

VIBRATION-BASED TALK-THROUGH METHOD AND APPARATUS**5 Abstract**

Hearing protectors protect the ears of its user by providing high attenuation of surrounding noise. However, nearby warning signals and speech sounds are being attenuated together with the noise. Conventional muff-type talk-through hearing
10 protectors uses a combination of external microphones, limiting amplifier, built-in speakers and muff-type hearing protectors to reduce the intensity of external noise to a safe level, allowing the user to hear external sounds. However, these headphone-type muffs impede its use together with other head-mounted protective equipment. Audio input from a bone vibrator to a user is carried by a combination of vibrations in
15 the skull bones and inter-cranial fluids directly to the cochlea of the inner ear. Bone vibrators are inherently safe, as higher driving voltage also does not translate to a higher output. A bone vibrator is used in tandem with an amplified microphone and an in-ear-type hearing protection apparatus. Output from the primary amplified microphone can be attenuated when sound levels become excessive, allowing a user
20 to continue hearing the surrounding conversations in the noise.

25 FIG. 1



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