No. 681,910.

Patented Sept. 3, 1901.

F. P. GALVIN.

PIPE WRENCH.

(Application filed Apr. 13, 1901.)

(No Model.)

Fig. 1.

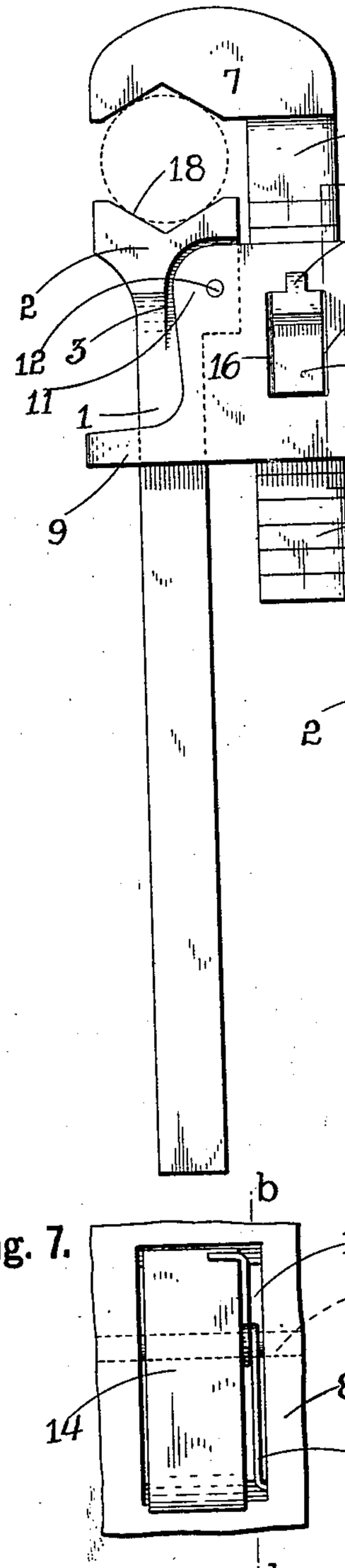

Fig. 3.

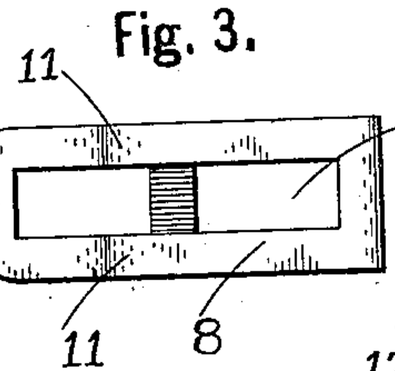

Fig. 4.

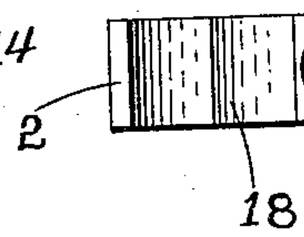

Fig. 2.

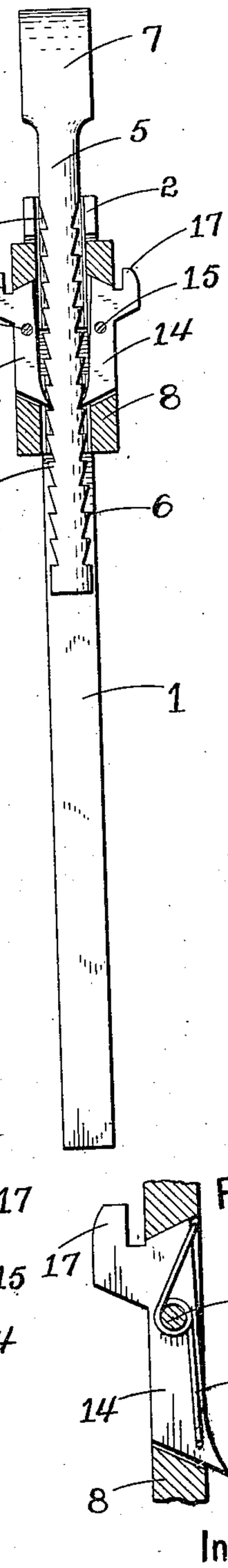

Fig. 5.

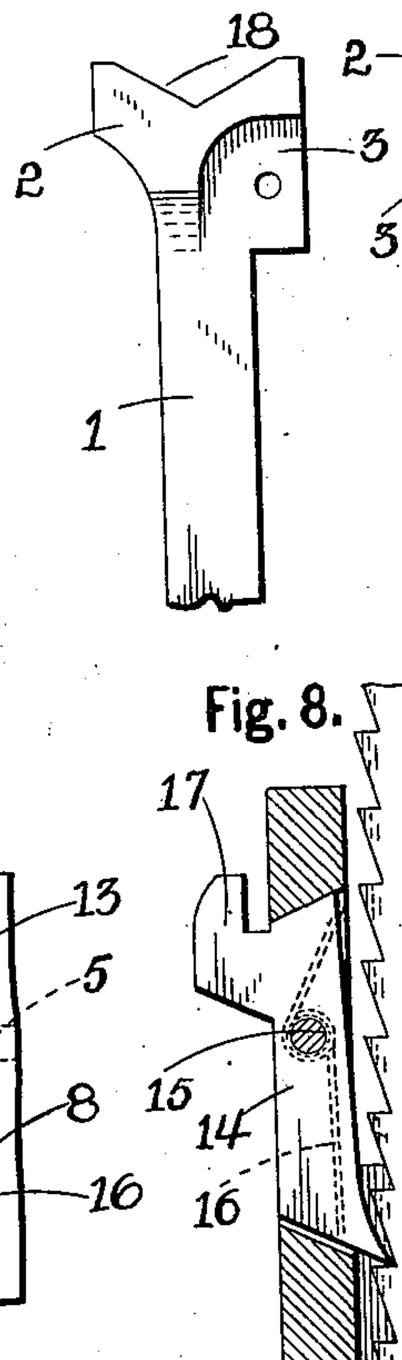

Fig. 6.

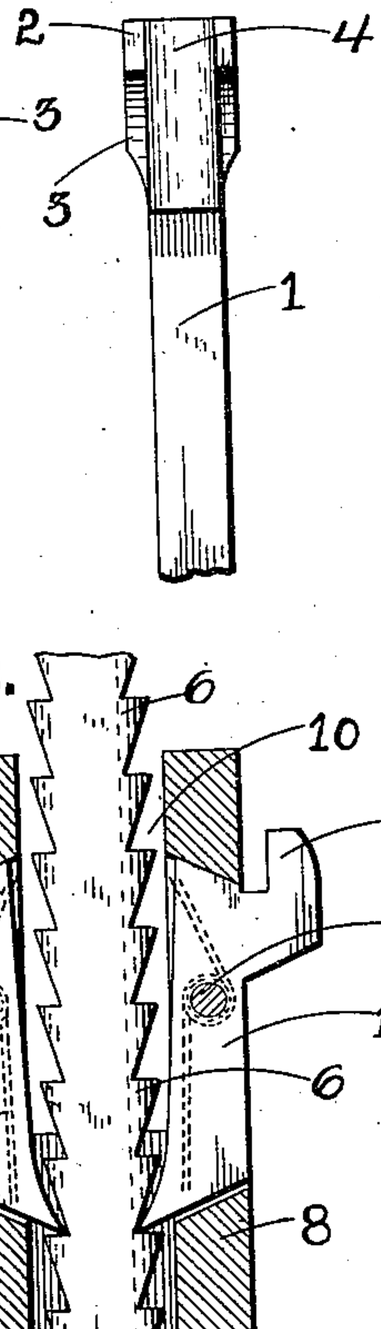

Fig. 7.

Fig. 8.

Fig. 9.

Witnesses.

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PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 681,910, dated September 3, 1901.

Application filed April 13, 1901. Serial No. 55,752. (No model.)

To all whom it may concern:

Be it known that I, FRANK P. GALVIN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

My invention relates to an improved pipe-wrench; and the object of the invention is to construct a cheap, strong, and conveniently-separated device of this character.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The invention is susceptible to various changes in the form, proportion, and minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a side view of my improved pipe-wrench. Fig. 2 is a section on line *a a*, Fig. 1, looking in the direction of the arrow X. Fig. 3 is a top plan view of the pivoted member. Fig. 4 is a top plan view of the fixed member. Fig. 5 is a side view of a fragment of the fixed member. Fig. 6 is an end view of the same. Fig. 7 is a view of one of the pawls and springs looking in the direction of the arrow V. Fig. 8 is an enlarged fragmentary section on line *a a*, Fig. 1, the fixed member being removed. Fig. 9 is a section on line *b b*, Fig. 7.

Referring to the drawings in detail, like numerals designate like parts.

The wrench is composed of three parts or members—a fixed member, a movable member, and a pivotal member. The fixed member has a shank 1, provided with an enlarged front end 2, which constitutes the inner jaw of the wrench. The sides of the jaw 2 are cut away to form a reduced portion 3, and the outer edge of the enlarged front end 2 is provided with a shallow longitudinal groove 4 of curved cross-section. The movable member has a shank 5, provided on each side with a plurality of ratchet-teeth 6, and an enlarged jaw 7 is formed at one end of the shank. The pivotal member is in the form of a metal block 8, having a loop 9 projecting from one corner, which fits loosely around the shank 1 of the fixed member. An opening 10, substantially similar in shape and slightly larger in size than the shank 5 of the movable member, is formed in and extends through the block. The edge of the block from which the loop 9 projects is recessed from a point near the loop to the opposite corner and deep enough to extend to the opening 10, and the reduced portion 3 of the fixed member is interposed and pivoted between the portions 11 of the block by the pivot-pin 12. The block is provided on opposite sides with openings 13, which extend through the sides to the opening 10 and are preferably rectangular in form. Pawls 14 are pivoted in these openings by the pivots 15 and have points adapted to engage the ratchet-teeth 6 on the shank 5. These pawls are normally held in engaging position by the springs 16, which are preferably formed as shown and consist of a portion of spring-wire having one end fastened to the block, the middle portion looped around the pivot 15, and the opposite end bent beneath the pawl. Both of the end edges of the openings 13 are inclined, the rear edges forming inclined shoulders to limit the outward movement of the sharpened locking ends of the pawls and the forward edges forming inclined shoulders against which the forward edges of the pawls, which are correspondingly inclined, contact when in locking position. By this means the larger portion of the strain on the movable jaw of the wrench is taken from the pivots 15 and is borne by the pivotal member. The pawls are also provided with lugs or stops 17, which contact with the sides of the block when the pawls are depressed to release the movable member. It will be noted that the pawls which are slightly smaller are of substantially the same form as the transverse openings, and their outer surfaces, with the exception of the lugs 17, are on a plane with the outer surface of the block when the pawls are in locking position.

The jaws of this wrench are each provided with a recess 18, which forms a four-sided space to receive the pipe. The advantage of this construction is that the pipe is held at four different points and that the points of contact with the pipe vary according to the

size of the pipe, so that the wear is not all upon the same points of the jaws. The edge of the shank of the movable member curves correspondingly and fits the groove 4 in the outer edge of the reduced portion 3 of the shank of the fixed member and is forced therein during the operation of the wrench, thereby materially strengthening the wrench against a twisting strain when in use without in any way materially retarding the movement of the movable member.

I claim as my invention—

1. A pipe-wrench comprising a fixed member, a block having attachment to the fixed member and having a longitudinal opening and rectangular transverse openings extending from the longitudinal opening through the sides of the block; the transverse openings having at least one inclined edge, a movable member having a ratchet-tooth shank extending through the longitudinal opening and pawls of corresponding rectangular formation having support in the transverse openings and each having a correspondingly-inclined edge adapted to contact with and receive support from the inclined edge of the transverse opening when the pawl is in locking position, substantially as set forth.

2. A pipe-wrench comprising a fixed member, a block having attachment to the fixed member and having a longitudinal opening and at least one rectangular transverse opening extending from the longitudinal opening through the side of the block, a movable member having a toothed shank adjustably fitting in the longitudinal opening and a pawl of corresponding rectangular formation in the transverse opening engaging with the toothed shank and adapted to receive support from the block when in locking position.

3. A pipe-wrench comprising a fixed member, a block having attachment to the fixed member and having a longitudinal opening and at least one transverse opening extending from the longitudinal opening through the side of the block; two of the surrounding edges of which are inclined at opposite angles to the surface of the block, a movable member having a toothed shank adjustably fitting in the longitudinal opening and a pawl in the transverse opening engaging with the toothed shank, and having oppositely-inclined end edges adapted to contact with the edge of the transverse opening when the pawl is in one position whereby the pawl is supported in position at the limit of its movement by the edge of the transverse opening.

4. A pipe-wrench comprising a fixed member, a block having attachment to the fixed member and having a longitudinal opening and at least one comparatively large transverse opening extending from the longitudinal opening through the side of the block, one at least of the surrounding edges of which is inclined, a movable member having a toothed shank adjustably fitting in the longitudinal opening and a pawl having a comparatively large body similar in form to the transverse opening and movably secured in said opening and adapted to engage the toothed shank, and having an edge of corresponding inclination contacting with and receiving support from the edge of the transverse opening when the pawl is in locking position.

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