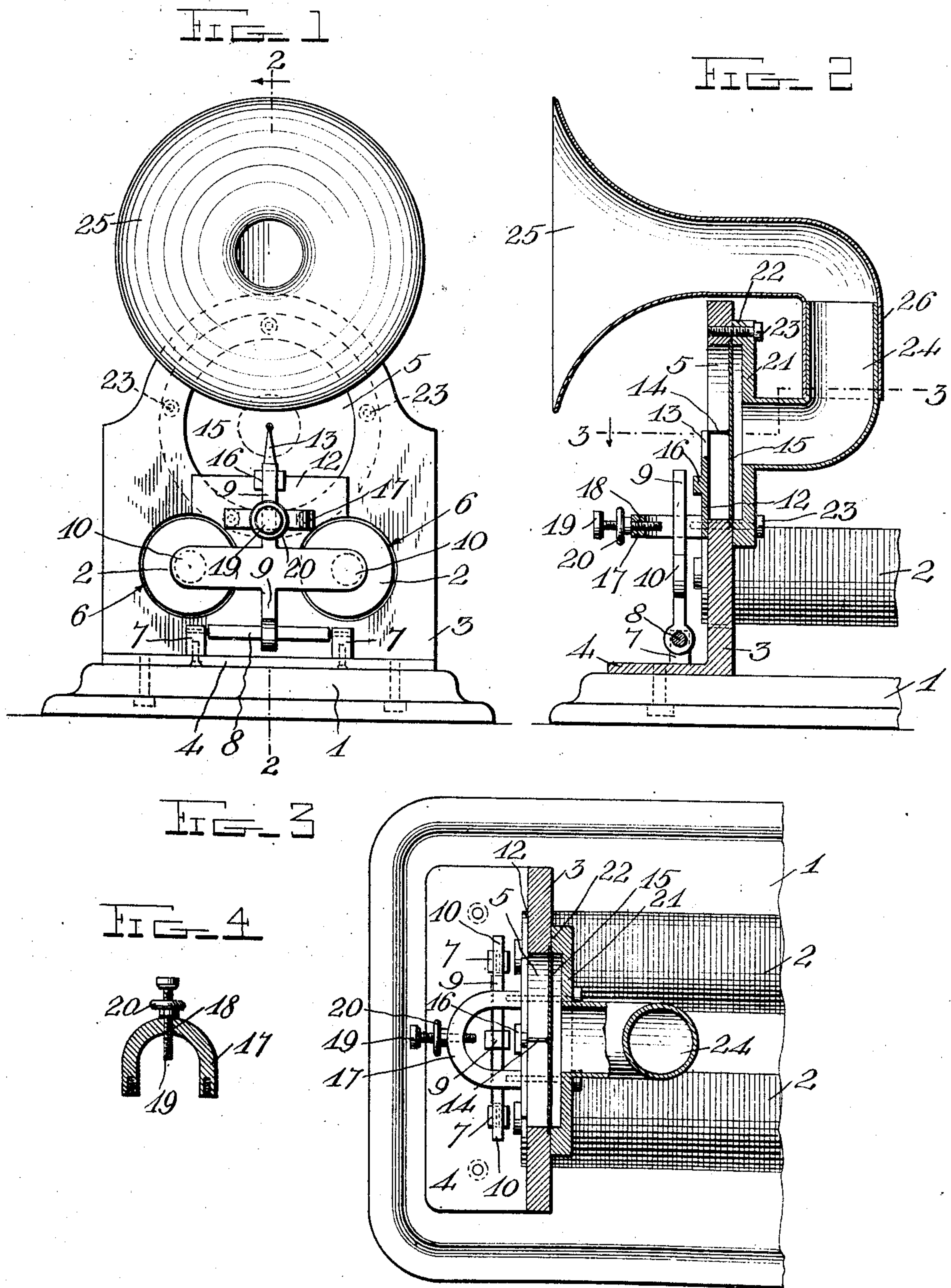


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F. O. HANSON.
SOUND MAGNIFIER FOR TELEGRAPH INSTRUMENTS.
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Witnesses
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UNITED STATES PATENT OFFICE.

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SOUND-MAGNIFIER FOR TELEGRAPH INSTRUMENTS.

No. 865,888.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed February 21, 1907. Serial No. 358,716.

To all whom it may concern:

Be it known that I, FREDERICK O. HANSON, a citizen of the United States, residing at Victoria, in the county of Ellis and State of Kansas, have invented certain new and useful Improvements in Sound-Magnifiers for Telegraph Instruments; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 This invention relates to improvements in sound magnifiers for telegraph instruments.

The object of the invention is to provide a device of this character adapted to be applied to the relay magnets of a telegraph instrument to amplify the sound produced by the armature levers of the magnets and to provide means for conducting and discharging the sound in any direction.

With the above and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings:—Figure 1 is a front end elevation of the sound magnifying device constructed in accordance with the invention; Fig. 2 is a vertical, longitudinal, sectional view on the line 2—2 of Fig. 1; Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1; and Fig. 4 is a detail horizontal sectional view through the supporting yoke or frame of the armature set screw.

30 Referring more particularly to the drawings, 1 denotes the base plate for the relay magnets, and 2 denotes the magnets which are mounted thereon in any suitable manner. Secured to the base 1 by screws or other suitable fastening devices is a vertically-disposed supporting plate 3 having at its lower end a right angularly-formed supporting flange 4. In the upper portion of the plate 3 is formed a circular diaphragm aperture 5, while in the lower portion thereof are formed two apertures 6 adapted to receive the ends of the aperture magnet 2.

40 Arranged on the flange 4 of the supporting plate are upwardly-projecting bearing lugs 7, in which are pivotally-mounted the ends of an armature shaft 8. On the shaft 8 is mounted a centrally-disposed, upwardly-projecting armature lever 9, said lever having formed thereon an oppositely-projecting armature plate 10, which is disposed opposite to and is adapted to be attracted by the cores of the magnets 2.

50 Secured to the supporting plate 3 adjacent to the lower edge of the diaphragm aperture 5 and projecting over a portion of said aperture is an anvil plate 12, said plate being provided with a centrally-disposed, upwardly-projecting V-shaped finger 13, the upper end of which is connected by a wire 14 to the center

of a diaphragm 15 formed of suitable material and secured in the aperture 5, as shown. On the anvil-plate 12 is formed an outwardly-projecting boss or lug 16 adapted to receive the blows of the armature lever 9 when operated by the magnets 2. Secured to the supporting plate 3 preferably by the same screws with which the anvil plate is secured is a horizontally-disposed, outwardly-projecting yoke or U-shaped frame 17, in which is formed a threaded aperture 18. Through the aperture 18 is adapted to be screwed an adjusting screw or bolt 19, the inner end of which is adapted to be engaged by the armature lever 9, thereby limiting or regulating the movement of the latter. The set screw or bolt 19 is adapted to be secured in its adjusted position by means of a locking nut 20 arranged thereon, as shown.

70 Secured to the rear side of the supporting plate 3 over the aperture 5 is a plate 21, said plate having formed on its inner side an annular flange 22, adapted to bear against the rear side of the supporting plate 3 to secure the diaphragm 5 in place and also to space the plate 21 from said diaphragm, so that the vibrations of the latter will not be obstructed. The plate 21 is preferably secured to the supporting plate 3 by means of screws or other fastening devices 23. The plate 21 is provided with a centrally-disposed aperture, with which is connected a rearwardly-projecting, upwardly-turned, tubular elbow 24, through which the sound vibrations from the diaphragm are conducted to a horn 25. The horn 25 is provided on its rear end with a downwardly-projecting tubular extension or elbow 26, which is adapted to be engaged with the upwardly-projecting portion of the elbow 24, whereby said horn is adapted to be turned in any direction on said elbow 24, thus enabling the sound to be discharged or thrown in any direction. The horn also serves together with the diaphragm to amplify the sound produced by the striking of the armature lever on the anvil plate, said sound being conducted to the diaphragm through the finger 13 and the wire 14, which connects said finger to the diaphragm.

95 From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

100 Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention, as defined by the appended claims.

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

1. A sound magnifier for telegraph instruments comprising an apertured supporting plate, an armature lever

pivotaly-mounted thereon; an anvil plate to receive the blows of said lever, a diaphragm in one of the apertures of said supporting plate, sound conducting connections between said anvil plate and said diaphragm, and means 5 whereby the sound vibrations of the diaphragm are conducted therefrom and discharged in any direction, substantially as described.

2. A sound magnifier for telegraph instruments comprising a supporting plate having formed in its upper portion a centrally-disposed diaphragm opening and in its 10 lower portion openings to receive the magnet of a relay instrument, an armature lever pivotaly-mounted on said supporting plate, an armature plate arranged on said lever in position to be attracted by said relay magnets, 15 means to regulate the movement of said armature lever, an anvil plate adapted to receive the blows from said armature-lever, a diaphragm arranged in said diaphragm opening of the supporting plate, sound conducting connections between said anvil plate and diaphragm, a sound 20 conducting tube arranged on the opposite side of said supporting plate, and a sound amplifying and conducting horn arranged on said tube to swing in any direction, substantially as described.

3. A sound magnifier for telegraph instruments comprising a supporting plate adapted to be secured to the 25 base plate of a relay instrument, said supporting plate having formed therein a diaphragm opening and openings

to receive the magnets of said relay, bearing lugs arranged on said supporting plate, an armature shaft pivotaly-mounted in said lugs, an armature lever arranged 30 on said shaft, an armature plate arranged on said lever in position to be attracted by the magnets of said relay, a yoke secured to said supporting plate around said armature lever, a regulating screw arranged in said yoke to limit the movement of said lever, an anvil plate secured 35 to said supporting plate, a boss or projection on said anvil plate, an upwardly-projecting V-shaped finger on said anvil plate, a diaphragm arranged in the opening of said supporting plate, a conducting wire to connect said 40 finger with said diaphragm, a flanged plate arranged on the rear side of said supporting plate to hold said diaphragm in position, a tubular sound conducting elbow arranged on said supporting plate, and a sound conducting and amplifying horn having on its inner ends a 45 tubular elbow adapted to be pivotaly engaged with the sound conducting elbow of said plate, substantially as described.

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

FREDERICK O. HANSON.

Witnesses:

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G. E. THOMAS.