

Oct. 25, 1949.

H. DE ARMOND

2,486,264

VIOLIN MICROPHONE

Filed Sept. 27, 1947

2 Sheets-Sheet 1

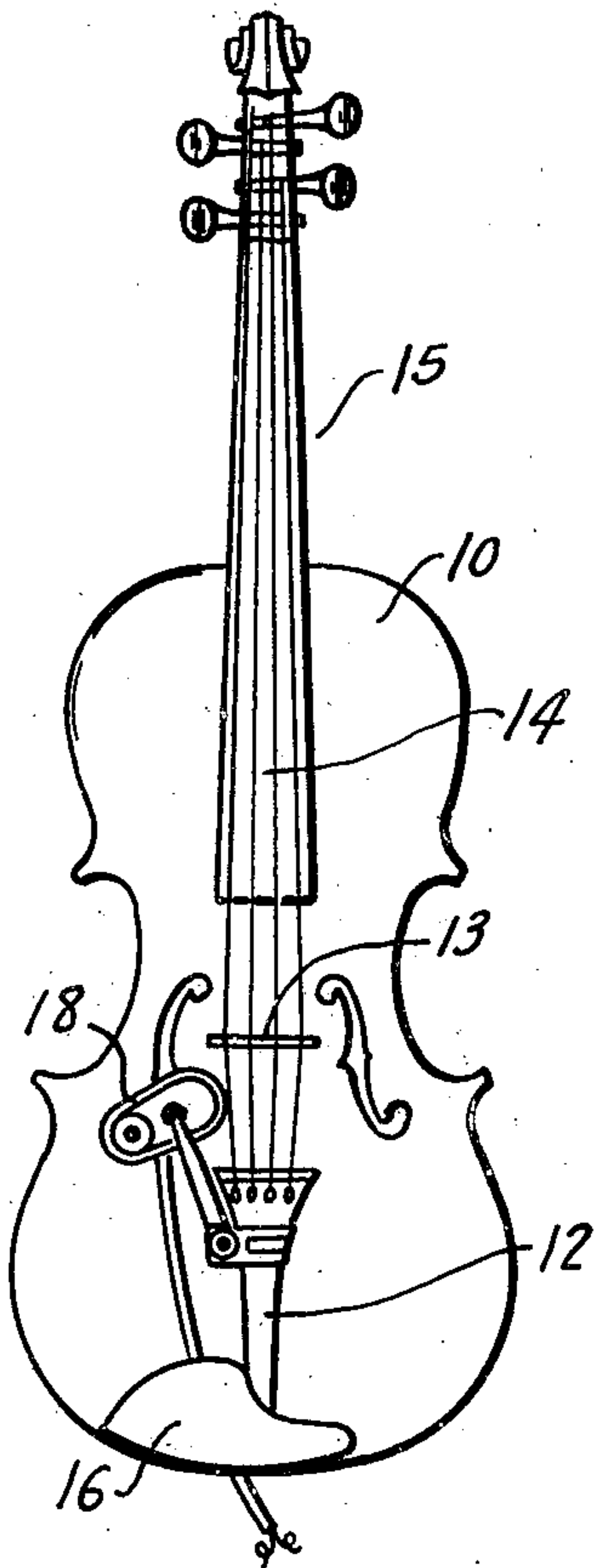


Fig. I.

Fig. II

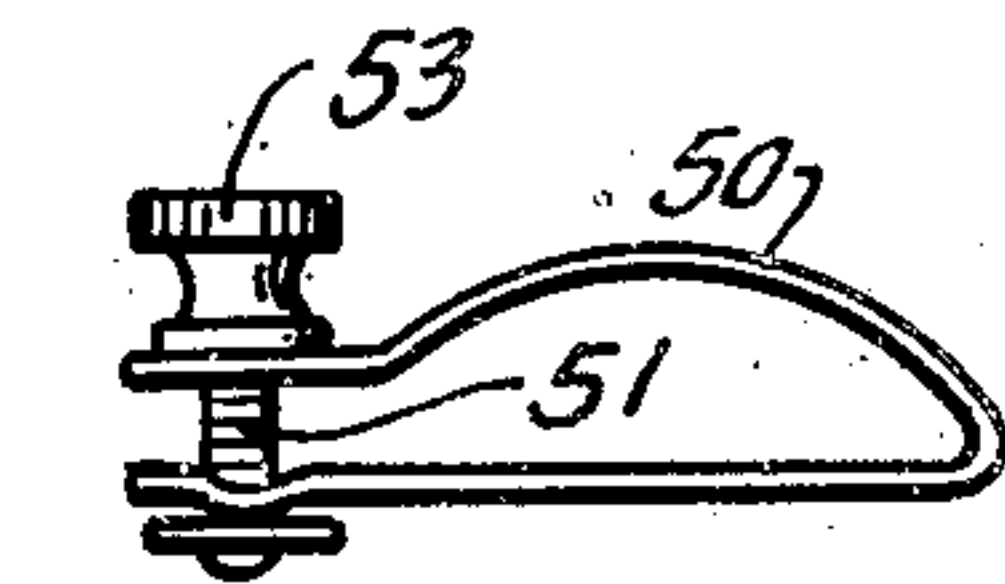
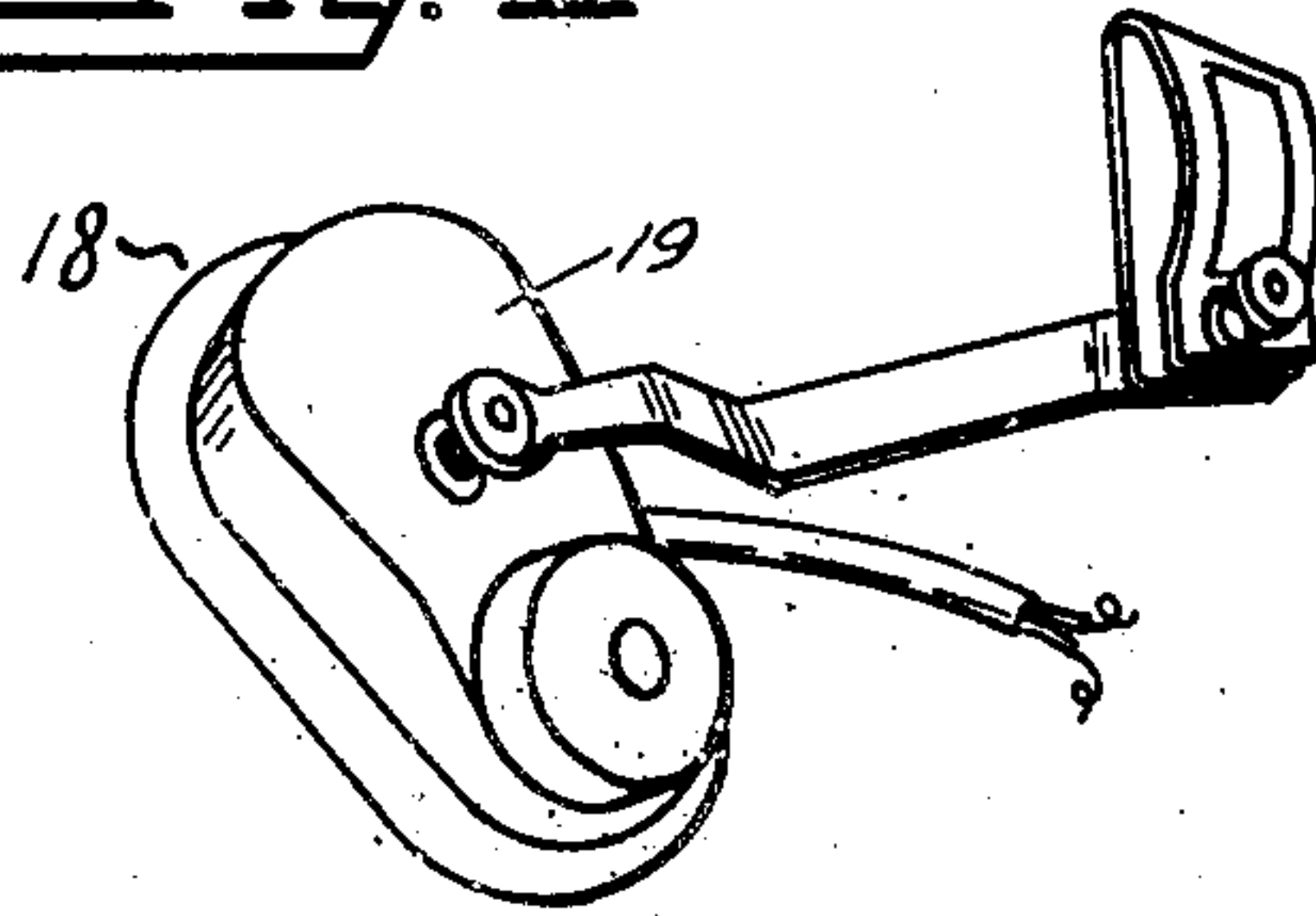


Fig. III

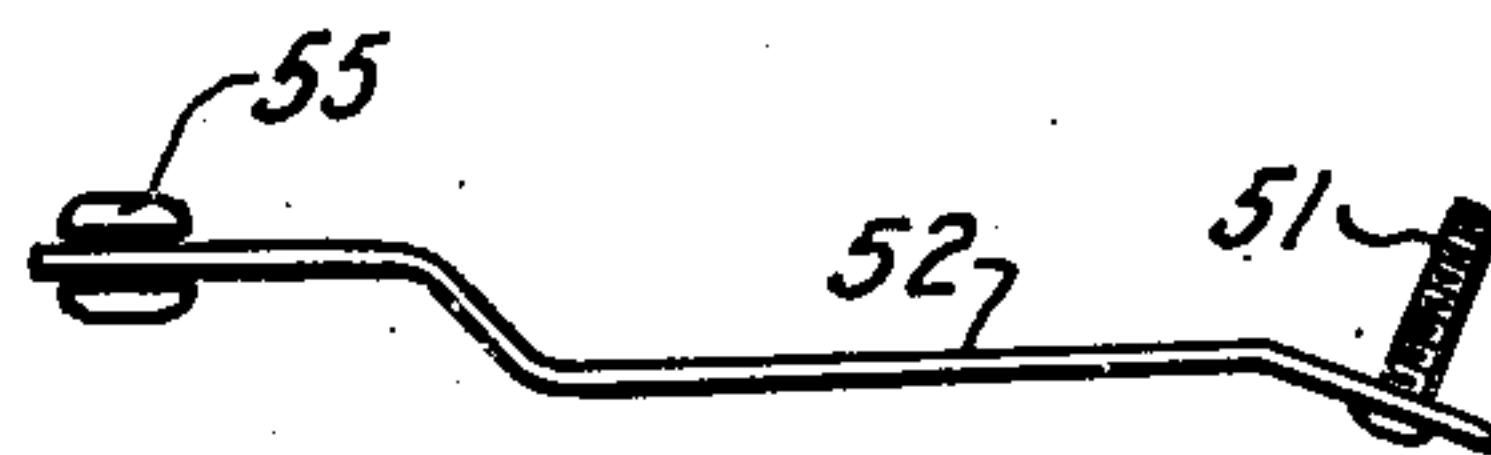


Fig. IV

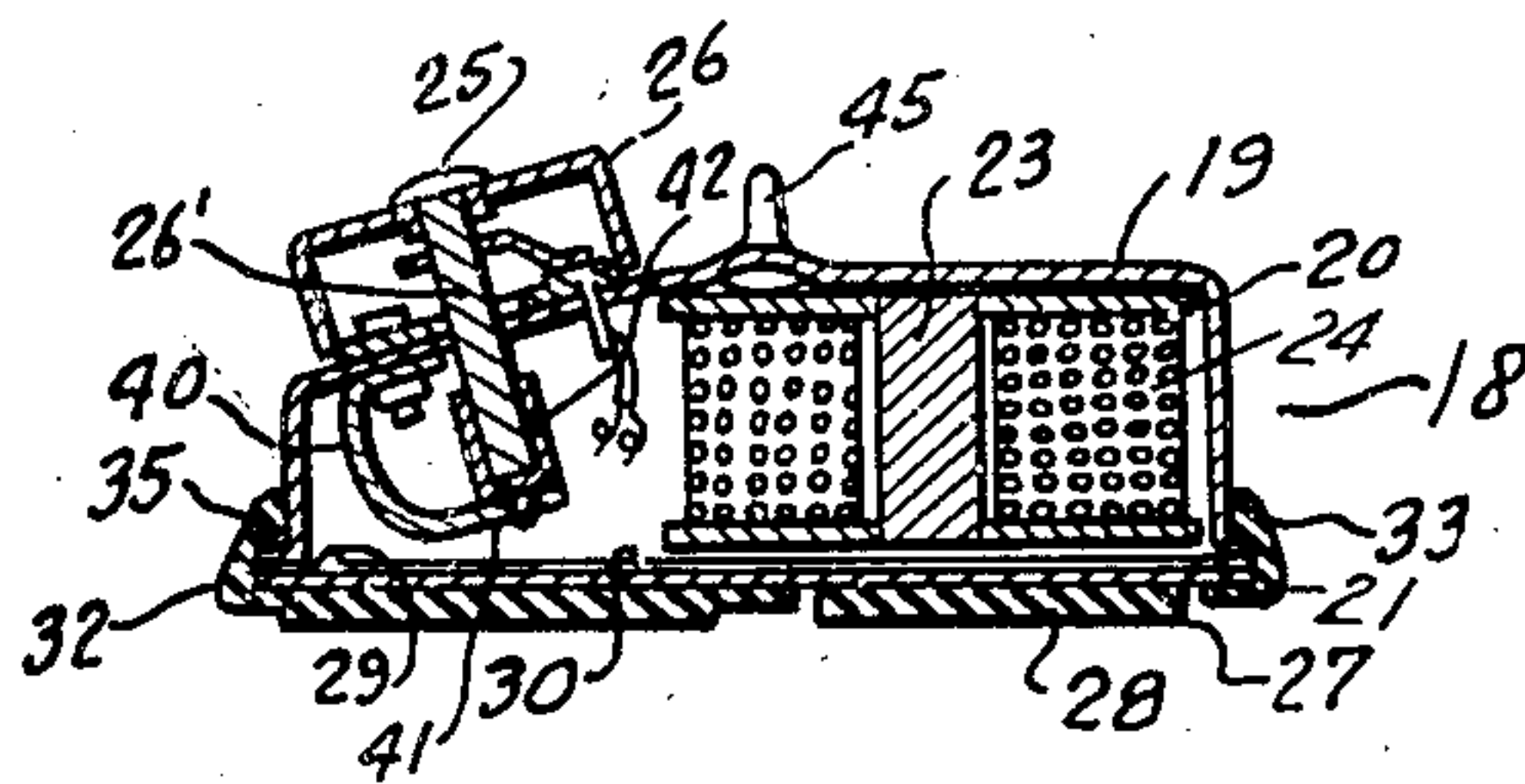


Fig. V

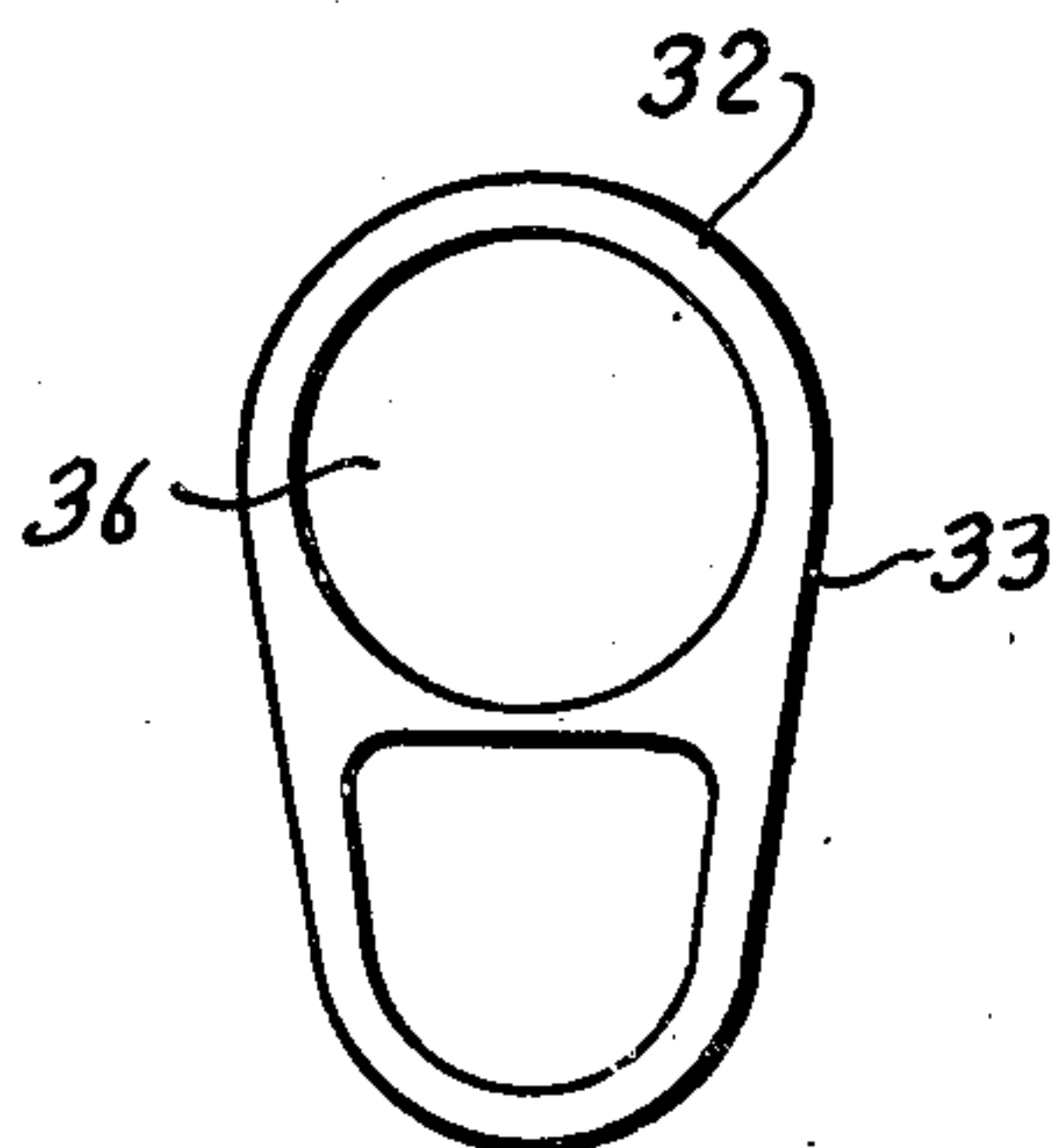


Fig. VIII.

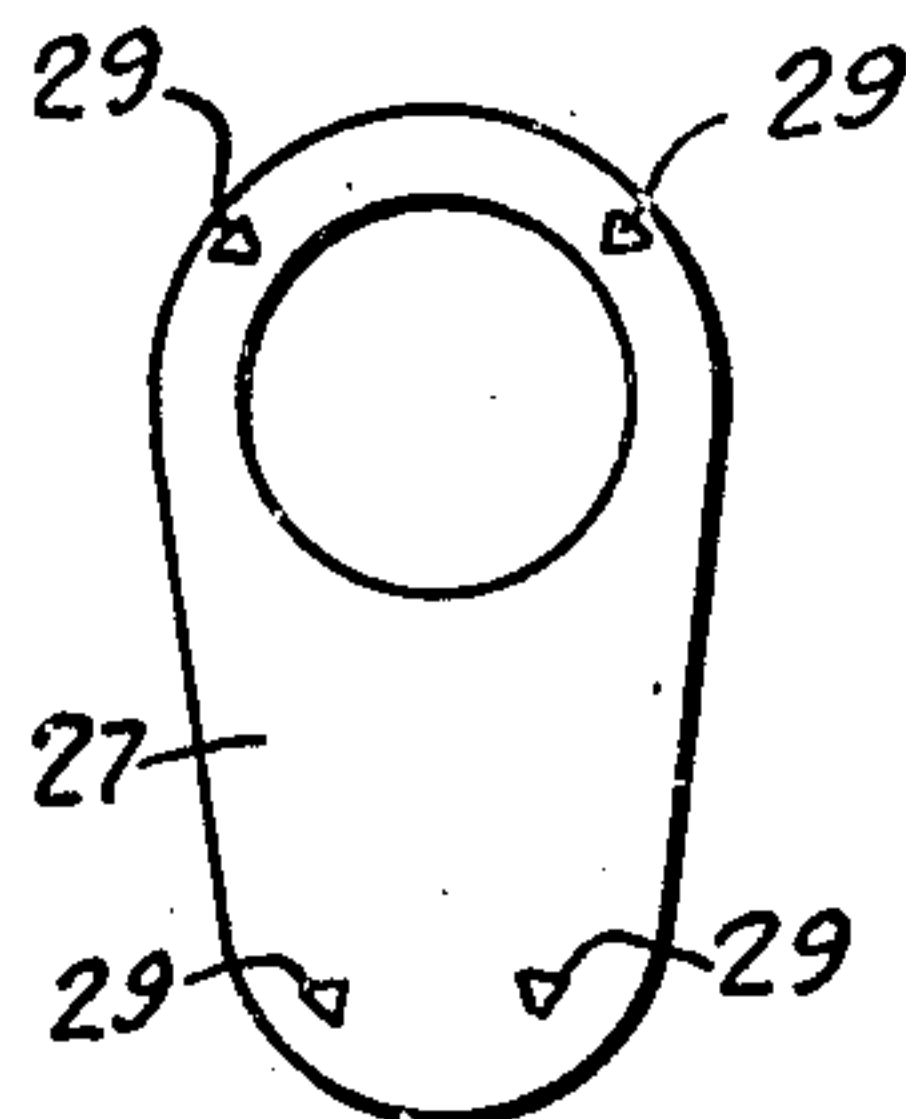


Fig. VII.

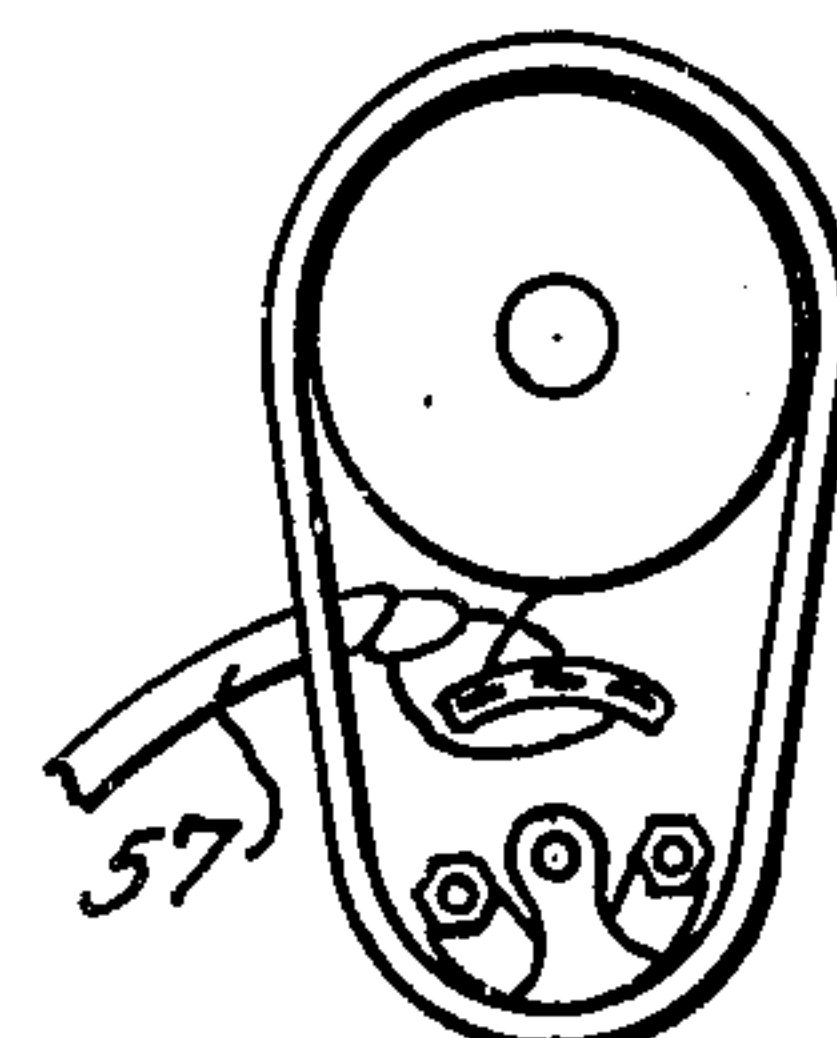


Fig. VI

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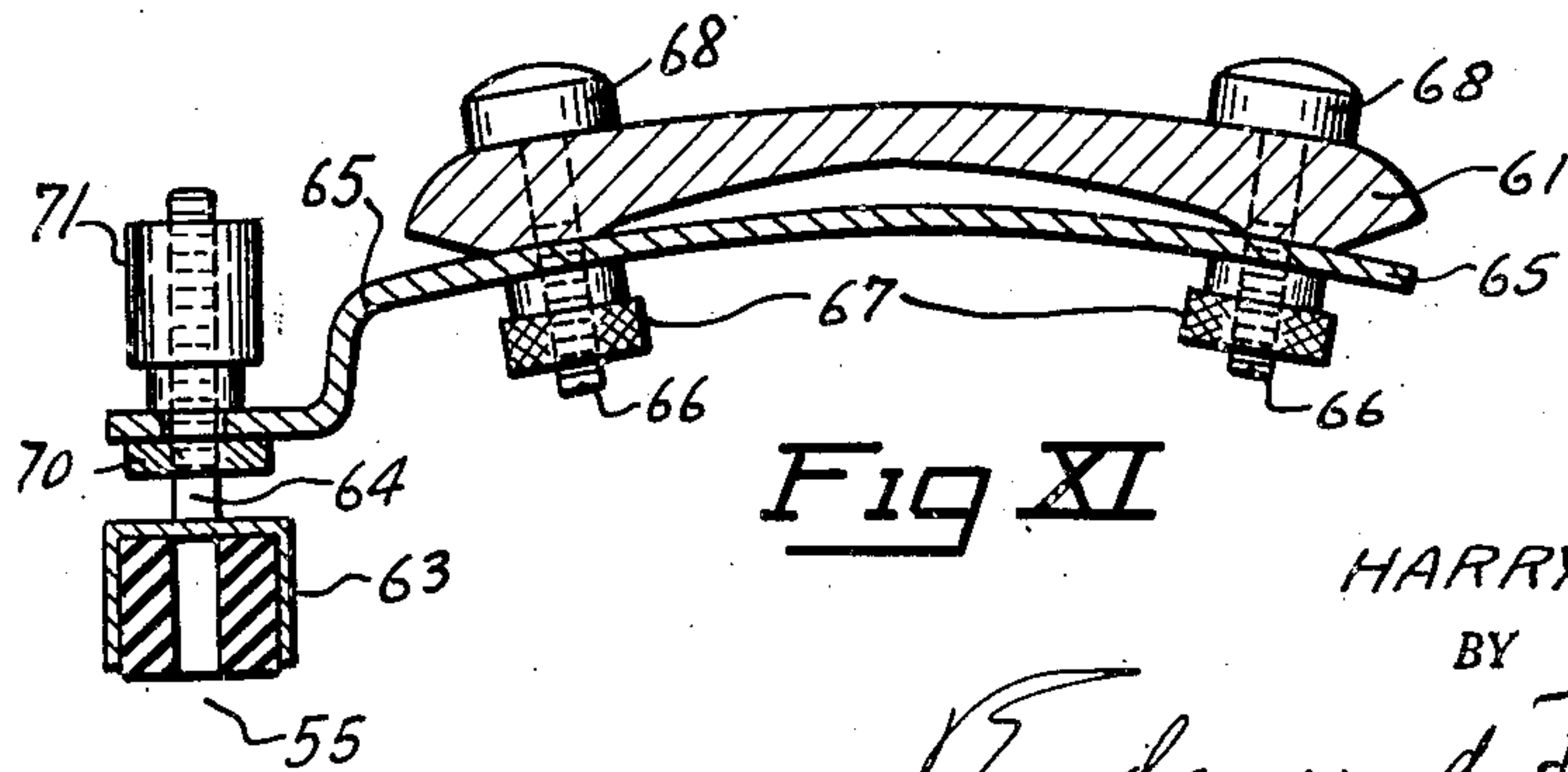
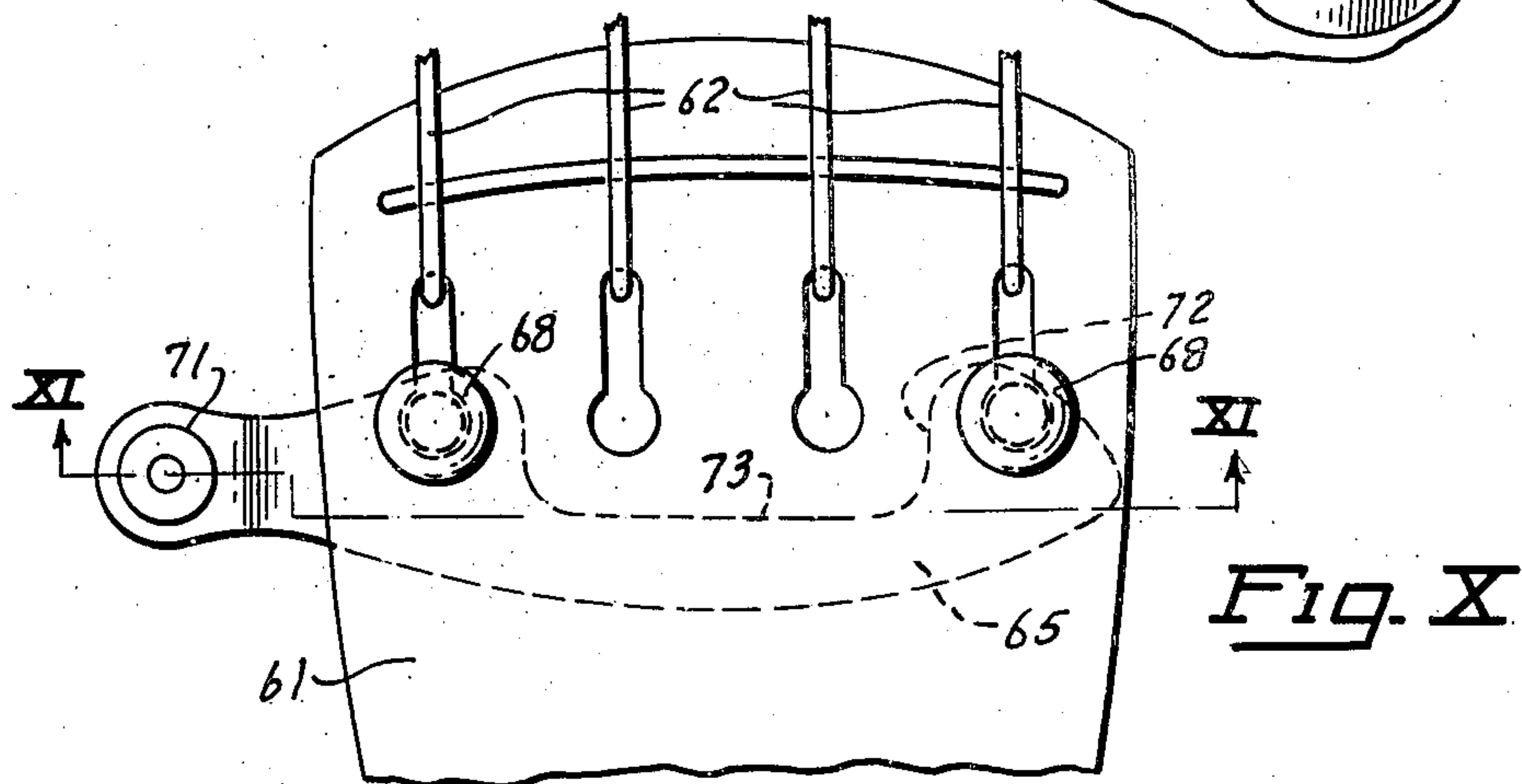
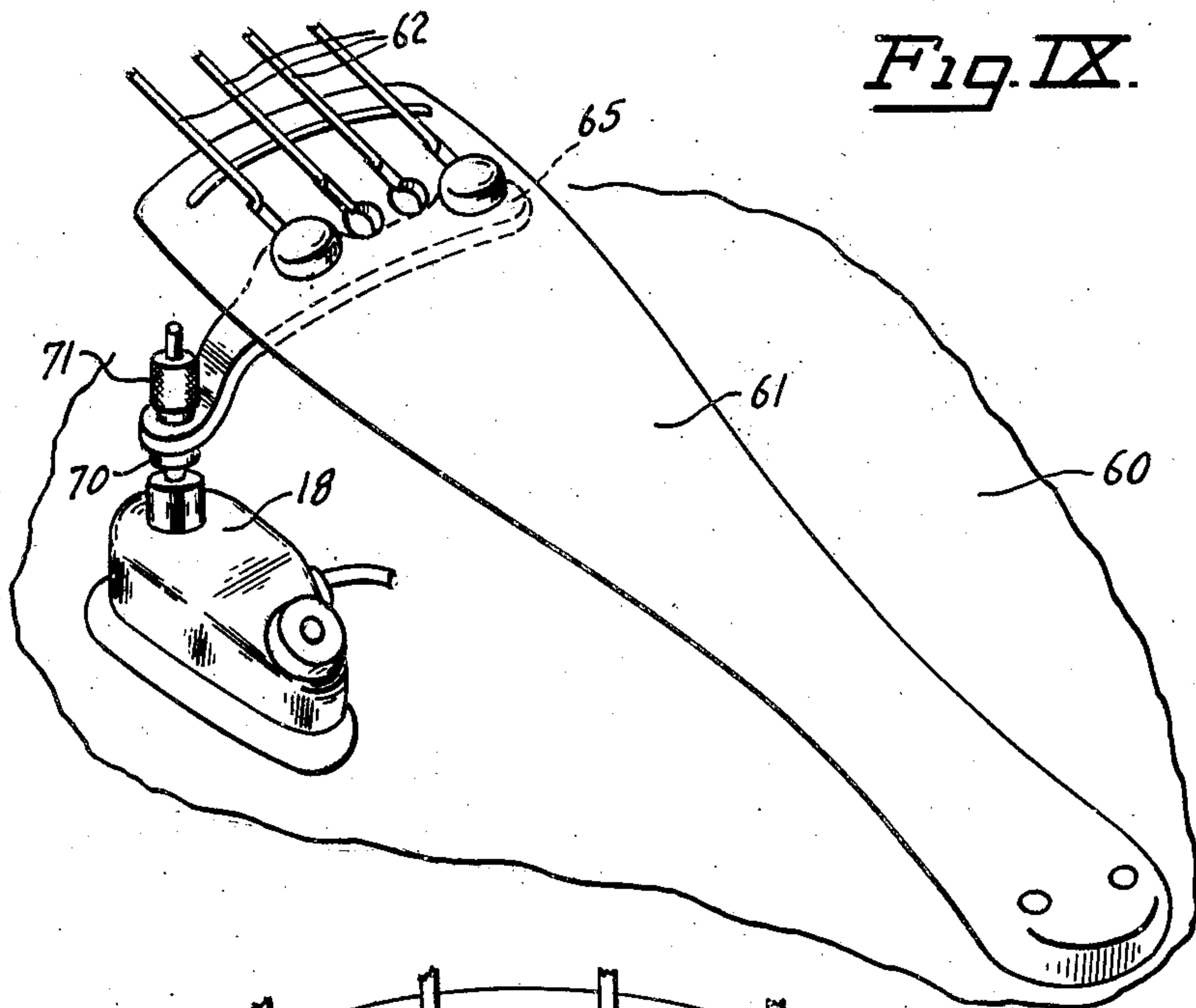
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VIOLIN MICROPHONE

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6 Claims. (Cl. 84—1.15)

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This invention relates to electric pick-ups for amplification of violin notes and involves a specially compact, readily adjustable, extremely accurate and satisfactory electromagnetic pick-up receiving its vibration from the box or case proper of the violin.

Another object is to provide improved attachable and detachable means for securing the device on the violin; to the details of construction of the magnetic assembly and housing; the bearings for the variable rheostat, the location of the "floating" diaphragm of the magnet; the method of construction and assembly thereof and the case of manipulation and use.

Further objects and advantages are within the scope of this invention such as relate to the arrangement, operation and function of the related elements of the structure, to various details of construction and to combination of parts, elements per se, and to economies of manufacture and numerous other features as will be apparent from a consideration of the specification and drawing of a form of the invention, which may be preferred, in which:

Figure I is a plan view of a violin with my improved electromagnetic pick-up attached thereto.

Figure II is a perspective view of the pick-up and the attaching arm and clamping bracket;

Figure III is an elevational view of the attaching bracket; while

Figure IV is a side elevational view of the supporting arm;

Figure V is a longitudinal, sectional view of the pick-up illustrated in Figure II;

Figure VI is a bottom elevational view of the pick-up with the base and diaphragm removed;

Figure VII is a plan view of the electromagnetic diaphragm;

Figure VIII is a bottom plan view of the rubber sealing base of the pick-up;

Figure IX is a plan view of a part of a bass violin with my modified attaching means for securing the electromagnetic pick-up thereto;

Figure X is a plan view of the tailpiece and attaching bracket; while

Figure XI is a sectional view taken on the line XI—XI of Figure X.

Referring to Figure I, I have illustrated a standard violin 10 having the usual tailpiece 12, bridge 13, strings 14, and fingerboard 15. I also show the standard type of chin rest 16 located on the front face of the lower portion of the violin 10.

My improved electrical pick-up is illustrated broadly by the numeral 18 resting directly on the front face of the violin itself and includes a casing

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19 of oblong shape as indicated in Figure II, the depending sides 20 of the casing having an outwardly extending lower rim or surrounding flange 21. (See Figure V.) The pick-up device proper includes the magnet 23, winding 24, variable rheostat 25, capable of being adjusted, vary the amplification by moving the button 26.

As shown in Figure V, it will be seen that I provide a floating flat diaphragm 27 having attached thereto a violin case contacting pad 28 made of cork, the later adapted to rest on the wooden face of the violin, as indicated in Figure I. This diaphragm 27 is illustrated in Figure VII, where it will be seen that I provide four prongs 29 punched from the metal constituting the diaphragm itself, these prongs 29 being accurately positioned and adapted to fit securely within the side wall 20 of the casing 18, as shown at the left hand of Figure V, the prongs 29 thereby centering and positioning the diaphragm loosely in place adjacent the magnet 23. The inside face of the metal 27 constituting the diaphragm is provided with a covering 30 of thin rubber to cushion the diaphragm on the case and prevents extraneous tones from being picked up.

I also provide a unique method of locking the diaphragm 27 on the underside of the magnet 23 within the casing 18, and to this end a rubber base or footpad 32 shown in Figure VIII, has an upstanding circular flange 33 adapted to securely fit around the lower end of the depending flange 20 above the right angled retaining flange 21 of the case 18, all as shown in Figure V. It will be also noted from Figure V that the rim 33 of the rubber retainer pad 32 has an undercut groove 35 so that the diaphragm 27 may be freely mounted with respect to the magnet to properly vibrate without any distortion by this simplified construction and assembly. It will be noted that the rubber pad 32 has a circular opening 36 through which the cork pad 28 of the diaphragm 27 extends so that the pad may directly contact the wooden face of the violin, as indicated supra.

Referring again to Figure V, it will be seen that the variable rheostat 26 includes the shaft 26' and in order to provide a two bearing mounting therefor within the casing 18, I have provided a curved bracket 40 mounted on the underside of the cover 19, said bracket 40 having an opening 41 therein adapted to receive a cylindrical cup shaped fiber bearing and buffing piece 42 surrounding the lower end of shaft 26' of the rheostat. By this construction, it will be seen that the rheostat shaft 26' is supported by the fiber bearing carried on bracket 40 on the lower end

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as well as in the cover 19 where the same passes through it, as shown in Figure V.

It will also be seen that the cover 19, as shown in Figure V, is provided with an upstanding metal pin 45 fastly secured to the top cover 19 of the casing 18, and forms a means of properly anchoring through the securing bracket the electrical pick-up on the violin as will be described.

As shown in Figures II, III, and IV, I provide a bracket attachment for the pick-up mechanism which may be readily applied and removed and which also permits adjustment of the position of the pick-up and securely holds the same in any position of adjustment. To this end, I provide a spring metal piece 50 (Figure III) adapted to clamp around the tailpiece 12 of the violin, the piece 50 being provided with holes for receiving a screw 51 fixed to a spring arm 52, the screw 51 adapted to extend through the holes in both arms of the spring clip 50 and be secured thereto by thumb nut 53. The spring arm 52 at its other end is provided with a hollow rubber grommet 55 which is adapted to be removably slipped over, but closely fit upon, the pin 45 on the top cover of the pick-up 18. From this construction, it will be seen that with the thumb screw 55 removed, the spring bracket may be readily clamped on the tailpiece 12 as indicated, and the spring supporting arm 52 secured thereto by screwing the nut 53 on the screw piece 51. Due to the spring action of the arm 52 which is arranged to press downwardly when the grommet 55 is slipped over the pin 45 of the pick-up device, the spring action tends to firmly press the entire unit 18 against the face of the violin, as shown in Figure I. The operator may readily adjust the position of the pick-up 18 either directly under the strings 14 or over toward the side of the violin to change the "timbre" of the tones produced by the pick-up.

It will be seen from Figures I and VI that I have illustrated a standard type of connecting cord 57 extending through the side of the casing 19 to extend under the chin rest 16 on the violin to a suitable amplifying device.

Referring to Figures IX, X, and XI, it will be seen that I apply the same type of pick-up hereinbefore described to a bass viol, which is partly illustrated in the cut out portion 60 having tailpiece 61 with the strings 62. In this embodiment of my invention, the electrical pick-up device 18 is substantially the same as that shown in the other embodiment described above but preferably made longer, and suitable for use with bass violin, as shown in Figure IX. In this case the rubber grommet 55 of the other embodiment is illustrated in Figure XI, is carried within a casing 63, which, in turn, is supported by a pin 64 carried on bracket 65 which, in turn, is screwed to the underside of the tailpiece 61, as shown in Figure XI. The support 65 has the removably screw threaded pins 66 passing through the tailpiece and knurled nuts 67 to clamp the bracket 65 in place. The other end of screws 66 have suitable fixed heads 68 located on and bearing against the front side of the tailpiece 61.

In order to form adjustable means to press the pick-up 18 against the face 60 of the bass viol in Figure IX, I provide a special adjustment of the rubber grommet 55 held in the casing 63 by providing means to suitably adjust the vertical shaft 64 carried on the bracket 65. To this end, the vertical shaft 64 is screw threaded, as indicated, and is provided with retaining and locking washer 70 bearing against the lower face of the arm 65, while on the other side of the said arm, I provide an

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adjustable nut 71 also screw threaded on the upper end of shaft 64. From this it will be seen that by screwing the washer 70 up against the under face of arm 65 and clamping the locking nut 71 down to hold the parts firmly together the pressure of holding the pick-up 18 against the violin face 60 can be adjusted as desired.

As shown in Figure X, where a plan view of the plate 65 is shown in dotted lines, it will be noted that the edge 72 is cut away to form a recessed portion 73 for freedom of changing strings on the bass viol.

It is apparent that, within the scope of the invention, modifications and different arrangements may be made other than is herein disclosed, and the present disclosure is illustrative merely, the invention comprehending all variations thereof.

What I claim is:

1. In a violin electric pick-up device, an electromagnet; a variable rheostat therefor; a casing for enclosing said electromagnet and supporting said rheostat comprising an elongated cover; a depending side wall integral with said cover; an outwardly extending flange on the bottom of said wall; a thin magnetic diaphragm underneath said magnet below said flange; a rubber supporting base for said casing having a marginal rim surrounding said flange with said diaphragm loosely supported above said base; an opening in said base; and a soft contacting pad attached to said diaphragm and extending through said opening, said pad adapted to contact and receive sound vibrations from the violin case.

2. In a violin electric pick-up device, an electromagnet; a variable rheostat therefor; a casing for enclosing said electromagnet and supporting said rheostat comprising an elongated cover; a depending side wall integral with said cover; an outwardly extending flange on the bottom of said wall; a thin magnetic diaphragm underneath said magnet below said flange; a plurality of integral projections on said diaphragm for floatingly locating the latter adjacent the electromagnet; a rubber supporting base for said casing having a marginal rim surrounding said flange with said diaphragm loosely supported above said base; an opening in said base; and a soft contacting pad attached to said diaphragm and extending through said opening, said pad adapted to contact and receive sound vibrations from the violin case.

3. An adjustable support for an electrical pick-up for violins, said pick-up including a casing carrying an electromagnet, and a variable rheostat, said magnetic pick-up adapted to contact the face of the violin case; said adjustable support comprising a resilient arm; a clamp adapted to be attached to the tailpiece of a violin, means to adjustably pivot said arm to said clamp; a pivot pin on the top of said casing; and a rubber grommet carried by said resilient arm to fit over said pin on said casing whereby said arm exerts a pressure to hold said pick-up firmly against the face of said violin in various positions of adjustment.

4. An adjustable support for an electrical pick-up for violins, said pick-up including a casing carrying an electromagnet, a variable rheostat including a rotary shaft; an opening forming one bearing for said shaft; a bracket inside said casing; a cylindrical bearing for the other end of said shaft, said bearing carried by said bracket; said magnetic pick-up adapted to contact the face of the violin case; said adjustable support

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comprising a resilient arm; a clamp adapted to be attached to the tailpiece of a violin, means to adjustably pivot said arm to said clamp; a pivot pin on the top of said casing; and a rubber grommet carried by said resilient arm to fit over said pin on said casing whereby said arm exerts a pressure to hold said pick-up firmly against the face of said violin in various positions of adjustment.

5. An adjustable support for an electrical pick-up for bass violins, said pick-up including a casing carrying an electromagnet, and a variable rheostat, said magnetic pick-up adapted to contact the face of the violin case; a pivot pin on the top of said casing; a resilient supporting arm extending beneath the tailpiece of said bass violin; a cutaway portion on said arm to adapt said arm to violins of different strings; a laterally offset extension on said arm; a rubber grommet; a casing for said grommet; an adjustable vertical shaft supported on said extension carrying said grommet; and a lock nut for securing the latter in various positions with said grommet over said pivot pin, said resilient arm exerting a downward pressure upon said pick-up against the face of the bass violin.

6. An adjustable support for an electrical pick-up for bass violins, said pick-up including a cas-

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ing carrying an electromagnet, and a variable rheostat, said magnetic pick-up adapted to contact the face of the violin case; a pivot pin on the top of said casing; a resilient supporting arm extending beneath the tailpiece of said bass violin; a plurality of spaced screw threaded pins extendable through said tailpiece and arm; thumb screws for locking said arm to said tailpiece; a cutaway portion on said arm to adapt said arm to violins of different strings; a laterally offset extension on said arm; a rubber grommet; a casing for said grommet; an adjustable vertical shaft supported on said extension carrying said grommet; and a lock nut for securing the latter in various positions with said grommet over said pivot pin, said resilient arm exerting a downward pressure upon said pick-up against the face of the bass violin.

HARRY DE ARMOND.

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