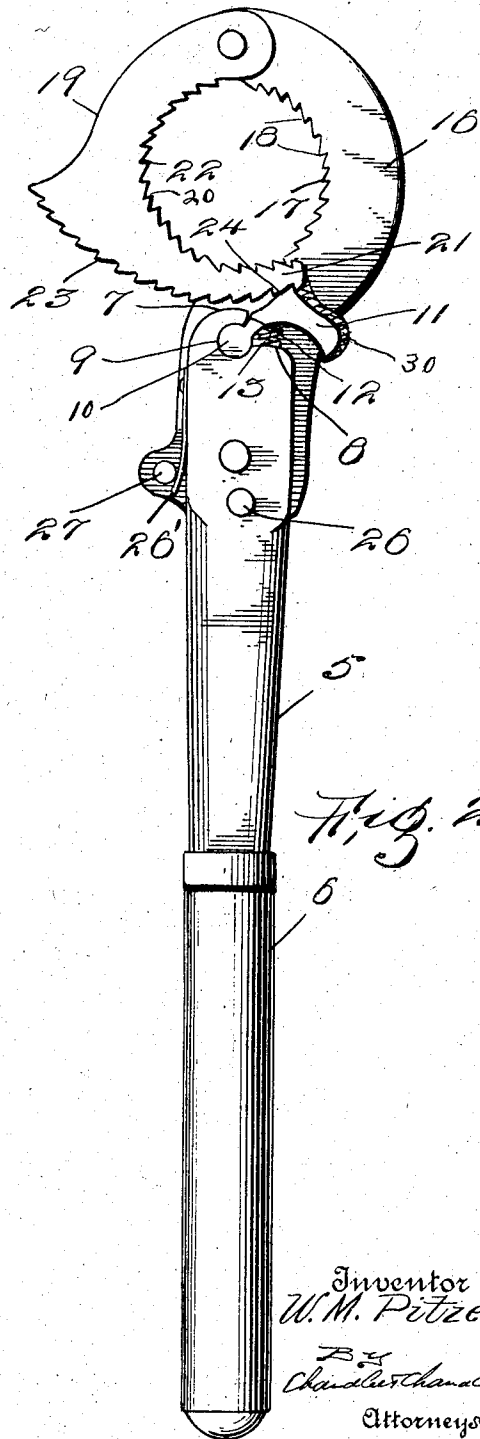
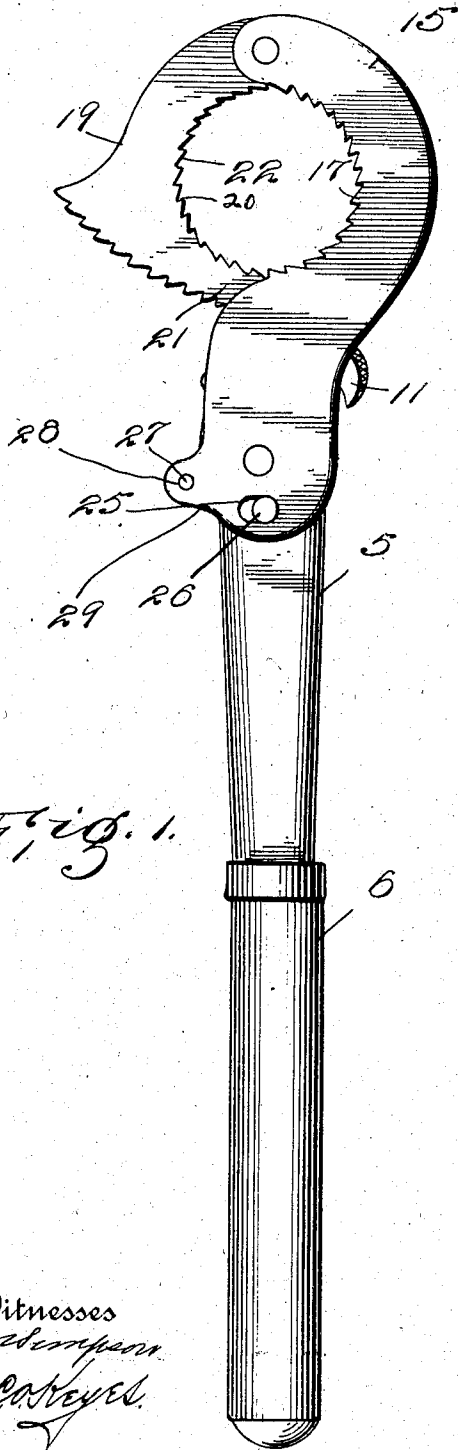


W. M. PITZER.
WRENCH.

APPLICATION FILED JUNE 10, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

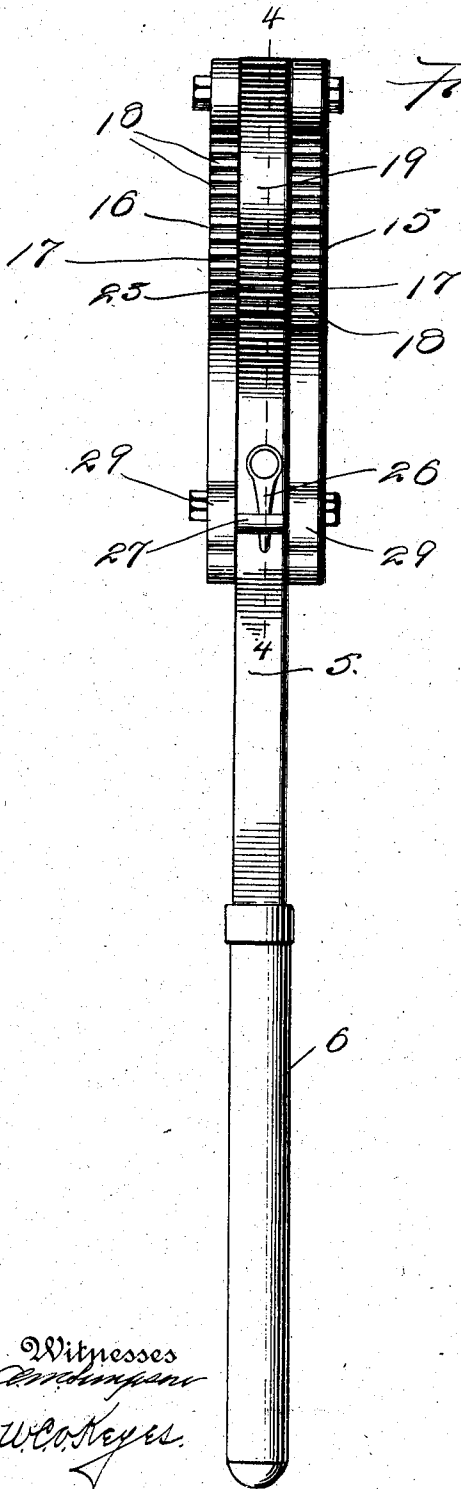


Fig. 3.

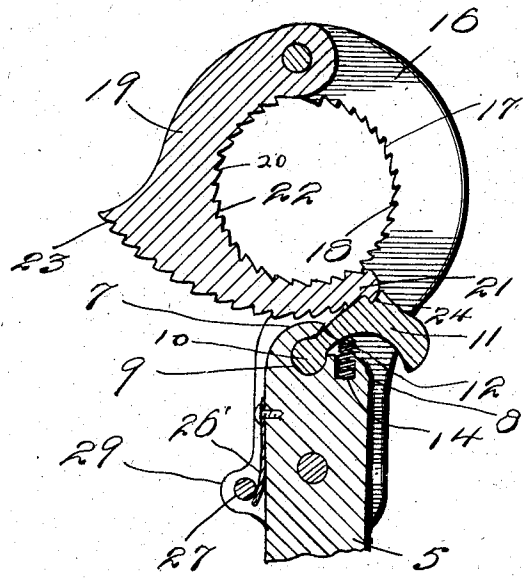


Fig. 4.

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SPECIFICATION forming part of Letters Patent No. 791,814, dated June 6, 1905.

Application filed June 10, 1904. Serial No. 211,997.

To all whom it may concern:

Be it known that I, WILL M. PITZER, a citizen of the United States, residing at San Francisco, in the county of San Francisco, State of California, have invented certain new and useful Improvements in 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 wrenches, and more particularly to those designed for grasping pipe or other bodies having curved surfaces, and has for its object to provide a wrench of this nature which will be provided with jaws entirely encircling the body with which the wrench is engaged, so that the wrench may not be accidentally disengaged therefrom, and in which movement of the handle of the wrench in one direction will cause the jaws of the wrench to tightly engage the body to move the body with the wrench, movement of the handle in the opposite direction acting to move the jaws out of engagement with the body to permit the wrench to be moved freely with respect to the body.

A further object is to provide a wrench so constructed that when in use pipe or other hollow bodies will not be crushed thereby.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation of the complete wrench. Fig. 2 is a view similar to Fig. 1, showing one of the jaw-plates removed. Fig. 3 is an edge view of the wrench. Fig. 4 is a longitudinal section on line 4 4 of Fig. 3.

Referring now to the drawings, the present invention comprises a stock 5, which may be provided at one end with a wooden grip 6 and which is provided at its opposite end with a projection 7, resulting in a shoulder 8, which is rounded, as shown. The projection 7 is provided with a transverse cylindrical passage 9, which opens longitudinally through the side face of the projection above the shoulder 8, this passage forming a socket for the reception of the cylindrical end portion 10 of a dog 11, which is thus pivotally connected with the stock 5. The dog 11 is provided with a shoul-

der 12, which abuts against the face of the projection 7 above the opening of the passage 9, thus limiting the movement of the dog in one direction, and the dog is held at this limit of its movement by means of a helical spring 13, one end of which is engaged in a recess 14 in the stock, the remaining end bearing against the dog.

Pivoted to opposite sides of the stock 5 are jaw-plates 15 and 16, which extend beyond the end of the stock and have semicircular recesses 17 in their edges, the inner edges of the jaws being provided with ratchet-teeth 18. Pivoted between the free ends of the jaw-plates 15 and 16 is a jaw 19, having a curved recess 20 therein directed toward the recesses 17, the free end of the jaw being in the form of a finger 21, which is movable to lie between the jaw-plates, as shown. The inner edge of the jaw 19 is provided with ratchet-teeth 22, which are arranged for cooperation with the teeth of the jaw-plates 15 and 16 to grasp a pipe or other similarly-shaped body. A portion of the outer edge of the jaw 19 is arch-shaped, as shown, and is provided with ratchet-teeth 23, which are arranged for engagement by teeth 24, carried by the dog 11, when the latter is in its normal position to prevent movement of the jaw 19 away from the jaw-plates 15 and 16.

Between their ends which extend inwardly of the stock 5 and their points of pivotal connection with the stock the jaw-plates 15 and 16 are provided with laterally-extending slots 25, with which are engaged pins 26, extending outwardly from the stock, these pins thus limiting the pivotal movement of the plates 15 and 16. The plates 15 and 16 are held yieldably at the limit of this pivotal movement in one direction by means of a spring-tongue 26', which is secured to the edge of the stock 5 at one end and bears at its free end against a pin 27, which is engaged in perforations 28 in lugs 29, which extend outwardly from the plates beyond the edge of the stock 5, this arrangement being such that the jaw 19 is held in close engagement with the dog 11 and holds the shoulder 12 slightly spaced from the face of the projection 7 and against the action of the spring 13, and it will be apparent from

the drawings that when the jaw-plates 15 and 16 are moved against the action of the spring-tongue 26' the dog 11 will move the jaw 19 in the direction of the plates 15 and 16, thus causing the ratchet-teeth 18 and 22 to bite into the object with which the wrench is engaged.

Movement of the free end of the stock in a direction to cause the teeth 18 and 22 to engage the body causes movement of the plates 15 and 16 against the action of the spring-tongue 26, the result being, as described above, that the teeth bite into the body, and it may be moved with the wrench or held against movement thereby. In working in confined space where a complete revolution of the wrench is impossible the body with which the wrench is engaged may be revolved by moving the wrench alternately in opposite directions, movement in one direction resulting in engagement of the teeth with the body and movement of the body therewith, movement of the stock in the opposite direction resulting in disengagement of the teeth from the body to permit of free movement of the wrench with respect to the body.

The dog 11 extends outwardly beyond the jaw-plates 15 and 16 and is roughened, as shown at 30, to be engaged by the finger and moved against the action of the spring 13 to disengage its teeth 24 from the jaw 19 to permit of free movement of the jaw upon its pivot. The jaw may thus be moved outwardly to disengage its finger 21 from between the plates 15 and 16, and the jaw and jaw-plates may be engaged with a pipe or similar body, after which the jaw is moved to bring its teeth 23 again into the engagement with the teeth 24 of the dog, it being understood that the parts are so disposed that the body is engaged both by the teeth 22 of the jaw and the teeth 18 of the jaw-plates. When the wrench has been thus engaged with the body, it may be operated as described above.

In practice modifications of the specific construction shown may be made and any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

1. A wrench comprising a stock, a jaw pivoted at either side of the stock, means for limiting the pivotal movement of the jaws in both directions, a spring arranged to hold said jaws normally at one limit of their movement, a jaw pivoted between the free ends of the first-named jaws for coöperation therewith, and having a finger arranged to extend between said jaws, said finger being provided with serrations, a dog pivoted to the stock and arranged for engagement with the serrations of the finger to hold the second-named jaw at different points of its pivotal movement and to hold said jaw stationary with re-

spect to the stock when the first-named jaws are moved against the action of the spring.

2. A wrench comprising a stock, having a projection at one side of one of its ends, said projection having a socket therein opening through the side of the projection above the end of the stock, a dog having a head pivotally engaged in the socket, a spring disposed between the dog and the end of the stock to hold the former yieldably at the outer limit of its movement, a jaw pivoted to either side of the stock and projecting beyond the end thereof, a jaw pivoted between the ends of the first-named jaws for coöperation therewith and having a finger arranged to extend therebetween, said finger having serrations arranged for engagement by the dog to hold the finger at different points of its pivotal movement, said dog being arranged to move the second-named jaw toward and away from the first-named jaws when the stock is moved with respect to the said first-named jaws.

3. A wrench comprising a stock, jaws pivotally connected to the stock, means for limiting the pivotal movement of the jaws with respect to the stock in both directions, a jaw pivoted to the first-named jaws for coöperation therewith, means for holding said jaw at different points of its pivotal movement, means for moving the last-named jaw toward and away from the first-named jaws when the stock is moved pivotally with respect to said jaws, and means for holding the first-named jaws normally at the limit of their movement away from the second-named jaw.

4. A pipe-wrench comprising a handle portion and two opposed jaws each having substantially a segmental inner surface, said jaws having their adjacent ends pivoted together at a point beyond the end of the handle, and the movable jaw having a peripheral toothed surface upon its exterior and having a curvature upon a radius from the pivot-pin of the two jaws, and means for engaging said exterior toothed surface of the movable jaw for holding said jaw closed with relation to the stationary jaw.

5. In a pipe-wrench, a jaw having a substantially semicircular toothed interior, a second jaw having a correspondingly-shaped opposed toothed interior, and upon substantially the same curvature as that of the first-named jaw, a pivot-pin by which the outer ends of said jaws are united, a peripheral toothed surface formed upon the exterior of the second jaw and having a curvature upon a radius from the pivot-pin of the two jaws, and a pivoted spring-pressed pawl adapted to engage said exterior teeth.

6. In a pipe-wrench, a jaw having the interior substantially semicircular and toothed, a second jaw having corresponding shape and teeth upon substantially the same curvature with the first-named jaw, a pivot-pin by which

the outer ends of said jaws are united, a toothed periphery upon the exterior of the second jaw and on the opposite side from the pivot-pin, a spring-pressed pawl adapted to engage these exterior teeth of the second jaw, a handle pivoted to the first-named jaw, a transverse slot made in an extension of the first-named jaw, a pin passing through the handle and said slot whereby an independent movement of the handle may be effected to further close the second jaw.

7. In a pipe-wrench, a jaw having a substantially semicircular toothed interior, said jaw being formed of parallel sections, a second jaw having a similar toothed interior, a pin by which the outer end of the second jaw is pivoted between the parts of the first jaw, a correspondingly-toothed segmental interior of the second jaw, a ratchet-toothed exterior of said second jaw, a spring-pressed pawl

adapted to engage said teeth when the end of the second jaw is moved to close said jaw with relation to the first one, an extension of the first-named jaw members, a handle pivoted between said members having its inner end adapted to engage with the pawl, transverse slots made in the extension members beyond the pivot-pin, a pin passing through said slots and through the handle whereby the latter is movable, said movement acting to close the jaws and grip an inclosed pipe and a spring by which the lever and jaw extensions are returned to their normal position when pressure is relieved.

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

WILL M. PITZER.

Witnesses:

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GEORGE PATTISON.