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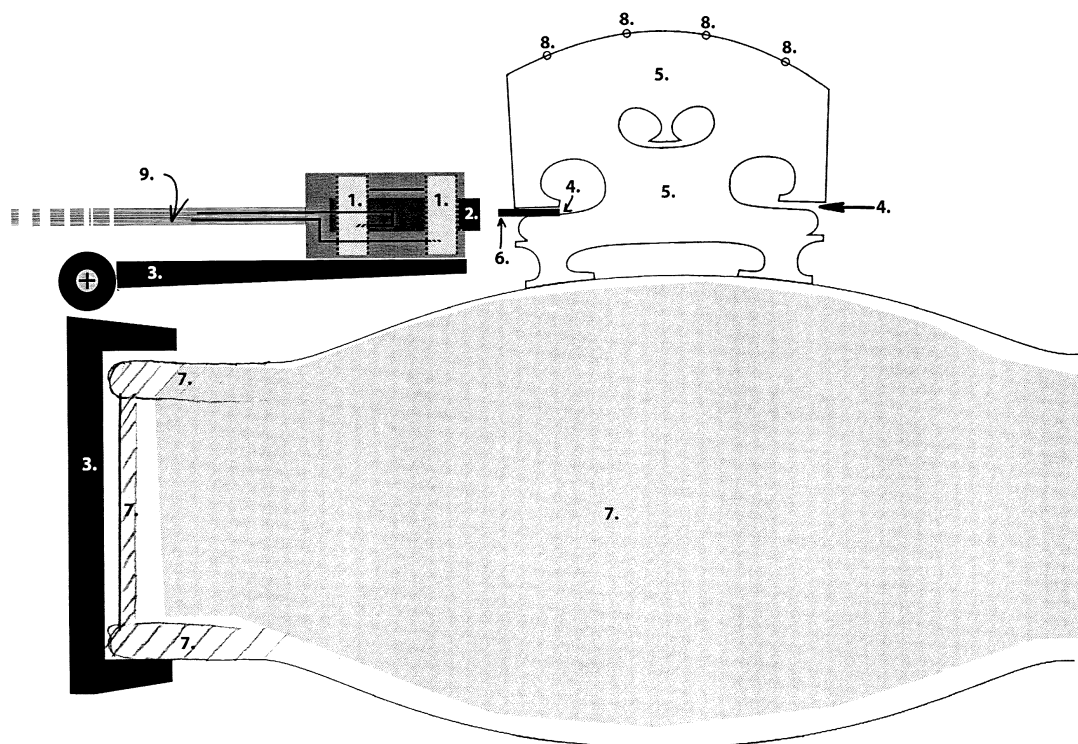
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(54) REMOVABLE ELECTROMAGNETIC TRANSDUCER FOR VIOLIN BRIDGE

(57) The described invention refers to an electromagnetic sound pickup system for violin, which captures the sound through the vibrations of the wooden parts of the instrument, namely the bridge.



Description

[0001] The described invention refers to an electromagnetic sound pickup system for violin, which captures the sound through the vibrations of the wooden parts of the instrument (7), namely the bridge (5).

[0002] Up to the present, the existing solutions include piezoelectric implants in the vibrating parts of the instrument or microphones placed near or on the instrument. Both of these solutions have advantages, as well as disadvantages. The microphones are known for their unparalleled quality in capturing and recording sound, but it is also known, that in the high volumes required during musical concerts, they have intense audio-feedback problems, which make impossible the use of them. On the other hand, the piezoelectric systems, without any significant audio-feedback problems, all impose a bad colouration on the sound, which has to do with the nature and the self-resonance of their materials. Moreover, most of the time, piezoelectric systems require the replacement of parts of the instruments as a whole, or even modifications to the instruments, even irreversible, resulting in undesirable behaviours in the sound performance of instruments and interventions in instruments' aesthetics or appearance.

[0003] The present invention attempts to provide a different solution by combining the positive characteristics of the above two solutions, i.e., high fidelity without audio feedback, in a simple construction, that can be easily mounted on the body of the instrument (7) without the slightest modification or any interference.

[0004] The complete system comprises a two coil system (1) with a ferromagnetic core and opposite windings, connected electrically in series, in combination with a permanent magnet (2) which magnet (2) is attached on the core of one of these said coils (1) and creates magnetic field around these coils (1), which coils (1) and the magnet (2) are encapsulated and fastened on the end of a removable mechanical arm (3), which arm (3) is mechanically fixed-tightened on the non-vibrating rib of the instrument and the said arm's (3) end, extends towards and in perfectly close proximity to the wing slot (4) of the bridge (5) of the instrument, without touching the said bridge (5), as well as by a ferromagnetic plate (6) which is placed and clamped into the wing slot (4) of the bridge (5) of the instrument, where, on the one hand the coil system (1) along with the permanent magnet (2) and on the other hand the plate (6), are operatively related to each other, without any physical contact between them.

[0005] In particular, the coil system (1) together with the magnet (2), both form a kind of a dynamic microphone's armature and are immovably fixed and non-vibrating, by means of the mechanical arm (3), adjacent and in perfectly close proximity to the wing slot (4) of the bridge (5) of the instrument, where the said magnet (2) is directly facing the said wing slot (4) in such a distance, in order just not to touch each other, while the said plate (6) assumes the role of the diaphragm of this microphone

as it wedges into the wing slot (4) of the bridge (5), faithfully and proportionally following the vibrations of the bridge (5) of the instrument - said vibrations are the result of playing the strings (8) of the instrument - the said plate (6) disturbing the magnetic field generated from the presence of the magnet (2) in the region of the wing slot (4) of the instrument's bridge (5) and thereby inducing electrical voltage at the ends of the coils attached to the magnet (2), which voltage is then transported by means of external wiring (9) to an amplifier and which voltage faithfully follows the sound of the instrument.

Claims

1. Electromagnetic sound pickup system for violin comprising, on the one hand a coil system bearing a permanent magnet, where the said coil system along with the said magnet are fixed in perfectly close proximity to the wing slot of the instrument's bridge and facing the said wing slot and on the other hand a metal plate with ferromagnetic properties wedged into the said wing slot of the instrument's bridge, where on the one hand the coil system bearing the permanent magnet and on the other hand the metal plate, are operatively related to each other, without any physical contact between them.

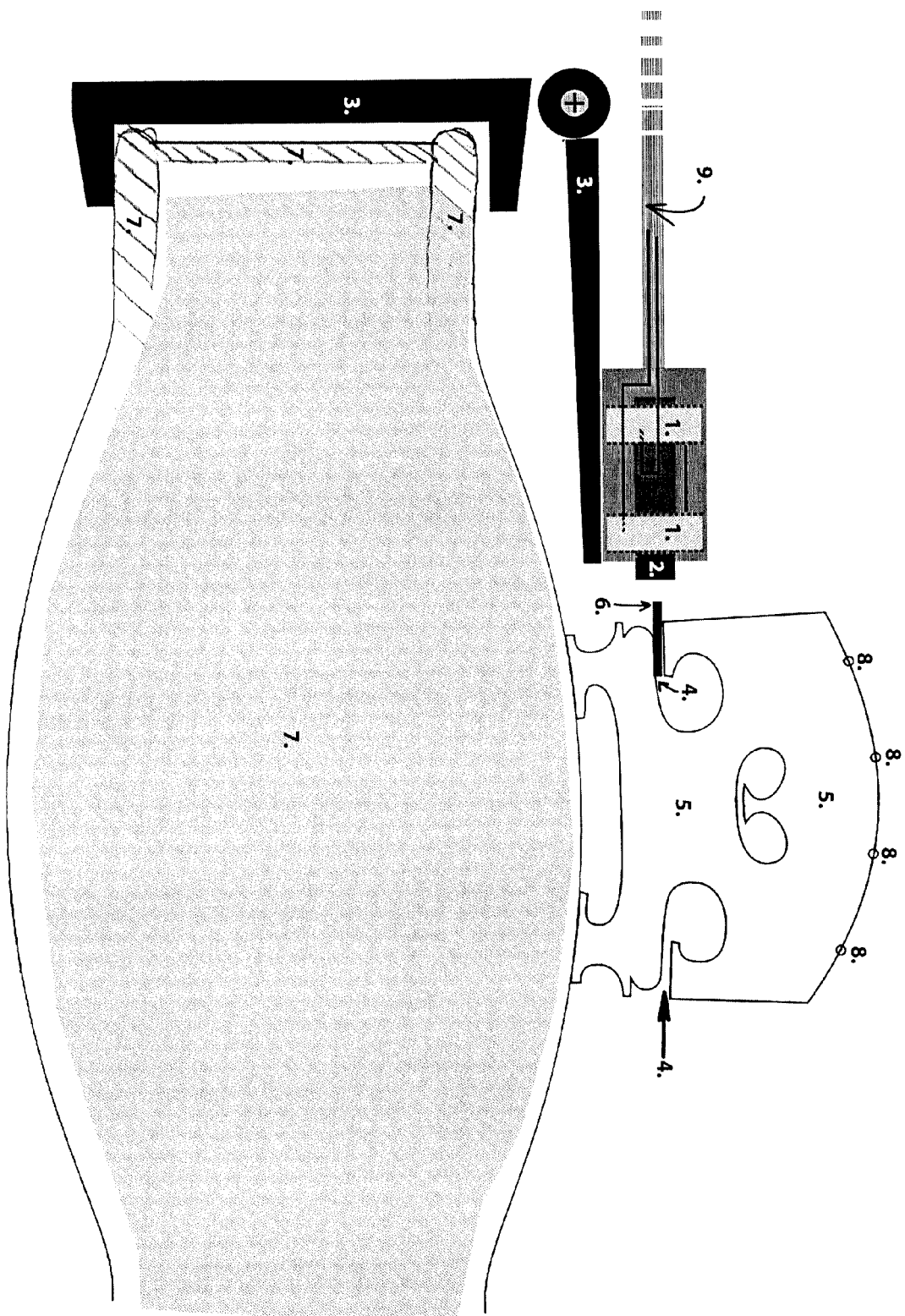


Fig. 1



EUROPEAN SEARCH REPORT

Application Number
EP 19 38 6028

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 391 292 A (HERBERT TUDOR MORGAN) 27 April 1933 (1933-04-27) * page 1, left-hand column - page 2, left-hand column; figures 1,2 *	1	INV. G10H3/18 H04R9/02
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A	CA 2 924 865 A1 (CORMIER DANIEL G [CA]) 15 September 2017 (2017-09-15) * claims 1-5; figures 1a, 1b, 2d *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			G10H G10B H04S G10D H04R
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 9 September 2019	Examiner Glasser, Jean-Marc
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 19 38 6028

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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09-09-2019

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82