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R. HAYDEN.

WRENCH.

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(No Model.)

Fig. 1.

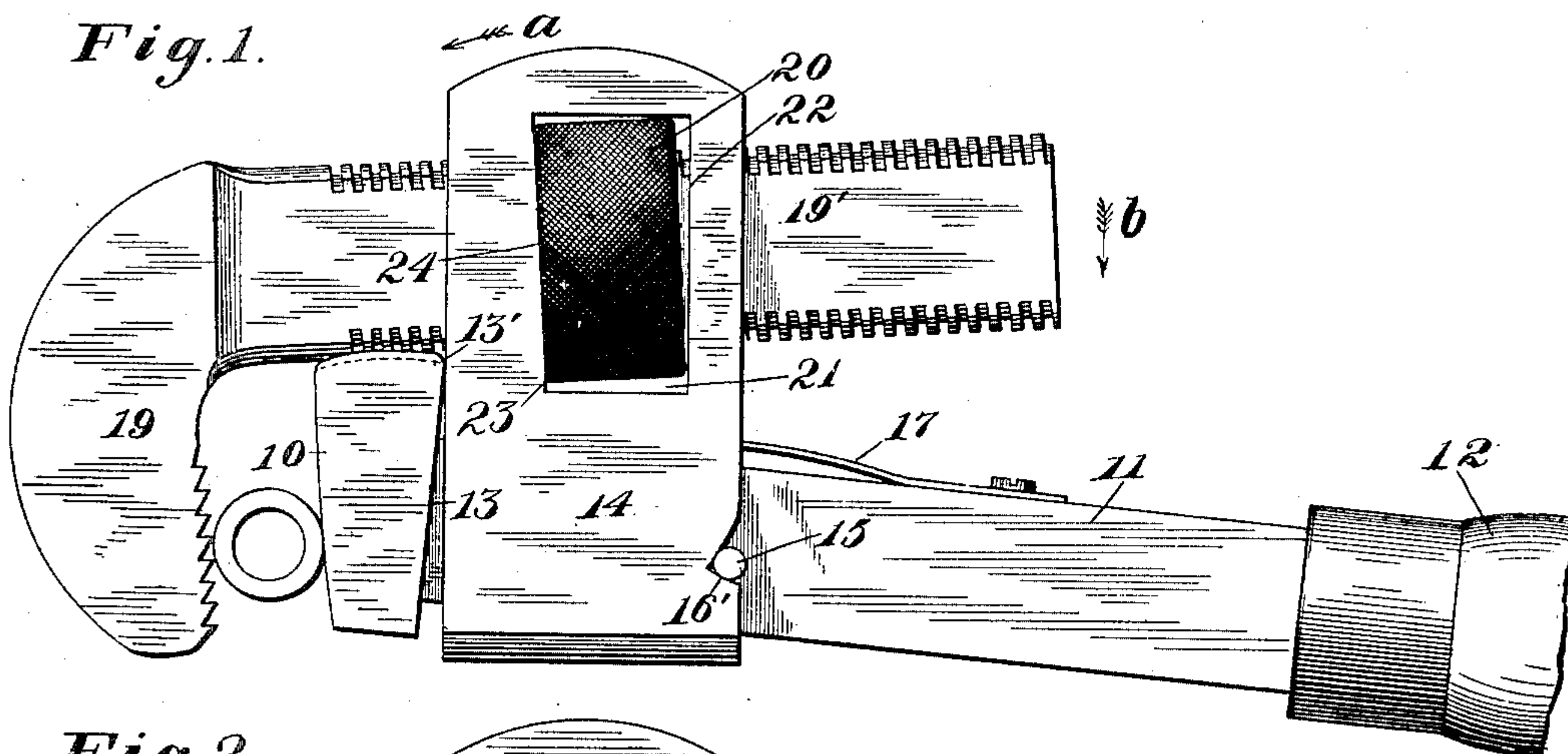


Fig. 2.

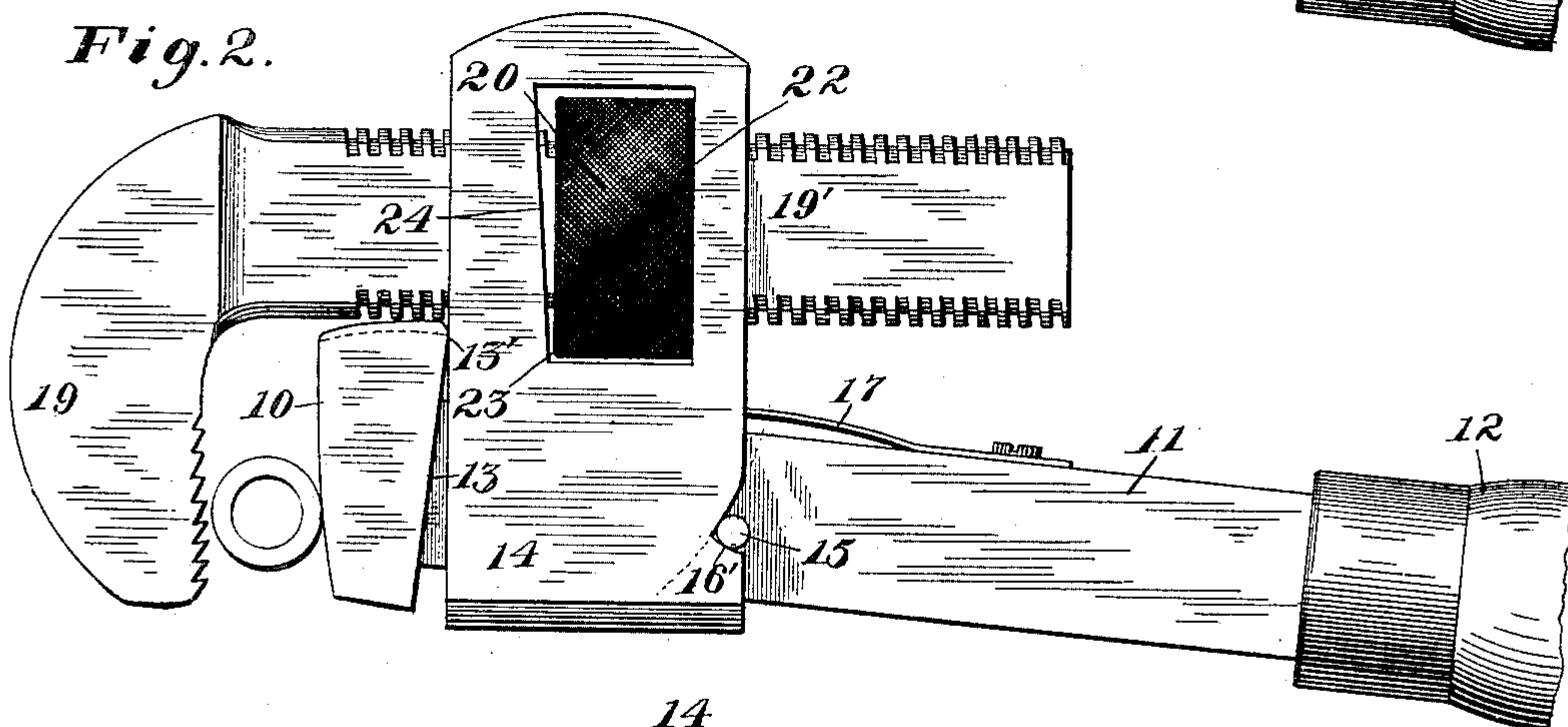
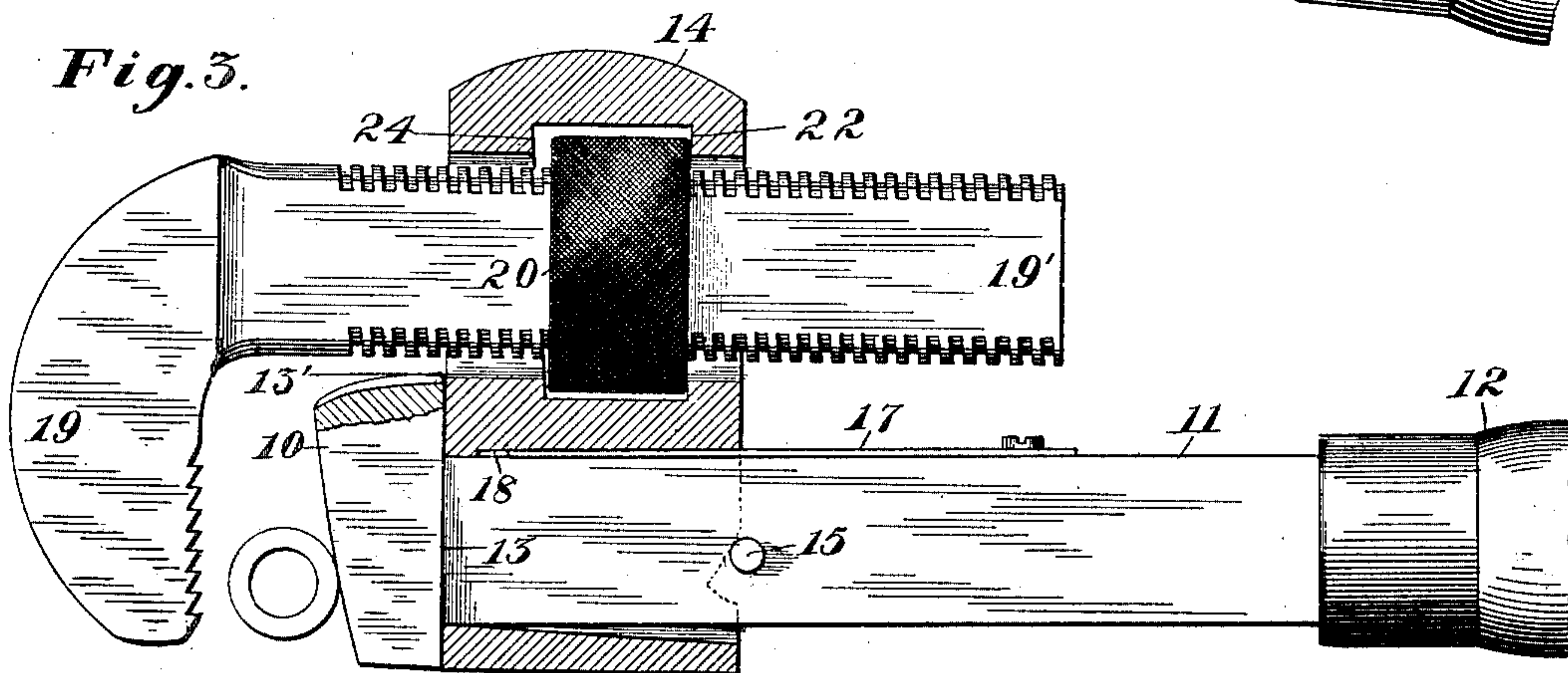


Fig. 3.



Witnesses

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 657,655, dated September 11, 1900.

Application filed January 15, 1900. Serial No. 1,436. (No model.)

To all whom it may concern:

Be it known that I, RANDOLPH HAYDEN, a citizen of the United States, residing in Haddam, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to wrenches, and more particularly to that class thereof known as "pipe-wrenches;" and it has for one object the provision of a tool of this character in which the movable jaw has a double rocking movement relative to the fixed jaw, the wrench also embodying a strap whereby the movable jaw is held in position, said strap also having a rocking movement on the shank or handle portion of the fixed jaw and being mounted thereon in such a manner that the strain brought to bear upon the strap when the wrench is in use will be resisted entirely by the shoulder formed on the fixed jaw and on which said strap has a rocking movement. The loose jaw embodies an adjusting-nut which enters a recess in the strap, said recess being of sufficient width and so formed as to permit a rocking movement of the movable jaw in the strap, which movement is limited by the forward face of the nut engaging the adjacent wall of the recess, said wall being slightly inclined relatively to the axis of the strap, whereby the movable jaw will be permitted to assume a position to grip the work in a very firm manner.

Another object of the invention is to construct a wrench that may be inexpensive to manufacture and yet possess superior strength and one in which the jaws by virtue of the rocking movement above mentioned may be readily released from the work, as will hereinafter be described and as illustrated in the drawings accompanying and forming part of this specification, and in which—

Figure 1 illustrates my improved wrench in operative position on a pipe. Fig. 2 is a similar view illustrating the loose jaw rocked to its limit in the strap to release the work, and Fig. 3 shows my improved wrench with the movable jaw in a position free from the work.

Similar characters of reference designate like parts in all the figures of the drawings.

In the drawings, 10 designates the fixed jaw, having a shank portion 11, which carries the usual handle, such as 12, said jaw having a shoulder, as 13, to serve as an abutment for a strap 14, which may have a rocking movement against said shoulder and around the edge 13' thereof, while it is held in position and prevented from movement on the shank 11 by a pin, such as 15, located in the shank and in constant engagement with a face 16', formed concentric with the edge 13', while a stop-face, such as 16', will serve to limit such rocking movement of the strap around the edge 13' of the head 10. It will therefore be seen that when the strap 14 is rocked in the direction of the arrow *a*, Fig. 1, all the strain is resisted by said shoulder 13', which, since it forms a part of the fixed jaw 10, will have the highest efficiency for resisting such strain, and the pin 15, engaging the face 16' and limiting the rocking movement of the strap around the edge 13', may be made comparatively small on account of the increased leverage due to the construction and location of the pivot-point 13' of the strap on the jaw. The strap 14 is normally held in its forward position by means of a spring, such as 17, a recess 18 being provided therefor in the strap.

The movable jaw, which is herein designated by 19, has a shank portion 19', threaded to receive a nut 20, adapted to enter the recess 21, the rear wall 22 of which is so formed that when the working face of said jaw is substantially in parallelism with the working edge of the strap the rear face of the nut 20 will engage said face 22, and said recess is formed wedge-shaped to permit a rocking movement of the shank 19', with its nut 20, around a point, such as indicated at 23, at which point said recess is of a width substantially equal to the thickness of the nut, while the face 24 of said recess is slanted to permit the movable jaw to have a rocking movement around said point 23 from the position shown in Fig. 1 to that shown in Fig. 2 for the purpose of releasing the work to some extent.

Considerable difficulty has been experienced when objects of soft material are operated upon by a wrench of this kind, for the reason that the teeth of the jaws seat them-

selves therein to such an extent that an ordinary rocking movement of the movable jaw relatively to the fixed jaw is not sufficient to release said teeth from the work, and therefore the adjusting-nut has often to be manipulated to permit the wrench to release the work or when it is required to obtain a fresh bite, such difficulty being readily overcome by the employment of a wrench constructed in accordance with my invention, which possesses features necessary in rapid manipulation, and it is evident that when the wrench is once adjusted to the work the double rocking movement of the movable jaw relatively to the fixed jaw is such that when pressure is applied to the shank of the movable jaw in the direction of the arrow *b*, Fig. 1, the wrench can readily be disengaged from the work and that, furthermore, said movable jaw may release itself automatically therefrom by the mere movement of the handle in the proper direction.

Having described my invention, I claim—

1. In a wrench, the combination, with a fixed jaw having a shoulder, of a strap having a rocking movement on said shoulder, and a movable jaw carried by, and having a rocking movement on, the strap.

2. In a wrench, the combination, with a

fixed jaw having a shoulder, and a movable jaw, of a strap for retaining the movable jaw and having a rocking movement on said shoulder, such movement being limited thereby, and means for holding the strap against said shoulder.

3. In a wrench, the combination, with a fixed jaw having a shoulder, of a strap having a rocking movement on said shoulder; a movable jaw carried by said strap and having a rocking movement thereon; and a pin carried by the fixed jaw and engaging said strap for holding the same against the shoulder.

4. In a wrench, the combination, with a fixed jaw, of a strap having a rocking movement thereon, and a movable jaw carried by the strap and having a rocking movement on the strap.

5. In a wrench, the combination, with a fixed jaw, of a strap provided with a recess and having a rocking movement on said jaw; a movable jaw; and an adjusting-nut carried thereon and of less thickness than the width of said recess to permit rocking movement of said movable jaw on the strap.

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Witnesses:

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