Jan. 11, 1927. 1,614,328

P. D. THOMPSON

TONGS

Filed August 23, 1926 2 Sheets-Sheet 1

Fig. 1.

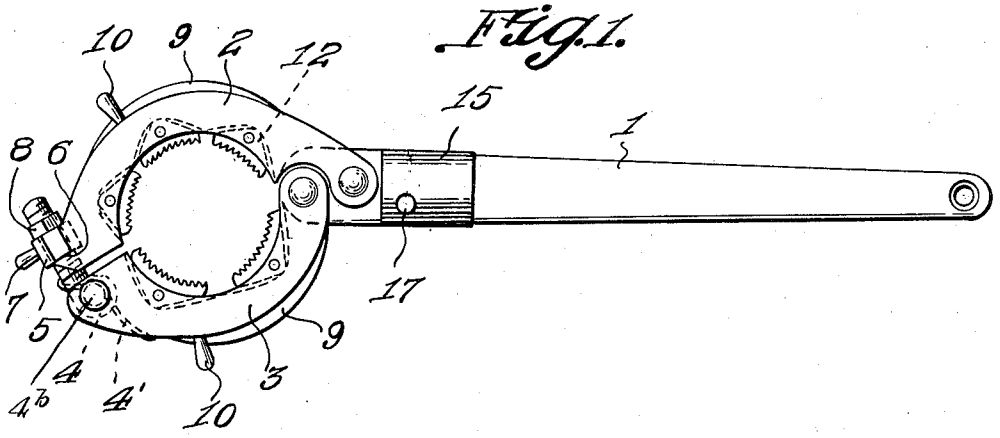


Fig. 2.

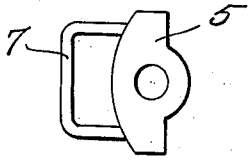


Fig. 3.

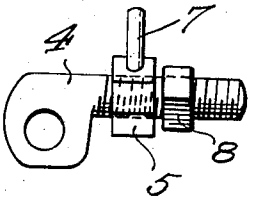


Fig. 4.

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Fig. 5.

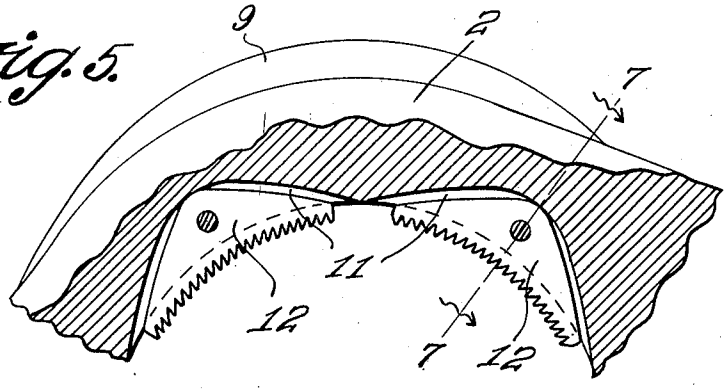


Fig. 6.

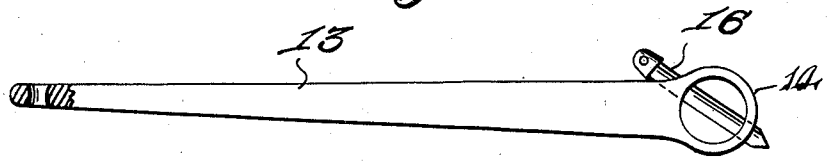
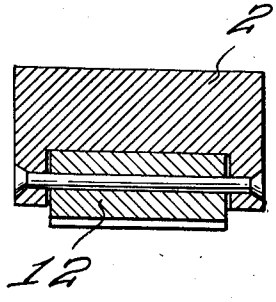


Fig. 7.



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Patented Jan. 11, 1927. 1,614,328

UNITED STATES PATENT OFFICE.

PERCE D. THOMPSON, OF TULSA, OKLAHOMA.

TONGS.

Application filed August 23, 1926. Serial No. 131,059.

This invention relates to tongs which are mainly designed for handling well casings and the like, the general object of the invention being to provide means whereby the tongs can be suspended from the derrick of the well, with means for reversing the tongs so that a casing can be rotated in either direction.

Another object of the invention is to make the jaws of the tongs with gripping members which are self-adjusting so that the jaws will grip the casings which are defective.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a plan view of the improved tongs, with the suspension element removed.

Figure 2 is a side elevation of an adjustable nut.

Figure 3 is a view of the locking member for locking the two jaws together.

Figure 4 is an elevation.

Figure 5 is an enlarged detail sectional view through one of the jaws.

Figure 6 is a view of the supporting means for the tongs.

Figure 7 is a section on line 7—7 of Figure 5.

In these drawings, 1 indicates the handle of the tongs and 2 and 3 indicate the jaws which are pivotally connected with the handle. These jaws are of substantially semi-circular shape with enlarged outer ends, the enlarged end of one jaw having a latch member 4 pivoted in a notch 4^a therein by means of a bolt 4^b with the threaded part of the latch member passing through a notch similar to the notch 4^a in the enlarged end of the other jaw 2, this threaded part receiving a nut 5 for engaging a shoulder 6 on the jaw 2 for holding the jaws in clamping position on the casing. The nut 5 is provided with a handle 7 and a lock nut 8 is provided to hold the nut 5 against improper rotation. A spring 4′ is coiled around the bolt 4^b and engages the latch member 4 and tends to swing it inwardly toward the jaws.

Each jaw is provided with a reinforcing rib 9 and a handle 10. Each jaw is also provided with a plurality of recesses 11 on its inner face and a toothed member 12 is pivotally arranged in each recess. These members will adjust themselves on irregular parts of a casing, thus enabling the jaws to grip the casing without slipping.

A hanger 13 is arranged to support the tongs from a derrick or the like and this hanger is provided with a sleeve 14 at its lower end acting as a bearing for a cylindrical part 15 on the handle. A pin 16 is designed to pass through holes 16′ formed in the sleeve 14 and through a hole 17 formed in the part 15 of the handle. A pin 16 serves to lock the sleeve 14 to the cylindrical part 15 of the handle, preventing the sleeve from moving longitudinally of the handle, and also preventing rotation of the sleeve upon the handle. By withdrawing the pin 16 and turning the handle a half revolution and then reinserting the pin, the tongs can be set to rotate the casing in an opposite direction. It is obvious that the position of the jaws 2 and 3 upon the pipe have been reversed, and hence the tongs is capable of turning the pipe in a reversed direction.

From the foregoing, it will be seen that I have provided a device which can be supported from the derrick of a well and used to rotate a casing in either one direction or the other. The jaws are locked on the casing by means of the latch means and the members 12 will engage irregular parts of the casing and prevent slippage of the jaws thereon. A tongs of this character is heavy and ordinarily weighs about from 250 to 300 pounds. By providing the cylindrical portion 15 integral with the handle, with its central longitudinal axis coinciding with the central longitudinal axis of the handle 1, the tongs as a whole is pivoted within the sleeve 14 so that it is balanced with respect to rotation when the handle is shifted to a position whereby its central longitudinal axis is in alinement with the center of gravity of the jaws. This renders it possible for a single operator to quickly and conveniently turn the tongs, without having to lift it.

The operation of the tongs is as follows:

In Figure 1 the jaws of the tongs are shown closed and the handle 1 is shown in the position that it will assume when the jaws grip the pipe in the act of turning it. When it is desired to invert the tongs, the handle 1 is first released, and it will slightly open the jaws, and the central longitudinal axis of the handle will then assume a position in alinement with the center of gravity of the jaws 2 and 3. After this operation, the latch member 4 may be readily disengaged from the jaw 2, so that the jaws may be opened. The tongs is supported at the desired elevation, and the operator ordinarily stands in front of the forward end of the jaws 2 and 3. The handle 1 is now assuming a position with its central longitudinal axis in alinement with the center of gravity of the jaws 2 and 3, and hence these jaws 2 and 3 extend in opposite directions laterally of the central longitudinal axis of the handle 1 for the same distance, and there is no tendency for the tongs to rotate in the sleeve 14, as the tongs will be balanced with respect to rotation. The latch member 4 being opened, the operator may grasp the handles 10 of the jaws 2 and 3 swinging these jaws outwardly, taking care to substantially maintain the balance of the tongs. When the jaws have been opened for a suitable distance the tongs is turned for a half of a revolution so that they are inverted, after which the jaws are closed to grip the pipe and the latch member 4 will again lock the jaws closed.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. A tongs of the character described, comprising a handle having a cylindrical part, a pair of jaws pivotally connected with the handle, means for holding the jaws in the gripping position, and a support having a tubular bearing for pivotally receiving the cylindrical part of the handle, the arrangement of the parts being such that the tongs are substantially balanced with respect to rotation upon their longitudinal axis when the jaws extend in opposite directions for substantially equal distances laterally of the axis of rotation of the handle.

2. A tongs of the character described, comprising a handle having a cylindrical part, a pair of jaws pivotally connected with the handle, means for holding the jaws in the gripping position, and a support having a tubular bearing for pivotally receiving the cylindrical part of the handle, the arrangement of the parts being such that the tongs are substantially balanced with respect to rotation upon their longitudinal axis when the jaws extend in opposite directions for substantially equal distances laterally of the axis of rotation of the handle and means to lock the sleeve against movement upon the cylindrical part.

3. A tongs of the character described, comprising a handle having a cylindrical part with its central longitudinal axis coinciding with the central longitudinal axis of the handle, a pair of jaws pivotally mounted upon the end of the handle, means to hold the jaws in the gripping position, a sleeve pivotally mounted upon the cylindrical portion, a suspension member carrying the sleeve, said sleeve and cylindrical part having a transverse opening, a pin for insertion through the transverse openings, the arrangement of parts being such that the tongs as a whole are balanced with respect to rotation upon their longitudinal axis when the jaws extend in opposite directions for substantially equal distances laterally of the axis of rotation of the handle.

4. A tongs of the character described, comprising a handle, a pair of jaws pivotally connected therewith, means for holding the jaws in the gripping position, and means for pivotally supporting the handle so that it may turn upon its longitudinal axis in inverting the tongs, the connection between the supporting means and the handle being such that the tongs as a whole are substantially balanced with respect to rotation upon their longitudinal axis when the jaws extend laterally in opposite directions for substantially equal distances laterally of the said handle.

In testimony whereof I affix my signature.

PERCE D. THOMPSON.