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ELECTRIC CHIME WITH ACOUSTIC MEMBERS
GIVING OUT DIFFERENT TONES
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Fig. 1

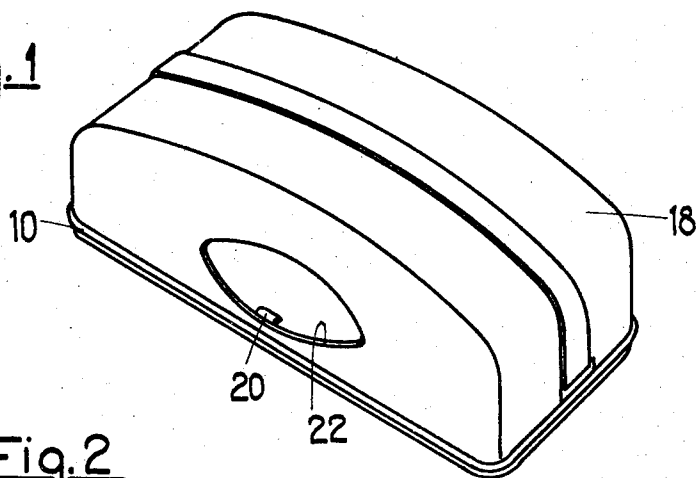


Fig. 2

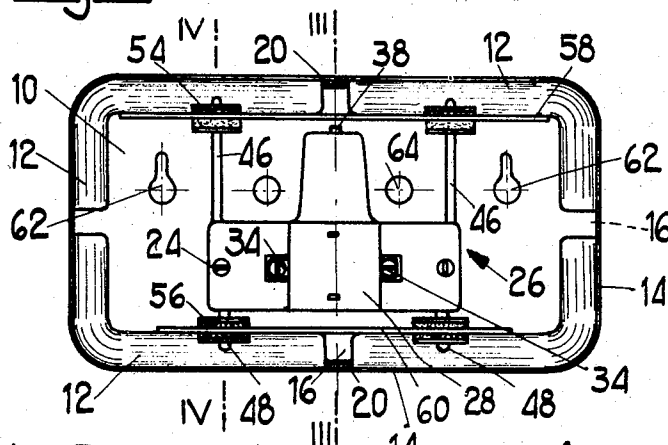


Fig. 3

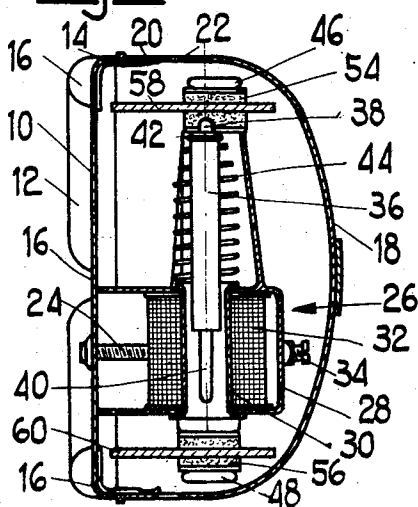
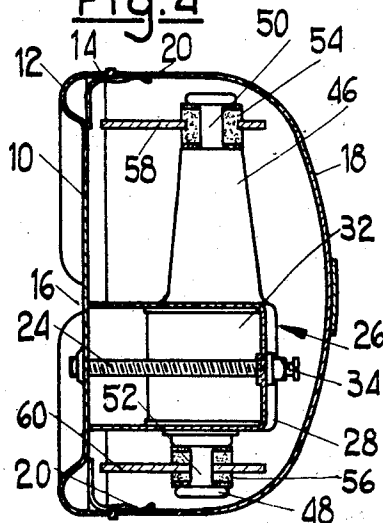


Fig. 4



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ELECTRIC CHIME WITH ACOUSTIC MEMBERS GIVING OUT DIFFERENT TONES

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2 Claims. (Cl. 340—392)

This invention relates to an electric chime, by which an acoustic signal with two or more tones is emitted, whereby the differences amongst the acoustic signals emitted as a plurality of different tones can be easily appreciated, while an agreeable tone is always transmitted.

The bell according to the invention is characterized by one electric winding, combined with an iron core provided with a striker and fitted between at least two acoustic or ringing members whereby, when current is fed into said winding, the striker will alternately act on either of said acoustic members.

According to the invention, the electric winding takes the form of a solenoid, and the iron core is provided with a striker on both ends thereof acting on the associated acoustic members arranged opposite one another and between which the solenoid is fitted.

The acoustic members are advantageously shaped as laminated plates or blades, and are kept in place by resilient supports.

The invention will be now disclosed in the following description, taken with the accompanying drawing, wherein a preferred embodiment of the chime is shown.

Fig. 1 is a perspective view of the electric chime.

Fig. 2 is a front elevation of the chime, with the cover removed.

Figures 3 and 4 respectively are sectional views along the lines III—III and IV—IV of Fig. 2.

Referring now to the figures, the chime unit as shown comprises a base 10 having ribs ending in folded edges 14 all along its outer contour. The ribs are directed to the outside of the base of the casing, thereby acting as spacers between the wall on which the chime unit is fitted and the base thereof. Cut outs are also made on the longitudinal and transverse sections of said ribs, thereby forming openings through which the electric leads are passed.

The cover 18 fitted on the base has a folded edge engaged with the peripheral groove formed by the ribs 12 and abutting the folded edge 14.

The cover 18 is kept in place by means of resilient spring clips 20 mounted on the base 10.

Openings 22 are cut in the longer side walls of said cover, for purposes which will be hereinafter specified.

The operating parts of the chime, that is the acoustic members or blades and the strikers with their controlling means, are mounted on the base 10.

Such members, in the embodiment shown, are suitably connected to form a single unit, which is secured to the base 10 by means of screws 24 whereby, by simply unscrewing these latter, said unit can be removed as a whole from the base. The unit includes a box-like frame 26, made of insulating electrical material, as for instance synthetic resins.

Said frame has a central shell 28, which has a sleeve 30 extending transversely therethrough (see Fig. 3). Said sleeve forms the core of an electric winding 32, the ends of which are secured to associated terminals 34

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that are fitted outside the shell 28, to allow connection of the leads be easily made thereto.

The position of the winding 32 is clearly shown in Fig. 3. More precisely, the sleeve 30 is inserted into the holes in the side walls of the shell 28 and secured in place by suitable means, such as for instance by flanging the ends thereof. A magnetic core 36, having striking heads 38, 40 on both ends, is slidably fitted inside the sleeve 30. Said striking heads could be advantageously made of yielding non-metallic material, such as wood, fibres or the like.

The end of said core 36 outside of the sleeve has thereon a collar 42 to hold one end of a spring 44 coiled around said core, and the opposite end of which is secured on the outside wall of the shell 28. Said spring holds the other end of core 36 within the end of sleeve 30 for purposes which will be hereinafter stated.

A plurality of pairs of uprights 46 and of uprights 48 respectively, are fitted on the said box-like frame 26 near the ends thereof (see Fig. 4). Narrow sections 50 and 52 are formed on the free ends of each of said uprights.

Resilient sleeves 54, and 56, made of suitable material, such as for instance sponge rubber or the like are seated on each of said narrow sections.

The middle peripheral portion of said resilient sleeves is resiliently engaged with suitable openings cut in chime bars 58 and 60, which have different frequencies of vibration and therefore different tones. Such chime bars act as acoustic members when struck by the magnetic core 36.

Pairs of holes 62, 64 are cut in the base 10, the holes 62 being for the purpose of hanging the bell on a wall or the like, and the holes 64 allowing passage of the electric leads to be brought into the chime and clamped to terminals 34.

The operation of chime is as follows. When the electric circuit connected to terminals 34 is closed, a current will flow through the winding 32, and the magnetic core 36 is drawn into the sleeve against the action of spring 44 by the generated magnetic field. The drawing action of the solenoid 32 on the core 36 causes lower striking head 40 to strike against the chime bar 60. By opening said circuit the upper head 38 is permitted strike against chime bar 58, and a different tone is given out. The striking heads 38, 40 will contact the chime bars 58 and 60 a very short time due to the kinetic energy of core 36 when it is drawn by the magnetic force, and then when it is restored by the spring 44. More precisely, said core is made in such a manner that, when it is drawn into the sleeve by the magnetic force, it will be affected by the solenoid only until it reaches a position in which only a very narrow space remains between the head 40 and the chime bar 60, and the same is true with respect to head 38, when said core is in its rest position.

It is to be understood that modifications and changes may be made in the aforescribed and illustrated electric chime device, according to the features and requirements of its use and application. Thus, for instance, a contact, series-connected with the winding 32, could be controlled by the core 36 in order to interrupt the circuit by which said winding 32 is energized when the core is drawn, thereby causing the winding to be excited again.

It is thought that the invention and its advantages will be understood from the foregoing description and it is apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing its material advantages, the form hereinbefore described and illustrated in the drawings being merely a preferred embodiment thereof.

I claim:

1. An electrically operated chime producing separate tones comprising a box-like frame, a sleeve transversely mounted through said frame, a magnetic core slidable in said sleeve, at least one electric winding around said sleeve, at least two uprights mounted on said frame and projecting therefrom in a direction parallel to the direction of said sleeve, a chime bar resiliently mounted on the said supports adjacent the free ends thereof, and a spring mounted between said core and said frame urging said core out of said sleeve toward said chime bar.

2. An electrically operated bell as claimed in claim 1 and a base on one side of which said box-like frame is removably secured, spacing members on the other side of said base for spacing said base from a wall, and a

cover fitting on said base and over the other parts on said base, said cover having an opening therein for permitting passage therethrough of the sound waves produced when said magnetic core strikes said chime bar.

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