June 2, 1942. P. WEATHERS ET AL 2,285,132

COMBINATION ELECTRIC MUSICAL INSTRUMENT

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Fig. 1.

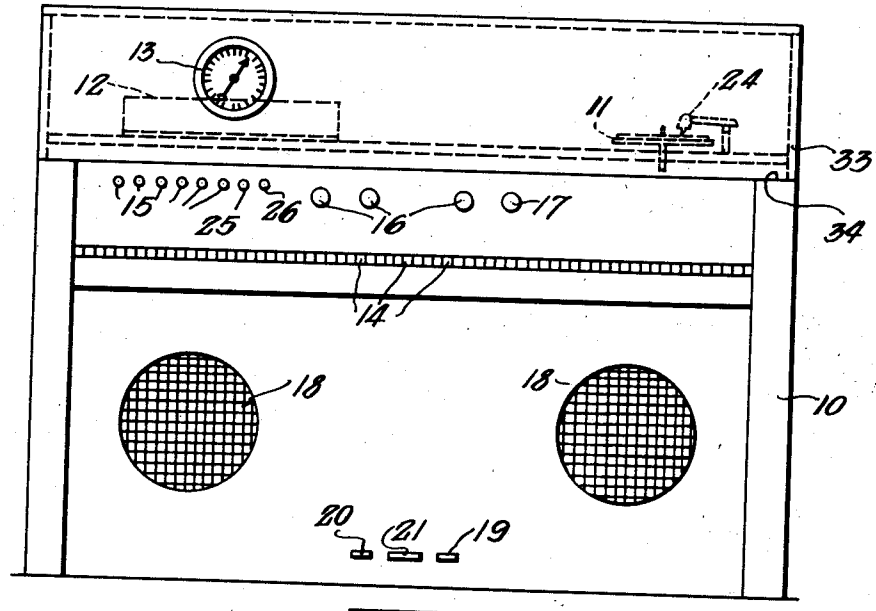
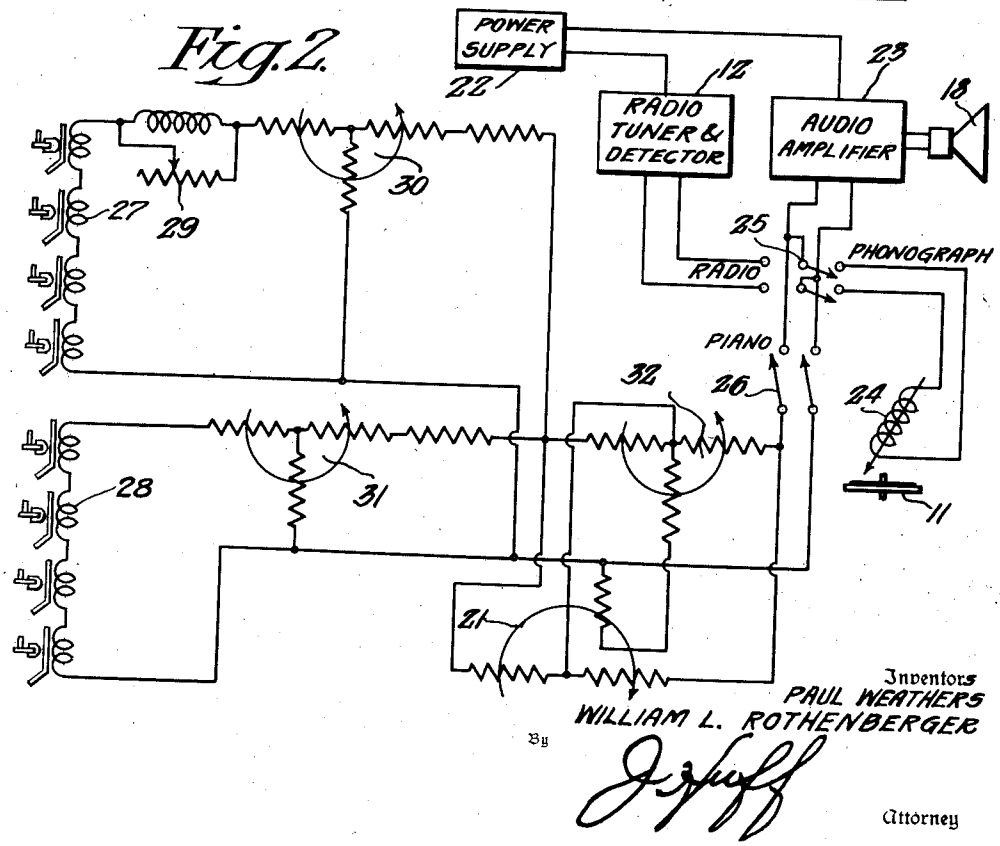


Fig. 2.



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COMBINATION ELECTRIC MUSICAL INSTRUMENT

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3 Claims. (Cl. 84—1.27)

This invention relates to a combination electric musical instrument, and more particularly to a combination of a piano, a radio set and a phonograph. In the apparatus, the several instruments are so combined as to have a common sound reproducer, a common audio amplifier, common power supply insofar as it is necessary, and appropriate interlocking control so that the instruments may be used simultaneously in such combination as may be desirable.

One object of the invention is to provide an improved combination of piano, radio set and phonograph.

Another object of the invention is to provide a novel and compact combined musical instrument.

Another object of the invention is to provide an improved and inexpensive combination of the three aforesaid instruments.

Another object of the invention is to provide an appropriate instrument for practice or instruction whereby a person may play the piano with the radio set or phonograph.

Other and incidental objects of our invention will be apparent to those skilled in the art from a reading of the following specification and an inspection of the accompanying drawing, in which

Figure 1 is a front elevation of the combined instrument, and

Figure 2 is a schematic wiring diagram thereof.

Referring first to Fig. 1, the instrument is provided with an appropriate casing **10** which housed the entire mechanism, the phonograph being housed in the upper portion of the casing, as indicated at **11**, and the radio set being housed in another part of the upper portion of the casing, as indicated at **12**, the tuning dial thereof appearing at **13**. The piano mechanism is housed in the lower portion of the casing, and the keyboard thereof extends therefrom at the appropriate height, as indicated at **14**. Tuning knobs and other appropriate controls for the radio set are indicated at **15**. The volume control, tone control and other control knobs of the piano are indicated at **16**. The volume control knob of the phonograph is indicated at **17**. Appropriate loudspeakers **18** may be mounted in the lower part of the cabinet and the pedals for the piano are located in their usual position, **19** indicating the loud pedal, **20** indicating the soft pedal, and **21** indicating the amplification control pedal described in more detail hereinafter.

Referring now to Fig. 2, an appropriate power supply unit **22** is provided which includes the usual transformers, rectifiers, filters, and voltage dividers if necessary. Power from this power supply is transmitted to the audio amplifier **23** which is used in connection with all three of the music producing devices, and power is also transmitted to the radio tuner and detector **12** which may be of any conventional type, although we prefer to use the type of radio receiver known as the superheterodyne. The phonograph **11** is provided with an appropriate pickup **24**, which is illustrated as being of the electromagnetic type, although any other type of electric pickup, such as electrostatic or piezoelectric, may be used if desired, and the output from this phonograph or from the radio set is transmitted selectively through the switch **25** to the audio amplifier. It should be noted that this switch **25** is so connected that either the phonograph or the radio set, or neither, may be connected to the audio amplifier. The output from the piano is connected to a switch **26** which has only the "on" and "off" positions. Due to this arrangement of switches, the piano may be connected alone to the audio amplifier and speakers, or it may be connected to the audio amplifier simultaneously with either the radio set or the phonograph, so that the piano may be played along with appropriate programs from either of the other sources.

In the piano itself the treble pickups are indicated at **27** and the bass pickups at **28**, these being indicated as electromagnetic pickups, although, if desired, electrostatic or piezoelectric pickups may be used. The tone control **29** permits controlling the tone of the treble section of the instrument, while the treble volume control **30** and the bass volume control **31** control the total volume from the respective sections of the instrument. The master volume control **32**, which, like the volume controls **30** and **31**, is made in the form of a T-pad, controls the overall volume output. This master volume control, however, is supplemented by the pedal volume control **21** which controls the overall volume of the instrument in response to the operation of the corresponding pedal. It will be noted from the circuit shown in Fig. 2 that when the manual volume control **32** is turned to its maximum position the pedal volume control has no further effect while if the manual volume control is turned to its minimum position the pedal volume control can increase the volume up to the maximum and the two volume controls thus supplement each other. The volume controls **30**,

31 and 32 are located on the knobs 16 in any desired sequence.

The upper portion of the cabinet 33 stands on the lower portion 18 at the dividing line 34 and may be bodily removed therefrom if major repairs or alterations are to be made on either the radio set, the phonograph or the piano. Likewise, if desired, this entire upper portion of the cabinet may be removed and an appropriate cover may be substituted, leaving the apparatus as an electric piano without the auxiliary devices.

It should be noted that only a single power supply unit is provided, and this unit provides power for appropriate voltages and currents for the radio set and the audio amplifier. In addition to this, if electrostatic pickups are used for the piano, appropriate potentials for these pickups are provided from the same power supply unit, and if a type of pickup is used on the phonograph which has an appropriate power supply or biasing voltage, this is likewise provided from the single power supply unit. If the loudspeaker or loudspeakers are of such a type as to require field exciting current, this likewise may be supplied from the common power supply.

Having now described our invention, we claim:

1. In an electric piano, acoustical electric translating means, an audio amplifier connected to said translating means, a loudspeaker connected to said amplifier, manually controlled means independent of the piano mechanism for regulating the volume from all of said translating means, and pedal control means independent of the piano mechanism and supplemental to said manually controlled means for regulating the volume from all of said translating means over the range between the maximum for which the manual volume control is set to the maximum output of said translating means.

2. In an electric piano, acoustical-electric translating means for the individual notes, an audio amplifier, means independent of the piano mechanism for independently regulating the volumes from the treble and bass portions of said translating means, manually controlled means independent of the piano mechanism for regulating the volume from all of said translating means, and pedal controlled means independent of the piano mechanism and supplemental to said manually controlled means for regulating the volume from all of said translating means.

3. In an electric piano, acoustical electric translating means for the individual notes, an audio amplifier connected to said translating means, a loudspeaker connected to said amplifier, manually controlled means independent of the piano mechanism for regulating the volume from all of said translating means, and pedal control means independent of the piano mechanism and supplemental to said manually controlled means for regulating the volume from all of said translating means over the range between the maximum for which the manual volume control is set to the maximum output of said translating means.

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