Jan. 21, 1936. S. G. LANGLEY 2,028,224

PHONOGRAPH

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Fig.1

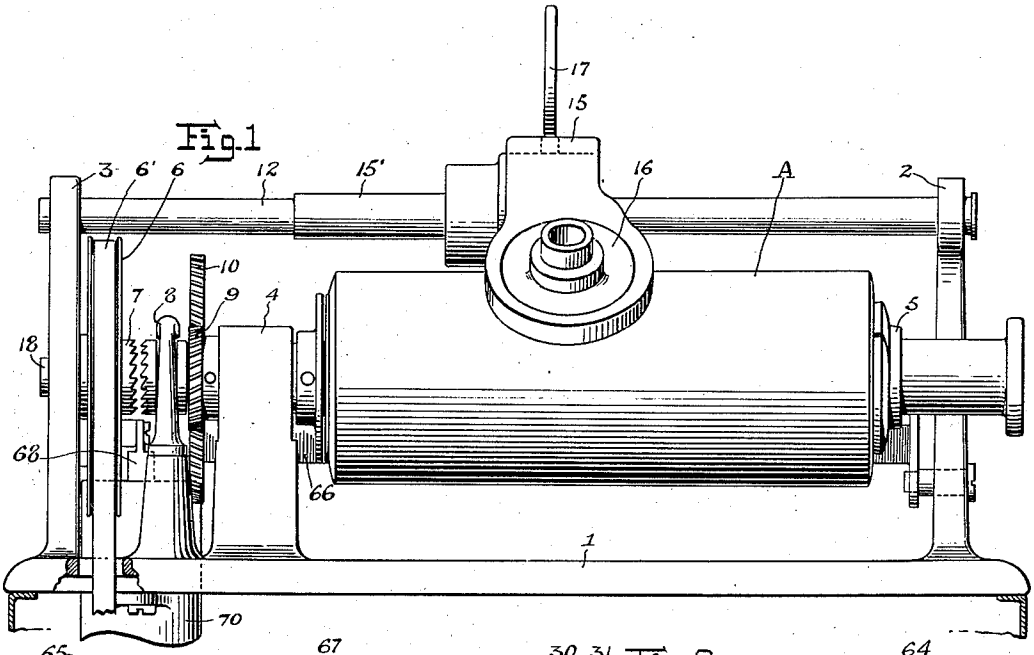



Fig.2

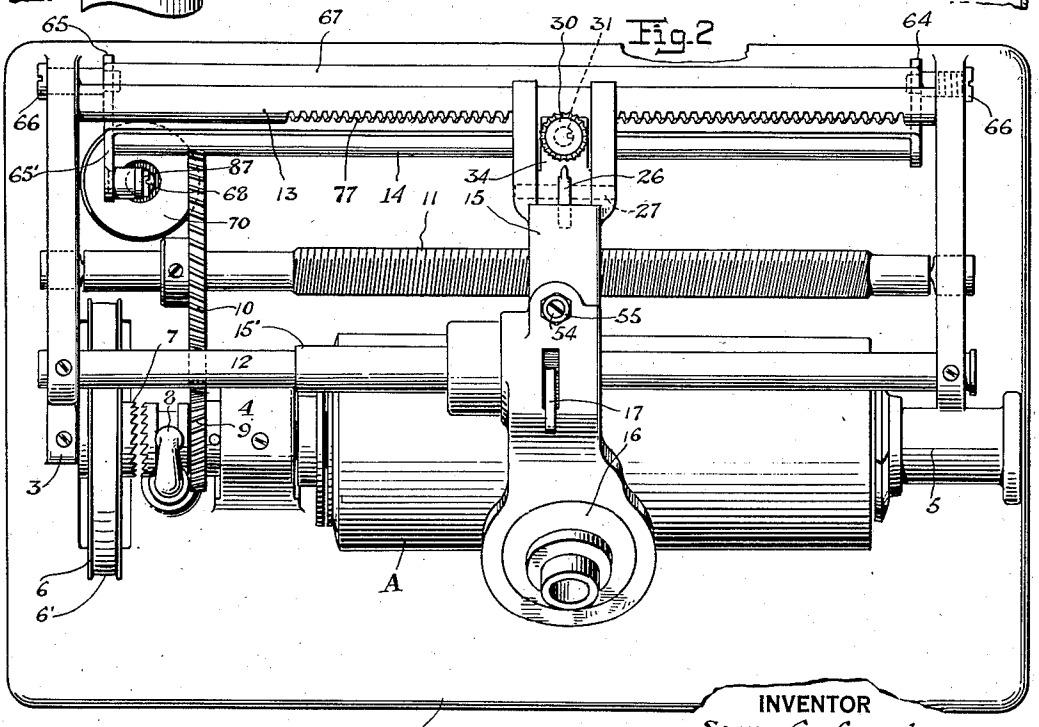
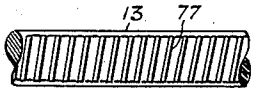



Fig.3




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Fig. 4

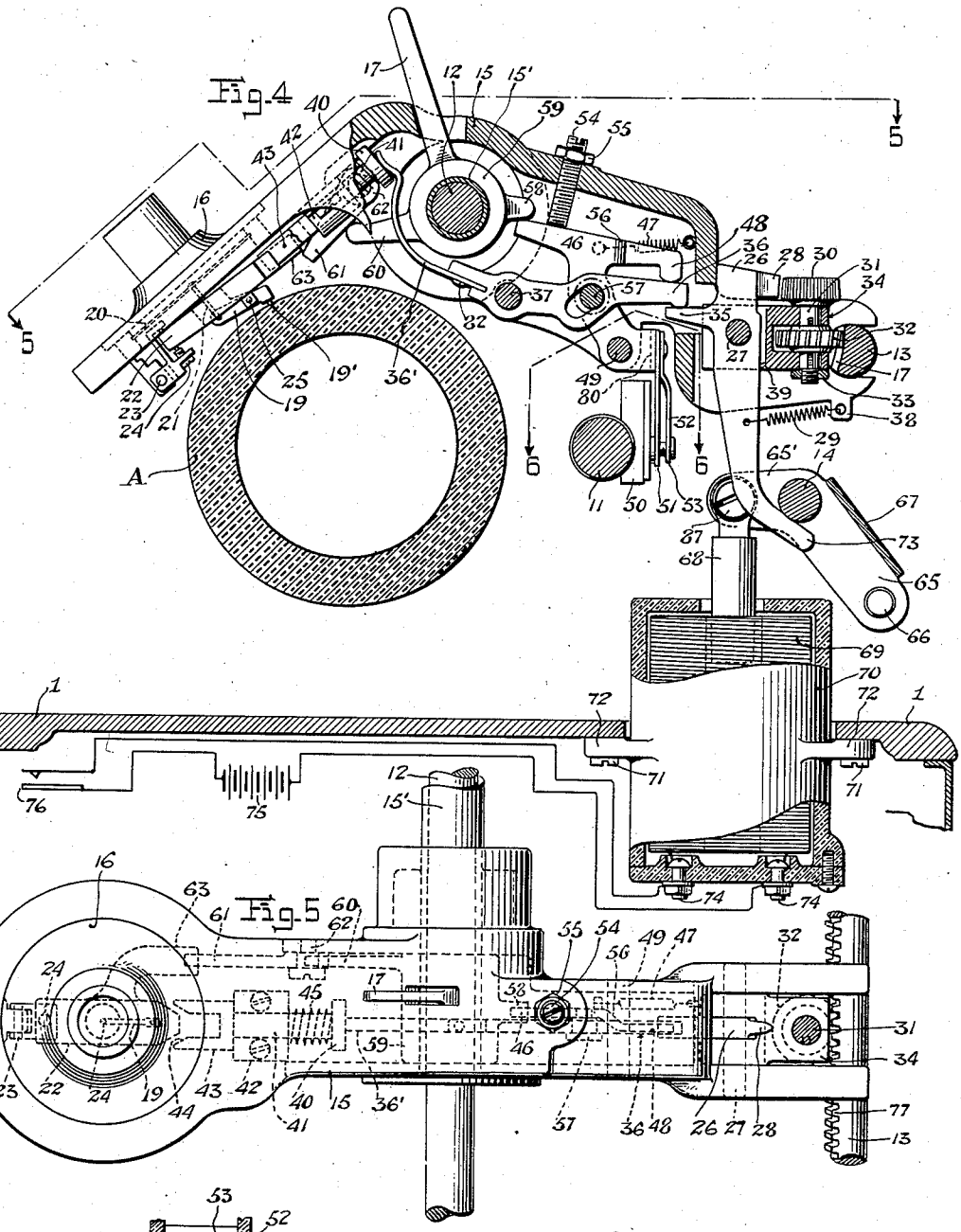



Fig. 5




Fig. 6

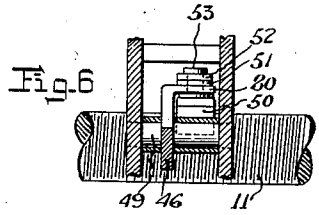
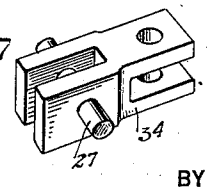



Fig. 7




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# UNITED STATES PATENT OFFICE

2,028,224

## PHONOGRAPH

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Application February 4, 1932, Serial No. 590,813

12 Claims. (Cl. 274—21)

This invention relates to phonographs and more particularly to back spacing mechanisms for phonographs such as are ordinarily used for recording and reproducing dictation.

It has been found desirable in phonographs of this character to provide means to enable the operator thereof to back space the carriage and the soundbox supported thereby in order to repeat portions of the matter recorded on the record cylinder. A reproducing sound box for such a phonograph is usually constructed so as to allow the stylus a free movement of limited extent longitudinally of the record cylinder so that it may follow the grooves engraved thereon. It is therefore necessary when a back spacing motion is imparted to the carriage, to provide means to simultaneously hold the stylus against movement relative to the carriage and to also free the carriage from its normal forward feeding mechanism. It is also desirable that means for controlling such back spacing be located at a point remote from the phonograph itself, and in the case of a transcribing phonograph, at a point adjacent the keyboard of the typewriter of the operator. It is further desirable to supply manually operable means on the carriage for disengaging the feed screw and raising the sound box from the record cylinder so that such cylinder may readily be removed from or applied to the mandrel and also so that the carriage may be properly located in relation to the recorded matter on the cylinder. The back spacing mechanism applied to the phonograph should in no wise interfere with such operations.

It is an object of this invention to provide a back spacing mechanism for phonographs of a new and improved form which may be controlled at a point remote from the phonograph.

It is another object of this invention to provide a back spacing mechanism of a new and improved form which acts to hold the stylus against motion relative to the carriage and to render the forward feeding mechanism inoperative during the back spacing operation.

It is a further object of this invention to provide a back spacing device which is particularly adapted for operation by electromagnetic means controlled from a point which is convenient to the operator.

Further objects and features of this invention will be set forth in the following specification and appended claims.

For clearer understanding of my invention reference may be had to the drawings accompanying and forming part of this specification, wherein:

Fig. 1 is a front view of a portion of a phonograph with one embodiment of my invention applied thereto.

Fig. 2 is a plan view of the machine shown in Fig. 1.

Fig. 3 is a detail of a portion of the rear guide rod of the phonograph shown in Fig. 1.

Fig. 4 is a side view, partly in section, of the traveling carriage and associated parts, of the phonograph shown in Fig. 1.

Fig. 5 is a plan view of a portion of the apparatus shown in Fig. 4 and is taken approximately on line 5—5 thereof.

Fig. 6 is a detailed sectional view taken approximately on the line 6—6 of Fig. 4.

Fig. 7 is a detail of a portion of the back-spacing mechanism.

Referring to the drawings, the phonograph consists of a base 1 with standards 2 and 3 carrying guide rods 12 and 13 and a feed screw 11. A mandrel or record support 5 is journaled in another upright standard 4 on base 1. The mandrel is driven from a motor (not shown) by means of a belt 6' operating over a pulley 6 which is mounted for rotation on a stud 18 fastened in the standard 3. A clutch 7 comprising two toothed members is provided for connecting and disconnecting the mandrel from the driving motor, and a shifting arm 8 is provided for controlling the clutch. The shaft of the mandrel carries a gear 9 adapted to mesh with another gear 10 mounted on the feed screw 11 so that whenever the mandrel is operated, rotation is imparted to the feed screw.

A carriage 15 is slidably mounted on the guide rods 12 and 13 for longitudinal movement. The carriage supports a sound box 16 of conventional form comprising a diaphragm 20 connected by means of a link 21 to a stylus arm 19 carrying the stylus 19'. The stylus arm 19 is pivoted by a pin 25 on a floating weight 22. The floating weight 22 is in turn pivoted for movement toward and away from a record cylinder A on the mandrel by a pin 23 and for movement transversely along the record cylinder by a pivot 24. This is a well known construction which allows sufficient freedom of movement to the floating weight and stylus arm to permit the stylus to readily track the groove engraved upon the record cylinder. The apparatus described thus far is of the usual construction and is well known in the art.

Pivoted in the arm or carriage 15 by means of

9. In a phonograph, a frame, a carriage supported thereon for traversing movement, and means to back space the carriage comprising a gear wheel rotatively mounted thereon, a rack mounted on the frame and constantly meshing with said gear wheel, and means to lock said gear wheel against rotary motion and to thereafter move said gear wheel transversely of said rack, said back spacing means being biased to inoperative condition.

10. In a phonograph, a frame, a rotatable record support mounted on said frame, a carriage supported on said frame for record support traversing movement only, and means for imparting such movement to the carriage comprising a rack member and a cooperative gear member, said members being respectively mounted on said frame and carriage for relative translatory movement in a direction transverse to the traversing movement of said carriage and coacting during such relative movement to effect the said traversing movement of the carriage.

11. In a phonograph, a frame, a carriage supported thereon for traversing movement, means for imparting such movement to the carriage comprising a rack member and a cooperative gear member, said members being constantly meshed, and respectively mounted on said frame and carriage for relative translatory movement in a direction transverse to the traversing movement of said carriage and coacting during such relative movement to effect the said traversing movement of the carriage, and means actuatable to effect such relative movement of said members.

12. In a phonograph, a frame, a carriage supported thereon for traversing movement, and means to back space the carriage comprising a gear wheel rotatably mounted thereon, a rack mounted on said frame and with which said gear wheel is adapted to coact and means to lock said gear wheel against rotary motion and thereafter to move said gear wheel transversely of said rack while in engagement with the teeth of the latter.

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WELDING APPARATUS

Filed May 16, 1934

FIG. 1

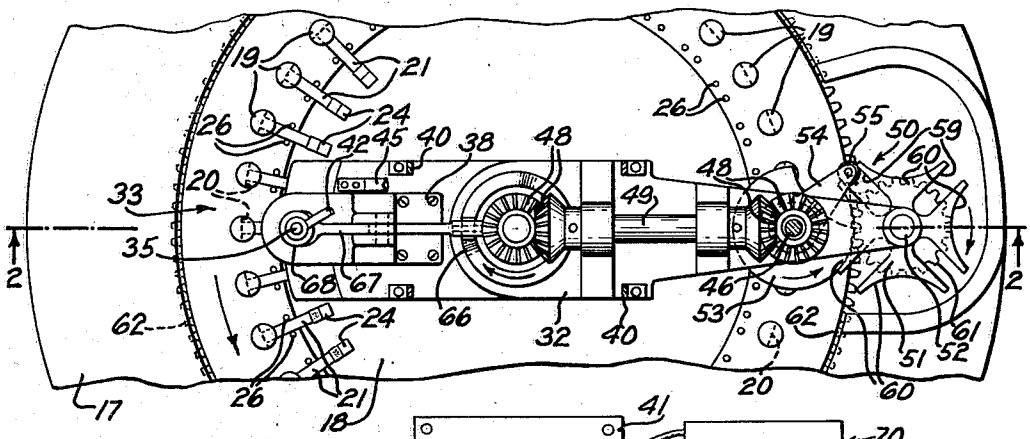
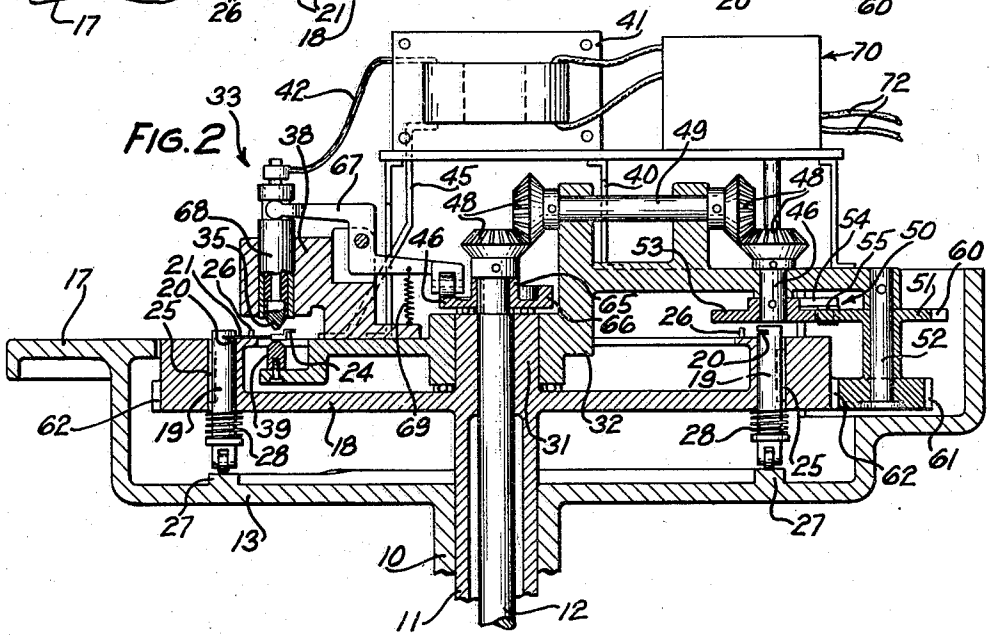



FIG. 2




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