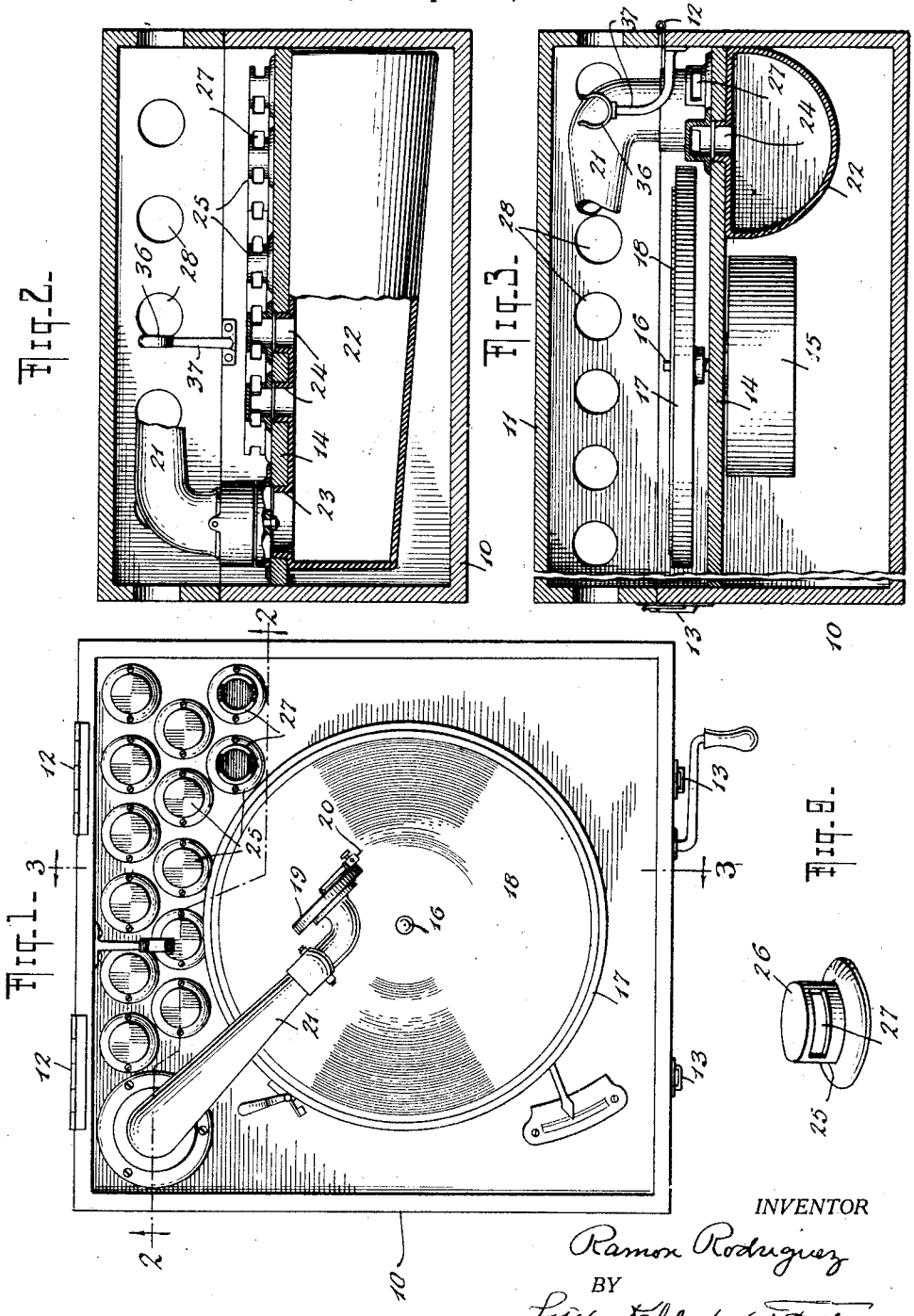
March 5, 1929. R. RODRIGUEZ 1,704,260

PHONOGRAPH

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PHONOGRAPH

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Fig. 5.

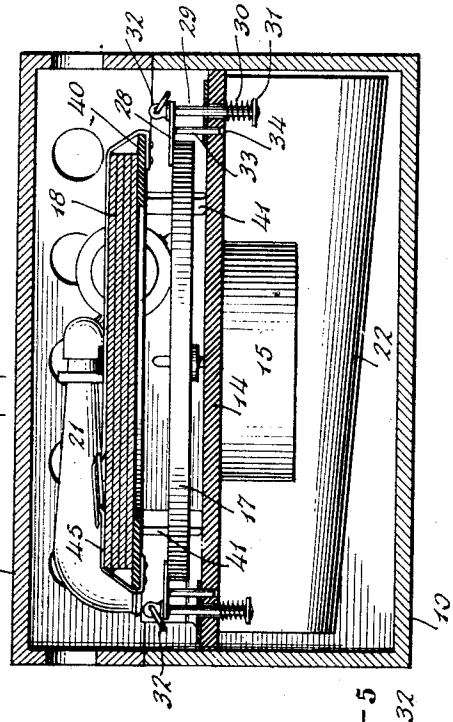


Fig. 7.

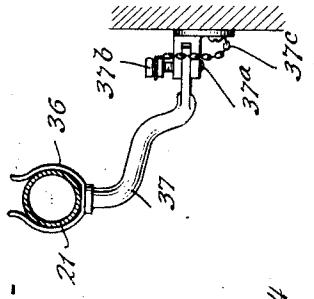


Fig. 8.

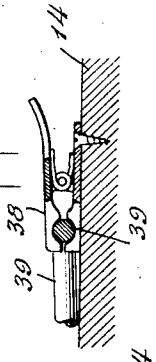


Fig. 4.

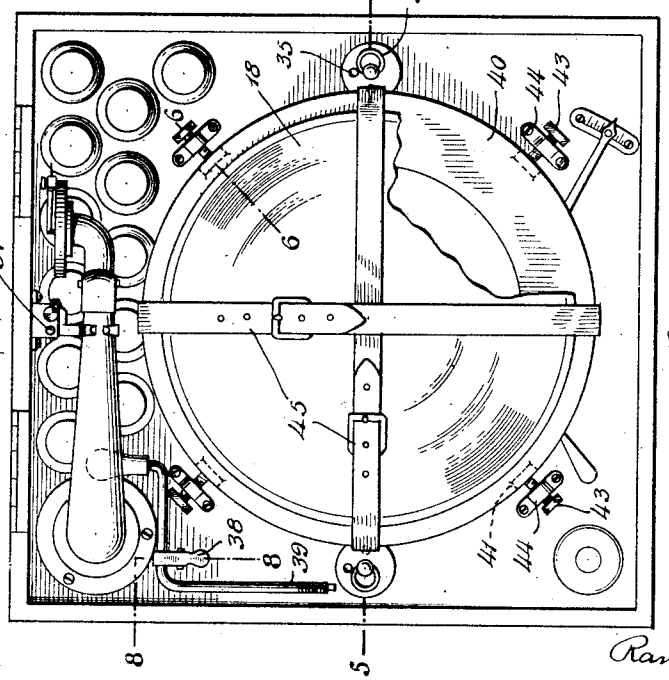
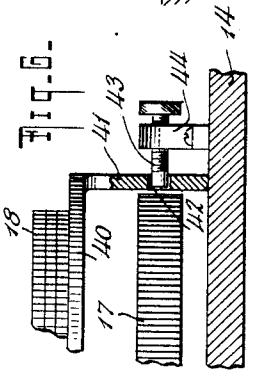


Fig. 6.



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Patented Mar. 5, 1929. 1,704,260

UNITED STATES PATENT OFFICE.

RAMON RODRIGUEZ, OF NEW YORK, N. Y.

PHONOGRAPH.

Application filed April 11, 1924. Serial No. 705,803.

My invention relates to phonographs and has for its object to provide a portable phonograph of novel construction and having sound reproducing qualities equal in character and volume to those machines which are of the nonportable type. A further object of the invention is to provide a portable phonograph so arranged and constructed as to be easily carried about and to accommodate a supply of records and to protect the movable parts against damage. Other objects will appear from the description hereinafter and the features of novelty will be pointed out in the claims.

In the accompanying drawings, which illustrate examples of the invention without defining its limits, Fig. 1 is a plan view of the phonograph with the cover removed; Figs. 2 and 3 are sectional views on the lines 2—2 and 3—3 of Fig. 1 respectively; Fig. 4 is a view similar to Fig. 1 showing the phonograph and a supply of records ready to be transported; Fig. 5 is a section on the line 5—5 of Fig. 4; Fig. 6 is an enlarged fragmentary section on the line 6—6 of Fig. 4; Fig. 7 is an enlarged detail section showing a device for supporting the tone-arm in an inoperative position; Fig. 8 is an enlarged fragmentary section on the line 8—8 of Fig. 4 and Fig. 9 is an enlarged perspective view of a sound deflecting device forming part of the phonograph.

The phonograph comprises a case 10 of suitable material and provided with a cover 11 preferably hinged at 12 and locked in its closed position in any convenient manner, as by means of conventional locking clasps 13 as shown in Fig. 3. The case and cover are of such dimensions as to be easily carried and may be provided with a suitable handle or its equivalent to facilitate carrying of the instrument. A horizontal platform or partition 14 is located within the casing 10 and supports the customary spring actuated mechanism 15 whereby the record is operated; the arbor 16 of the mechanism 15 projects upwardly beyond the partition 14 and carries the rotatable table 17 in the well known way. In the operation of the instrument the table 17 carries the record 18 as in any phonograph of the disc record type, the record 18 co-operating with a reproducer 19 and its needle 20 in the customary manner to reproduce the subject matter of said record. The reproducer 19 is fixed upon the one end of a tone arm 21 of any conventional type and having its other end rotatably mounted upon the partition 14 in registry with an aperture therein.

Upon its lower surface the partition 14 is provided with a sound amplifying chamber 22 which is secured in place in any convenient way and includes a tubular sleeve 23 fitted into the aforesaid aperture of the partition 14 and establishing communication between the interior of the tone arm 21 and the interior of the amplifying chamber 22. The latter is preferably constructed of a suitable metal and of curved form or trough-shape in cross-section as shown in Fig. 3 and is of such major length as to extend throughout approximately the entire width of the case 10 in one direction as shown in Fig. 2; in the preferred form the amplifying chamber 22 gradually and progressively increase in dimensions from the end at which the sleeve 23 is located toward its opposite end so as to have a divergent, flaring form, as shown in Fig. 2. The chamber 22 is provided with a plurality of tone-outlets, for instance in the form of tubular members 24 fitted into apertures in the partition 14 and extending upwardly through the same. Upon the upper surface of the partition 14 a corresponding number of deflecting devices 25 are fixed in registry with the tubular member 24; said devices 25, as shown in Fig. 9 are cylindrical in form and hollow and are provided with closed ends 26 and with exit slots 27 in their circumferential walls, preferably at diametrically opposite points as shown in Fig. 1.

With the construction set forth the sound from the reproducer 19 passes through the tone arm 21 and the sleeve 23 to the interior of the sound amplifying chamber 22. Because of the curved and flaring form of the latter the sound is amplified and as such reaches the devices 25 and passes out through the exit openings 27 of the latter in a large number of individualized waves; the latter are deflected evenly in all directions with the result that the audible sound is a voluminous and pure reproduction of the record 18. To permit the escape of sound from the instrument when the cover 11 is closed, the latter may be provided with apertures 28 as shown in Figs. 2, 3, and 5. The cover may thus be utilized to reduce the sound volume of the reproduction.

In order to prevent the table from falling off the arbor 16 when the phonograph is being carried about or otherwise transported,

locking members 28 are provided. These members are carried by rods 29 slidably mounted in the partition 14 and acted upon by coil springs 30 which press with one end against the partition 14 and with the other end engage projections 31 fixed upon the rods 29; suitable handles 32 may be provided upon the rods 29 for manipulating the locking members 28.

In their operative positions the latter project over the table 17 as shown in Fig. 5 and thus, by the action of the springs 30, clamp the table upon the arbor 16; in order to prevent the members 28 from being unintentionally shifted to inoperative positions in which the table is released, pins 33 may be located upon said members 28 so as to depend therefrom and project into recesses 24 formed at the proper points in the partition 14. When it is desired to release the table 17, the rods 29 are lifted by the handles 32 against the tension of the springs 30 until the pins 33 are removed from the recesses 24; the rods 29 are then turned about their axes a distance sufficient to move the members 28 out of engagement with the table 17 and to bring the pins 33 into registry with additional recesses 35 located as shown in Fig. 4. The pins 32 are then inserted into said recesses 35 or permitted to snap into the same by the action of the springs 30.

For the purpose of fixing the tone arm 21 and its reproducer 19 against movement while the phonograph is in transit, a resilient or spring clip 36 may be provided; in the illustrated example the clip 36 forms part of an arm or bracket 37 which is mounted at the proper point in the casing 10 as shown in the drawings. This clip 36 is constructed and arranged to embrace the tone arm 21 as shown in Fig. 4 and thereby clamp it in place against swinging movement and when it is desired to play a record, the tone arm 21 is simply forced out of said clip 36 against its resiliency. In the preferred arrangement the bracket 37 is pivotally mounted at 37^a upon the casing 10 so as to be capable of being swung out of the way when the phonograph is being played. If desired a means may be provided for locking said bracket against pivotal movement. This means, as shown in Fig. 7, may comprise a pin 37^b adapted to be inserted through registering openings in the bracket 37 and its support respectively; to prevent its loss the pin 37^b may be secured to the casing 10 by a chain 37^c. A securing device, in the form of a spring clasp 38 is located within the casing 10 and serves to clamp the winding-crank 39 against movement when the phonograph is being carried about or otherwise transported.

With the arrangements set forth the movable parts of the phonograph are held against movement at will, the winding crank being fixed in a position in which it is readily available when requested.

In the illustrated example means is provided for carrying a supply of records 18 in a convenient and safe manner, available for use when desired and so as to avoid the necessity for transporting said records in an independent package or carrier. As shown the means referred to comprises a carrier 40 preferably circular in form and of a diameter slightly in excess of that of the table 17. In the drawings the carrier 40 is shown in the form of a ring, the weight thereof being thus reduced to a minimum. The carrier 40 is provided with a plurality of supporting members 41 projecting perpendicularly to said carrier, preferably from the periphery thereof, as shown in Figs. 4, 5 and 6. When the carrying means is utilized in the phonograph, the carrier 40 thereof is placed over the table 17 in which position it is supported by the members 41 upon the partition 14 as shown in Fig. 5. The members 41 are dimensioned so as to position the carrier 40 at a distance from the table 17 in order that the latter may be free from any engagement therewith. To fix the carrier 40 in place the members 41 are each provided with an aperture 42 adapted to receive the end of a locking screw 43 as shown in Fig. 6; the locking screws 43 are mounted in lugs 44 secured upon the partition 14 at the proper places. It will be understood that the lugs 44 correspond in number to the number of supporting members 41 with which the carrier 40 is provided and that said lugs are located so as to register with said supporting members 41 and to be in close proximity thereto when the carrying means is in place as shown in Fig. 6. The latter may easily be released when desired by simply manipulating the locking screws 43 in a direction to withdraw the ends thereof from the apertures 42 of the members 41. Obviously, the illustrated means for locking the carrying means in position may be replaced by other devices whereby an equivalent result is attained.

As shown in Figs. 4, 5 and 6 a supply of records 18 is placed upon the carrier 40 and is fastened in place thereon in any convenient manner so as to be easily released when required for use. In the illustrated example the record-fastening means comprises a plurality of straps 45 permanently secured at one end to the carrier 40 and adapted to be buckled over the stack of records 18 as shown in Figs. 4 and 5. With these arrangements a supply of records is compactly secured in the casing 10 so as to be easily carried about with the phonograph.

When it is desired to play the latter, the screws 43 are first withdrawn from the apertures 42 after which the carrier 40 with the stack of records 18 strapped thereon is removed from the casing 10; the straps 45 may then be unbuckled and the records thus released for use. It will be noted that, in ad-

dition to its other functions, the carrier 40 may be utilized to support the records 18 outside of the casing and within convenient reach for playing purposes.

The invention provides an easily portable phonograph having reproducing qualities equal to a phonograph of the non-portable type and including features whereby the difficulties of carrying about an instrument of the indicated class with its full equipment, including records, are entirely overcome.

Various changes in the specific form shown and described may be made within the scope of the claims without departing from the spirit of the invention.

I claim:—

1. In a phonograph, a sound-amplifying chamber closed at both ends and having a bottom of trough-shape in cross section and a flat upper wall, the latter being provided with a sound inlet opening and with a plurality of sound escape openings, and a plurality of deflectors each located in registry with and spaced from said sound escape openings to provide transverse apertures through which sound waves are deflected transversely to the sound escape openings.

2. In a phonograph, a sound-amplifying chamber closed at both ends and having a bottom of trough-shape in cross section and a flat upper wall, the latter being provided with a sound inlet opening, said chamber increasing in depth toward one of its ends, a plurality of tubular members projecting from said flat upper wall and constituting sound escape openings, and a plurality of deflectors each located in registry with and spaced from said sound escape openings to provide transverse apertures through which sound waves are deflected transversely to said sound escape openings.

3. In a phonograph, a member provided with a plurality of sound escape openings, and a corresponding number of sound deflectors carried by said member in spaced axial registry with said openings and providing transverse apertures through which the sound waves are deflected by said deflectors transversely of the sound escape openings.

In testimony whereof I have hereunto set my hand.

RAMON RODRIGUEZ.