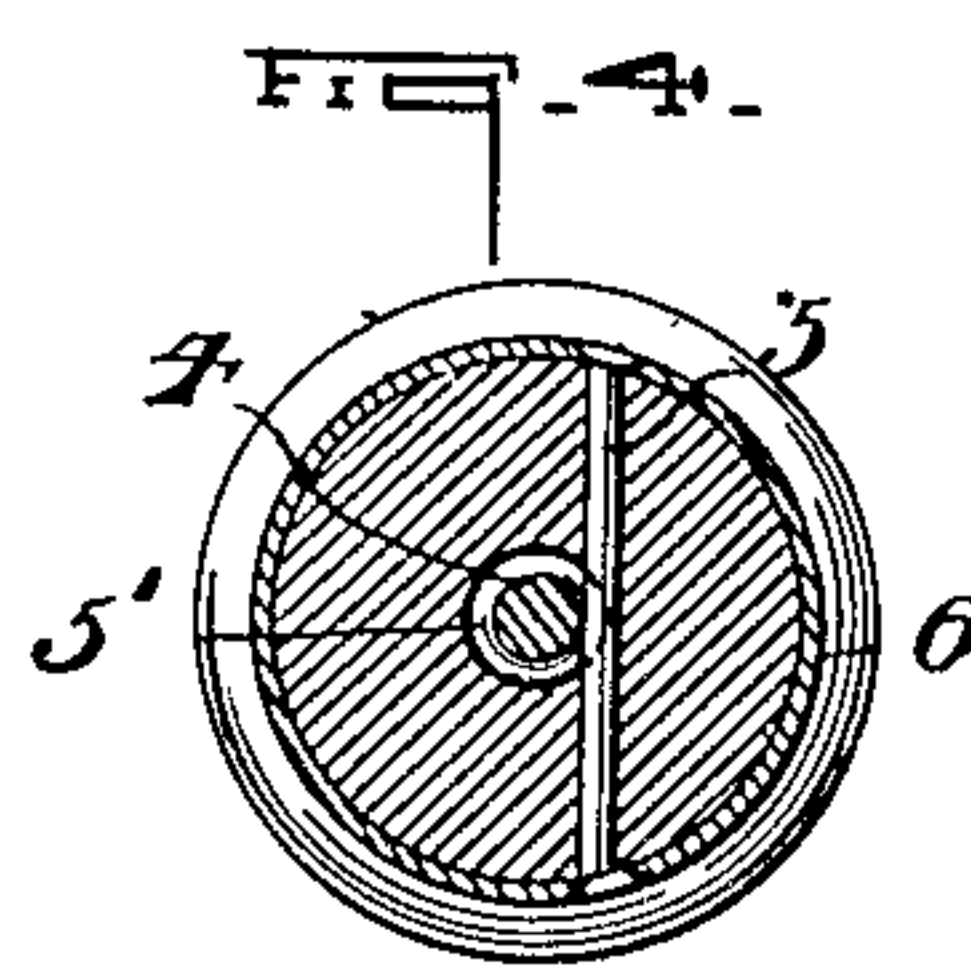
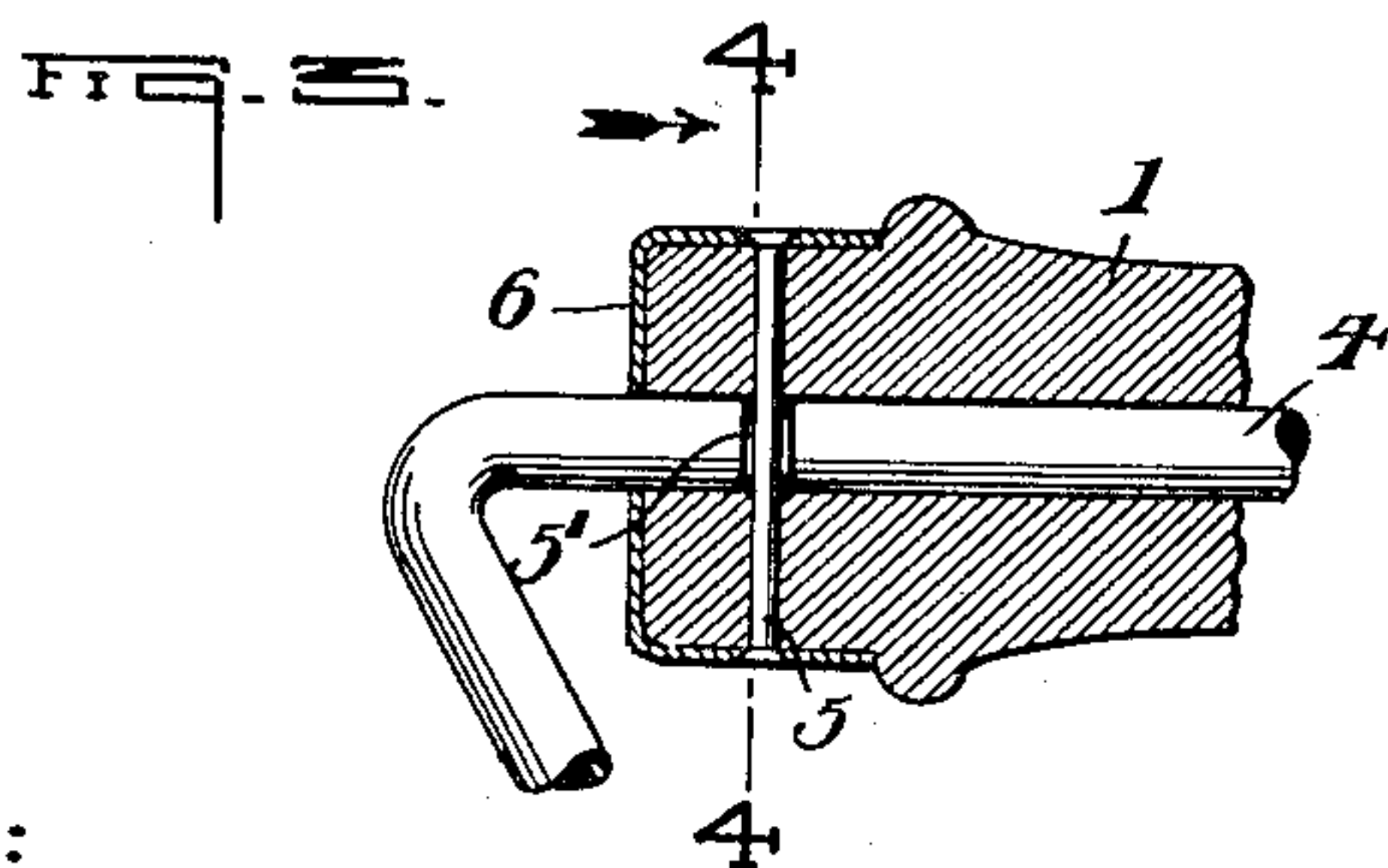
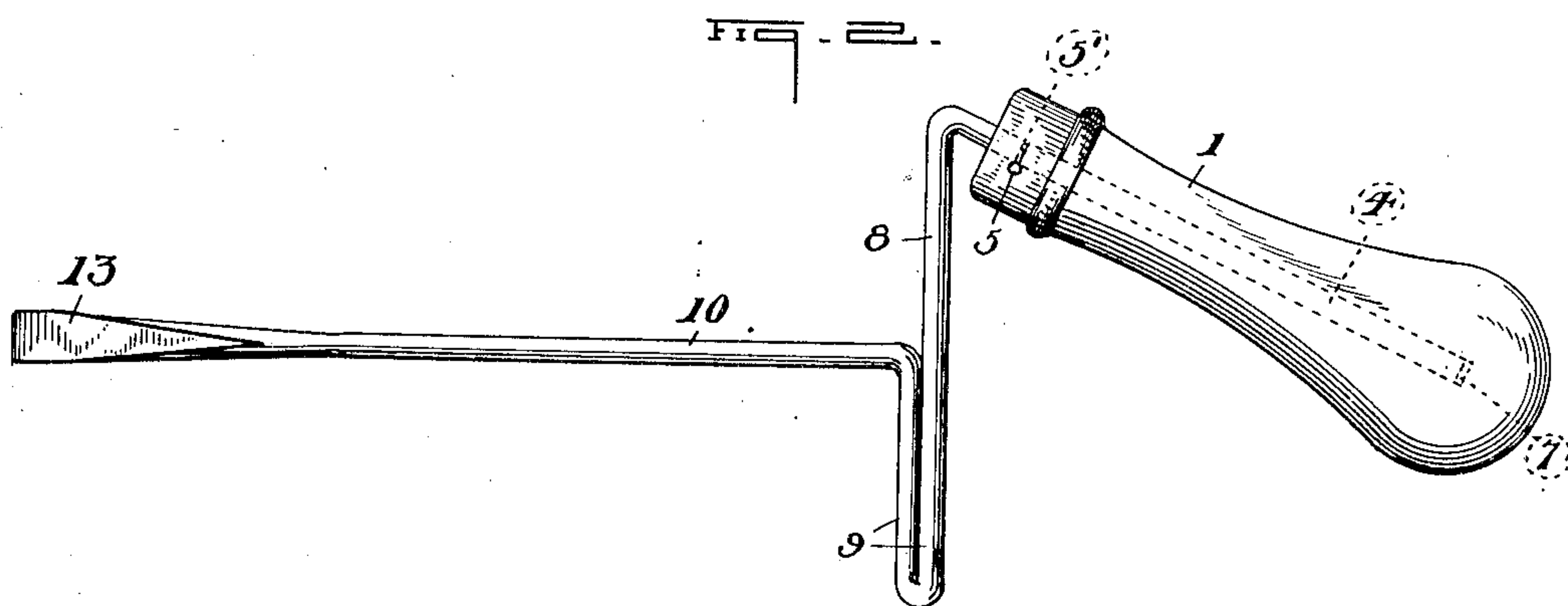
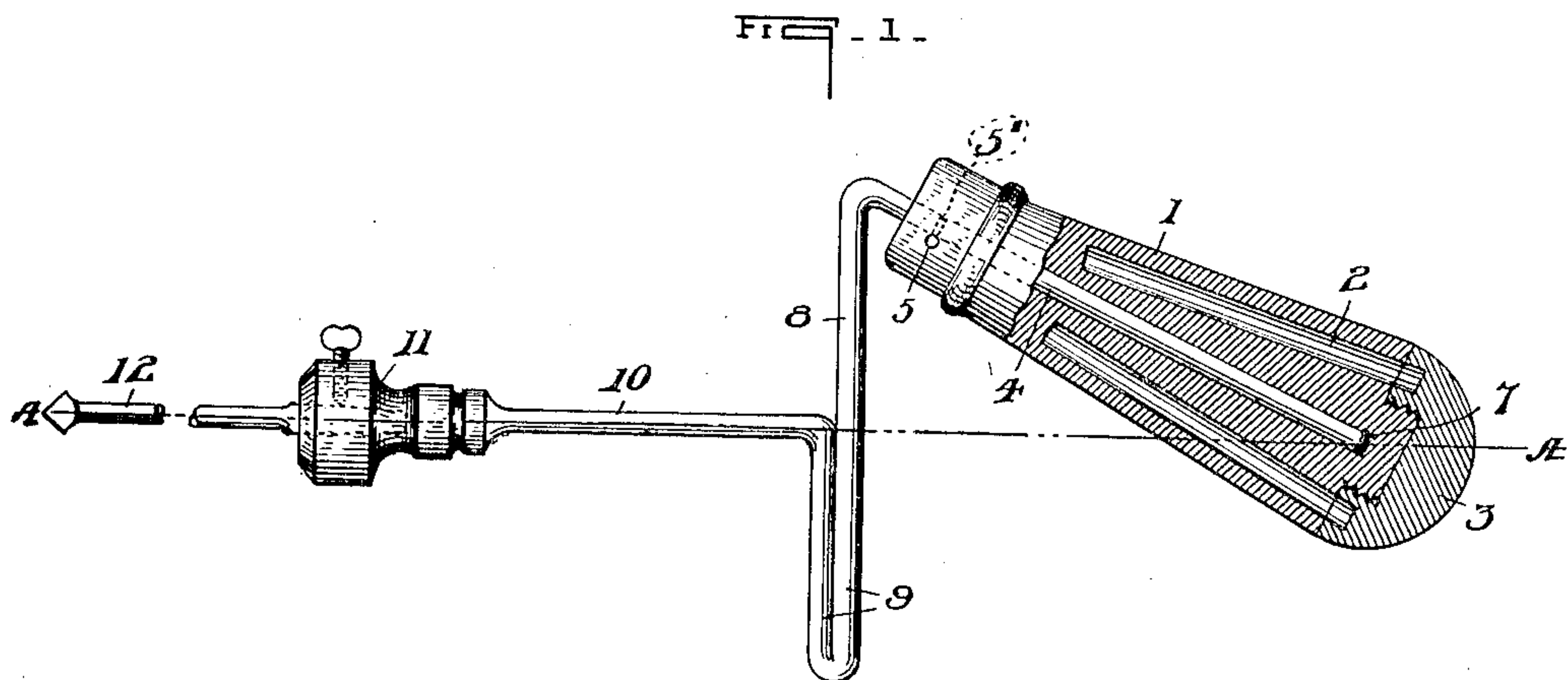


No. 872,048.

PATENTED NOV. 26, 1907.

W. BROAD.
HAND OPERATED TOOL.
APPLICATION FILED FEB. 23, 1907.



WITNESSES:

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HAND-OPERATED TOOL.

No. 872,048.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed February 23, 1907. Serial No. 358,771.

To all whom it may concern:

Be it known that I, WILLIAM BROAD, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Hand-Operated Tools; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to a certain new, practical and useful improvement in hand tools that necessitate a revolving motion while being operated, as for example a screw-driver, auger, gimlet, cork screw, counter bore, etc.

The object of my invention is the construction of a device of the character described that may be readily and accurately operated with one hand, thus providing a convenient and efficient tool in the hands of electricians, mechanics, carpenters, or in fact any individual having use for such a device.

The important feature of my invention is the means provided for operating any hand tool requiring a revolving motion.

Referring to the accompanying drawings: Figure 1 shows my preferred form of handle and shank, also means provided at one end of said shank for receiving and retaining the operating tool. Fig. 2, is a modification having a simplified handle portion with the tool formed as an integral part of the shank. Fig. 3 is an enlarged fragmental sectional view of the inner end of the handle portion showing means for securing the ferrule and likewise retaining the shank in operative position. Fig. 4 is a cross sectional view taken on line 4—4 of Fig. 3.

Throughout the different views shown in the drawings the numeral 1 designates the handle portion of my device which, in the preferred form, shown in Fig. 1, is provided with a plurality of recesses 2—2 for receiving different varieties of tools, and is likewise provided with a screw cap 3, of ordinary construction. This handle portion and cap are preferably made of wood, but any other suitable material may be substituted if found expedient.

Entering through the central portion of the inner end of the handle, and extending any desired distance toward the outer end thereof, is the shank portion 4, which is free to revolve in its seat, being retained therein by any suitable means; one method being as shown in Fig. 3, which consists in a pin 5 passing through the ferrule 6, and material constituting the handle portion 1, a little to one side of the center in order that said pin may register and seat in a circular groove 5' formed in the said shank portion 4. This arrangement, heretofore described, will permit of said shank having free play to revolve, but at the same time it will be prevented from moving out of its seat in the handle portion 1. The pin 5 also serves to secure the ferrule to the end of said handle; thus accomplishing a double purpose. The inner end of the said shank 4, which is seated in the handle portion 1, may engage against a fibrous or suitable bearing 7 in order to prevent wearing away of the material forming the handle portion at point of contact.

The shank 4 after passing out of the handle 1, is bent at a suitable angle with the portion 4 seated in said handle in order to provide a required leverage in accomplishing the object sought after. In the form shown in the drawing, Fig. 1, this bent portion 8 is doubled back on itself in order to provide a suitable gripping feature 9 useful in completing the final operation of some tools, as for instance the last partial turn necessary to firmly seat a screw. This extended or gripping feature formed in the bent portion of the shank is one of the main features necessary to the successful operation of my device and will be found advantageous in many instances. After being doubled back on itself to a point about half way between where this bent portion 8 branches away from the part 4 seated in the handle, and the outer end of the gripping portion 9, there is another bend in the said shank, this time at, or approximately at, a right angle with the lever portion 8, thus forming the outer end of the shank 10 upon which may be mounted a suitable chuck or socket 11 for receiving a detachable tool 12, or the said portion 10 may be extended to any desired length and have an integrally formed tool 13 thereon, as shown in Fig. 2. The most essential feature in the formation of this bent shank is that it

must be so bent or formed that the axis of the portion 4 will stand at the proper angle to the axis of the portion 10.

I do not limit myself to any particular angle between the axis of the portions 4 and 10, but for the greatest facility in operating the device it should be more than ten and less than forty degrees. The drawings show about twenty-six degrees which I have found to be very convenient and effective.

In the operation of my device the required tool, which has been inserted in the chuck 11, or else forms an integral part of the shank, as shown in Fig. 2, is brought into engagement with the object on which it is intended to be used. The operator, having a firm grip with one hand on the handle portion 1, brings sufficient pressure to bear as would be necessary in handling any ordinary tool now known and designed for the purpose, and then proceeds to operate the handle portion 1 in such a way that, it will describe an orbital movement, the diameter of which depends upon the length of the leverage contained in the bent portion 8, said orbital movement decreasing in diameter as it approaches the outer end of said handle which is held firmly in the palm of the hand. The bent portion 8 forming the leverage, and likewise the gripping portion 9 will thus be made to describe a circle and in so doing will rotate the portion 10 of the shank, which, when turning, revolves on its own axis, and consequently the tool connected thereto will operate against the object in contact therewith. At the same time the portion 4 of said shank will rotate in the handle portion 1.

It will readily be seen that my device can be made to operate either to the right or left, at the will of the operator as the case may require.

Fig. 1 of the drawings shows and I claim the portion 10 of the tool shank on a direct line with the end of the portion 4 seated in the handle 1, but I do not limit myself to this exact construction, as the said portion 4 may extend a less distance into the handle, without impairing the efficiency of my device or departing from the spirit of the invention.

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

1. In a device of the character described, a tool shank provided at one end with a tool, an intermediate portion forming a T or cross with the end having the tool, and the other end operatively seated in a suit-

able handle, the axis of the part seated in the handle being at a suitable angle to the part provided with the tool, whereby, when the described motion is imparted to the handle, the tool will be revolved on its own axis; substantially as described.

2. In a device of the character described, a tool shank provided with a tool at one end, the other end being operatively seated in a suitable handle with its axis at a suitable angle to the axis of the end provided with the tool; and the intermediate portion of said shank being so bent or shaped as to form a T head on the portion of the shank provided with the tool; substantially as described.

3. In a device of the character described, a tool shank provided at one end with a suitable chuck or socket for holding a tool, the other end being operatively seated in a suitable handle, with its axis at a suitable angle to the axis of the chuck, the intermediate portion of said shank being so bent or shaped as to form a T head on the portion of the shank provided with the chuck; substantially as described.

4. In a device of the character described, a suitable handle portion; a shank, one end thereof being operatively seated in said handle, and having a bent portion therein to constitute a leverage, said bent portion being doubled back on itself so as to form a gripping feature, also a straight portion to which is attached the tool to be operated, the latter portion being substantially on a direct line with the end of the shank seated in said handle portion.

5. In a device of the character described, a suitable handle portion; a shank, one end thereof being operatively seated in said handle, and having a bent portion therein to constitute a leverage, said bent portion being doubled back on itself in order to form a gripping feature, also a straight portion formed substantially on a direct line with the end of the shank seated in said handle; a suitable chuck or socket on the end of said straight portion for receiving the tool to be operated; and means for retaining the shank in said handle.

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

WILLIAM BROAD

Witnesses:

E. E. PIERCE,

CHAS. W. BRADSHAW.