

No. 654,769.

Patented July 31, 1900.

G. S. TILTON.  
WRENCH.

(Application filed Nov. 27, 1899.)

(No Model.)

Fig. 1.

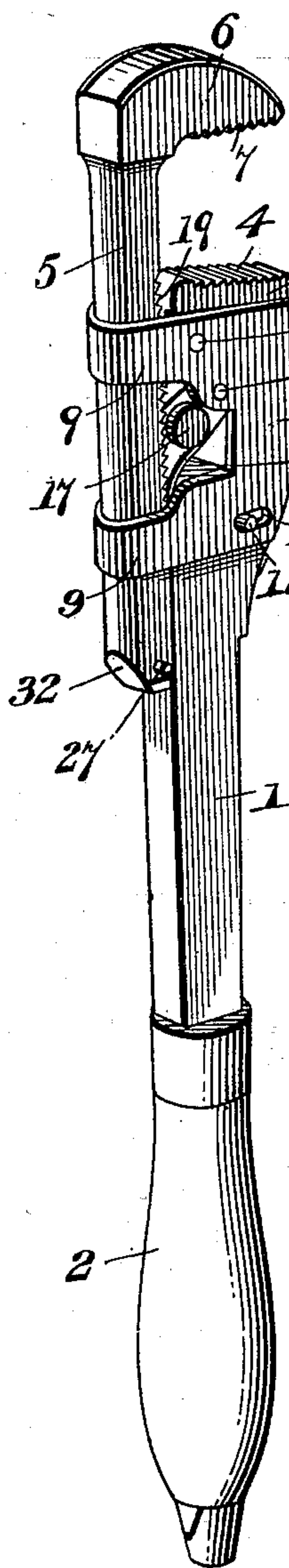


Fig. 2.

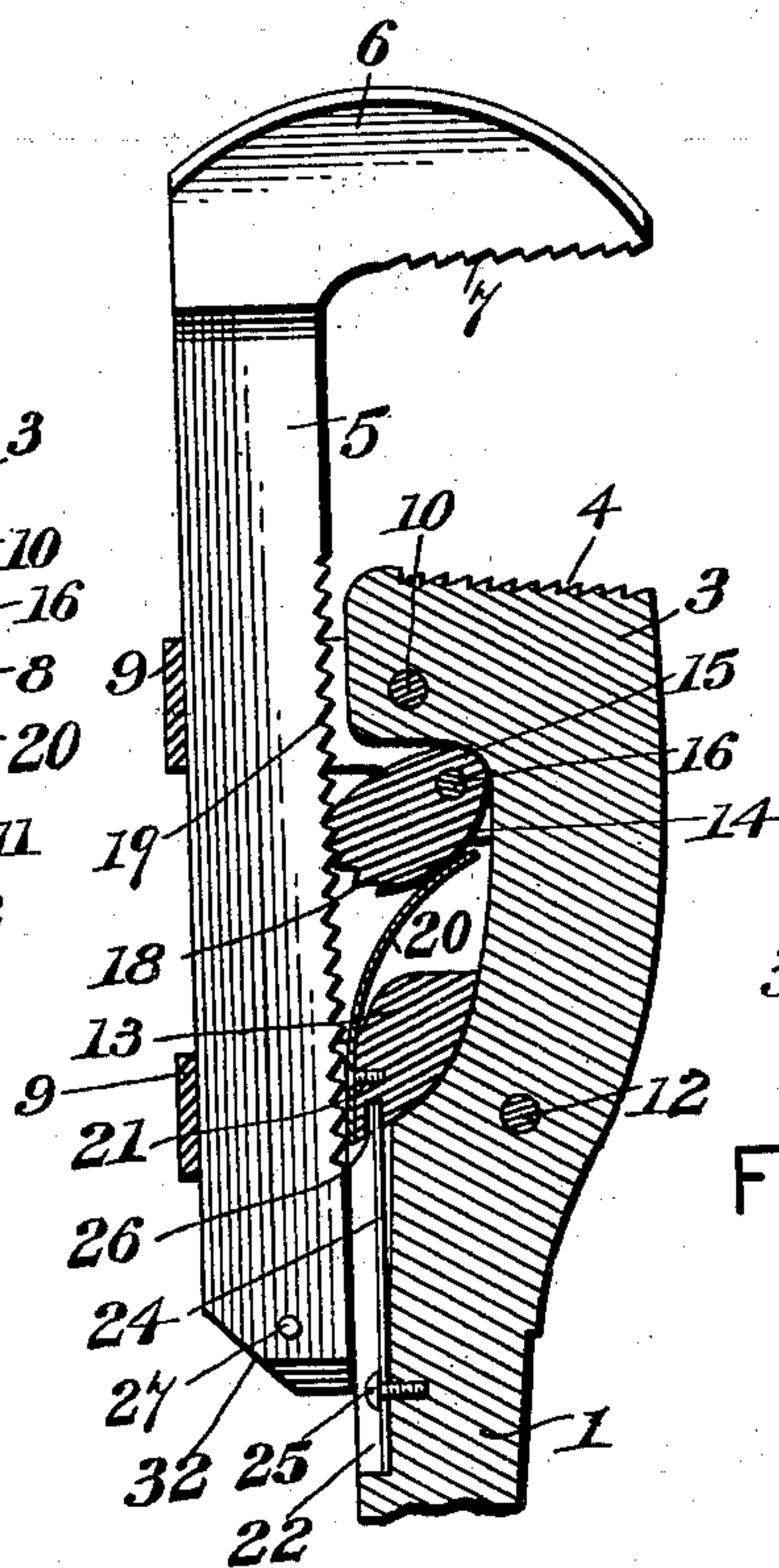


Fig. 3.

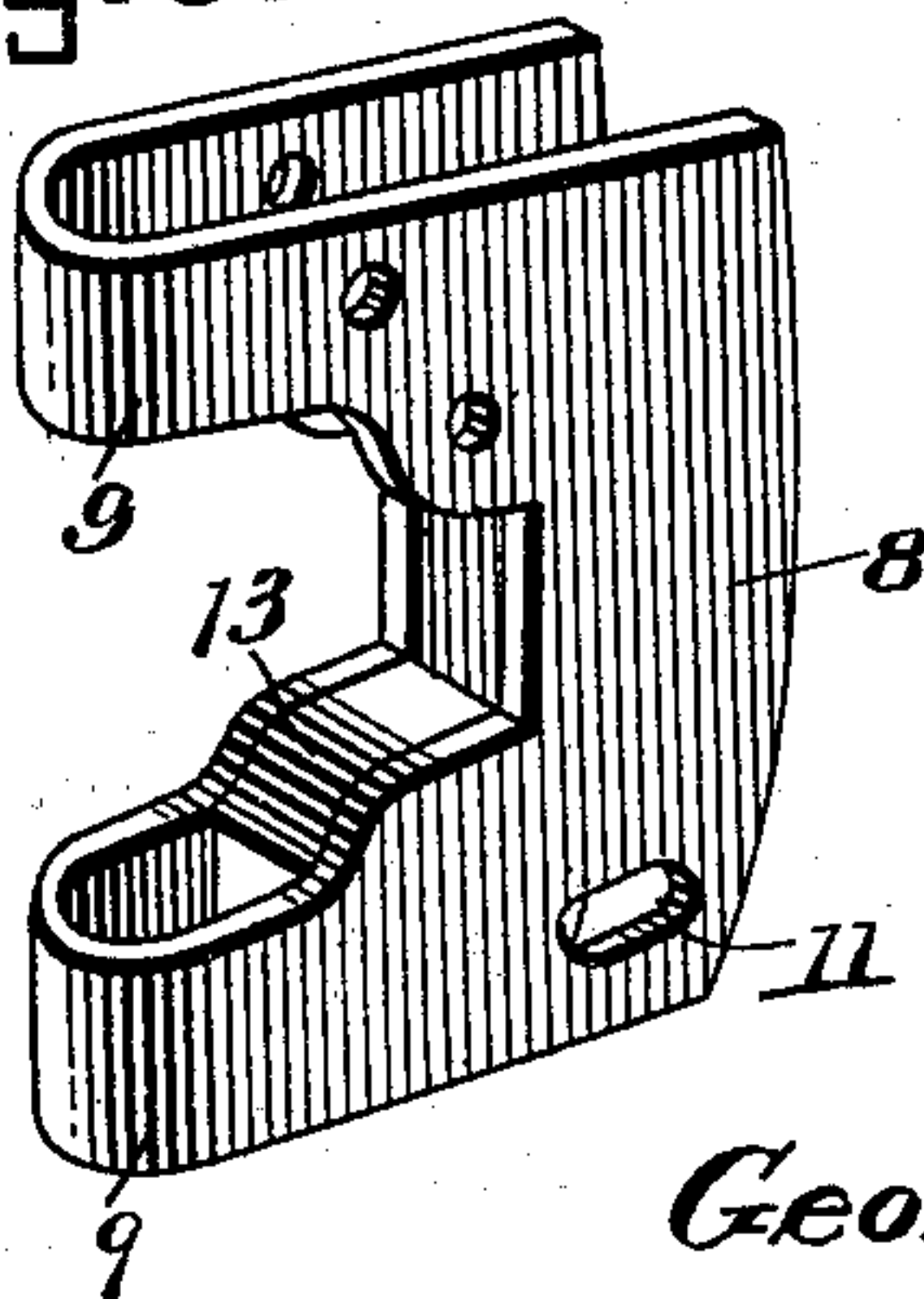


Fig. 4.

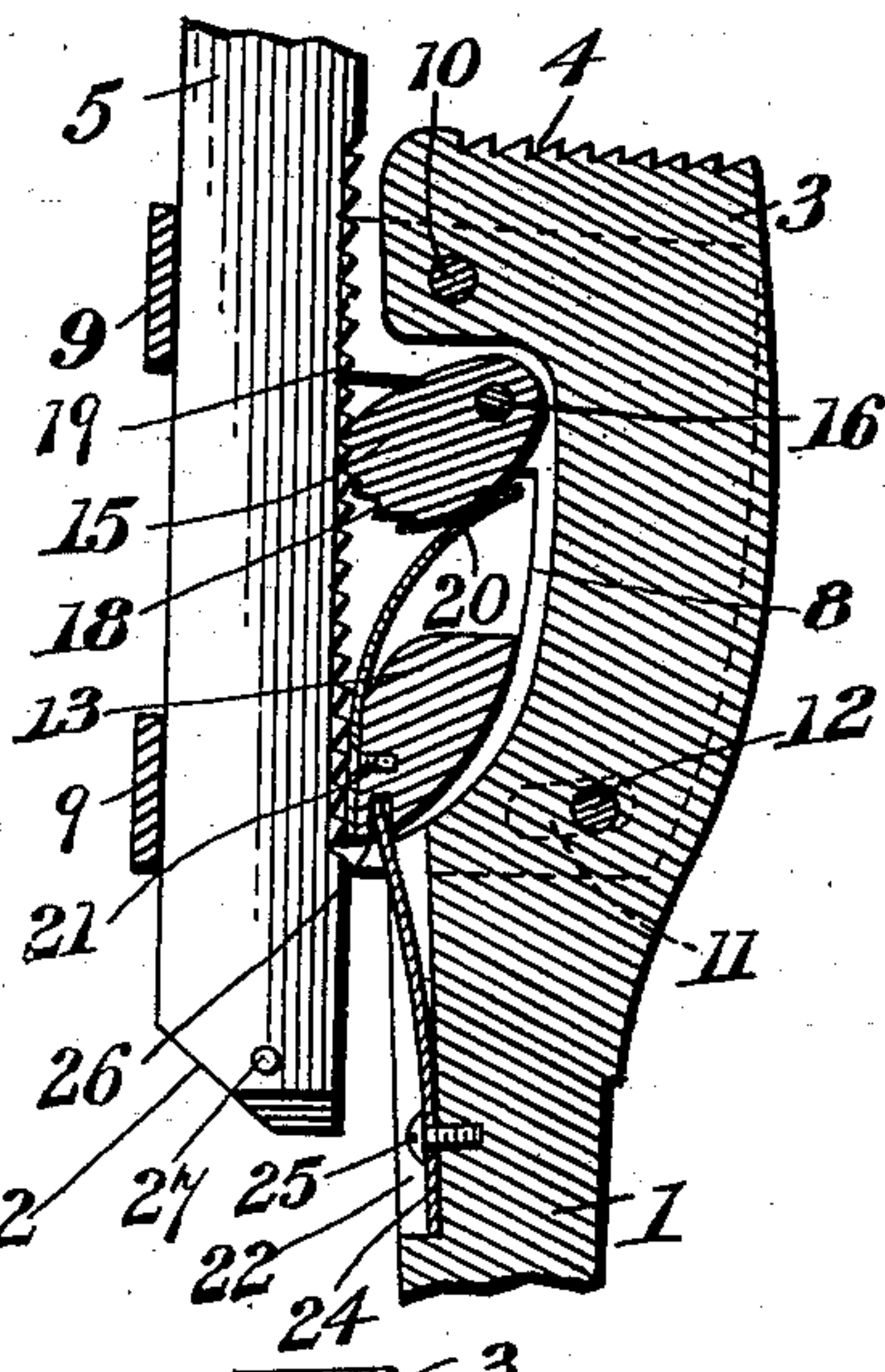


Fig. 5.

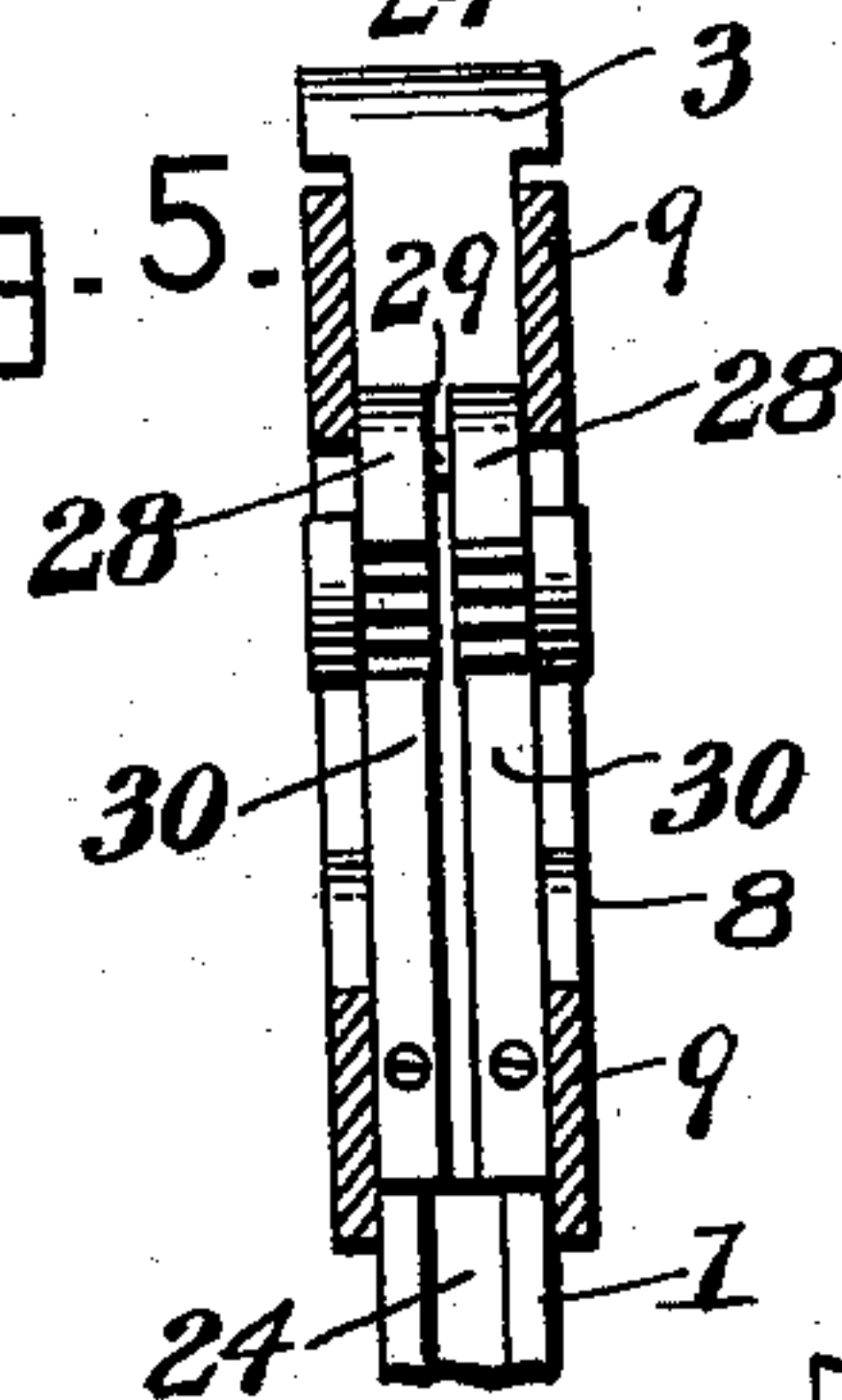
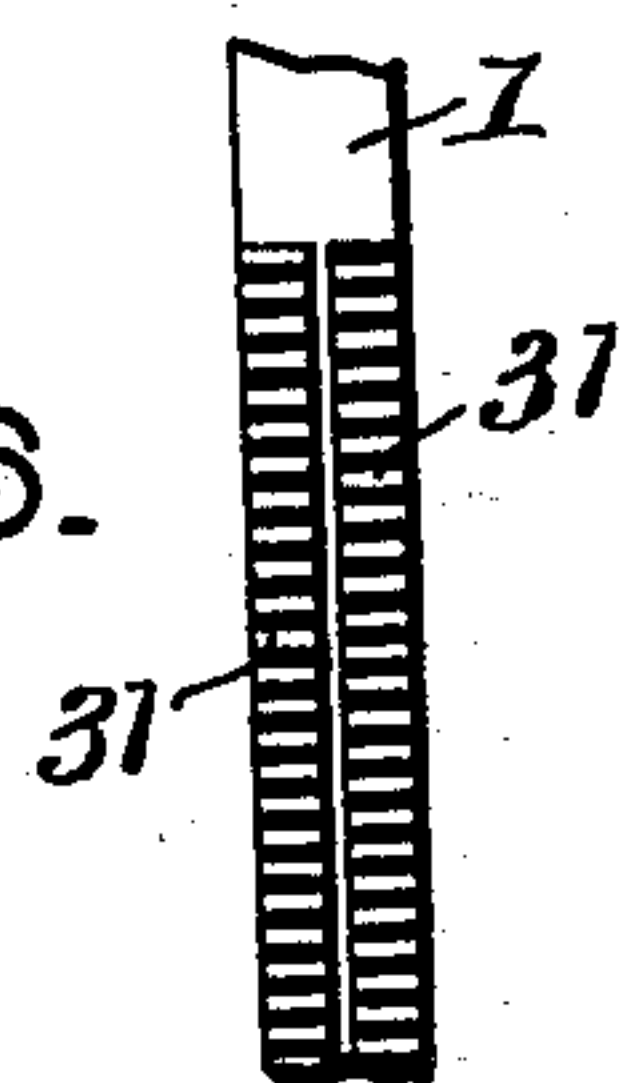


Fig. 6.



George S. Tilton Inventor

By *E. G. Siggers* Attorney

Witnesses  
*Edwin McKee.*  
*R. M. Smith*



# UNITED STATES PATENT OFFICE.

GEORGE SCOTT TILTON, OF BRISTOL, NEW HAMPSHIRE.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 654,769, dated July 31, 1900.

Application filed November 27, 1899. Serial No. 738,419. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE SCOTT TILTON, a citizen of the United States, residing at Bristol, in the county of Grafton and State of New Hampshire, have invented a new and useful Wrench, of which the following is a specification.

The object of this invention is to provide a quick-action wrench constructed in such manner as to enable it to automatically release its grip upon a pipe or nut and obtain a new firm grip thereon without requiring any attention on the part of the operator.

It is also an object of the invention to provide a wrench of simple and durable construction, doing away, as far as possible, with small or delicate parts which are liable to become broken and render the wrench inoperative.

The detailed objects and advantages of the invention will appear in the course of the ensuing description.

The invention consists in a wrench embodying certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and incorporated in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a wrench constructed in accordance with the present invention. Fig. 2 is a longitudinal section through the same. Fig. 3 is a perspective view of the yoke *per se*. Fig. 4 is an enlarged detail section through the yoke-block and a part of the yoke, showing also portions of the two shanks and illustrating the operation and disposition of the yoke-actuating spring. Fig. 5 is a detail view showing the employment of two cam-clutches in lieu of one. Fig. 6 is a face view of a portion of the slidable shank, showing the teeth arranged for engagement with two clutches.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

Referring to the drawings, 1 designates the stationary or main shank of the wrench, which is provided at one end with the ordinary handle 2 and at its opposite end with the fixed jaw 3, transversely serrated or toothed on its active face 4. 5 designates the sliding shank, which carries at its outer end the movable jaw 6, the working face 7 of which is also transversely

toothed or serrated. The working faces of the two jaws are preferably set oblique with relation to each other for facilitating the gripping and ungripping action hereinafter more particularly referred to. The two shanks are connected by means of a yoke 8, which is substantially U-shaped in cross-section, and which is centrally cut away to provide a pair of loops 9, which are spaced at a distance from each other and which loosely embrace the slidable shank, so as to enable said shank to be moved longitudinally within the loops 9 for the purpose of adjusting the distance between the gripping-jaws of the wrench. The yoke 8 is pivotally connected to the main or stationary shank by means of a pivot-pin 10, located adjacent to the fixed jaw. The yoke is also provided near its opposite end with oppositely-located limiting-slots 11, in which are received the opposite ends of a stop-pin 12, inserted through the stationary shank, as shown.

It will now be understood that the yoke 8 is adapted to swing upon the pivot 10 as a center and that its pivotal movement in opposite directions is limited by the pin 12, which works in the slots 11 as the yoke swings. The slidable shank and the movable jaw swing with each other, and as their center of motion is the same as that of the yoke the movable jaw swings upon the pivot 10 as a center, thus causing the working face of the movable jaw to be moved nearer to or farther from the fixed jaw for the purpose of gripping and releasing the pipe, nut, or other article operated upon.

Between the side portions of the yoke 8 is arranged a yoke-block 13, and the slidable shank is confined between said yoke-block and the outer portion of the inner loop 9. The stationary shank 1, adjacent to the fixed jaw, is offset to form a recess 14, in which a cam-clutch 15 is adapted to move. The clutch 15 is pivotally mounted between the side portions of the yoke upon the pivot-pin 16, which passes through the yoke. The clutch is also provided with oppositely-projecting finger-pieces 17 in the form of cylindrical buttons, which project laterally beyond the opposite sides of the yoke 8, so as to enable them to be grasped by the fingers of the operator in order to enable the clutch to be disengaged



from the slidable shank with which it coöperates. The active face of the clutch is transversely toothed or serrated, as shown at 18, to engage with corresponding teeth or serrations 19 on the adjacent face of the slidable shank, and the clutch is urged toward the slidable shank and normally maintained in engagement therewith by means of a leaf-spring 20, the free end of which bears against the clutch and the opposite end of which is rigidly secured to the yoke-block by means of a screw or other fastener 21. Thus the clutch is housed within the yoke or between the spaced loops 9 thereof and also between the stationary and slidable shanks. This provides a convenient arrangement for the clutch, protects it from injury, and at the same time enables it to be readily manipulated.

The main or stationary shank 1 is provided in that side adjacent to the slidable shank with a longitudinal groove 22, in which is placed a yoke-actuating spring 24, said spring being of leaf form and secured at its inner end by means of a screw or other fastener 25. The free end of said spring engages in a notch 26 in the yoke-block 13, and the tension of said spring is exerted to aline the stationary and slidable shanks or, in other words, to maintain the two shanks in parallel relation and contact with each other. At the same time the spring enables the yoke to be rocked when the movable jaw is swung in the act of gripping the object interposed between the wrench-jaws. The yoke-actuating spring is housed within the body of the shank 1 and does not interfere with the movement of the slidable shank. In order to limit the outward movement of the slidable shank, the latter is provided at its inner end with a limiting stop 27 in the form of a pin inserted through said shank and having its ends projecting on opposite sides thereof, so as to come in contact with the yoke.

In order to secure a fine adjustment, two clutches 28 may be employed, as shown in Figs. 5 and 6, instead of the single clutch hereinabove referred to. Both clutches may be mounted upon the same pivot-pin 29 and independently actuated by separate springs 30, attached to the clutch-block. Where two clutches are employed, the teeth on the slidable shank will be bisected and arranged to alternate with each other, as shown at 31. In other words, the teeth at opposite sides of the center of the slidable shank are arranged in staggered order, so that when one of the clutches is in engagement with the teeth the other clutch will be disengaged, but ready to snap into engagement with the teeth on the shank upon a further slight movement of said shank.

In view of the above it will be seen that I have provided a quick-action wrench which will automatically grip and release its hold upon an object interposed between the wrench-jaws. By swinging the clutch-cam away from the slidable shank the latter is

left free to move longitudinally and may be quickly pushed inward or outward by the operator until the desired distance between the wrench-jaws is obtained, whereupon by releasing the clutch-cam the actuating springs thereof will throw the clutch into engagement with the slidable shank and prevent the outward movement of the movable jaw. The yoke-actuating spring operates to swing the movable jaw away from the fixed jaw when pressure on the wrench handle is relieved. The inner end of the slidable shank is beveled or chamfered, as shown at 32, to enable the operator to push the slidable shank upward by pressing with his thumb against the end thereof after disengaging the clutch-cam.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wrench, a stationary shank carrying the fixed jaw, a slidable shank carrying the movable jaw, a yoke embracing both shanks and pivotally connected to the stationary shank, a clutch housed within the yoke and interposed between the two shanks, and a yoke-actuating spring attached to the stationary shank and engaging the yoke, substantially as specified.

2. In a wrench, a stationary shank carrying the fixed jaw, a slidable shank carrying the movable jaw, a yoke embracing both shanks and pivotally connected to the stationary shank, a clutch housed within the yoke and interposed between the two shanks, a clutch-actuating spring secured thereto, and a yoke-actuating spring attached to the stationary shank and engaging the yoke, substantially as specified.

3. In a wrench, a stationary shank carrying the fixed jaw, a slidable shank carrying the movable jaw, a yoke embracing both shanks and pivotally connected to the stationary shank, a clutch housed within the yoke and interposed between the two shanks, a yoke-block having a notch, a clutch-actuating spring secured thereto and a yoke-actuating spring attached to the stationary shank and having its free end inserted in the notch in the yoke-block, substantially as specified.

4. In a wrench, a stationary shank carrying the fixed jaw and offset adjacent thereto to leave a recess, a slidable shank carrying the movable jaw, a yoke pivotally connected to the stationary shank and comprising spaced loops which embrace the slidable shank, a



clutch arranged in the space between the yoke-loops and within the recess in the stationary shank, and a yoke-actuating spring connected with the stationary shank, substantially as specified.

5 5. The combination of a main shank, a yieldable yoke thereon, a spring acting against the yoke, means for limiting the movement of the yoke relative to the shank and under the re-  
10 pression of the spring, another shank slidable in the yoke, and a yieldable clutch normally engaging with the slidable shank, substan-  
tially as described.

15 6. The combination of a main shank, a slid-  
able shank, a yoke embracing said shanks, a spring seated against the main shank and the yoke, and a yieldable clutch carried by the

yoke and engaging with the slidable shank, said clutch arranged to be disengaged manu-  
ally from the slidable shank, substantially as 20  
described.

7. The combination of a main shank, a slid-  
able shank, a yoke, a clutch pivoted to the  
yoke, and a spring seated on the yoke and  
acting against the clutch to normally force 25  
the latter into engagement with the slidable  
shank, substantially as described.

In testimony that I claim the foregoing as  
my own I have hereto affixed my signature in  
the presence of two witnesses.

GEORGE SCOTT TILTON.

Witnesses:

FRED H. BRIGGS,

CHAS. E. SPENCER.