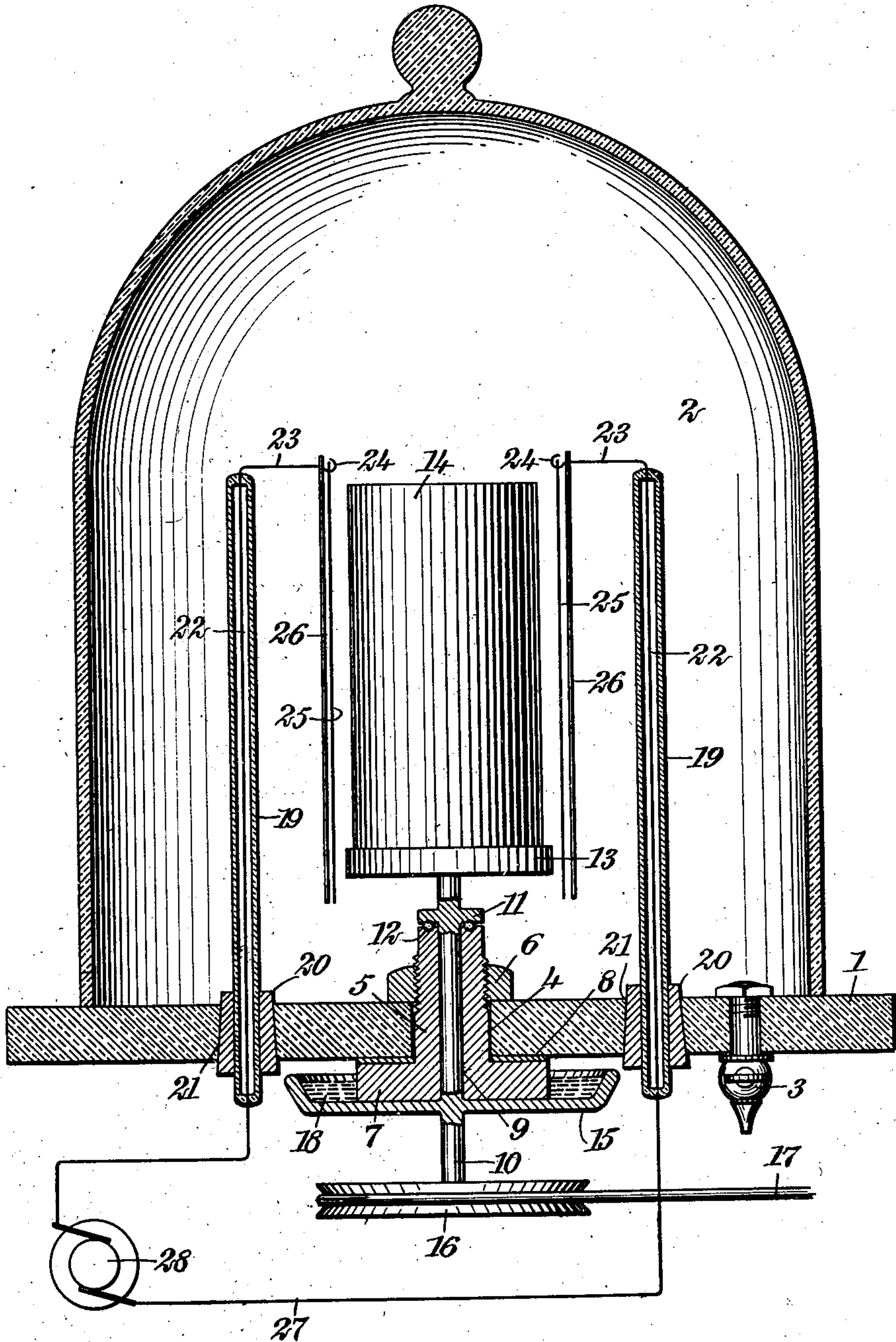


J. K. REYNARD.  
METAL DEPOSITING APPARATUS.  
APPLICATION FILED FEB. 14, 1906.

929,017.

Patented July 27, 1909.



WITNESSES:

*J. A. Brophy*  
*J. H. Amma*

INVENTOR

*James K. Reynard*  
BY *Munn & Co*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

JAMES K. REYNARD, OF EAST ELMHURST, NEW YORK.

## METAL-DEPOSITING APPARATUS.

No. 929,017.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed February 14, 1906. Serial No. 301,016.

*To all whom it may concern:*

Be it known that I, JAMES K. REYNARD, a citizen of the United States, and a resident of East Elmhurst, in the county of Queens and State of New York, have invented a new and Improved Metal-Depositing Apparatus, of which the following is a full, clear, and exact description.

This invention relates to the treating of phonograph records. It has been found that the distinctness of the sound produced by these records is much increased by depositing upon the wax a fine layer or film of metal previous to electro-plating. The metal preferably used for this purpose is gold. On account of the great cost of gold, it is desirable that all waste should be made as small as possible.

The object of this invention is to reduce the consumption of gold and to improve the construction of the arrangement for rotating the record, while preserving a perfect seal for the vacuum chamber in which the depositing operation takes place.

The invention consists in the construction of apparatus to be described more fully hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawing forming a part of this specification, in which similar characters of reference indicate corresponding parts in the view.

In the drawing, 1 represents a base-plate, which may be a piece of plate glass, upon which there is set a bell jar 2 of common form, within which a partial vacuum may be produced by withdrawing the air through a suitable stop cock 3 passing through the plate 1. Preferably near its center the plate 1 is provided with an opening 4 through which passes a sleeve 5 which projects upwardly into the interior of the bell jar and is threaded to receive a nut 6, as shown. The lower end of this sleeve 5 is formed with a head 7 which clamps against the under face of the plate, a suitable washer 8 being provided at this point to insure that an air-tight joint will be made. If necessary, to preserve the vacuum within the bell jar, the lower edge of the bell jar will be suitably sealed at the point where it rests upon the plate. The sleeve 5 is formed with a central bore 9 through which passes upwardly a stem 10, the said stem being provided with a collar 11 forming a ball-bearing

12 with the upper extremity of the sleeve 5. In this way the sleeve operates to support the stem 10. Upon the upper extremity of the stem 10 there is attached a disk 13 upon which the wax record cylinder, 14 rests in an upright position. Upon the stem just below the head 7, a cup 15 is formed, and the lower face of the head rests against the bottom of the cup as indicated. The lower extremity of the stem 10 is provided with a small pulley 16 which enables the stem to be rotated by means of a belt 17 passing around the pulley, as will be readily understood. In the cup 15 I place a sealing fluid 18 which is preferably a heavy or viscous oil such as castor oil or vaseline. From this arrangement it should be understood that it becomes impossible for air to pass upwardly through the bore 9 so as to break the high vacuum existing under the bell jar.

On opposite sides of the center of the plate 1, preferably at equal distances from the stem 10, I provide standards 19 preferably consisting of glass tubes, having sealed extremities, the same being secured in position by means of supports 20 of cork or similar material, which are received in the openings 21 formed in the plate 1. With this arrangement the standards 19 may be easily removed. Through the interior of the tubes or standards 19 wires 22 pass, the same being preferably composed of platinum. These wires emerge at their upper extremities and are bent so as to form substantially horizontal arms 23, projecting in the direction of the record 14, as shown. The extremities of the arms 23 are formed into hooks 24 and upon these hooks I suspend strips 25 of the metal which is to be deposited upon the record. Behind these strips 25, that is, on the side remote from the record, I provide shields or screens 26 preferably consisting of strips of mica glass or a similar insulator suspended from the arms 23. The wires 22 are placed in an electric circuit 27 which carries an alternating current of high voltage developed by a generator 28 of suitable form. It should be understood that in the depositing operation, the record 14 upon which the stylus of the phonograph has described its path, is set upon the disk 13 and rotated continuously. At the same time, an alternating current is generated in the circuit 27 so that an alternating discharge takes place between the metal strips 25 which constitute terminals.



This discharge has the effect of depositing gold upon the outer surface of the record. After a sufficient film of gold has been deposited in this way, the records are removed and can then be electro-plated. The deposited metal film being a good conductor, facilitates the electro-plating process. The screens 26 have the effect of cutting off the discharge from the terminals or cathodes 25 which would otherwise pass in their direction. In this way the waste of the metal or gold is reduced by about one-half, while the efficiency of the depositing apparatus is in no way diminished. I prefer to place the screens 26 in the dark space near the cathodes as they seem most effective at this point.

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

20 1. In apparatus of the class described, a vacuum chamber having a bottom with an

opening, a rotatable stem passing downwardly from the interior of said chamber and adapted to support a record, and a cup on said stem containing a fluid sealing said opening. 25.

2. In apparatus of the class described, in combination, a plate having a vacuum chamber formed thereabove, a sleeve mounted in said plate and projecting therebelow, said sleeve having a bore, a stem rotatable in said bore, and having means for supporting a record thereabove, a cup carried by said stem and having a viscous sealing fluid covering the lower extremity of said sleeve. 30 35

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES K. REYNARD.

Witnesses:

F. D. AMMEN.

EVERARD B. MARSHALL.