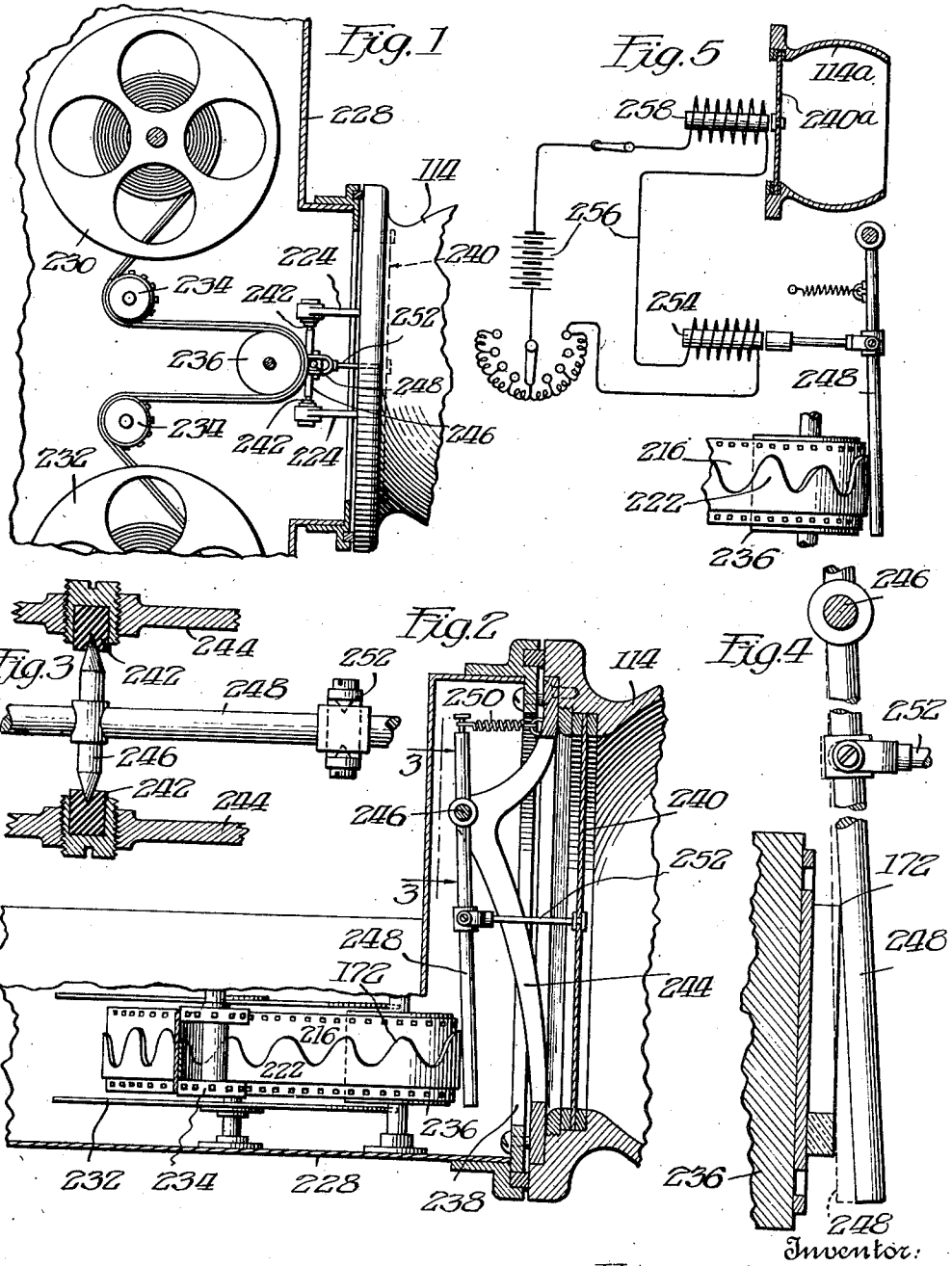
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1,543,867

H. L. PAGE

REPRODUCER FOR SOUND RECORDS

Original Filed May 3, 1922



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UNITED STATES PATENT OFFICE.

HOWARD L. PAGE, OF CHICAGO, ILLINOIS.

REPRODUCER FOR SOUND RECORDS.

Original application filed May 3, 1922, Serial No. 558,269, Patent No. 1,445,030, dated February 13, 1923. Divided and this application filed October 9, 1922. Serial No. 593,193.

To all whom it may concern:

Be it known that I, HOWARD L. PAGE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Reproducers for Sound Records, of which the following is a specification.

This invention is a machine of the phonographic type for reproducing sound from a record of the type shown, described and claimed in my original patent application, Serial Number 500,012, filed September 12, 1921, and my application, Serial Number 558,269, filed May 3, 1922, issued as Patent 1,445,030, Feb. 13, 1923, of which this is a division.

The object of the invention is to produce a machine which will operate upon records made by said prior patent application and, as a result thereof, deliver into the ear audible sounds substantially identical with those originally entering the recording machine.

The invention consists in a machine capable of attaining the foregoing objects, which can be easily and cheaply made, which is satisfactory in use, and is not readily liable to get out of order.

The invention further consists in many features and details of construction which will be hereafter more fully set forth in the specification and claim.

Referring to the drawings, in which like numerals designate the same parts throughout the several views:

Figure 1 shows the reproducing machine by which a commercial sound record of the type produced by the machine of said prior applications is used to reproduce the original sounds. This figure is a side view of the mechanism of Figure 2.

Figure 2 is a plan detail view of the mechanism of Figure 1.

Figure 3 is a detail of the pivot mechanism for the record reproducing bar taken from approximately the points indicated by the arrows at 3—3 of Figure 2.

Figure 4 is an enlarged detail view of the reproducing bar showing the manner in which it contacts the reproducing record in transmitting what is on it into audible sound.

Figure 5 shows an electric circuit and mechanism inserted therein by which the reproducing apparatus of this invention may be used to produce the actual sounds which are on the record at any distance from the main machine, either a few feet or many miles.

For the purpose of insuring identity of this divisional application with the original application, said figures are merely reproductions of said Figures 23 to 27 of said original application with only the figure numbers changed, the letters of reference on the figures being otherwise those of the original application.

The mechanism of the original application forms a record, shown in Figures 2 and 5, comprising a flat tape 216 supporting a thicker portion 222 having a right angle edge 172, whose irregularities really constitute the effective working record, as will more fully appear from said original application.

In the use of this invention, it is supposed that the operator is equipped with the long strip of record 222—216 from which it is desired to produce audible sounds, as with any phonograph, and for this purpose, this record is run through a reproducing machine of the type shown in Figures 1 and 5, inclusive. A preferred form of the device is shown conventionally mounted inside of a case 228 provided with record carrying reels 230 and 232 between which the record may be passed over driving rollers 234 suitably power actuated and an intermediate roller 236. At one side of the case there is a large opening 238 over which fits the resonator 114, heretofore referred to, differing from the one of the producing machine only in that an ordinary reproducing disc 240 of metal, mica or any other commercial form of material is substituted for the one of gold beaters skin 120, heretofore referred to. This resonator carries a frame 244 similar to frame 132 carrying soft rubber pivot bearings 242 between which is journaled a shaft 246 of a reproducing rod 248 adapted to contact the line 172 of the record 222 at an angle thereto as shown in detail in Figure 4 and be held in contact therewith by a spring 250 as shown in Figure 2. The soft rubber bearings 242 are important in absorbing undue vibrations which might affect the reproducer. This rod 248 extends transversely of the record 222—216 and completely across it and the record is located near the end of the rod so that there is

ample opportunity for the rod to follow all of the small movements and variations of the curved line 172 as the record passes under the rod thereby insuring transmission of those variations from the rod 248 through a connecting rod 252 attached to the diaphragm 240 with the result that all the variations in the record 222 are transmitted to the diaphragm and consequently into the air as sound, such sound being, because of the accuracy of the machine and the methods followed an exact reproduction of the sounds initially delivered into the resonator 114 of the receiving machine.

Particular attention is called to Figure 4 which shows exactly how the rod 248 travels only on the edge 172 of record 222 as distinguished from contacting the upper surface of the thickened portion 222 and thereby insuring that the record indulations of line 172 are all accurately transmitted to the reproducer.

It is, of course, to be understood that the markings of line 172 in the various drawings are very much exaggerated for purposes of illustration but records made by this method do in fact vary in the same way that they are illustrated and the machine does produce in actual practice the sounds recorded.

Figure 5 shows a modified form of construction in which the reproducing bar 248 instead of operating directly upon the diaphragm 240, operates in conjunction with a transmitting magnet 254 connected in circuit through the wires and electrical mechanism 256 with a reproducer magnet 258 adapted to operate the diaphragm 240^a of a distant resonator 114^a. Under this construction, the members 240^a and 248 may be miles apart without affecting the result.

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

Sound reproducing mechanism comprising, in combination with an undulated strip record, a bar pivoted to swing in a plane transversely to the direction of movement of said record, a spring holding said bar in engagement with the undulated portion of said record whereby the bar is oscillated when the record is moved, a rod pivoted to said bar between the pivot of the latter and the record, an armature on said rod, a magnet in operative relation to said armature, and a reproducing mechanism in circuit with said magnet.

In witness whereof, I have hereunto subscribed my name.

HOWARD L. PAGE.