June 24, 1930. L. Y. SQUIBB 1,767,410

COMBINATION TALKING MACHINE AND RADIO RECEIVING DEVICE

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Fig. 1.

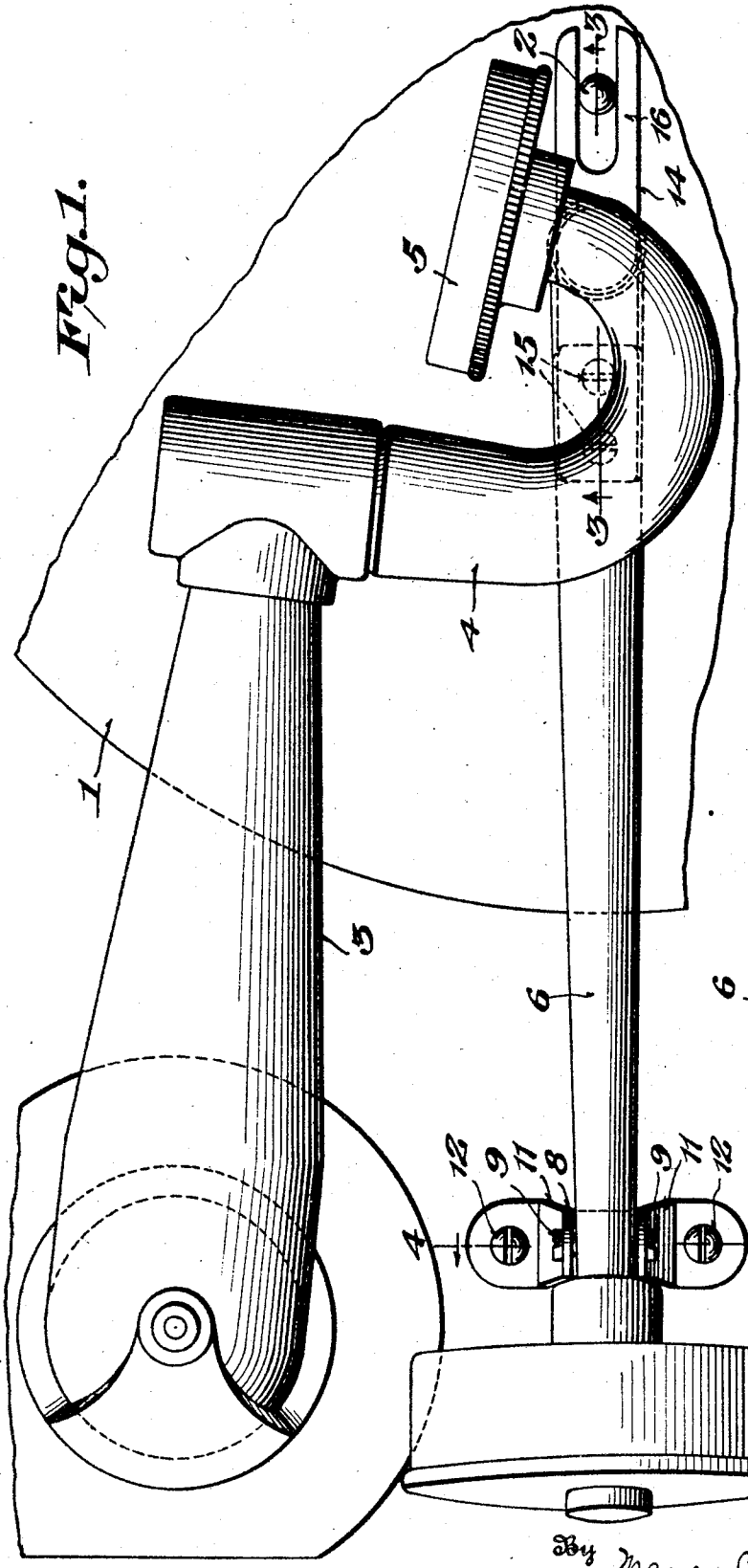
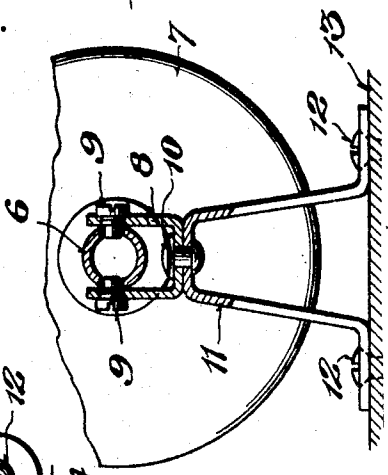


Fig. 4.



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COMBINATION TALKING MACHINE AND RADIO RECEIVING DEVICE

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Fig. 2.

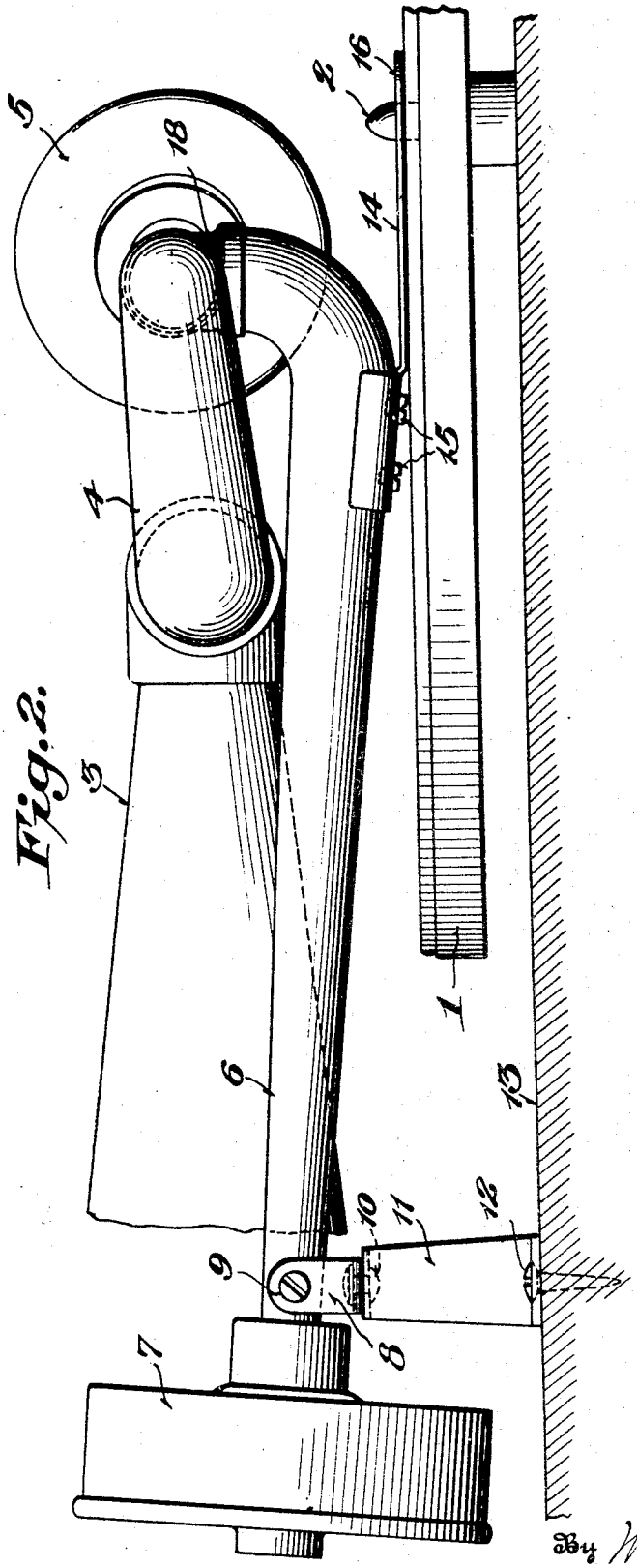
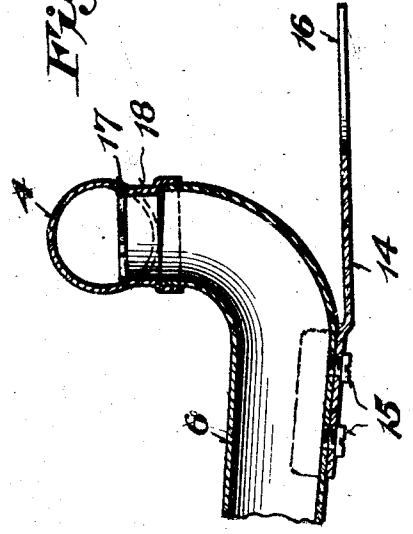


Fig. 3.



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COMBINATION TALKING MACHINE AND RADIO RECEIVING DEVICE

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Fig. 6.

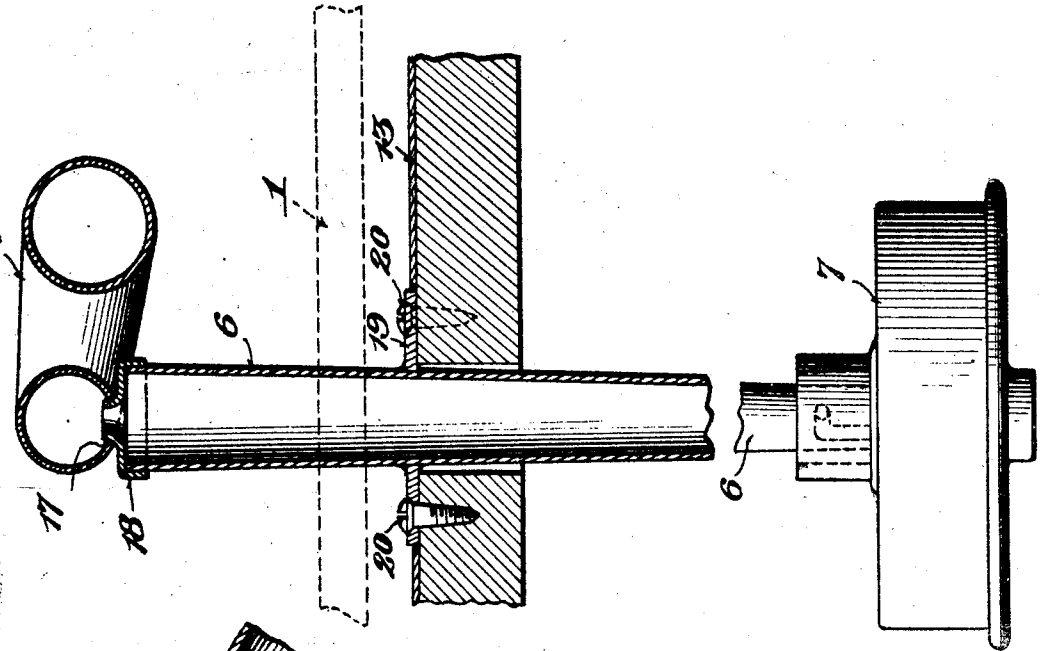


Fig. 8.

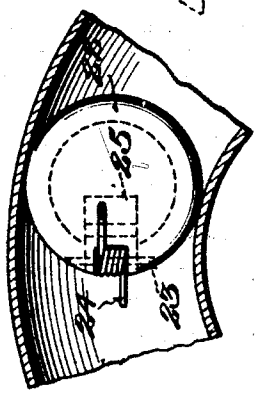


Fig. 7.

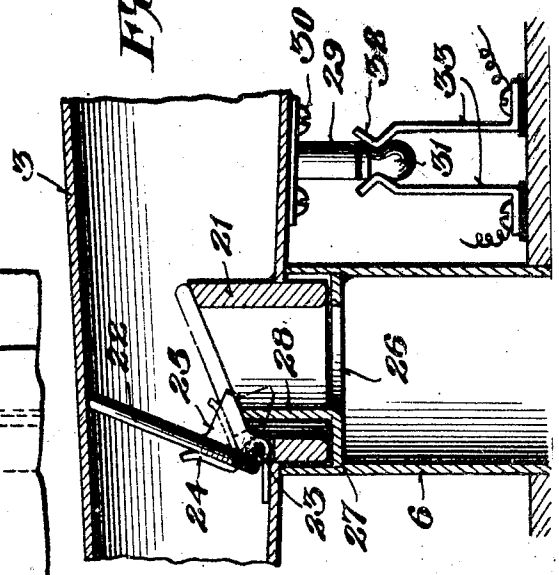
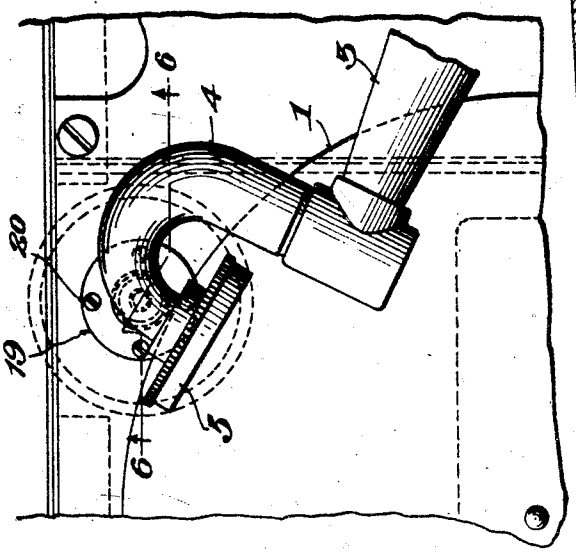


Fig. 5.



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UNITED STATES PATENT OFFICE

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COMBINATION TALKING MACHINE AND RADIO RECEIVING DEVICE

Application filed December 11, 1925. Serial No. 74,838.

This invention relates to a device for adapting the sound passages of a talking machine for use as a radio amplifier.

Devices heretofore used for this purpose have been of various types, including in general a sound tube associated with a radio receiving device and permanently connected with the sound conduit of a talking machine, combined in some cases with a flapper valve or other device for selectively bringing said sound conduit into communication either with said sound tube or with the tone arm of the machine. Other devices comprise a member adapted to be interchanged with some part of the talking machine as in the case of an interchangeable sound box and radio receiver.

An object of this invention is to provide a simple and economical means of employing the sound conduit of a talking machine as a radio amplifier. A further object is to provide a means which will enable the user, conveniently and quickly, to associate the sound conduit of a talking machine either with a record, by means of the sound box of the talking machine, or with a means of radio reception, and to readily effect the change whenever desired without removal or substitution of parts, etc.

The invention is susceptible of embodiment in various forms, some of which are illustrated in the accompanying drawings, but it is to be expressly understood that these drawings are for the purpose of illustration only and are not to be construed as a definition of the limits of the invention, reference being had to the appended claims for this purpose.

In the drawings,

Fig. 1 is a plan view of one embodiment of the invention:

Fig. 2 is an elevation of the embodiment shown in Fig. 1;

Fig. 3 is an elevation in section taken on the line 3—3 of Fig. 1;

Fig. 4 is an elevation in section taken on the line 4—4 of Fig. 1;

Fig. 5 is a plan view of another embodiment of the invention;

Fig. 6 is a detail in section taken on the line 6—6 of Fig. 5;

Fig. 7 is a detail in section of a further embodiment of the invention; and

Fig. 8 is a plan view of the embodiment of Fig. 7, various parts being removed for the sake of clearness.

Referring to the drawings, wherein like reference numerals indicate like parts, 1 is the record support of any suitable talking machine mounted in any suitable manner on a rotating spindle 2. 3 indicates any suitable tone arm, shown as provided with a gooseneck 4 and with a sound box 5. A tubular sound conduit 6, having an upwardly directed portion at the outer end thereof, is connected with any desired means of radio reception, such as the receiver 7, and is suitably mounted at one side of the record support 1; for the purpose of illustration, it is here shown pivotally supported in a bracket 8 by means of pins 9 (Fig. 4), said bracket being in turn pivoted at 10 to a suitable supporting member 11 which is secured by screws 12 to the support 13. Near its outer end the sound tube 6 is shown as provided with a member 14, suitably secured thereto as by means of screws 15, and having a forked end 16 adapted to engage with the spindle 2.

The tone arm 3 is provided at a suitable position in its length with an opening 17 in which is suitably secured, as by means of soldering, a connecting member 18. The lower end of said connecting member is formed in any suitable way for engagement and communication with the sound tube 6, being shown as of enlarged diameter in order to receive the outer end of sound tube 6 (Fig. 3).

The sound tube 6 is so positioned that when it is swung across the turn table so that the member 14 engages with the spindle, thereby holding the sound tube in position, the opening 17 in the tone arm will register with the

upwardly directed open end of the sound tube 6, and the connecting member 18 will receive the end of said sound tube, thereby connecting the radio receiver 7 with the sound conduits or amplifier of the talking machine.

Another embodiment of the invention is illustrated in Figs. 5 and 6, wherein the sound tube 6 is supported in a stationary vertical position at one side of the turn table in any suitable manner, as by means of the bracket 19 and screws 20. In this embodiment the connecting member 18 is substantially cup-shaped and is of much smaller diameter at the upper end thereof where it is secured in the opening 17 of the tone arm. The sound tube is so positioned that when the tone arm is swung clear of the turn table, the opening in the tone arm will register with the upper end of the sound tube. The smaller size of the opening in the tone arm in this embodiment tends to prevent any excessive leakage of sound from the tone arm when a record is being played.

A further embodiment of the invention is illustrated in Figs. 7 and 8 and provides a means of closing the opening in the tone arm when the radio receiver is not in use. This embodiment includes a ring 21 suitably secured in the opening 17 in the tone arm, as by soldering, and having a flapper valve 22 adapted to close said opening, as shown in dotted lines in Fig. 7, said valve being suitably pivoted thereto as by means of pin 23. The valve 22 is normally held in closed position by the action of a spring 24 and has a suitable projection 25 extending downwardly therefrom. A ring 26 is suitably supported in the end of the sound tube 6, being shown as resting on a shoulder 27, and has an upwardly extending portion 28 which is adapted to come into contact with the projection 25 on the flapper valve (Fig. 7) when the tone arm is operatively associated with the sound tube, this engagement causing the opening of the flapper valve and connecting the sound tube with the sound conduits or amplifier of the talking machine. The opening 17 and valve 22 may be of any suitable size, and if desired said valve may be adapted to close the passage from said conduits or amplifier to the sound box when the radio receiver is in use, as shown in Fig. 7.

Means may also be provided if desired for completing the circuit through the radio receiver simultaneously with effecting the association of the sound tube and tone arm. As herein shown, these means include a downwardly extending projection 29 suitably secured to the tone arm as by means of screws 30 and having at its lower end an electrically conductive contact knob 31 which is insulated from said member 29 by means of the rings 32 of any suitable material. When the tone arm is swung until the opening thereof registers with the sound tube, said contact knob 31 is adapted to close the circuit between two spring contacts 33 disposed in the circuit of the receiver 7 and thus to complete the circuit through said receiver.

While in the embodiment of Fig. 1 the sound tube 6 is shown as mounted to be swung over the record support, it may be stationary and the tone arm may be swung clear of the turn table into registry with the end of the sound tube. While the connecting member 18 has been shown associated with the tone arm in the embodiments of Figs. 1 to 6, such is not essential as it may be omitted, or if provided, may be formed integrally with or supported on the sound tube instead of the tone arm. Moreover, the opening 17 which is herein shown in the lower portion of the goose-neck, may be positioned at any other suitable point in the length of the tone arm, and may be a lateral or upward opening in the tone arm adapted to register with a suitably shaped and mounted sound tube. The circuit closing mechanism shown in Figs. 7 and 8 may also be employed with the other embodiments of this invention.

It will be apparent from the above description that this invention enables the user to readily connect the sound conduits or amplifier of the talking machine with the radio receiver by merely swinging the tone arm into registry with the end of the sound tube and engaging the same therewith. The adjustment is simple and the apparatus may thus be converted practically instantly and with minimum effort from a talking machine to a radio loud speaking device or vice versa at will.

The embodiment illustrated in Fig. 7 has the additional advantage of closing the opening in the tone arm when the instrument is used as a talking machine, thereby preventing leakage of sound. Likewise, when the switch mechanism herein described is combined with the apparatus, a single adjustment suffices to associate the sound conduits or amplifier with the radio receiver and simultaneously complete the circuit through said receiver.

Although several embodiments of the invention are illustrated in the accompanying drawings, it is to be expressly understood that the invention is not restricted thereto as other embodiments will now readily suggest themselves to those skilled in the art, while changes may be made in details of construction, proportion and arrangement of parts, and certain features used without other features, without departing from the spirit of this invention. Reference is therefore to be had to the appended claims for a definition of the invention.

What is claimed is:

1. In a talking machine having a sound conduit including a movable tone arm, independently mounted means for adapting

the sound conduit of the talking machine as a radio amplifying device, comprising a means of radio reception and sound conducting means operatively associated therewith said tone arm being movable into sound conducting relation with said sound conducting means.

2. In a talking machine embodying amplifying means including a movable tone arm having an opening therein, and independently mounted means for radio reception including a sound conduit, said tone arm opening being movable into registry with said sound conduit, whereby sounds reproduced by said radio reception means are amplified by said first named means.

3. In a talking machine, the combination with a movable tone arm having a lateral opening therein, of independently mounted radio receiving means, and sound conducting means operatively associated therewith and so positioned with respect to said tone arm as to register with the opening therein.

4. In a talking machine, the combination with a turn table and a movable tone arm having a lateral opening therein, of radio receiving means, and sound conducting means operatively associated therewith mounted at one side of said turn table, said sound conducting means being adapted to register with said opening.

5. In a talking machine, the combination with a movable tone arm having an opening therein, of independently mounted radio receiving means, a sound conduit associated therewith, and means for acoustically connecting said sound conduit and said tone arm when the same are moved relatively into registry said sound conduit and tone arm being disconnected during the operation of the talking machine.

6. In a talking machine, the combination with a turn table and a movable tone arm having an opening therein in the side wall thereof, of radio receiving means, sound conducting means operatively associated therewith mounted at one side of said turn table, and a connecting member for associating said sound conducting means with the opening in said tone arm.

7. In a talking machine, the combination with a movable tone arm having an opening therein, of radio receiving means, sound conducting means operatively associated therewith, and a connecting member secured in said opening for detachably associating said sound conducting means with said tone arm, the outer portion of said member being adapted to engage said sound conducting means when registered therewith.

8. In a talking machine, the combination with a turn table and a movable tone arm, of radio receiving means, and a sound tube connected to said means and mounted in a substantially vertical position at one side of said turn table, said tone arm having an opening therein moved into registry with the end of said sound tube.

9. In a device of the class described, including a sound tube connected with a means of radio reception and a movable tone arm having an opening therein adapted to register with said sound tube, means resiliently urged to close said opening, and means on said sound tube for opening said closing means when said sound tube is registered with said opening.

10. In a device of the class described including a sound tube connected with a means of radio reception and a movable tone arm having an opening therein adapted to register with said sound tube, means normally closing said opening including a valve member in said tone arm and resilient means normally maintaining said member in closed position, and means for opening said valve comprising a projection on said sound tube adapted to engage said valve when said sound tube is in registry with said opening.

11. In a device of the class described, including a sound tube connected with a means of radio reception, a movable tone arm having an opening therein adapted to register with said sound tube, and means adapted to complete the circuit through said means of radio reception when said sound tube is in registry with said opening.

12. In a device of the class described, the combination with a sound tube connected with a means of radio reception, a movable tone arm having an opening therein adapted to register with said sound tube, and means resiliently urged to close said opening, of means on said sound tube for opening said closing means, and means adapted to complete the circuit through said means of radio reception when said sound tube is registered with said opening.

13. Means for utilizing the sound amplifying mechanism of a talking machine, provided with a tone arm, as the sound amplifying mechanism of a radio receiving device, including a radio receiving means mounted on the machine, a sound tube leading therefrom, and means for mounting said tube independently of the tone arm said tone arm having an aperture in its wall whereby said sound tube may be placed in communication with said tone arm by relative movement of said tone arm and sound tube to register the opening in the tone arm with the end of the sound tube.

14. In a talking machine having a movable tone arm, means for utilizing the sound amplifying means of the talking machine for the amplification of radio-received waves including a radio receiving means supported on the machine independently of said tone arm, a sound conduit leading therefrom, and means for connecting said sound conduit and

tone arm by moving an aperture in said tone arm into registry with said sound conduit.

15. In a talking machine having a movable tone arm, means for utilizing the sound amplifying means of the talking machine for the amplification of radio-received waves including a radio receiving means supported on the machine independently of said tone arm, and a sound conduit leading therefrom, said tone arm and conduit being relatively movable to bring said conduit and an aperture in said tone arm into registry.

16. In a talking machine having a tone arm and a record support, means for utilizing the sound amplifying means of the talking machine for the amplification of radio-received waves including a radio receiving means supported on the machine independently of said tone arm, and a sound conduit leading therefrom and having an opening therein, said tone arm and sound conduit being relatively movable to bring said opening into registry with an opening in said tone arm.

17. In a talking machine having a movable tone arm and a record support, means for utilizing the sound amplifying means of a talking machine for the amplification of radio-received waves including a radio receiving means, and a sound conduit leading therefrom and supported on the machine independently of said tone arm at one side of the record support, said tone arm having an opening therein and said sound conduit having a free end in the path of movement of said tone arm opening whereby said sound conduit may be brought into communication with said tone arm when said opening is registered with the free end of said sound conduit.

18. In a talking machine having a movable tone arm provided with an opening therein through the lateral wall thereof, a radio receiving means supported on the machine independently of said tone arm, and a sound conduit leading therefrom and provided with an outlet opening adapted to be brought into communication with said tone arm opening by movement of said tone arm opening into registry with said outlet opening.

19. In a talking machine embodying means including a movable tone arm, independently mounted means for radio reception, and a sound conducting member for detachably connecting said tone arm and radio means, whereby sounds reproduced by the radio means are amplified by said first named means.

20. In a talking machine, the combination of a tone arm having a lateral opening, and a radio receiver having a sound conduit operatively associated therewith, said tone arm and sound conduit being mounted for relative movement to bring said conduit into sound conducting registry with said opening.

21. In a talking machine, the combination of a tone arm having a lateral opening, and sound producing means adapted to be actuated by radiant energy, said tone arm and said means being mounted for relative movement to bring said means into registry with said opening whereby said tone arm receives sound waves produced by said means.

In testimony whereof I have signed this specification.

LLOYD Y. SQUIBB.