

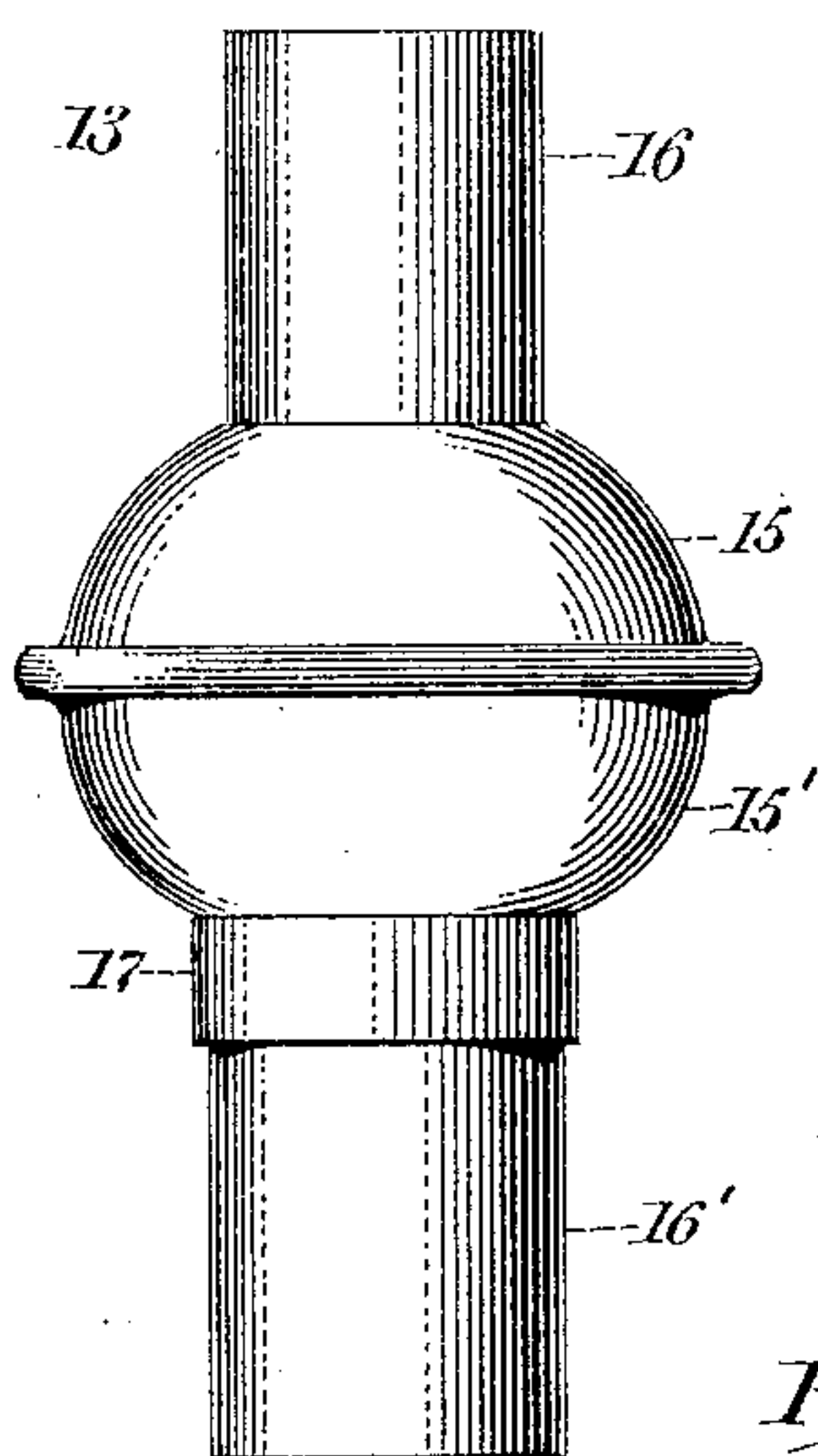
No. 805,787.

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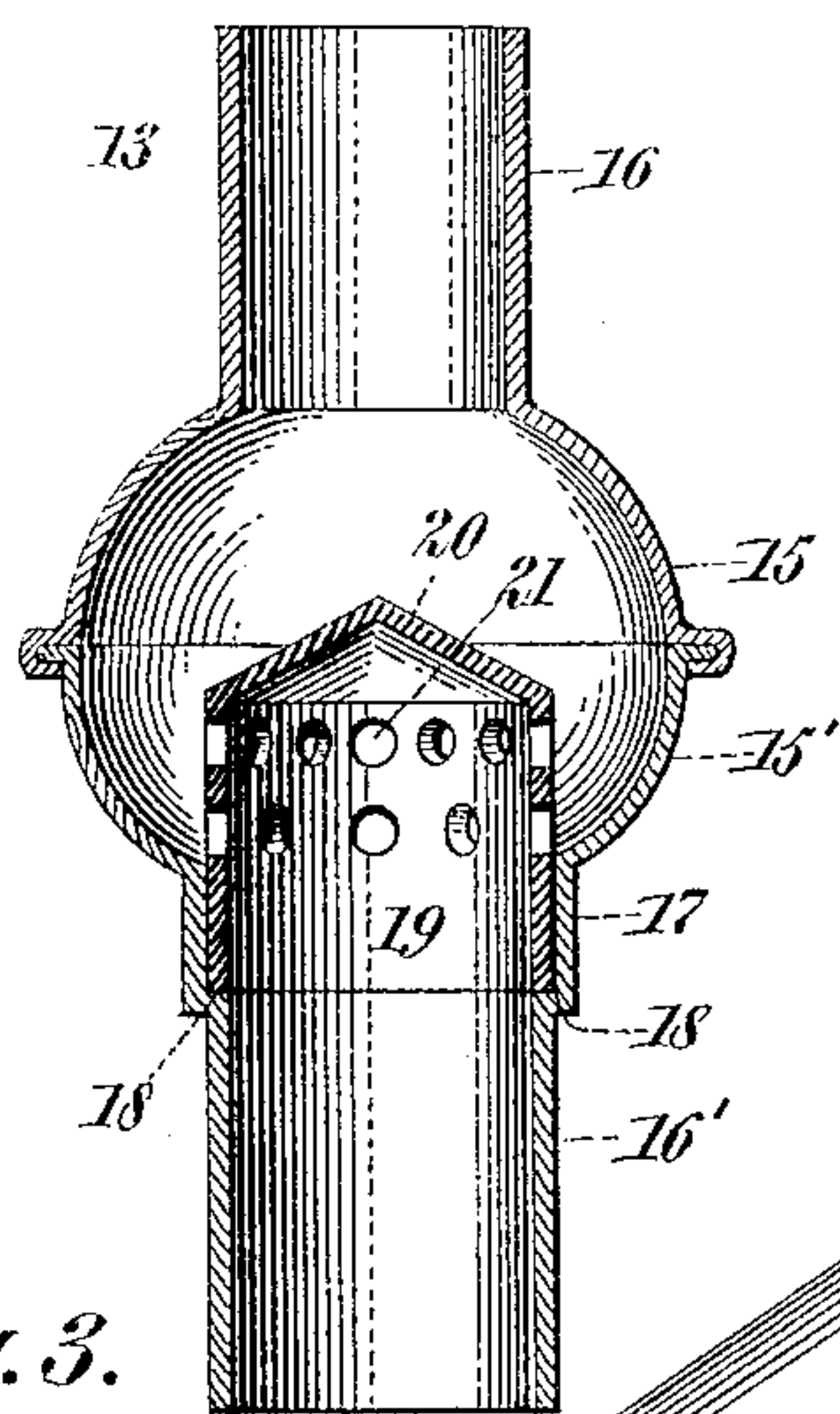
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PHONOGRAPH ATTACHMENT.

APPLICATION FILED APR. 5, 1905.

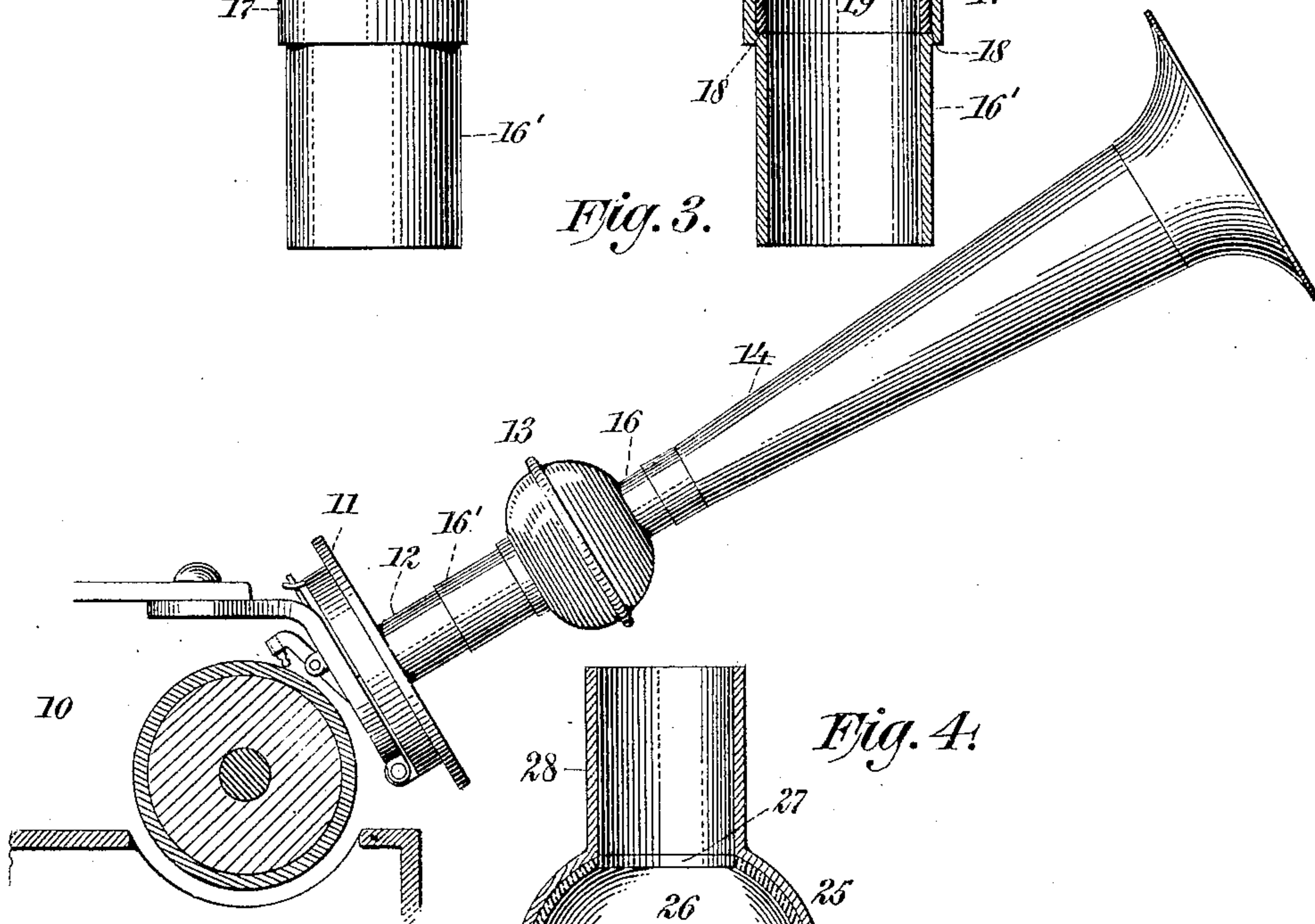
*Fig. 1.*



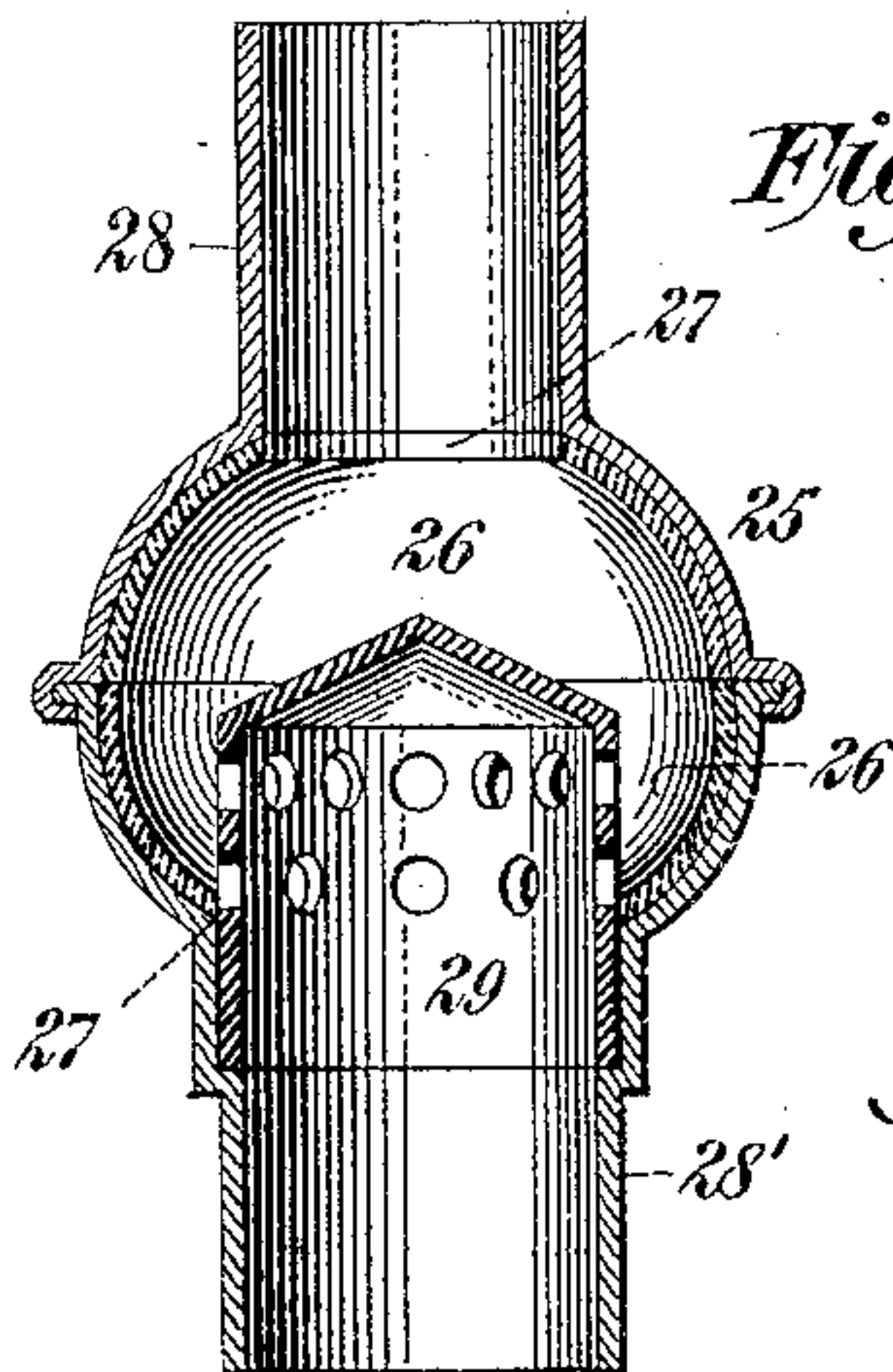
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

GEORGE FEIST AND FRANK KRETZER, OF NEW YORK, N. Y.

## PHONOGRAPH ATTACHMENT.

No. 805,787.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed April 5, 1905. Serial No. 253,967.

*To all whom it may concern:*

Be it known that we, GEORGE FEIST, residing in the borough of the Bronx, New York county, and FRANK KRETZER, residing in the borough of Queens, Queens county, in the city and State of New York, citizens of the United States, have invented certain new and useful Improvements in Phonograph Attachments, of which the following is a full, clear, and exact specification.

Our invention relates to improvements in machines for transmitting or reproducing sound; and the same has for its object more particularly to provide a simple, inexpensive, and efficient apparatus which may be readily applied to a machine intermediate the reproducer and the horn, whereby the disagreeable scratching or rasping sound now produced in machines of this character may be entirely obviated or overcome, the sound rendered clearer and free from objectionable metallic qualities, and the character of the sound greatly improved.

To the attainment of these ends our invention consists in the novel details of construction and in the combination, connection, and arrangement of parts hereinafter more fully described and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, wherein like numerals of reference indicate like parts, Figure 1 is a side view, on an enlarged scale, of an apparatus constructed according to and embodying our invention. Fig. 2 is a central vertical section of the same. Fig. 3 is a side view, partly in section, showing a portion of a sound-reproducing machine with my apparatus applied thereto; and Fig. 4 is a central vertical section illustrating a modified construction.

In said drawings, 10 designates a phonograph of usual construction having a reproducer 11, provided upon its upper side with a centrally-disposed tubular extension 12, which is ordinarily adapted to receive and hold a horn. 13 denotes our apparatus, which is disposed intermediate the reproducer 11 and the horn 14.

The apparatus 13 consists of two hollow semispherical sections 15 15', made, preferably, of brass, which are secured together at their meeting edges by seaming the same, as shown, or in any other convenient manner; the two sections 15 15' when thus united forming a hollow spherical body.

From the top of the upper semispherical section 15 extends a tubular section 16, which is

secured to said spherical section 15 at its center and which may be made integral therewith or separate therefrom and thence secured thereto in any of the well-known ways, and 16' denotes a similar tubular section which depends from the center of the semispherical section 16' and has an enlarged top portion 17 where the same is joined to the under side of the semispherical section 16', the said enlarged portion 17 forming upon the inner surface of the tubular section 16', where it unites therewith, a shoulder 18.

Within the spherical body portion formed by the sections 16 16' is disposed a deflector consisting of a short hollow tubular portion 19, the lower end of which is firmly socketed and secured within the enlarged portion 17 of the tubular section 16', while its inner surface or wall forms, together with the inner surface of the tubular section 16', a smooth unbroken surface of uniform diameter. The upper end of said tubular portion, which extends upwardly within the spherical body to about the middle thereof, is provided with a conical top or head 20, and the side of said tubular portion 19, intermediate its conical head or top and the upper edge of the enlarged portion 17 of the tubular section 16', is provided with two rows of lateral circular openings 21.

In the modification illustrated at Fig. 4 the apparatus is constructed as hereinabove described and illustrated at Figs. 1 to 3, inclusive. In the present construction, however, the interior of the spherical body 25, which is made of brass or other suitable material, is provided with a lining consisting of two corresponding semispherical sections 26 26, composed of lead or other relatively soft material, which conform exactly to the inner surface of the semispherical sections forming the body 25 and are provided with circular openings 27 27, which register with the interior diameter of the tubular portions 28 28', respectively, extending from the upper and lower surface of the spherical body portion 25. Secured in the tubular portion 28' and extending upwardly into the body portion 25 is a deflector 29, constructed as hereinabove described.

In operation the sound as it issues from the reproducer will pass into the tubular section 16' of the apparatus, thence into the deflector, where the same will strike against the inner surface of the conical head 20 and be deflected and issue through the lateral side openings 21 in said deflector. Hereupon the sound will



be reflected against and from the inner surface or wall of the spherical body portion 15 of the apparatus and thence pass therefrom through the tubular section 16 and into the contracted portion of the horn 14 and after passing through the horn issue from its mouth.

By means of our apparatus the sound is so retarded and reflected that the harshness or rasping occurring in instruments not provided with the same is obviated and a pure musical and non-metallic sound thereby insured. By the use of a relatively soft lining within the spherical body 25, as illustrated at Fig. 4, the tone qualities in instances, for example, where the tones of the brass instruments are sought to be reproduced will be materially enhanced.

Without limiting ourselves to the precise details of construction, which may be varied within the scope of the invention, what we claim, and desire to secure by Letters Patent, is—

1. An apparatus for the purposes specified, comprising a hollow body, means for attaching the same to a sound-reproducing apparatus and a horn, a tubular portion closed at one end arranged in said hollow body, and openings in said tubular portion, substantially as specified.

2. An apparatus for the purposes specified comprising a hollow body, means for attaching the same to a sound-reproducing apparatus and a horn, a tubular portion closed at one end, extending into said hollow body from the receiving end thereof, and openings in said tubular portion, substantially as specified.

3. An apparatus for the purposes specified comprising a hollow body, tube-sections secured thereto and communicating with the interior of said hollow body, and a tubular portion closed at one end arranged in said hollow body, and communicating with one of the tube-sections, and openings arranged in said tubular portion, substantially as specified.

4. An apparatus for the purposes specified comprising a hollow spherical body, tube-sections secured thereto and communicating with the interior of said hollow body, and a tubular portion closed at one end arranged in said hollow spherical body and communicating with one of said tube-sections at its junction with the hollow spherical body, and apertures arranged in said tubular portion, substantially as specified.

5. An apparatus for the purposes specified comprising a hollow, spherical body, tube-sections secured thereto opposite to each other, and communicating with the interior of said hollow, spherical body, and a tubular portion secured at one end to one of said tube-sections, and extending into said hollow, spherical body, and provided at its inner end with a conical top, and lateral openings, substantially as specified.

6. An apparatus for the purposes specified

comprising a hollow spherical body consisting of two corresponding semispherical sections united at their edges, tube-sections extending from the top and bottom of said spherical body and communicating with the interior thereof, and a tubular portion secured at one end within one of the tubular sections aforesaid and extending into said hollow spherical body, said tubular portion being closed at its upper end and provided with openings in its side below said closed upper end, substantially as specified.

7. An apparatus comprising a hollow, spherical body consisting of two corresponding semispherical sections united at their meeting edges, tube-sections secured to and extending outwardly in opposite directions from said hollow, spherical body, and communicating with the interior thereof, a deflector arranged within said hollow, spherical body consisting of a tubular portion secured at its lower end to one of the tubular sections extending outwardly from said hollow spherical body, and its other end extending upwardly into said hollow, spherical body, said tubular portion having a conical head or top, and lateral openings in its side below said conical head or top, substantially as specified.

8. An apparatus for the purposes specified, comprising a hard hollow, spherical body, a relatively soft lining therefor, tube-sections secured to and extending outwardly in opposite directions from said hollow, spherical body, and a deflector arranged within said hollow, spherical body, and communicating directly with one of the tubular sections thereof, substantially as specified.

9. An apparatus for the purposes specified comprising a hollow, spherical body consisting of two corresponding semispherical metal sections united at their meeting edges, a lining for said hollow, spherical body consisting of two corresponding semispherical sections, composed of a relatively softer metal, and conforming in shape to the interior surface of said hollow, spherical body, two sections secured to said hollow, spherical body, and communicating with the interior thereof, and a deflector disposed within said hollow, spherical body consisting of a tubular portion secured at its lower end within one of the tubular sections aforesaid, said tubular portion having a conical head or top and circular openings in its side below said head or top, substantially as specified.

Signed at the city of New York, in the county and State of New York, this 9th day of February, 1905.

GEORGE FEIST.  
FRANK KRETZER.

Witnesses:

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