

F. F. CORBIN.
PIPE WRENCH.
APPLICATION FILED FEB. 23, 1910.

983,267.

Patented Feb. 7, 1911.

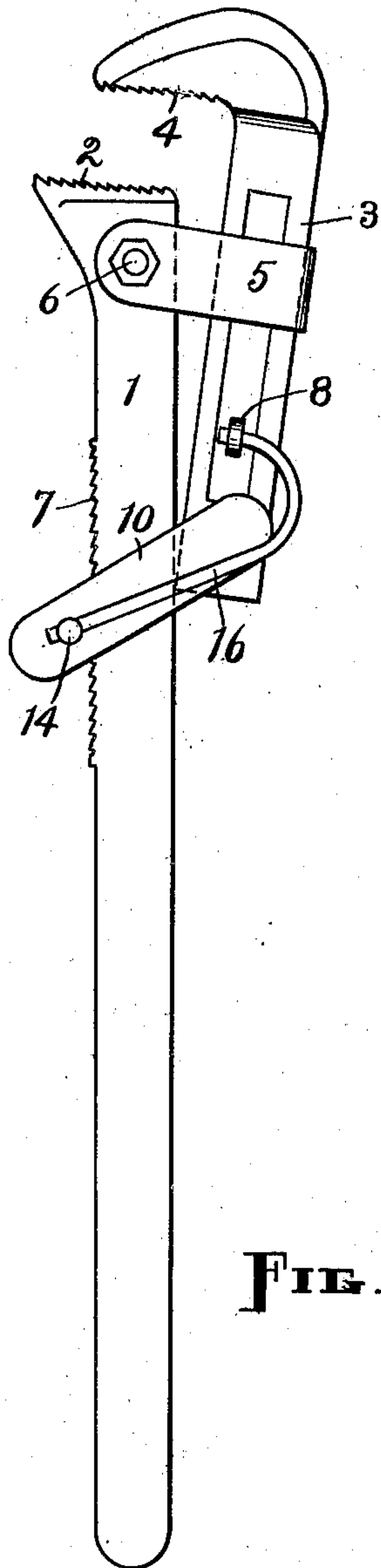


FIG. 1.

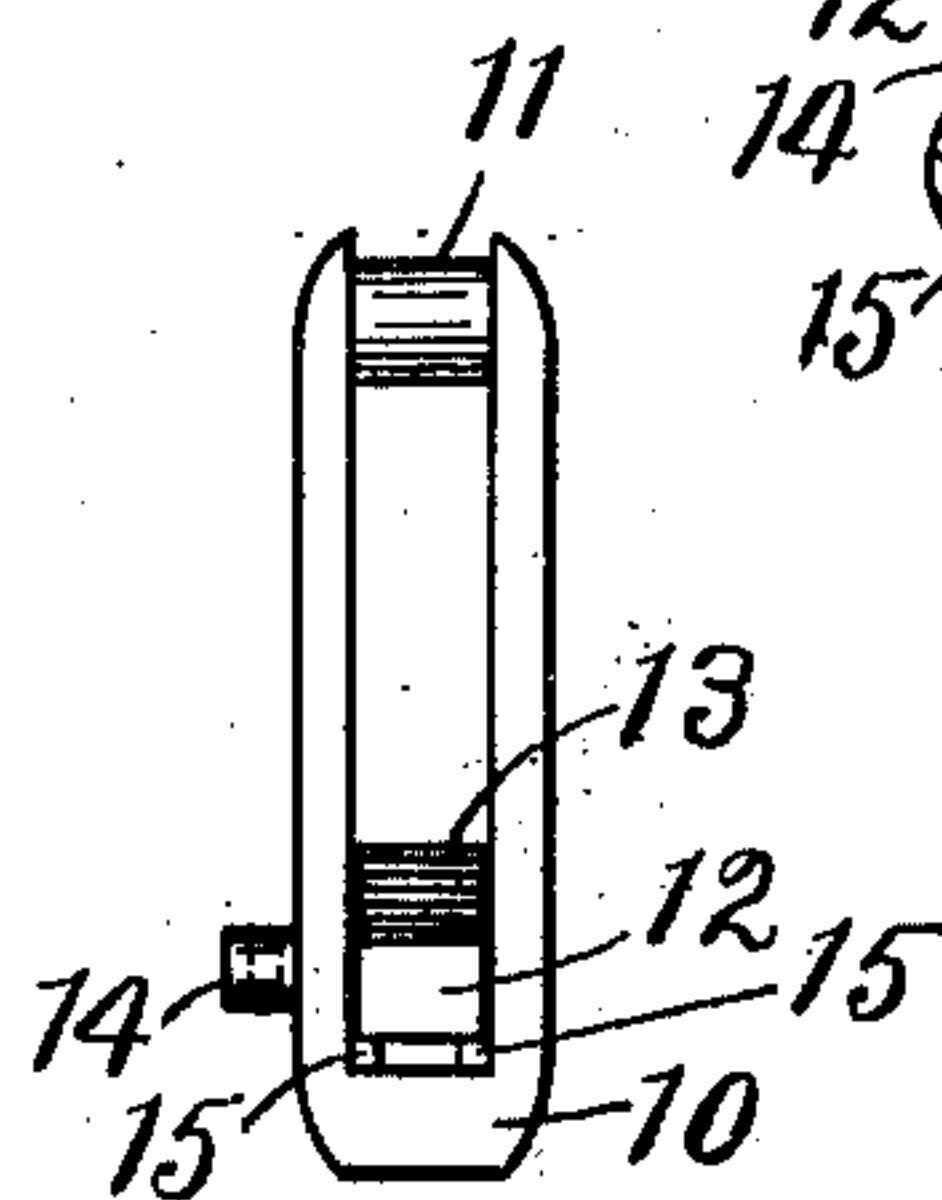


FIG. 3.

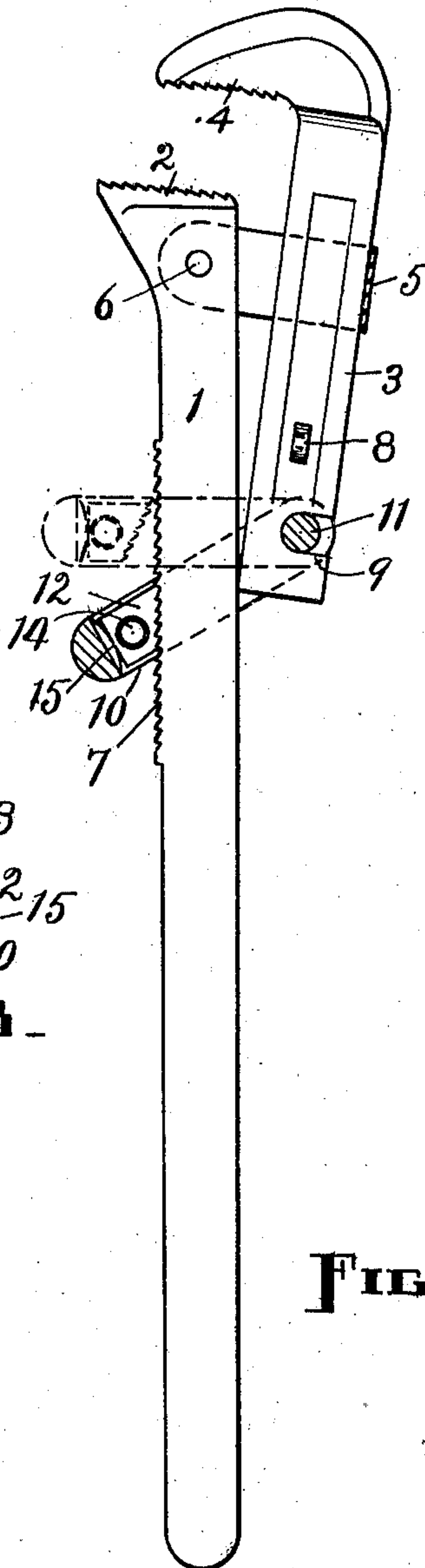


FIG. 2.

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PIPE-WRENCH.

983,267.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed February 23, 1910. Serial No. 545,293.

To all whom it may concern:

Be it known that I, FRANK F. CORBIN, a citizen of the United States of America, residing at Easthampton, in the county of Hampshire and State of Massachusetts, have invented a new and useful Pipe-Wrench, of which the following is a specification.

My invention relates to improvements in quick-acting pipe wrenches, that is, wrenches so constructed that they can be adjusted almost instantaneously to fit any pipe, and resides more particularly in the peculiar locking and releasing mechanism which I employ for the movable or adjustable shank of the wrench, as hereinafter set forth.

The primary object of my invention is to produce a strong, durable, comparatively simple and inexpensive, and highly efficient wrench of the class specified, and to provide such wrench with mechanism for securely holding the movable shank, wherever set, with its jaw in operative relation to the jaw on the main shank, even under the most severe strain or usage that the wrench may be in reason subjected to, which mechanism is capable of being easily and quickly manipulated to effect in an instant the release of said movable shank.

Other objects will appear in the course of the following description.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a wrench which embodies my invention in a practical form; Fig. 2, a similar elevation with parts in section and showing in full lines the locked position of the link and in dot-and-dash lines the unlocked position of such link, and, Fig. 3, an elevation of the link detached and as viewed from the rear.

Similar figures refer to similar parts throughout the several views.

The wrench illustrated in the drawings comprises a main shank 1 which has a jaw 2 at one end and is extended at the other end to form a handle, a movable shank 3 which has a jaw 4 at one end beyond said jaw 2 and is slidingly mounted on the back edge of said shank 1, the arrangement being such, as will presently appear, that the end only of said shank 3 that is opposite said jaw 4 bears on the shank 1, excepting at such infrequent intervals when the two shanks are brought into complete contiguity, a U-shaped clip or clevis 5 bolted at

6 to the shank 1 adjacent to the jaw 2 and adapted to limit the backward throw of the shank 3, and the locking and releasing mechanism described below. The parts and members just mentioned in detail are old and well-known, so that further explanation in regard to the same, beyond what may be required in describing the new elements and their operation, is not necessary.

The front edge of the shank 1 is serrated or provided with teeth 7 which form a rack of the usual kind and for the usual purpose. On one side of the adjustable shank 3, a short distance from the end thereof which fulcrums on the shank 1, is a perforated lug 8, and cut or otherwise formed in said shank 3, still nearer such fulcrum end, is a slot 9. A locking and releasing link 10 is provided for the movable shank 3. This link has a cross-piece 11 at one terminal to fit the slot 9 in the shank 3, and is provided at the other terminal with a block 12 having teeth 13 on the edge adjacent to the shank 1 to engage with the teeth 7. The link 10 embraces between its sides both shanks. The block 12 is mounted between the sides of the link 10 on a pin 14 set in said sides, and in addition to said pin a further support may be provided for said block in the form of two contiguous ribs 15 located in the space between said sides, between the closed part of said space and the adjacent edge of said block. The auxiliary support for the block 12, afforded by the ribs 15, takes much of the strain off of the pin 14, so that a smaller pin can be employed, and at the same time permits the slight independent movement needed between the link 10 and said block, with said pin as a center, to take place. This movement will be referred to again. The pin 14 extends beyond the link 10 on the same side with the lug 8, and like the latter is perforated.

A spring 16 has one end inserted in the perforated extension of the pin 14 and its opposite end inserted in the perforated lug 8. The spring 16 is bent and thus held under tension by the lug 8 and the pin 14, and said spring is so positioned by its confining members and the latter are so placed relative to each other that the force of the spring is exerted in a way to throw the shank 3 backward against the closed rear part of the clevis 5 and to throw the link

10 into oblique relation to the shank 1 and to retain them in such positions, said shank 3 fulcruming on said shank 1 and said link swinging with its cross-piece 11 in the bearing afforded by the slotted portion of said shank 3 and thus fulcruming on the latter. When the link 10 is in the position just described, the pin 14 is more remote from the jaw 2 than is the cross-piece 11, and the block teeth 13 are forced into engagement with the shank teeth 7; and any power applied or force exerted between the jaws 2 and 4 in a manner tending to separate them must prove futile, since the aforesaid engaging teeth together with the intervening parts and members prevent the shank 3 from being drawn along the shank 1 in the direction which would increase the distance between said jaws, or any retrograde movement on the part of said shank 1, although the members may so move at or on their fulcrums as to decrease and even completely close the V-shaped opening between the two shanks, as will be readily seen. This last action occurs when the wrench is borne upon to tighten or loosen, as the case may be, a pipe engaged by the jaws, and necessarily decrease the space between said jaws so that they grip said pipe still more firmly.

When the shanks are caused to approach each other, in the manner explained above, whether such approach be mutual or made solely by the shank 3, the link 10 is rocked a little on the pin 14, but owing to the provision which has been made for independent movement at this point the firm and complete engagement first established between the block 12 and the shank 1, through the medium of the teeth 13 and 7, remains undisturbed. These movements of the parts are slight, and if a single tooth were depended on, in place of the teeth 13, the provision to which particular attention has been called in this connection would not be needed.

In order to set or adjust the wrench, the jaw 4 is pressed toward the jaw 2 so as to force the terminal of the link 10, which pivotally engages the shank 3, against the resiliency of the spring 16 toward the free end or handle of the shank 1 to whatever extent may be required to permit the teeth 13 to be disengaged from the teeth 7, such movement required being very slight, and at the same time the opposite terminal of said link is forced against the resiliency of said spring and toward the jaw 2 until the disengagement between said teeth is effected; then the released parts are moved along said shank 1 in either direction, without allowing the block 12 to reengage with its teeth said teeth 7, until said jaws are spaced apart to the desired extent, and, finally, said link is released to said spring, when said teeth become reengaged. The shank 3 is now locked again

against longitudinal movement which would increase the space between the jaws. The amount of swing on the part of the link 10 required to bring about the disengagement of its block 12 is not necessarily great, and may be much less than that indicated in Fig. 2, where the dot-and-dash lines represent the link as occupying a position at right-angles to the shank 1, and with the block disengaged, of course, from said shank.

The link 10 need not be manipulated in the above-described manner, when it is simply desired to lessen the space between the jaws 2 and 4, since this can be done by merely forcing said jaw 4 toward said jaw 2 and thus forcing the shank 3 and said link along the shank 1 in the same direction, the teeth 13 meanwhile clicking past the teeth 7. There is no objection to this method of adjusting except that the teeth are thus subjected to more wear.

After being set, this wrench may be applied to a pipe and operated in much the same way as other kinds of pipe wrenches, but is self-releasing, and the action of said wrench when in operation is direct and powerful, and there is little tendency or liability to crush the pipe.

In the event that the jaws of the wrench are closed completely there are sufficient looseness between the parts and sufficient independent movement between the link and the block so that the shank 3 can be unlocked or released without it being necessary to first force said shank along the shank 1 in the manner previously described. This last action is not always and may never be necessary in order to permit the movable shank to be released for adjustment, although when such action is resorted to the manipulation of the link is thereby rendered somewhat easier.

Any and all changes which can be reasonably said to fall within the scope of my claims may be made, whether they relate to the shape, size, or construction of some or all of the parts and members of my wrench.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a pipe wrench, with a main shank having a jaw at one end, and a movable shank having a jaw at one end, in operative relation to said first-mentioned jaw, and having its opposite end slidably mounted on said main-shank, of a link pivotally connected with said movable shank and provided with a movable member to engage and release said main shank, a spring arranged to actuate said link into engagement with said main shank and to throw backward the jaw-provided terminal of said movable shank, and a clevis connecting said shanks to limit such backward movement of said movable shank.

2. The combination, in a pipe wrench,

with a serrated main shank having a jaw at one end, and a movable shank having a jaw at one end, in operative relation to said first-mentioned jaw, and having its opposite end
5 slidingly mounted on said main shank, of a link pivotally connected at one terminal with said movable jaw, a serrated block pivotally mounted in the other terminal of said link, in operative relation to the main shank serrations, a spring arranged to act on both the
10 link and movable shank and to actuate their outer terminals away from each other, said block being thus thrust into engagement with the main shank, and means to limit the
15 movement imparted to said movable shank by said spring.

3. The combination, in a pipe wrench, with a serrated main shank having a jaw at one end, and a movable shank having a jaw
20 at one end, in operative relation to said first-

mentioned jaw, and having its opposite end slidingly mounted on said main shank, of a link pivotally connected at one terminal with said movable shank and provided at the opposite terminal with a support for a piv- 25 otally-mounted block, a serrated block pivotally mounted in said last-mentioned terminal of the link, on said support and in operative relation to the main shank serrations, a spring arranged to act on both the
30 link and movable shank and to actuate their outer terminals away from each other, said block being thus thrust into engagement with the main shank, and means to limit the
35 movement imparted to said movable shank by said spring.

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Witnesses:

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