E. A. IVATTS.

RECORDING AND REPRODUCING PHONOGRAPH.

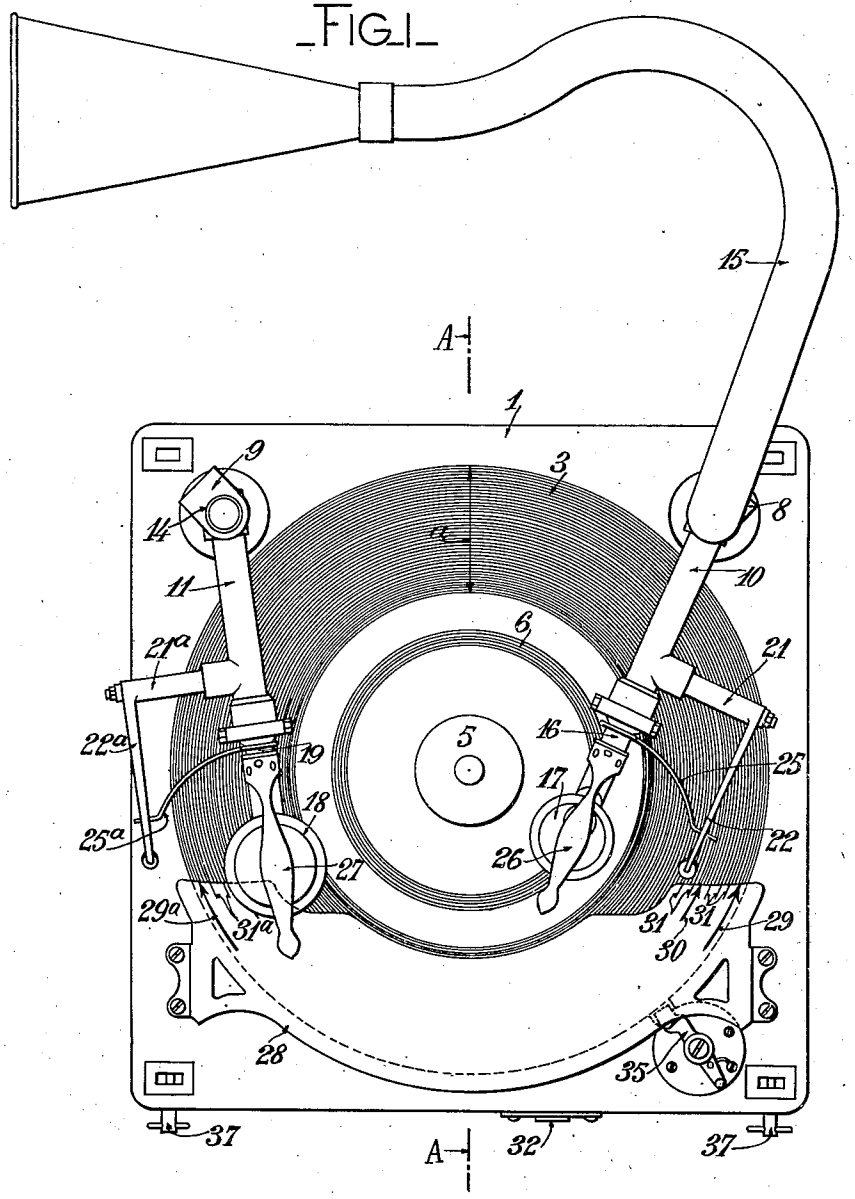
APPLICATION FILED FEB. 10, 1914.

1,269,607.

Patented June 18, 1918.

6 SHEETS—SHEET 1.

FIG. 1.



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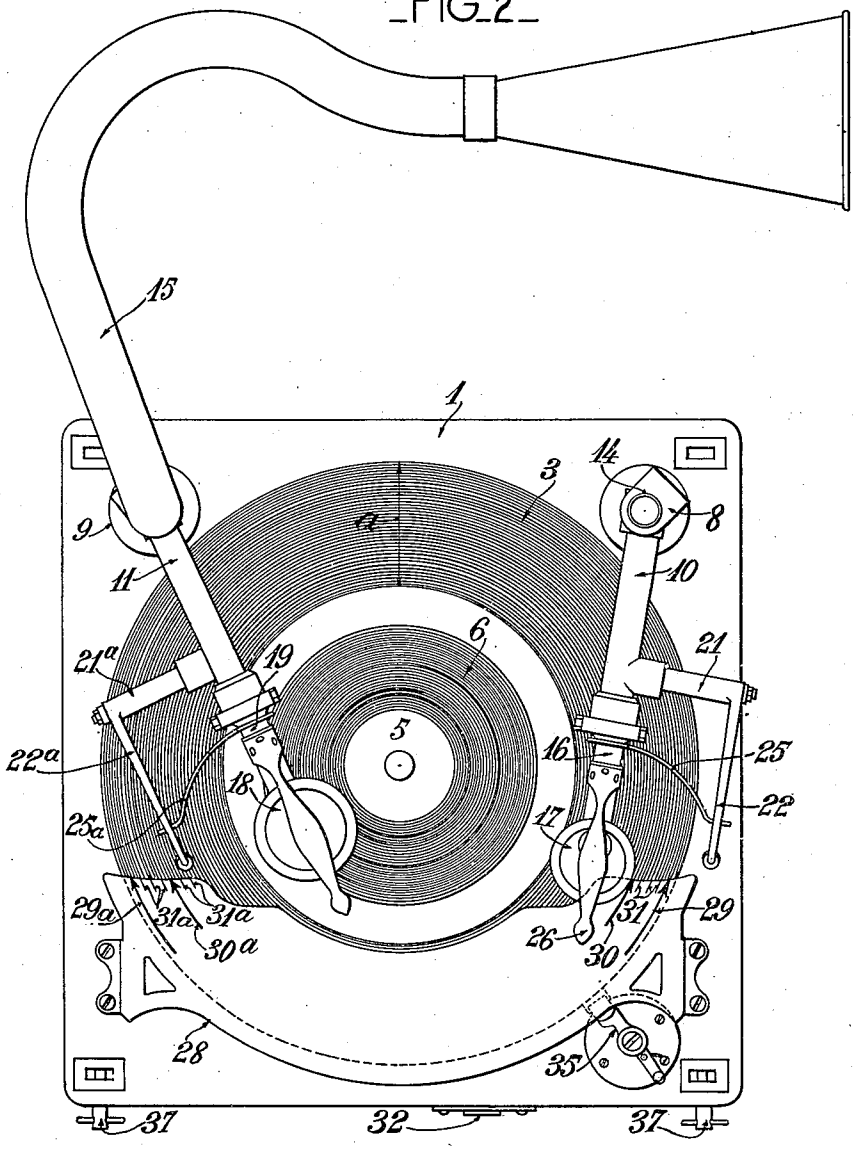
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6 SHEETS—SHEET 2.

FIG. 2



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6 SHEETS—SHEET 3.

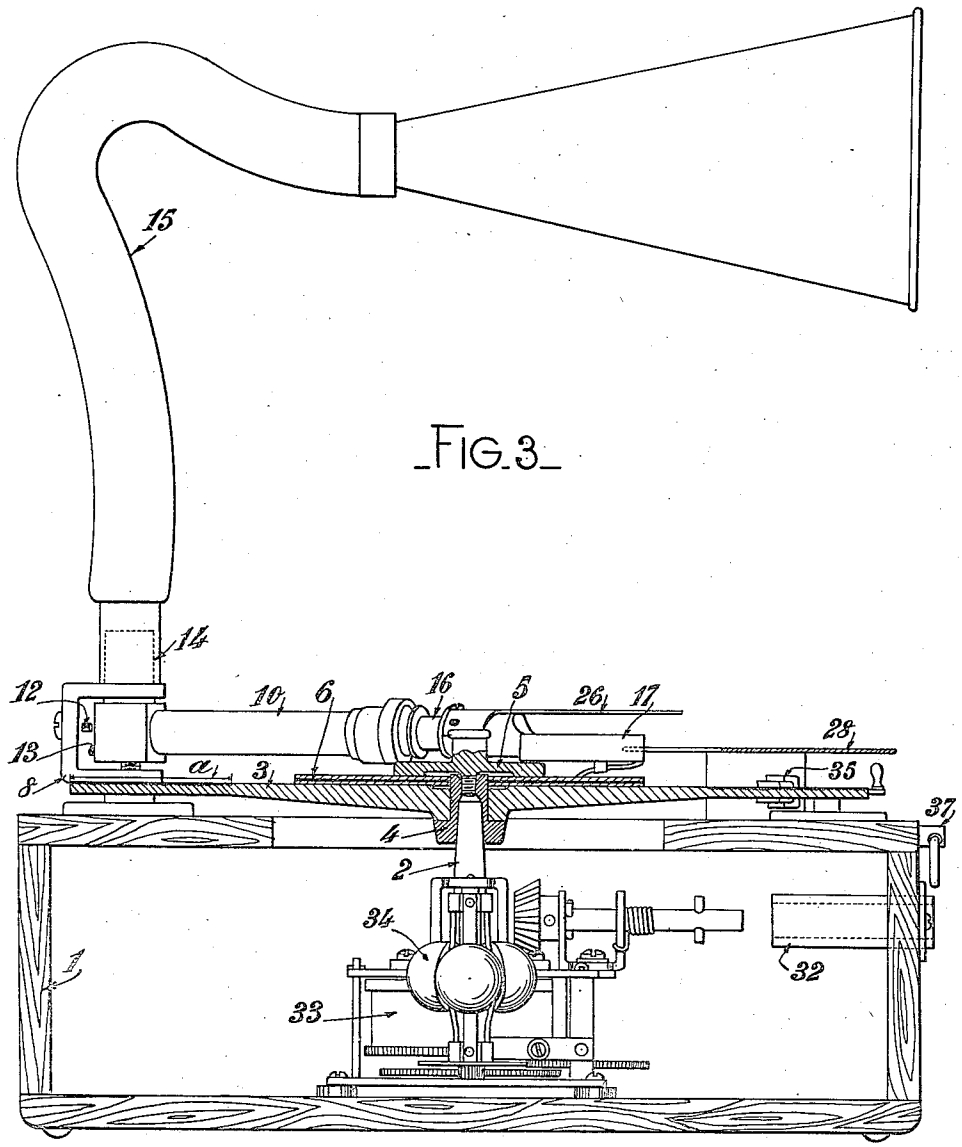


FIG. 3.

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RECORDING AND REPRODUCING PHONOGRAPH.

APPLICATION FILED FEB. 10, 1914.

1,269,607.

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6 SHEETS—SHEET 4.

FIG. 4.

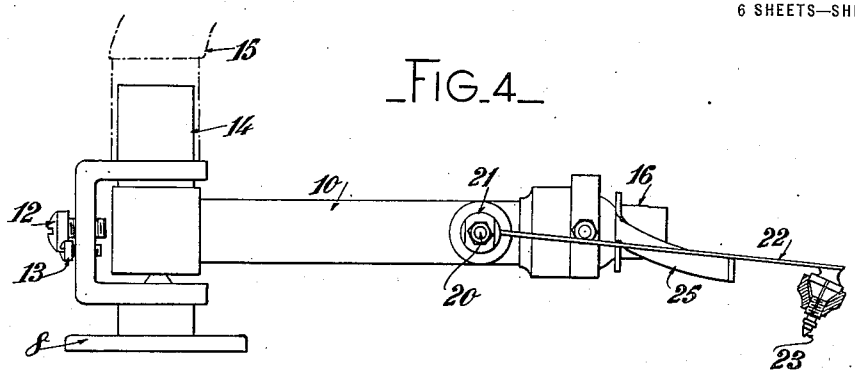


FIG. 5.

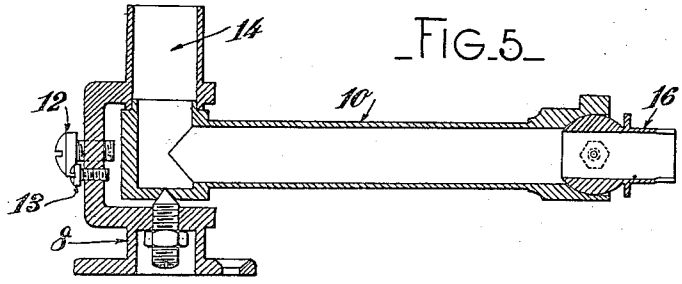
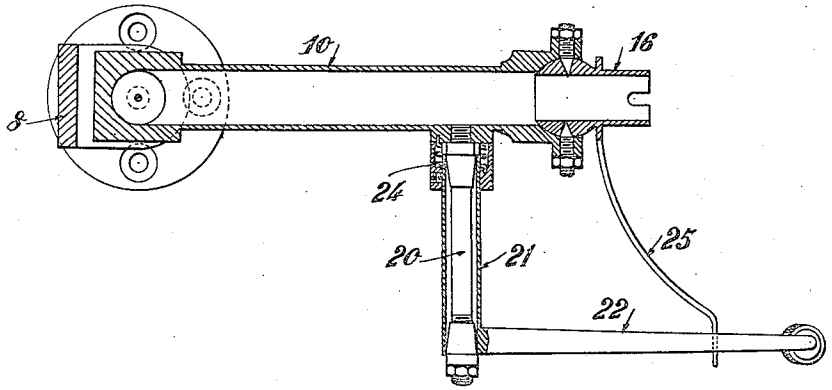


FIG. 6.



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RECORDING AND REPRODUCING PHONOGRAPH.

APPLICATION FILED FEB. 10, 1914.

1,269,607.

Patented June 18, 1918.

6 SHEETS—SHEET 5.

FIG. 7.

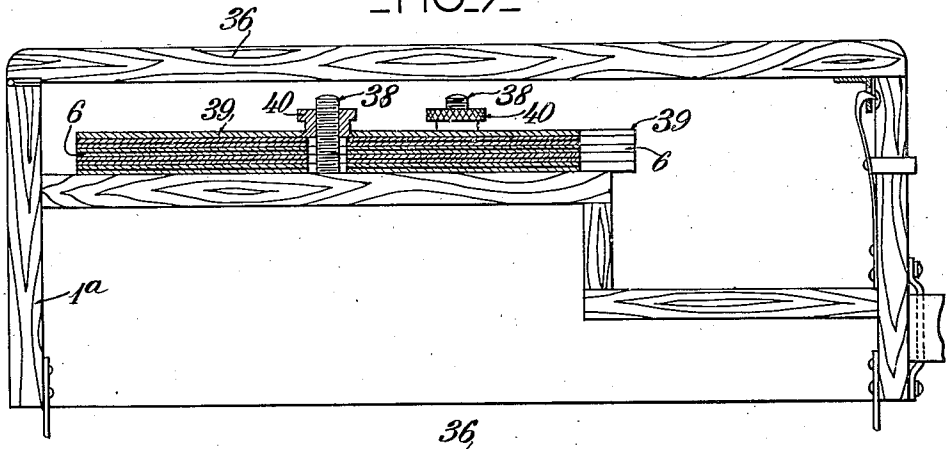
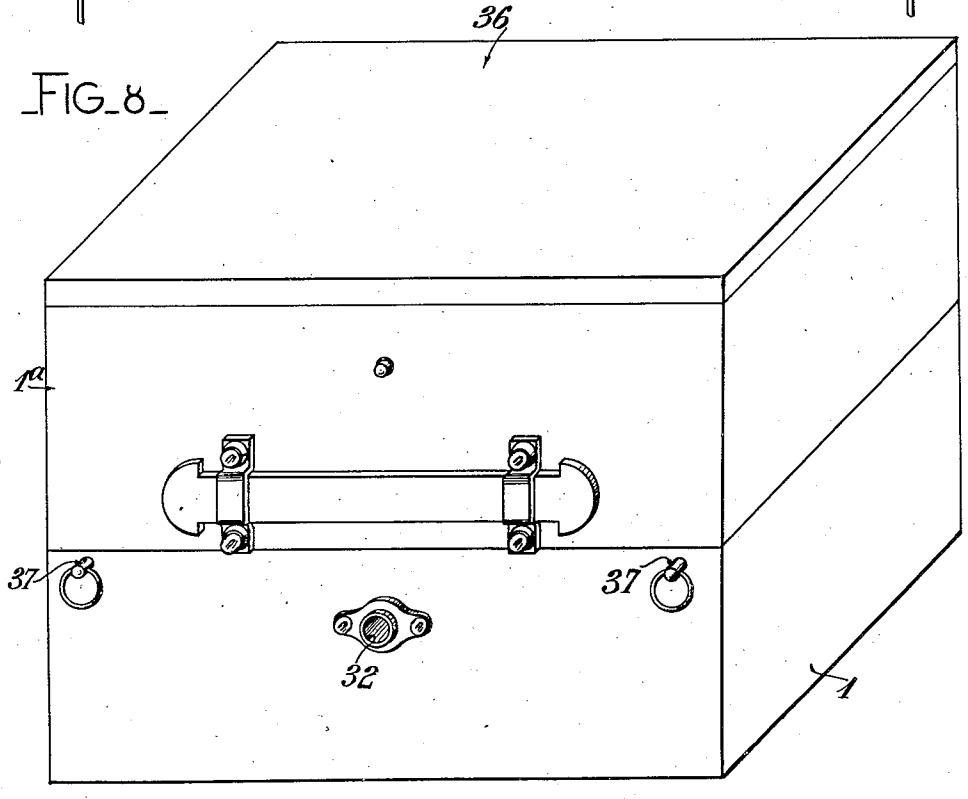


FIG. 8.



Witnesses:-
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Ernest Albert Ivatts
by Attorney
his Attorney

E. A. IVATTS.

RECORDING AND REPRODUCING PHONOGRAPH.

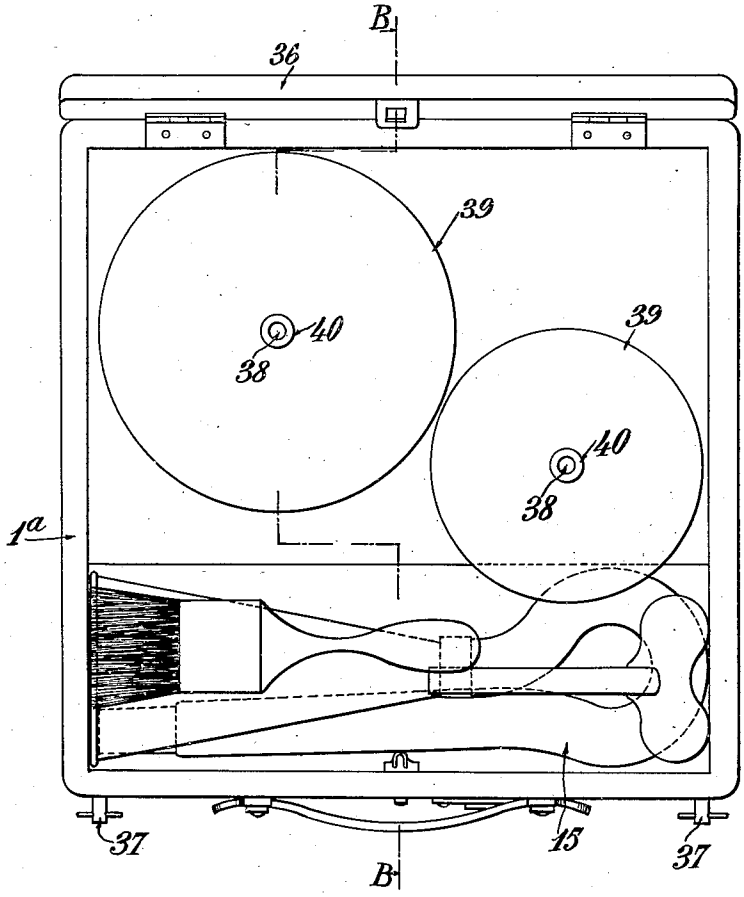
APPLICATION FILED FEB. 10, 1914.

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6 SHEETS—SHEET 6.

FIG. 9.



Witnesses:
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UNITED STATES PATENT OFFICE.

ERNEST ALBERT IVATTS, OF PARIS, FRANCE, ASSIGNOR TO COMPAGNIE GÉNÉRALE DES ETABLISSEMENTS PATHÉ FRÈRES, PHONOGRAPHE ET CINÉMATOGRAPHE, OF PARIS, FRANCE.

RECORDING AND REPRODUCING PHONOGRAPH.

1,269,607. Specification of Letters Patent. Patented June 18, 1918.

Application filed February 10, 1914. Serial No. 817,724.

To all whom it may concern:

Be it known that I, ERNEST ALBERT IVATTS, a subject of the King of Great Britain, residing at 30 Boulevard des Italiens, Paris, in the Republic of France, have invented new and useful Improvements in Recording and Reproducing Phonographs, of which the following is a specification.

This invention has for its object a phonographic apparatus more particularly intended for postal correspondence, ordinary letters being replaced by phonographic disks which are recorded and sent through the post to the correspondent who hears upon his apparatus the phonic reproduction of the correspondence recorded on the disk.

In view of the special purpose for which it is more particularly intended, the novel apparatus is constructed in such a manner that it is at once possible by very simple means, either to record for dictating a letter, or to reproduce the sounds recorded for the purpose of reading over that which has been dictated, or to "read" the letter-disk received through the post. This result is obtained without the employment of any complicated mechanism owing to the fact that no nut and screw mechanism is employed for driving the recording and reproducing diaphragms, a method of driving already known *per se* being employed; this consists in providing the sound arm carrying the diaphragm with a guiding point which moves in a spiral groove formed upon a guide plate concentric with the disk over which the usual stylus of the recording or reproducing diaphragm is displaced.

According to the invention the apparatus comprises two independent sound arms which respectively carry the recording sound box and the reproducing sound box, these two sound arms being guided by the spiral groove of one and the same guide plate. This combination of two sound boxes, one for recording and the other for reproducing, with a single guide plate capable of displacing both of them with their sound arms in accordance with an angular translatory movement for producing the record and the reproduction, has great advantages as will be readily understood, because it allows of obtaining a recording and reproducing apparatus which is of exceedingly simple construction and is very compact and in which the number of elements is reduced to the strict minimum.

The novel apparatus is also characterized by the combination with the two sound arms carrying the recording and reproducing sound boxes and the single guide plate the spiral groove of which controls the two sound arms of a special phonic disk constituted by a core of cardboard, paper or analogous material covered on its two faces with a layer of wax or suitable composition for receiving the record. For the purposes of correspondence, this phonic disk has the advantage that it can be transmitted through the post without taking special precautions and without risk of damage so that its employment in combination with the device described above renders it possible to utilize the apparatus under the best conditions for the special object in view, that is to say for correspondence.

The apparatus has further characteristics as will appear from the following description.

The invention is illustrated by way of example in the accompanying drawings in which:

Figure 1 is a plan of the apparatus showing the position of the parts during recording.

Fig. 2 shows the position of the parts during reproduction.

Fig. 3 is a vertical section on the line A—A in Fig. 1.

Fig. 4 is an elevation of a sound arm.

Fig. 5 is a vertical section thereof.

Fig. 6 is a horizontal section thereof.

Fig. 7 is a partial vertical section on the line B—B in Fig. 9.

Fig. 8 is a perspective view of the case containing the complete apparatus in the constructional form illustrated by way of example.

Fig. 9 is a plan view with the lid of the apparatus raised.

The apparatus represented by way of example comprises a case 1 inclosing the operating mechanism which may be of any convenient kind and comprise a spring motor or an electric motor for example. This mechanism drives the vertical shaft 2 (Fig. 3) upon which a plate 3 of ebonite or the

like is mounted. This plate may be provided at its center with a metal sleeve 4 into which is screwed a threaded nipple integral with a small plate 5 serving for fixing upon the plate 3 the disk 6 which is to be recorded or utilized for reproduction. As stated above, this disk 6 is composed of a core of paper, cardboard or the like, covered on both its faces with wax or some similar and usual composition. In proximity to its edge on the portion *a* the plate 3 is provided with a spiral furrow or groove, the path of which corresponds with that which the groove recorded on the disk 6 is to have. The disk 6 consequently covers the central portion of the plate 3 within the annular zone *a* carrying the spiral furrow.

Two supports 8, 9 are fixed on the case 1 and the two independent sound arms 10, 11 are able to rotate freely in these supports. The pivotal movement of these arms is limited by screws 12, 13 (Figs. 4 and 5). Each support 8, 9 ends at its upper part in a conduit 14 which communicates below with the inner conduit of the pivotal sound arm and is adapted to receive the extremity of the sound tube 15 serving for recording and reproducing. The sound tube is thus supported independently of the sound arm which is consequently relieved of the weight of the tube. If desired, this tube may be replaced by a horn or trumpet.

The free extremity of the sound arm 10 carries a socket 16 which can turn around a horizontal axis and upon which is fixed the recording sound box 17 provided with the usual recording sapphire. Similarly the arm 11 carries a socket 19 supporting the reproducing sound box 18. The arm 10 also carries a horizontal spindle 20 (Fig. 6) which is perpendicular to it and around which a tube 21 can pivot; this tube is integral with an arm 22 carrying at its extremity the guiding point 23 intended to move in the groove in the guide plate 3 in such a manner that under the action of this groove, it imparts an angular movement of translation to the recording sapphire. A small spiral spring 24 constantly depresses the arm 22, thus causing the point 23 to rest in the groove. A finger 25 integral with the socket 16 contacts with the arm 22 when the diaphragm is raised and lifts it so as to separate the point 23 from the plate 3. A similar arrangement is adopted for the sound arm 11. 21^a, 22^a, and 25^a indicate the parts respectively corresponding to the parts 21, 22 and 25. Each of the sound boxes 17 and 18 carries a small handle or finger 26 or 27 for conveniently raising it and these fingers bear the respective inscriptions "Recorder" and "Reproducer."

A plate 28 having the shape of an arc of a circle is fixed to the top of the case 1 by its bent extremities; this plate is sufficiently raised above the case to permit of the plate 3 passing beneath it. The extremities of this plate are marked with arrows 29, 29^a, 30 and 30^a. When the guide point 23 of the recording sound box is opposite the arrow 29, the sapphire of the diaphragm is located in proximity to the outer edge of the disk 6, that is to say in the proper position for commencing to record. The recording sound box is preferably stopped automatically at this point when its sound arm is swung outward owing to the fact that it then strikes against the edge of the plate 28. In reproducing, the guide point of the reproducing sound box is similarly brought opposite the arrow 29^a at the other extremity of the plate 28. In this position the reproducing sound box is also able to strike against the said plate. The arrows 30, 30^a serve for disks 3 of diameter represented, that is to say a diameter smaller than that which has just been considered. The divisions 31, 31^a permit of bringing the diaphragms to given points on the disk 3 without trial or hesitation.

In order to render one of the sound boxes inoperative, it is merely necessary to bring its edge upon the plate 28. The method of using the apparatus will be obvious from the foregoing description. In order to make a record, the disk 6 is placed upon the plate 3 and the mechanism is started; the recording sound box is then brought into position upon the disk 6 its guide point being opposite the appropriate arrow 29 or 30. The depression of the diaphragm onto the disk produces the simultaneous depression of the point 23 onto the plate 3 by the action of the spring 24 so that a single movement is sufficient to cause the diaphragm and the guide point to assume the operative position. It is thus only necessary to talk into the trumpet of the sound tube 15 which has been connected with the support 8. The reproducing sound box has been rendered inoperative in the manner indicated above. During the making of the record, the recording sapphire guided by the point 23 which moves in the groove of the plate 3 describes an arc of a circle around the axis of the support 8 while approaching the center of the apparatus. If it be desired to read over that which has been dictated in the manner described the recording sound box is rendered inoperative, the sound tube 15 is replaced on the support 9 (Fig. 2) and the reproducing sound box is brought into action. On receiving the letter-disk the recipient places it upon his apparatus and proceeds in the manner last described. It is therefore apparent that the operations to be effected are exceedingly simple.

The control mechanism of the apparatus which is represented in Fig. 3 presents no peculiarity. 32 designates a socket in which the end of the winding handle is engaged.

33 designates the spring barrel and 34 is the ball governor. The usual brake 35 is mounted on the upper part of the case 1.

The apparatus represented is essentially portable. It consists of two parts: the lower part constituted by the case 1 and the upper part constituted by a case 1^a provided with a lid 36. During transport the two cases are united by means of bolts 37. The upper case 1^a contains two threaded rods 38 upon which a certain number of disks of two different diameters can be passed. These disks are held in place by metal plates 39 integral with nuts 40 which are screwed on the rods 38. A deeper portion of the upper case 1^a contains the sound tube 15 and the small accessories. Fig. 8 shows that the complete apparatus is exceedingly compact and readily transportable. This constructional form of the apparatus is particularly suited for commercial travelers for example as the use of the apparatus will dispense them from the necessity of writing their correspondence.

It will of course be understood that the invention is not limited to the construction here described and illustrated. In particular, the two supports 8, 9 might be located at diametrically opposite points of the case 1 and similarly the upper case 1^a might be replaced by a flat cover; in this instance the case 1 would be integral with compartments located laterally of the said case and in which the disks and accessories would be kept.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a recording and reproducing phonograph: a recording sound box, a reproducing sound box, a guide plate having a spiral groove, means for rotating said guide plate, sound arms upon which the recording and the reproducing sound boxes are respectively mounted so as to be capable of swinging vertically, supports upon which the sound arms may swing freely, guiding points mounted on the sound arms, respectively, and adapted to swing vertically on the same, means for forcing the guiding points downwardly in contact with the spiral groove on the guide plate, a member moving with each of the sound boxes and adapted to remove the corresponding guiding point, from the spiral groove when the sound box is brought to the inoperative position and means for supporting the sound boxes in inoperative position, substantially as described and for the purpose set forth.

2. In a recording and reproducing phonograph: a recording sound box, a reproducing sound box, a guide plate having a spiral groove; means for rotating said guide plate, sound arms carrying the recording sound box and the reproducing sound box, respectively, supports upon which the sound arms may swing freely, guiding points mounted on the sound arms, respectively, and adapted to swing vertically on the same so as to engage with the spiral groove or to be removed therefrom and means for supporting the sound boxes in inoperative position with respect to the phonographic disk, said means embodying an arc shaped plate provided with marks at its ends, substantially as described and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERNEST ALBERT IVATTS.

Witnesses:
ANTOINE LAVOIE,
CHAS P. PRESSLY.