

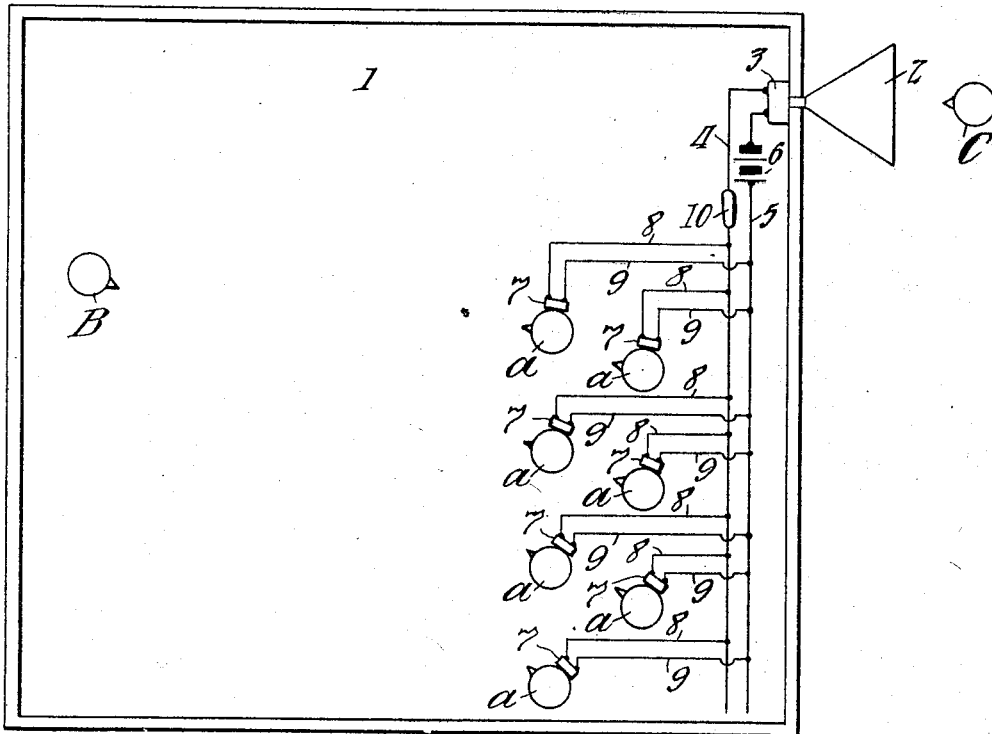
T. A. EDISON.

METHOD AND MEANS FOR IMPROVING THE RENDITION OF MUSICAL COMPOSITIONS.

APPLICATION FILED JAN. 17, 1916.

1,323,218.

Patented Nov. 25, 1919.



*Witnesses:*  
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William A. Hardy

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# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, WEST ORANGE, NEW JERSEY, ASSIGNOR TO  
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METHOD AND MEANS FOR IMPROVING THE RENDITION OF MUSICAL COMPOSITIONS.

1,323,218.

Specification of Letters Patent.

Patented Nov. 25, 1919.

Application filed January 17, 1916. Serial No. 72,423.

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, and a resident of Llewellyn Park, West Orange, Essex county, New Jersey, have invented a certain new and useful Method and Means for Improving the Rendition of Musical Compositions, of which the following is a description.

10 My invention relates to the rendering of musical compositions by a plurality of players, such as an orchestra, and the object thereof is to provide a method and means for enabling a plurality of instrumental  
15 players, especially the players of the stringed instruments in an orchestra, to maintain substantially uniform pitch and tempo while jointly rendering any musical composition or work.

20 Ordinarily during the orchestral performance of a musical composition, no effective pitch guide is furnished the players with the result that the renditions by the several  
25 players of the stringed instruments in the orchestra usually vary more or less in pitch, thereby producing beats or pulsations and rendering such performance disagreeable and unpleasant to listen to. In order to  
30 overcome this objection, I propose to provide the orchestra, preferably in addition to the usual leader or conductor who gives the tempo, with a master artist or player, who may be termed the pitch leader, to play  
35 any composition which is being played by the orchestra. The rendition of the master artist is acoustically, and preferably separately, transmitted to each player of a  
40 stringed instrument in the orchestra in any desired manner, but preferably by telephonic means, the transmitted rendition serving as a guide to each such player to enable him to maintain his own rendition  
45 exactly to the pitch thereof. The rendition of the master artist is preferably transmitted to only one ear of each player of a  
50 stringed instrument in the orchestra, the other ear of each such player being left free to hear his own instrument.

The rendition of the master artist is preferably augmented or amplified in any suitable manner before reaching each of the  
55 players of the stringed instruments, the amplification being such that the rendition by the master artist will appear louder to

each such player than any other instrument  
55 in the orchestra and also preferably louder than his own instrument. Consequently, as each player of a stringed instrument in the orchestra hears loudly only the rendition of the master artist, he will at once notice if  
60 he is out of pitch with the master artist and consequently is enabled to readily maintain his own rendition exactly to the pitch of the rendition of the master artist.

In order that my invention may be more  
65 clearly understood, attention is directed to the drawing accompanying and forming a part of this specification, and in which the single figure shows diagrammatically an orchestra and means whereby my invention  
70 may be carried out.

Referring to the drawing, reference character 1 represents a stage or other suitable setting for an orchestra, the players of the stringed instruments in the orchestra being  
75 represented diagrammatically by reference characters *a, a, a*, etc. The usual conductor or leader who gives the tempo to the players in the orchestra during the rendition of a musical composition is represented diagram-  
80 matically at B. Reference character C represents diagrammatically a master artist or player, preferably a player of a stringed instrument, who, during the rendition of a selection by the orchestra, stands in front of  
85 a sound collecting device, such as the horn 2, and plays the selection as near in perfect pitch as possible. This master artist or player may be termed the pitch leader of the orchestra. The sound collecting device or  
90 horn 2 is provided at its small end with a telephone transmitter 3 which is connected to the conductors 4 and 5 of a circuit provided with a suitable source of current, such as a battery 6. A plurality of telephone re-  
95 ceivers, corresponding in number to the number of players *a* of stringed instruments in the orchestra, are respectively connected in parallel with the conductors 4 and 5 by means of a plurality of pairs of conductors  
100 8 and 9. A suitable switch 10 may be employed for controlling the main circuit. Each receiver 7 is suitably supported, as by means of a headband, not shown, against one ear only of a player *a*, the other ear of  
105 each player *a* being left free to hear his own instrument. Accordingly, one ear of each player *a* is acoustically connected with

the sound transmitter 3 and the sound collector or horn 2, and receives the rendition of the master artist or pitch leader during the orchestral performance of a musical composition. The rendition of the pitch leader C as transmitted to each player  $a$  is augmented or amplified, preferably by employing a microphone transmitter at 3, and the amplification is preferably such that the rendition of the master artist as received by each player  $a$  will be approximately one-third louder than his own rendition. Accordingly, as hereinbefore described, each player of a stringed instrument in the orchestra is enabled to readily maintain his own rendition exactly to the pitch of the rendition by the master artist.

With my invention orchestral renditions of hitherto unapproachable purity may be obtained, as it is possible for the several players in the orchestra not only to keep in correct tempo, but also to readily maintain substantially perfect unison of pitch.

It is to be understood that my invention is subject to various changes and modifications in the means and method above described without departing from the spirit thereof. For example, it is within the scope of my invention to employ other means than that shown and described herein for acoustically transmitting the rendition of the master artist to the players of the stringed instruments.

Having now described my invention, what I claim and desire to protect by Letters Patent of the United States is as follows:—

1. The method of enabling the maintenance of substantially uniform pitch in the joint rendition of a musical composition by a plurality of instrumental players, which consists in separately transmitting to each of said players while rendering said composition a single unblended rendition of such composition, substantially as described.

2. The method of enabling the maintenance of substantially uniform pitch in the joint rendition of a musical composition by a plurality of instrumental players, which consists in transmitting to one ear of each of said players while rendering said composition a single rendition of such composition, excluding from said ear all the other renditions of the composition, and leaving the other ear of each player free to hear his own instrument, substantially as described.

3. The method of enabling the maintenance of substantially uniform pitch in the joint rendition of a musical composition by a plurality of instrumental players, which consists in telephonically transmitting to each of said players while rendering said composition a single unblended rendition of such composition, substantially as described.

4. The method of enabling the maintenance

of substantially uniform pitch in the joint rendition of a musical composition by a plurality of instrumental players, which consists in transmitting to each of said players while rendering said composition an unblended rendition of such composition by a single master artist, substantially as described.

5. The method of enabling the maintenance of substantially uniform pitch in the joint rendition of a musical composition by a plurality of instrumental players, which consists in transmitting to each of said players while rendering said composition a single unblended rendition of such composition, and augmenting the said transmitted rendition so that the latter as received by any player will be louder than his own rendition, substantially as described.

6. The method of enabling the maintenance of substantially uniform pitch in the joint rendition of a musical composition by a plurality of instrumental players, which consists in separately transmitting to one ear only of each of said players during such joint rendition the unblended rendition of such composition by a master artist, and leaving the other ear of each player free to hear his own instrument, substantially as described.

7. The method of rendering a musical composition by a plurality of instrumental players, which consists in a leader or conductor giving the tempo to said players, a master artist rendering said composition, and separately transmitting to each of said players while the latter are jointly rendering such composition the unblended rendition of said master artist to thereby give a pitch guide to said players, substantially as described.

8. The method of rendering a musical composition by a plurality of instrumental players, which consists in a leader or director giving the tempo to said players, a master artist rendering said composition, separately transmitting to one ear of each of said players the rendition of said master artist to thereby give a pitch guide to such players, excluding from said ear all the other renditions of the composition, and leaving the other ear of each player free to hear his own rendition, substantially as described.

9. The method of rendering a musical composition by a plurality of instrumental players, which consists in a leader or director giving the tempo to said players, a master artist rendering said composition, separately transmitting to one ear only of each of said players the unblended rendition of said master artist to thereby give a pitch guide to such players, leaving the other ear of each player free to hear his own rendition, and augmenting the transmitted rendition,

tion so that the latter as received by each player will be louder than his own rendition, substantially as described.

5 10. The method of enabling the maintenance of substantially uniform pitch in the joint rendition of a musical composition by a plurality of performers, which consists in transmitting to each of said performers while rendering said composition a single  
10 unblended rendition of such composition which as received by any performer will be louder than his own rendition, substantially as described.

15 11. The method of enabling the maintenance of substantially uniform pitch in the joint rendition of a musical composition by a plurality of performers, which consists in transmitting to each of said performers while rendering said composition a single  
20 unblended rendition of such composition which as received by any performer will be substantially one-third louder than his own rendition, substantially as described.

12. The method of enabling the mainte-

nance of substantially uniform pitch in the 25 joint rendition of a musical composition by a plurality of performers, which consists in transmitting to each of said performers while rendering said composition a single un-  
30 blended rendition of such composition which as received by any performer will be louder than the rendition of any of the other performers as received by such performer, substantially as described.

13. The method of enabling the mainte- 35 nance of substantially uniform pitch in the joint rendition of a musical composition by a plurality of performers, which consists in separately transmitting to each of said performers while rendering said composition a  
40 single unblended rendition of such composition, substantially as described.

This specification signed and witnessed this 12th day of January, 1916.

THOS. A. EDISON:

Witnesses:

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FREDERICK BACHMANN.