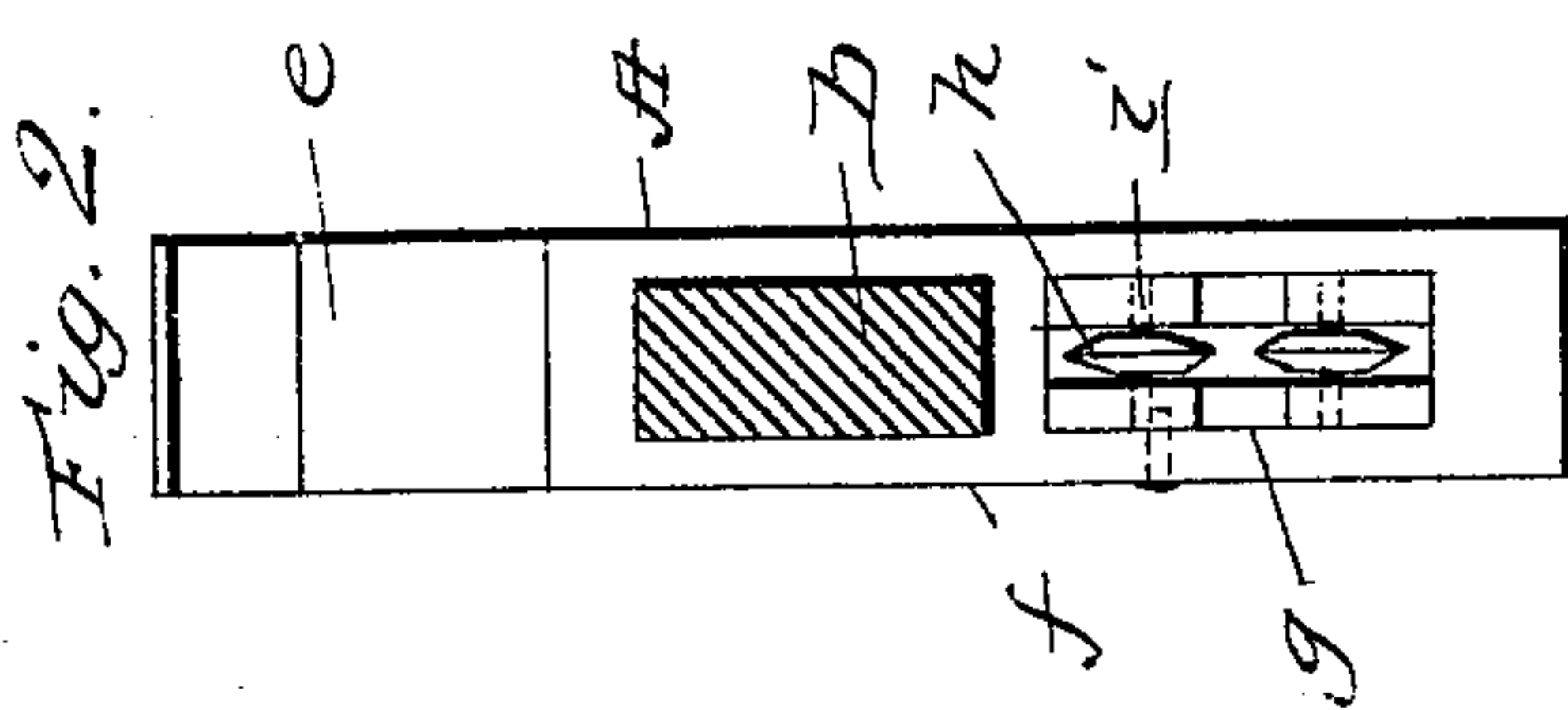
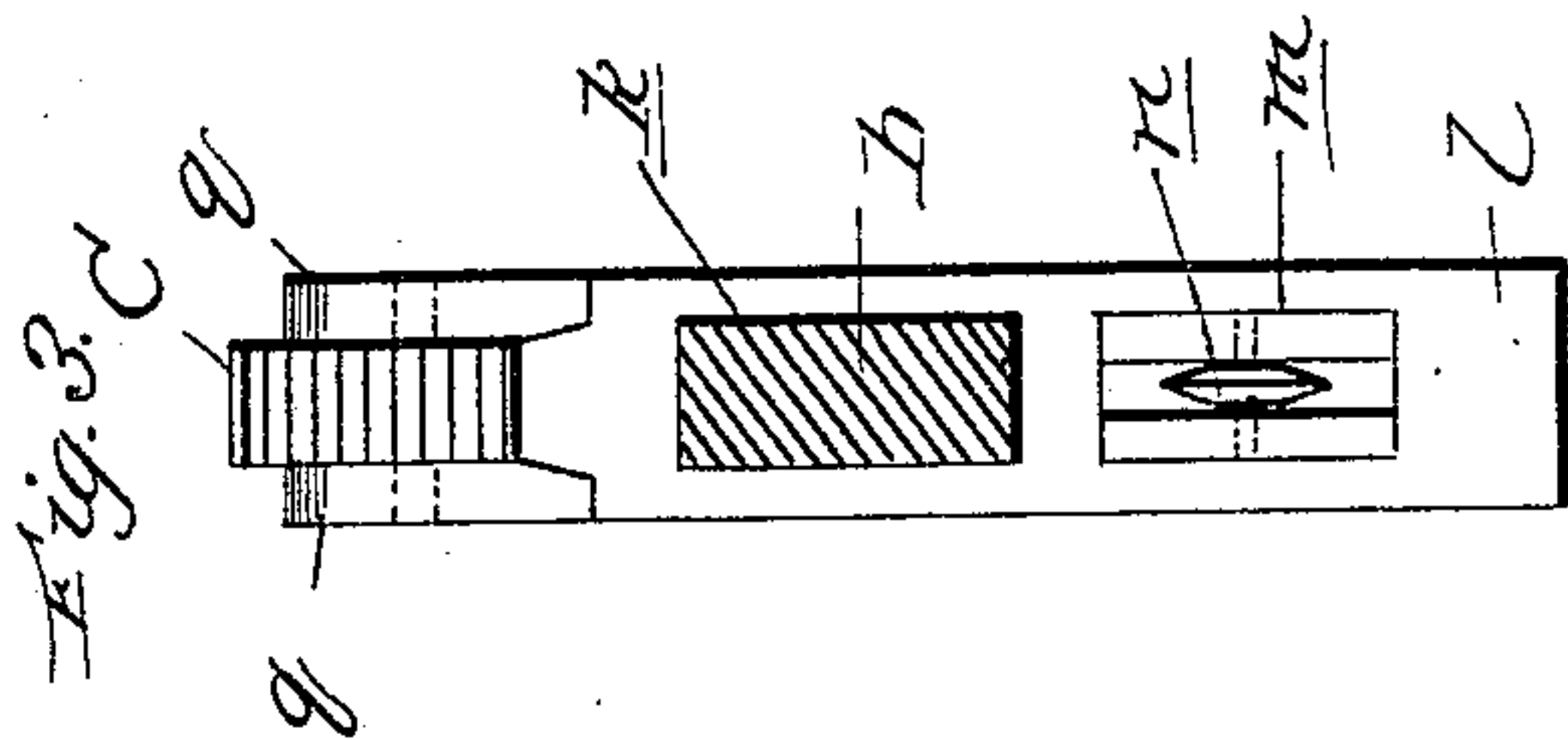
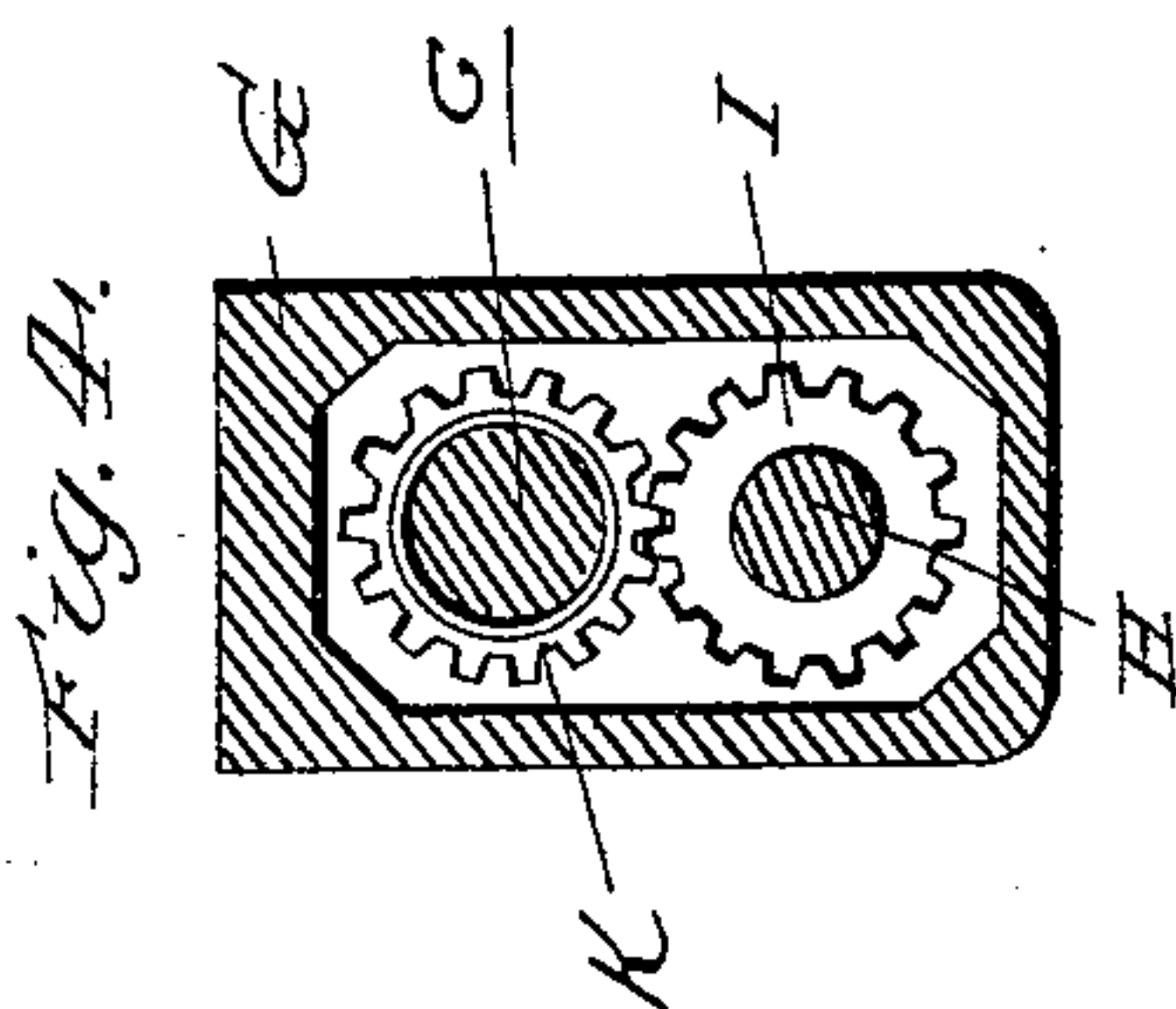
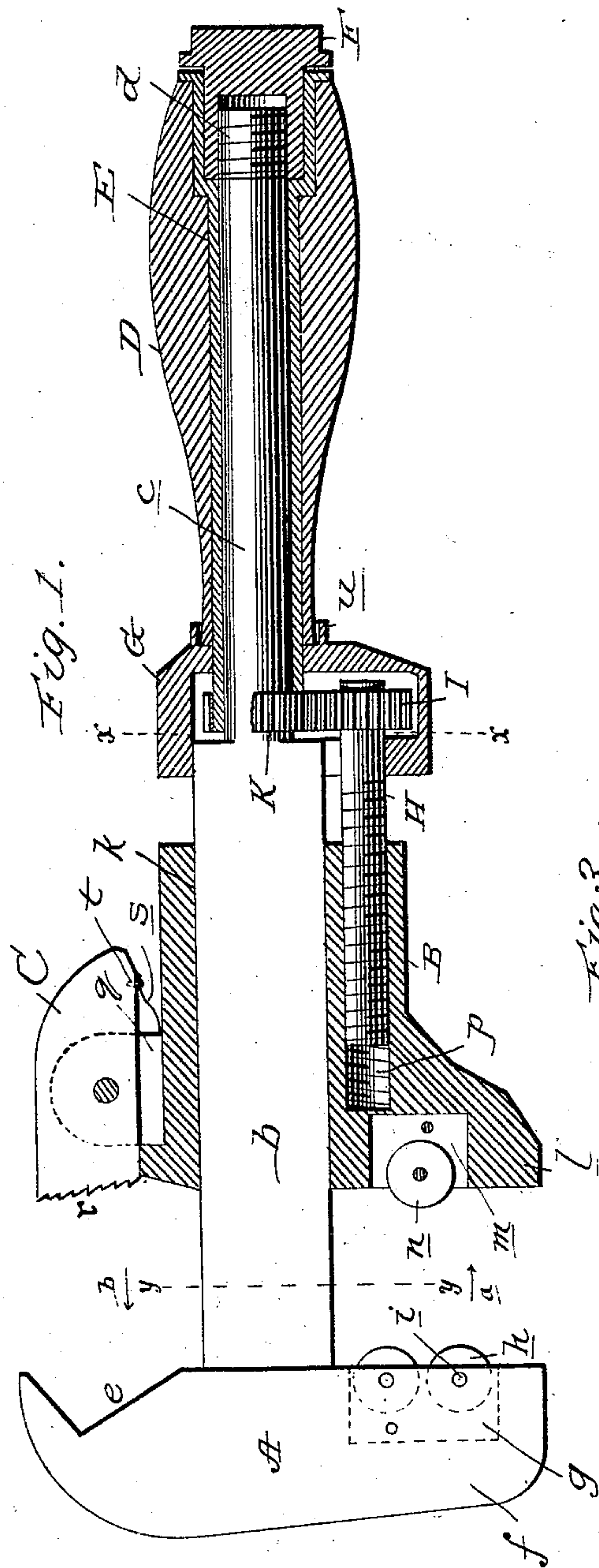


(No Model.)

N. E. SMITH.
COMBINED PIPE WRENCH AND CUTTER.

No. 514,166.

Patented Feb. 6, 1894.



Witnesses:
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UNITED STATES PATENT OFFICE.

NATHANIEL E. SMITH, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF ONE-HALF TO WILLIAM T. BOTHWELL, OF SAME PLACE.

COMBINED PIPE WRENCH AND CUTTER.

SPECIFICATION forming part of Letters Patent No. 514,166, dated February 6, 1894.

Application filed June 23, 1893. Serial No. 478,605. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL E. SMITH, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in a Combined Pipe Wrench and Cutter; 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.

This invention relates to a combined pipe wrench and cutter, and a convertible nut wrench, and the novelty will be fully understood from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1, is a longitudinal sectional view of my improved wrench and cutter, illustrating the fixed head or jaws and shank in elevation. Fig. 2, is a transverse sectional view taken at the point indicated by the dotted lines *y, y*, looking in the direction of the arrow *b*. Fig. 3, is a similar view looking in the direction of the arrow *a*, and Fig. 4, is a cross sectional view taken in the plane indicated by the dotted line *x, x*, on Fig. 1.

Referring by letter to said drawings: A, indicates the stationary head, and B, the adjustable or movable head of my improved wrench and cutter. The stationary head A, is provided with a stem or angular shank *b*, and terminates in a cylindrical stem *c*, which is provided at its free end with external screw threads *d*. This head *d*, is provided at one end with an angular jaw *e*, which is designed to receive a pipe or similar object, and this head is provided at its opposite end with a jaw *f*, extending on the opposite side of the shank *b*, and is recessed as shown at *g*, to receive cutters *h*, which are journaled in the side walls of said recessed portions by short shafts or studs *i*, and are so arranged as to project from the jaw, as better shown in Fig. 1, of the drawings. The adjustable head B, is slidable upon the angular shank *b*, and has a longitudinal angular aperture *k*, to receive said shank. This movable head is furthermore provided on one side of the angular aperture *k*, with a jaw *l*, which is recessed as

shown at *m*, and in this recess is journaled a cutter *n*, which is preferably arranged in a plane between the adjacent edges of the cutters *h*, in the fixed jaw *f*, and these cutters together are designed for cutting a gas or other pipe or rod.

In rear of the recess *m*, of the head B, is provided a longitudinally disposed screw tapped aperture *p*, for a purpose which will be presently explained, and on the opposite side of the aperture *k*, are two studs or lugs *q*, so arranged as to form a bifurcation and between these two studs or lugs is pivoted a jaw C. This jaw C, is provided at its forward end with a beveled and toothed face *r*, which is designed to co-operate with the angular jaw *e*, in gripping a pipe. This pivoted jaw C, is backed by a flat spring *s*, which is secured to the rear under side of said jaw at one end as shown at *t*, and bears at its opposite end against the outer side of the slidable head B, whereby said pivoted jaw is normally held in the position illustrated in Fig. 1, so that it will always be held to readily adjust itself during operation and keep in contact with the pipe operated upon.

D, indicates a handle which is preferably of wood although it may be of other suitable material, and within this handle is fixed a hollow shaft or tube E, which receives the cylindrical stem or shank *c*, and is held thereon by means of a screw cap F, which engages the threaded portion *d*, of said stem.

G, indicates a socket or hollow head. This socket is arranged partly upon the inner end of the cylindrical shank *c*, and partly upon the inner end of the angular shank *b*, as shown, and this socket is provided with a fixed collar *u*, to receive the inner end of the wooden handle D.

H, indicates a longitudinally disposed threaded rod. This rod is arranged in the screw tapped aperture *p*, of the slidable head B, and its opposite end passes into the socket G, and has fixed to it a toothed wheel or pinion I, which engages a toothed wheel or pinion K, also within the socket, and fixed to the inner end of the tubular shaft E. By this construction it will be seen that by simply turning the handle D, and consequently the

tubular shaft E, in one direction, the slidable head will through the medium of the pinions or toothed wheels I, and K, and the threaded rod H, be moved forwardly upon the angular shank b, and by turning the handle in the opposite direction, the movement of the slidable head will be reversed.

When it is desired to use the device as a pipe cutter, it is simply necessary to place the cutters into the recesses of the respective jaws as shown in Fig. 1, of the drawings, while by removing these cutters, the two recessed jaws may be used as a nut wrench, and for such purposes as monkey wrenches are usually employed. It will be observed that the two jaws on the opposite side of the shank, are to be used for gripping and operating upon a pipe or rod and they are always held in position for effective work, being readily and easily adjusted.

While I have described specifically and in detail, the construction of each part of my device, yet I am aware that some of the parts will permit of modifications, and I therefore do not wish to limit myself to the exact construction of the parts shown, but reserve the right to make such changes and modifications as may fairly fall within the scope of my invention.

Having described my invention, what I claim is—

1. A combined pipe wrench and cutter comprising a fixed head having a straight and an angular jaw respectively and also an angular shank terminating in a cylindrical portion with a screw tapped end, a slidable head having a recessed jaw carrying a cutter, a screw tapped aperture, and a forked portion carrying a pivoted and serrated jaw, a socket on the inner end of the cylindrical portion of the shank, a revoluble handle also arranged on the cylindrical portion of the shank, a nut for holding said handle thereto, a gear or toothed wheel arranged on the inner end of said handle, and within the socket, a screw threaded rod, having one end arranged in the screw tapped aperture of the slidable head, and a gear or toothed wheel fixed to the opposite end of said rod and within the socket, to engage

the toothed wheel on the revoluble handle, all adapted to operate substantially as and for the purpose specified.

2. The combination with the fixed head having the angular jaw and straight jaw respectively, and the latter having a recess; of the cutters arranged in said recess, the slidable head arranged upon the angular shank of the fixed jaw, and having one jaw provided with a recess to receive a cutter, the beveled and serrated jaw pivoted to said head on the opposite side of the shank, the revoluble handle having a toothed wheel or pinion at its inner end, the screw threaded rod engaging the screw tapped aperture of the slidable head, and the gear or pinion fixed on one end of said rod and in engagement with the gear or pinion of the revoluble handle, substantially as specified.

3. The improved wrench and cutter comprising the following instrumentalities in combination, the head A, having the straight and angular jaw, respectively, and the angular shank b, and integral cylindrical shank c, having its outer end threaded, the cutters arranged in the straight jaw, the slidable head arranged upon the angular shank, and having the jaw l, at one side provided with the recess, and the cutter arranged therein, and the lugs g, on the opposite side, and a serrated and spring backed pivoted pawl supported in said lugs, and also having the screw tapped aperture p, the revoluble handle arranged upon the cylindrical shank, the nut F, for securing the same, the socket G, the pinion or toothed wheel K, within the socket and on the inner end of said handle, the threaded rod H, arranged within the screw tapped aperture of the slidable head, and the pinion or toothed wheel secured to one end of said rod within the socket, and in engagement with the pinion on the handle, substantially as specified.

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

NATHANIEL E. SMITH.

Witnesses:

GEO. C. THOMIAZ,
DAVID H. SMITH.