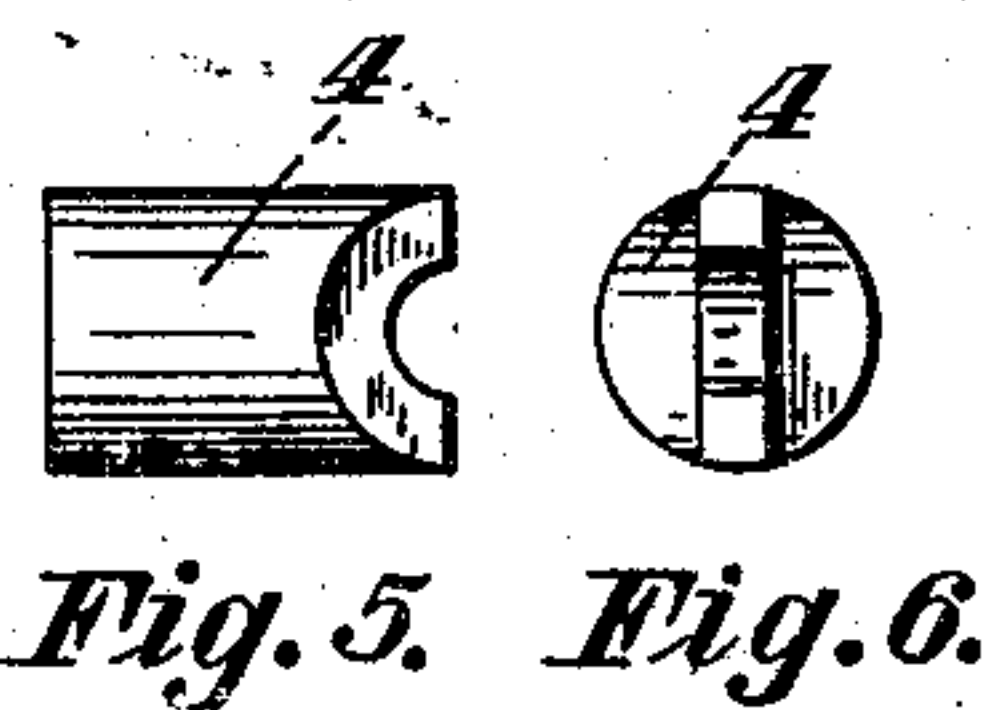
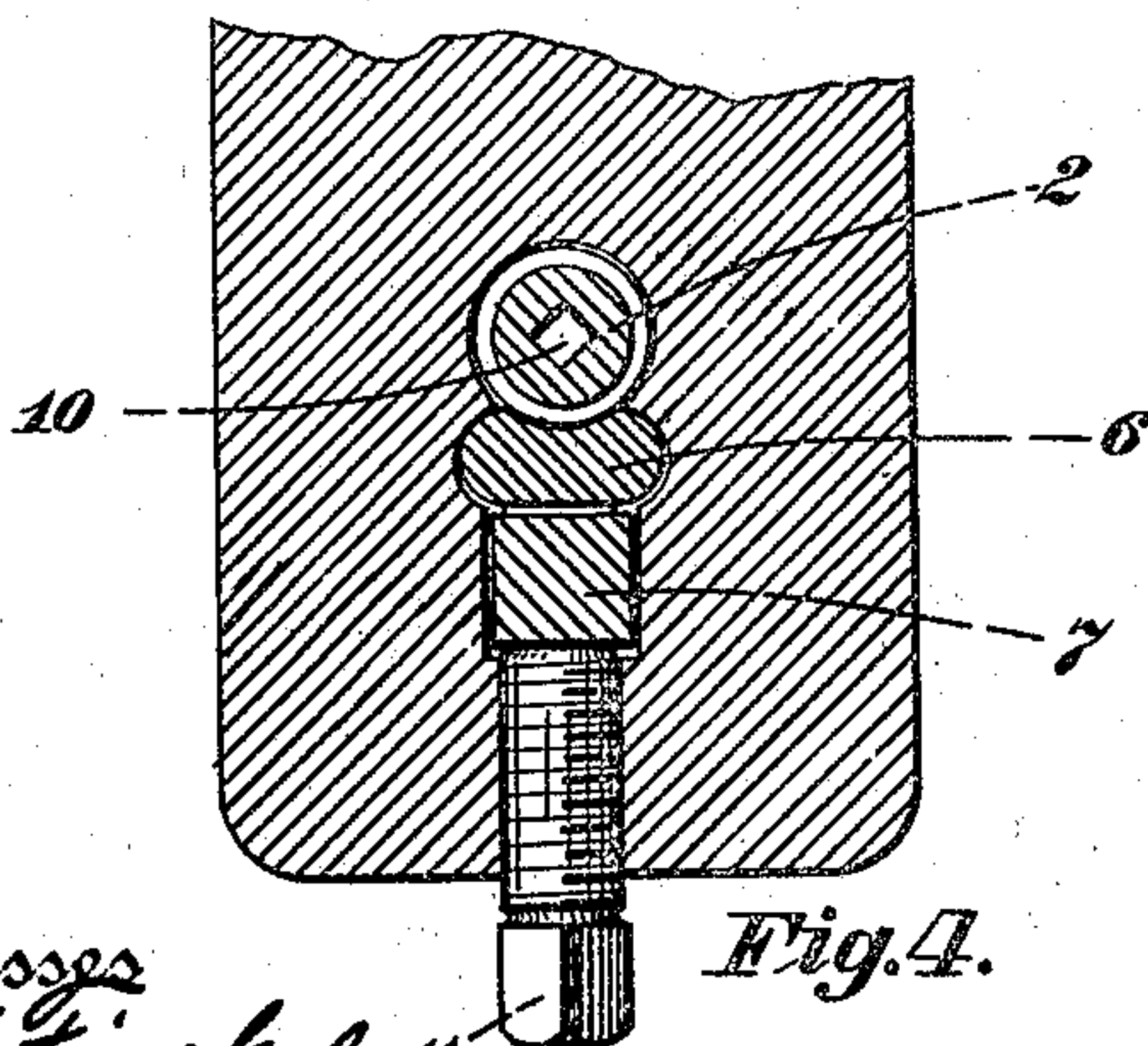
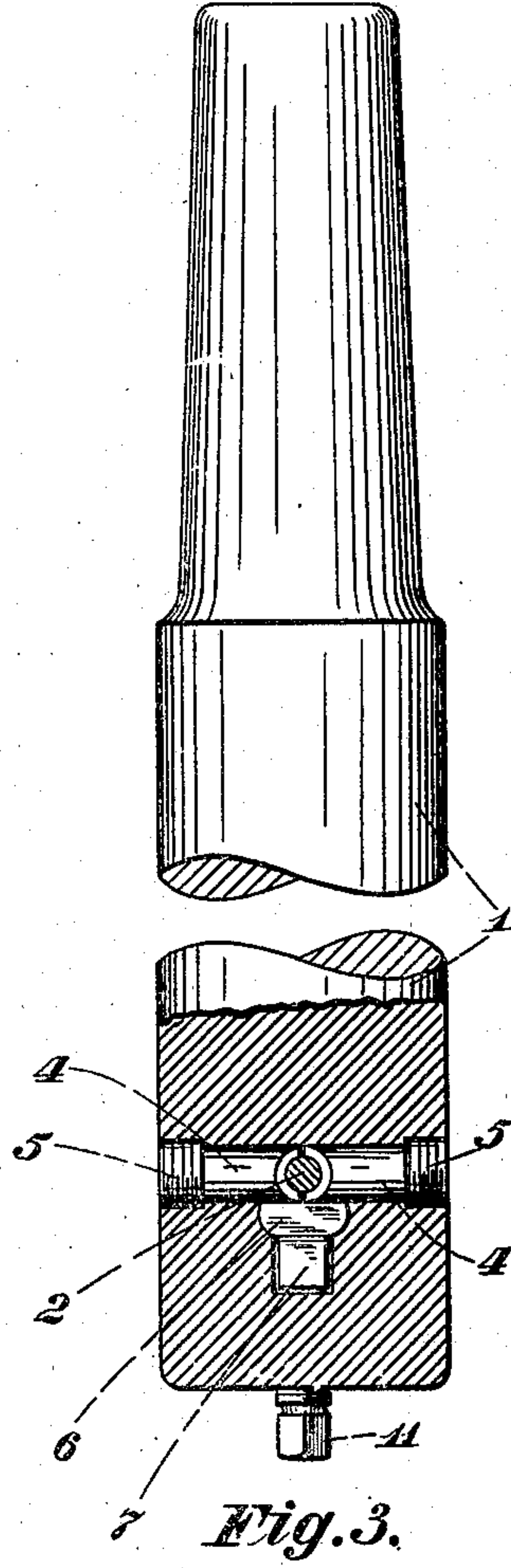
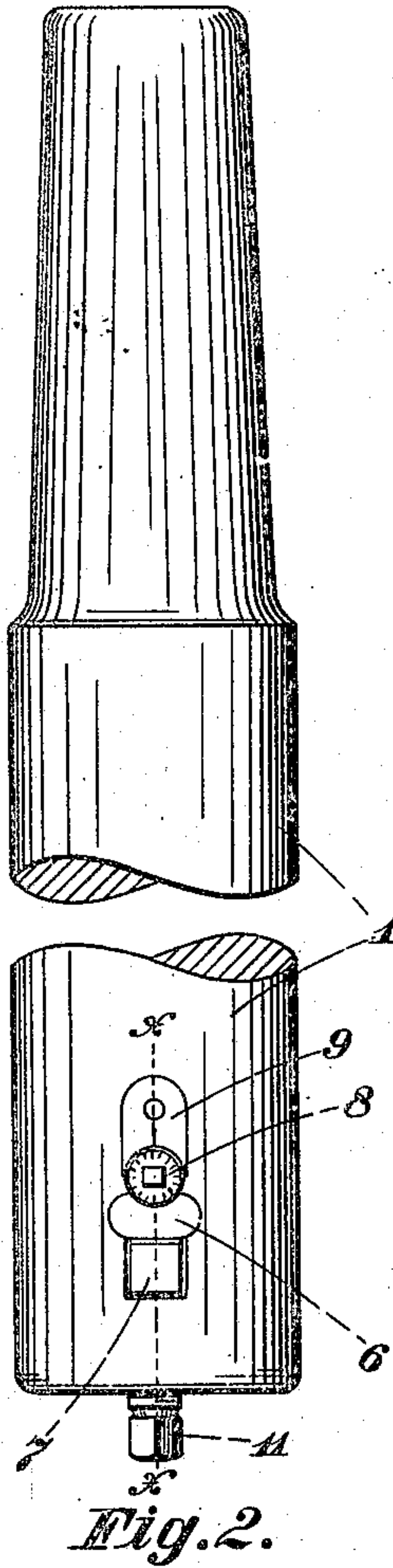
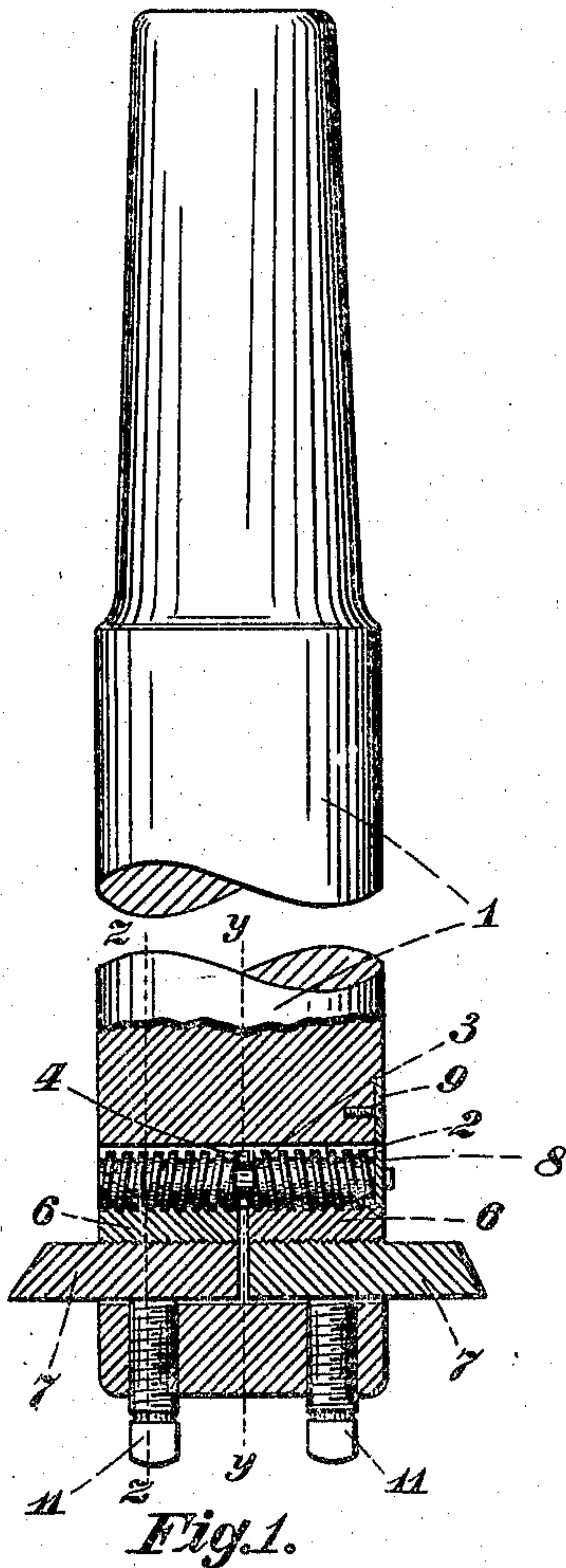


No. 847,788.

PATENTED MAR. 19, 1907.

R. F. LACE.  
BORING BAR.  
APPLICATION FILED MAR. 26, 1906.



Witnesses  
Benj. Finckel  
Alice B. Cook.

Inventor  
**Raymond F. Lace**  
By *Finckel & Finckel*  
his Attorneys



# UNITED STATES PATENT OFFICE.

RAYMOND F. LACE, OF COLUMBUS, OHIO.

## BORING-BAR.

No. 847,788.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed March 26, 1906. Serial No. 308,015.

*To all whom it may concern:*

Be it known that I, RAYMOND F. LACE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Boring-Bars; 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.

The object of this invention is to provide improved and simplified means for nicely and quickly adjusting the cutting-tools of boring-bars.

In the accompanying drawings, showing one embodiment of the invention, Figure 1 is an elevation of a broken bar, showing the tool-holding end in section, said section being taken on the line *x x* of Fig. 2. Fig. 2 is an elevation of a broken bar looking toward the left-hand side of Fig. 1. Fig. 3 is an elevation of a broken bar, illustrating the lower end thereof in section, said section being taken on a line *y y* of Fig. 1. Fig. 4 is a sectional view, on an enlarged scale, on the line *z z* of Fig. 1. Fig. 5 is a side view of the pin for confining the adjusting-screw, and Fig. 6 is an end view of said pin.

In the several views, 1 designates the tool-holding bar, which has in the business end of it a diametrical opening, in which turns a right and left hand threaded adjusting-screw 2. This screw 2 is provided at its middle or between the threads of different direction an annular groove 3, into the opposite sides of which project the ends of pins 4 to confine or prevent longitudinal movement of said screw. The pins 4 are passed through holes in the tool-holding bar, extending at right angles to the opening in which the adjusting-screw is seated, and these pins are held in place by plug-screws 5, threaded into the outer ends of the holes.

7 7 designate the cutting-tools, which bear or are engaged by the adjustment-blocks 6 6. The adjusting-screw 2 engages the blocks 6 6, lying in a laterally-extended opening below and parallel to that in which the adjusting-screw turns. The reason for the lateral extension of the opening for the blocks 6 6 is this:

When the tool is locked by the set-screw

after adjustment, as hereinafter described, the upward pressure of the block is against the bar instead of against the adjusting-screw, thus avoiding possible injury to the threads of the latter. The bar thus affords a seat for the adjustment-blocks. The upper faces of the blocks 6 6 are provided with threads or worm-racks adapted to the threads of the adjusting-screw, and the lower faces of said blocks, as shown, are toothed or roughened to engage corresponding surfaces on the cutting-tools 7 7. I shall denominate the blocks 6 6 "adjustment-blocks."

One end of the adjusting-screw can be provided with a dial 8, containing a scale to cooperate with a mark on a small plate 9 to indicate the extent of rotation of the screw, and therefore the extent of inward or outward movement of the tools 7 7. The adjusting-screw can be turned by means of a key or wrench inserted in an appropriate socket 10 in one end of the adjusting-screw.

After adjustment of the tools they are held tight by means of set-screws 11, passed through the end of the stock and pinching the tool, and the blocks then bear toward the seat for the latter in the boring-bar.

What I claim, and desire to secure by Letters Patent, is—

1. In a boring-tool, the combination of the bar, a right and left hand threaded screw mounted transversely therein, cutting-tools to be moved by said screw, oppositely-movable adjustment-blocks located between the screw and the tools, said adjustment-blocks engaged by the screw and engaging the tools, bearings for the adjustment-blocks integral with the bar and between the screw and the tool, and means for clamping the tool and blocks together against said bearings.

2. In a boring-tool, the combination of the bar provided with a transverse opening, a right and left hand threaded screw in said opening but unengaged with the walls thereof, means for securing said screw from longitudinal movement, said bar also provided with an opening below, parallel to, and communicating with the opening for the screw, and said opening being of greater width than the passage-way between said openings whereby bearings are afforded for the adjustment-blocks, oppositely-movable adjustment-

blocks seated in the last-described opening, said adjustment-blocks being threaded to be engaged and moved by said screw inward and outward, a tool engaging each of said  
5 blocks and independently adjustable with reference thereto, and clamping-screws adapted to press upon said tools in a direction longitudinal to the bar to bind said adjust-

ment-blocks against said seats and fix them and the tools in adjustable position. 10

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

RAYMOND F. LACE.

Witnesses:

ULYSSES R. PETERS,  
BENJ. FINCKEL.