

(No Model.)

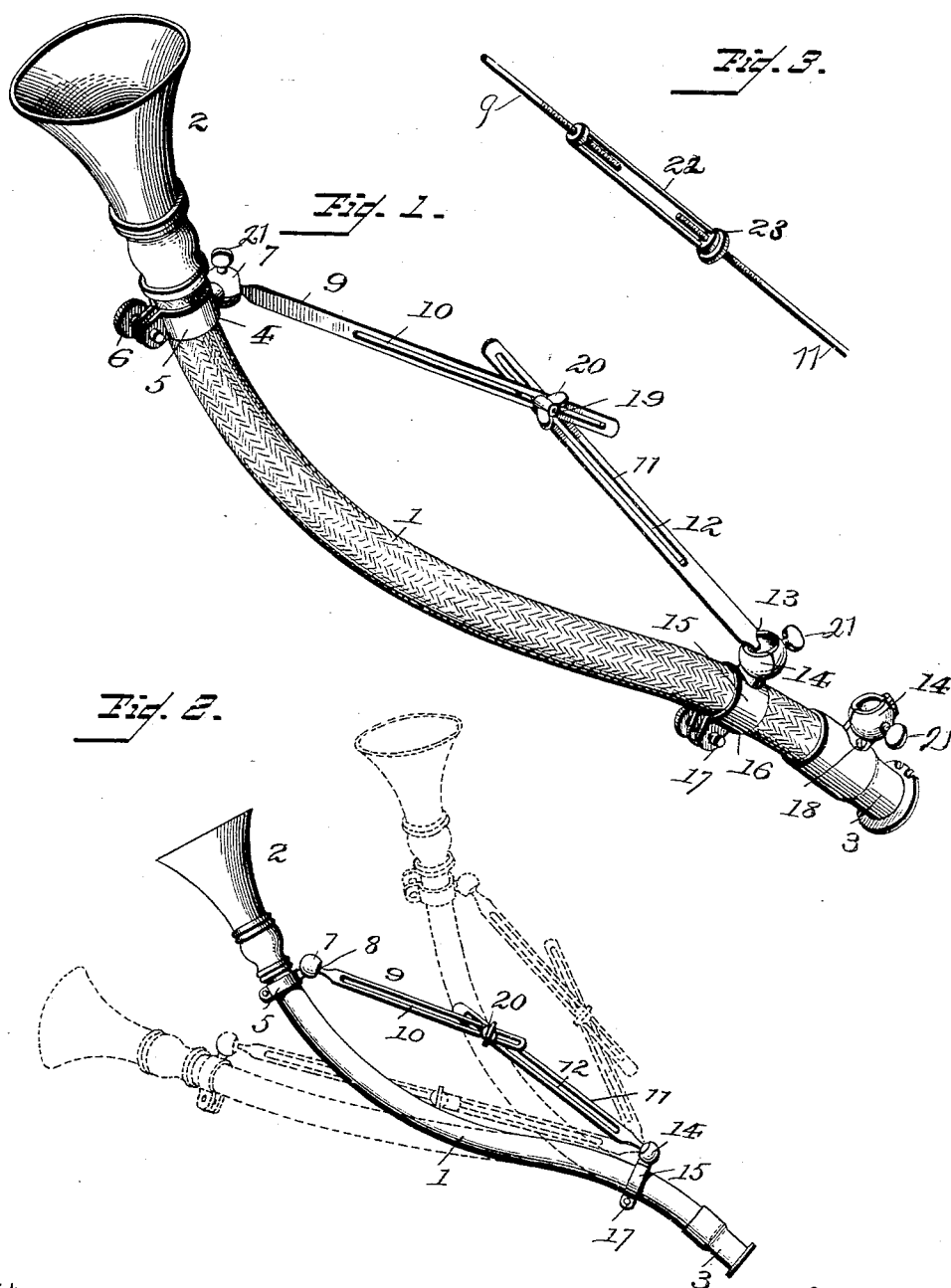
2 Sheets—Sheet 1.

W. G. HENDERSON.

SUPPORT FOR PHONOGRAPH SPEAKING TUBES OR OTHER PURPOSES.

No. 493,719.

Patented Mar. 21, 1893.



Witnesses

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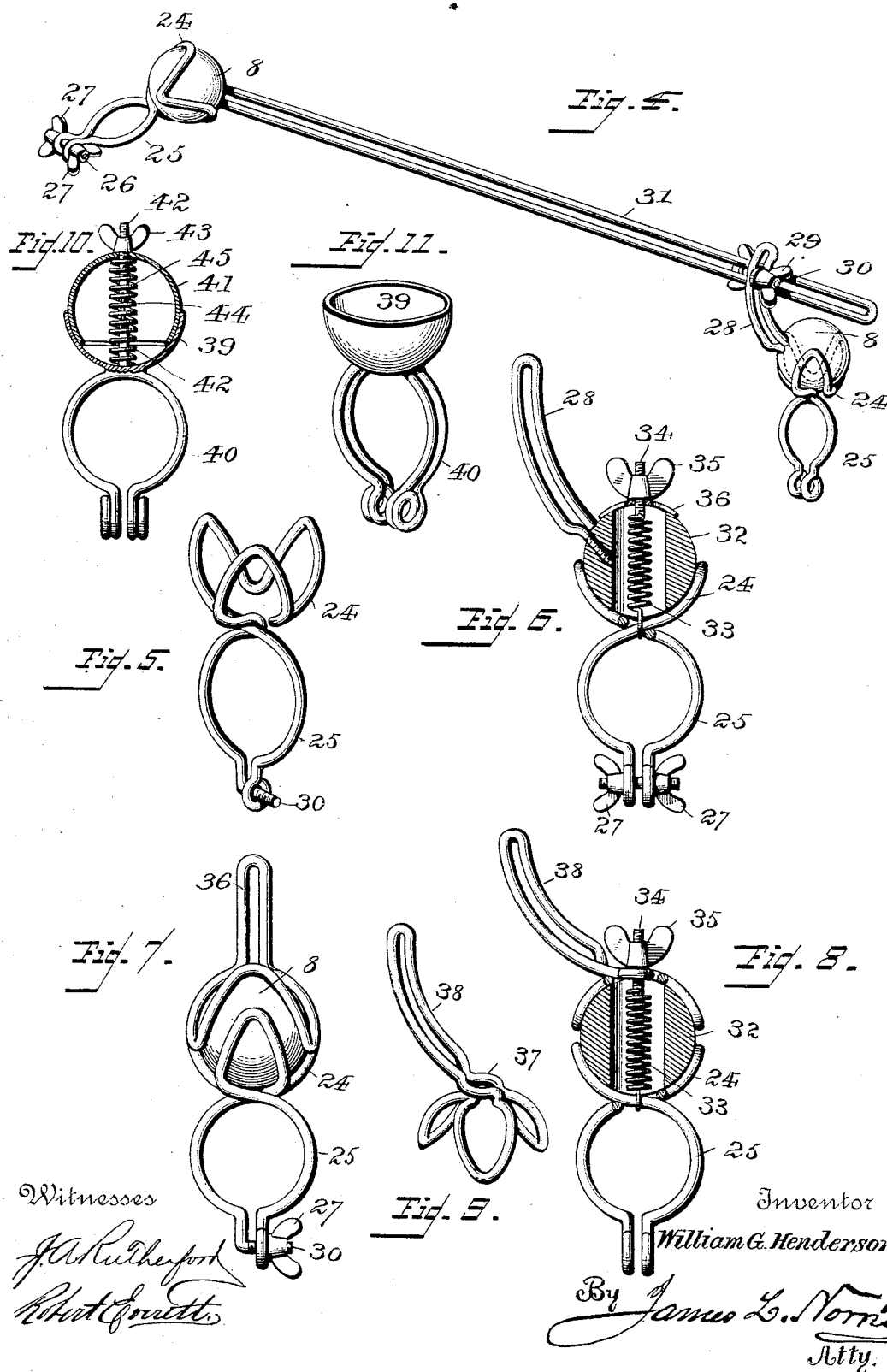
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# UNITED STATES PATENT OFFICE.

WILLIAM G. HENDERSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

SUPPORT FOR PHONOGRAPH SPEAKING-TUBES OR OTHER PURPOSES.

SPECIFICATION forming part of Letters Patent No. 493,719, dated March 21, 1893.

Application filed March 12, 1892. Serial No. 424,696. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM G. HENDERSON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Supports for Phonograph Speaking-Tubes or other Purposes, of which the following is a specification.

My invention relates to devices for sustaining speaking or sound transmitting tubes and is especially well adapted for the speaking tubes used in connection with the phonograph, graphophone and kindred machines. Heretofore it has been the practice to hold the speaking tube with one hand while dictating to the machine. This very often is very inconvenient, and allows the operator the use of only one hand for handling papers or for other uses. It is very desirable often that the operator may have the use of both hands, and it is with the foregoing difficulties in mind that this invention has been devised to remove them and to give to the operator the freedom of both hands while dictating to the machine, and also to avoid the necessity of picking up the tube when the dictation is to be made and to lay it down when the dictation is to be suspended.

To the accomplishment of the foregoing objects the invention consists in providing for the tube a support which will sustain it independent of the hands as herein described. There may be many modifications of the support but the form preferred is one which will not only sustain the tube but also permit it to be adjusted up or down to different angles, and also that will permit it to be turned laterally or sidewise, so that it may be brought into the position that will be most convenient for the operator under the conditions or circumstances that may exist at the time.

One or more constructions that will serve the purpose in view will now be particularly described reference being had to the accompanying drawings forming part hereof and in which

Figure 1 is a perspective of a phonograph speaking tube with my invention applied thereto. Fig. 2 is a similar view on a smaller scale, and in which is also shown by dotted lines two of the many positions to which the tube can be adjusted. Fig. 3 is a modified

form of the device. Fig. 4 is another form in which the operative parts are formed of wire with the ball of any suitable material. Fig. 5 is a perspective of one form of socket and tube band, being the same as the corresponding parts shown in Fig. 4 but on a larger scale. Fig. 6 is another form in which a simple socket is used with a contractile spring for regulating the frictional contact between the ball and socket and for taking up wear, and which also serves to hold the ball to the socket if the ends of the socket fingers are made to terminate below the medial line through the ball. Fig. 7 is another form showing two cups or sockets the points of the fingers of both being made to cross the medial line of the ball. Fig. 8 is another form showing two cups or sockets with the points of the fingers terminating short of the medial line of the socket, and a spring employed for holding the ball and socket together. Fig. 9 is a perspective of the upper socket of Fig. 8 with the extending arm thereon. Fig. 10 is a side elevation of another form with the ball in section and formed of two semi-spherical shells held together by a connecting pin and containing an expansion spring for forcing the sections from each other and making frictional contact between them. Fig. 11 is a perspective of the lower part of Fig. 10 showing the lower shell in full lines.

In the drawings the numeral 1 designates the speaking tube of the flexible form in common use and having the usual mouth piece and coupling by which it is attached to the diaphragm of the machine not shown. Near the mouth-piece 2 a clamp 4 of any desirable form is made to clasp the tube. It is illustrated in this instance in Fig. 1 as composed of the band 5 having a tightening screw 6 passed through its free ends so that it may be adjusted to the diameter of the tube and made to clamp the same. This clamp is also shown as formed with a socket 7 in which fits the ball 8 whereby is formed a universal joint of the ball and socket order so that the tube at that point can be adjusted within all the limits allowed by a universal joint about a rod or arm 9 extending therefrom. While such mode of connecting the tube and rod together is preferred it is not meant to be restricted thereto.

The rod or arm 9 may be of any desired construction but for purposes of illustration is represented in Fig. 1 as composed of a flattened bar formed with an elongated slot 10, and is shown as adjustably connected to another similarly formed rod or arm 11, having an elongated slot 12 and provided at its end with a ball 13 fitting into a socket 14 formed upon the band 15 of the clamp 16 which is shown as encircling the tube 1 and held thereto by a screw 17 passed through the free ends of the band. All that has been stated in regard to the clamp 4 and its connections applies to the clamp 16 and its connections. It may here also be stated that if desired the clamp 16 may be omitted entirely, and the socket 14 be formed upon the coupling 3 as indicated in Fig. 1, in which event the ball end of the rod or arm 11 would fit into the socket and operate the same as if the clamp 16 were used. The socket may as indicated in Fig. 1 be made of two parts hinged together so as to be swung open in inserting the ball and when closed be held by a screw fastening 18, or otherwise.

The two rods or arms 9 and 11 may be regarded as constituting one arm in two parts connected together by suitable means and constructed so as to permit an adjustment of the tube.

The means illustrated in Fig. 1 for connecting the two sections 9 and 11 together consists of a well known form of threaded bolt 19 passed through the slots in the two sections and provided with a thumb nut 20 for holding the sections together, and by loosening which the sections can be shifted to raise the tube as shown by dotted lines in Fig. 2, or to lower the tube as shown by the lower dotted lines in the same figure, or to such other adjustment as may be desired. When the adjustment has been effected the arms or sections will be held to their shifted position by simply tightening the nut on the bolt 19.

It will be apparent from the foregoing statement that the tube can be brought into the position required to suit the convenience of the operator whether high or low, and that it can also be turned laterally or sidewise as the position of the operator relatively to the table or machine may make it desirable, the universal joint permitting such movement.

If desired set screws 21 may be passed through the sockets and be made to bear against the balls so as to firmly hold the parts in the position in which the tube may be placed. These, however, are not essential to the invention. The sockets may be made in any well known way. In one place they are illustrated as made of two parts hinged together, but they may be made in two parts with threaded shanks screwed into the clamping bands so that when screwed into place they will be held together.

The description given sets forth one construction that will accomplish the objects in view, but as stated in the beginning there

may be many modified forms of the invention to accomplish the same objects or some of them and which would be embraced within the scope of the invention; and in Fig. 3 of the drawings I have illustrated one modification of the supporting arm and of the means for lengthening and shortening the arm. In this modification the sections or arms 10 and 11 are composed of light steel rods having their adjacent ends threaded, one having a right and the other having a left thread, and held together by a turn-buckle 22 provided at one end with a milled head 23 by which the buckle can be turned so as to draw together or separate the sections and thus effect the shifting of the sections for the adjustment of the tube. This modification, however, may not admit of the same extent of movement as the first form but still it will serve to support the tube and allow it to be adjusted up and down, while the ball and socket joints with which the rods will be provided at the clamps as in the first form will allow the lateral adjustment of the tube.

The two constructions shown and described are sufficient for an illustration of the invention in a practical form, but it is obvious that the modifications may be greatly multiplied. For instance, in Fig. 4, I have illustrated the socket 24 of the ball 8 as made of wire bent into the shape of finger clasping the ball with their outer ends passing the medial line of the ball so as to hold the ball in its socket. The wire may have sufficient elasticity to yield to the ball when pressed into its socket and then close around the ball or it may be pressed down upon the ball after the ball is set into the socket; and the friction between the ball and socket may be sufficient to hold the ball at any position to which it may be moved. In the same figure the wire forming the socket is also, represented as bent to form the band 25 which will encircle the tube to clamp the socket to it, and eyes are formed by turning the wire at its ends, and through the eyes will be passed a threaded bolt 26 provided with thumb-nuts 27 for securing the band around the tube. The ball, socket and band at the two ends of the tube may be duplicates of each other and therefore the same reference figures will apply and be used for both. But the ball next to the end of the tube that couples to the phonograph carriage will be provided with a short arm 28 preferably made of wire and secured in any suitable manner to the ball and preferably curved upward as illustrated. This arm will correspond to the arm 11 of Fig. 1 and will have secured to it by thumb-nuts 29 and bolt 30, or otherwise, the lower end of the arm 31 preferably formed of wire bent into the shape shown and secured at one end to the ball at the other end of the tube, which arm corresponds to the arm 9 of Fig. 1. By loosening the thumb-nuts 29, one rod can be adjusted upon the other so as to raise or lower the tube to the adjustment desired as described in connection with Fig. 1.

Another form is illustrated in Fig. 5 in which the lower socket 24 and its band 25 are the same as in Fig. 4 but one end of the band wire is turned as shown to form the threaded bolt 30 which will pass through the eye in the opposite end of the band.

Another form is illustrated in Fig. 6 in which the lower socket and its band will be formed as in Fig. 4 but in this form the ball 32 is formed hollow or with an opening through it for the reception of a spring 33 which is preferably of the spiral order and which is secured at its lower end to the socket and provided at its upper end with a threaded portion 34 on which is screwed a thumb-nut 35, the same bearing against a washer 36 which is preferably made to conform to the shape of the ball. By the construction just described the friction between the ball and its socket may be regulated at will by adjusting the nut, and in the same manner any wear may be taken up. Furthermore, under this form, the points of the fingers need not pass the medial line of the ball as the ball can be held to its socket by the contractile power of the spring, the tension of which will be regulated by the adjustment of the nut. In this form the arm 28 is shown as having one end bearing against the ball and the other threaded and screwed into the ball.

A still further form is illustrated in Fig. 7 in which the lower socket is formed similar to Fig. 5 and the ball 8 held therein by the upper ends of the fingers extending above the medial line of the ball. There is also used an upper socket formed of wire and in which the arm 36 corresponding to the arm 11 is formed integral with the socket. The lower ends of the fingers to the upper socket pass below the medial line of the socket and play between the fingers of the lower socket. These fingers may have sufficient elasticity to spring over the ball or may be bent down about it after the ball is placed in position. If desired the ball and socket may be caused to fit so close to each other, or otherwise formed so that the frictional contact between them will be sufficient to hold the ball and socket to any position to which they may be adjusted.

Another form is illustrated in Fig. 8 in which the lower socket will be formed like the lower socket in Fig. 6 while the upper socket with its arm corresponding to the arm 11 will be formed as clearly illustrated in perspective Fig. 9. The ends of the fingers to the lower and upper sockets terminate respectively below and above the medial line of the ball 32 which corresponds in structure to what is illustrated in Fig. 6, and the fingers terminating as described permit the fingers to pass each other without interference of one with the other whereby a wider range of adjustment is obtained. A spring 33 corresponding to the spring in Fig. 6 and likewise formed with a threaded portion 34 and nut 35 working thereon is provided for holding the ball and socket together, there being no

washer as in Fig. 6 as the nut will bear against the portion 37 of the socket and the arm 38 will be formed integral with the wire forming the socket.

Another form is illustrated in Figs. 10 and 11 in which the lower socket is formed of a shell 39 of sheet metal or other suitable substance stamped or otherwise formed into hemispherical shape and having brazed to it the wires 40 constituting the band to pass around the tube 1. The upper portion constituting the ball is formed of a hemispherical body 41 fitting into the sockets 39 so as to turn therein. The two hemispheres are held together by means of a flexible jointed pin 42 connected to and extending from the lower hemisphere 39 while its upper end is passed through the hemispherical body 41 and its end threaded for the application of a nut 43. The two hemispheres are thus held together and the pin having a flexible joint between its two ends formed by a link 44, or otherwise, the hemispherical body 41 is free to be moved into any position desired and a universal joint of the ball and socket order is thus formed. An expansible spring 45 encircles the connecting pin 42 and exerts an outward expansive pressure against the two hemispheres and thus tends to force the same apart and hold the spherical surface of one against the other by frictional contact sufficient to hold the upper portion at any point to which it may be adjusted. A bifurcated arm not shown but similar to the arm 28 of Fig. 4, may be brazed to the portion 41 so as to have the arm 31 coupled thereto.

The foregoing are some of the forms in which the device may be made but they may be varied almost indefinitely without departing from the spirit of the invention as is obvious.

The several parts will preferably be of metal and will be made as light as possible consistent with strength and durability, and being graceful and light in proportion will not detract from the appearance of the machine or the tube. The weight too will be so comparatively little that it will not interfere with the perfect and easy working of the machine carriage with which it will be moved just as it is now. This is deemed much preferable to connecting the support to an independent stand, in connection with which, however, some features of the invention might be combined or used.

It will be understood that the invention is not intended to be confined to phonograph speaking tubes where it can be used with good results in other forms of sound transmitters but it is as hereinbefore stated particularly well adapted to phonograph and kindred machines.

It will also be apparent that the invention is capable of very wide application, the forms illustrated in Figs. 4 to 8 admitting of the ball being turned in the socket or the socket turned on the ball to carry an arm extending

therefrom to various angles of adjustment up or down or horizontally.

The same features of construction can be used in a support constituting a telephone holder or an incandescent electric light support, as well as in other kinds of supports. For instance, of the two arms or extensions projecting one from the ball and the other from the socket, one of them may be used for attachment of the device to a base or support and the other for attachment thereto of the incandescent lamp. The two extensions can be varied in their form to adapt them for the particular use to which the device may be intended to be applied. Not only is the "transmitter" carried by the carriage but also the transmitter-support, and this feature of having the "support" carried by the carriage whether connected directly or indirectly to the carriage I consider broadly novel.

Having described my invention and set forth its merits, what I claim is—

1. The combination with a flexible sound transmitter and means for its attachment to and detachment from a movable carriage, of a support sustaining the outer end of said transmitter and adapted to be carried by the carriage, substantially as and for the purposes set forth.

2. The combination with a flexible sound transmitter and means for its attachment to and detachment from a movable carriage, of a support adapted to be carried by the carriage for sustaining the outer end of the transmitter, said support being adjustable for holding the transmitter at various angles of inclination, substantially as and for the purposes set forth.

3. The combination with a flexible sound transmitting tube constructed to be attached to and carried along by a movable carriage, of a jointed support adapted to be carried by the carriage for sustaining the outer end of

the tube, said support permitting the outer end of the tube to be turned sidewise, substantially as and for the purposes set forth.

4. A support for a flexible sound transmitting tube comprising arms or extensions movable one relatively to the other, and means for attaching them to the tube, substantially as and for the purposes described.

5. In a support for a flexible sound transmitting tube, the combination with a member capable of sustaining the outer end of the tube when attached to a base carried by a movable carriage and jointed to permit adjustment of the tube, of means for securing said member to the tube so as to be carried along therewith, substantially as and for the purposes described.

6. A sound transmitter support provided at different points with means for attachment to said transmitter so that the support may be sustained by said transmitter and said support sustain the outer end of the transmitter, substantially as and for the purposes described.

7. The combination with a flexible sound transmitter, of a support for the outer end of the transmitter, said support being sustained from and carried by said transmitter, substantially as and for the purposes set forth.

8. The combination of a plurality of sockets provided with attaching means, an arm connecting both sockets and having a movable and elastic connection therewith, and means for regulating the tension of the connection between the arm and at least one of the sockets, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WM. G. HENDERSON.

Witnesses:

JAMES L. NORRIS,

JAMES A. RUTHERFORD.