Dec. 17, 1929. J. N. PEPIN 1,739,768

COMBINATION REPRODUCER AND RECEIVER

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Fig. 1.

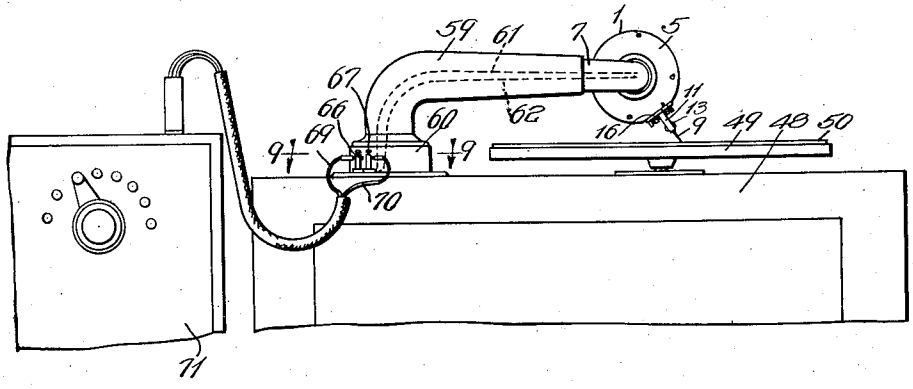


Fig. 2.

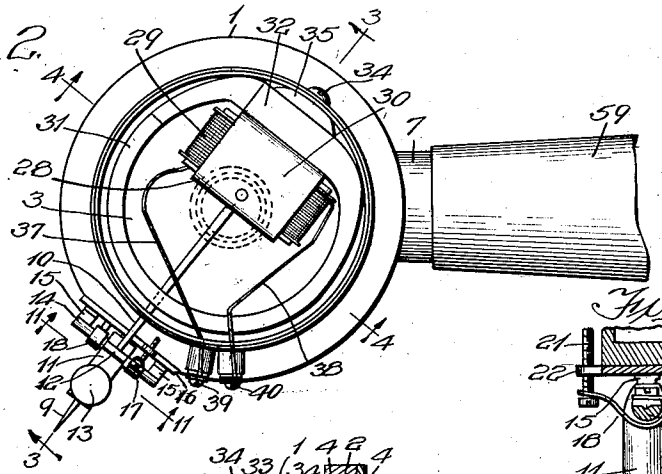


Fig. 12.

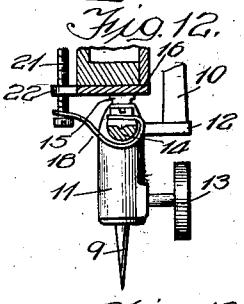


Fig. 11.

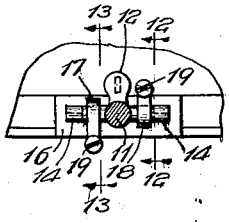


Fig. 3.

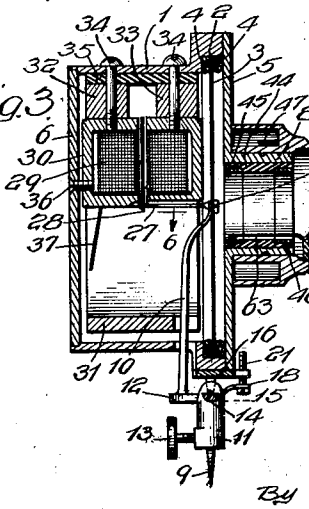
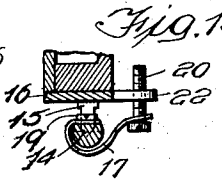


Fig. 13.



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COMBINATION REPRODUCER AND RECEIVER

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Fig. 4.

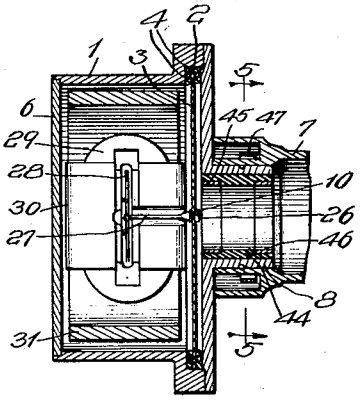



Fig. 5.

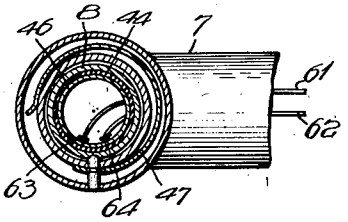



Fig. 7.

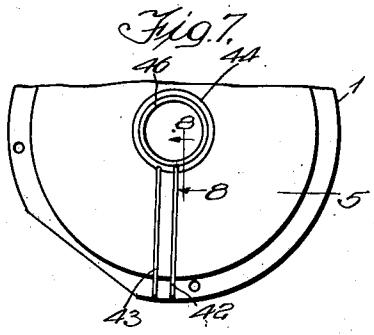



Fig. 6.

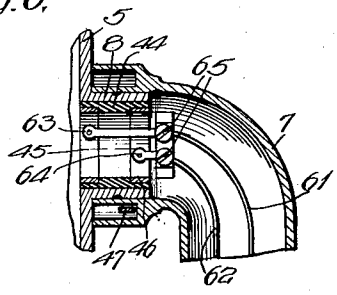



Fig. 8.

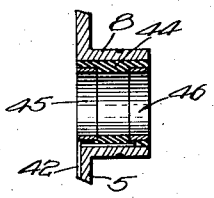



Fig. 9.

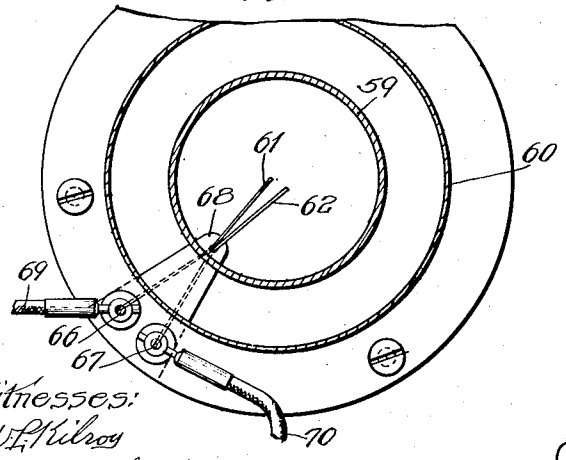
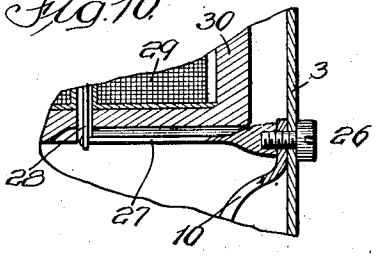



Fig. 10.

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Patented Dec. 17, 1929 1,739,768

# UNITED STATES PATENT OFFICE

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## COMBINATION REPRODUCER AND RECEIVER

Application filed February 29, 1924. Serial No. 695,942.

My invention belongs to that general class of devices known as talking machines and radio receivers, and relates more particularly to a combination reproducer and receiver which may be employed in connection with and for both talking machines and radio apparatus, whereby the talking machine may be operated in the usual manner or as a radio loud speaker.

The invention has as an object the production of a device of the kind described applicable for use on talking machines, which will reproduce from records in the usual manner or receive and convert the electrical waves received by the radio outfit into sound waves, the same being an instrument for reproducing or receiving either mechanically or electrically and reconverting the waves into sound waves.

The invention has among its objects the production of a device of the kind described that is simple, convenient, durable, compact, reliable, efficient and satisfactory for use wherever found applicable. More particularly it has as an object the production of a talking machine attachment by means of which the talking machine may operate or function as a talking machine reproducing from records by merely positioning the stylus on and starting the record in the usual manner, or by plugging in to the radio apparatus the talking machine will operate as a loud speaker. The device will operate either way independently or both together, and by using blank records plates or disks, may be used to record radio vibrations whereby broadcasting may be recorded and from the record made, the same be thereafter reproduced in the usual manner.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosures herein given.

To this end my invention consists in the novel construction, arrangement, and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a side elevation of my improved apparatus, illustrating a portion of a talking machine and radio apparatus;

Fig. 2 is an elevation of the device with the cover plate 6 removed;

Fig. 3 is a sectional view taken substantially on line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken substantially on line 4—4 of Fig. 2;

Fig. 5 is a sectional view taken substantially on line 5—5 of Fig. 4;

Fig. 6 is a sectional view taken substantially on line 6—6 of Fig. 3;

Fig. 7 is a view in elevation of the inner side of plate 5;

Fig. 8 is a sectional view taken substantially on line 8—8 of Fig. 7;

Fig. 9 is a sectional view taken on line 9—9 of Fig. 1;

Fig. 10 is an enlarged sectional view showing a portion of the device illustrated in Fig. 3;

Fig. 11 is a sectional view taken substantially on line 11—11 of Fig. 2;

Fig. 12 is a sectional view taken substantially on line 12—12 of Fig. 11; and

Fig. 13 is a sectional view taken substantially on line 13—13 of Fig. 11.

Referring to the drawings in which the preferred embodiment of my invention is shown, 1 represents a shell or case of suitable size, shape and material, which, in the construction shown, is recessed as indicated at 2 for the reception of the diaphragm 3 of any suitable material, for example, mica or metal. I have shown the same mounted between the cushions 4—4, it being understood that this is a matter of preference. The casing is provided with the cover plates 5 and 6, which may be secured in place in any suitable manner. The cover member 5 is provided with a tubular collar or flange 8 adapted to cooperate with the tone arm part 7 and secure the device in place thereon.

Any style of stylus or needle 9 may be employed, the same being arranged to be operatively connected with the diaphragm 3. As shown, 10 represents a stylus bar connected

to the diaphragm and extending to the exterior of the casing where it is connected with a stylus holder 11, the same as shown being connected through the bracket 12. The stylus 9 may be retained in the holder in any suitable manner, as for example, by the thumb screw 13 or equivalent means. As shown, the holder 11 is provided with the projecting lugs 14 which are preferably grooved as shown (see Figs. 3), and are mounted on the lugs or pins 15, carried by the plate 16, secured to or forming a part of the casing. The parts are maintained in assembled relation by means of the springs 17 and 18 or their equivalents for the purpose. As shown, the springs are secured to the lugs 14 by means of screws 17, the same being connected with the plate 16 at their other ends by means of the adjustment screws 20 and 21 which are arranged to threadedly engage the two lugs 22 projecting from the plate 16. Obviously, adjusting the screws 20 or 21, adjusts the stylus bar 10 relative the diaphragm 3.

The stylus bar 10 may be secured to the diaphragm in any suitable manner, a screw 26 (see Fig. 10) being shown for the purpose. There is also shown connected with the diaphragm 3 by means of the screw 26, a bar 27 which is operatively connected with an armature 28 suitably fulcrumed within the electro-magnets 29. Any type of radio receiver may be employed, that illustrated being satisfactory for the purpose. In this particular type illustrated, 30 represents pole pieces connected with the ends 32 and 33 of a permanent magnet arranged within the casing. The parts are maintained in assembled relation and in the casing by screws 34, 55 representing an insulation. I have also illustrated a screw 36 which may be employed, if desired, for maintaining the cover 6 firmly in place. Extending from the electromagnet are the wires 37 and 38 which I have shown connected to binding posts 39 and 40 for convenience in assembling. If desired, these winding and binding posts or contacts may be contained within the casing. Also connected to these binding posts are the conductors 42 and 43 respectively, which are connected with the contact members 45 and 46 arranged in the ring 44 of insulated material and mounted in the tubular part 8 with the plate 5. The reproducer-receiver may be secured on the tone arm part 7 in any satisfactory manner. A spring 47 carrying a pin (not shown) engaging or locking the two parts 8 and 7 together may be employed or any equivalent therefor.

In Fig. 1, I have illustrated the phonograph cabinet 48 provided with the usual disk carrier 49 for carrying the disks 50 or records as they are generally known. This is a conventional construction and not necessary to be described in detail. The tone arm shown consists of the part 7 carried by the tone arm part 59 which is swiveled on a base portion 60 mounted on the cabinet. It may be mentioned that the tone arm construction, as well as the mounting and adjustment with the reproducer thereon so as to reproduce from different styles of records may be as desired. Arranged within the tone arm are conductors 61 and 62, which are arranged and connected with contact members 63 and 64 adapted to cooperate with the contacts 45 and 46, when the device is mounted on the tone arm. As shown, contacts and conductors are secured together by the binding screws 54. Obviously, with this construction the sound box may be removed from the arm as the same may be easily slipped off the end, contact being broken between the portions 63 and 64 and the contacts 45 and 46. I have shown the conductors 61 and 62 connected to binding posts 66 and 67, 68 being a bracket for carrying the wires to the interior of the tone arm. The binding posts 66 and 67 are shown connected to a radio apparatus 71 by means of the conductors 69 and 70. Obviously, where the radio apparatus itself is mounted on or in the cabinet 48, the conductors 61 and 62 may extend direct thereto on the interior of the tone arm without being extended to the exterior of the device as shown. This is a matter of detail which is immaterial in the operation of the device.

When the device is operated as an ordinary talking machine, the radio being off, the stylus cooperating with the record will transmit to the diaphragm which will cause the usual sound waves to be set up. When the device is used as a radio loud speaker, the radio is connected up and electrical impulses will be transmitted to the diaphragm through the transmitting bar 27, setting up vibrations in the diaphragm and causing the sound waves in the tone chamber of the cabinet. The device thereby makes possible the operation of the talking machine or phonograph either as a talking machine or as a loud speaker for radio use without changing sound boxes or receivers. While it is possible for the diaphragm to be vibrated by the stylus bar and electromagnet, at the same time this generally is not very pleasing, although often amusing. If a disk blank or blank record disk is applied to the machine and the stylus positioned, and then the radio apparatus started, together with the carrier 49, the device will act as a recorder as well as a loud speaker. The sound waves produced in the sound box will be received or reproduced and can be heard, and will at the same time be recorded so that one can make his own records and repeat at any time by means of the talking machine lectures, talks, concerts, etc. This makes a very desirable feature.

The construction makes possible an attractive installation of a combined phonograph and radio loud speaker in a single cabinet, and avoids the necessity of having different

types of sound boxes, receivers, etc., and the inconvenient changing and handling of the different sound boxes or receivers when it is desired to change from radio to phonograph, or vice versa.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. In a device of the kind described, a tone arm, a sound box removably mounted on the end of said tone arm, electrically controlled mechanism in said sound box having conductors leading therefrom, electrical conductors extending through said tone arm, means for detachably connecting said first-mentioned conductors with said second mentioned conductors comprising spaced rings within the connecting end of said sound box and attached to said first-mentioned conductors, and contact fingers within the end of said tone arm and connected to said second-mentioned conductors, said contact fingers adapted to engage said rings.

2. In a device of the kind described, a tone arm, a sound box removably mounted at the end of said tone arm, electrically controlled mechanism in said sound box having conductors leading therefrom, electrical conductors extending through and completely housed within said tone arm, and means for detachably connecting said first-mentioned conductors with said second-mentioned conductors.

In testimony whereof, I have hereunto signed my name.

JOSEPH N. PEPIN.