

907,363.

Patented Dec. 22, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

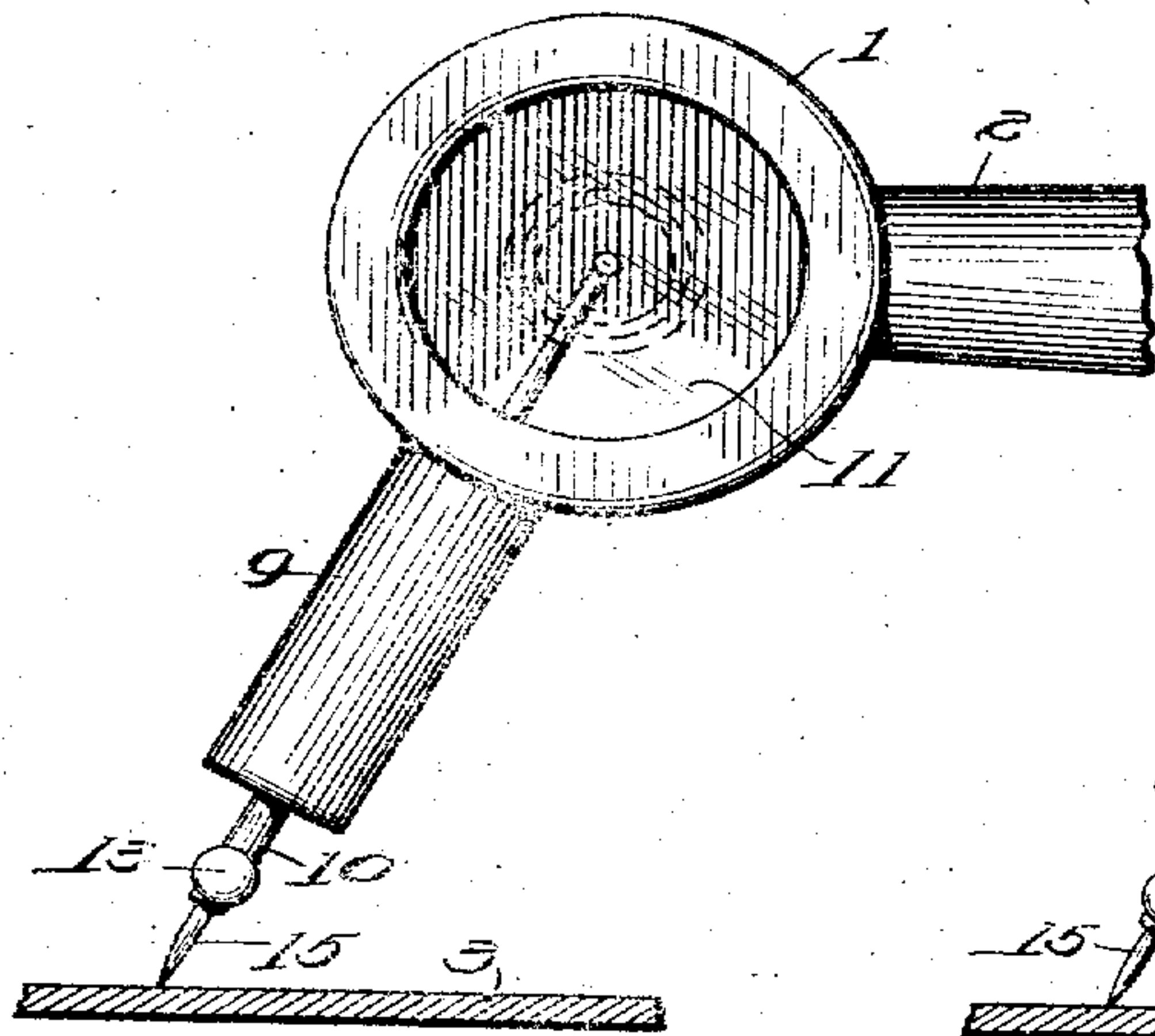


Fig. 2.

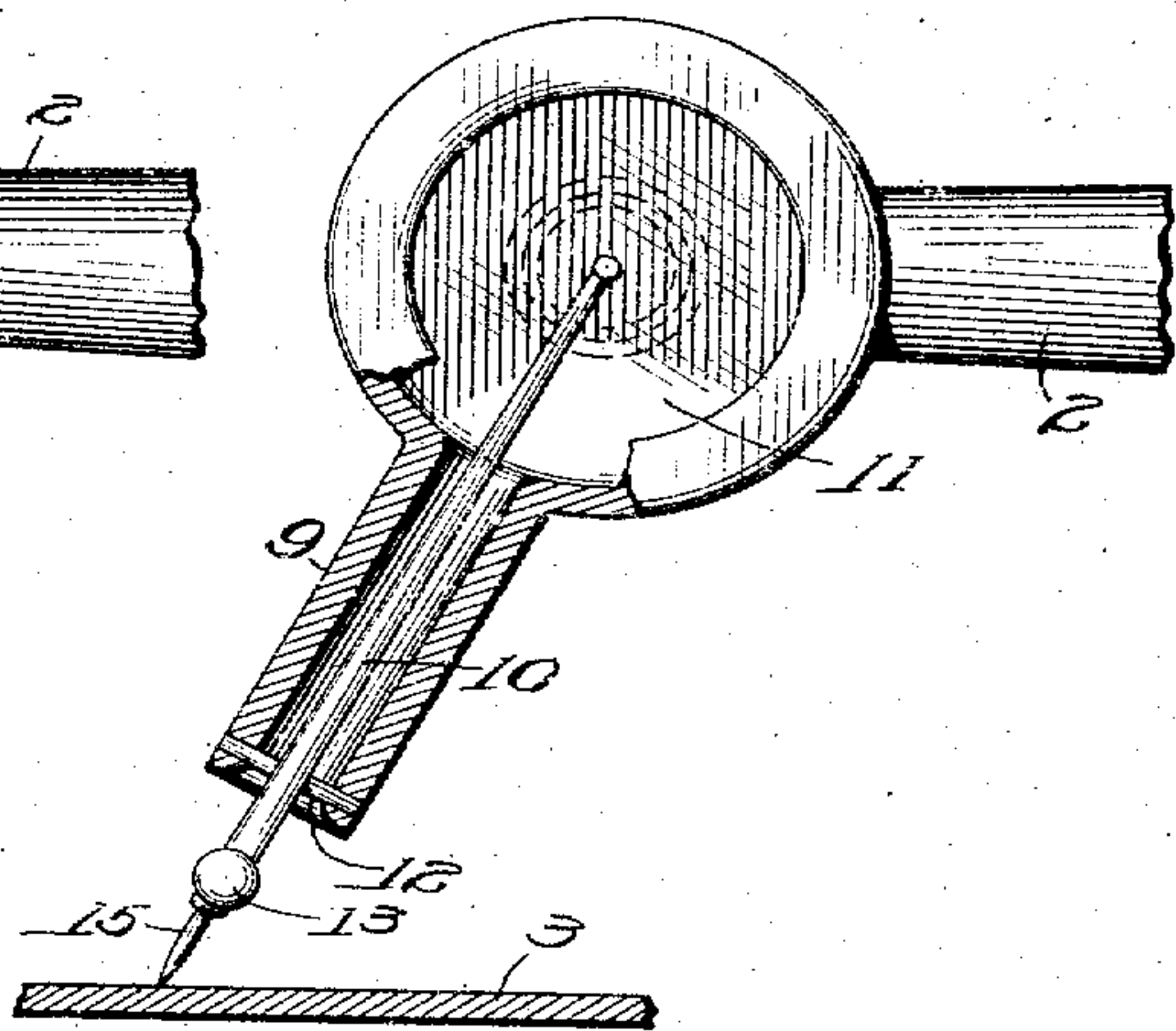


Fig. 3.

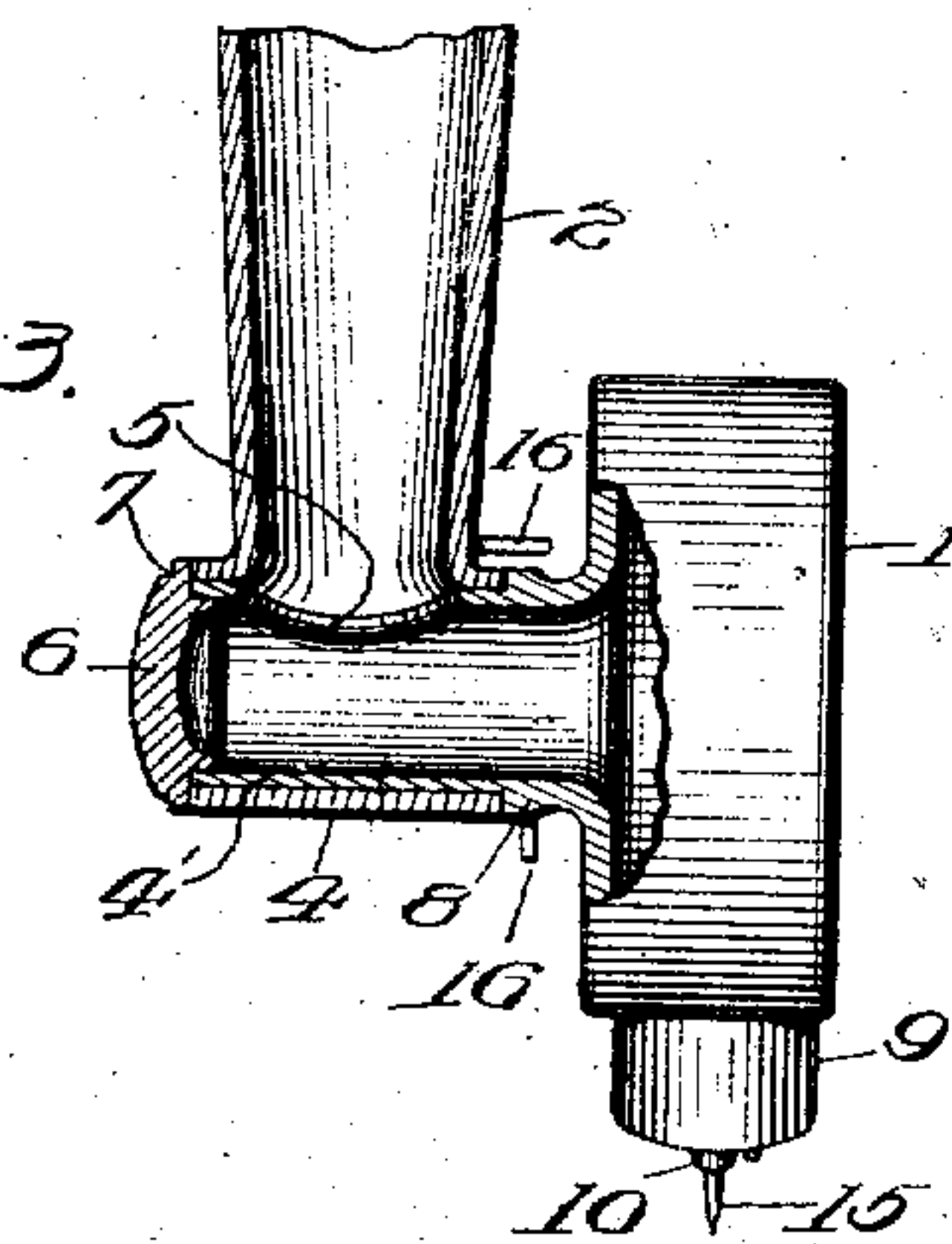


Fig. 4.

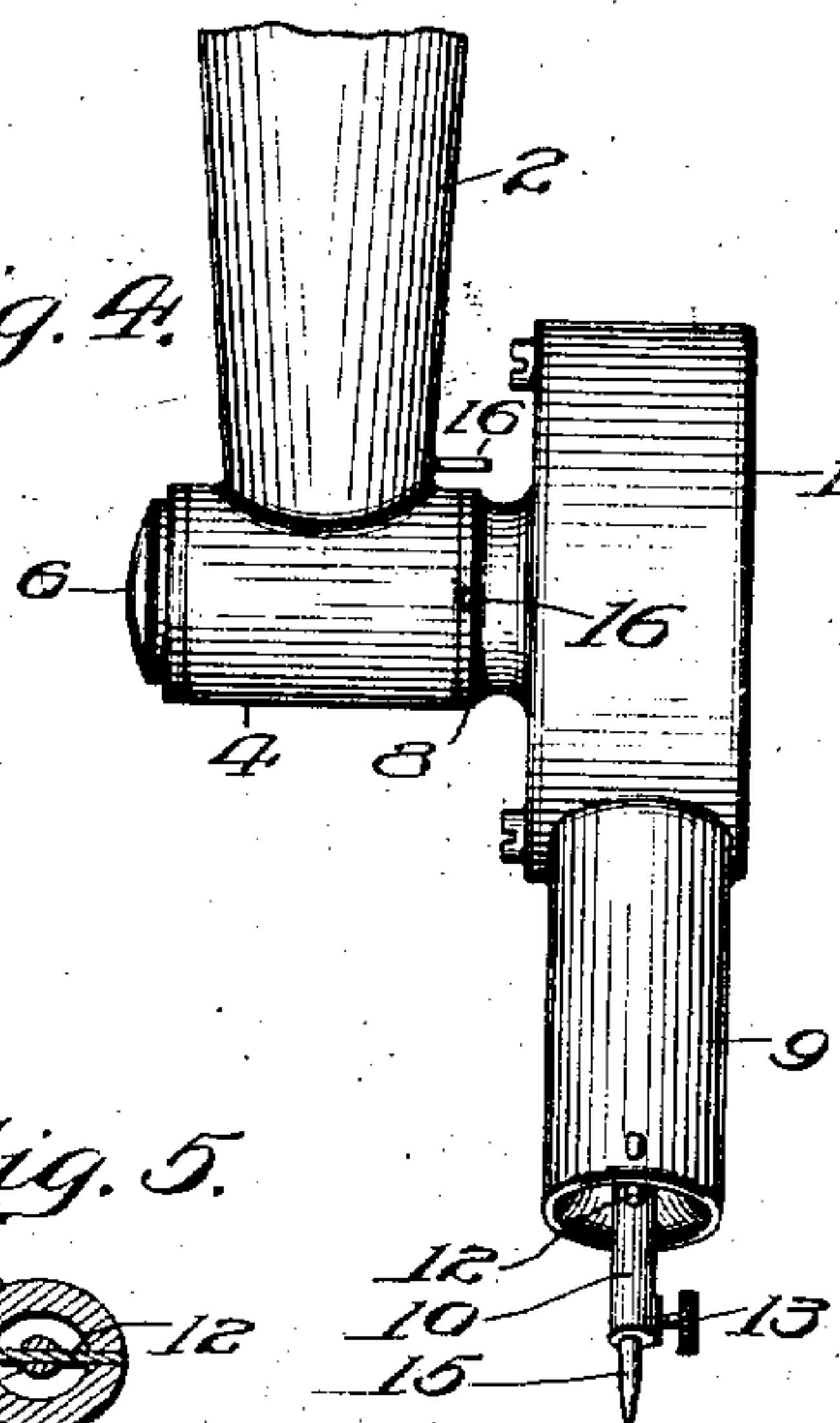
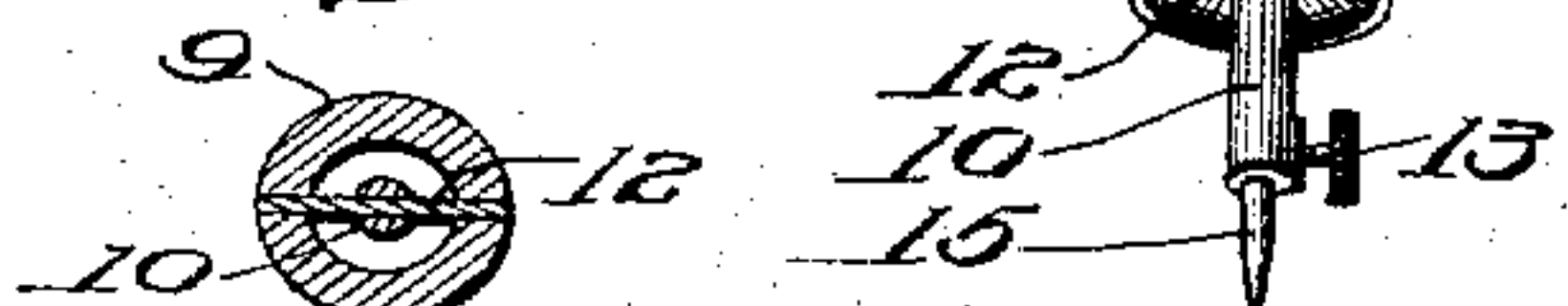


Fig. 5.



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TALKING MACHINE.

APPLICATION FILED APR. 24, 1908.

907,363.

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2 SHEETS—SHEET 2.

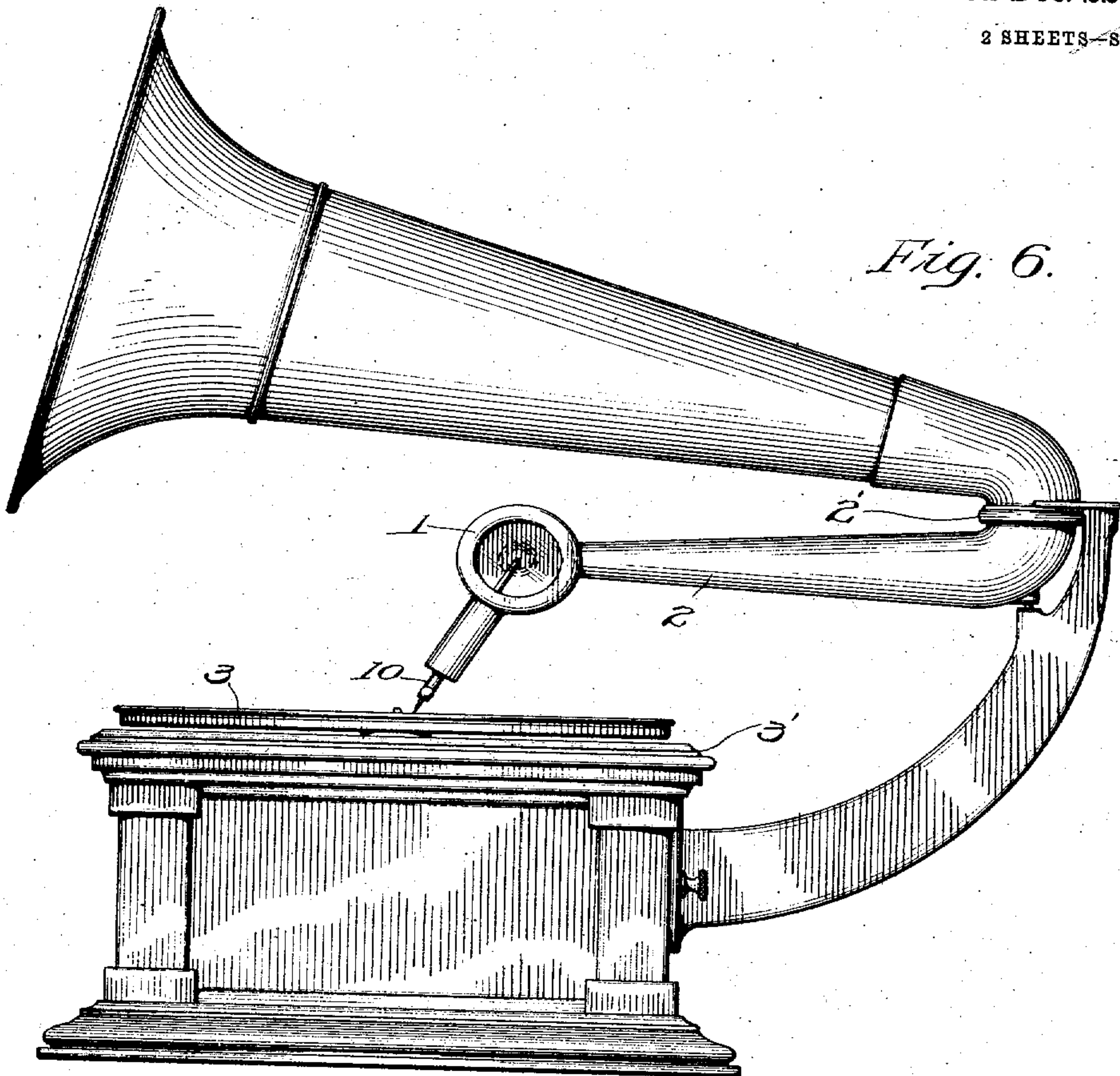


Fig. 6.

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UNITED STATES PATENT OFFICE.

DELAWARE J. HOOD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO VICTOR TALKING MACHINE COMPANY, A CORPORATION OF NEW JERSEY.

TALKING-MACHINE.

No. 907,363.

Specification of Letters Patent.

Patented Dec. 22, 1908.

Original application filed October 8, 1904, Serial No. 227,624. Divided and this application filed April 24, 1908.
Serial No. 428,907.

To all whom it may concern:

Be it known that I, DELAWARE J. HOOD, a citizen of the United States, and a resident of the city of Philadelphia, Pennsylvania, have invented certain new and useful Improvements in Talking-Machines, of which the following is a full, clear, and complete disclosure, reference being had to the accompanying drawings, forming a part of this specification, this application being a division of my application filed October 8, 1904, Serial No. 227,624.

The main objects of my invention are to provide improved means, of simple, durable construction, for connecting a sound box to a hollow sound conveying arm, and which will be easy to operate and effective in action; to provide improved means for holding the stylus needle in contact with the record; and to provide other improvements which will appear in the following specification.

In the accompanying drawings: Figure 1 is a fragmentary side elevation of a sound box and sound conveying arm constructed in accordance with this invention, showing the same in its operative relation to a record tablet; Fig. 2 a similar view partially in section; Fig. 3 a fragmentary top plan view of the same partially in section; Fig. 4 a top plan view of the same but showing the sound box rotated into position for changing needles; Fig. 5 a transverse section of the stylus bar mounting taken in the plane of the axis of oscillation of the bar; and Fig. 6 is a side elevation of a talking machine constructed in accordance with this invention.

Referring to the drawings, the device comprises a sound box 1, of the type used in connection with sound records having lateral undulations and a hollow sound conveying swinging arm or tube 2 which is pivoted at its larger or inner end 2' in a well known manner to swing in a plane parallel to the disk record 3, of the laterally undulating groove type, which is mounted to rotate upon the usual cabinet 3'.

For rotatably connecting the sound box with the swinging arm 2, the end of the arm 2 is provided with a short transverse sleeve or tube 4 communicating therewith, which is adapted to telescope over the outer end of a tube or bushing 4' which forms a reduced extension of the rear side of the sound box casing. The tube 4' is provided with an open-

ing in one side thereof which registers with the opening into the end of the arm 2 when the sound box is in its operative position.

A cap 6 is fitted into the outer end of the tube 4' and projects radially beyond the sides of the tube forming a flange 7 contacting against the outer ends of both tubes 4 and 4', and a flange 8, upon the inner tube 4' contacts against the inner end of the tube 4, and the inner tube 4' is thus held rotatably in position in the outer tube 4. By this means the sound box is mounted to swing in a plane parallel to the face of the record 3 and to rotate on an axis coincident with the longitudinal axis of the tube 4', substantially parallel to the face of the record 3 and substantially perpendicular to the longitudinal axis of the swinging arm 2.

The mounting for the stylus bar comprises a tube 9 projecting radially and rigidly from the sound box casing and communicating therewith, and the stylus bar 10 extends within and axially of the tube 9 and is spaced from the inner surface of the tube. The stylus bar is elongated to correspond to the length of the containing tube 9. The inner end of the stylus bar is phonetically connected to the diaphragm 11 as usual and the outer end of the bar is mounted to oscillate upon a torsional spring 12 which extends diametrically of the outer end of the tube 9, the spring being fixed rigidly both to the bar and to the tube. The stylus bar has the usual socket and set screw 13 for holding the stylus needle 15 in position.

As in the present embodiment of this invention the sound box is restrained to swing in a plane parallel to the face of the record, it is necessary to have some means for holding the stylus needle yieldingly in contact with the record groove with sufficient pressure to produce the best results. For this purpose the walls of the tube 9 are made sufficient weight to give by gravity the desired turning movement to the sound box when the sound box is in operative position as shown in Figs. 1 and 2.

It is apparent that the radial tube 9 on the sound box serves not only as a weight to hold the stylus needle in contact with the record, but also serves as a protector for the stylus bar, and also enables an elongated bar to be used having its axis of oscillation spaced at a greater distance than usual from the inner

end of the bar, thus increasing the amplitude of vibration of the diaphragm in reproducing.

When it is desired to change needles the sound box is rotated into the position shown in Fig. 4, and, obviously, stops 16 may be employed for limiting this movement of the sound box so that the stylus bar may be retained in a raised inverted position to facilitate the operation of changing needles and also to keep the stylus needle away from the record when the machine is not in use.

It is evident that in the connection provided by this invention between the sound box and the swinging sound conveying arm there would be but little friction between the moving parts, that the passages are short and conveniently shaped, and that it would not be necessary to lift any of the weight of the body of the sound box in changing needles or in removing the needle from the record.

Although I have described only one form in which this invention may be embodied, it is obvious that many changes might be made in the construction herein set forth, within the scope of the appended claims, to adapt the invention to different requirements and different types of talking machines, without departing from the spirit of this invention or sacrificing any of the advantages thereof.

Having thus fully described my invention, what I claim and desire to protect by Letters Patent of the United States is:

1. In a sound recording and reproducing machine, the combination with a sound conveying arm, of a sound box connected thereto, the said sound box being journaled to oscillate about an axis extending longitudinally and centrally of said sound box, a stylus bar, and means carried by said sound box and upon which said stylus bar is mounted to turn said sound box on its axis.

2. In a sound recording and reproducing machine, the combination with a sound conveying arm, of a sound box, having a diaphragm therein, mounted upon said arm, said sound box being journaled in said arm to oscillate about an axis substantially coincident with the axis of said diaphragm, a stylus bar, and means carried by said sound box and upon which said stylus bar is mounted, to turn said sound box on its axis.

3. In a sound recording and reproducing machine the combination with a sound conveying arm terminating in a sleeve, of a sound box journaled to oscillate in said sleeve about an axis extending longitudinally and centrally through said sound box, a stylus bar, and means carried by said sound box and upon which said stylus bar is mounted to turn said sound box upon its axis to hold the free end of said stylus bar yieldingly in position.

4. In a talking machine, the combination with an axially pivoted sound box casing, of a hollow sound conducting arm, means for

connecting said sound box casing directly to the end of said hollow arm, a weighted projection carried by said sound box casing and a stylus bar carried by said weighted projection said weighted projection forming the means for holding the free end of said stylus bar yieldingly in position.

5. In a talking machine, the combination with an axially pivoted sound box casing, of a hollow sound conducting arm, a joint for connecting said sound box with said hollow arm so that the axis of said sound box is transverse to the axis of said arm, a weighted projection carried by said sound box casing, and a stylus bar carried by said weighted projection, said weighted projection forming the means for holding the free end of said stylus bar yieldingly in position.

6. In a talking machine, the combination with an axially pivoted sound box casing, of a hollow sound conveying arm terminating in a transverse sleeve, a bushing carried by said sound box casing and adapted to telescope with said sleeve, there being communication between the interior of said arm and said bushing, means for retaining said bushing in position within said sleeve, a weighted projection carried by said sound box casing, and a stylus bar fulcrumed on said projection, said weighted projection forming the means for holding the free end of said stylus bar yieldingly in position.

7. In a talking machine, the combination with an axially pivoted sound box casing, of a hollow sound conveying arm terminating in a transverse sleeve, a bushing carried by said sound box casing and adapted to telescope with said sleeve, there being communication between the interior of said arm and said bushing, means for retaining said bushing in position within said sleeve, a weighted tube carried by said sound box casing, and a stylus bar fulcrumed on said tube, said weighted tube forming the means for holding the free end of said stylus bar yieldingly in position.

8. In a sound recording and reproducing machine, the combination with a hollow sound conducting arm, of a sound box having a tube projecting from the rear side thereof, the said sound tube being journaled transversely to the longitudinal axis of and in lateral communication with said arm and being freely rotatable about the longitudinal axis of said tube, a stylus bar, and means carried by said sound box and upon which said stylus bar is mounted, to turn said sound box on its axis to bring the free end of said stylus bar adjacent the record.

9. In a sound recorder or reproducer, the combination with a sound arm, of a sound box carried thereby and rotatable upon its longitudinal axis with respect thereto, a stylus bar, and means carried by said sound box, and upon which said stylus bar is

mounted, to swing said sound box upon its axis.

10. In a sound recorder or reproducer, the combination with a sound conveying arm, of a sound box rotatable upon its longitudinal axis thereon, a weighted projection carried by said sound box, and a stylus bar mounted upon said projection.

11. In a talking machine, the combination with a sound conducting arm terminating in a transverse sleeve of a sound box casing pivoted to rotate about its longitudinal axis in said sleeve and communicating with said sound arm, and means to prevent movement of said casing longitudinal of its axis.

12. In a talking machine, the combination with a sound conducting arm terminating in a transverse sleeve, of a sound box having an axial tubular extension rotatably fitting in said sleeve, and communicating with said arm, and means to prevent movement of said casing longitudinal of its axis.

13. In a talking machine, the combination with a hollow sound conducting arm terminating in a transverse tubular portion open at each end, of a sound box having an axial tubular extension rotatably fitting in said transverse tubular portion of the arm, and communicating with said arm, and a cap closing the inner end of said tubular extension.

14. In a talking machine, the combination with a sound conveying arm, a sound box, a stylus and a diaphragm, said sound box being pivoted to swing on said arm on an axis substantially normal to said diaphragm, of means extending outwardly from said sound box to cause said stylus to engage the record with the required pressure and a stylus bar mounted upon said means.

15. In a talking machine, the combination with a sound box, of a support therefor, whereby said box is restrained to swing in a fixed plane, said box being free to oscillate about its longitudinal axis, and means carried by the box to hold it yieldingly in position.

16. In a talking machine, the combination with a sound box, of a support therefor mounted to oscillate in a fixed plane, said sound box being freely rotatable upon its longitudinal axis, and a weighted projection carried by said sound box for holding the same yieldingly in position.

17. In a talking machine, the combination with a support mounted to swing in a fixed plane, of a sound box connected thereto, said sound box being mounted to oscillate about its longitudinal axis, a stylus bar, and a tube projecting from said box and in which said stylus bar is mounted to oscillate to turn said box on its axis.

18. In a talking machine, the combination with a support, of a sound box connected thereto, the said sound box being mounted to

oscillate about its longitudinal axis, a stylus bar, and means carried by said sound box and upon which said stylus bar is mounted to turn said box on its axis.

19. In a talking machine, the combination with a support, of an axially pivoted sound box casing carried thereby, a weighted projection carried by said casing, and a stylus bar mounted upon said weighted projection, said projection forming the means for holding the free end of said stylus bar yieldingly in position.

20. In a talking machine, the combination with a sound box, of a radial arm support therefor, said sound box being free to oscillate and to be inverted about its longitudinal axis, means carried by the box to hold it yieldingly in operative position, and a stop carried by said arm to hold the box in inoperative position.

21. In a talking machine, the combination with a sound box, of a radial arm support therefor, said box being free to oscillate and to be inverted about its longitudinal axis, a weight rigid with said box for holding the same yieldingly in operative position, and a stop carried by said arm to hold the box in inoperative position.

22. In a talking machine, the combination with a sound box, of a support therefor, said sound box being freely rotatable with respect thereto, a stylus bar, and means carried by said box and upon which said stylus bar is mounted to hold said box yieldingly in position.

23. In a talking machine, the combination with an arm mounted to swing in a fixed plane, of a sound box carried by said arm and rotatable with respect thereto, a stylus bar, and means carried by said box and upon which said stylus bar is mounted to turn said box on its axis.

24. In a talking machine, the combination with a sound box, of a support therefor mounted to swing in a fixed plane, said box being free to oscillate about its longitudinal axis, a stylus bar carried by said box, a record support, and means carried by the box to hold the free end of said bar yieldingly in position adjacent said record support.

25. In a talking machine, the combination with a hollow support, of a sound box carried thereby, a tube projecting from said sound box, and a stylus bar in said tube.

26. In a talking machine, the combination with a sound box, of a support therefor whereby said box is restrained to swing in a fixed plane, said box being free to oscillate about its longitudinal axis, a stylus bar carried by said box, a record support, and means carried by the box to hold the free end of said bar yieldingly in position adjacent said record support.

27. In a talking machine, the combination with a hollow support, of a sound box carried

thereby and communicating therewith, said sound box being freely rotatable upon its longitudinal axis but being held against movement longitudinally of said axis with respect to said support.

28. In a talking machine, the combination with a hollow support, of a sound box carried thereby and communicating therewith, said sound box being freely rotatable upon its longitudinal axis but being held against movement longitudinally of said axis with respect to said support, and the longitudinal axis of said sound box being transverse to the longitudinal axis of said support.

29. In a talking machine, the combination with a movable hollow support, of a sound

box carried thereby and movable with respect thereto, a tube projecting from said sound box, and a stylus bar in said tube.

30. In a talking machine, the combination with a hollow sound conducting arm terminating in a transverse tubular portion, of a sound box carried by said tubular portion and communicating with said arm, said sound box being freely rotatable upon its longitudinal axis.

In witness whereof, I hereunto set my hand this 23rd day of April 1908.

DELAWARE J. HOOD.

Witnesses:

ALSTON B. MOULTON,
ALEXANDER PARK.

Correction in Letters Patent No. 907,363.

It is hereby certified that in Letters Patent No. 907,363, granted December 22, 1908, upon the application of Delaware J. Hood, of Philadelphia, Pennsylvania, for an improvement in "Talking-Machines," an error appears in the printed specification requiring correction, as follows: In line 97, page 1, after the word "made" the word *of* should be inserted; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of January, A. D., 1909.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.

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28. In a talking machine, the combination with a hollow support, of a sound box carried thereby and communicating therewith, said sound box being freely rotatable upon its longitudinal axis but being held against movement longitudinally of said axis with respect to said support, and the longitudinal axis of said sound box being transverse to the longitudinal axis of said support.

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box carried thereby and movable with respect thereto, a tube projecting from said sound box, and a stylus bar in said tube.

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