Sept. 2, 1958 L. BASSANI 2,850,724

ELECTRIC CHIME WITH ACOUSTIC MEMBERS GIVING OUT DIFFERENT TONES

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Fig. 1

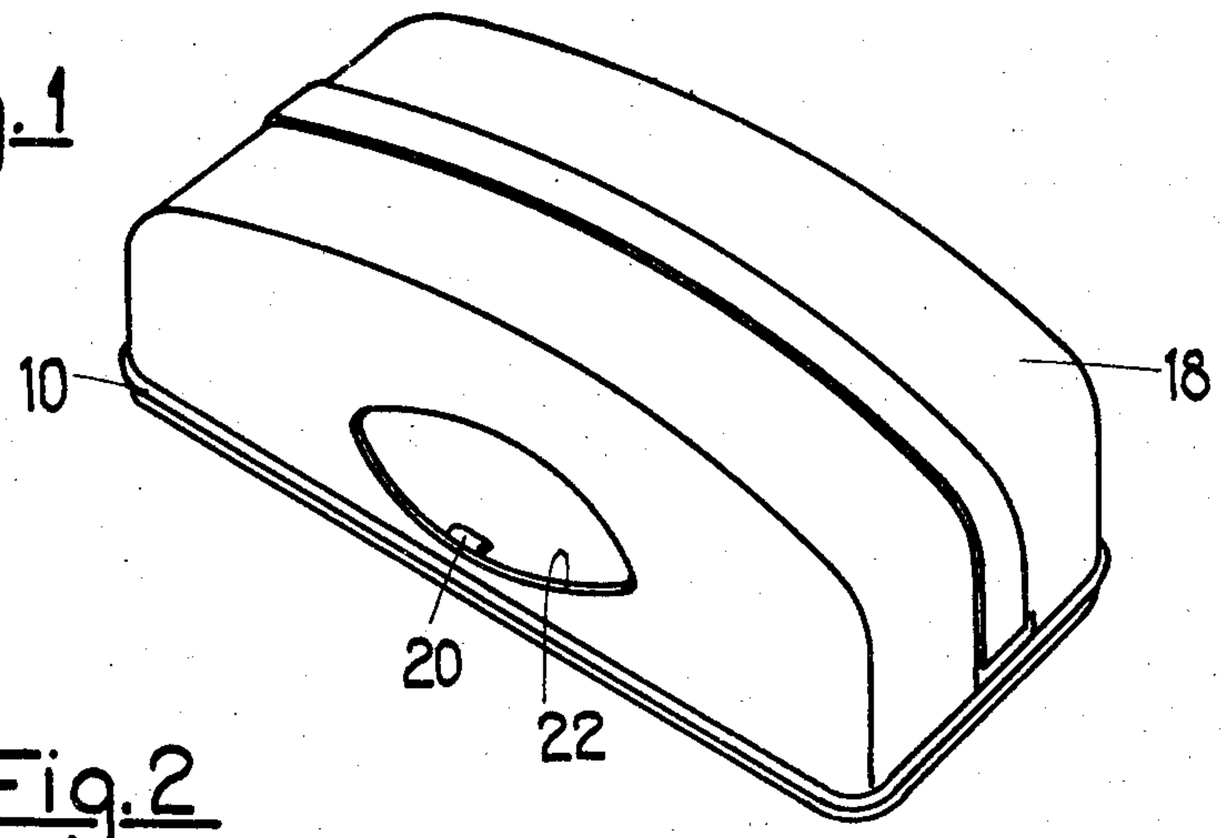


Fig. 2

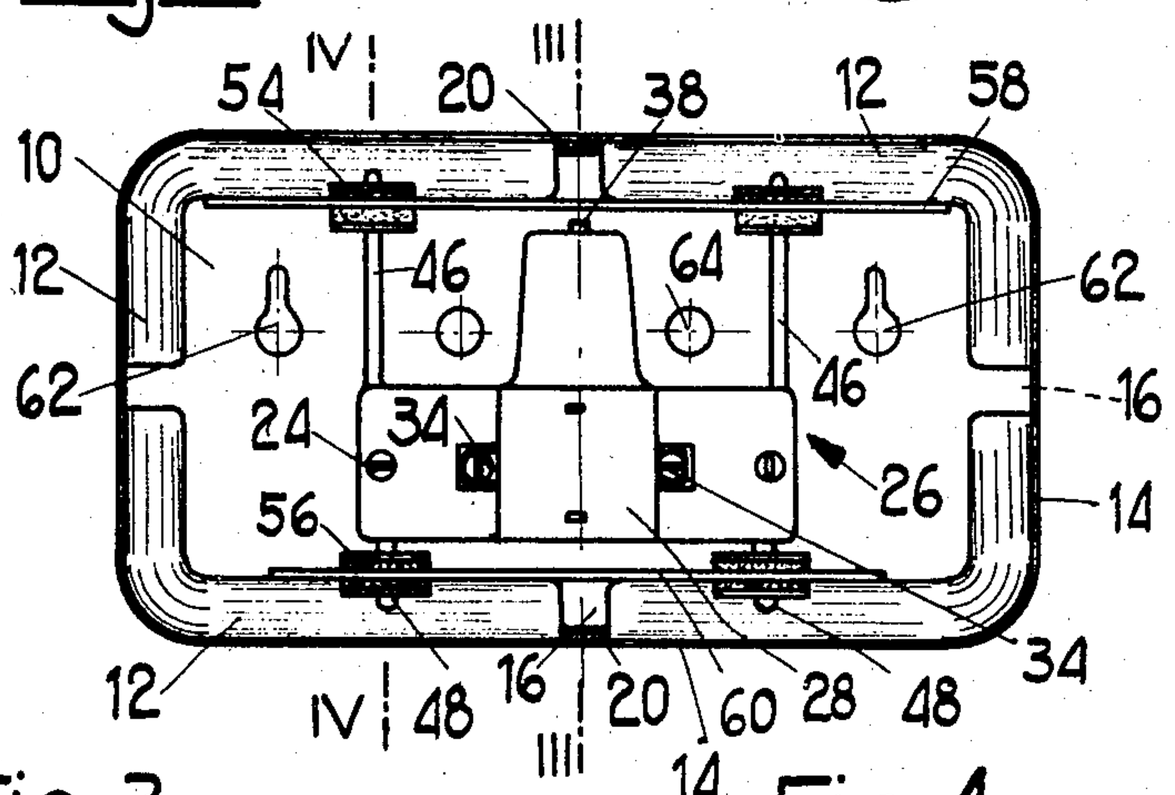


Fig. 3

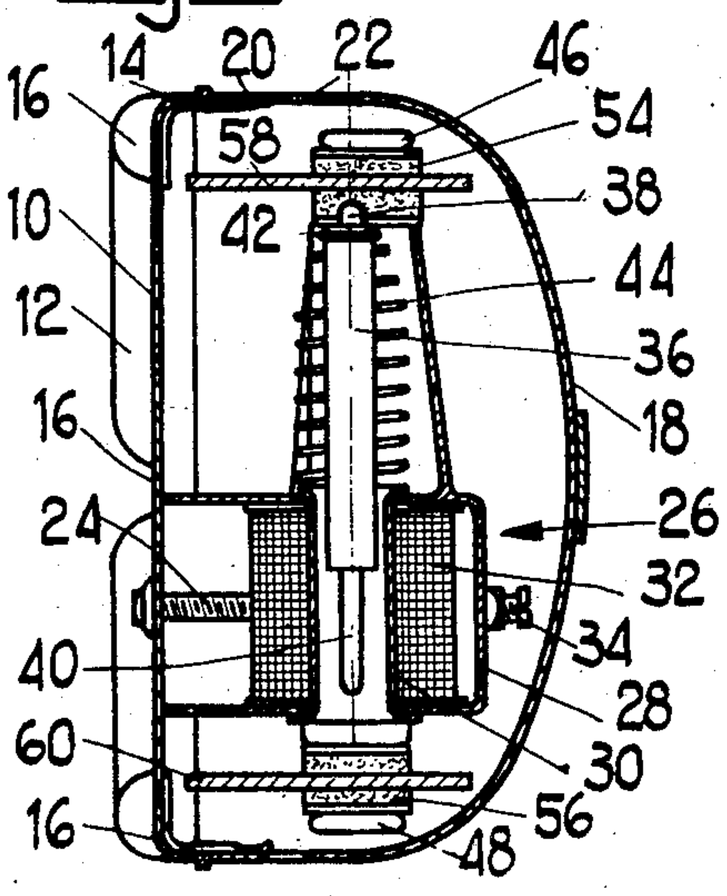
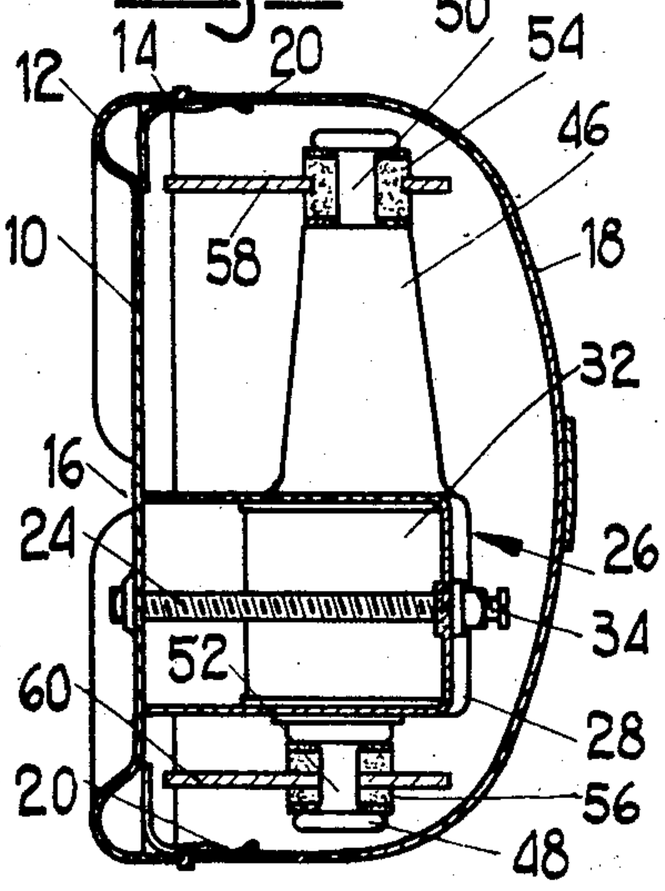


Fig. 4



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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 periperal 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**

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 aforedescribed 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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