July 15, 1941. C. WEST 2,249,549

SIGNALING APPARATUS

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Fig. 1.

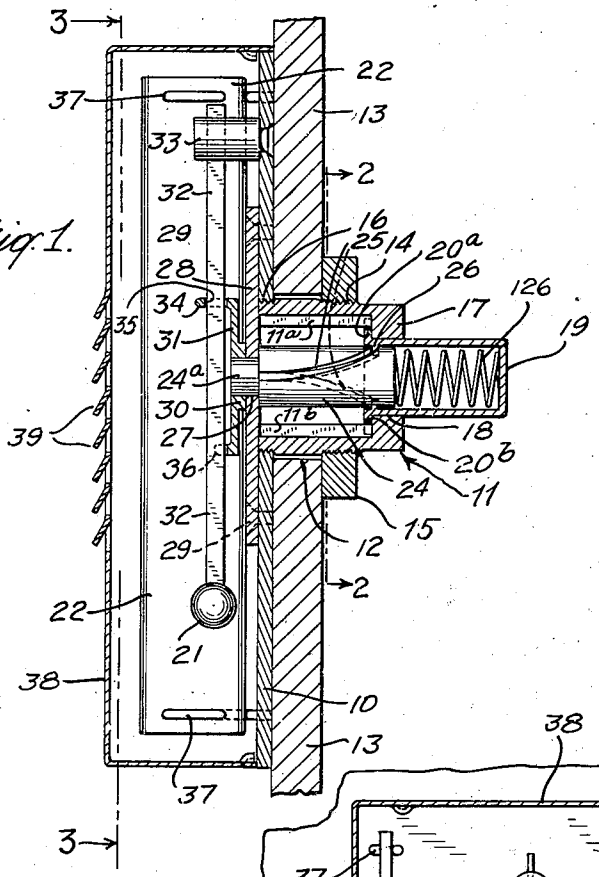


Fig. 2.

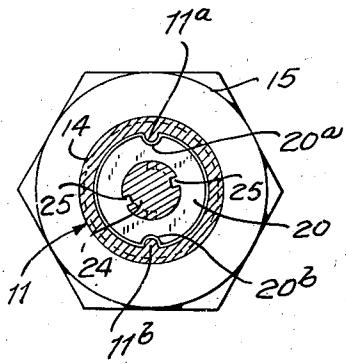
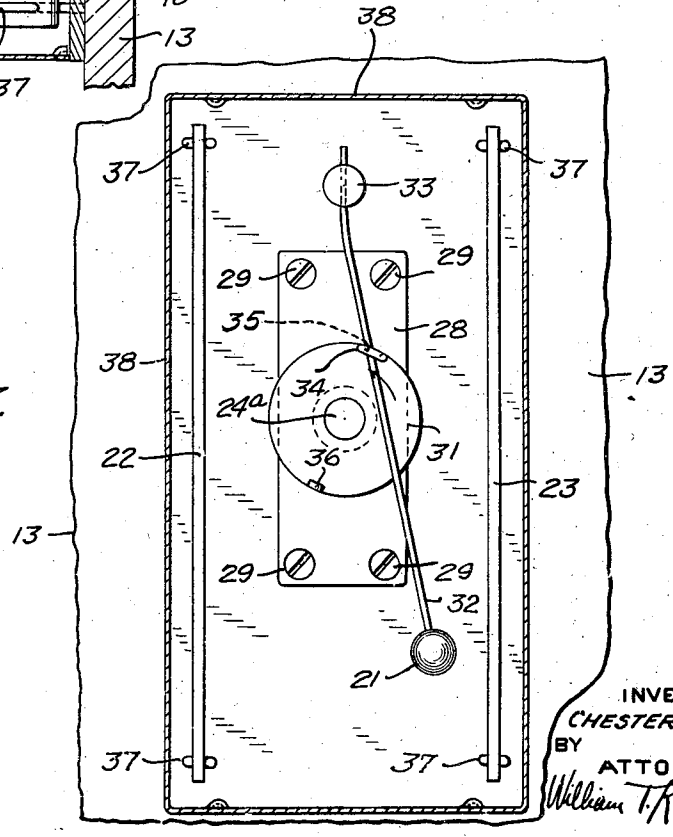


Fig. 3.



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Fig. 5.

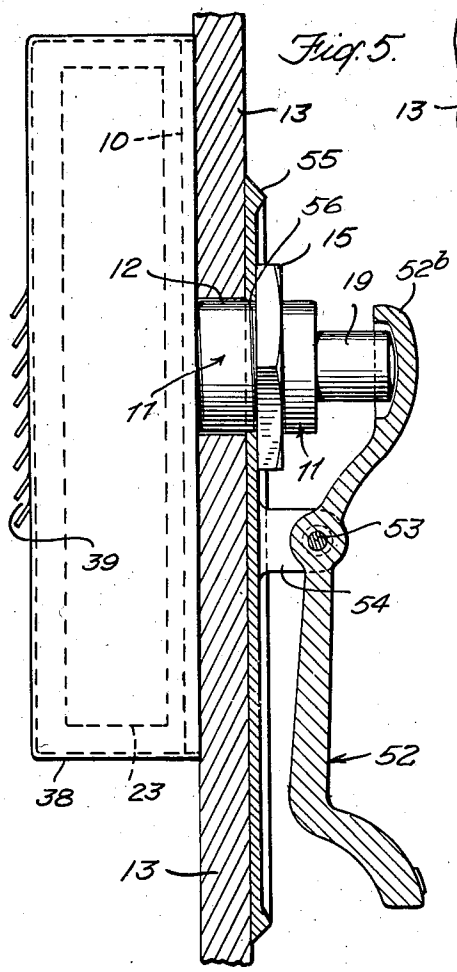


Fig. 4.

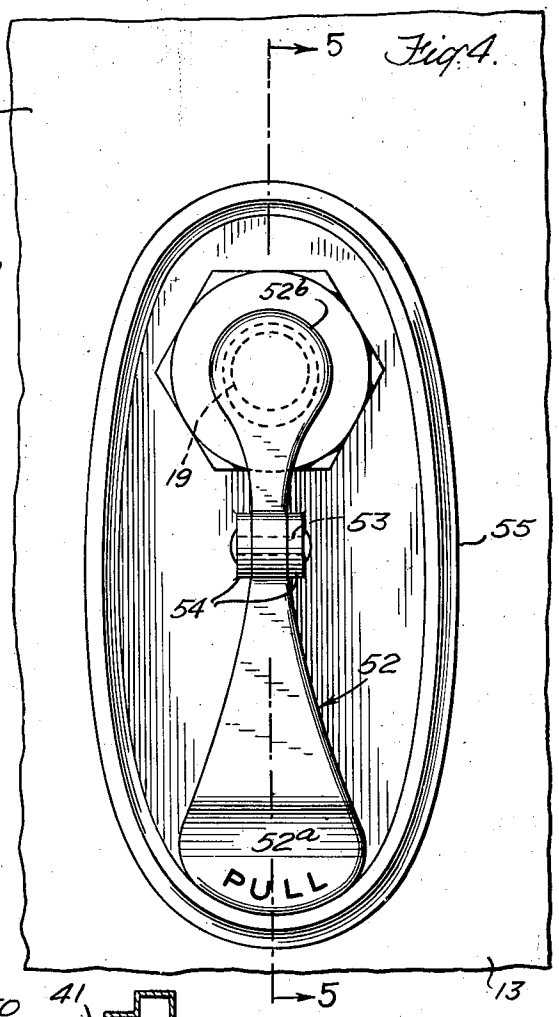
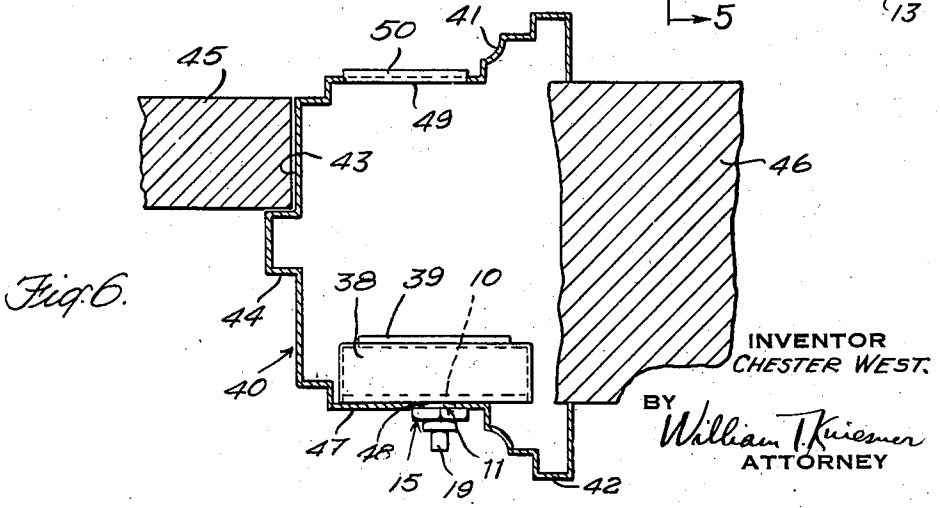


Fig. 6.



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2,249,549

UNITED STATES PATENT OFFICE

2,249,549

SIGNALING APPARATUS

Chester West, Brooklyn, N. Y.

Application April 29, 1939, Serial No. 270,734

20 Claims. (Cl. 116—160)

This invention relates to signaling apparatus, particularly of the type for association with a door, or the like, whereby a caller may announce himself.

One of the objects of this invention is to provide a simple, inexpensive and practical audible signaling apparatus that will be of pleasing sound and capable of easy and rapid installation. Another object is to provide a signaling apparatus which, as to its individual parts, may be inexpensively manufactured and which individual parts are capable of rapid and inexpensive assembly. Another object is to provide a signaling apparatus of the chime type that may be embodied in small and compact form, may be installed easily and quickly, is unobtrusive in appearance where it is mounted in an exposed position and which, moreover, may be mounted in small or out-of-the-way spaces. Another object is to provide a signaling apparatus of the above-mentioned character which may be readily incorporated into, for example, the hollow frame of a door so as to be thus out of the way and to occupy what is otherwise waste space, and which in construction and operating mechanism is simple and dependable and free from liability of becoming disarranged. Another object is to provide a signaling apparatus which may be related directly to a door or door panel and be neat in appearance and foolproof in construction and mounting. Other objects will be in part obvious or in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts as will be exemplified in the structure to be hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings in which I have shown one of various possible embodiments of my invention, with illustrative possible modifications of certain features of construction,

Figure 1 is a central vertical sectional view through a signaling apparatus, as mounted or related to a suitable support, such as a door panel;

Figure 2 is a detailed sectional view along the line 2—2 of Figure 1;

Figure 3 is an elevation as seen along the line 3—3 of Figure 1;

Figure 4 is a front elevation, as seen, for example, from the front of a door panel, showing a modified form of actuating means;

Figure 5 is a sectional view as seen along the line 5—5 of Figure 4, certain parts, however, being shown in elevation, and

Figure 6 is a horizontal sectional view through a hollow door frame showing an installation of my signaling apparatus relative thereto.

Similar reference characters refer to similar parts throughout the several views in the drawings.

Referring first to Figures 1 and 3, I preferably provide a base plate 10, illustratively rectangular in shape, having related to it, approximately at its center, a sleeve member 11 of relatively small outside diameter so that it may be fitted or passed through a hole 12 cut or drilled in the supporting member which, in Figures 1 and 2, is indicated at 13, and may take the form of part of a door, such as a panel thereof, the door being, for example, the door of an apartment, house, or the like, the sleeve member 11 with the main plate 10 being thus made to take part in mounting the signaling apparatus in place; for that purpose the outer end of the sleeve 11 may be threaded as at 14 to receive a nut 15 which, when tightened up, clamps the panel 13 between itself and the main plate 10.

The connection between sleeve 11 and plate 10 may be effected in any suitable way and in Figure 1 is shown as taking the form of a threaded connection, as at 16, the plate 10 having a threaded aperture for that purpose to take the threads at the left-hand end of the sleeve 11; this threaded connection 16 is preferably a tight connection or may be made tight by heading over or expanding the left-hand end portions of the sleeve 11, thus to insure that the parts 11 and 10 are non-rotatively secured together.

At its right-hand end the sleeve 11 has an end wall 17 provided with an aperture 18, preferably round, and slidable in the walls of the aperture 18 is a push button 19 preferably made of sheet metal and preferably so constructed that it is assembled to the sleeve 11 from the inside or left-hand end thereof.

Thus, the push button 19 may have a flange 20 at its inner end, the latter preferably also limiting the extent of movement of the button 19 outwardly or toward the right under a suitable spring pressure, as later described.

The push button 19, the nut 15, and the exposed unthreaded portions of the sleeve 11 may be finished off in any suitable way to harmonize with the finish or decoration of the face of the member 13 from which these parts project and thus inconspicuousness and neatness of appearance may be gained.

Carried, preferably in a manner later described, from the inner face of the main plate 10, is a striker 21 which is to set into sound-producing vibration suitable means which preferably and illustratively take the form of two so-called chime bars 22, 23 which are mounted preferably parallel to each other (Figure 3) and in spaced relation, with the striker 20 therebetween in order that, in this preferred form, the striker 21 may coact with both when suitably swung or moved to impact one or the other or both. Where the striker 20 is to act upon two sounding elements, like the chime bars 22 and 23, the sounding elements may be of different pitch and hence may sound two different notes or tones.

Depression of the push button 19 in a direction inwardly of the sleeve 11 is to set the striker 21 into motion to impact one or the other or both of the sounding elements and a preferred form of mechanism for achieving this responsive action is as follows:

Button 19, which is cylindrical, is arranged to coact with a cylindrical drum or shaft 24 of a diameter to make a sliding fit with the interior of the button 19 so that the two parts mutually guide and support each other during their respective movements. Drum shaft 24 has a helical slot 25 into which takes a pin or lug 26 carried by and projecting inwardly of the left-hand end of button 19, as is better shown in Figure 1, and before entering the right-hand end of drum shaft 24 into the left-hand end of button 19, during assembly, a helical spring 126 is entered into the button 19. Inward movement of button 19, if unaccompanied by rotation, thus effects a rotary movement of the drum shaft 24 by the coaction of pin 26 and helical slot 25, the latter two parts being duplicated preferably and spaced 180° apart, as indicated in Figure 1. Any suitable means may be employed to hold button 19 against rotation and illustratively its flange 20, as is better shown in Figure 2, may have two cutouts or slots 20^a and 20^b, preferably 180° apart, in which are accommodated internal longitudinally extending ribs 11^a and 11^b, preferably integrally formed with the sleeve 11.

The left-hand end of drum shaft 24 is stepped as at 24^a, and is provided with a combined rotary and thrust bearing in the form of an aperture 27 in a plate 28 (Figures 1 and 3) which bridges and closes over the left-hand otherwise open end of the sleeve 11 and is secured to the main plate 10 in any suitable way, as by screws 29. Thus, thrusts exerted on the drum shaft 24 in a direction toward the left, as viewed in Figure 1, are taken up by the plate 28, while axial movement of the drum shaft 24 in a direction toward the right is prevented by the hub 30 of a striker actuating member which preferably takes the form of a disk 31, preferably coacting with the striker 21 in a manner later described. Thus, after plate 28 has been put in position, the member 31 is mounted on the reduced end 24^a of the drum shaft 24 and its hub 30 secured thereto in any suitable manner, as by a driving fit, a set screw, or the like.

The striker 21, which may be made of any suitable material, such as wood or molded plastic, is preferably mounted on a spring arm 32 made of a suitable springy metal, like flat wire of steel, phosphor bronze, or the like, and its upper end is secure in any suitable way to the main plate 10, as by a stud 33 which may be fixed to the plate 10 in any suitable way and to which the upper end of the spring arm 32 is clamped or anchored in any suitable way, but preferably so as to tend to hold the upper end portion of the spring arm 32 vertically and thereby always to bias the striker 21 to a position midway of the two sounding elements 22, 23, and hence biassed to a position spaced from either.

The mounting of the spring arm 32 is such that it extends downwardly in front of the disk member 31 and the latter has projecting therefrom a lug 34 which has an aperture 35 through which the spring arm 32 passes, the two side walls of the aperture 35 thus providing two spaced members, one on each side of the spring arm 32, by which the latter may thus be flexed in either direction relative to the fixed axis provided by the stud 33.

The disk 31 is connected to the drum shaft 24 in such angular relation to the normal position of the pin 26 along the slot 25 that the part 34 (see Figure 3) is to the right of the vertical plane through the axis of the disk member 31, thus biassing the spring arm 32 in counter-clockwise direction about the stud 33 and thus holding the striker 21 in close proximity to the sounding element 23; the spring 126 (Figure 1) inside the button 19 has sufficient stiffness to insure that this relationship is established and maintained.

Accordingly, when button 19 is pressed inwardly of the sleeve 11 against the spring 126 which thereby has energy stored in it, the pin and slot connections 26—25 effect a relatively quick rotary movement of the drum shaft 24 and hence also of the disk 31 throughout a suitable extent, illustratively, throughout about ¼ turn or 90°, thus warping the spring arm 32 from the general position as shown in Figure 3 to a position toward the left to impact the sounding element 22, the maximum amount of permissible rotary movement of the drum shaft 24 being preferably such that an energetic impact or blow results with sufficient leeway for rebound of the striker 21 from the element 22, so as not to damp the vibrations of the latter; release of the push button 19 permits the expenditure of the energy stored in the spring 126 and also in the tensioned spring arm 32, thus to effect a rapid reverse rotation of the rotary parts and thereby to effect a similar impact of the striker 21 against the sounding element 23, the striker 21 upon rebound assuming a position substantially as shown in Figure 3. It will be understood, of course, that the springiness of the spring arm 32 in relation to the weight of the striker 21 itself is preferably such as to give it substantial resilience or elasticity.

Preferably, the just described actions are accompanied by a snap action and it is preferably on that account that the striker-actuating member preferably takes the form of the disk 31 as above described. Substantially diametrically opposed from the part 34 on the disk 31 is a projection 36 of suitable conformation to project into the path of swing of the spring arm 32 but of insufficient projection to prevent the spring arm 32 from yielding or bending out of its plane of swing sufficiently so as thereby to snap off of the side face of the projection 36. Where the striker 21 is related to two sounding elements, like the elements 22 and 23, the projection 36 is double acting, its left-hand and right-hand faces, as viewed in Figure 3, being similarly shaped so as to present the same degree of resistance to bypassing from either side of the member 36.

Accordingly, when the button 19 is depressed

and starting from the normal position of the parts, as shown in Figure 3, the disk member 31 commences rotation in counterclockwise direction, part 34 starts to warp or bend the spring arm 32 in clockwise direction, the spring arm 32 and projection 36 meet, thus interposing a resistance to continued swing of the arm 32 in clockwise direction and during that time interval the continued counter-clockwise movement of the part 34 in effect bends the spring arm 32, thus storing energy in it, and when the member 32 finally by-passes the part 36, the striker 21 with the spring arm 32 is thus suddenly snapped completely to the left, as viewed in Figure 3, striking the member 22 a sudden blow.

Upon the retrograde movement of the button 19, under the expenditure of the energy previously stored in the spring 26, this snap action is repeated but now with the disk member 31 moving in clockwise direction and acting to warp the spring arm 32 in counter-clockwise direction, whence again the arm 32 encounters the projection 36 (but now on the left side of the latter) in order again to stress the spring arm 32 to cause it to distort enough to snap over the projection 36, whence the sounding element 23 is struck a sudden blow.

If the two sounding elements are, as above noted, of different pitch, the successive notes thus struck are of two different tones.

If the sounding element or elements take the form of chime bars, as in the illustrative embodiment, they may be mounted in any suitable way, preferably in relation to their nodes and internodes, and with respect to the point of striking of the striker 21; such suitable mounting means are diagrammatically indicated in Figures 1 and 3 by the reference character 37, representing appropriate supports secured in any suitable way, preferably to the plate 10. A sheet metal box-like cover 38, preferably apertured or louvered, as at 39, takes over the parts to the left of the main plate 10, as viewed in Figure 1, and it preferably fits about the periphery of the plate 10 itself to which it is secured preferably detachably in any suitable way (not shown).

The apparatus, once assembled, will be seen to be easy and quick to install, requiring no interference with its operating parts at all; a hole 12 (Figure 1) is drilled or cut in the panel or part to which the device is to be secured, the sleeve 11 inserted through the hole and the nut 15 driven home, all as earlier above described, whence the mounting is completed.

The self-contained character of the construction and its ease and simplicity of mounting, make it possible to incorporate the mechanism into or with a hollow frame, like the frame of a door, as indicated in Figure 6; thus, in Figure 6, I have shown at 40, in horizontal cross-section, a vertical portion of a hollow sheet metal door frame of any ordinary or usual or suitable conformation illustratively conformed to provide molding or trim portions 41, 42 for both the interior and exterior, also rabbets 43, 44, one of which, such as the rabbet 43, takes the door 45 which may be hinged upon the opposite and similarly conformed vertical portion of the door frame; the wall construction, built up in any suitable way, is indicated at 46, and is built into the open end of the hollow frame, all in the usual way.

But at a suitable height in the outside face 47 of the hollow frame 40, I provide a hole 48 through which is received, from the inside of the hollow frame, the sleeve member 11 of the apparatus of Figure 1, thus bringing the main plate 10 flat against the inside face of the frame portion 47, whence the nut 15 is screwed onto the sleeve 11 to complete the assembly of the apparatus to the door frame, leaving the push button 19 exposed outwardly of the latter.

Preferably, the door frame is provided on its opposite and inside face, such as the part 49, with openings, preferably louvered, as at 50, thus to permit free egress of sound from the interior of the door frame as produced by the signaling apparatus. The door frame, when made of sheet metal, may, in the above described illustrative manner, be prefabricated, and the signaling apparatus assembled therewith at the factory or "on the job," in the latter case, of course, prior to the closing up of the hollow frame by the wall 46.

Thus, the signaling apparatus is entirely out of the way, only the push button 19 being exposed from the door frame; the sounding mechanism itself is housed within the hollow frame which, when, as is invariably the case, it becomes closed off as by the wall 46, functions as a resonance chamber with respect to the sounding element or elements of the signaling equipment, it being optional as to whether or not the box-like cover 38 therefor is employed in such case.

The apparatus, furthermore, lends itself to manual actuation by means other than a depressible push button; thus, for example, where push button actuation is not desired, I may provide a manual operating means of this type, illustratively like that, and preferably in the manner, shown in Figures 4 and 5, where I have shown a pivoted member 52 in simulation of a door knocker and, in fact, capable of functioning as such in the preferred construction. Thus, the member 52, which may be given any suitable configuration, particularly in so far as its lower portion 52^a is concerned, is pivotally supported as by a pin 53, between two spaced lugs 54 which are integrally formed with and are upstanding from a base plate 55 which may be given any suitable shape or outline, configuration or decoration, and which, as is better shown in Figure 5, is provided at its upper portion with a hole 56 of sufficient size to take over the sleeve member 11, member 52 having an upward extension 52^b which on its inner side or face (left hand, as viewed in Figure 5) is concave or hollowed out coaxially or in line with the hole 56 and hence with the sleeve member 11 when the latter is related thereto.

Accordingly, the device 55—52 may be mounted in position at the same time and, in this preferred construction, by the same means that mount the signaling apparatus to the supporting member, such as the member 13 of Figure 1 or the part 47 of Figure 6. For example, the sleeve 11 of the apparatus is put through the hole 12 in the support, pressing the base plate 10 up against the left-hand face of the part 13, whence the device 52—55, with the nut 15 held over the hole 56, is passed over the protruding button 19, the base plate portion 55 passed over the sleeve 11 which enters through the hole 56, whence the nut 15 may be threaded onto the sleeve 11 and tightened up, leaving the assemblage in the form shown in Figures 4 and 5 and with button 19 entered into the hollow or concave portion of the cup-like end 52^b of the member 52, thus covering over and also, if desired, obscuring the but-

ton to any extent desired according to the configuration given the portion 52b.

The parts are preferably so proportioned that, with the button 19 projected outwardly under the action of spring 126, the lever-like member 52, while thereby swung in clockwise direction and with its lower end portion 52a thus brought toward the base plate 55, is, nevertheless, held at a position of rest such as to allow some play between the lower end portion 52a and the base plate 55, somewhat as indicated in Figure 5.

With adequate play of this character thus provided, the member 52 may be used as a knocker, by taking hold of the lower end and striking it against the base plate 55, while, upon pulling the lower end 52a outwardly, and a suitable instruction, such as the word "Pull" (see Figure 4) may be provided, if desired, the push button 19 is pressed inwardly against its spring 126 and upon release of the member 52 is returned outwardly, effecting a repeated or successive actuation of the sounding element or sounding elements, as was earlier above described.

Thus, it will be seen that there has been provided in this invention a signaling apparatus in which the several objects above noted, together with many thoroughly practical advantages are successively achieved. It will be seen that the apparatus is capable of embodiment in small and compact form, foolproof in construction, mounting and action, and is well adapted to meet the widely varying conditions of practical installation and practical use.

As many possible embodiments may be made of the above invention and as many changes might be made in the embodiment above set forth, it is to be understood that all matter hereinbefore set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. A signaling apparatus comprising a main base plate adapted to rest against the inside face of a panel or like support, the latter having a hole therethrough, and said base plate having connected thereto a sleeve-like member extending through said hole to the other side of said panel, said sleeve member being externally threaded and having projecting from its free end a hollow spring opposed push button with means limiting movement of said push button outwardly of said sleeve member, means holding said push button against rotation as it is moved against or by its spring, a drum shaft extending into said hollow push button and rotatably supported thereby, said drum shaft having a cam slot therein and said push button having a pin coacting with said slot, said main plate supporting vibratable sounding means, striker means for said sounding means, and connections between said drum shaft and said striker means for causing the rotary movement transmitted to said drum shaft through said pin and slot connection as said push button moves for impacting said striker means against sounding means, and means in threaded connection with the threaded portion of said sleeve for clamping said panel between said base plate and said last-mentioned means, thereby to support said signaling apparatus in position to receive manual thrusts on said push button.

2. A signaling apparatus comprising a main base plate adapted to rest against the inside face of a panel or like support, the latter having a hole therethrough, and said base plate having connected thereto a sleeve-like member extending through said hole to the other side of said panel, said sleeve member being externally threaded and having projecting from its free end a hollow spring opposed push button with means limiting movement of said push button outwardly of said sleeve member, means coacting between said sleeve-like member and said push button for holding the latter against rotary movement, vibratable sounding means carried by said base plate, striker means therefor, a drum shaft having a cam slot in its surface and extending rotatably and slidably into said hollow push button, the spring for opposing said push button being accommodated between the end of said drum shaft and the closed end of said push button, the latter having a pin for coaction with said cam slot whereby, upon movement of said button relative to said sleeve member, said drum shaft partakes of rotary movement, and mechanism for converting the rotary movement of said drum shaft into a movement of said striker means in a direction to impact said sounding means.

3. A signaling apparatus comprising an enclosing casing having striker means therein, said casing having secured thereto a sleeve member projecting from one wall thereof whereby said sleeve member may be entered through a hole in the panel of a door or the like, said sleeve member having threads and a nut coacting with the latter for clamping said panel between said nut and said one wall of the casing, said sleeve member having projecting from its free end and movably supported by said sleeve member an actuating element, a manually operable member for effecting movement of said actuating element, an auxiliary support held in place by said nut and having means movably supporting said manually operable member, and means responsive to movement of said actuating element for actuating said striker means.

4. A signaling apparatus comprising an enclosing casing having striker means therein, said casing having secured thereto a sleeve member projecting from one wall thereof whereby said sleeve member may be entered through a hole in the panel of a door or the like, said sleeve member having threads and a nut coacting with the latter for clamping said panel between said nut and said one wall of the casing, said sleeve member having extending therethrough and accessible exteriorly thereof by way of its free end and slidably guided therein a hollow push button, and means responsive to movement of said button for actuating said striker means and comprising a part within said sleeve members having its outer end extending into said hollow push button and its inner end extending through said one wall of said casing, with a spring in said hollow push button having one end thereof bearing against said first-mentioned end of said part whereupon by depression upon said hollow button the latter slides telescopically over said part, means coacting between said hollow push button and said part for actuating the latter by the former, and means coacting with said striker and said inner end of said part for actuating said striker.

5. A signaling installation comprising a hollow sheet metal door frame having an aperture in an externally exposed part thereof, a signaling apparatus having a portion accommodated against the inner face of said part and within said hollow frame and having a hollow mounting means extending through said aperture in said part, said portion carrying signaling means, means coacting

between said hollow mounting means and said frame part for securing said signaling apparatus in position, and a movable member movably mounted and guided in said hollow mounting means and by the latter exposed exteriorly of said hollow frame, said movable member having connections with said signaling means for actuating the signaling means in response to actuation of said movable means itself.

6. A signaling installation comprising a hollow sheet metal door frame having an aperture in an externally exposed part thereof, an audible signaling means comprising a vibratable sounding element and means for setting the latter into vibration, said signaling means being positioned within said hollow frame and having a hollow mounting means therefor which projects through said aperture in said frame part, said hollow mounting means having means for securing it in position relative to said part and thereby to position said mounting means in said aperture, said mounting means having movable means movably mounted therein and exposed thereby externally of said frame, there being means responsive to movement of said movable means for setting said second-mentioned means into actuation to effect vibration of said vibratable sounding element, a part of said hollow frame that is exposed internally of the wall or like enclosure of which the door frame and door thereof are a part having aperture means to permit the sound emitted by said sounding means to pass therethrough.

7. A signaling installation as claimed in claim 6 in which the vibratable sounding element is a member that vibrates by flexing in nodes and internodes, the hollow space within said door frame acting as a resonance chamber therefor.

8. A signaling apparatus comprising a main support anchoring at one end a spring arm having a striker at its other end, whereby said spring arm may flex relative to its anchored end, a vibratable sounding element having means mounting it in position to be struck by said striker upon sufficient flexing of said spring arm, a rotary element having two parts substantially diametrically opposed, one of said parts engaging said spring arm at an intermediate point of its length and flexing it in response to rotary movement of said rotary element and the other being positioned in the path of the resultant movement of said spring arm to temporarily oppose movement and to cause further flexing of said spring arm in response to continued rotary movement of said rotary element, said other part and said spring arm coacting to disengage upon a certain amount of continued flexing of said spring arm, thereby to snap said striker against said sounding element, and means for rotatably mounting said rotary element and for effecting rotary movement thereof.

9. A signaling apparatus as claimed in claim 8 provided with a second sounding element spaced from said first sounding element and to that side thereof so that said striker is movable in the space between them, whereby upon said rotary element being given a rotary movement in reverse direction, said rotary element with said two parts coact with and act upon said spring arm in reverse direction and said striker is caused to be impacted against said second sounding element.

10. A signaling apparatus as claimed in claim 8 provided with a second sounding element spaced from said first sounding element and to that side thereof so that said striker is movable in the space between them, and means limiting the rotary movement of said rotary element to a certain angle of rotary movement within which said rotary element may be oscillated to effect successive impacting of said striker against said two sounding elements, said other part of said rotary element and said spring arm coacting reversibly to effect snap action during either stroke of oscillation.

11. A signaling apparatus comprising a main support anchoring at one end a spring arm having a striker at its other end, whereby said spring arm may flex relative to its anchored end, a vibratable sounding element having means mounting it in position to be struck by said striker upon sufficient flexing of said spring arm, a push button, means supporting said push button from said main support for movement in a direction transverse to the plane in which said spring arm is flexed to effect impacting of said striker upon said sounding means, and operating connections between said push button and said spring arm for translating the movement of said push button into a flexing of said spring arm to cause said striker to impact said sounding means.

12. A signaling apparatus comprising a main support anchoring at one end a spring arm having a striker at its other end, whereby said spring arm may flex relative to its anchored end, a vibratable sounding element having means mounting it in position to be struck by said striker upon sufficient flexing of said spring arm, a manually operable member, means mounting said member relative to said main support to permit it to be manually moved about an axis, and operating connections between said manually operable member and said spring arm for translating the swinging movement of said manually operable member into a flexing of said spring arm to cause said striker to impact said sounding means.

13. A signaling apparatus comprising vibratable sounding means having two spaced parts, a striker, means movably supporting said striker for movement along a path to strike first one part and then the other, a manually operable member, means movably supporting said member for actuation manually in one direction, there being a spring opposing movement of said member in said first-mentioned direction and operating to move said member in reversed direction, whereby said member in response to an initial manual actuation partakes of two successive strokes of movement, and operating connections between said manually operable member and said striker for translating movement of said manually operable member into successive suddenly releasable blows of said striker first against one of said parts and then against the other of said parts, said operating connections comprising spring means and means for tensioning said spring means in response first to manual movement of said manually operable member and then in response to movement of said member by its spring and thereby having energy stored in said spring means in response to each stroke of movement of said manually operable member, with means operating in response to each stroke of movement of said manually operable member for relatively quickly releasing the energy stored in said spring means during the said stroke of movement of said manually operable member to effect striking movement of said striker.

14. A signaling apparatus comprising a main support having mounted thereon and on one side thereof a chime bar and a striker, said striker

being provided with means movably supporting said striker from said main support for movement toward and away from said chime bar, said main support having a mounting means extending therefrom but on the other side thereof and of sufficient length to pass through a hole in a supporting panel, wall, or the like, from one side of the latter and to expose its free end on the other side thereof, said mounting means providing guiding bearing means for, and having movably supported therein, a manually movable member exposed through the free end thereof, whereby it may be manually actuated from the said other side of said panel, wall, or the like, and mechanism for causing actuation of said manually movable member to effect a striking of said chime bar by said striker, said mechanism including spring means with means for tensioning said spring means and storing energy therein in response to actuation of said manually operable member and means for releasing the energy stored in said spring means for thereby translating the movement of said manually operable member into a substantially sudden blow or impact of said striker against said chime bar.

15. A signaling apparatus comprising a support having supported thereby a plurality of vibratable sounding elements, striker means, a manually movable member having means movably supporting said manually movable member with respect to said support, there being a spring acting upon said movable member to oppose movement thereof in one direction and to effect return movement thereof, whereby said manually movable member partakes of at least two strokes of movement for each manual actuation thereof, and mechanism operated in response to movement of said movable member for actuating said striker means to effect successive sound emitting vibration of said sounding elements, there being one actuation of said striker means for each stroke of movement of said manually movable member, said mechanism comprising spring means, means operating in response to each stroke of movement of said manually movable member for storing energy in said spring means, and means effective during each stroke of movement of said manually movable member to release the energy stored in said spring means during the corresponding stroke of movement to actuate said strike means.

16. A signaling apparatus comprising two spaced vibratable sounding elements, striker means, means movably mounting said striker means so as to be capable of movement into striking engagement with said sounding elements, an operating element, means movably mounting said operating element for movement in two strokes, spring means operatively related to said operating element to have energy stored therein in response to one stroke of movement thereof and upon release of the stored energy to give said operating element movement through its other stroke, and mechanism responsive to the said two strokes of movement of said operating element for translating the said strokes of movement thereof into a succession of two movements of said striker means to effect first striking of one, and then a striking of the other, of said two spaced sounding elements, said mechanism including a reversible snap-action spring means which, in response to each of said strokes, is first tensioned to store energy therein and then has its stored energy released.

17. A signaling apparatus comprising an enclosing casing having striker means therein, said casing having secured thereto, a sleeve member projecting from one wall thereof whereby said sleeve member may be entered through a hole in the panel of a door or the like, said sleeve member having threads and a nut coacting with the latter for clamping said panel between said nut and said one wall of the casing, said sleeve member having projecting from its free end movable means, an auxiliary support interposed between the external face of said panel and said nut, said auxiliary support having movably mounted thereon manually movable means having a part cooperatively related to said first-mentioned movable means to actuate the latter, and means responsive to movement of said first-mentioned movable means for actuating said striker means.

18. A signaling apparatus as claimed in claim 17 in which said manually movable means is in the form of a movable lever-like member and is mounted on said auxiliary support by a pivotal connection therebetween, the part of said manually movable means that is cooperatively related to said first-mentioned movable means comprising one of the arms of said lever-like member.

19. A signaling apparatus comprising vibratable sounding means having two spaced parts, a striker having means movably supporting said striker for movement along a path to strike first one part and then the other and including spring means acting upon said striker and mechanism includinging reversible rotary means for storing energy in said spring means during a first portion of the stroke of rotary movement thereof and for releasing the stored energy during a later portion of its stroke, thereby to cause said striker to strike one of said spaced parts with a substantially suddenly released blow, means for manually giving said rotary member a rotary movement in one direction, thereby to cause said mechanism and spring means to effect striking of said one part as aforesaid, and spring means that is tensioned in response to actuation of said manual means for effecting rotary movement of said rotary member in reverse direction upon release of said manual means to thereby cause said mechanism and said first-mentioned spring means to effect striking of the other of said spaced parts.

20. A signaling apparatus comprising two vibratable sounding elements, striker means, a movable control element and an opposing spring therefor whereby said control element is movable in two strokes, one of which is in a direction to store energy in said spring and the other is in reverse direction under the action of said spring, and reversibly acting mechanism, including spring means, for actuating said striker means and responsive to one stroke of movement of said control element for storing energy in said spring means and relatively quickly releasing said stored energy to effect striking of one of said sounding elements and responsive to the succeeding stroke effected by said spring for again storing energy in said spring means and relatively quickly releasing said stored energy to strike the other of said sounding elements.

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