

No. 800,850.

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PIPE WRENCH.

APPLICATION FILED MAY 23, 1905.

FIG. 1.

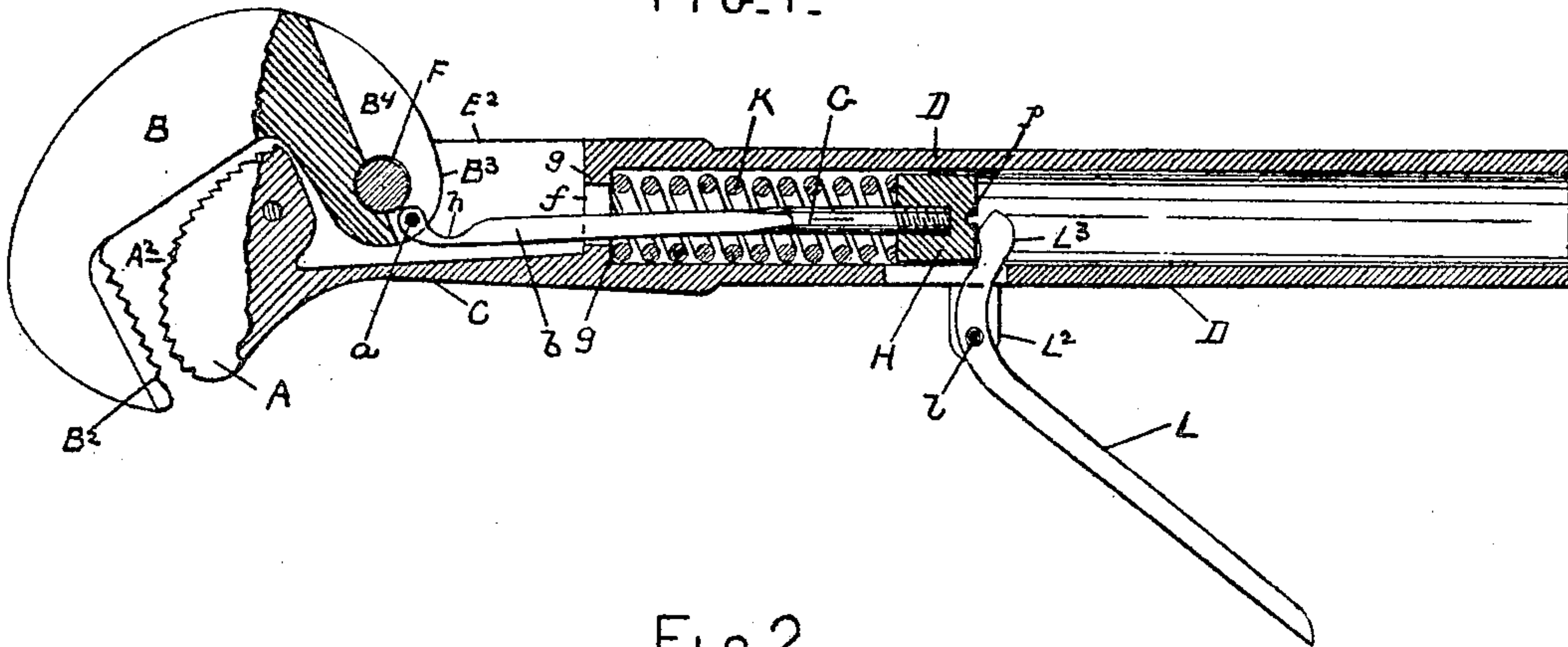


FIG. 2.

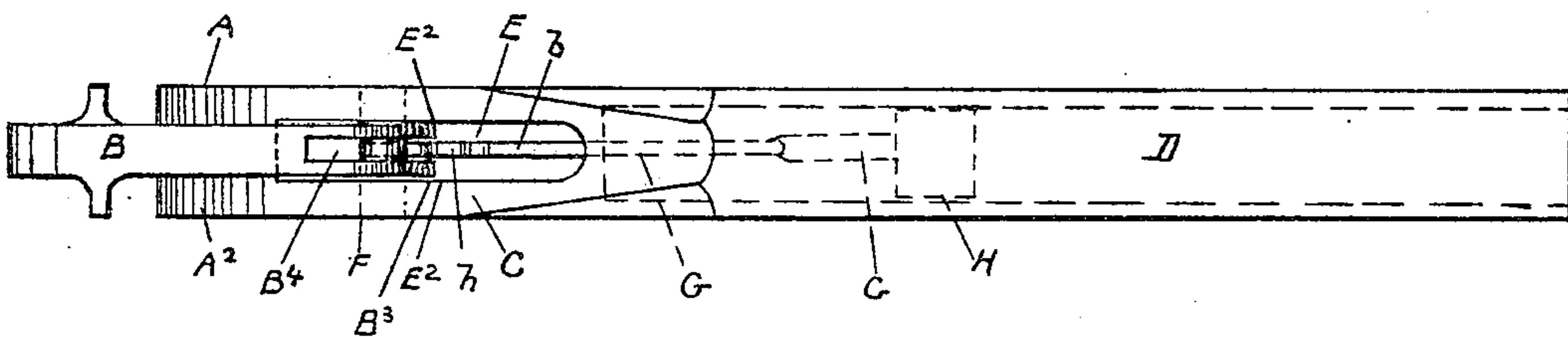


FIG. 3.

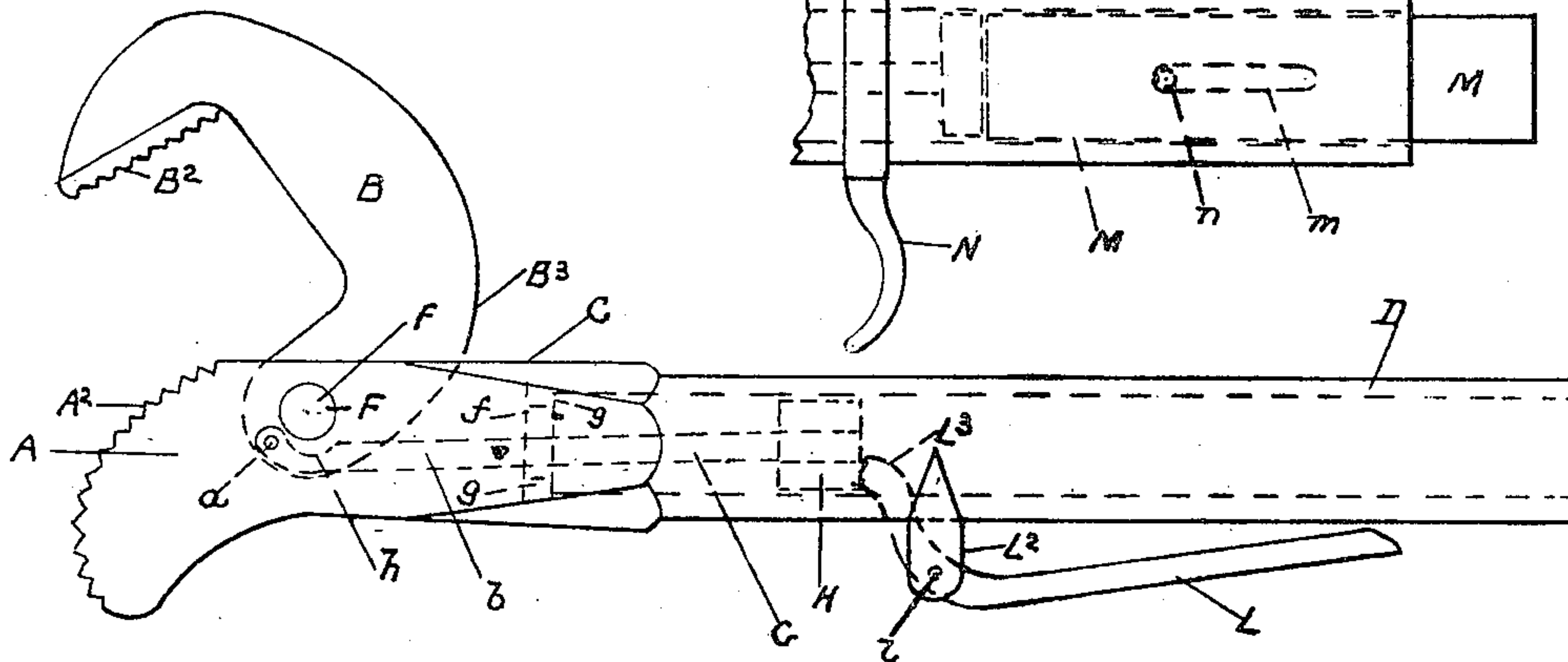
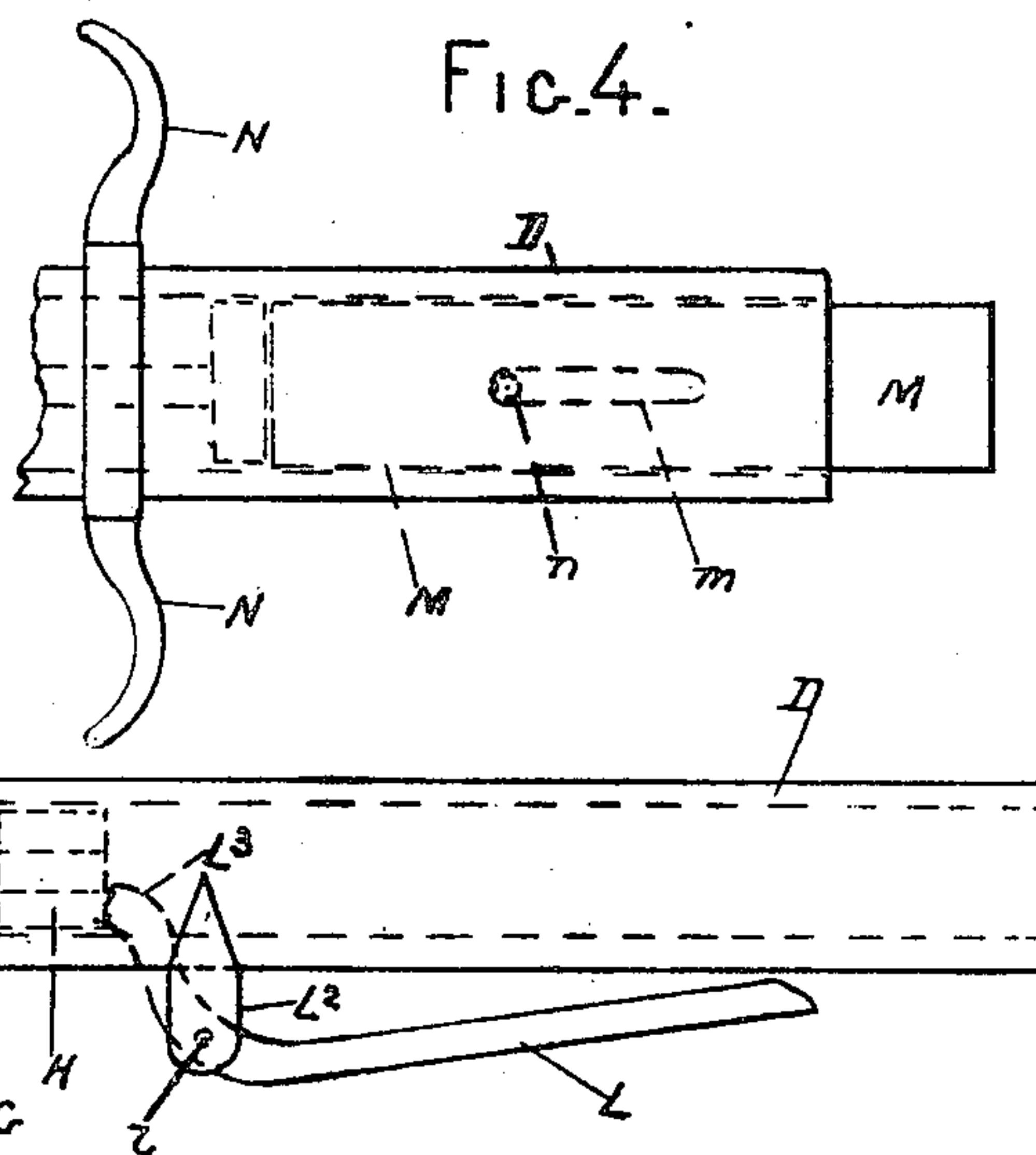


FIG. 4.



WITNESSES.
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UNITED STATES PATENT OFFICE.

FRANCES A. IRLAND, OF CHICAGO, ILLINOIS, EXECUTRIX OF DAVID H. IRLAND, DECEASED; SAID EXECUTRIX ASSIGNOR TO IRLAND PIPE WRENCH COMPANY, A CORPORATION OF MAINE.

PIPE-WRENCH.

No. 800,850.

Specification of Letters Patent.

Patented Oct. 3, 1905.

Application filed May 23, 1905. Serial No. 261,874.

To all whom it may concern:

Be it known that DAVID H. IRLAND, deceased, late a citizen of the United States of America, and who resided at Chicago, in the county of Cook and State of Illinois, did invent new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

This invention relates to that class of wrenches for pipes, &c., which embraces in its parts a stationary jaw having a convex gripping edge or face, a lengthwise chambered shank having said stationary jaw at one end of it, a tubular handle in continuation of and axially coincident with said shank, a movable jaw with a gripping face or edge to cooperate with the gripping face or edge of the stationary jaw and which is mounted within and pivoted to the chambered shank, and means connected with said movable jaw and arranged within the chambered shank and tubular handle to swing said movable jaw against a coiled spring incased within the tubular handle and for the coiled spring by its reaction to return the movable jaw. Examples of this class of wrenches are found in the two United States Letters Patent respectively dated July 7 and September 22, 1903, and numbered 732,858 and 739,316, issued to David H. Irland.

The present invention consists in details whereby the wrench is made much more effective, direct, and positive in the operation of the movable jaw and a most simple, reliable, and easy-working connection is made between the movable jaw and the means for operating it, all as hereinafter fully described.

In the accompanying plate of drawings, forming part of this specification, Figure 1 is a central section lengthwise of the chambered shank and tubular handle extension thereof and also of part of each jaw, the balance of each jaw being in side or face view, as also an operating-handle to open the movable jaw from the fixed jaw. The movable jaw is shown as closed toward the fixed jaw. Fig. 2 is a plan view of the wrench shown in Fig. 1. Fig. 3 is a side or face view of the wrench of the preceding figures with the movable jaw swung open to its fullest extent from the fixed jaw. Fig. 4 is a view in detail, as will hereinafter appear.

In the drawings, A is the fixed jaw.

B is the movable jaw.

C is the chambered shank, and D is the tubular handle, preferably integral with the chambered shank C.

The fixed jaw A is at one end of the chambered shank C, and it has a convex ratchet-toothed working or gripping face A². The tubular handle D is at the opposite end of the chambered shank C to that having the fixed jaw A, and it is axially coincident with the shank.

E is the chamber of the shank C, and its side walls E² are parallel with the axial line of the tubular handle D. In said chamber E of the shank C and between its side walls is located the movable jaw C, which is mounted on a transverse axial pin F, fixed in said walls and extending across said jaw and partially exposed within the chamber E of the shank C and in such position that the ratchet-toothed and working face or edge B² of the movable jaw can cooperate with the working face of the fixed jaw, all as well known.

The movable jaw B between its opposite side faces and at the edge B³ of the jaw toward the tubular handle D has a vertical slot or way B⁴, which extends partially toward the working face and between the upper and lower edges of the jaw, and the greater part of the axial pin F of the movable jaw is exposed within said slot B⁴, Fig. 1. The axis of the pivot or fulcrum pin F of the movable jaw is at one side of and beyond a plane coincident with a plane through and along the axial line of the chamber E of the tubular handle D. *a* is a fixed transverse pin of the movable jaw. The axis of this pin *a* is eccentric to the axis of the fulcrum-pin F, and with the movable jaw closed toward the stationary jaw it is in a plane coincident, or substantially so, with a plane through and along the axial line of the chamber E of the wrench-handle D. On this pivot-pin *a* and within said slot B⁴ is hung one end of the flat portion *b* of a rod G, which passes through an opening *f* in the wall *g* at the end of the tubular handle, where it joins the chambered shank C, and this opening is of much larger diameter than the diameter of the rod passing through it, so that the rod can have a more or less lateral play therein in all directions.

H is a cylindrical plug or block within the

tubular handle and screwed onto the cylindrical end portion of the rod G. This plug H is sufficiently less in diameter than the bore of the handle to allow it to move or less tip
5 from end to end as it moves forward and backward within the handle.

The end of the rod G, pivoted to the movable jaw B, as described, has at and along its edge toward the axial pin F of said jaw a concavity or recess *h*, so that the rod in the closing and opening of the movable jaw can pass freely and closely about and around the axial pin F of said jaw without practical or effective contact—as, for illustration, when the
10 pivoted connection of rod G with movable jaw B passes from the position shown in Fig. 1 to the position shown in Fig. 3, and vice versa.

K is a spiral or coiled spring incased within
20 the tubular handle D and confined between one end of the plug or block H and the shoulder *g*, surrounding the enlarged opening *f* for the handle and through which the rod G passes, as has been described.

L is a handle-lever fulcrumed upon a cross-pin *l* of parallel earpieces *L*², projecting from the under side of the tubular handle. This lever enters by its end *L*³ into the tubular handle in position in closing the lever upon the
30 wrench-handle to press the plug H forward and against the spring K, and so by the connection of plug H, through rod G, with the movable jaw B to swing said jaw away from the fixed jaw A. On releasing the pressure
35 on the handle-lever L the movable jaw is returned by the reaction of the spring K, which in the other or opening movement of the movable jaw was compressed.

The use and operation of the wrench herein
40 described for seizing a pipe, rod, nut, &c., is obvious without particular illustration or description, as with the wrench described it differs in no material respect in that regard from the use and operation of a wrench of the class
45 to which this invention pertains, as hereinbefore stated.

The slotting of the pivoted or fulcrumed movable jaw B and the eccentric pivoting of one end of the operating-rod G for the movable jaw within and across said slot, as also the enlarged opening *f* at one end of the wrench-handle and the concavity or recess or depression *h* at the edge of the rod which is toward the fulcrum-pin of the movable jaw, and provision made, as between the handle-chamber E and the enlarged head H of the operating-rod, for the operating-rod to tip lengthwise in said chamber E as it moves forward and backward therein, all substantially
50 as above described, plainly secure a most effective, positive, free or unrestrained or unconfined and direct operation of all of the said several parts and further secure in the wrench as a whole compactness of construction and
65 arrangement of its several parts, all, as is ob-

vious, most essential and important features and advantages.

The handle-lever L may be dispensed with, and in lieu thereof may be used a piston M, located and arranged, by means of a slot *m*
70 along it and a fixed cross-pin *n* of the handle in said slot, to travel along the wrench-handle. This piston M is projected from the open end of the wrench-handle, as is shown, Fig. 4. N represents fixed projecting radial arms, one
75 from each side of the tubular handle, to be grasped by the fingers of the hand as said piston is pressed inward against the spring by the palm of the hand. This means of operating the movable jaw is novel in this class of
80 wrenches and makes one feature of the present invention.

The plug H within the wrench-handle is preferably screwed onto the connecting-rod G of the movable jaw B, as is shown in Fig. 1, and
85 to be so attached and detached within the handle it is slotted, as at *p*, for the engagement of a screw-driver therewith, which for such purpose is inserted at the open end of the wrench-handle.
90

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a wrench of the class described, the combination of a tubular handle D, having at
95 one end a chambered shank C which is in continuation therewith, a stationary jaw A at the end of said shank C, which is opposite to its said end in continuation of the handle D, a pivoted or fulcrumed jaw B, having a slot or
100 way B¹ parallel with its side faces, and across which slot the fulcrum-pin F of the movable jaw B extends, a pin *a* extending across said slot B¹ and held on the movable jaw and having its axis parallel to and at one side of the
105 axis of the fulcrum-pin F of the movable jaw, and also in a plane coincident with a plane along the axial line of the tubular handle, a rod G, at one end hung on said pin *a*, and at its edge toward the fulcrum-pin of the movable
110 jaw and near to said pin *a* provided with a depression *h*, and extending through the enlarged opening *f* at the end of the tubular handle adjacent to the chambered shank C, and also extending into and along the cham-
115 ber of said handle and therein having an enlarged head or block H which loosely fits said chamber, a coiled spring K encircling said rod G and confined, end to end thereon, between a shoulder surrounding the enlarged
120 opening F of the tubular handle and the enlarged head or plug H of the rod, and means applied to and arranged on the tubular handle to operate said rod G against the coiled spring K which surrounds it, substantially as de-
125 scribed and for the purposes specified.

2. In a wrench of the class described, and comprising a tubular handle D, and operating-rod G slidably arranged in and along said handle, and at one end pivoted to a fulcrumed
130

movable jaw B and at the other end having
an enlarged head H, and a coiled spring K
about said operating-rod and confined, end to
end thereon, between a wall *g* of the handle
5 and said enlarged head, the combination of a
slidable piston or plug M arranged in and
projecting from the open end of the tubular
handle, and fixed arms N projecting from op-
posite sides of said handle, substantially as
10 described, and for the purposes specified.

Signed at the city of Chicago, in the county
of Cook and State of Illinois, this 18th day of
May, 1905.

FRANCES A. IRLAND,

*Sole executrix of the last will and testament of
the said David H. Irland, deceased.*

Witnesses:

J. A. SMITH,
STEPHEN D. MAY,
HARRISON KELLEY.