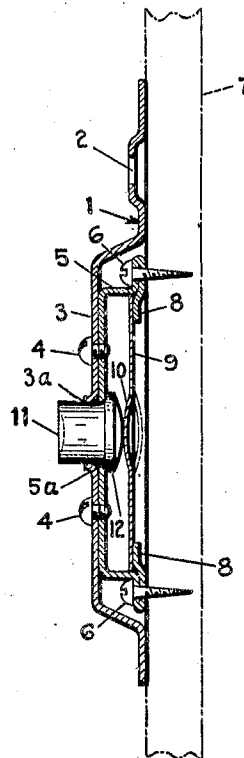


Fig. 2.

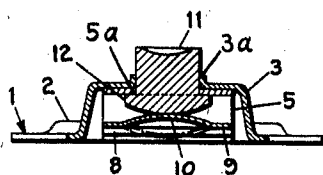


Fig. 3.

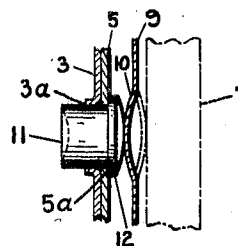


Fig. 4.

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2,348,129

DOOR KNOCKER

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Application September 3, 1942, Serial No. 457,237

12 Claims. (Cl. 116—148)

This invention relates to improvements in signaling devices and pertains particularly to a novel and improved annunciator or knocker designed primarily for use upon doors of residences or other structures.

The primary object of the present invention is to provide a novel door knocker which is designed to simulate a common push button operated door bell or similar type of annunciator, and which employs means of simple and efficient construction for creating a knocking or rapping sound upon manual actuation of the push button.

Further objects and advantages attained by the invention will appear readily from the following description of a preferred embodiment thereof, as illustrated in the accompanying drawing, in which:

Fig. 1 is a front elevation of a door knocker embodying the present invention;

Fig. 2 is a vertical sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a horizontal section taken on line 3—3 of Fig. 1; and

Fig. 4 is a sectional view of a portion of the invention showing a slight modification thereof.

Referring now by characters of reference to the drawing, numeral 1 designates a cover which may be of any suitable design, and which in the present instance is provided with a raised window 2 through which may be read the inscription on a name card or the like inserted therebehind, and a raised housing portion 3 in which is secured by screws 4 a mounting bracket 5 which is of shallow U-shaped form in longitudinal section, the ends of the bracket being bent in opposite directions and turned back upon themselves to form means whereby screws 6 may be inserted therethrough to secure the entire assembly to a door or similar panel element 7. The line of abutment of the bracket 5 against the door panel 7 is on a line with the under surface of the cover 1, the cover thereby providing, with the door panel 7, a complete enclosure for the bracket 5.

The extreme ends of the bracket 5 are spaced away from and extended in a direction toward one another, and are raised away from the surface of the door panel 7 to provide short shelves or legs 8 which are adapted to retain an elongated flexible plate 9 which is mounted in bridging relation thereto, and held from displacement by the arms of the U-shaped bracket 5 and the walls of the housing portion of the cover 1. The plate 9 is held under sufficient compression by the retaining elements 8 as to cause it to be in a loaded or warped condition during at least part of its range of movement, and has formed intermediate thereof a snap disc 10 normally shaped as a bulge in a direction away from the door panel 7.

Engaging the snap disc 10 is one end of a push button 11 which is reciprocally mounted in concentric openings 3a and 5a respectively in the bridge portion of the bracket 3 and the raised housing portion of the cover 1, being held therein by a rim 12 formed around the push button near the inner end thereof.

In the operation of the invention, upon manual operation of the push button 11 against the snap disc 10, the disc will be abruptly propelled in the opposite direction, toward the door panel 7, thereby creating a snapping sound. Since the device is completely enclosed, the hollow shaping of the cover adapts it to serve as a resonator to amplify the sound created by the snap disc. Simultaneously with the movement of the snap disc 10, the plate 9, being flexible, will also be flexed slightly in a direction toward the door panel 7. Therefore, upon release of the push button 11, the plate 9 will spring back to its normal position, bringing with it the snap disc 10 which will return to its normal position, thereby creating another sound, and also returning the push button to its normal inoperative position.

From the foregoing description it will be seen that a series of manipulations of the push button 11 will consequently cause several sounds to be made by the snap disc 10 which may be easily heard for some distance away from the device on either side of the door panel 7.

The sounds made by the disc may be amplified or diminished simply by the substitution of a thicker or thinner flexible plate 9. Also, the flexible plate 9 may be mounted nearer the door panel 7 so that upon operation of the push button 11, the snap disc 10 will act as an impact element against the panel 7, as shown in Fig. 4.

While certain novel features of the invention have been shown and described and are pointed out in the annexed claims, it will be understood that various changes in the forms and details of the device illustrated may be made by those skilled in the art without departing from the spirit of the invention.

I claim:

1. A knocker assembly adapted for mounting on a door or like support, including a bracket and means for securement thereof in a fixed position of use, a resilient plate adapted for a limited reciprocal movement toward and away from the support so as to serve as a sounding member, plate-retaining elements formed in widely spaced zones on the bracket, and serving to keep the plate under compression during a portion of its reciprocal movement, and a push button reciprocable in the bracket toward and away from the support, and so located that upon actuation, it serves to stress the resilient plate toward the support, to load the plate in a manner to cause its

return to initial position when the button is released.

2. In a door knocker assembly, a mounting bracket, a resilient plate adapted for a limited reciprocal movement transversely of its major dimension, plate-retaining elements formed in spaced zones of the bracket whereby the plate is compressively stressed between the retaining elements, a push button movably supported in the bracket and located to engage an intermediate portion of the resilient plate, the plate being so formed and mounted, as to return the button to an initial, normal inoperative position following biasing movement of the plate by the button.

3. In a door knocker assembly, a mounting bracket arranged for securement to the door or the like, an elongate resilient sounding strip carried by the bracket with its ends movably retained and with the strip endwise compressed at times by spaced portions of the bracket, a push button movably carried by the bracket for flexing the strip and operable toward and from an intermediate zone of, and transversely of the resilient strip, the loading of the strip when actuated by the button serving to return the strip and button to an initial position, and a hollow cover supported by the bracket, provided with an aperture to receive the push button and of a shaping to enclose, with the door, the remainder of the assembly, the hollow shaping of the cover being such as to adapt it to serve as a resonator upon flexure of the resilient strip and creation of a sound caused thereby.

4. A door knocker assembly including a bracket for mounting upon a door or like panel element, a spring plate element having opposite marginal portions displaceably carried by and at times adapted to be compressed between spaced portions of the bracket, the plate being slightly spaced outwardly of the door or panel, and a push button carried by the bracket, and arranged for movement toward the spring plate for actuation thereof, the loading effect on the plate, by the button and bracket portions, serving to return the plate and button to an initial position.

5. A door knocker including a bracket adapted for mounting directly on a door or like panel, the bracket being of a shallow U-shaped form in longitudinal section, a snap plate mounted between the legs of the U-shaped bracket and a push button reciprocally mounted in the bridge portion of the bracket for engagement with an intermediate portion of the snap plate and actuation thereof to create a sound.

6. A door knocker including a bracket adapted for mounting directly on a door or like panel, the bracket being of a shallow U-shaped form in longitudinal section, a snap plate mounted between the legs of the U-shaped bracket and a push button reciprocally mounted in the bridge portion of the bracket for engagement with an intermediate portion of the snap plate, the bracket being formed of sheet material characterized by a pair of reversed end portions, the resilient plate abutting at its ends against and being at times compressed between said end portions and coacting therewith to produce a limited snap action of the plate when loaded by the push button.

7. In a door knocker of push button type, a door mounting bracket, a resilient strip supported between ends of the bracket, a snap disc formed in an intermediate portion of said resilient strip, a push button adapted to engage the snap disc in the resilient plate, and connec-

tions between the strip and bracket to effect a constrained warping movement of the plate when loaded by the push button.

8. A resilient sounding element for use in a door knocker or the like and consisting of a rectangular resilient plate element adapted for movable anchorage at each end thereof in spaced marginal zones, and a dished snap disc formed in an intermediate portion of the plate element.

9. In a door knocker assembly, a mounting bracket arranged for securement to the door or the like, an elongate resilient impact member carried by the bracket with its ends movably retained by spaced portions of the bracket, a push button movably carried by the bracket and operable toward and from an intermediate zone of the resilient strip, said spaced bracket portions serving, when the impact member is actuated by the push button, to effect a warping loading of the member sufficient to return the member and button to a starting position and a hollow cover supported by the bracket, provided with an aperture to receive the push button and of a shaping to enclose, with the door, the remainder of the assembly, the hollow shaping of the cover being such as to adapt it to serve as a resonator upon impact of the door by the resilient impact member, upon movement of the latter in one direction.

10. In a knocker for attachment to a door or the like, a mounting bracket adapted for securement adjacent a door or like panel, a spring plate anchored for limited displacement at opposite points, to spaced points of the bracket, and a push button reciprocally carried by the bracket and operable to displace the spring plate in a direction toward the door or panel, the spring plate being formed and mounted in the bracket to constitute a combined impact element for producing a knocking sound on the door and a spring element for returning itself and the push button to a normal inoperative position.

11. A knocker for installation on a door or like panel including a mounting bracket, means for securing the bracket to the panel, a spring plate displaceably anchored at each end to spaced zones of the bracket and slightly spaced from the panel on which the assembly is mounted, a push button reciprocally carried by the bracket and arranged to engage an intermediate portion of the spring plate, and an open-back cover apertured to expose a portion of the push button, the assembly being open on its rear face by reason of desired impact of the spring plate with the panel when actuated by the push button, the cover being of hollow form to provide a resonance effect upon return action of the spring plate, the push button being provided with a shoulder adapted to engage the bracket upon the return movement under the influence of the spring plate, the spring plate including a snap disc portion of dished aspect, adapted to be biased or flexed out of the plane of the plate, whereby the plate serves the dual purpose of an impact or knocking element, and as a return spring for the push button.

12. A door knocker including a vibratory plate, a push button reciprocally movable toward and from an intermediate portion of the plate, and members for mounting the plate and push button so arranged that the plate is deflected with a snap movement in response to a linear movement of the push button and returned with the push button to initial position thereafter.

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