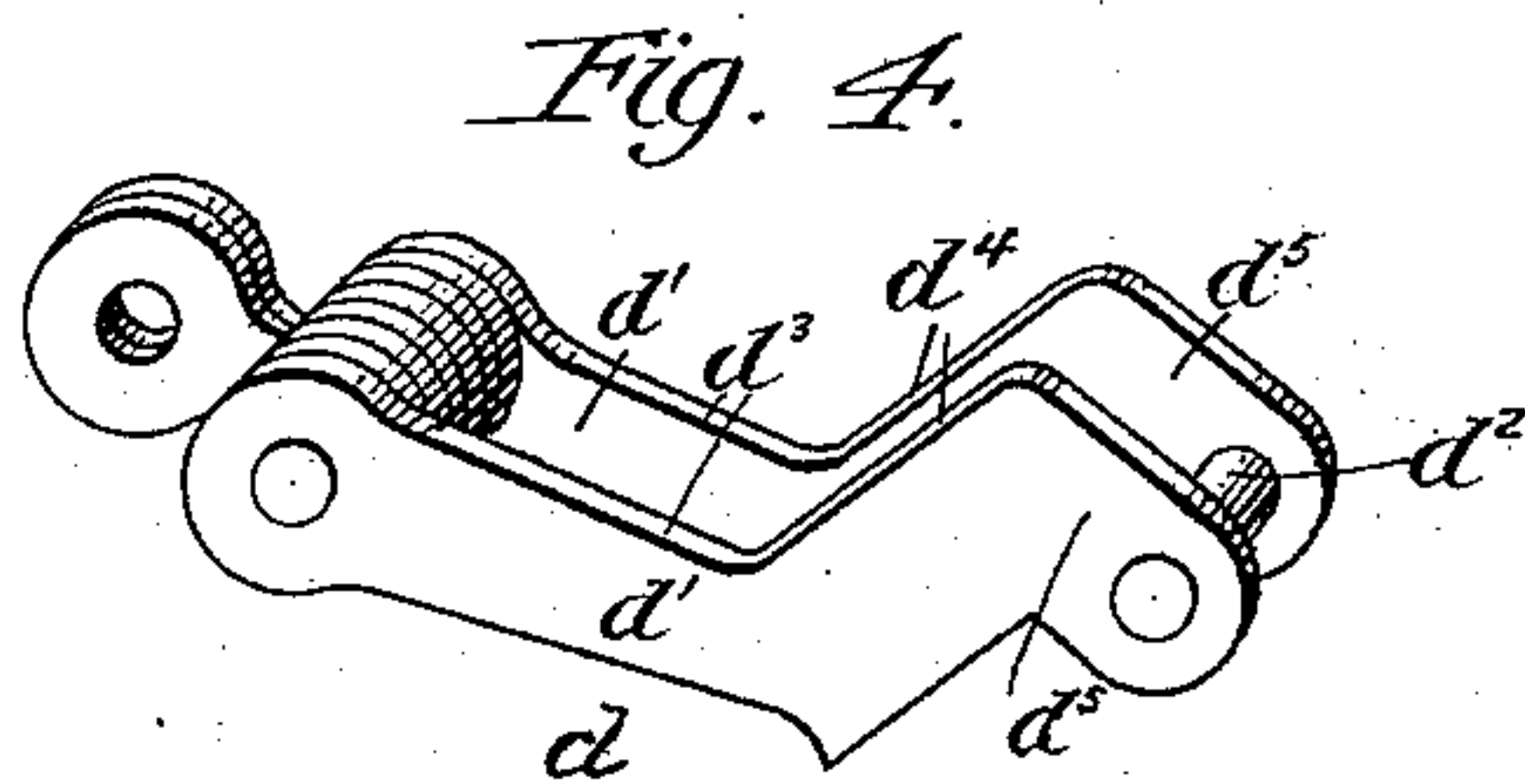
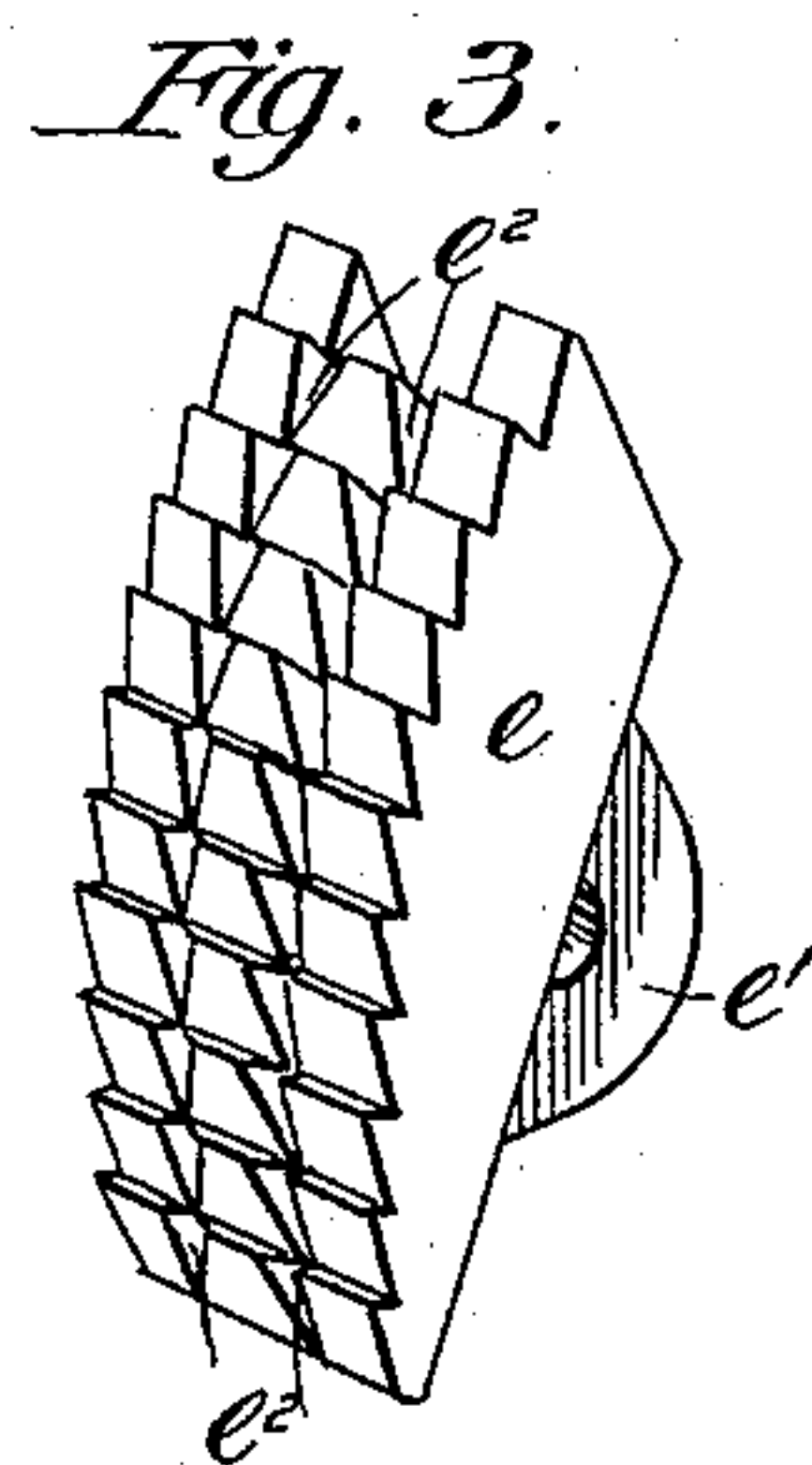
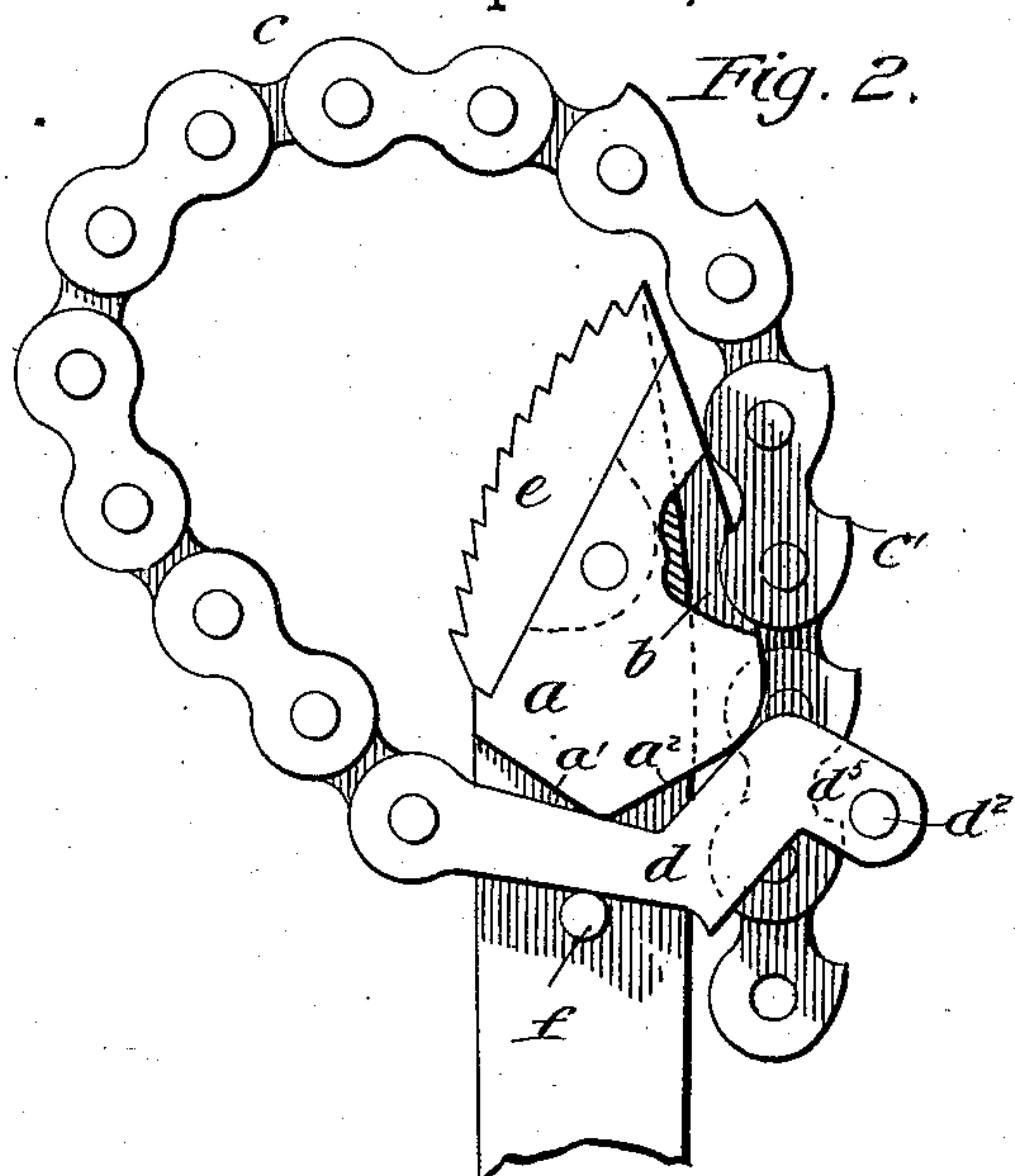
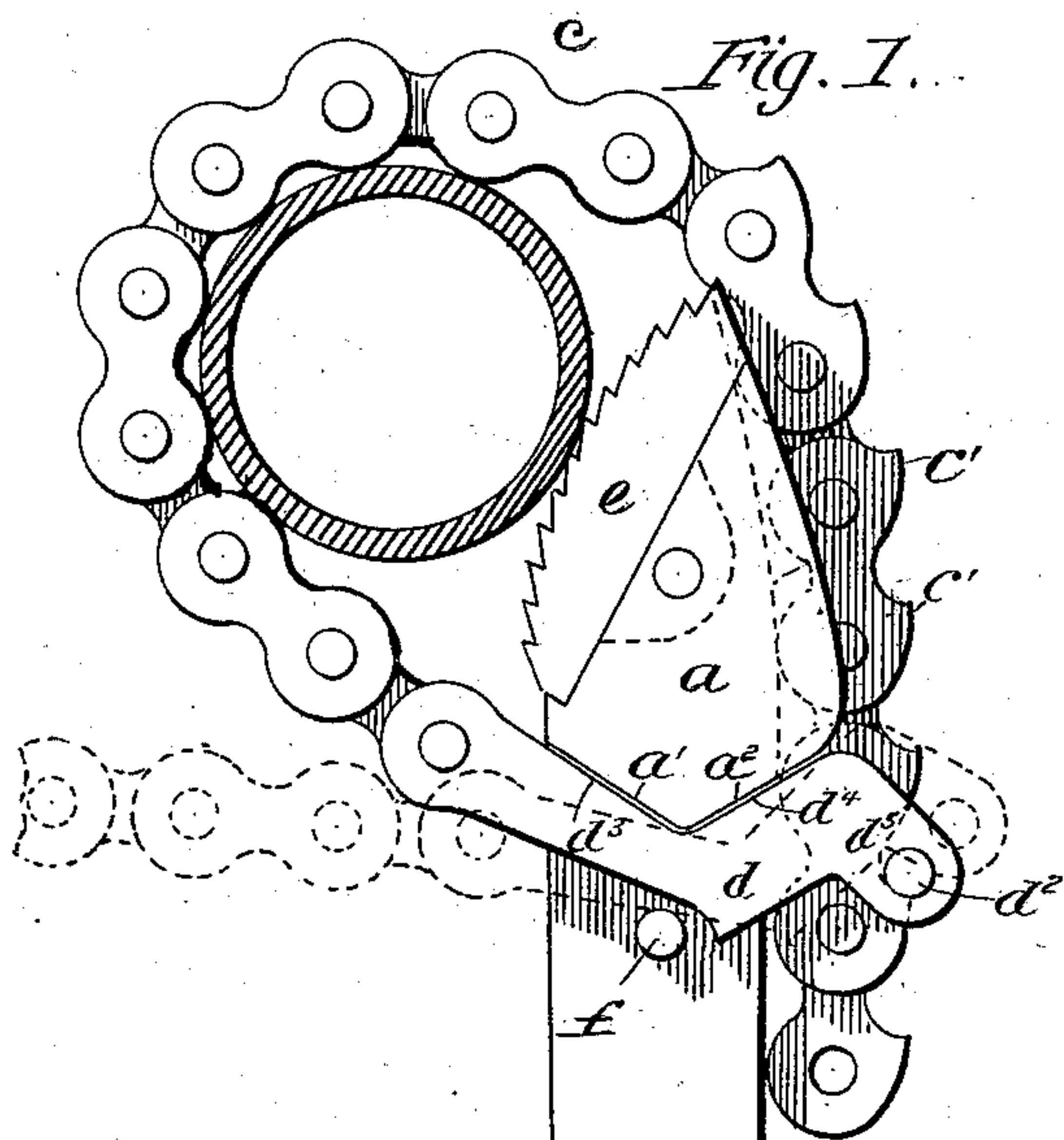


(No Model.)

W. H. BROCK.
WRENCH.

No. 389,685.

Patented Sept. 18, 1888.



WITNESSES:

J. H. Clark.
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INVENTOR:

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UNITED STATES PATENT OFFICE.

WILLIAM H. BROCK, OF BROOKLYN, NEW YORK.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 389,685, dated September 18, 1888.

Application filed December 12, 1887. Serial No. 257,619. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BROCK, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Wrench, of which the following is a full, clear, and exact description.

The present invention relates more particularly to that class of wrenches in which a chain is employed in connection with a serrated shoe to grip the pipe or other article, and in which a dog or lever usually operates to engage the chain to cause it to retain its grip.

One object of the present improvements is to so improve the construction of the serrated shoe as to better enable it to grip the pipe, and also with a view of preventing the grooves between the teeth from filling up with dirt, &c.

Another object of the improvements is to so construct the dog or clutch that it may be quickly thrown up or raised to allow of the insertion and withdrawal of the chain. Other objects of the improvement are to provide for the distribution of the strain in operating the wrench and to obtain a maximum of strength in the clutch. These objects I accomplish in the construction of wrench hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of a chain-wrench embodying my improvements, showing in full lines the chain and clutch in operative position and in dotted lines showing the clutch raised and the chain released. Fig. 2 is a similar view, partly broken away, showing the clutch thrown up and the chain in a position either to be withdrawn or clutched. Fig. 3 is a perspective view of my improved form of shoe, and Fig. 4 is a similar view of the clutch.

In the head a of the wrench is formed, in the upper surface, a slot or passage, b , for the chain c . The chain c in the present instance is preferably of the spurred form shown and described in my Patent No. 366,451, dated July 12, 1887, and is suitably secured at one end to the lower end of the clutch or dog d . The clutch d is formed of the two side pieces, d' d' , which are united by a cross-bar, d^2 , at the upper end, or end opposite that to which the chain is secured.

Each side member d' of the clutch d forms double bearing-surfaces d^3 d^4 , inclined in a forward direction, which bind against the corresponding inclines, a' a^2 , of the wrench-head a and with offset upper ends, d^5 , the latter being connected by the cross-bar d^2 , that clutches the spurs c' of the chain c when a bite is taken on the pipe to be turned or wrenched.

It will be observed that clutch d is not pivotally secured to the wrench. A pin, f , projecting from each side of the wrench in the rear of the clutch, holds the latter from displacement. This stud or pin f receives no strain in wrenching or turning the pipe, as the bearing-surfaces d^3 d^4 bear only against the inclined back surfaces of the wrench-head, as shown in Fig. 1.

In raising or throwing up of the clutch d , either for the entrance thereunder of the spurred chain or to allow of the withdrawal of said chain, the inclined bearing-surfaces d^3 d^4 of the clutch have a cam action in connection with the inclines a' a^2 of the wrench-head, by which it will be seen the clutch may be raised with the utmost dispatch and convenience, as the effect is the same whether the lower end of the clutch be forced back or the upper end forced forward. The raising of the clutch for the entrance of the chain may be accomplished either by catching hold of and moving the chain or by pressure of the fingers on the clutch. The pipe having been turned, to release the chain it is only necessary to turn back the wrench with a quick jerky motion, which causes the chain to throw back the lower end of the clutch, the back edge of which strikes the pin f , and the inclined edge d^4 works against the incline a^2 of the wrench-head, which raises the clutch instantly, the free end of the chain at the same time leaving the clutch with a sudden movement. This cam action of the clutch, it will therefore be seen, in connection with the wrench-head, greatly promotes dispatch in the operation of the wrench.

By retaining the clutch by means of a pin or stop in its rear, instead of pivoting it, greater strength is obtained, while the manufacture of the clutch is cheapened by obviating the necessity for pivot holes or slots.

The shoe e of the wrench is formed with a

rearwardly-extending lug, e' , by which it is secured in the wrench-head, and is provided on its face with transverse teeth e^2 , neither of which features do I claim; but in order to afford more opportunity for dirt, &c., to escape from between the teeth, and, further, with the object of better affording the shoe a grip on the pipe and of lessening the tendency of the shoe to slip, I form the shoe with two or more grooves, e^2 , extending from top to bottom of said shoe, through and across the teeth, and preferably triangular in cross-section.

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

1. In a chain-wrench, the clutch or dog formed with a bearing edge disposed in a forward direction with respect to the front end of the wrench-head, in combination with the wrench-head formed with a bearing-surface corresponding to that of the clutch, substantially as shown and described.

2. In a chain-wrench, the dog or clutch held

behind the wrench-head by a stop in its rear, in combination with the chain, substantially as shown and described.

3. The clutch d , consisting of side members, d' , and cross-bar d^2 , the sides being formed with the double-inclined bearing-edges d^3 d^4 , in combination with the spurred chain and the wrench-head formed with inclines a' a^2 , substantially as shown and described.

4. The chain and the clutch having inclined bearing-edges, in combination with the wrench, the head of which is formed with inclines to correspond with those of the clutch, and a pin at the rear of said clutch, substantially as shown and described.

5. In a wrench, the shoe formed with a toothed face, and with longitudinal groove extending from the top to the bottom of said face through the teeth thereon, substantially as herein shown and described.

WILLIAM H. BROCK.

Witnesses:

J. L. McAULIFFE,

J. E. KITSON.