

(No Model.)

J. A. HAWTHORN.
PIPE WRENCH.

No. 596,505.

Patented Jan. 4, 1898.

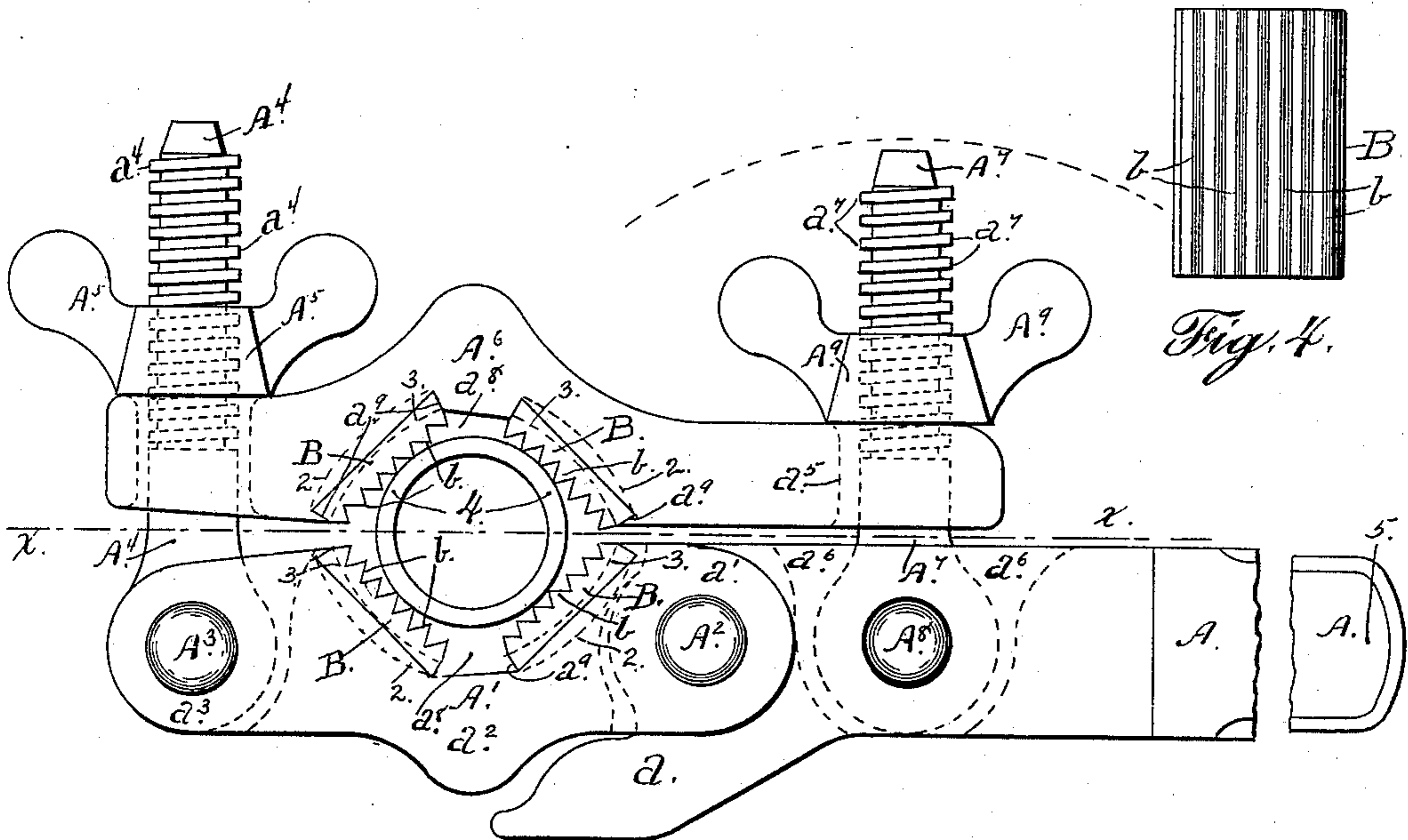


Fig. 1.

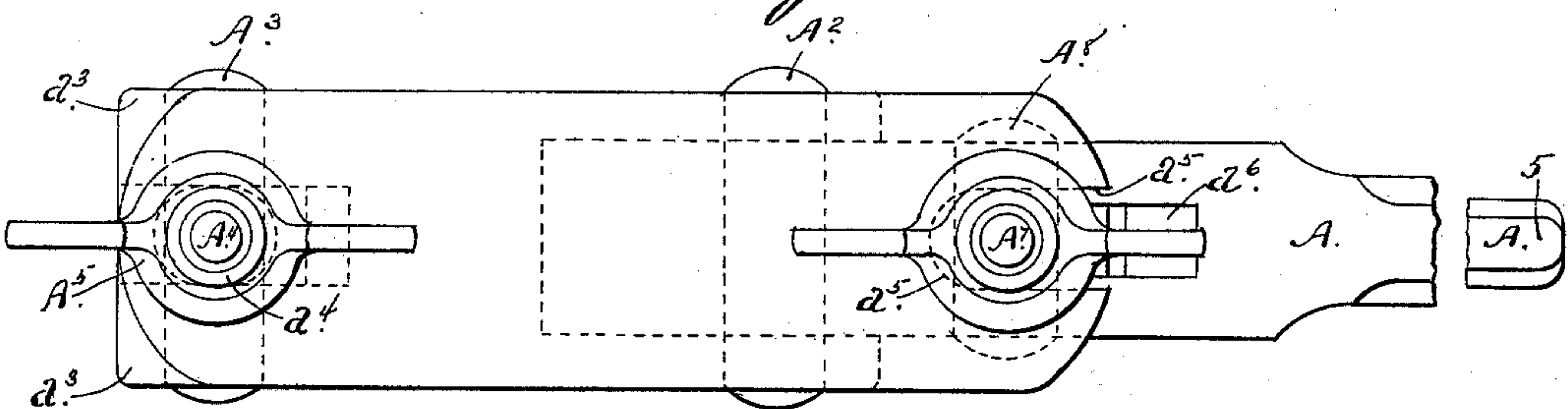


Fig. 2.

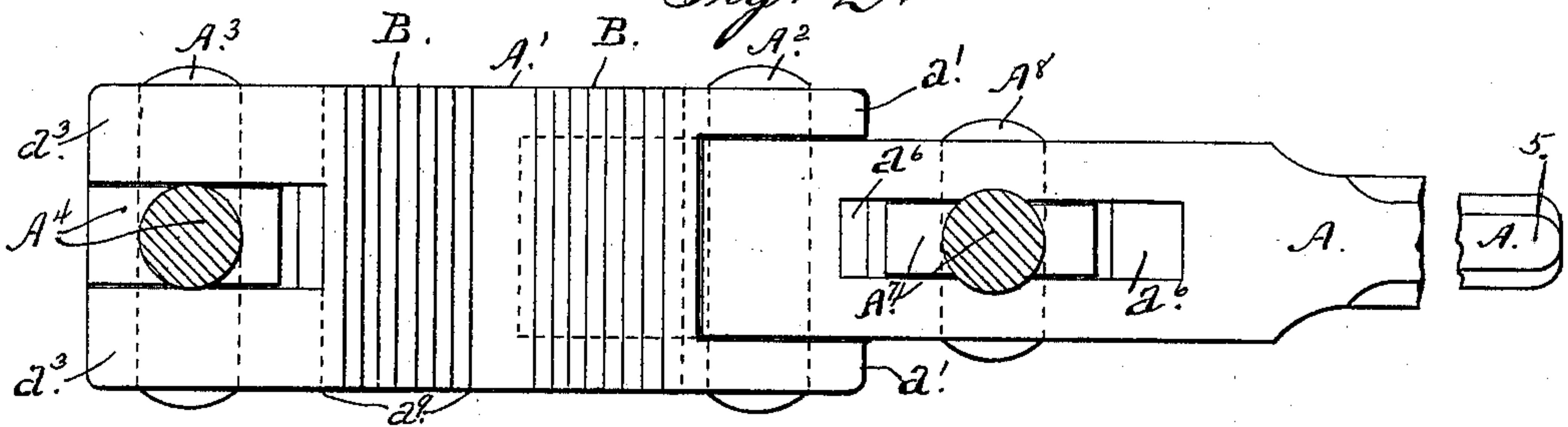


Fig. 3.

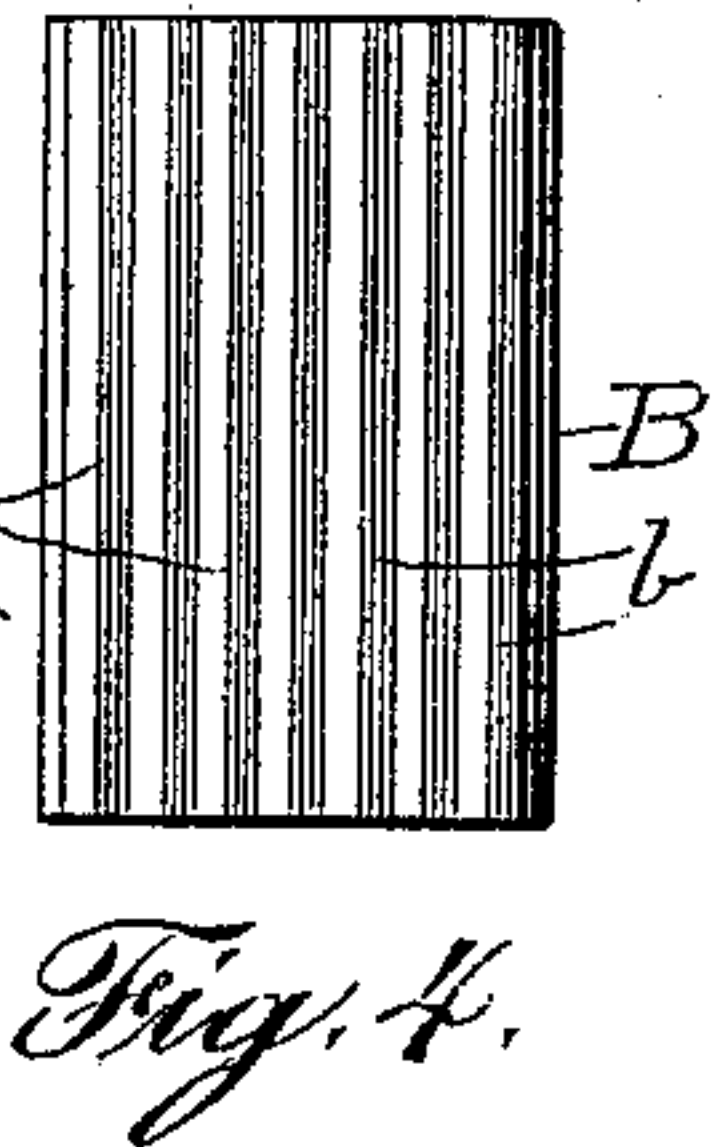


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN A. HAWTHORN, OF LANCASTER, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO GEORGE M. FRANKLIN AND GEORGE STEINMAN, OF SAME PLACE.

PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 596,505, dated January 4, 1898.

Application filed September 30, 1896. Serial No. 607,443. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. HAWTHORN, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Pipe-Wrenches; and I do hereby 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 improvements in pipe-wrenches of that class which is known to the trade as "ratchet-wrenches," or in which when the handle or lever is pressed downwardly a firm bite or grip is formed upon the pipe in question, and when the handle or lever is raised said bite or grip is loosened.

The object of the invention is the production of a pipe-wrench that may be readily applied to different sizes of pipes within certain limits, performing its functions by alternately lifting and depressing the handle or lever thereof, and of such sizes as to be applicable to pipes of any size from the smallest to the very largest.

The elements of the invention will separately and at large appear in the following description and will be severally and collectively set forth in the claims.

The purposes of the invention are attained by the mechanism and devices illustrated in the accompanying drawings, similar reference-letters designating like parts throughout the several views, and in which—

Figure 1 is a side elevation of a pipe-wrench embodying the elements of the invention, showing a pipe or tube loosely in place; Fig. 2, a top view of Fig. 1 with the pipe or tube omitted; Fig. 3, a similar view of Fig. 1 with the portions above the line xx and the pipe removed, and Fig. 4 a plan of the ratchet or grip-plate detached from Fig. 1.

A handle or lever-arm A of approved dimensions, provided with a downwardly and longitudinally projecting lug or finger a , has the end fitted into a prescribed recess or mortise formed in the rearward end of a prescribed member A' , being between the arms or ears a' thereof and pivoted to said arms by a pin or bolt A^2 , so as to form a knuckle or knee joint with said handle or lever-arm at

this point, allowing a tilting or swinging motion to the member A' , with the finger a in contacting with its hump a^2 acting as a stop to the farther downward progress of said member. At the forward or free end of the member A' are two side arms or ears a^3 , having between them a prescribed recess or mortise, into which is fitted and pivoted to said arms by a pin or bolt A^3 the flattened end or head of an upwardly-disposed screw A^4 , turning freely outwardly or upwardly, as may be desired, and the upper portion of its shaft is provided with screw-threads a^4 , by means of which a thumb-nut A^5 may be screwed up or down thereon, as may be required, while onto its body, through a suitable eye therein, is swiveled the forward end of a second member A^6 , which end said screw is adapted to depress, and the member itself, by reason of the pivot-joint of the screw on the pin A^3 and by reason of said swivel-joint, is adapted to be swung bodily up and turned sidewise either way when desired or required. In the rearward end of this member A^6 is formed a vertical slot or end recess a^5 , engaged by the shaft of an upwardly-disposed screw A^7 , having its lower end or flattened head fitted in a prescribed slot or mortise a^6 , formed in the lever-arm A just rearward of and adjacent to the knee or pivot joint first before mentioned and pivoted in place by a pin or bolt A^8 , adapted to be swung longitudinally either way, or as indicated by the dotted line 1 in Fig. 1, while its upper portion is provided with screw-threads a^7 , on which a thumb-nut a^9 in being screwed up or down thereon is adapted to depress the rearward end of said member or to loosen the same.

At prescribed points in the adjacent faces of the members A' and A^6 and in prescribed angular cuts a^8 therein are formed dovetailed recesses a^9 a^9 a^9 a^9 , into each of which is fitted a bite or grip plate or block B, being held in place by said dovetails, but readily removable therefrom when so desired, and in their inner faces are formed transversely-disposed approved ratchet-teeth b , slightly inclined or set forward in the direction in which the wrench shall rotate or turn the pipe or tube. It will here be noted that though the grip-blocks just described are shown to be flat and

the recesses into which they are fitted have level faces against which their backs rest, the latter may be made concaved and the former conforming therewith without departing from the spirit of the invention, (see dotted curves 2 and 3, Fig. 1;) also, that the teeth may be omitted, as shown by the curves 3, when the wrench may be applied to a finished pipe without abrading its smooth surface, and that the teeth may likewise be omitted when said blocks are flat or level.

The several parts hereinbefore described and occupying the positions indicated in the drawings, with a pipe or tube 4 in place, as shown, an inspection thereof clearly shows, first, that when the outer end 5 of the handle A is raised the grip or bite of the teeth on the pipe will be loosened, the wrench turning backwardly, as a ratchet-wrench will turn, to a new position; second, that when the outer end 5 of said handle is depressed, and by reason of the fulcrum on the pins $A^3 A^8$, the knee-joint on the pin A^2 will bring the teeth b into close contact with the pipe or tube, forming a bite or grip thereon and causing said pipe to rotate or turn with the wrench, and, third, that said downward pressure on the handle A will increase or augment the bite on the tube till the lug or finger a shall contact with the hump a^2 of the member A' , reducing said member and arm practically to one continuous body and positively stopping the crushing force of the bite upon said tube, preventing all injury thereto.

The invention having thus been described and the manner in which it performs its functions duly set forth and shown, what is considered new, and desired to be secured by Letters Patent, is—

1. A tap-wrench comprising a lever-arm or handle with a stop lug or finger at one end thereof as shown, a member above said stop-lug and having one end pivoted to the stop-lug end of said arm, an upwardly-disposed screw with its lower end pivoted to the free

end of said member, a rearwardly and horizontally disposed member having one end swiveled on said screw with a thumb-nut as shown on the threaded portion of said screw and a vertically-disposed slot in the other end of said member, an upwardly-disposed screw with its shaft in said vertically-disposed slot and having its lower end pivoted in a slot adjacent to the pivoted end of said lever-arm with a thumb-nut on the threaded portion of said screw; and grip-blocks as shown secured into the adjacent faces of the said pivoted and swiveled members, substantially as described and for the purpose hereinbefore set forth.

2. In a pipe-wrench in combination: the lever-arm A, with the stop-lug, a , and the vertical pivot-recess near the forward end thereof; the member A' , with the pivot-ears a' , the hump a^2 , and the pivot-ears a^3 , and the pin A^2 pivoting said members and lever-arm together; the upwardly-disposed screw, A^4 , with the screw-threads a^4 , the thumb-nut A^5 , thereon, and having its flattened lower end, between the ears, a^3 , with the pin, A^3 , pivoting said screw and ears together; the member A^6 , with one end swiveled onto the screw A^4 , as shown, and having the vertical slot, a^5 , in the other end thereof; the upwardly-disposed screw A^7 , in the slot a^5 , having its flattened lower ends in the mortise a^6 , of the lever, with the pin A^8 , pivoting said screw and lever together, and having the screw-threads a^7 , with the thumb-nut A^9 , thereon; and the grip-blocks, B, with the ratchet-teeth, b , secured into the adjacent faces of the said members, A' and A^6 ; all substantially as described and for the purpose hereinbefore set forth.

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

JOHN A. HAWTHORN.

Witnesses:

S. GRANT JOHNSTON,
DANIEL H. HERR.