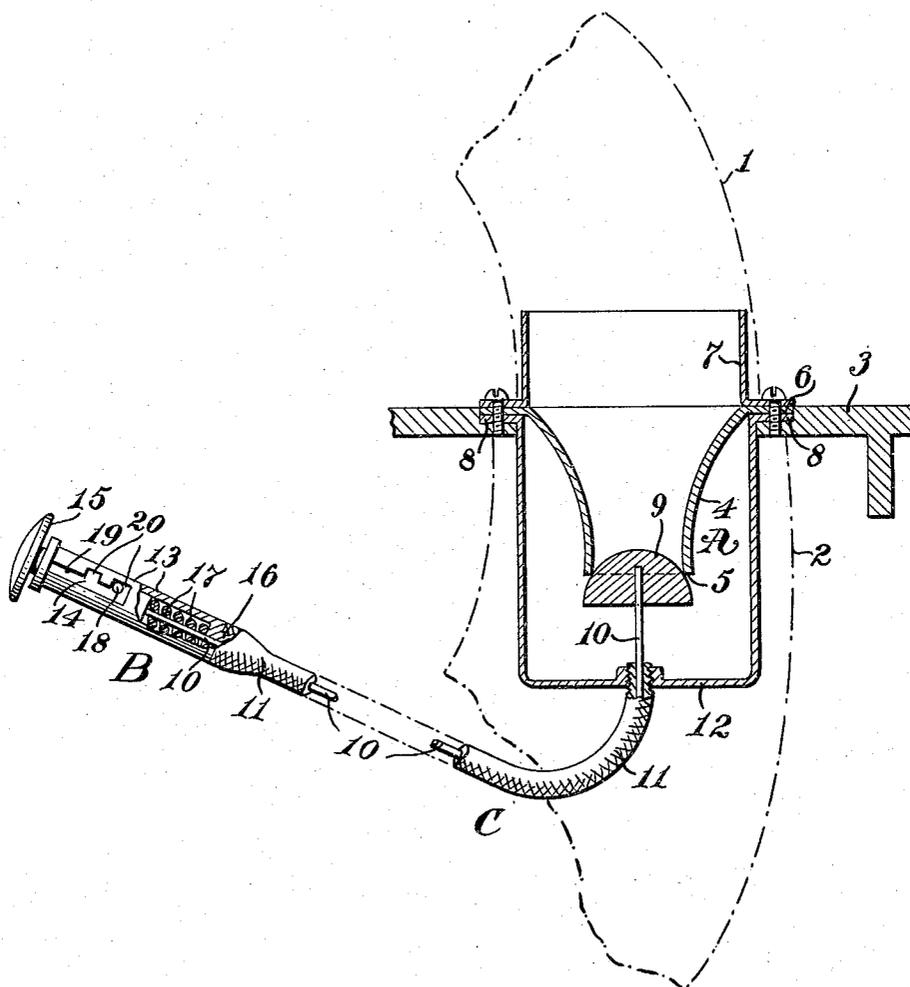


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 TALKING MACHINE.  
 APPLICATION FILED OCT. 31, 1914.

1,158,401.

Patented Oct. 26, 1915.



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# UNITED STATES PATENT OFFICE.

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## TALKING-MACHINE.

1,158,401.

Specification of Letters Patent.

Patented Oct. 26, 1915.

Original application filed December 31, 1912, Serial No. 739,521. Divided and this application filed October 31, 1914. Serial No. 869,694.

*To all whom it may concern:*

Be it known that I, FREDERICK JAMES EMPSON, a subject of the King of Great Britain, residing at Sydney, New South Wales, Australia, have invented certain new and useful Improvements in Talking-Machines, of which the following is a specification.

My invention is for improvements in talking machines, phonographs and other automatic musical instruments, relating particularly to improved control means for regulating the expression valve means in such instruments; and is a division of my earlier application for United States patent Serial No. 739,521, filed December 31, 1912. In said musical instruments wherein expression effects are sought by the manipulation of a valve, I have discovered that the best effects musically are obtainable only when the valve control means possesses preferably both of the following characteristics: First, said control means should comprise an immediate operative connection with the expression valve so that its every adjustment by the performer, whether great or slight, smooth or sudden, in opening direction or closing, is instantly correspondingly communicated to the valve. Secondly, said control means should also be freely portable or adapted to be swayed, in spite of its said connection, so that it does not require the performer, in operating it, to assume or maintain any fixed relationship either to it or to the instrument. In other words, I have discovered that the eminently suitable control means for the expression valve means in automatic musical instruments should comprise a freely portable handle having parts which in the hands of the performer are delicately adjustable relative to each other with an immediate flexible operative connection to the expression valve, whereby every kind of adjustment of the handle parts on each other immediately adjusts said valve appropriately and whereby the performer, because not compelled to maintain any definite position, is free to move rhythmically with the music without in the slightest losing or jeopardizing his control of the handle or bringing about any undesired adjustment of its parts or of the valve due to said sympathetic movements of the hands, arms, or body generally.

The accompanying drawing shows diagrammatically an embodiment of my invention in connection with a phonograph or talking machine, the parts being shown broken away and in section.

In said drawing the base of the tone arm 1 and the neck of the horn 2 are indicated by the dotted lines.

3 is a horizontal part of the casing of the instrument or a shelf or partition therein.

The means enabling the performer to impart his own expression to the playing of the instrument comprises:—an expression valve A, and the control means therefor comprising a portable two-part handle B and the immediate flexible operating connection C from said handle to said valve.

The illustrated valve means A, forming more particularly the subject matter of my other above identified application, may be briefly described here as comprising a rubber throat 4 having a thin lip 5 and a basal flange 6, the latter supporting the throat in the neck of the horn by being clamped between the ring 8 and the flanged tube 7 that operatively supports the tone arm 1.

9 is a convexly domed valve, preferably made also of soft flexible rubber, supported at the mouth of the throat for adjustment axially relative thereto. The valve is supported on the end of the endwise slidable wire 10 which in turn is supported and guided by the flexible hollow sheath 11. This sheath, freely portable at its outer end or rather, adapted to be swayed, is made fast at its inner end within a vertical opening formed in the bottom of an open cage 12 consisting of bent-up strips secured to the ring 8.

The two-part handle B consists of the hollow outer part 13 and the contained rod-like inner part 14 adjustable in the hands of the performer telescopically with respect to each other. The part 14 has an exposed head 15 and at its other end is secured to the slidable wire 10. The end 16 of the hollow handle part 13 is reduced for attachment as shown to the sheath 11. The result is that the handle B is immediately connected with the valve A by the flexible operating means C whereby the handle is freely, rhythmically portable or movable as an entirety, yet always with perfect control of its parts in the hands of the operator either

for adjustment or non-adjustment thereof as the case may be, every adjustment of said parts with respect to each other resulting in a sliding of the wire 10 in its sheath with  
 5 an immediate appropriate movement of the valve 9, large or small, fast or slow, and in either opening or closing direction at will.

17 is a coiled spring surrounding the wire between the end 16 of the handle-part 13 and the part 14, said spring being option-  
 10 ally provided to normally force the part 14 out of its fully telescoped position in the part 13 whereby the valve 9 is given normal tendency away from its closed or soft playing position.

18 is a pin projecting from the inner handle-part 14 to work in a longitudinal slot 19 in the outer handle-part 13 as said parts are being telescopically adjusted on each  
 20 other to impart expression to the playing; or said pin can be rotated into one or other of the side notches 20 to lock the handle-parts to each other and thereby maintain the valve in one certain position of adjust-  
 25 ment.

In the foregoing preferred embodiment of my invention it will be seen that the freely swayable, adjustable handle with the immediate flexible operating connection to the expression device can itself be played upon as if it were a musical instrument like a violin, where every relative movement of the handle parts on each other, like the bow to the violin, produces its immediate effect;  
 30 and where that immediate control is not in the least impaired, but on the contrary vastly improved, by reason of the fact that the performer is perfectly free to sway the handle rhythmically with the music, like  
 35 the violinist his instrument, and, unconscious of everything except the music, can produce his effects with beautiful, almost instinctive, mastery and finesse.

What I claim is:

45 1. The combination in an automatic musical instrument having a sound conduit, of valve means therefor, and freely swayable operating means for said valve means comprising a manually operable portion and a  
 50 connection between it and the valve means whereby said valve means may be adjusted independently of and be unmodified by the swaying of said manual portion relatively to the valve means.

55 2. The combination in an automatic musical instrument having a sound conduit, of valve means therefor, and freely swayable mechanical operating means for said valve means comprising a manually operable portion and a connection between it and the  
 60 valve means whereby said valve means may be adjusted independently of and be unmodified by the swaying of said manual portion relatively to the valve means.

65 3. The combination in an automatic mu-

sical instrument of expression valve means, and freely swayable elongated, mechanical control means for said expression valve means adapted to be swayed sympathetically with the music without affecting the expres-  
 70 sion valve means.

4. The combination in an automatic musical instrument having a sound conduit, of valve means therefor, and freely swayable  
 75 mechanical operating means for said valve means comprising a manually operable portion and a connection between it and the valve means whereby said valve means may be adjusted independently of and be un-  
 80 modified by the swaying of the manual portion relatively to the valve means, and means on the aforesaid manual portion for releasably holding the valve means in different positions of adjustment.

5. The combination in an automatic musical instrument having a sound conduit, of  
 85 a throat mounted within said conduit so that the sound must pass therethrough, and a plug valve coöperating axially with the throat opening, and freely swayable oper-  
 90 ating means for said valve means comprising a manually operable portion and a connection between it and the valve means whereby said valve means may be adjusted independ-  
 95 ently of and be unmodified by the swaying of the manual portion relatively to the valve means.

6. The combination in an automatic musical instrument having a sound conduit, of  
 100 a yielding throat mounted within said conduit so that the sound must pass therethrough, and a plug valve coöperating axially with the throat opening, and freely swayable operating means for said valve  
 105 means comprising a manually operable portion and a connection between it and the valve means whereby said valve means may be adjusted independently of and be un-  
 110 modified by the swaying of the manual portion relatively to the valve means.

7. The combination in an automatic musical instrument having a sound conduit, of  
 115 a tubular elastic throat mounted within said conduit so as to extend in the direction of the delivery of sound through the conduit, and a plug valve coöperating axially with the delivery end of the throat, and freely  
 120 swayable operating means for said valve means comprising a manually operable portion and a connection between it and the valve means whereby said valve means may be adjusted independently of and be un-  
 125 modified by the swaying of the manual portion relatively to the valve means.

8. The combination in an automatic musical instrument having a sound conduit, of  
 130 a tapering tubular elastic throat mounted within said conduit with its larger portion secured to the interior of the conduit and with its smaller, mouth portion extending

in the direction of the delivery of sound through the conduit, and a plug valve supported for axial movement at said mouth of the throat, and freely swayable operating means for said valve means comprising a manually operable portion and a connection between it and the valve means whereby said valve means may be adjusted independently of and be unmodified by the swaying of the manual portion relatively to the valve means.

9. The combination in an automatic musical instrument of a tone-arm and an amplifying horn, an internal tubular yielding throat extending from about the basal end of the tone-arm into the neck of the horn, a plug valve in the neck of the horn cooperating axially with said throat, and freely swayable operating means for said valve means comprising a manually operable portion and a connection between it and the valve means whereby said valve means may

be adjusted independently of and be unmodified by the swaying of the manual portion relatively to the valve means.

10. The combination in an automatic musical instrument of an expression valve and a control therefor comprising a two part handle whose parts are operable relatively to each other, and an elongated, flexible mechanical operating connection, one end of said connection being operatively related to the expression valve, said connection at its other end being freely swayable in the hands of the operator, and bearing said handle at said end operatively connected thereto.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK JAMES EMPSON.

Witnesses:

OSCAR F. GUNN,  
JOSEPH F. MEADE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."