

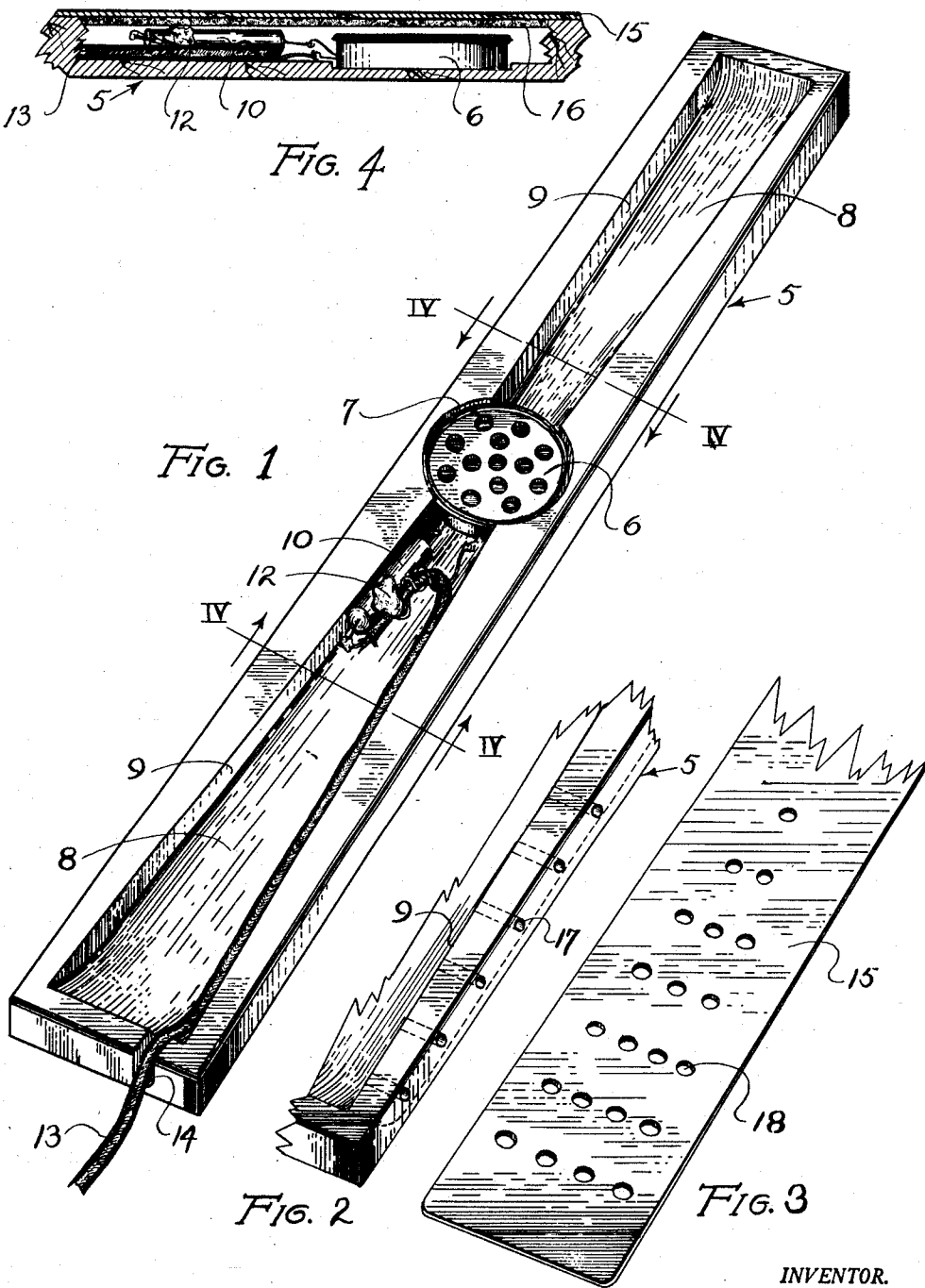
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S. MICHAEL

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PICK-UP FOR MUSICAL INSTRUMENTS

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INVENTOR.
STANLEY MICHAEL
BY *[Signature]*
ATTORNEY.

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PICK-UP FOR MUSICAL INSTRUMENTS

Stanley Michael, East Orange, N.J., assignor to Sound-tronic Corporation of America, Belleville, N.J., a corporation of New Jersey

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The present invention relates to "pick-ups" which term is now well recognized in the art as a microphone adaptable to a musical instrument, such as a piano, accordion, or the like, with the pick-up being connected to an electronic amplifier for broadcasting of music originating at the musical instrument carrying the pick-up.

Devices of this type as heretofore employed in the art have comprised an elongated metal housing having a plurality of individual microphones encased therein at spaced distances along the length thereof and connected to the amplifier. Several disadvantages have been inherent in these prior art pick-ups requiring substantially expensive design in an effort to eliminate. For example, the housing being of metal must be dampened to reduce resonance and extraneous sound to a minimum which is otherwise transmitted to the amplifier with accompanying fidelity distortion. Moreover, the use of a plurality of spaced microphones constitutes cost duplication and yet has been heretofore necessary in order for the microphones to pick-up the various tones comprising the entire span of the piano sound-board or accordion reed-bank.

It is accordingly an object of the present invention to provide a pick-up for musical instruments wherein resonance is confined to a minimum and but a single microphone may be employed.

Another object of the present invention is the provision of an elongated pick-up for musical instruments which is preferably constructed of a non-metallic material to confine resonance and extraneous sound to a minimum and which accordingly transmits with fidelity all the tones emanating from the musical instruments.

Another object of the present invention is the provision of a pick-up for musical instruments which is desirably an elongated non-metallic housing to confine resonance of the housing and extraneous sound to a minimum so as to transmit with fidelity all the tones emanating from the musical instrument all of which is achieved by the employment of but a single microphone within the elongated housing.

Still further objects of the present invention will become obvious to those skilled in the art by reference to the accompanying drawing wherein:

Figure 1 is a perspective view of the elongated pick-up of the present invention with the top of the housing removed,

Fig. 2 is a fragmentary perspective view of a portion of the pick-up as shown in Fig. 1 and showing a modification which the present invention may take,

Fig. 3 is a fragmentary perspective view of the top of the elongated housing of Fig. 1, and

Fig. 4 is a fragmentary sectional view taken at the lines IV—IV of Fig. 1 and looking in the direction indicated by the arrows.

Referring now to the several figures of the drawing more in detail, the elongated pick-up of the present invention therein shown comprises a housing 5 which may

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be formed of metal but more desirably of a plastic material, although I prefer to form it of a softer, lighter, and more porous material, such as balsa wood. As shown, such housing is provided with a microphone 6 securely nested within a recess 7 located at approximately the center of the elongated housing 5. Extending from adjacent each end of the housing 5 is a trough 8, the side walls 9 of which are shown converging in the direction of the centrally disposed microphone 6 and which trough is of substantially uniform depth throughout its length, except at the outer ends thereof where they are curved upwardly as shown.

The microphone 6 is connected to a condenser 10, secured inside the trough 8 by a suitable cement or the like 12 to prevent movement or vibration thereof, and a conductor 13 extends longitudinally along one side of the trough 8 and through a notch 14 in one end of the housing 5, to the amplifier and controls with which the pick-up is normally used. A cover-plate 15, which in the embodiment as shown also comprises a thin piece of balsa wood, completely closes the housing with its contents and on the underside of such cover plate 15 it is provided with a dampening member 16 of felt, or the like, to eliminate resonance of the cover plate 15 due to its thinness.

By using a non-metallic material, and preferably balsa wood, for the housing 5, it can be readily mounted upon the musical instrument, such as a piano, accordion, or the like, adjacent to the sound-board or reed-bank thereof without such housing itself producing any appreciable resonance or being responsive to extraneous sound. However, in order for the internally disposed microphone to pick up the sound waves resulting from the various note tones of the musical instrument, the housing must be provided with an opening. It has been found from tests that for best reception of such sound waves, the housing 5 is preferably provided with a series of relatively small openings, rather than one or more large openings. Also, such openings 17 may be provided in the side wall of the housing 5, and which also comprises the side walls 9 of the trough 8, as shown in Fig. 2, or openings 18 may be provided in the cover-plate 15 as shown in Fig. 3.

Regardless of which modification is employed so far as the openings 17 or 18 are concerned, the openings 17 are of course provided in both side walls 9 of the trough 8 and from each end of the housing 5 for an appreciable distance toward the centrally disposed microphone 6, to assure the sound waves entering the trough 8 and travelling to the microphone 6. The same also generally applies in connection with the modification shown in Fig. 3, since the small openings 18 in the cover-plate 15 extend in rows from each end thereof in the direction of the centrally positioned microphone 6. It will be noted, however, from Fig. 3 that the number of the openings 18 in each row decrease in number toward the position of the microphone 6, which thus produces a substantial convergence of such openings 18 to keep them in communication and within the confines of the converging walls 9 of the trough 8.

Also, like the openings 17 in Fig. 2, the openings 18 in the cover-plate 15 stop about adjacent the outer ends of the dampening member 16 (Fig. 4) and which is thus short of the inner ends of the trough 8 where the centrally disposed microphone 6 is positioned, so that the sound waves entering the housing 5 through either the openings 17 or 18, do not then come into direct contact with the microphone 6 but on the contrary must travel at least some distance longitudinally of the trough 8 before reaching the microphone. In so doing, the housing 5 itself functions to dampen extraneous sound, apparently by something akin to absorption due to its

soft, porous nature, and allowing only the tone notes of the musical instrument to be picked up which are then transmitted with fidelity to the amplifier.

It should thus become obvious to those skilled in the art that a pick-up for musical instruments is provided by the present invention which can be readily mounted on such instrument adjacent the sound-board or reed-bank and being of a non-metallic material all resonance and extraneous sound is confined to a minimum. Moreover, by employing but a single microphone and yet spanning the entire width of the sound-board or reed-bank with the non-metallic pick-up all sound waves produced by the musical instrument are transmitted with the highest of fidelity to the controls and amplifier for the broadcast of the music as actually played by the musician.

Although several embodiments of the present invention have been shown and described, it is to be understood that still further modifications thereof may be made without departing from the spirit and scope of the present invention.

I claim:

1. A pick-up for musical instruments comprising a closed elongated housing provided with a microphone disposed substantially centrally of the interior thereof, a trough in one of the walls of said closed housing extending longitudinally from each end thereof to said centrally disposed microphone, and a plurality of small spaced openings in one of the walls of said closed housing and extending therealong from each end for a substantial distance toward said centrally disposed interior microphone and in communication with said trough for transmitting sound waves through said small spaced openings and along said trough from each end of said housing to said centrally disposed microphone.

2. A pick-up for musical instruments comprising a closed elongated housing provided with a microphone disposed substantially centrally of the interior thereof, a trough in one of the walls of said housing extending longitudinally from each end thereof and having its walls converging in the direction toward said centrally disposed microphone, and a plurality of small spaced openings in at least one of the walls of said closed housing and extending therealong from each end for a substantial distance toward said centrally disposed interior microphone and in communication with said trough for transmitting sound waves through said small spaced openings and along said trough from each end of said housing to said centrally disposed microphone.

3. A pick-up for musical instruments comprising a closed elongated housing of soft, light, non-metallic, material and provided with a microphone disposed substantially centrally of the interior thereof, a trough in one of the walls of said closed housing extending longitudinally from each end thereof to said centrally disposed microphone, and a plurality of small spaced openings in one of the walls of said closed housing and extending therealong from each end up to a short distance each side of said centrally disposed microphone and in communication with said trough for transmitting sound waves through said small spaced openings and along said trough

from each end of said housing to said centrally disposed microphone.

4. A pick-up for musical instruments comprising a closed elongated housing of rectangular cross-section and of a relatively soft, light, non-metallic material, a microphone disposed interiorly of said closed housing at substantially the center of its length, a trough in one of the walls of said closed housing extending longitudinally from each end thereof to said centrally disposed microphone, and a plurality of small spaced openings in the narrow-width side walls of said rectangular closed housing and extending therealong from each end for a substantial distance toward said centrally disposed interior microphone but a short distance from the latter and said small spaced openings communicating with said trough for transmitting sound waves through said openings and along said trough from each end of said housing to said centrally disposed microphone.

5. A pick-up for musical instruments comprising a closed elongated housing of rectangular cross-section and of a relatively soft, light, non-metallic material, a microphone disposed interiorly of said closed housing at substantially the center of its length, a trough in one of the walls of said closed housing extending longitudinally from each end thereof to said centrally disposed microphone, and a plurality of small spaced openings in one of the widest side walls of said rectangular closed housing and extending therealong from each end for a substantial distance toward said centrally disposed microphone but stopping a short distance each side of the latter and said small spaced openings communicating with said trough for transmitting sound waves through said openings and along said trough from each end of said housing to said centrally disposed microphone.

6. A pick-up for musical instruments comprising a closed elongated housing of rectangular cross-section and of a soft, light-weight wood, a microphone disposed interiorly of said closed wooden housing at substantially the center of its length, a trough in one of the walls of said closed wooden housing extending longitudinally from each end thereof to said centrally disposed microphone, and a plurality of small spaced openings in one of the walls of said closed wooden housing and extending therealong from each end for a substantial distance toward said centrally disposed interior microphone and communicating with said trough for transmitting sound waves through said small spaced openings and along said trough from each end of said housing to said centrally disposed microphone.

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