

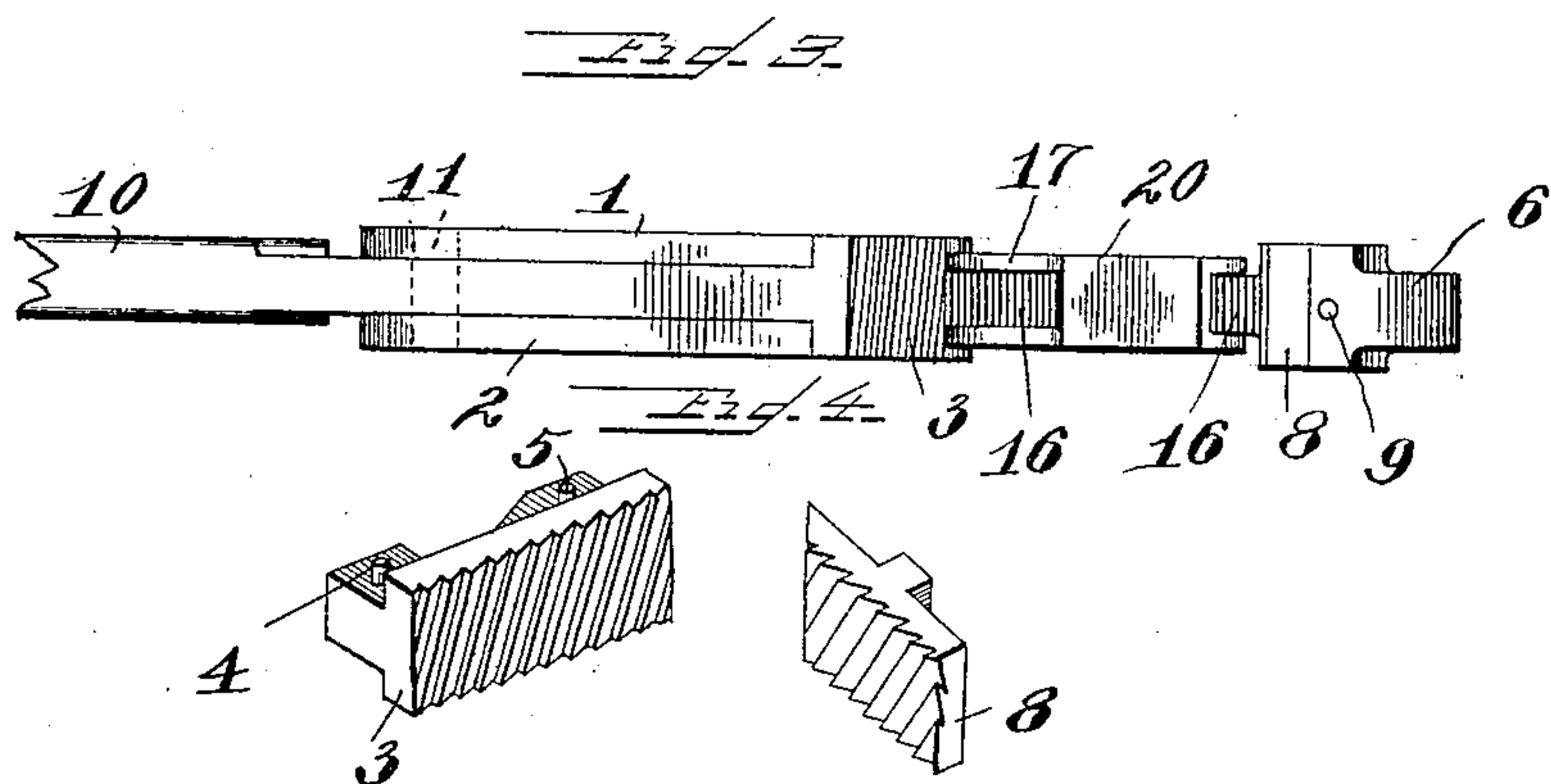
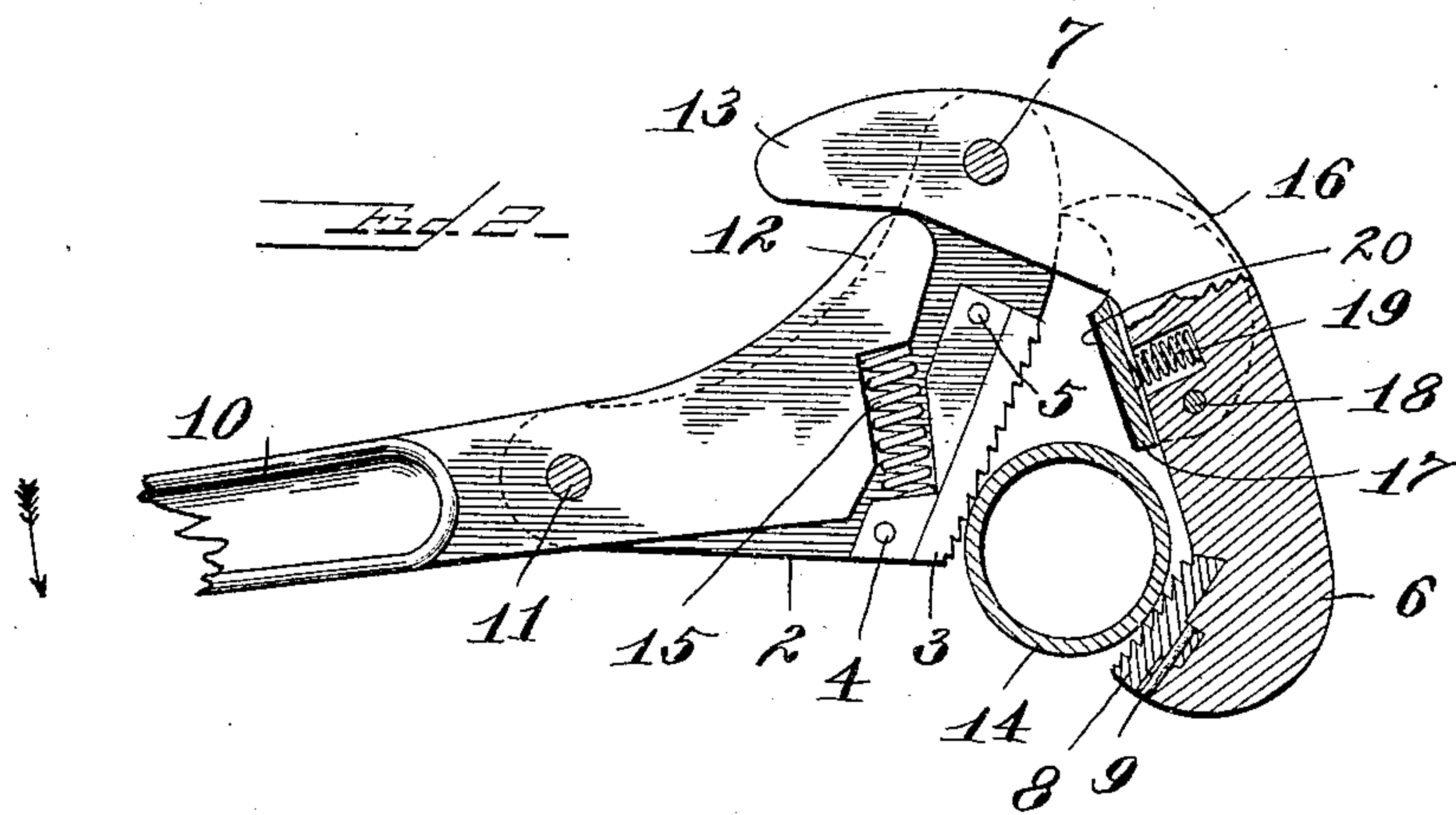
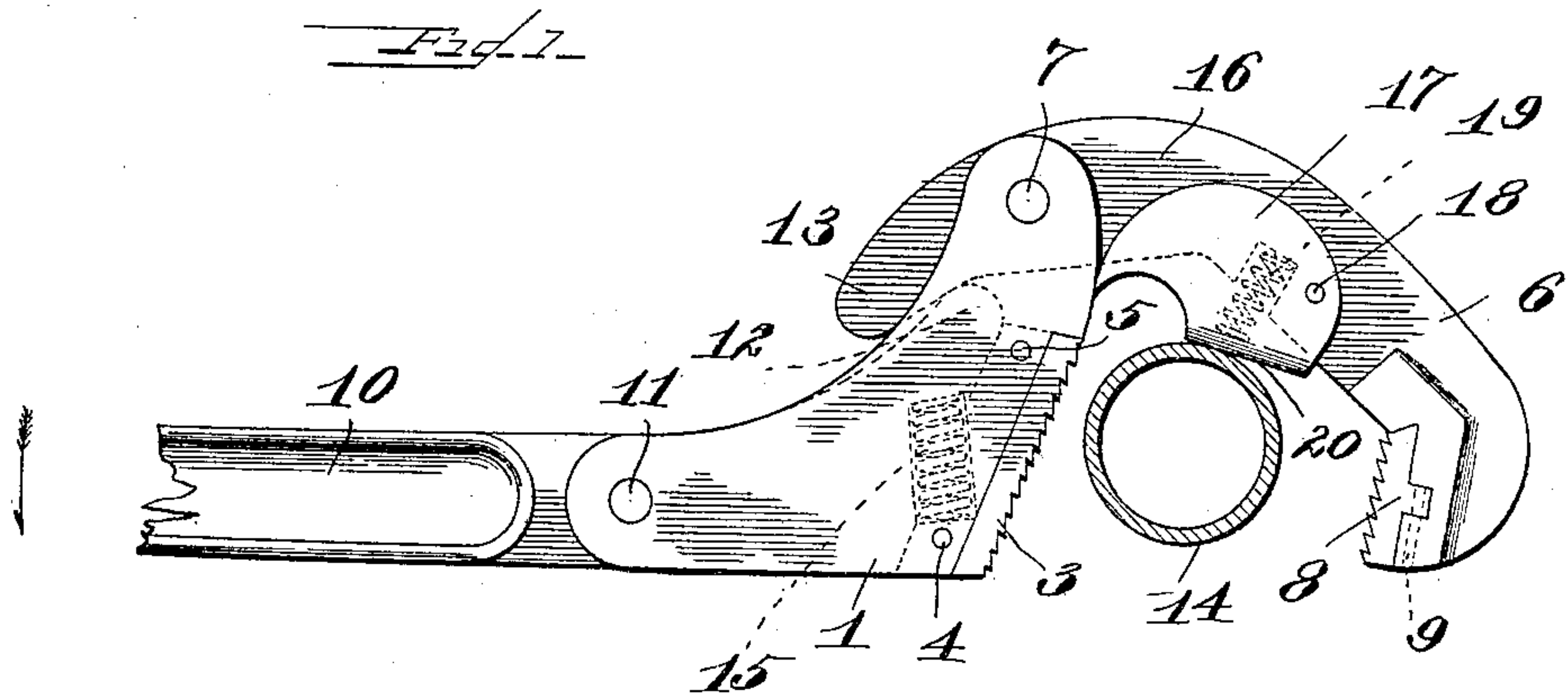
No. 814,201.

PATENTED MAR. 6, 1906.

M. E. GRISWOLD.

WRENCH.

APPLICATION FILED JUNE 13, 1904.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## WRENCH.

No. 814,201.

Specification of Letters Patent.

Patented March 6, 1906

Application filed June 13, 1904. Serial No. 212,265.

*To all whom it may concern:*

Be it known that I, MARIUS E. GRISWOLD, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to wrenches; and its object is to provide an improved wrench which shall be simple and economical in construction and easy and effective in operation; and my invention consists in the novel features of construction and arrangement and the novel combination of parts hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, and in which like parts are designated by the same reference characters in all the views, Figure 1 is a plan view of a wrench embodying the features of my invention, showing the jaws opened to their widest extent. Fig. 2 is a plan view of the same, but with one of the plates which form the body portion and a part of the locking device, &c., removed to show the internal construction, the jaws being shown closed on a pipe. Fig. 3 is a side elevation of the wrench shown in Fig. 1, and Fig. 4 is a perspective view of the biting portions of the jaws to show the oppositely diagonal disposition of the teeth thereon in relation to each other.

The body portion comprises in the construction shown the similarly-shaped parallel plates 1 and 2. This body portion forms one of the jaws, which may for convenience be called the "inner" jaw. Its biting portion may be integral with the body portion; but in order that it may be made of harder material and may be replaced when broken this biting portion is preferably of separate piece 3, rigidly attached to the body portion by any suitable means, as by the pins 4 and 5. The other jaw 16 is a lever and may be termed for convenience the "outer" jaw, being fulcrumed at 7 to the body portion. It has the arm 6, on which the biting portion may be integrally formed. Preferably, however, this biting portion is, for the reasons mentioned, of separate piece 8 and is rigidly attached to the arm 6 by suitable means, as by the pin 9. The lever 10, which may be called for convenience the "lever-handle," is fulcrumed at 11 to the body portion. Its longer arm, a part of which is broken away in the drawings, forms the

wrench-handle. The shorter arm 12 is adapted to bear in sliding engagement against the concave inner side of the arm 13 of the outer jaw in a cam action, so that when the wrench is operated (which is done by moving the handle in the direction of the arrow) the two jaws are by this movement closed on the pipe 14 to turn the same, as is clearly shown in Fig. 2. It is evident that the action of the handle to close the jaws by operating the wrench on the pipe, &c., may be applied by other and varying arrangements of the lever-handle, the jaws, and the fulcrums.

Now it will be seen that if the pipe to be turned is below the position occupied by the operator the jaws of a wrench constructed merely as above described will not close on the pipe by the force of gravity acting on the outer jaw, but that it will be necessary for the operator to close the jaws on the pipe by hand. To obviate this necessity and to render the wrench easily operative in all positions of the work and also to make the hold or bite of the jaws more secure, I provide a suitable spring so placed as to press the jaws together. This spring may manifestly be of any suitable form, may be placed in various positions and arranged to operate on different parts to accomplish this result without departing from the spirit and scope of my invention. Preferably, however, this spring 15 is placed, as in the construction shown, between the body portion and the shorter arm 12 to press them apart, this action, as is evident, accomplishing the closing of the jaws. To further and entirely obviate any necessity for the operator's handling the jaws to adjust them to the work and release them therefrom, I provide a locking device to hold the jaws apart against the pressure of the spring 15. This locking device may be constructed, operated, and released in a variety of ways, as is manifest, without departing from the spirit and scope of my invention. Preferably, however, it is of the construction shown in the drawings, comprising a lever-arm 17, pivoted at 18 on the outer jaw 16 and of sufficient length to press at its free end against the inner jaw or body portion when the jaws are opened to their widest extent, and thus lock the jaws in that position, as is clearly illustrated in Fig. 1. The lever-arm 17 is preferably made of metal bent around the inner edge of the outer jaw 16 and having side extensions on either side of the outer jaw, in which are formed bearings for



the pivot 18. The lever-arm has also the striker portion 20, formed by the bend of the metal in the construction shown. A spring 19, not sufficient in strength to counteract the spring 15, presses the lever-arm 17 from the outer jaw 16, as it is allowed so to do by the opening of the jaws, until when the jaws are opened to their widest extent the free end of the lever-arm 17 is then allowed to be pressed by its spring 19 far enough to lock the jaws in their open position.

The jaws are preferably toothed diagonally across their biting-surfaces each in an opposite diagonal direction to the other, the direction of the teeth of one jaw crossing the direction of the teeth of the other jaw, as is shown in Fig. 4, instead of coinciding or alining with each other. By this construction and arrangement the teeth will more surely bite the pipe, a part of one or more teeth on each jaw being always in direct biting contact with the highest part of the circumference of the pipe. It will be found also that by this oppositely diagonal disposition of the teeth the jaws of the wrench will tend to so adjust themselves to the pipe as to form a right angle between the pipe and the side or flat surface of the wrench, thus insuring a better hold or bite.

My wrench is operated in the following manner: Supposing the jaws to be closed, the operator grasping the handle extends the wrench toward the work, hooking the biting portion of the outer jaw (which extends out beyond the biting portion of the inner jaw) over the pipe to be turned. By drawing the handle longitudinally toward him the jaws are opened sufficiently to admit the pipe. The spring 15 then closes the jaws in operative engagement with the pipe in whatever position the wrench may be held. To release the wrench, the operator again draws the handle toward himself, thus forcing the jaws to open to their widest extent, when they are by this motion automatically locked in that position and the wrench may be withdrawn. Being thus locked open, the wrench may then be used on another pipe by simply striking that pipe between the open jaws with the striker portion 20 of the lever-arm, which motion moves the lever-arm against the pressure of its spring 19 sufficiently to unlock the jaws, which then close on the pipe by the action of the spring 15. It will thus be seen that in operating my wrench in any position it is unnecessary for the operator to remove his hands from the handle.

My invention may manifestly be embodied in varying mechanisms, and I do not confine myself to the specific construction above described and illustrated.

I claim—

1. In a wrench, the combination of two cooperating wrench-jaws; a lever-handle fulcrumed to one and engaging with the other to close, by the wrench action, the jaws into

operative engagement with the object to be turned; and a spring pressing the inner arm of the lever-handle and the jaw to which it is fulcrumed apart to press the jaws toward each other.

2. In a wrench, the combination of two cooperating wrench-jaws; a lever-handle fulcrumed to one and engaging with the other to close, by the wrench action, the jaws into operative engagement with the object to be turned; and a locking device comprising a lever-arm pivoted to one jaw and adapted to engage at its free end the other jaw when the jaws are open to lock them in open position, and a spring to press the lever-arm into locking engagement.

3. In a wrench, the combination of two cooperating wrench-jaws; a lever-handle fulcrumed to one and engaging with the other to close, by the wrench action, the jaws into operative engagement with the object to be turned; a spring to press the jaws toward each other; and a locking device comprising a lever-arm pivoted to one jaw and adapted to engage at its free end the other jaw when the jaws are open to lock them in open position, and a spring to press the lever-arm into locking engagement.

4. In a wrench, the combination of two cooperating wrench-jaws; a lever-handle fulcrumed to one and engaging with the other to close, by the wrench action, the jaws into operative engagement with the object to be turned; a spring pressing the inner arm of the lever-handle and the jaw to which it is fulcrumed apart to press the jaws toward each other; and a locking device comprising a lever-arm pivoted to one of the jaws and adapted to engage at its free end the other jaw when the jaws are open to lock them in open position, and a spring to press the lever-arm into locking engagement.

5. In a wrench, the combination of two cooperating wrench-jaws; a lever-handle fulcrumed to one and engaging with the other to close, by the wrench action, the jaws into operative engagement with the object to be turned; a spring pressing the inner arm of the lever-handle and the jaw to which it is fulcrumed apart to press the jaws toward each other; and a locking device comprising a lever-arm pivoted to one jaw and adapted to engage at its free end with the other jaw when the jaws are open to lock the jaws in open position, said lever-arm having a striker portion for striking the object to be turned and thus unlock the open jaws, and a spring to press the lever-arm into locking engagement.

6. In a wrench, the combination of two cooperating wrench-jaws; a lever-handle fulcrumed to one and engaging with the other to close by the wrench action the jaws into operative engagement with the object to be turned; and a locking device comprising a



lever-arm pivoted to one jaw and adapted to engage at its free end with the other jaw when the jaws are open to lock them in open position.

5 7. In a wrench, the combination of two  
coöperating wrench-jaws; a lever-handle ful-  
crumed to one and engaging with the other  
to close by the wrench action the jaws into  
operative engagement with the object to be  
10 turned; a spring to press the jaws toward  
each other; and a locking device comprising  
a lever-arm pivoted to one jaw and adapted  
to engage at its free end with the other jaw  
when the jaws are open to lock them in open  
15 position.

8. In a wrench, an automatic locking de-  
vice comprising a lever-arm pivoted to one  
jaw and adapted to engage at its free end  
with the other jaw when the jaws are open  
20 to lock the jaws in open position, said lever-

arm having a striker portion for striking the  
object to be turned when the same is between  
the jaws and thus unlock the open jaws, and  
a spring to press the lever-arm into locking  
engagement.

9. In a wrench, a locking device compris- 25  
ing a lever-arm pivoted to one jaw and  
adapted to engage at its free end with the  
other jaw when the jaws are open to lock the  
jaws in open position, said lever-arm having 30  
a striker portion for striking the object to be  
turned when the same is between the jaws  
and thus unlock the open jaws.

In testimony whereof I have hereunto  
signed my name in the presence of two at- 35  
testing witnesses.

MARIUS E. GRISWOLD.

Witnesses:

R. H. MULLINEAUX,  
JAY D. CASSATT.