J. A. GILLESPIE & M. J. COREY.

PIPE TONGS.

APPLICATION FILED JUNE 30, 1909.

946,506.

Patented Jan. 11, 1910.

Fig. 1.

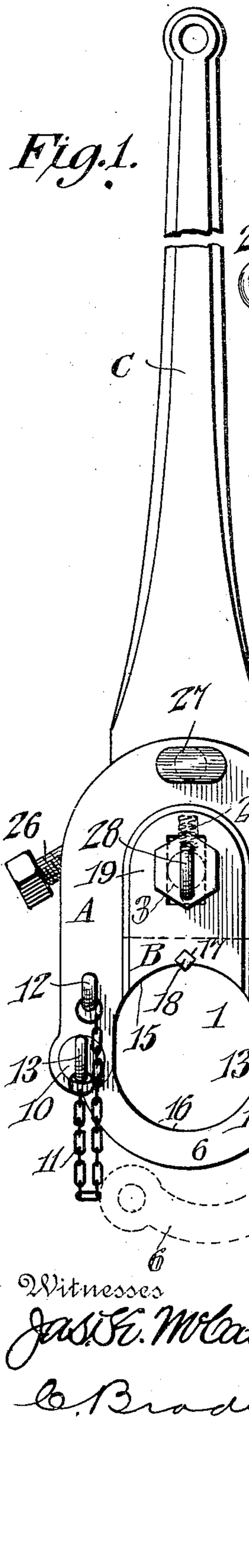


Fig. 2.

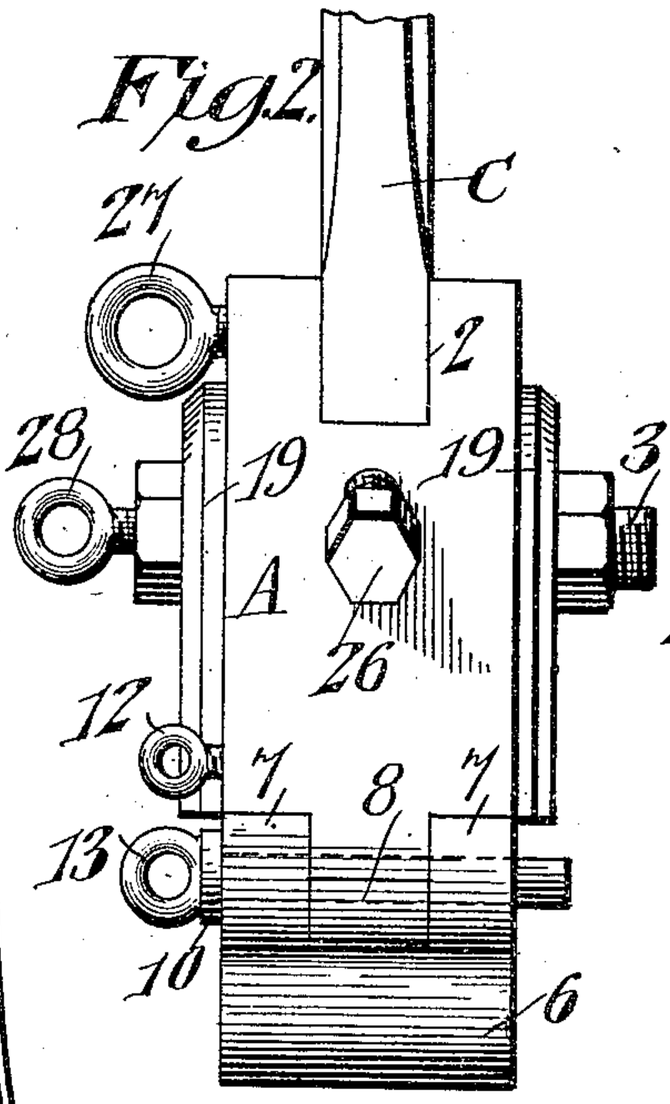


Fig. 3.

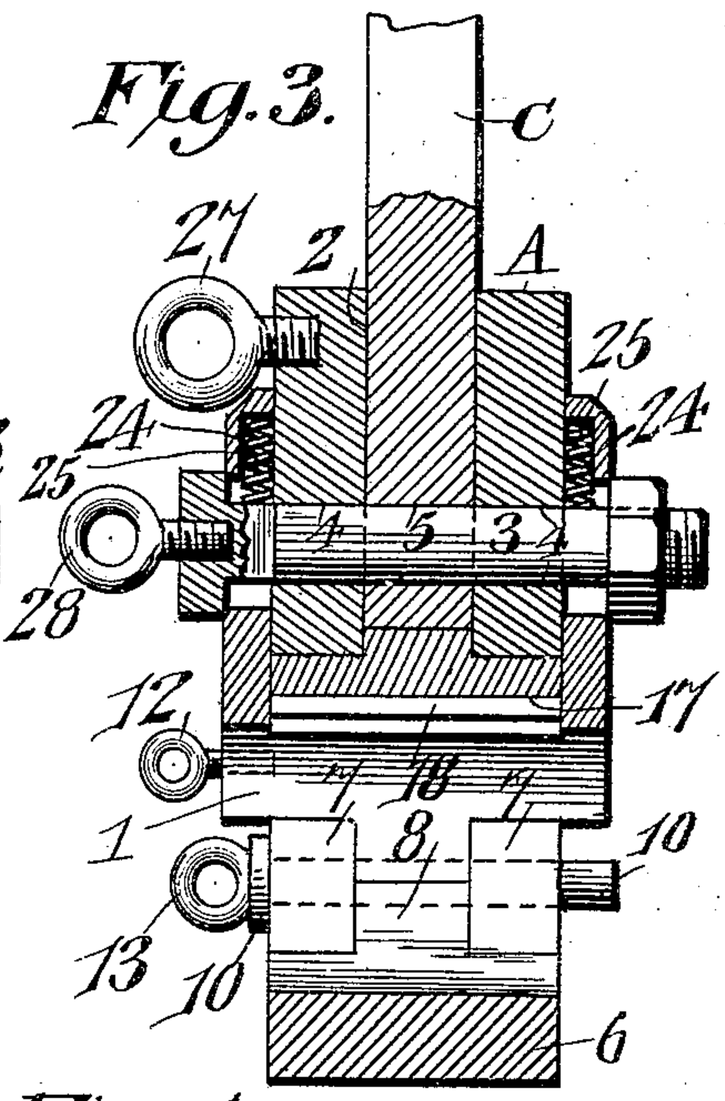


Fig. 5.

Fig. 6.

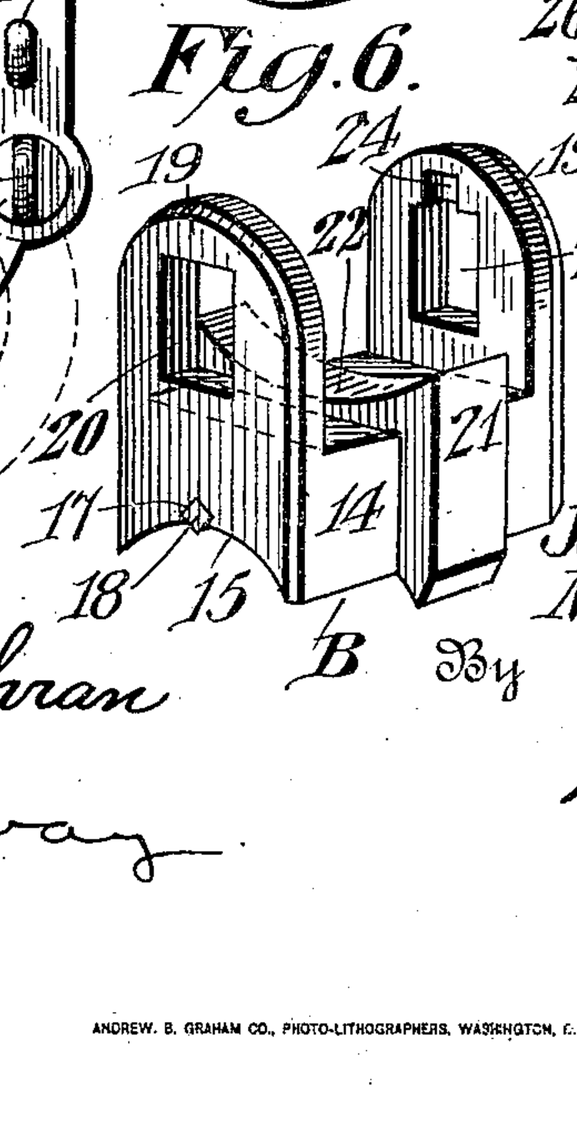
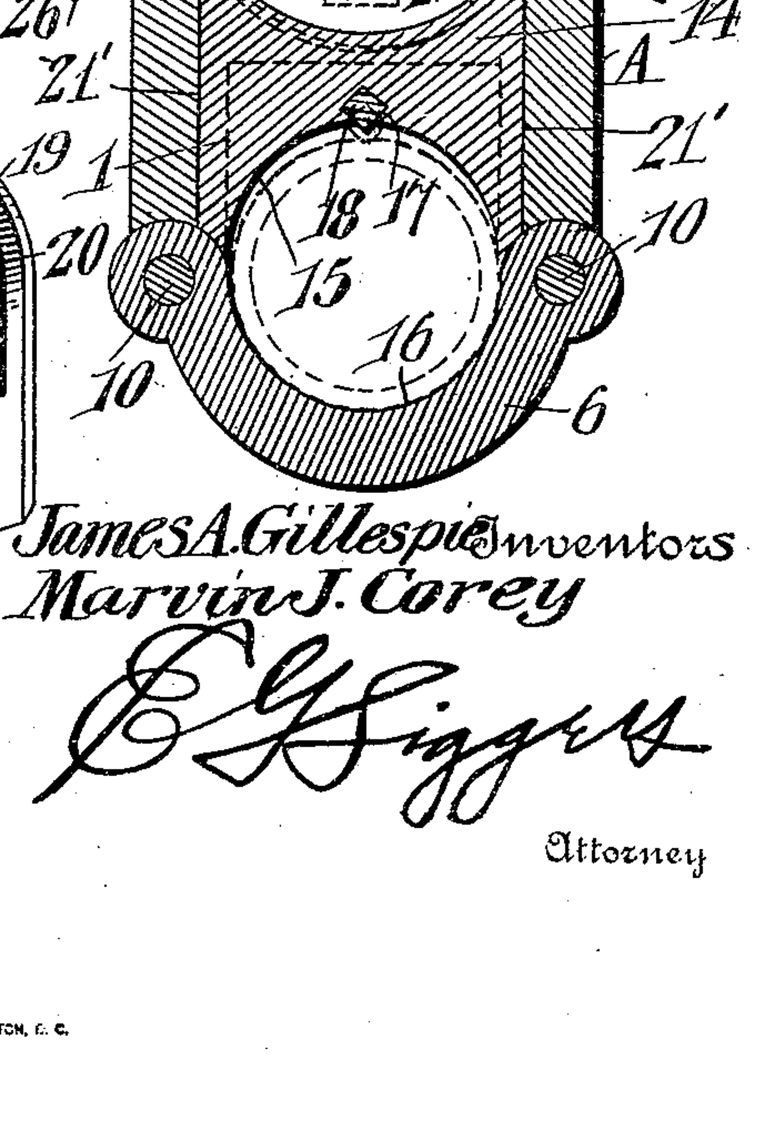


Fig. 4.



Witnesses

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JAMES A. GILLESPIE AND MARVIN J. COREY, OF COALINGA, CALIFORNIA.

PIPE-TONGS.

946,506. Specification of Letters Patent. **Patented Jan. 11, 1910.**

Application filed June 30, 1909. Serial No. 505,265.

To all whom it may concern:

Be it known that we, JAMES A. GILLESPIE and MARVIN J. COREY, citizens of the United States, residing at Coalinga, in the county of Fresno and State of California, have invented a new and useful Pipe-Tongs, of which the following is a specification.

This invention relates to pipe tongs of that type provided with a movable jaw element which is engaged with or released from the pipe upon the initial movement of the handle during the back and forth movement of the wrench in screwing or unscrewing a pipe.

The invention has for one of its objects to improve and simplify the construction and operation of wrenches of this character so as to be reliable and efficient in use, of simple and durable construction, and composed of few parts.

Another object of the invention is the provision of a wrench having a movable jaw element which is released by means of springs so as not to interfere with the reverse movement of the wrench to obtain another bite on the pipe, and also to provide means for limiting the movement of the handle of the wrench for preventing the jaw from biting the pipe with too great a pressure and for limiting the return movement of the handle to prevent the jaw from being moved into engagement with the pipe by an excessive return movement of the handle.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one embodiment of the invention, Figure 1 is a front view of the wrench. Fig. 2 is a side view with a portion of the handle broken away. Fig. 3 is a central longitudinal section of the head portion of the wrench. Fig. 4 is a longitudinal section taken on a plane at right angles to the section of Fig. 3. Fig. 5 is a perspective view of the head of the wrench. Fig. 6 is a perspective view of the movable jaw element.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawing, A designates the head of the wrench which is preferably, although not necessarily, a metal casting, having a chamber 1 for receiving the movable jaw element designated generally by B. The head A is provided with an opening 2 that leads into the chamber 1 for accommodating the inner end of the handle or lever C which is connected with the head by a pivot bolt 3 passing through apertures 4 in the opposite walls of the head and through an aperture 5 in the handle. Coöperating with the head is an approximately semi-circular yoke or keeper 6 which is detachably and hingedly connected at its ends with the outer corners of the head, the head being formed with pintle-receiving ears 7 and the ends of the yoke with pintle-receiving ears 8 through which the pintle or pins 10 extend. Either pintle 10 can be removed for opening the yoke or keeper for applying the wrench to or removing it from the pipe. To prevent loss of the pintles, each may be attached to the head by a chain 11 which has its ends connected with eyes 12 and 13 on the body A and pintle pin, respectively.

The jaw element B consists of a body piece or block 14 which has a concave face 15 arranged opposite the concave pipe-engaging face 16 of the yoke, and the face 15 has a non-circular recess 17 extending parallel with the axis of curvature of the surface 15 for receiving a steel die 18 which grips the pipe for turning the same by the wrench, one corner of the die projecting out of the recess to form a biting edge. The block or body 14 is formed with parallel spaced flanges or plates 19 which engage opposite sides of the head A, and these plates are formed with openings 20 through which the pivot bolt 3 extends, the openings being of such length as to permit the jaw element B to slide back and forth on the head. The central portion of the body 14 is formed with a rib 21 disposed between the plates 19, and the rear face 22 of the rib is concave to form a cam surface with which the cam 23 of the handle C engages. The cam 23 is of the same curvature as the surface 22 but is arranged eccentrically to the pivot bolt 3, so that as the handle is tilted to one side or the other, the jaw element B will be moved toward the yoke for gripping the pipe. The rib 21 projects from opposite sides of the jaw element and engages in guideways 21′ in the opposed walls of the chamber 1 of the head A. Recesses 24 are provided in the inner surfaces of the plates 19 to accommodate helical compression springs 25 which have

their inner ends bearing against the pivot bolt 3 and their outer ends bearing against the walls of the recesses 24, so that the springs will tend to hold the jaw element in open position.

The head A is provided with adjustable stops 26 at opposite sides for limiting the movement of the handle. These stops are in the form of bolts which extend into the opening 2 of the head from opposite sides thereof and are arranged to engage the side faces of the handle. One stop is adjusted to limit the movement of the handle for gripping the jaw to the pipe, while the other stop is adjusted to limit the return movement of the handle, so that the latter will be prevented from being moved to such an extent as to cause the jaw to grip the pipe when the wrench is moved backwardly to obtain another grip. In other words, the right stop in Fig. 4 permits the handle to be tilted to the dotted line position, which is sufficient to cause the die 18 to firmly grip the pipe without damaging the latter, while the left stop is adjusted to arrest the return movement of the handle when it assumes approximately the full line position. The wrench may be suspended from a derrick or other support by means of a chain attached to eyes 27 and 28 suitably arranged on the wrench, as for instance, on the inner portion of the head A and on the bolt 3, respectively, the wrench being disposed in a horizontal position when supported by a chain in this manner.

In practice, the wrench is applied to a pipe by first removing one of the pintle pins 10 and opening the yoke, as shown by dotted lines, so as to enter the pipe in the chamber 1 of the head, and after being thus entered, the yoke is closed and the pintle pin inserted. The stops 26 are then adjusted according to the direction of movement of the wrench for screwing or unscrewing the pipe. The wrench is moved by a back and forth movement of the handle, which, at the initial part of the movement in one direction, causes the jaw element B to grip the pipe so that the latter will be turned during the rest of the movement. During the initial part of the back stroke, the jaw element is released from the pipe by the expansion of the springs 25, which were held under compression during the previous forward stroke of the wrench, and thereby the wrench can be quickly returned to obtain a second bite on the pipe. This operation is repeated until the pipe is screwed home or loosened, as the case may be. It will thus be seen that a positive grip on the pipe can be obtained and that the wrench can be readily adjusted to or removed from the pipe with despatch.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while we have described the principle of operation of the invention, together with the device which we now consider to be the best embodiment thereof, we desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what we claim as new, and desire to secure by Letters Patent, is:—

1. A wrench comprising a head, a handle pivotally connected with the head, a gripping member slidably mounted on the head and moved by the handle in one direction, a yoke coöperating with the member for gripping the wrench to an object, means for detachably and hingedly connecting the yoke with the head, and a spring for releasing the gripping member upon the return movement of the handle.

2. A wrench comprising a head, a handle pivotally connected with the head, a gripping member slidably mounted on the head and moved by the handle in one direction, a yoke coöperating with the member for gripping the wrench to an object, means for detachably and hingedly connecting the yoke with the head, a spring for releasing the gripping member upon the return movement of the handle, and stop devices mounted on the head for limiting the movement of the handle to set the gripping member while the wrench is moved forwardly in one direction and to prevent resetting of the gripping member as the wrench is moved in reverse direction.

3. A wrench comprising a head, an operating handle pivotally mounted thereon, a gripping member carried by the head and operatively related to the handle, and adjustable stops mounted on the head to engage opposite sides of the handle to limit the movement thereof in either direction.

4. A wrench comprising a chambered head open at one side, a handle extending into the open side of the head and pivotally mounted therein, a gripping member slidably disposed in the chamber and operatively related with the handle, and adjustable stops mounted in the head at opposite sides of the opening thereof to engage the handle for limiting the movement thereof.

5. A wrench comprising a chambered head, a jaw element mounted in the head and having plates slidably engaging the outer faces of the head and having openings, a handle pivotally connected with the head and operatively related to the element, a pivot extending through the head and handle for connecting the two and passing

through the openings of the said plates, and springs interposed between the pivot and jaw element for releasing the latter from the object gripped by the wrench upon movement of the handle in one direction.

6. A wrench comprising a chambered head open at one end and having guideways in opposed walls, a jaw element mounted in the chamber of the head and formed with a rib disposed with its ends slidably engaged in the guideways and having a curved cam-engaging face, a handle having one end extending into the opening of the chamber and formed with a cam for engaging the said curved face, plates on the jaw element arranged to engage the opposite sides of the head and formed with openings elongated in the direction of movement of the element, a pivot bolt extending through the said openings and through the head and handle, springs disposed in the openings and interposed between the pivot bolt and plates for holding the jaw element in retracted position, a yoke connected with the head and coöperating with the element to grip the wrench to an object, and means on the head for limiting the movement of the handle.

7. A wrench comprising a head, a yoke having its ends hingedly and detachably connected with the head, a slidable jaw member mounted on the head and coöperating with the yoke for gripping the wrench to an object, a handle connected with the head and engaging the member for moving the same in one direction, yielding means for moving the element in the opposite direction during the return movement of the handle, and adjustable stop devices on the head for limiting the movement of the handle.

8. A wrench comprising a head, a handle pivotally mounted thereon and having a cam face, a gripping member slidably mounted on the head and engaged with the cam face to be moved thereby to gripping position as the handle swings in one direction, a yoke on the head coöperating with the member to grip an object, means for holding the yoke in locking position on the object, and a yielding device for holding the member against the cam face and for returning the member to normal position as the handle is reversed.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

JAMES A. GILLESPIE.
MARVIN J. COREY.

Witnesses:
ELIZABETH M. JONES,
GILJAM S. BOSCH.