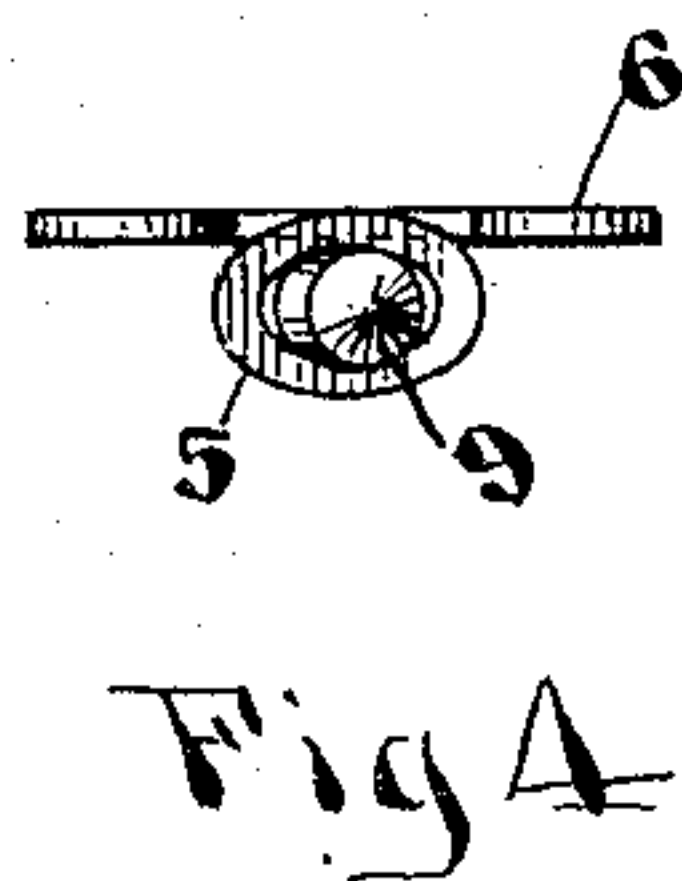
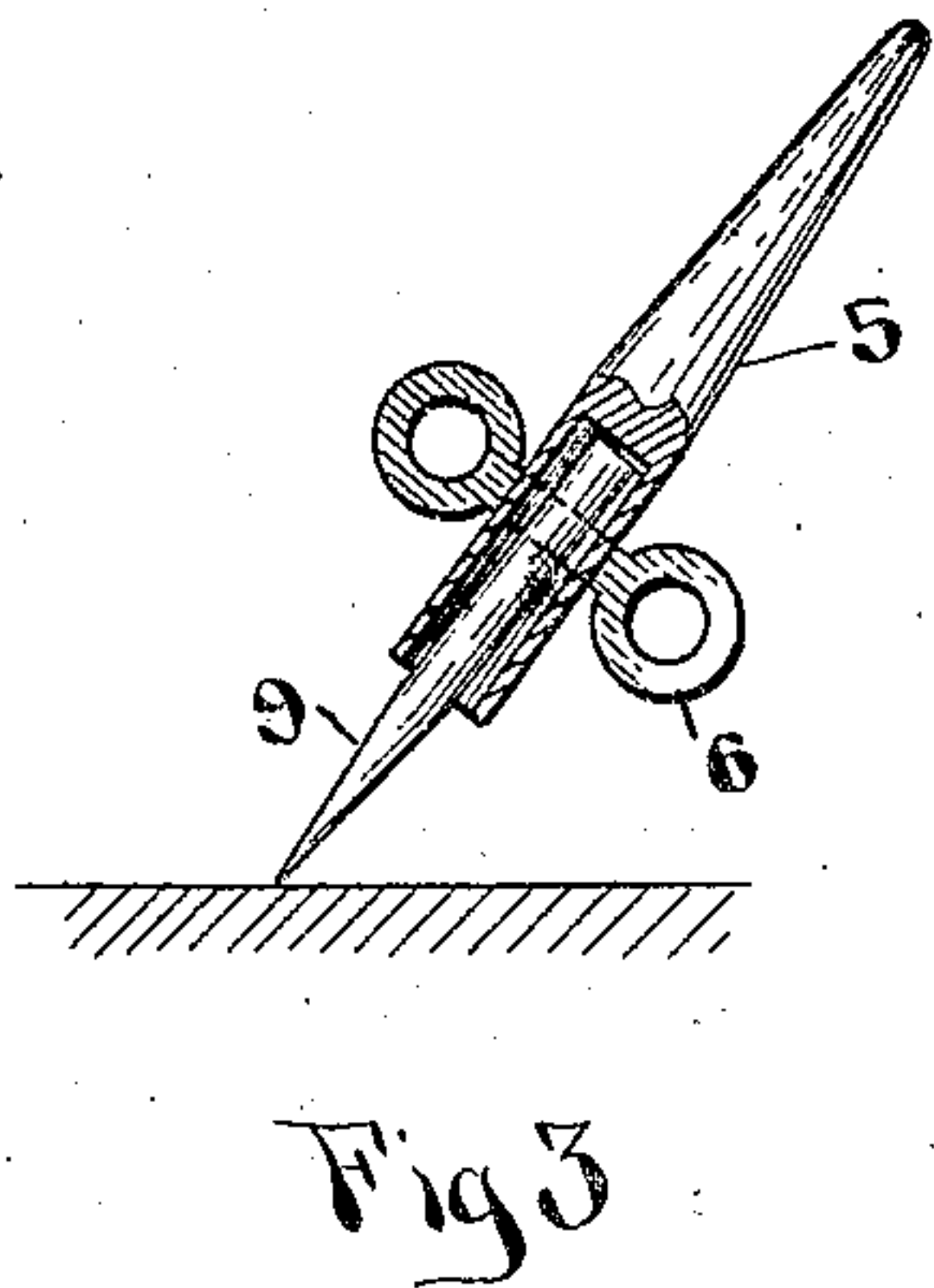
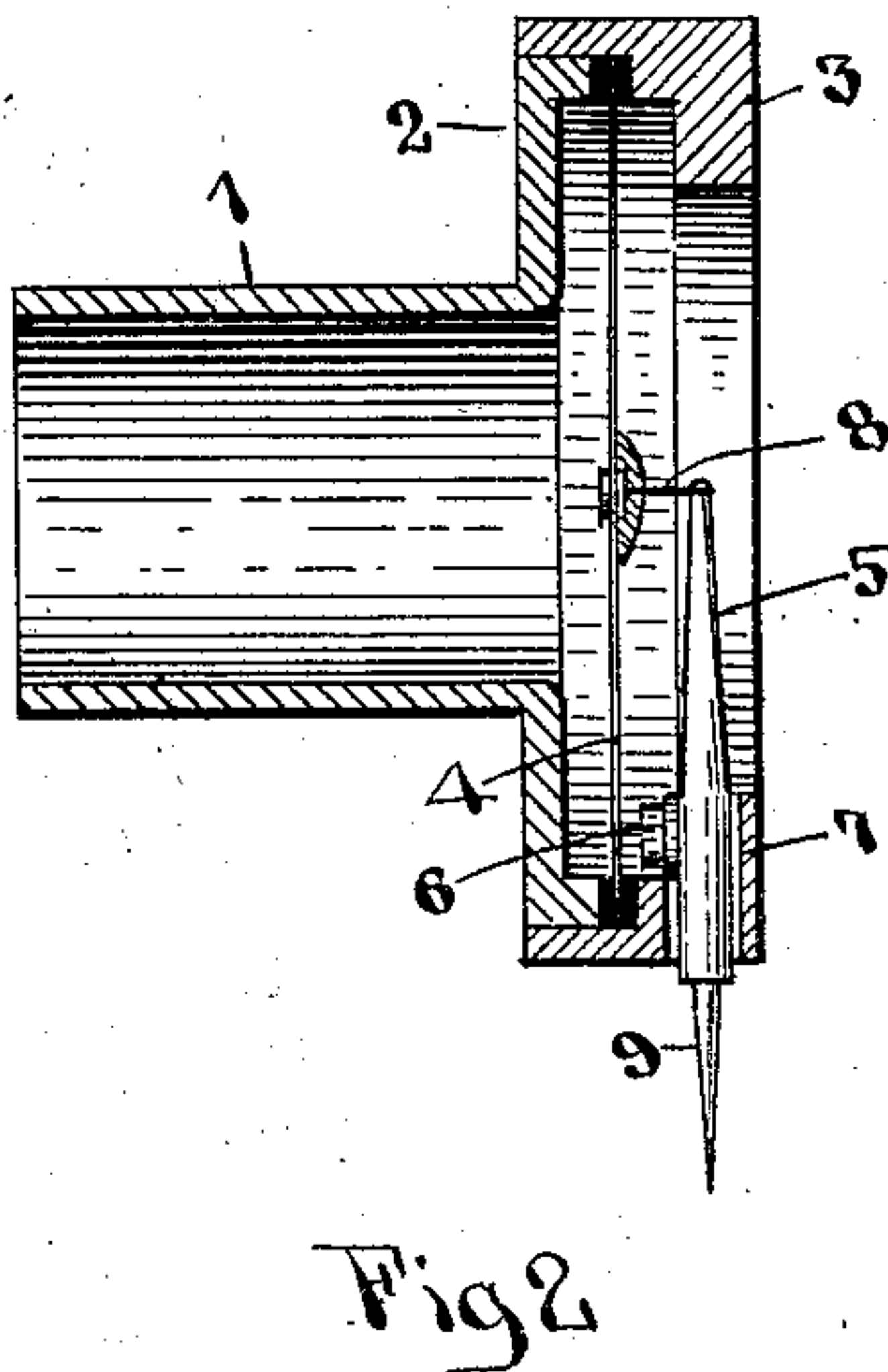
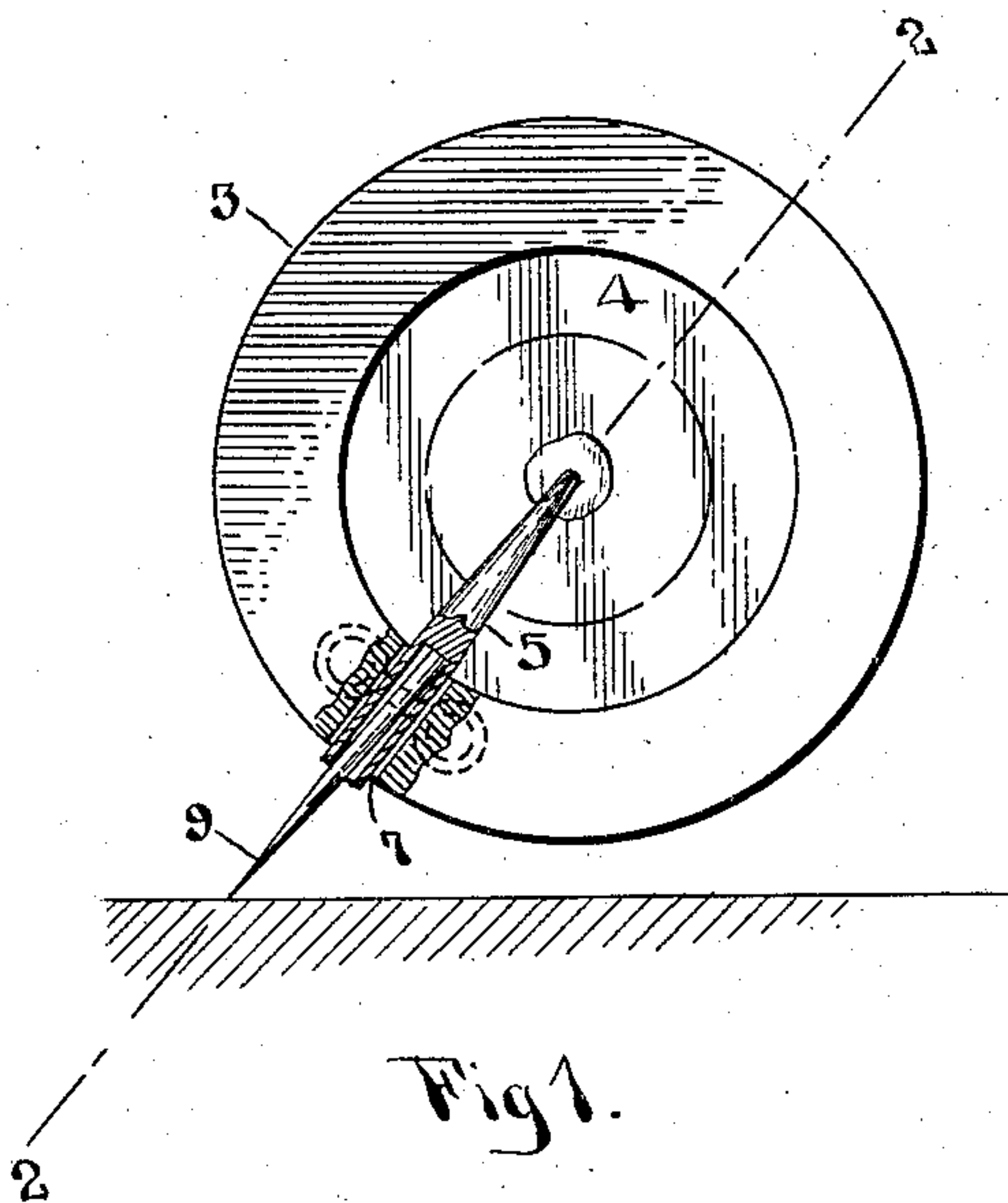


No. 788,281.

PATENTED APR. 25, 1905.

B. L. RINEHART.
DEVICE FOR SECURING SOUND BOX NEEDLES.

APPLICATION FILED MAR. 14, 1903.



WITNESSES:

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UNITED STATES PATENT OFFICE.

BENTLEY L. RINEHART, OF CAMDEN, NEW JERSEY, ASSIGNOR TO
VICTOR TALKING MACHINE COMPANY, A CORPORATION OF
NEW JERSEY.

DEVICE FOR SECURING SOUND-BOX NEEDLES.

SPECIFICATION forming part of Letters Patent No. 788,281, dated April 25, 1905.

Application filed March 14, 1903. Serial No. 147,763.

To all whom it may concern:

Be it known that I, BENTLEY L. RINEHART, a citizen of the United States, and a resident of Camden, State of New Jersey, have invented certain new and useful Improvements in Needle-Holding Devices for Sound-Boxes, of which the following is a full, clear, and complete disclosure.

My invention relates to devices for securing the stylus or needle within the stylus-bar of sound-boxes of talking-machines and obviates the use of auxiliary fastening devices, such as thumb-screws and other similar means.

The object of my invention, broadly stated, is to provide an automatic fastening and retaining means for the stylus or needle of a sound-box whereby the needle may be simply inserted in the socket of the stylus-bar and will be retained therein while being placed on the record and will be clamped firmly while traversing the grooves of said record.

For a full, clear, and exact description of my invention reference may be had to the following specification and to the accompanying drawings, forming a part thereof, in which—

Figure 1 is a front elevation of a sound-box having a portion thereof in section and showing my improved needle-holding device applied thereto; Fig. 2, a central longitudinal section taken on the line 2 2 of Fig. 1; Fig. 3, a view of the stylus-bar, partly in section, with a needle held therein; and Fig. 4, an end view of the stylus-bar, showing the needle or stylus in position therein.

In the drawings, the numeral 1 indicates the sound-box tube, which has mounted upon one end a supporting-plate 2. This is adapted to receive the cylindrical portion of the sound-box 3, which holds the diaphragm 4 in place by suitable flanges.

The numeral 5 indicates the stylus-bar, which is substantially of the well-known form, but is preferably oval in shape instead of being cylindrical. The stylus-bar 5 is mounted upon the sound-box by the spring-supporting plate or strap 6 in the usual manner. The stylus-bar projects through an opening 7 in the rim of the sound-box and is connected at

its inner end with the diaphragm 4 by a suitable wire or other connection 8.

The stylus-bar 5 instead of having the usual cylindrical hole or socket is provided with a socket which is slightly larger on one diameter than on the other, the longer diameter extending in a plane parallel to that of the diaphragm 4. The shorter diameter of the socket is very slightly greater than that of the needle or stylus, and from this shorter diameter the socket tapers slightly both ways transversely, or, in other words, the sides of the socket converge toward the end of its longer diameter. This construction forms a double-wedge-shaped opening or socket running longitudinally of the stylus-bar and is of the same size and shape throughout its length. It will now be seen that when the stylus or needle 9 is inserted in the double-wedge socket and the needle is brought into contact with the record with sufficient force or pressure to produce the sound-waves in the usual manner the needle or stylus will be cramped within the wedge-shaped opening or socket, the lower part of the cylindrical portion of the needle being forced upwardly and the upper end of the needle being forced downwardly in the opposite direction about the lower end of the socket at a fulcrum, so that each of said portions will be held firmly by the opposite tapering or wedge-shaped sides of the socket. This manner of holding the needle prevents the needle or stylus from moving transversely independently of the stylus-bar and obviates any looseness which may be produced by the transverse motion of the stylus-bar caused by vibrations due to the zigzag shape of the groove of the sound-record. It is desirable that the needle should be held in position after the same has been inserted and before its point has been brought into contact with the sound-record. For this purpose I magnetize the stylus-bar 5, which is usually made of iron or steel. The needle or stylus 9 also being made of steel the lines of force of magnetization follow both the needle and the stylus-bar, and therefore hold the needle in position within the socket. As soon as the needle is placed

in contact with the record the cylindrical portions thereof are forced into the respective parts of the wedge-shaped socket and the magnetism becomes no longer necessary. When it is desired to remove the needle from the stylus-bar, all that is necessary is to disengage the same from the wedge-shaped portions of the socket, whereupon the needle may be easily withdrawn.

I do not wish to be limited in the application of my invention merely to records of the zigzag type, for the same is also applicable to those of the vertically-undulating form.

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

1. A talking-machine having a stylus-socket formed by fixed walls, said walls having a plurality of clamping-faces situated on opposite sides of, and at different points in, the length of the socket, and adapted for frictional engagement with opposite sides of the stylus at different points only in its length by a lateral movement of said stylus and adapted to hold the stylus against yielding when reproducing, and serving to operatively secure the stylus within said socket independent of any other securing means.

2. A talking-machine having a stylus-socket formed by fixed walls, and a removable stylus capable of lateral movement within said socket to bring said stylus into frictional engagement with the walls of the socket at a plurality of independent points, whereby said stylus is clamped by a lateral movement of itself, said frictional engagement serving to clamp the stylus against yielding when reproducing, and serving to operatively secure said stylus within said socket independent of any other means.

3. A sound-box for talking-machines having a stylus-socket provided with magnetic means and mechanical means for holding a stylus therein, said mechanical means serving to hold the stylus without yielding in a direction transverse to the diaphragm of the sound-box.

4. A sound-box for talking-machines having a stylus-socket provided with magnetic means for holding a stylus inoperatively, and mechanical means for holding the stylus operatively within said socket without yielding in a direction transverse to the diaphragm of said sound-box.

5. A sound-box for talking-machines comprising a stylus-socket, magnetic means for holding a stylus inoperatively within said socket and mechanical means for holding the stylus operatively within said socket without yielding in a direction transverse to the diaphragm of said sound-box.

6. A talking-machine having a wedge-shaped stylus-socket, the walls of said socket being magnetized.

7. A sound-box for talking-machines employing a record having a zigzag groove, said

sound-box having a stylus-socket formed by fixed walls, said walls having clamping-faces situated at different points in its length and on opposite sides of the socket for frictional engagement with a stylus to clamp the same without yielding in a direction transverse to the diaphragm of the sound-box.

8. In a talking-machine, a stylus-bar having a wedge-shaped socket therein, which is adapted to clamp the stylus or needle.

9. In a sound-box for talking-machines, a stylus-bar having a socket therein, said socket being formed at each end with a wedge-shaped portion, said wedge-shaped portion at one end being on the opposite side of the socket from the wedge-shaped portion at the other end.

10. In a talking-machine adapted to reproduce from a horizontally-disposed flat record having a record-groove with lateral undulations in the sides thereof, a sound-box having a stylus-socket, and a stylus in said socket, the axes of said socket and stylus being at an incline to said record when reproducing, the end portions of said socket having clamping-faces, frictionally engaging opposite sides of said stylus, the frictional engagement between said stylus and clamping-faces being maintained by the operative contact of the stylus and record in reproducing, and serving to prevent said stylus from yielding within said socket in a direction transverse to the diaphragm.

11. In a sound-box for talking-machines, a stylus-bar having a socket therein, the walls of said socket approaching each other so as to clamp the needle therein without yielding in a direction transverse to the diaphragm of the sound-box.

12. In a sound-box for talking-machines, a stylus-bar having a transversely wedge-shaped socket therein, which is adapted to clamp the stylus or needle.

13. In a sound-box for talking-machines, a stylus-bar having a socket therein which is double-wedge-shaped transversely and which is adapted to clamp the needle or stylus.

14. In a sound-box for talking-machines, a stylus-bar having a transversely double-wedge-shaped socket extending longitudinally thereof, said socket being of substantially the same size throughout its length and adapted to hold the needle or stylus therein by clamping the same at two points.

15. In a sound-box for talking-machines, a stylus-bar of magnetic material having a needle-receiving socket therein, said stylus-bar being magnetized to retain said needle in position within said socket, and means independent of said magnetic means for securing the needle in operative position within said socket.

16. In a sound-box for talking-machines, a stylus-bar having a socket therein, the walls of said socket approaching each other so as to clamp the needle therein without yielding in a direction transverse to the diaphragm of the

sound-box, said stylus-bar being magnetized to retain said needle in position.

17. In a sound-box for talking-machines, a stylus-bar having a transversely wedge-shaped socket therein, which is adapted to clamp the needle or stylus, said stylus-bar being magnetized to retain the needle or stylus in position when not otherwise held.

18. In a sound-box for talking-machines, a stylus-bar having a transversely double-wedge-shaped socket therein, which is adapted to clamp the needle or stylus, said stylus-bar being magnetized to retain the needle or stylus in position when not otherwise held.

19. In a sound-box for talking-machines, a stylus-bar having a transversely double-wedge-shaped socket extending longitudinally thereof, said socket being of substantially the same size and shape throughout its length and adapted to hold the needle or stylus therein by clamping the same at two points, said stylus-bar being magnetized to hold the needle or stylus in position when not otherwise held.

20. A reproducer for talking-machines, having a wedge-shape stylus-socket which is adapted to clamp the stylus or needle.

21. A reproducer for talking-machines, having a wedge-shape stylus-socket which is adapted to clamp the stylus or needle, the walls of said socket being magnetized.

22. In a talking-machine, a stylus-bar, having a stylus-socket formed by fixed walls, said walls being adapted to clamp a stylus without elasticity by a lateral movement of said stylus, and forming the sole means for holding a stylus operative therein when reproducing.

23. A talking-machine, having a stylus-socket formed by fixed walls which serve as the sole means for holding a stylus operative therein when reproducing, said walls being adapted to clamp a stylus by a lateral movement of the latter, the force holding said stylus in position being due to the frictional contact between the stylus and the socket-wall when the stylus is in operative contact with the record when reproducing.

24. A talking-machine adapted to reproduce from a flat record having a record-

groove with lateral undulations in the sides thereof, having a stylus-socket formed by fixed walls, the axis of said socket being at an incline to the record when reproducing, whereby the axis of a stylus inserted therein will also be at an incline to the record, the operative contact between the stylus and record serving to wedge the stylus by a lateral movement within said socket, and the frictional engagement between the walls of said socket and stylus serving as the sole means for holding the stylus operatively therein.

25. In a reproducer for talking-machines, a holder for the needle or stylus, having a wedge-shape socket therein adapted to clamp said needle or stylus.

26. In a reproducer for talking-machines, a holder for the needle or stylus, having a wedge-shape socket therein adapted to clamp said needle or stylus, said holder being magnetized.

27. In a reproducer for talking-machines, a holder for the needle or stylus which is tapered toward both ends, whereby the needle, when inserted in said holder and rocked toward either end thereof, may be clamped at its point end in the outer portion of one end of the holder, and at its butt-end in the inner portion of the opposite end of the holder, substantially as set forth.

28. In a reproducer for talking-machines, a diaphragm, and a stylus-bar for vibrating the same, having a stylus-socket formed by fixed walls, said walls being adapted to clamp a stylus without elasticity by a lateral movement of said stylus.

29. A sound-box for talking-machines, comprising a stylus-socket, means for holding a stylus loosely and inoperatively within said socket, and independent means for holding a stylus operatively within said socket.

In witness whereof I have hereunto set my hand this 12th day of March, A. D. 1903.

BENTLEY L. RINEHART.

Witnesses:

EDW. W. VAILL, Jr.,
JOHN F. GRADY.