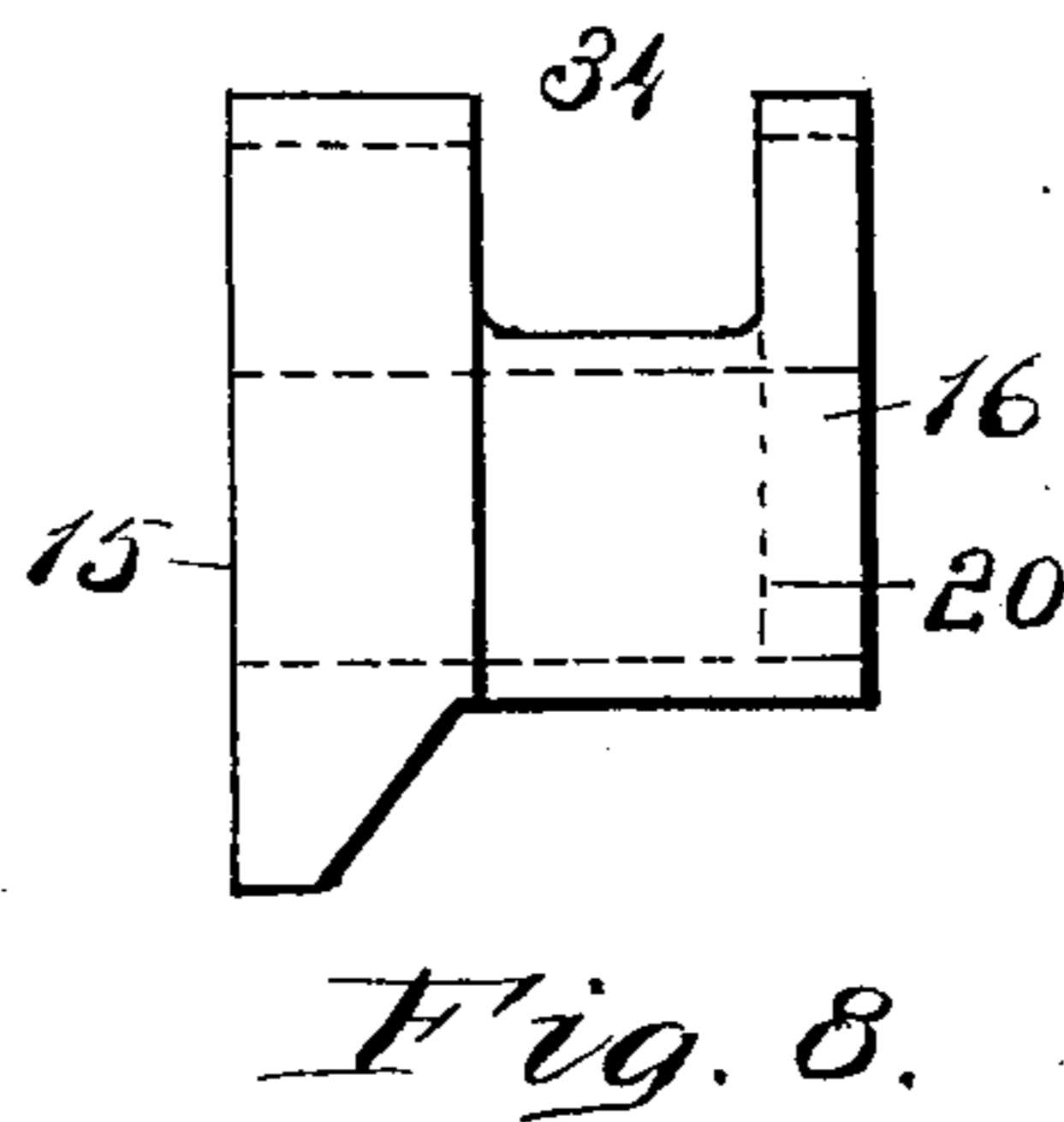
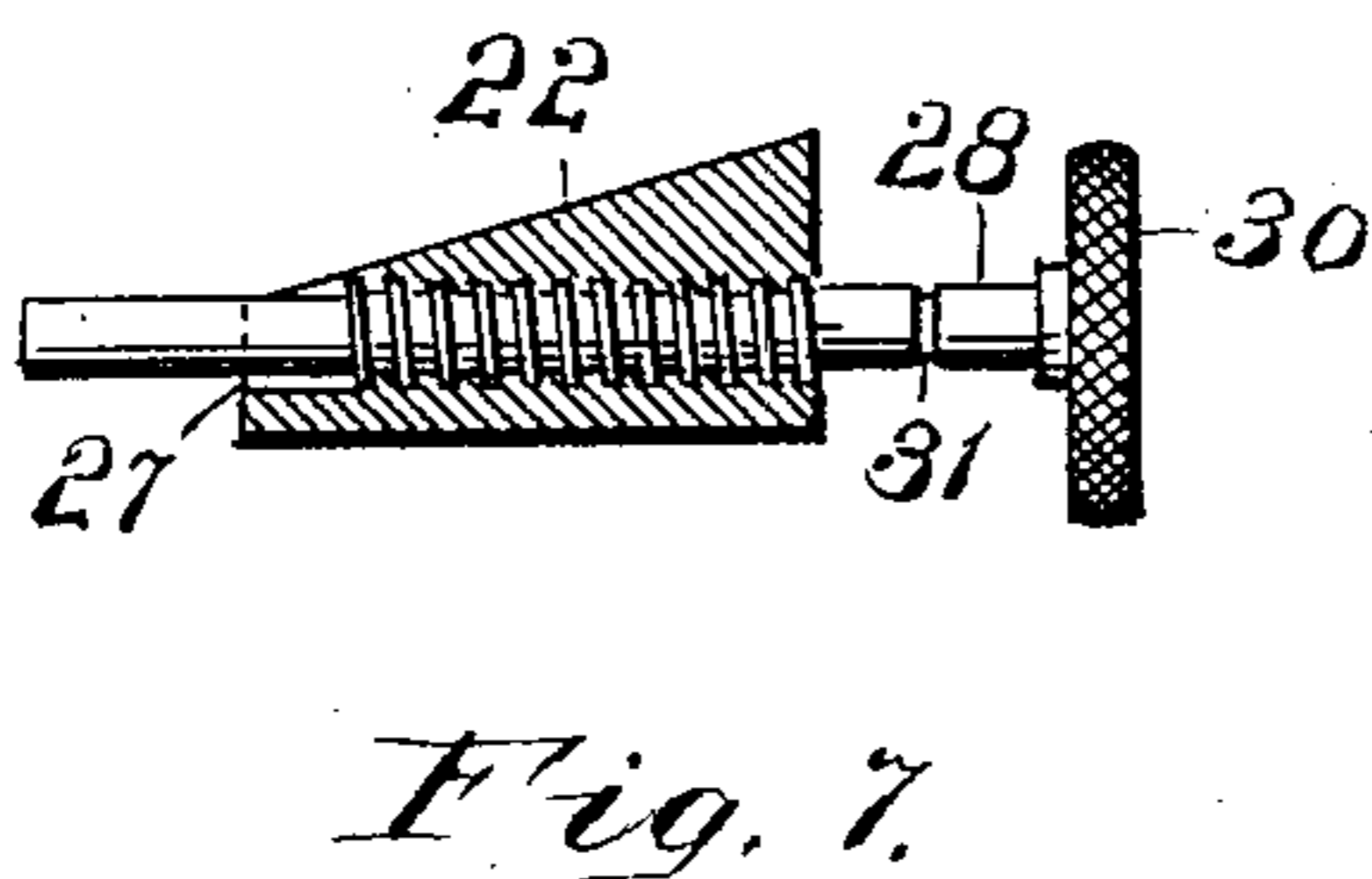
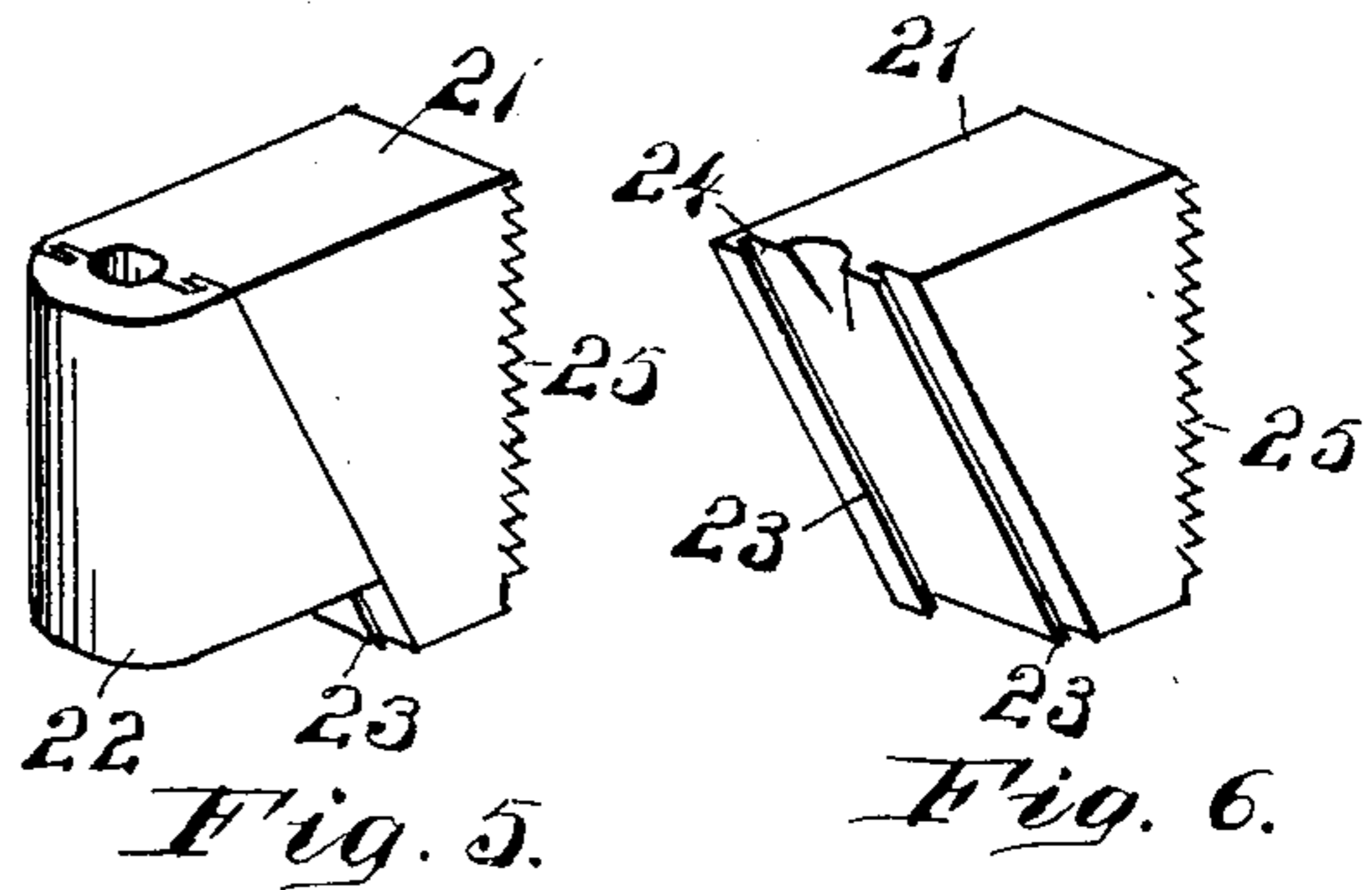
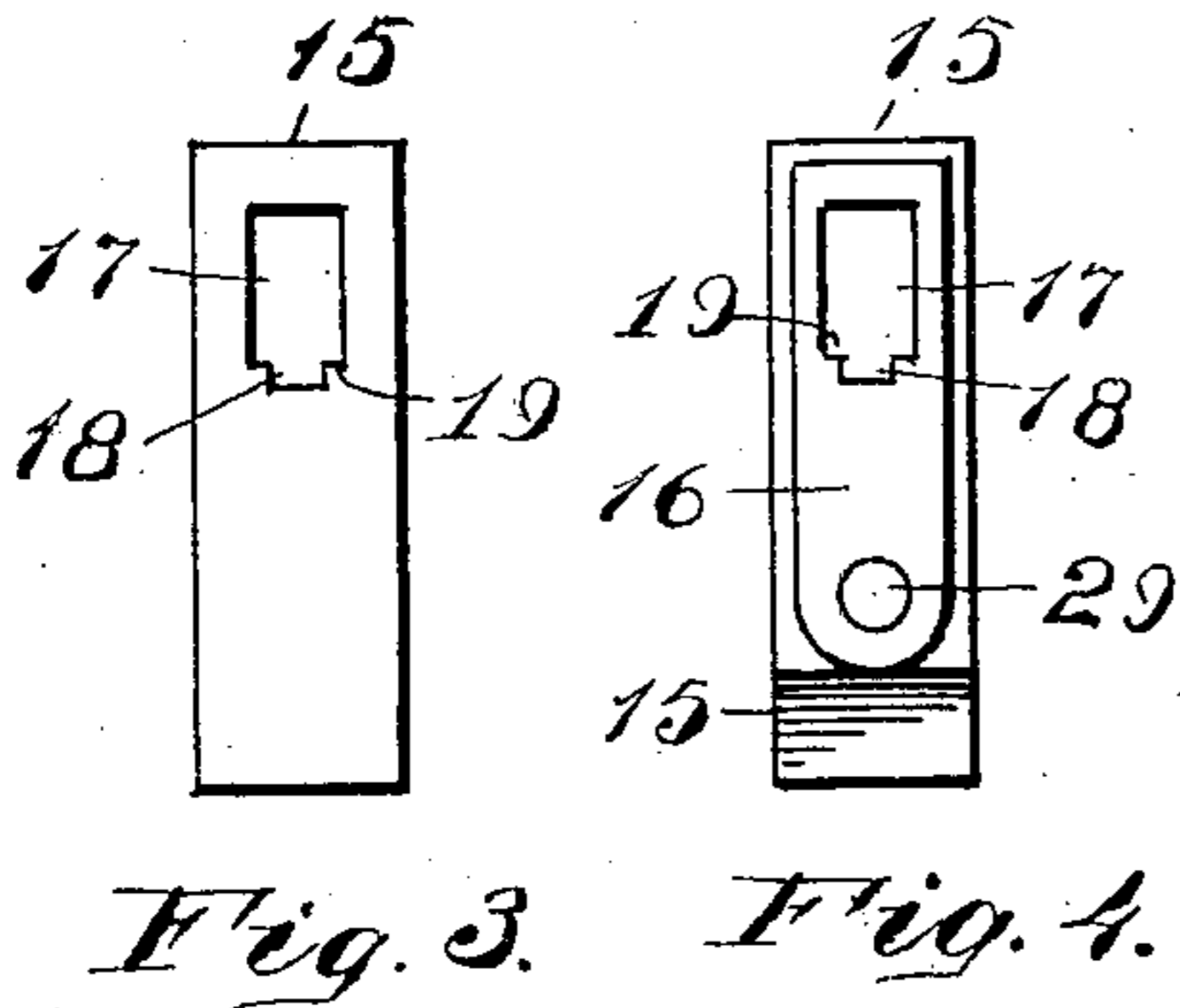
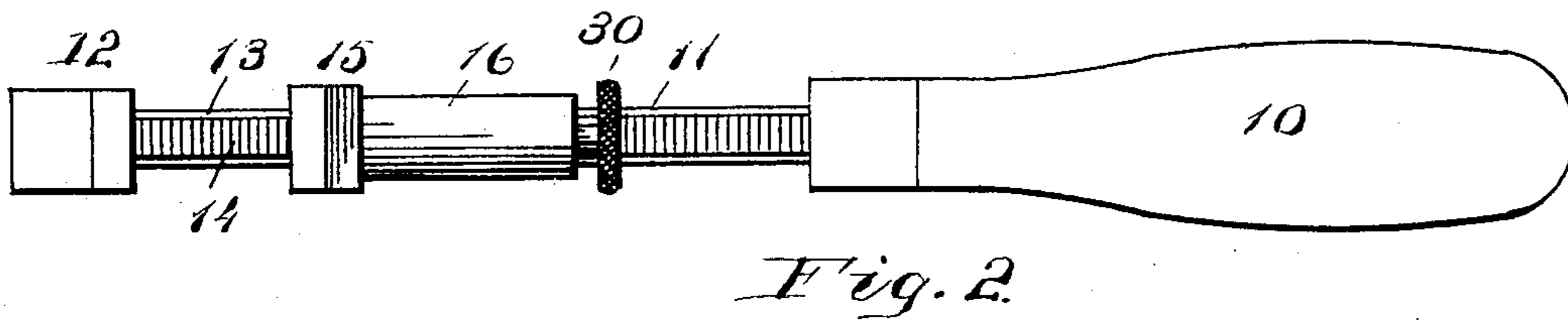
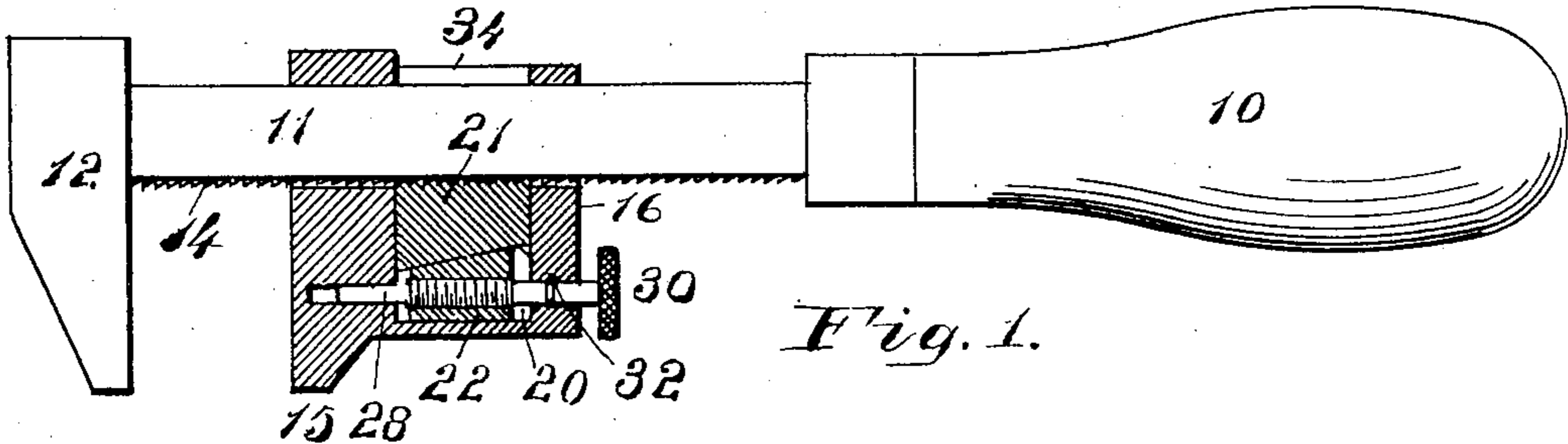


No. 762,420.

PATENTED JUNE 14, 1904.

F. J. LEIBMAN.  
ADJUSTABLE WRENCH.  
APPLICATION FILED AUG. 7, 1903.

NO MODEL.



Witnesses:  
Frank Morrison  
John Delaney

Inventor:  
F. J. Leibman  
By J. S. & A. J. Zerk  
Attys

# UNITED STATES PATENT OFFICE.

FRANK J. LEIBMAN, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF  
TO CHARLES A. LEIBMAN, OF BROOKLYN, NEW YORK.

## ADJUSTABLE WRENCH.

SPECIFICATION forming part of Letters Patent No. 762,420, dated June 14, 1904.

Application filed August 7, 1903. Serial No. 168,624. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK J. LEIBMAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Adjustable Wrenches, of which the following is a specification.

The object of my invention is to provide a cheap, simple, efficient, and easily-operated wrench.

The invention has special reference to the construction of the movable jaw, which is so arranged that the partial turning of a screw will permit the jaw to move back and forth, and the same can be rigidly secured to the bar of the wrench, so that the operation of loosening or fixing the jaw can be done instantaneously.

Another feature of the invention resides in the arrangement for holding the movable jaw, wherein the force exerted against the same in use will not affect the screw, thus permitting me to use a smaller screw and at the same time avoiding the wear so noticeable in tools of this class.

I provide the bar of the wrench with a serrated edge, and on this bar is placed loosely the movable jaw, which has a recess adapted to receive a pair of dogs the meeting edges of which are cut at an angle and provided with tongues and grooves, so that they will fit together in sliding contact. The end of one of these dogs is serrated and engages with the end of the wrench-bar, which is similarly serrated, while the other dog has a longitudinal hole threaded and adapted to receive a screw which projects through the rear end of the sliding jaw and is held by a pin in a suitable groove. A slight turn of this screw will throw the serrated dog in and out of contact with the teeth of the bar, and thus enable the user to move the sliding jaw back and forth and set it at any point, all of which will now be set forth in detail.

In the drawings, Figure 1 is a side view of my improved wrench, with the sliding jaw in section. Fig. 2 is an edge view of same. Fig. 3 is a front view of the sliding jaw; Fig. 4, a rear view of the jaw; Fig. 5, a perspective

view of the dogs in the sliding jaw; Fig. 6, a perspective view of the serrated dog; Fig. 7, a longitudinal section of the threaded dog and screw, and Fig. 8 a side view of the sliding jaw.

In constructing my invention I employ the usual form of handle 10, bar 11, and fixed jaw 12. The inner edge of the bar 11 has a gain 13 at each corner, and the surface between these gains is serrated, as shown at 14. The sliding jaw 15 has a housing 16, which extends rearwardly and has a rectangular opening 17, in which the bar 11 slides, a recess 18 being cut along the lower side of this opening, so that the teeth of the bar will be clear of the opening and permit the gains 13 to rest on the ledges 19, formed in the corners of the openings 17.

A rectangular recess 20 is formed in the housing 16 below the wrench-bar 11, which is adapted to receive a pair of dogs 21 22. The dogs are approximately the same size and are cut away at an angle on their contact edges and provided with tongues 23 and grooves 24, so that they fit together and slide on each other. These tongues and grooves are so arranged that when the dogs slide on each other they will be held together for reasons which will be hereinafter explained. The inner dog, 21, has a serrated edge 25, which engages with the teeth of the bar. The other dog, 22, has its edge rounded, as at 26, to fit the rounded portion of the rectangular recess 20, and a threaded hole 27 is formed through the same parallel with the bar 11, in which hole is placed a screw 28. This screw projects through a hole 29 in the rear wall of the housing 16 and is provided with a thumb-wheel 30, by means of which it may be turned. The screw has an annular groove 31 where it rests in the housing, and a cross-pin holds the screw from lateral motion when in use. To obtain additional rigidity and to provide against either lateral or vertical movement of the screw 30, the same has on its end a shank, which is designed to rest within an aperture in the rear wall of the jaw 15.

It will be observed that the dog 22 is shorter than the dog 21, the object being to permit a

longitudinal movement of the dog 22 within the housing, and by means of which the dog 21 may be moved to or from the serrated bar 11.

5 It is obvious that I may use means other than the screw 28 for securing a longitudinal movement of the dog 22. This may be effected by a lever or by a cam or otherwise without affecting the spirit of my invention, which  
10 pertains particularly to the arrangement of the dogs and the housing containing same.

It will be seen that when the serrated jaw is in engagement with the bar 11 and pressure is exerted against the movable jaw in  
15 use the principal force acts against the dogs and but a small portion of the pressure is transferred to the screw.

In practice I provide an opening 34 in the upper side of the housing to enable me to  
20 place the dogs in position when the jaw is removed from the bar.

What I claim as new is—

1. In a wrench, a serrated bar having thereon a sliding jaw provided with a recess, and  
25 a pair of dogs therein slidably held together by grooves and tongues on angled contact-faces, one dog having serrations to engage with the serrated bar, and means for longitudinally moving one of said dogs.

30 2. In a wrench a serrated bar having a fixed jaw thereon, and at its inner edge a gain at each corner, and serrations extending across between said gains, a sliding jaw on said bar having a recess to permit the serrations of the  
35 bar to slide therein, a pair of dogs in the said recess, one of said dogs having teeth to engage with the serrated bar, the other dog

having a threaded hole, and a screw in said hole having on one end thereof a turning-wheel and held in said housing by a pin, said screw  
40 being provided, at its other end, with a shank resting in an aperture within the rear portion of the sliding jaw, as set forth.

3. In a wrench a serrated bar having a fixed jaw, a sliding jaw thereon having a recess, a  
45 pair of dogs therein, slidably joined by tongues and grooves with angled contact-faces, one of said dogs having teeth to engage with the serrations on the bar, and the other dog having a threaded hole, and a screw in said hole having  
50 a turning-wheel and held in said housing by a pin to prevent longitudinal movement, as set forth.

4. In a wrench a serrated bar having a fixed jaw, a sliding jaw thereon having a recess, a  
55 pair of dogs therein, slidably joined by tongues and grooves with angled contact-faces, one of said dogs having teeth to engage with the serrations on the bar, and the other dog having a threaded hole, and a screw in said hole having  
60 a turning-wheel on one end thereof and held in said housing by a pin to prevent longitudinal movement, the other end of said screw being provided with a shank adapted to rest within an aperture in the rear side of the slid-  
65 ing jaw to prevent vertical movement, as set forth.

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

FRANK J. LEIBMAN.

Witnesses:

J. I. BERLIN,  
A. J. ZERBE.