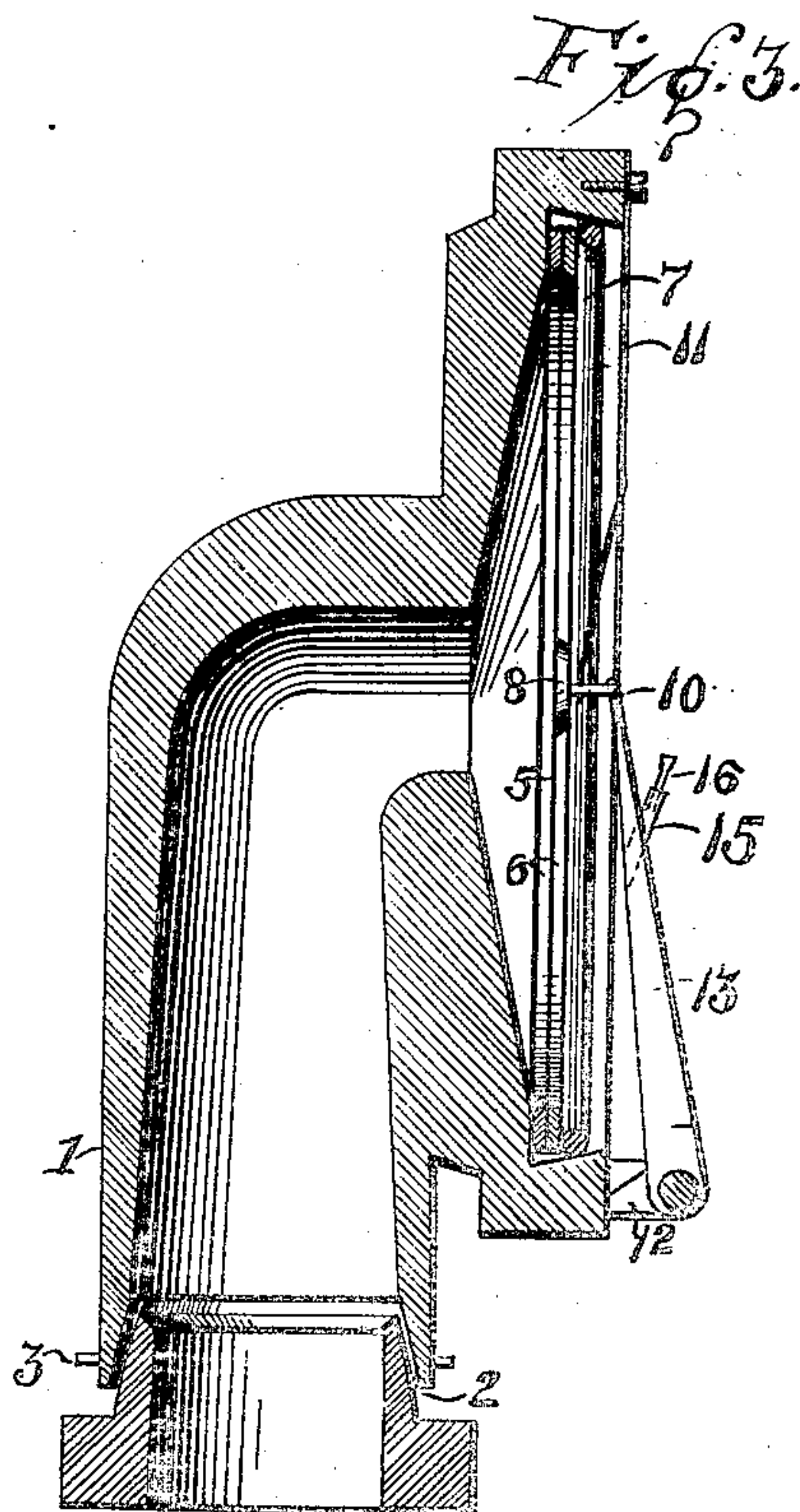
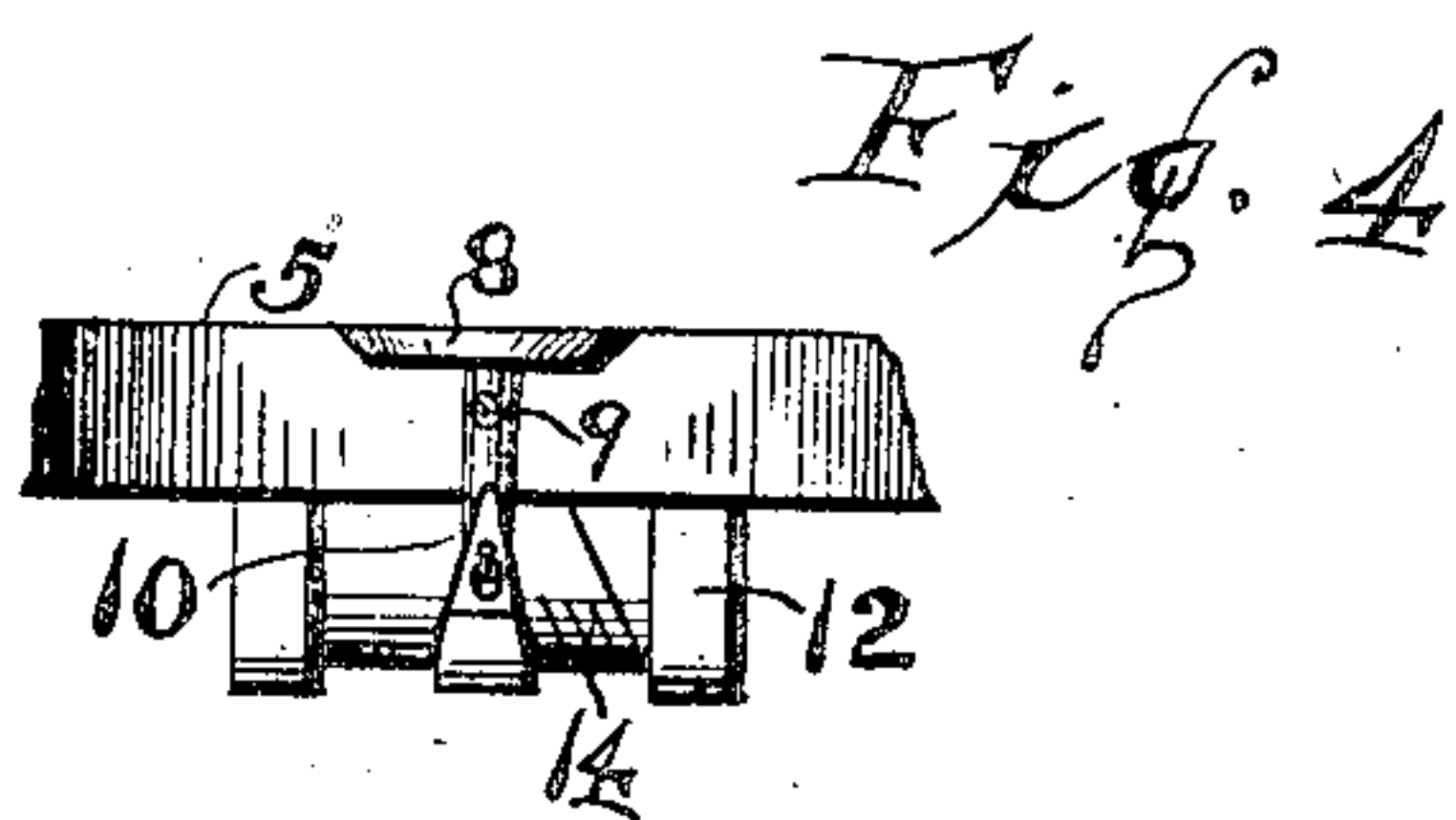
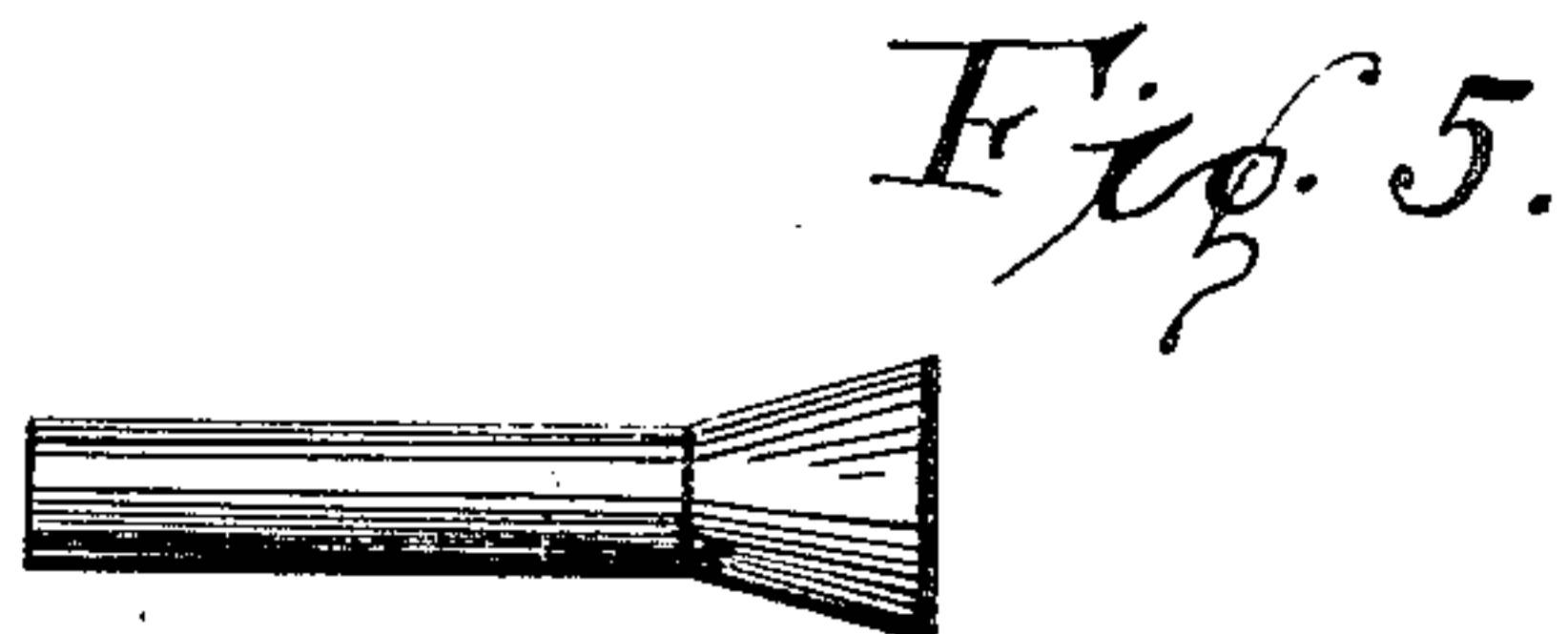
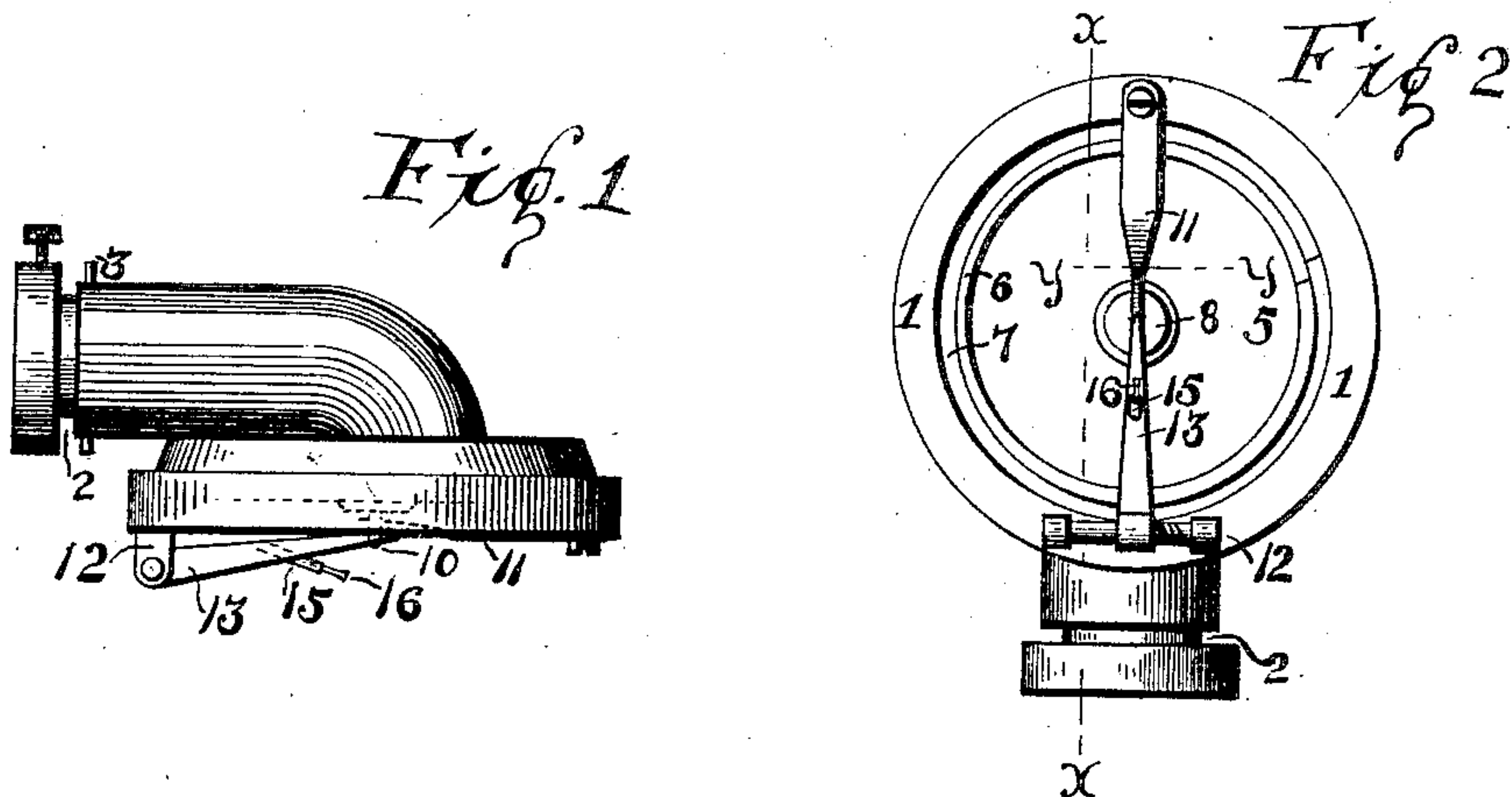


No. 828,836.

PATENTED AUG. 14, 1906.

H. R. BROCIUS.
REPRODUCER FOR GRAPHOPHONES.

APPLICATION FILED JULY 1, 1904.



Witnesses
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REPRODUCER FOR GRAPHOPHONES.

No. 828,836.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed July 1, 1904. Serial No. 214,982.

To all whom it may concern:

Be it known that I, HARVEY R. BROCIUS, a citizen of the United States, residing at Summerville, in the county of Jefferson and State of Pennsylvania, have invented certain new and useful Improvements in Reproducers for Graphophones; and I do hereby 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.

My invention relates to reproducers or sound-boxes for graphophones particularly adapted for use on hard-mold cylinder-records; such as the Edison or Columbia.

The invention consists of the details of construction and combination of parts hereinafter described, and more particularly pointed out in the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is a side view. Fig. 2 is a plan view looking at the diaphragm. Fig. 3 is an enlarged sectional view on line *x x* of Fig. 2. Fig. 4 is an enlarged broken sectional view on line *y y* of Fig. 2, showing the manner in which the sounder-arm engages the stud or pin secured to the diaphragm; and Fig. 5 is an enlarged view of the sapphire point.

Referring more particularly to the drawings, 1 is the sound-box, which is made of hard rubber or aluminium, preferably the latter, and is of the ordinary general shape and size. Said sound-box is preferably provided with a ball-joint 2 for connection with the graphophone-carriage and has a pin 3 for holding said ball-joint in place. The walls or rim around the other open end of the sound-box are preferably beveled inwardly, as at 4. The glass diaphragm 5 is arranged between two washers 6 and is held in place by a spring 7, which engages the beveled walls above described. Near the center of said diaphragm is secured a stud or pin 8, which has a small hole 9 transversely therethrough, while its outer end is niched or grooved, as at 10. A flat equalizing-spring 11, fastened at one end to the rim of the frame, is pointed at the other end, where it engages the opening 9 in said stud or pin. Also secured to the rim of said body portion, preferably opposite where said spring is fastened, two short arms 12 project outwardly,

and between them is pivotally mounted a cross-pin carrying the stylus-lever 13, which extends over the diaphragm and has its extremity adapted to engage the niche or groove in the stud or pin 8. Said lever is held firmly upon said stud or pin by means of a coiled spring 14, wrapped around said cross-pin and having one end thereof engaging said lever and the other one of said short arms 12. A short arm 15, hollow at one end to receive the sapphire point or tracing-stylus 16, is secured to the lever 13 at an acute angle with the end bearing upon the stud or pin 8. Said sapphire point or stylus is preferably shaped as shown in Fig. 5, having its record-engaging end made in the form of a truncated cone, with its extremity as the base of the cone.

It has been found that the style of sapphire point or stylus just described is easier on the record and will not reproduce cracks or scratches on said records as plainly as the makes now in use. The arm 15 being arranged at an angle with the lever 13 allows the stylus to ride smoothly over the record.

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

1. A sound-box for graphophones having the inner walls of the rim round its diaphragm-receiving depression beveled inwardly, a diaphragm arranged in said depression, a spring adapted to engage the inner beveled walls of said rim to retain said diaphragm in place, a stylus-lever, and means to connect said lever to said diaphragm.

2. In a sound-box for graphophones having a diaphragm, a stud or pin secured to said diaphragm, a stylus-lever pivotally connected to said sound-box and adapted to bear upon said stud, an equalizing-spring fastened at one end to said sound-box and at the other end engaging said stud between said lever and diaphragm, and means to retain said lever in contact with said stud.

3. A sound-box for graphophones, having a diaphragm, a stud or pin secured to said diaphragm, said stud or pin having a perforation transversely therein, an equalizing-spring fastened at one end to said sound-box and at the other end engaging the perforation in said stud, a stylus-lever pivotally connected to said sound-box and adapted to bear upon said stud, said lever carrying a

stylus, and means to retain said lever in contact with said stud.

4. A sound-box for graphophones having a diaphragm, a stud or pin secured to said diaphragm, said stud or pin having a niche or groove in its end, a stylus-lever pivotally connected to said sound-box and having its extremity adapted to bear in said niche or groove in said stud, an equalizing-spring for said stud or pin arranged between said lever and diaphragm, and means to retain said lever in contact with said stud.

5. A sound-box for graphophones, having a diaphragm, a stud secured to said diaphragm, said stud having a perforation transversely therein and a niche or groove in its end, an equalizing-spring fastened at one end to said sound-box and its other end engaging the perforation in said stud, a stylus-lever pivotally connected to said sound-box and having its extremity adapted to bear in said niche or groove in said stud, said lever

carrying a stylus, and means to retain said lever in contact with said stud.

6. A sound-box for graphophones, having a diaphragm, a stud or pin secured to said diaphragm, said stud having a transverse perforation and a niche or groove in its end, a flat spring secured at one end to said sound-box and its other end reduced in width and engaging the perforation in said pin, a stylus-lever pivotally connected to said frame with its end adapted to bear in said niche or groove in said stud, means to retain said lever in contact with said stud, and a stylus-carrying arm fixed to said lever and forming an acute angle with the end of said lever which bears upon said stud.

In testimony whereof I affix my signature in presence of two witnesses.

HARVEY R. BROCIUS.

Witnesses:

H. D. CLARK,

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