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F. H. OWENS

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SOUND REPRODUCING DEVICE

Filed May 22, 1930

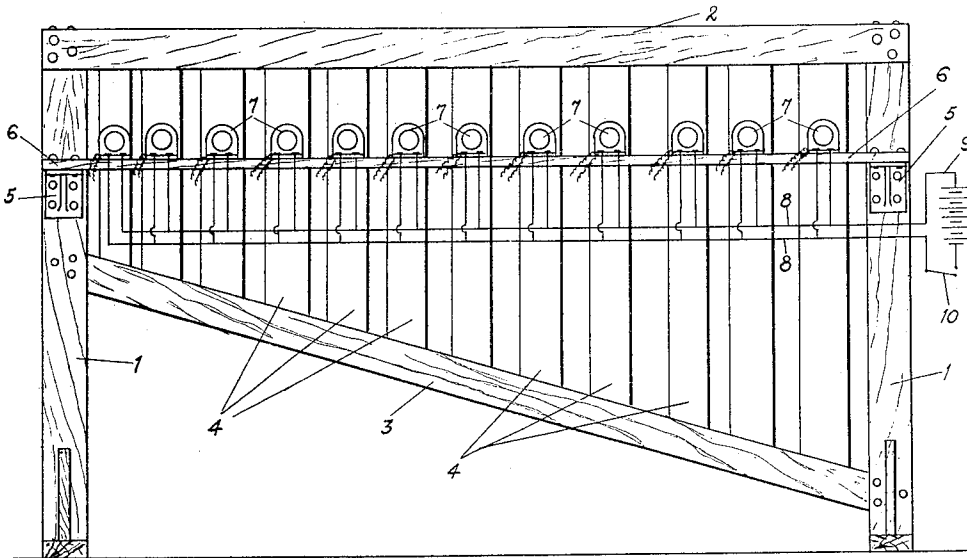


Fig. 1.

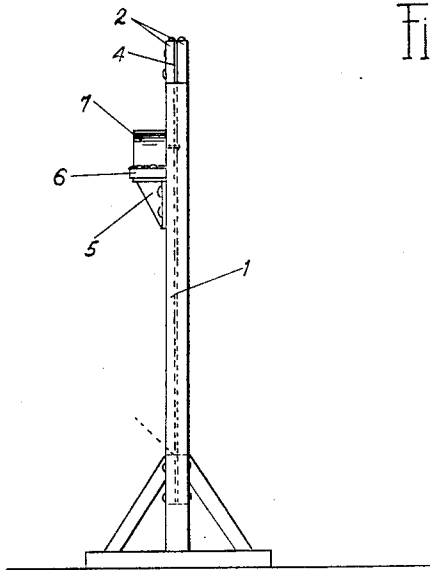


Fig. 2.

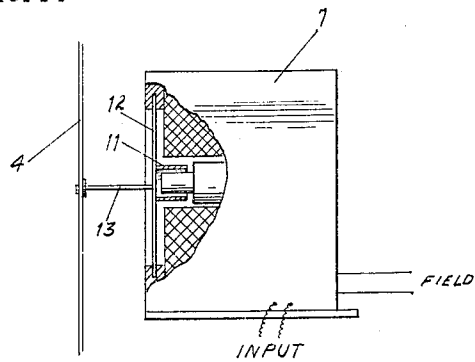


Fig. 3.

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UNITED STATES PATENT OFFICE

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SOUND REPRODUCING DEVICE

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This invention relates to improvements in sound recording devices, the principal object of the invention being to provide a device of this character by means of which a composite reproduced sound is produced having a wider range of frequency than was possible heretofore.

Other objects and advantages of the invention will appear as the description proceeds.

In the drawing accompanying this specification,

Figure 1 is a partly diagrammatic front view of a device embodying the features of the present invention.

Figure 2 is an end elevation thereof.

Figure 3 is a broken away side view of a loud speaker illustrating the connection of said speaker with the associated diaphragm forming a feature of the invention.

Referring to the drawing, 1 designates a pair of uprights or standards which are connected together at their upper ends by a cross member 2. The standards are further connected by an inclined member 3 secured at one end to one of said standards adjacent the lower end thereof, and at its opposite end to the other standard approximately midway of its height. The members 1, 2 and 3 thus form between them a frame which is of considerably greater depth at one end than at the other. The cross members 2 and 3 support between them a plurality of diaphragm members 4 spaced apart from each other and each of a length different from its companions. These diaphragms of different effective areas as described are made of some suitable sound responsive medium, such for instance as paper, glass, wood, metal, membrane, parchment or any other suitable material.

Mounted on each of the standards 1 is a bracket 5, on which is supported at its opposite ends a shelf 6, said shelf extending across the entire length of the frame in front of the diaphragm members 4. Supported on said shelf are a plurality of loud speakers 7, one disposed in front of each of said diaphragm members, which speakers may be connected either in series or parallel with any suitable

amplifier (not shown) from which electrically translated sound impulses emanate. The speakers may also be connected by wires 8 with a battery 9 or other source of current supply for exciting the fields of the speakers, the circuit including a switch 10.

As shown in Figure 3, each of the loud speakers is provided with a voice coil 11 secured to a diaphragm 12, which diaphragm in turn is connected by a rod or pin 13 with the particular diaphragm 4 with which the loud speaker is associated.

From the foregoing it will be seen that I have provided an assembly of loud speakers each operatively connected with a diaphragm sounding board of a length different from that of all of its companions so that the acoustic responses of said diaphragms to the vibrations of the diaphragms 12 of the loud speakers will differ in proportion to the length of the diaphragms 4. The assembly will thus produce a composite reproduced sound of a wider range of frequencies than would be possible by the use of diaphragms of equal length.

I claim:

1. A sound reproducing device, comprising in combination, a frame having a horizontally disposed member and a member inclined to said horizontal member, a plurality of diaphragms of different lengths supported between said members in spaced relation to each other, and a plurality of loud speakers supported on said frame and each operatively connected with one of said diaphragms.

2. A sound reproducing device comprising, in combination, a frame having a horizontally disposed member and a member inclined to said horizontal member, a plurality of substantially uniform loud speakers having substantially uniform diaphragms supported on said frame, and a plurality of sound responsive diaphragms of different lengths supported between the horizontal member and the inclined member and individually and operatively connected to the diaphragms of said loud speakers.

3. A sound reproducing device comprising in combination a supporting frame, a plu-

rality of substantially uniform loud speakers having substantially uniform diaphragms, a plurality of independent sound responsive diaphragms of varying resonant properties supported on said frame and individually and operatively connected to the diaphragms of said loud speakers.

In testimony whereof, I affix my signature.
FREEMAN H. OWENS.

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