

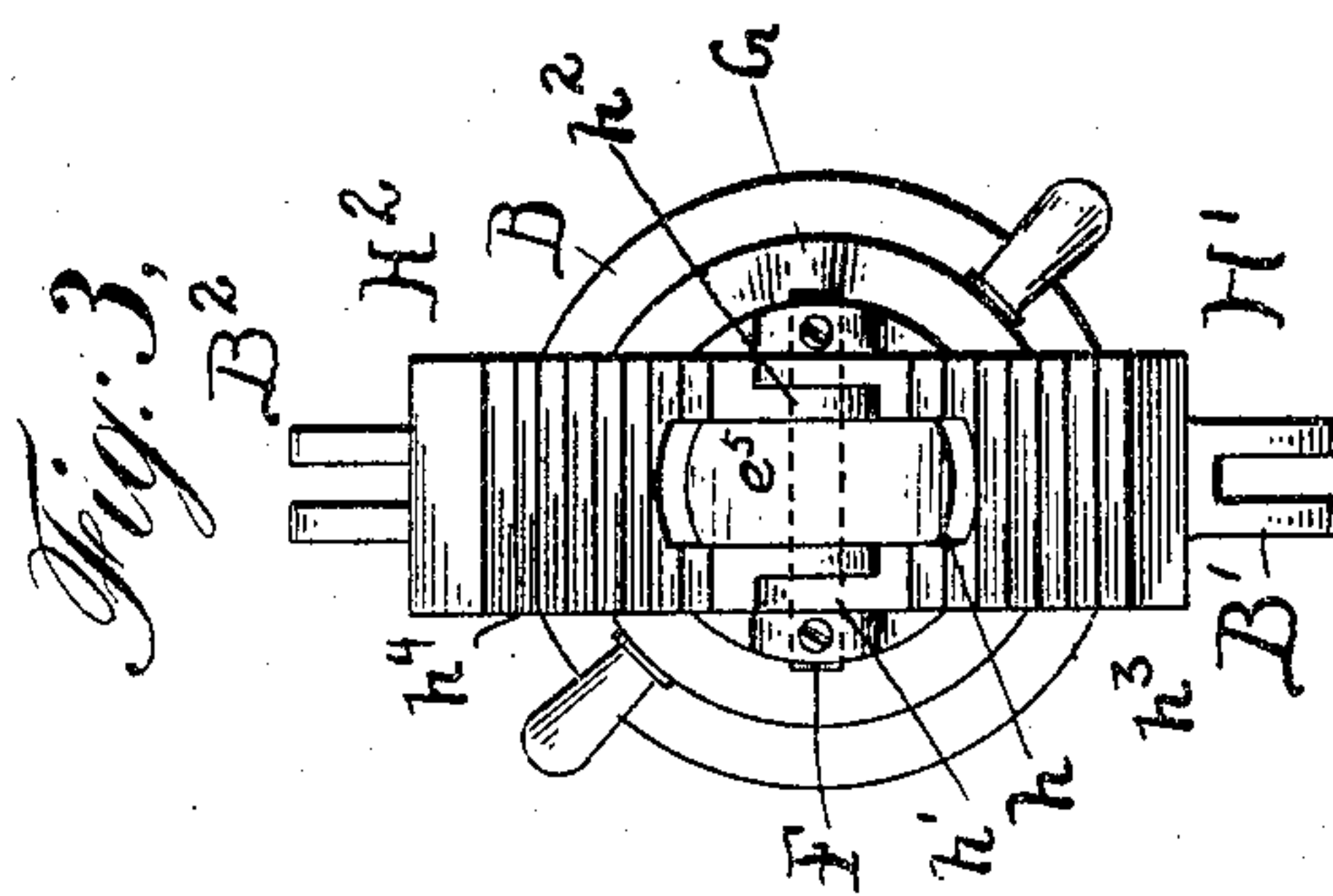
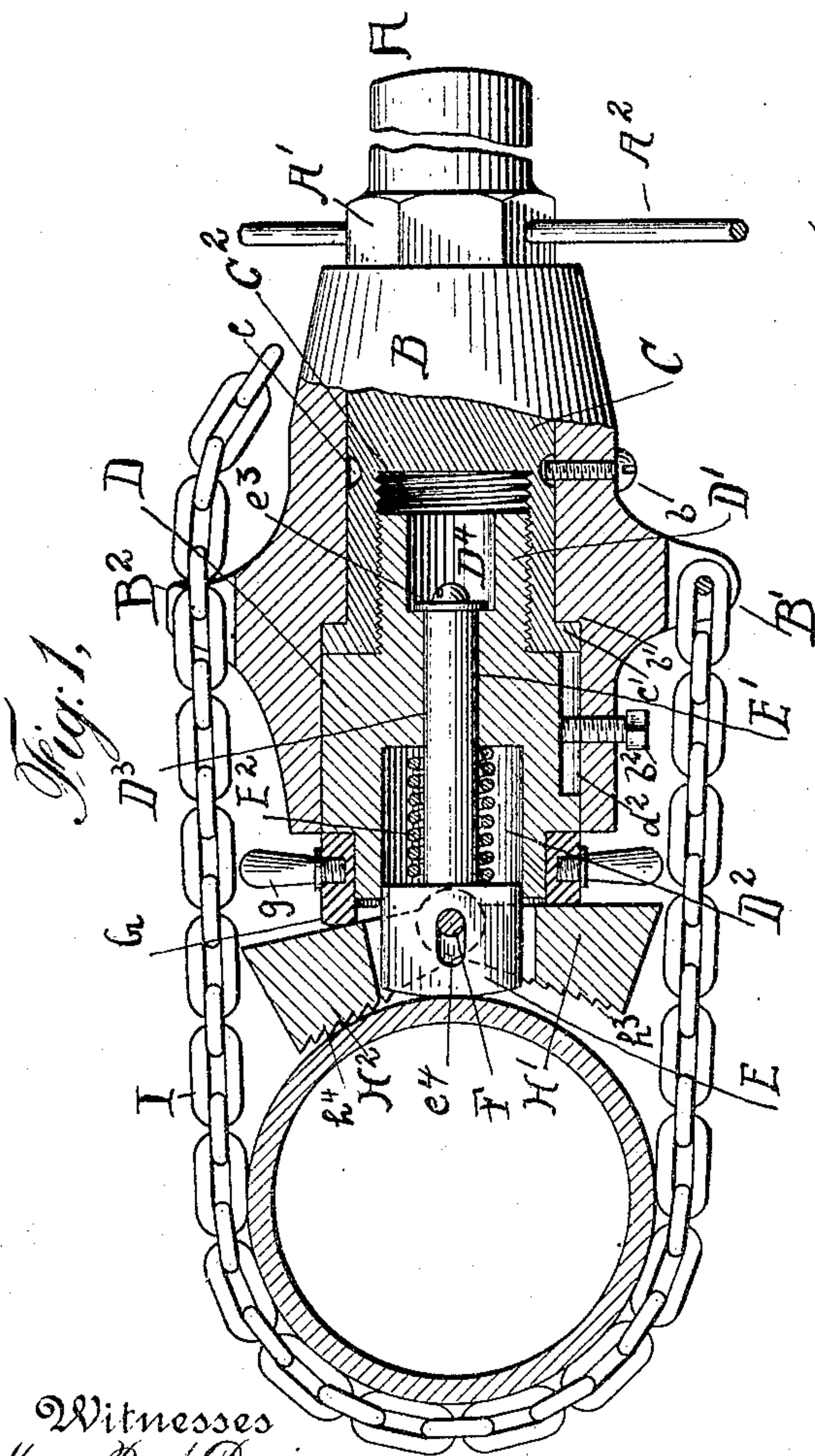
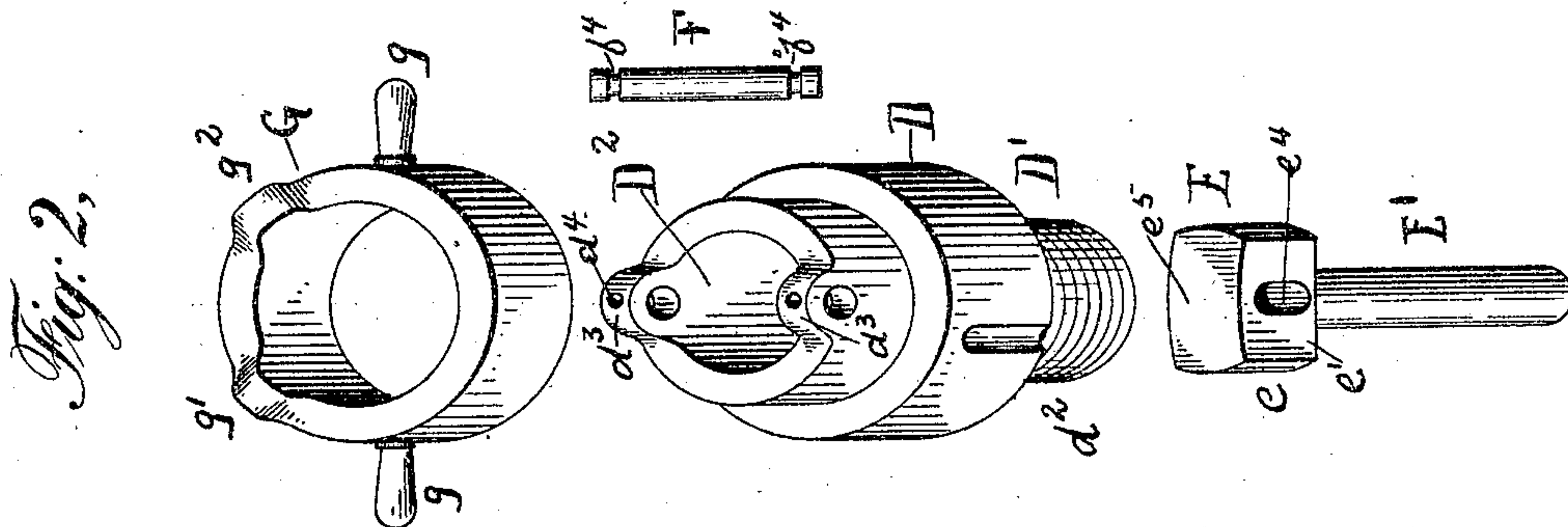
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G. E. R. ROTHENBUCHER.
DOUBLE ACTING PIPE WRENCH AND CUTTER.

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NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

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DOUBLE-ACTING PIPE WRENCH AND CUTTER.

SPECIFICATION forming part of Letters Patent No. 775,581, dated November 22, 1904.

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To all whom it may concern:

Be it known that I, GEORGE E. R. ROTHENBUCHER, a citizen of the United States, and a resident of New York, in the borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Double-Acting Pipe Wrenches and Cutters, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of my invention; Fig. 2, a perspective view of the several coöperating elements thereof separated to more clearly show them; Fig. 3, a plan view of the pipe-wrench jaws; Fig. 4, a plan of one of the cutter-jaws.

My invention relates to tools for cutting and unscrewing pipe, and more particularly to pipe wrenches and cutters which are capable by slight adjustment of being operated in two directions; and the object of my invention is to provide such a tool with means whereby it may be more quickly adjusted, to provide for a reversal of the parts whereby the wrench-jaws or cutter-jaws may be easily interchanged, give it means whereby the chain surrounding the pipe may be always kept taut, and to accomplish certain minor improvements, as will be more fully hereinafter stated.

My invention consists in certain arrangements of parts and details of construction more definitely set forth in the claims.

Referring to the drawings, wherein like letters indicate like parts, A indicates a handle of my combined pipe wrench and cutter, which is of the kind usually made in tools of this class. The base of the handle A is provided with a many-sided head A', adapted for the application of a wrench or for a projecting cross-bar A². Forward of the head A' is a socket B, generally cylindrical in section and forming an inclosing sleeve for the internal parts of the device, which socket is loose upon the prolonged sleeve C of the handle.

The handle A is prolonged within the socket B to form an inner sleeve C, which at its end is provided with a ring flange c', which engages with the circular shoulder b' on the interior of the socket B, the shoulder being lo-

cated about midway of the length of the socket. This gives a firm bearing for the socket B on the sleeve C. A turning movement of the handle A and the inner sleeve C does not affect the socket; but they both move together longitudinally through the engagement of the set-screw b and groove c on the outside of the inner sleeve, as is clearly shown in Fig. 1.

The sleeve C is solid at its rear end, where it forms the continuation of the handle A; but its front portion has a deep circular recess C² therein, which is internally screw-threaded, as shown in Fig. 1, to engage with the screw-threads of spindle D' on the tool-head D. To show clearly the form of this recess, I have represented the spindle as not filling it entirely, though preferably it does so.

The tool-head D is cylindrical in form and fits snugly within the tubular socket B in the space forward of the inner sleeve. It has no rotative movement, however, in the socket, rotation being prevented by a set-screw or pin b², which projects inward from the wall of the socket B and engages with a longitudinal slot d² in the tool-head. It will thus be seen that a rotative movement of the handle A and inner sleeve C, acting on the screw-threads of the tool-head spindle, feeds the tool-head outward. The forward end of the tool-head is circularly chambered, as at D², for the reception of a plunger E, its spindle E', and the coiled spring E². The ends of this plunger are rounded at e to fit the interior of the chamber D²; but its sides e' are flat. The spindle E' fits in a central passage D³ in tool-head D, and the end of the spindle enters a rearward chamber D⁴ in the tool-head. This rearward chamber D⁴ is of a depth sufficient to allow the plunger to be forced back into the tool-head. The spring E² at all times tends to force the plunger outward against the work. The rear end of the spindle E' is provided with a screw and washer e³ for preventing the plunger from being pushed entirely out of the head when the shaft F is removed.

F is a transverse shaft or pintle which passes across the mouth D² of the tool-head and has rotative bearing in two ears d³ on the edge of the said head, it being held from transverse

movement therein by set-screws d^4 , which engage with circular grooves b^4 on the pintle. This pintle F, when the parts are assembled, passes through a transverse slot e^4 in the plunger E.

G is a collar provided with projecting handles g , which collar fits and moves in a circular recess on the tool-head D. The rim of the collar has on it two elevations g' g^2 , placed at an angle of ninety degrees to each other, these elevations being for the purpose of forcing one or the other of the tool-jaws into operative position when the collar is turned.

H' H² in Figs. 1 and 3 indicate the two jaws of a pipe-wrench, which are provided with pierced ears h' h^2 , fitting on each other, as shown in Fig. 3, and through which ears passes the pintle F. The jaws are cut out, as at h , for the passage of the plunger E through the center thereof. h^3 h^4 indicate reversely-cut teeth on the faces of the jaws. It will be seen that the under side of the jaws are acted upon by the upper rim of collar G and that the rotation of the collar so that one of its elevations comes beneath a jaw forces that jaw outward into operative position—the position occupied by jaw H² in Fig. 1.

I indicates a chain connected at one end to a lug B' on socket B. This chain when the tool is being used is passed about the pipe to be turned or cut and then caught over suitable hooked lugs B² on the socket B.

In Fig. 4 I have shown a jaw H, provided with a pipe-cutting wheel J, such as is commonly used in this class of devices.

The operation of my improved wrench or cutter will be obvious. The chain I is passed about the pipe, as shown, and tightened until the tool is in position for work. The collar G is then turned to raise one or the other of the jaws. By rotating the handle A the tool-head D, carrying the jaws and collar, is forced outward, pressing the jaw against the pipe and tightening the chain and feeding the tool. The teeth or cutter on the jaws bite into the pipe, and a reciprocation of the handle will either turn the pipe or cut it.

The function of the plunger is as follows: On the reverse movement of the tool (supposing the wrench-jaws be used) the teeth of the jaws glide over the pipe, this giving a slight slack to the chain. This slack is, however, immediately taken up by the plunger E, whose rounded end e^5 glides easily over the pipe-surface. This take-up of the chain is peculiarly of advantage when the tool is being used on a vertical pipe, as it prevents the slipping of the tool out of position. Again, it may be advisable on the reverse motion of the tool that the jaw be dropped out of contact with the pipe. By turning collar G a quarter-turn this is done; but were there no plunger the chain would slacken too much and the tool, as stated, be liable to get out of position.

In order to unscrew old and rusted pipe it

is necessary to turn it first in one direction and then in the other. This in the ordinary style of pipe would necessitate that the chain be taken off and the whole tool reversed. This is accomplished in my invention by merely turning the collar a quarter-turn, which releases one jaw and forces the reverse jaw into position, the plunger keeping the chain always taut. This is a particularly good feature when the tool is being used on pipe fixed in position close to a floor or walls, in which case it is extremely difficult to readjust the tool. Another difficulty experienced in this class of devices is that the cutters get out of the cut when the chain is slackened for removal or other reasons. This cannot occur in my device. The substitution of one form of tool for another is accomplished by unscrewing set-screw d^4 and removing the shaft, putting the proper jaws in place and then replacing the shaft.

It will be understood that I do not wish to be limited to the details of construction shown nor to the forms of tool-jaws indicated. The jaws might be formed as thread-cutters, if desired. Also it will be evident that the chain form of pipe-holder is not a necessity, though I believe it to be preferable, as any other means for holding the tool in position on the work may be used instead.

Having described my invention, what I claim is—

1. A wrench or cutter having reversely-acting jaws pivoted thereto, means for holding the wrench or cutter in position on the work, an outwardly-pressed plunger whose face bears against the work, and means for moving one of said jaws into or out of an operative contact with the work, substantially as described.

2. In a wrench or cutter, a tool provided with teeth for acting on the pipe and having a central plunger-opening, a holder for holding the wrench or cutter in position on the work, an outwardly-pressed plunger moving through the central opening of the tool, the end of said plunger being adapted to glide over the surface of the pipe, and a spring engaging with the plunger to press it outwardly against the work, substantially as described.

3. In a wrench or cutter, a tool having reversely-acting faces carried thereby, means for holding the tool in position on the work, an outwardly-pressed plunger whose face bears against the work, and a screw for feeding the tool against the work, substantially as described.

4. A wrench or cutter having two independent reversely-acting tool-jaws pivoted each to the main body of said wrench or cutter, and means for forcing one or the other of said independent jaws into contact with the work while the other jaw remains out of contact therewith, substantially as described.

5. A wrench or cutter having two reversely-

acting tool-jaws pivoted with relation to each other, and means for forcing one of said jaws into contact with the work while the other jaw remains out of contact therewith, substantially as described.

6. A wrench or cutter having a main body, two reversely-acting tool-jaws and having reversely-toothed faces adapted to bear against the work, pivoted to the main body, a rotatable collar on the main body underneath the jaws, and means connected to the main body for holding the wrench or cutter to the work, the rim of said collar having raised portions thereon for forcing the jaws into contact with the work, substantially as described.

7. In a pipe wrench or cutter having means for holding it in position on the work; a head, a double-jawed tool carried by said head, a rotatable handle, a screw-threaded connection between the handle and the head, and an outwardly-pressed plunger moving through an opening in said tool and adapted to be forced against the work, substantially as described.

8. In a pipe wrench or cutter having means for holding it in position on the work; a tool-carrying head, a rotatable handle, a screw-threaded connection between the handle and the head, tool-jaws pivoted to the tool-carrying head, and an outwardly-pressed plunger moving between said jaws, and a spring for forcing said plunger outwardly against the work, substantially as described.

9. In a pipe wrench or cutter having means for holding it in position on the work; a tool-carrying head, reversely-toothed jaws pivoted to said head, a rotatable handle, a screw-threaded connection between the head and handle, a socket loose on the said handle and surrounding the head, a tool carried by said head, and an outwardly-pressed plunger on said head, adapted to be forced against the work, substantially as described.

10. In a pipe wrench or cutter having means for holding it in position on the work; a tool-carrying head, a rotatable handle, a screw-threaded connection between the head and handle, a socket loose on the said handle and surrounding the head, tool-jaws pivoted to the tool-carrying head, and an outwardly-pressed plunger moving between said jaws, and a spring for forcing said plunger outwardly against the work, substantially as described.

11. In a pipe wrench or cutter, a rotatable handle having a prolongation thereof interiorly screw-threaded, a tool-carrying head having a spindle screw-threaded to engage with the threads on the handle, and a recess in its outer end, a socket surrounding and rotatable on the handle prolongation but not rotatable

on the carrying-head, means connected to the socket for holding the wrench or cutter to the work, a plunger in the tool-carrying head adapted to be forced against the work, a spring for forcing out said plunger, and a tool carried by said head, substantially as described.

12. In a pipe wrench or cutter, a rotatable handle having a prolongation thereof interiorly screw-threaded, a tool-carrying head having a spindle screw-threaded to engage with the threads on the handle, a socket surrounding and rotatable on the handle prolongation but not rotatable on the carrying-head, means connected to the socket for holding the wrench or cutter to the work, reversely-cutting tool-jaws pivoted to the tool-carrying head and a collar surrounding and rotatable on the tool-carrying head beneath said pivoted tool-jaws, said collar having one or more raised portions on the rim thereof, substantially as described.

13. In a pipe wrench or cutter, a rotatable handle having a prolongation thereof interiorly screw-threaded, a tool-carrying head having a spindle screw-threaded to engage with the threads on the handle, and a recess on its outer end, a socket surrounding and rotatable on the handle prolongation but not rotatable on the carrying-head, means connected to the socket for holding the wrench or cutter to the work, reversely-acting tool-jaws pivoted to the tool-carrying head, a collar surrounding and rotatable on the tool-carrying head beneath said pivoted tool-jaw, said collar having one or more raised portions on the rim thereof, and a plunger in the recess of the tool-carrying head moving between said jaws, and the spring for forcing out said plunger against the work, substantially as described.

14. A pipe wrench or cutter, a rotatable handle having a prolongation thereof interiorly screw-threaded, a tool-carrying head having a spindle screw-threaded to engage with the threads on the handle and a recess on its outer end, a pintle in the head spanning said recess, a socket surrounding and rotatable on the handle prolongation but not rotatable on the carrying-head, means connected to the socket for holding the wrench or cutter to the work, a plunger in the recess of the tool-carrying head, a spring for moving the said plunger outward, reversely-acting tool-jaws pivoted on the said pintle, and a rotatable collar on the tool-carrying head beneath said pivoted jaws, the said collar having raised portions on its rim, substantially as described.

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