

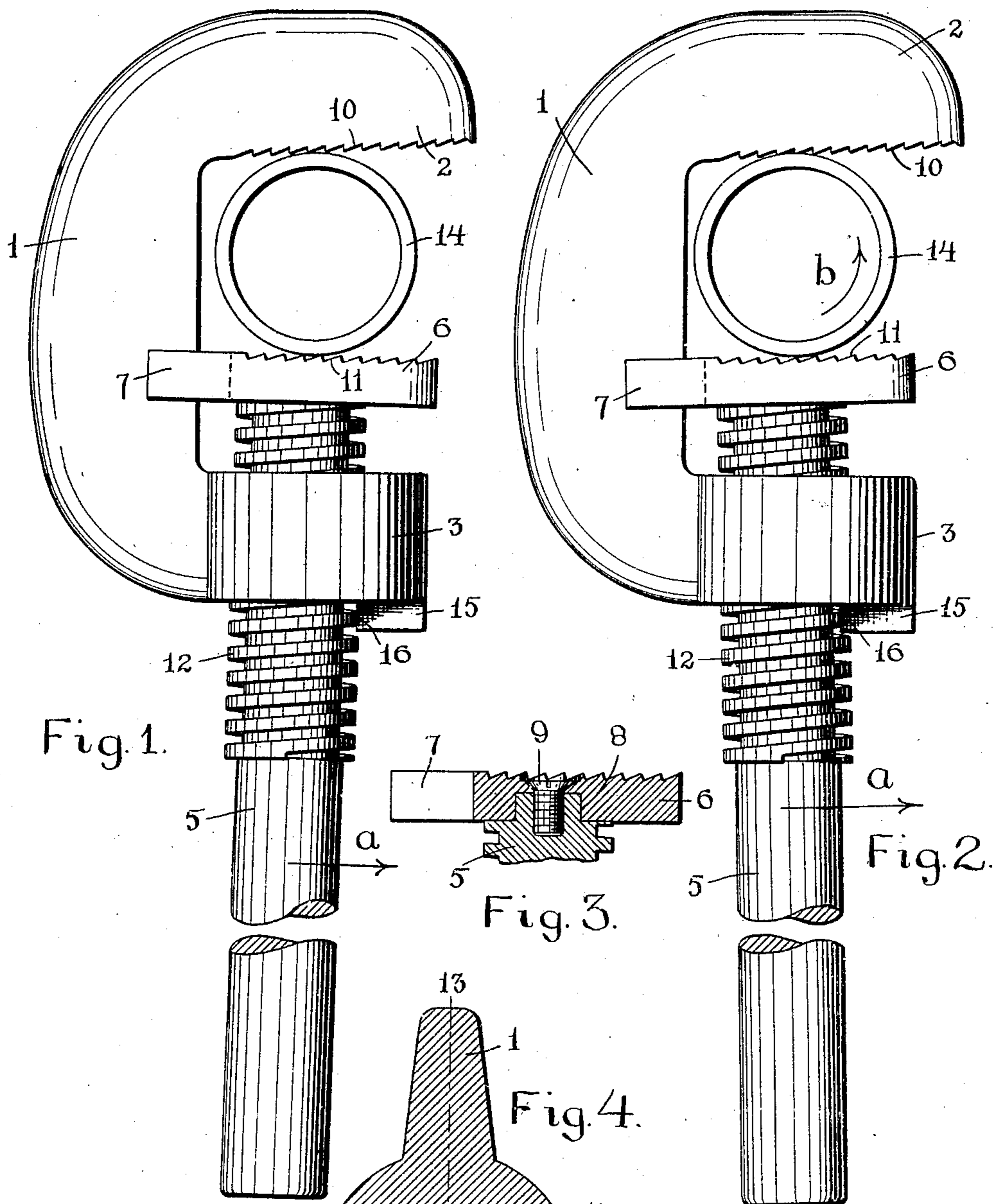
No. 836,733.

PATENTED NOV. 27, 1906.

D. D. BARNUM.
PIPE WRENCH.

APPLICATION FILED MAY 5, 1906.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

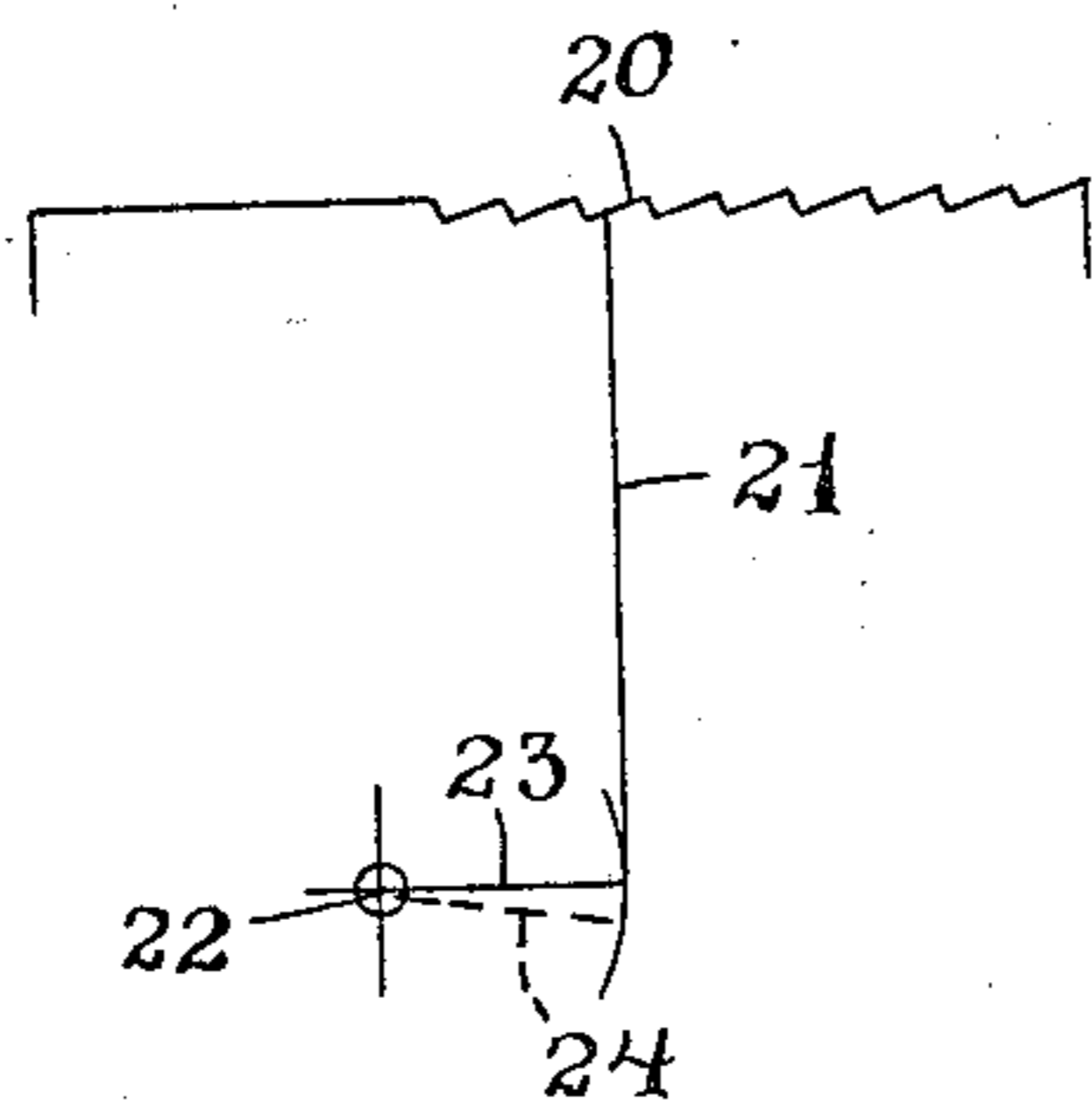
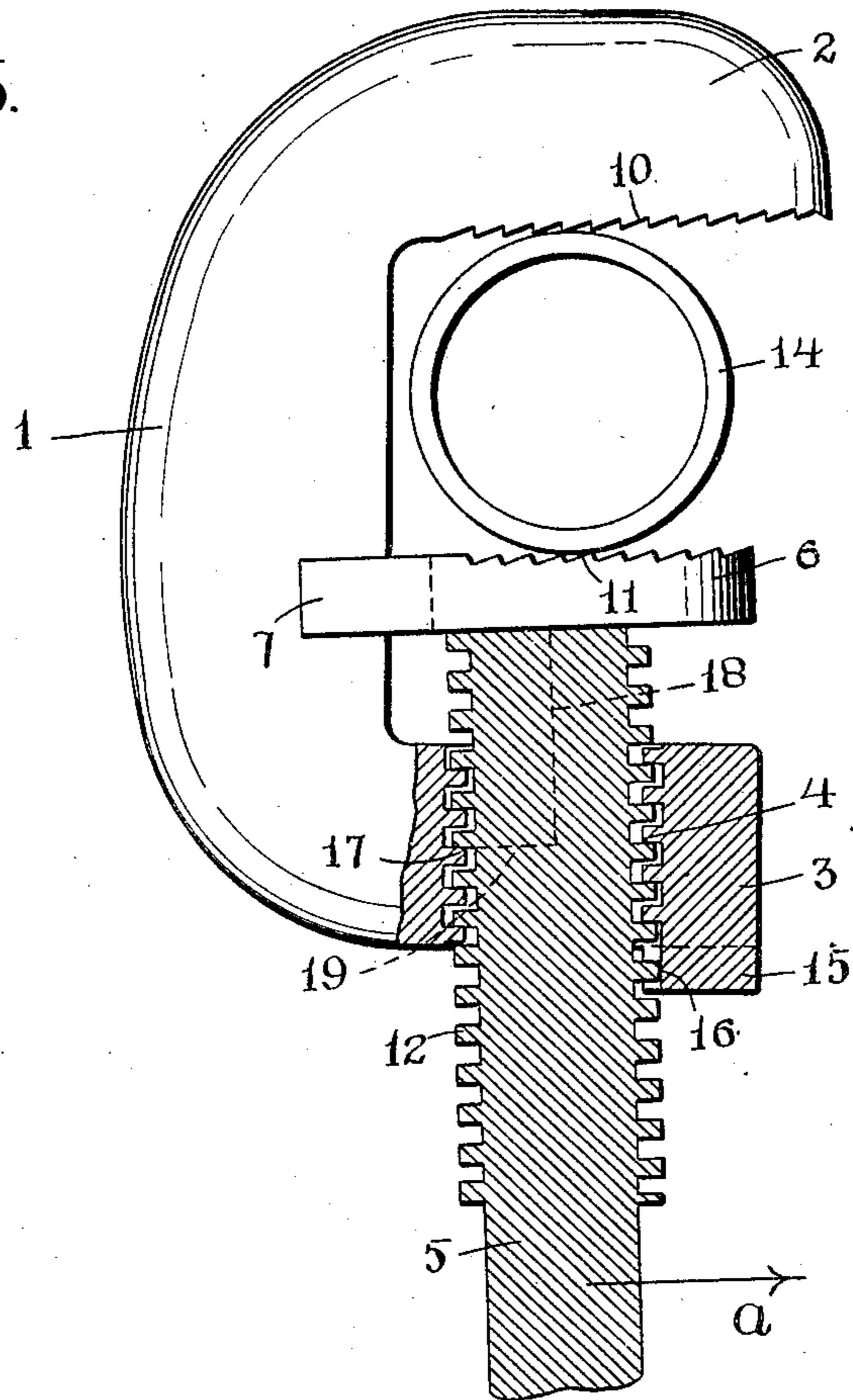


Fig. 6.

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PIPE-WRENCH.

No. 836,733.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, DANA D. BARNUM, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Pipe-Wrenches, of which the following is a specification accompanied by drawings, forming a part of the same, in which—

Figure 1 represents a side view of a wrench embodying my invention, the parts being shown in their relative positions with the wrench applied to a pipe and before the jaws are compressed against the pipe. Fig. 2 is a similar view, but showing the parts of the wrench in their relative positions after the jaws have been crowded against the surface of the pipe. Fig. 3 is a detached sectional view showing the movable jaw and its attachment to the rotating handle of the wrench. Fig. 4 is a sectional view on line 4-4, Fig. 1. Fig. 5 is a side elevation of the jaws of the wrench with a portion of the handle and head shown in sectional view to illustrate the movement of the handle within its screw-threaded bearing, and Fig. 6 is a diagrammatic view illustrating the lifting movement of the movable jaw as a strain is applied to the handle of the wrench in the direction of the arrows *a*.

Similar reference-figures refer to similar parts in the different views.

The object of my present invention is to provide a cheaply-constructed, durable, and efficient pipe-wrench consisting of but few parts, which are easily constructed and capable of the rough usage incident to the work to which a pipe-wrench is usually applied.

The pipe-wrench embodying my present invention comprises three principal parts—a head 1, provided at one end with a fixed jaw 2 and at the opposite end with a lug 3, having a screw-threaded hole 4 to receive a screw-threaded handle 5, and a movable or sliding jaw 6, pivotally connected to the end of the screw-threaded handle in order to allow the latter to be turned in its screw-threaded bearing for the purpose of advancing and retracting the jaw 6. The movable jaw 6 is provided with wings 7, which inclose the head 1 to prevent the jaw from rotating as the handle 5 is turned, and the jaw is conveniently connected to the handle 5 by being pivoted upon a bearing 8 on the end of the screw-threaded handle 5 and being attached thereto by a screw 9. The jaw 2 is prefer-

ably provided with ratchet-shaped teeth 10, and the movable jaw 6 is similarly provided with ratchet-shaped teeth 11. The handle 5 is provided with a screw-threaded section 60 having, preferably, a square screw-thread 12, which enters the screw-threaded hole 4 in the head. The screw-threaded hole 4 is elongated, so that its greatest diameter is in the plane of the broken line 13, Fig. 4, and parallel with the movable jaw 6. This elongation of the screw-threaded hole 4 in a plane parallel with the jaw 6 is for the purpose of enabling a rocking motion to be given to the wrench-handle 5, which will allow the movable jaw to be varied relatively to the jaw 2 from the position shown in Fig. 1 to that shown in Fig. 2 or from a position in which the toothed faces of the jaws 2 and 6 are divergent, as shown in Fig. 1, to a position in which they are substantially parallel, as shown in Fig. 2. In addition to the elongation of the screw-threaded hole 4 it is necessary that the screw-threaded section of the handle 5 should be loosely fitted to its screw-threaded bearing in the head of the wrench to permit freedom of movement.

When the wrench is applied to a pipe, the jaws 2 and 6 are in the relative position shown in Fig. 1 with their toothed surfaces slightly divergent, which enables the pipe 14 to be inserted between the jaws or removed therefrom. When the pipe 14 is inserted, as shown in Fig. 1, a strain is applied to the wrench-handle 5 in the direction of the arrow *a*, which brings the jaw 6 into the position shown in Fig. 2, bringing the toothed faces of the jaws nearly parallel, and as the pipe is turned in the direction of the arrow *b*, Fig. 2, the ratchet-shaped teeth 10 and 11 are crowded firmly against the periphery of the pipe, causing the pipe to be turned with the wrench.

The lug 3 is provided at its outer end and on its under side with a wing 15, which normally bears against the edge 16 of one of the screw-threads 12, causing the screw-threads upon the opposite or back side of the handle to be held in contact with the screw-threads in the head 1, so that when the rocking action of the handle takes place within the head it will turn about a point 17 midway the length of the screw-threaded hole 4 and in the plane of the contacting surfaces of the engaged screw-threads, the point 17 becoming the pivotal point of the wrench-handle.

A slight sliding movement of the edge 16

of the screw-thread will occur on the surface of the wing 15, causing a lifting motion to be imparted to the outer end of the movable jaw 6, due to the fact that the axis of the handle 5, as indicated by the broken line 18, is removed from the pivotal point 17 by the radial line 19.

In Fig. 6 I have shown in diagrammatic view the lifting action upon the movable jaw 6 due to the rocking motion of the handle 5 in its screw-threaded bearing. In the diagram, Fig. 6, 20 represents the face of the movable jaw 6, 21 the axis of the lever-handle 5, 22 the fulcrum-point of the handle, and 23 the radial distance between the fulcrum-point and the axis of the handle, said radial line having been moved up from the position shown by the broken line 24 by the rocking movement of the handle. A reversal of the rocking movement of the handle will of course restore the movable jaw 6 from the position shown in Fig. 3 to that shown in Fig. 1, causing the toothed surface 11 to diverge from the toothed surface 10 and allow the pipe 14 to be released.

I claim—

1. In a pipe-wrench, the combination with a head provided with a fixed jaw, and having a screw-threaded opening for a lever-handle, of a screw-threaded lever-handle held in said opening and capable of a slight angular movement therein, and a movable jaw carried by said handle.

2. In a pipe-wrench, the combination with a head provided with a fixed jaw, of a lever-handle capable of a slight angular movement

in said head, and a movable jaw carried by said handle, and means for advancing said movable jaw toward said fixed jaw.

3. In a pipe-wrench, the combination with a head provided with a fixed jaw, of a lever-handle capable of a slight angular movement in said head about a pivotal point eccentric to the axis of said handle, and a movable jaw carried by said handle, whereby said movable jaw is moved slightly toward and away from said fixed jaw by the angular movement of the handle.

4. In a pipe-wrench, the combination of a head having a fixed jaw, and an elongated screw-threaded opening, of a screw-threaded handle held in said opening and capable of a slight angular movement therein, and a movable jaw carried by said handle.

5. In a pipe-wrench, a head having a fixed jaw and a screw-threaded opening for a lever-handle, a movable jaw pivotally held on the end of said handle, and means for holding said movable jaw from rotation.

6. In a pipe-wrench, the combination of a head having a fixed jaw and a screw-threaded opening for a lever-handle, a screw-threaded lever-handle held in said opening and capable of a slight angular movement therein, a projecting wing on said head to limit the angular movement of the handle in one direction, and a movable jaw carried by said handle.

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