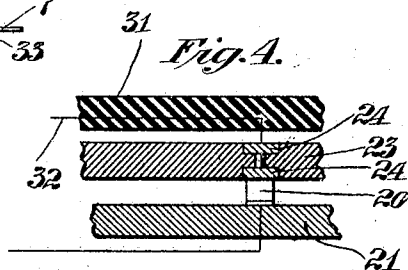
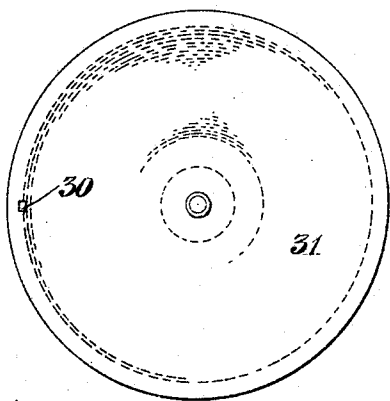
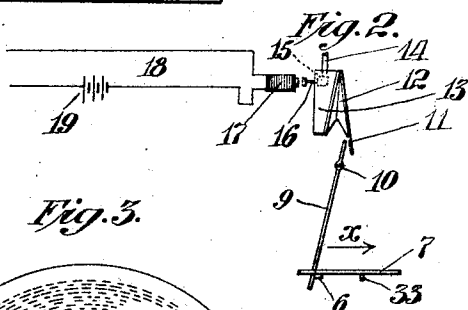
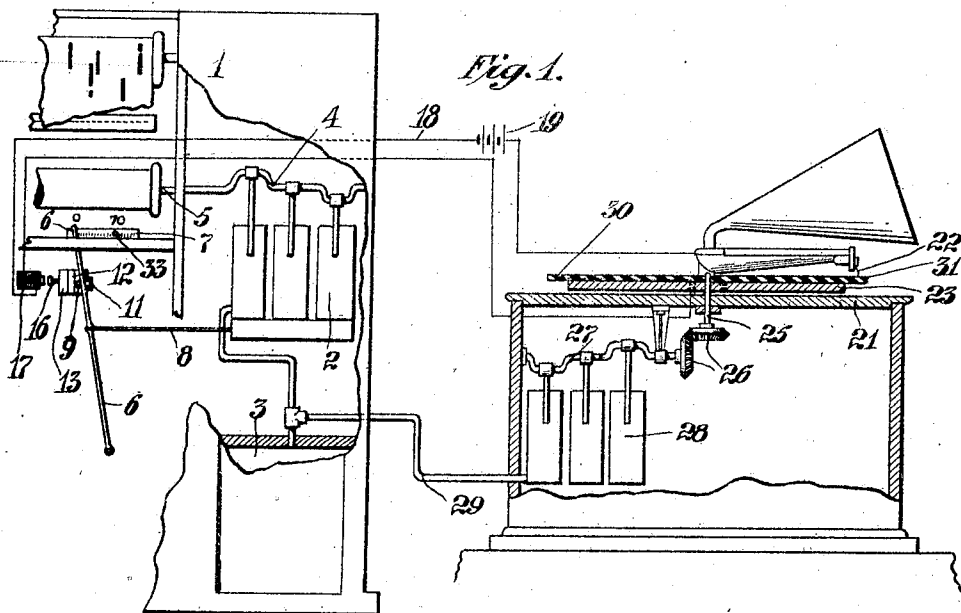


W. M. DAVIS.
 COMBINED PIANO PLAYER AND TALKING MACHINE.
 APPLICATION FILED MAY 9, 1910. RENEWED JUNE 10, 1911.

1,013,589.

Patented Jan. 2, 1912.



Attest:
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W. M. Davis Inventor:
 by *Oscar F. Gunn* his Atty.

UNITED STATES PATENT OFFICE.

WALTER M. DAVIS, OF NEW YORK, N. Y.

COMBINED PIANO-PLAYER AND TALKING-MACHINE.

1,013,589.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Application filed May 9, 1910, Serial No. 560,250. Renewed June 10, 1911. Serial No. 632,473.

To all whom it may concern:

Be it known that I, WALTER M. DAVIS, a citizen of the United States, and resident of the city of New York, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Combined Piano-Players and Talking-Machines, of which the following is a specification.

This invention relates to improvements in combined piano players and talking machines and the object of my invention is to so combine a piano playing device and talking machine that the note sheet moving mechanism of a piano playing device is automatically started from the talking machine correctly and precisely at the proper time and proper speed.

In the accompanying drawings in which letters of reference indicate like parts in all the figures: Figure 1 is an elevation of parts of the piano playing device and of the talking machine, parts being in section and parts shown diagrammatically, and others broken away. Fig. 2 is a detailed plan view of part of the starting mechanism in the piano playing device. Fig. 3 is a plan view of the talking machine disk. Fig. 4 is an enlarged detail sectional view through the disk and support.

When playing by means of a piano playing mechanism, the piano accompaniment to a musical or like performance, rendered or reproduced by a talking machine, it is absolutely essential that the piano accompaniment shall begin precisely and exactly at the correct time so that the sounds produced by the talking machine and the piano playing mechanism shall be in perfect unison and harmony, as they were in the original production, in which they were produced by means of the voice or a solo instrument and an accompanying piano. The piano playing mechanism and the talking machine may be and preferably are driven from the same source of power, for example, the pumping bellows of the piano playing mechanism, and must be driven at the same relative uniform speed in order to conform to the original production. But a piano playing mechanism and talking machine may also be driven by separate motors which are so timed that the moving parts of the piano playing mechanism and of the talking machine have the proper rela-

tive speeds that are necessary for proper reproduction of the entire composition.

As the disk of the talking machine is always moved a greater or less distance before the sounds begin to be produced, and the note sheet of the piano playing mechanism must not be moved operatively until a certain predetermined spot on the talking machine disk or record has been reached by the needle or stylus, means are provided to start the note sheet winding mechanism of the piano playing device at the proper time.

In the specific embodiment of my invention illustrated in the drawings, the piano playing mechanism 1, of conventional construction is provided with a conventional wind motor 2 deriving its wind from the wind chest 3 and the motor by means of its crank shaft 4 rotates the music roll shaft 5 in any well known manner. The music playing device is provided with a lever 6 which can be moved over the scale 7 and by such movement transmits motion to the rod 8 which in turn is connected with the well known construction of a slide valve by means of which the speed of the motor is controlled as is well known in piano playing instruments. For example, when the lever 6 is at the lower numbers of the scale 7 the motor runs slowly and as the lever 6 is shifted to the higher numbers of the scale the motor runs more rapidly. When this lever 6 is moved to the left so as to be beyond the lowest indication of the scale 7, the wind is shut off from the motor 2 entirely and the motor remains at rest, even though the pumping pedals are operated. The lever 9 pivoted at 10 to swing horizontally rests against the extension 11 from a pneumatic or bellows 12 attached to a support 13 so that when this bellows or pneumatic 12 is collapsed the lever 9 is moved in such manner as to swing the lever 6 in the direction of the arrow *x* as shown in Fig. 2. The interior of the bellows 12 is connected by a tube 14 with a suction chamber and this tube is controlled by a primary valve indicated at 15 which can be operated by a rod 16 attached to armature of an electromagnet 17 which is in a circuit 18 including a source of electricity, such as for example a battery 19. One end or terminal of the electric circuit 18 is connected with a brush or wiping contact 20 on the talking machine frame 21 and

the other terminal of this circuit is suitably connected with the needle or stylus 22 or its holder of the talking machine.

The rotating support 23 for the talking machine record or disk is provided with an annular electric contact 24 appearing on the upper and lower surfaces of the support 23 and in contact with the brush or wiping contact 10. In the embodiment illustrated the rotating support 23 is secured on the shaft 25 driven by suitable gearing 26 or power transmitting devices from the crank shaft 27 of a wind motor 28 of the same dimension and construction as the wind motor 2 in the piano player 1 and deriving its motive wind from the windchest 3 of the piano player through a branch pipe 29. A contact piece 30 of metal or carbon is embedded in the upper surface of the record disk 31 near the rim and flush with the upper surface or substantially so and this contact piece 30 is electrically connected with an embedded wire or strip 32 extending to near the center of the disk 31, its free inner end being exposed on the underside of the disk so that when the disk 31 is placed upon the support 23, the inner end of this wire 32 contacts with the upper surface of the annular contact 24 embedded in the support 23. The contact 30 must be so located and embedded in the disk 31 that the stylus or needle 22 contacts with it at the precise moment when the piano playing mechanism is to begin playing the piano accompaniment. This may be at the precise moment when the disk begins to produce the sounds of the song or piece to be rendered, or it may be a greater or less time before, as it frequently and in fact generally is the case that the accompanist plays one or more bars before the solo performance, either vocal or instrumental, begins. The disk 31 is placed upon the support 23 in the conventional manner and the needle or stylus 22 placed upon the upper surface of the disk 31.

The lever 6 is placed to zero so as to shut off the motive power from the motor 2, and the pneumatic 12 is expanded. The stop pin 33 is inserted in a suitable opening so as to be in the path of the lever 6 when the same is moved in the direction of the arrow α this pin 33 being inserted at that subdivision of the scale corresponding to the speed at which the accompaniment is to be played on the piano player say, for example, at 70. Then the pumping bellows of the piano player are operated in the usual man-

ner and both wind motors 2 and 28 are thus operated and the record disk is rotated but the perforated music sheet, which has been previously properly adjusted on the tracker in such a manner that the first note slots of the parts to be played on the piano are directly on the tracker, remains motionless. When the needle or stylus 22 comes in contact with the contact 30 on the disk 31 of the talking machine, the electric circuit is closed and the electro magnet 17 attracts its armature thereby operating the valve 15 in the well known manner, which causes the pneumatic 12 to be collapsed and this in turn by means of the lever 9 instantly throws the tempo lever 6 in the direction of the arrow α Fig. 2 until it strikes the pin or obstruction 33 whereby the tempo lever is stopped at 70 and of course the sheet-winding mechanism immediately begins to operate, and to move the sheet at the proper speed, in this case at a speed indicated by the numeral 70 on the scale.

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

1. The combination of a piano player mechanism, including a perforated note sheet and a motor means for moving the same, a talking machine, a device for varying and controlling the speed of the said paper moving motor means, means for shifting the motor speed controlling device automatically and means on the talking machine for inaugurating the shifting of the motor speed controlling means, substantially as set forth.

2. The combination of a piano player mechanism, a music roll, a motor for moving the music roll, a device for controlling the speed of this motor, a talking machine and means controlled by the talking machine for shifting the motor speed controlling device, substantially as set forth.

3. The combination of a piano player mechanism, a music roll, a motor for moving the music roll, a motor starting device, a talking machine and means controlled by the talking machine for shifting the motor starting device, substantially as set forth.

Signed at New York city in the county of New York and State of New York this 7th day of May, A. D. 1910.

WALTER M. DAVIS.

Witnesses:

OSCAR F. GUNZ,
M. E. MCNINCH.