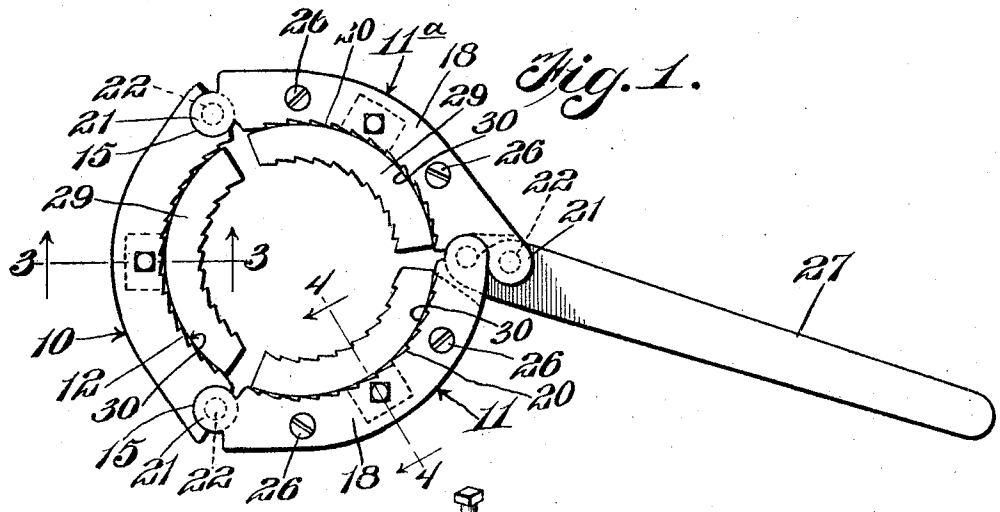
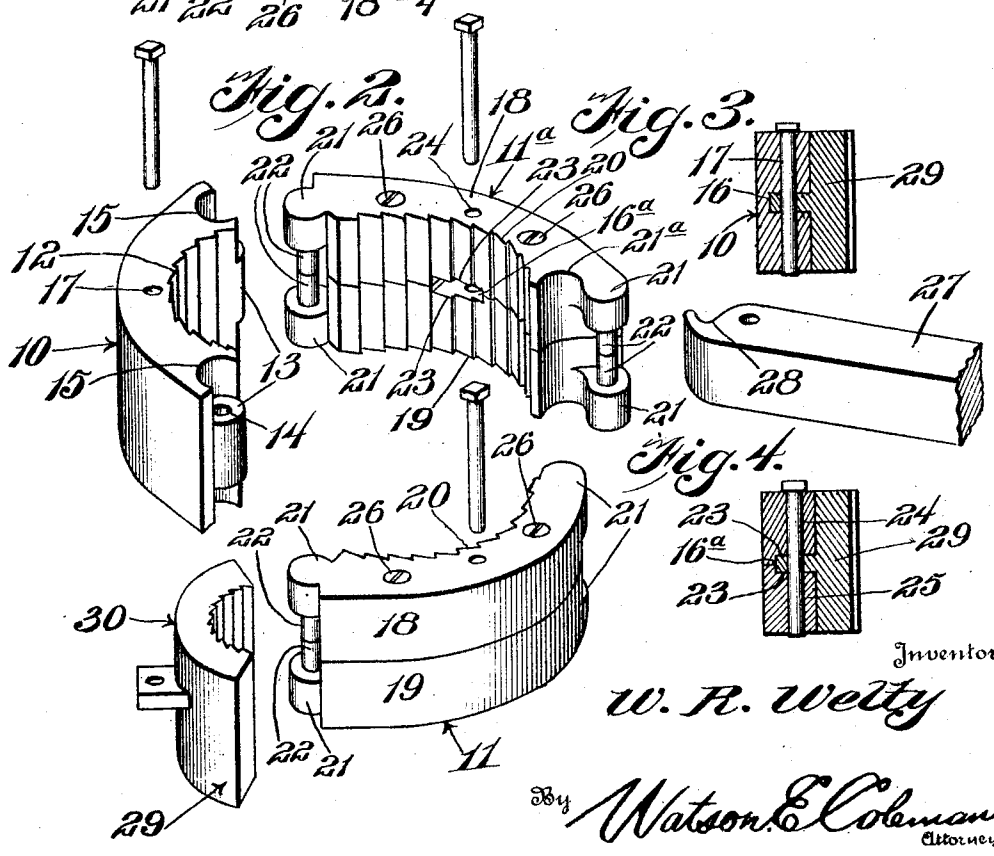
July 28, 1925. 1,547,543

W. R. WELTY

PIPE TONGS

Filed Nov. 29, 1924





Patented July 28, 1925. 1,547,543

UNITED STATES PATENT OFFICE.

WILLIAM R. WELTY, OF DUNCAN, OKLAHOMA.

PIPE TONGS.

Application filed November 29, 1924. Serial No. 752,903.

To all whom it may concern:

Be it known that I, WILLIAM R. WELTY, a citizen of the United States, residing at Duncan, in the county of Stephens and State of Oklahoma, have invented certain new and useful Improvements in Pipe Tongs, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in pipe tongs, and more particularly to the construction of that form of pipe tong employed in seating sections of the casing of oil wells.

These tongs, as is well known to those familiar with the art, are extremely heavy and acccordingly must be very securely made, for otherwise when the tong is elevated above the derrick floor there would be likelihood of some part accidentally disengaging and falling upon one of the workmen upon the floor. Accidents of this character often occure and in the majority of instances are the result of wearing of the pintle pins by which the sections of the tong proper are connected to one another.

An important object of this invention is to provide a device so constructed that the pintles form an integral portion of the jaw sections and are so engaged with the remaining jaw sections that there is no possibility of their becoming disengaged to permit separation of the sections.

A further object of the invention is to provide a device of this character which is so constructed that interchanging of the jaws of the tongs which directly engage with the pipe is materially facilitated, thus lessening the time necessary to alter the tong to permit its use with casing of greater or lesser diameters.

A still further object of the invention is to provide a device of this character which may be cheaply produced, which will be durable and efficient in service and a general improvement in the art.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a plan view of a casing tong constructed in accordance with my invention;

Fig. 2 is a perspective view of the wrench, showing the various parts thereof separated;

Fig. 3 is a section on the line 3—3 of Fig. 1; and

Fig. 4 is a similar section on the line 4—4 of Fig. 1.

Referring now more particularly to the drawings, the tong proper consists, in the present illustration, of a main body section 10 and connecting body sections 11 and 11ª. The main body section 10 is formed with an arcuately curved inner face 12 and at its ends with lugs 13 arranged medially vertically of the ends and having vertical bores 14. Above and below the lugs 13, the ends of the body section 10 are recessed, as at 15, so that the upper surface of the lugs is circular. The inner wall of the body section 10 is formed with a socket recess 16 arranged substantially centrally of the inner face both vertically and longitudinally. This socket is intersected by a vertical bore 17 extending through the upper face of the tong.

The connecting sections 11 and 11ª are each formed with an upper and a lower part 18 and 19 providing a central section having an arcuately curved inner face 20 and having at its ends outstanding lugs 21 of less width than the central section and disposed at one side of the ends of such central section, that is to say, either at the top or bottom of such ends, dependent on whether the section be a section 18 or a section 19. The lugs of the sections 18 at that end thereof which is to be engaged with the body section 12 abut the upper surfaces of the lugs 13, while the lugs at the corresponding ends of the sections 19 abut the under surfaces of these lugs. Each lug 21 of the sections 18 and 19 has extending downwardly or upwardly therefrom, depending upon whether the section be an upper or lower section, a pintle pin 22, the pins of the lugs 21 which engage against the opposite ends of the lugs 13 being engaged in the bore 14 thereof. The pins of the remaining lugs 21 extend toward one another and have their adjacent ends engaging when the sections are in assembled relation and are employed for purposes presently to appear. The sections in assembled relation form a section of the same height and approximately the same length as the intermediate body section 10. Adjacent faces of these sections at the approximate centers thereof

are formed with notches 23 combined when the sections are in assembled relation to produce a recess 16ª similar to the recess 16 of the body section 10. The upper section 18, in each instance, has a bore 24 opening through the wall of its notch 23 and combining with a similar bore 25 with which it is aligned and which extends from the bottom of the recess 23 of the lower section 19 downwardly into the body of the lower section to form a bore similar to the bore 17 of the body section 10. The sections 18 and 19 are held in assembled relation by any suitable means, such as bolts or machine screws, generally indicated at 26. The lugs 22 of the section 11ª are employed as a pivot for a handle lever 27, this handle lever having in its outer end a notch 28 for receiving the combined lugs 22 at the outer end of the section 11. By engaging these lugs with this notch and swinging the handle lever, the sections may be brought together so that they form a substantially circular band, the outer lugs of the section 21 having notches 21ª receiving the ends of the lugs 21 of the section 11 so that this circular arrangement can be had.

In the construction of the sections 10 and 11 vertically extending teeth are preferably formed upon the inner surfaces 12 and 20 thereof, so that these surfaces may be rough and when grasped about a pipe will cling thereto to prevent slipping of the pipe. In order that the device may be employed with pipes of varying diameters auxiliary jaws 29 are provided, each having an arcuately curved outer face 30 adapted to engage against the face 12 or 20 and having projecting outwardly therefrom at the center thereof a lug of the same size and shape as the sockets 16 and 16ª of the sections 10, 11 and 11ª. These lugs are formed with a vertically extending opening which when the jaw is properly positioned aligns with the opening 16 or the openings 24 or 25, as the case may be, for the reception of retaining pins 31 whereby the jaws are held in fixed position. It will be obvious that these auxiliary jaws may be made of any desired thickness within certain limits, so that the wrench may be applied for practically all sizes of casing pipe.

It will furthermore be obvious that the structure hereinbefore set forth is capable of a certain range of change and modification without materially departing from the spirit of my invention, and I accordingly do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. A clamp for grasping circular objects to rotate the same, comprising a central section having at the ends thereof outstanding lugs disposed medially vertically upon said ends and having vertically extending bores, and end sections each including separable upper and lower parts and means for holding said parts in assembled relation, each part having a lug confronting the corresponding end of the coacting lug of the central section and each part having upon each lug thereof a pintle directed into the vertical bore of the associated lug, the free end of one of said end sections having pivotally connected therewith to swing in the general plane of the sections a handle lever, and coacting means upon the handle lever and the free end of the other of the sections whereby the leverage of the handle may be employed to shift the free ends of said end sections toward one another to thereby constrict the clamp upon a circular element.

2. A clamp for grasping circular objects to rotate the same comprising a central section having at the ends thereof outstanding lugs disposed medially vertically upon said ends and having vertically extending bores, and end sections each including separable upper and lower parts and means for holding said parts in assembled relation, each part having a lug confronting the corresponding end of the coacting lug of the central section and each part having upon each lug thereof a pintle directed into the vertical bore of the associated lug, the free end of one of said end sections having pivotally connected therewith to swing in the general plane of the sections a handle lever, coacting means upon the handle lever and the free end of the other of the sections whereby the leverage of the handle may be employed to shift the free ends of said end sections toward one another to thereby constrict the clamp upon a circular element, the inner faces of said sections being each formed with a socket, removable pins extending vertically through the sections and through the sockets thereof, and auxiliary jaws corresponding in number to the sections and each having upon their outer faces lugs adapted to enter the sockets of the sections, said lugs having openings permitting the passage of said removable pins.

3. A clamp for grasping circular objects to rotate the same comprising a central arcuately curved section having at the ends thereof outstanding lugs disposed medially vertically upon said ends and having vertically extending bores, and end sections each including an upper and a lower part and means whereby said parts are detachably secured together, each part having a lug confronting the corresponding end of the coacting lug of the central section and each part having upon each lug thereof a pintle directed toward the other of the lugs and adapted to engage in the vertical bore of the associated lug of the central section, the free end of each part of said end sections being provided with an outstanding lug, said lugs

having upon adjacent faces thereof pintles directed toward one another and combining to form a pivot, a handle mounted upon said pivot intermediate its ends and having at one end a socket receiving the other of the pintles.

4. A clamp for grasping circular objects to rotate the same comprising a central section having at the ends thereof outstanding lugs disposed medially vertically upon said ends and having vertically extending bores, and end sections each including an upper and lower part and means for securing said parts in assembled relation, each part having a lug confronting the corresponding end of the coacting lug of the central section and each part having upon each lug thereof a pintle directed into the vertical bore of the associated lug, the free end of one of said end sections having pivotally connected therewith to swing in the general plane of the sections a handle lever, coacting means upon the handle lever and the free end of the other of the sections whereby the leverage of the handle may be employed to shift the free ends of said end sections toward one another to thereby constrict the clamp upon a circular element, said central section being provided centrally thereof with a socket, said end sections being provided in adjacent faces of each part thereof with notches combining to form upon the inner face of the end sections when the parts are assembled sockets similar to the socket of the central section, each of said sections having a removable pin directed therethrough and extending through said socket, and auxiliary jaws having lugs to enter said socket provided with openings through which the pins may extend.

In testimony whereof I hereunto affix my signature.

WILLIAM R. WELTY.