Feb. 3, 1925. 1,525,213

A. L. TIETZE

SAFETY WRENCH

Filed July 23, 1924 2 Sheets-Sheet 1

Fig. 1.

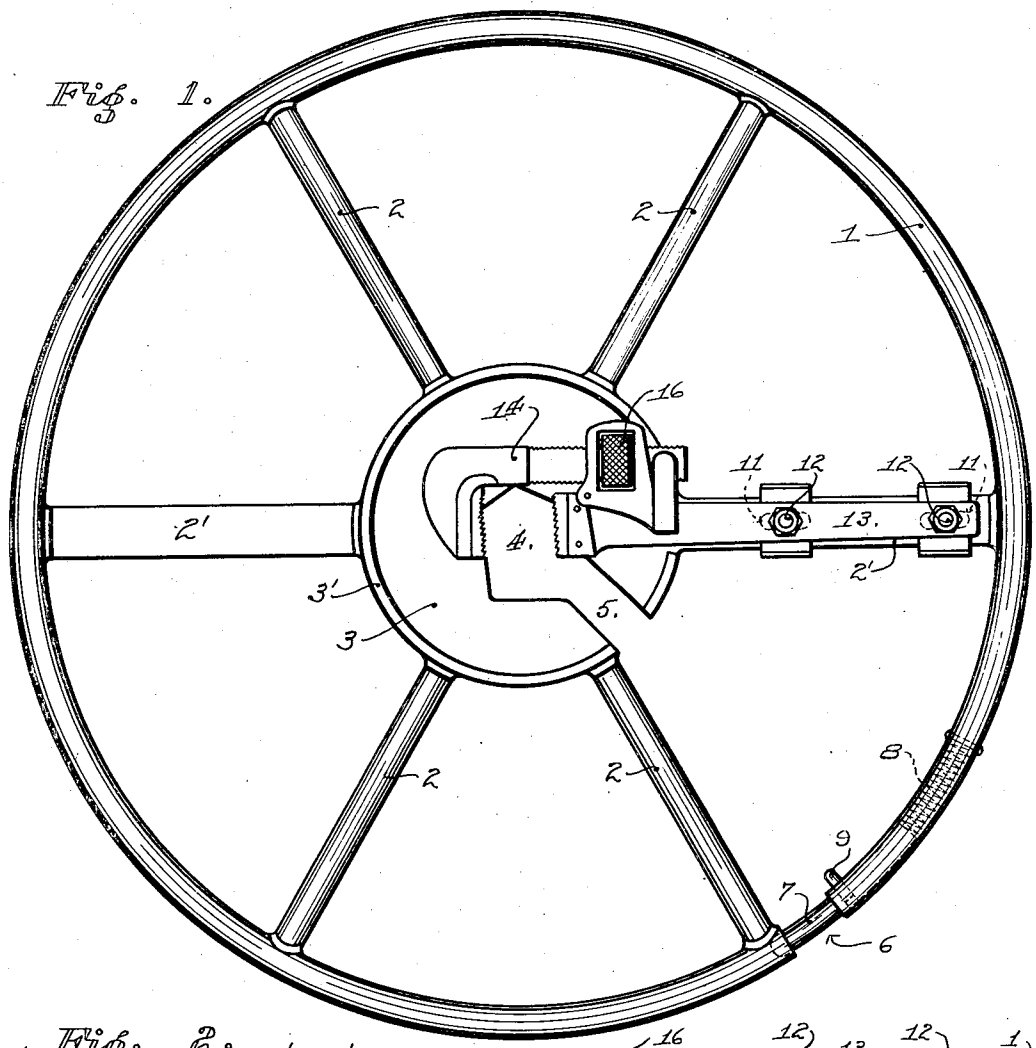
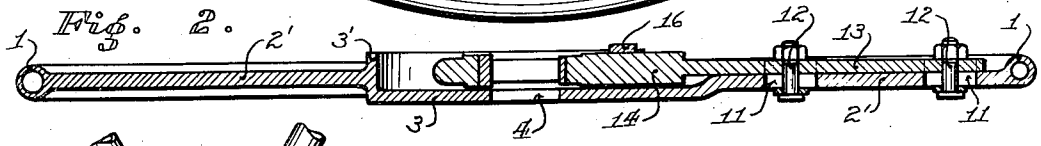


Fig. 2.



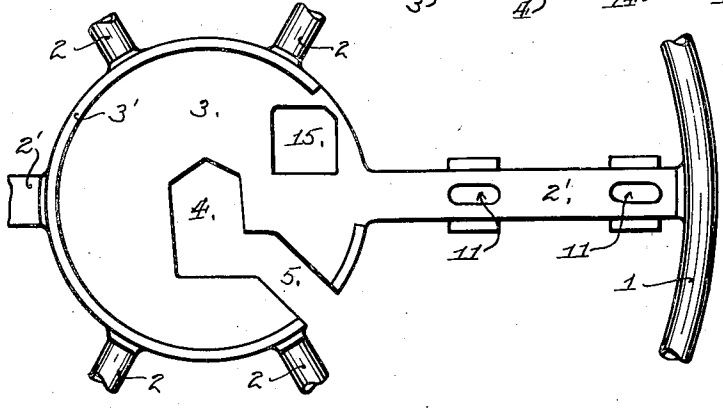


Fig. 3.

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Fig. 4.

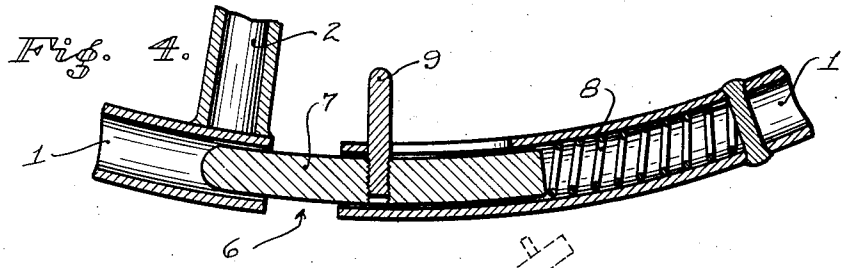


Fig. 5.

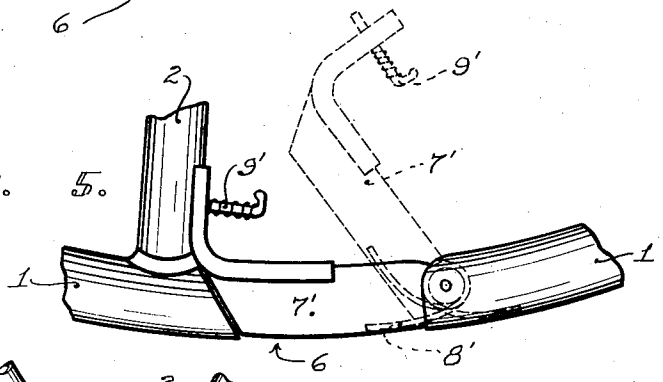


Fig. 6.

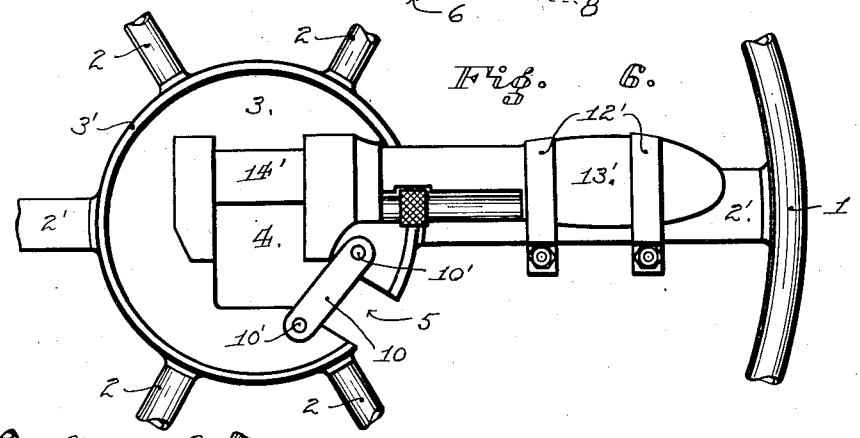
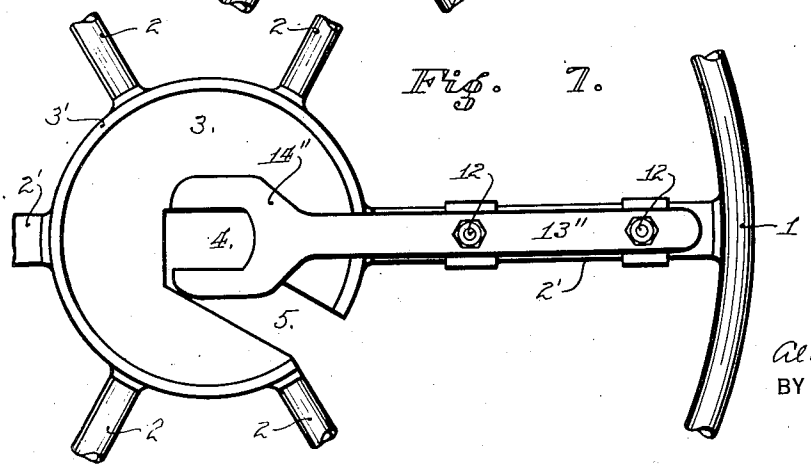


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALBERT L. TIETZE, OF HUNTINGTON BEACH, CALIFORNIA, ASSIGNOR TO STANDARD OIL COMPANY, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

SAFETY WRENCH.

Application filed July 23, 1924. Serial No. 727,642.

To all whom it may concern:

Be it known that I, ALBERT L. TIETZE, a citizen of the United States, residing at Huntington Beach, in the county of Orange and State of California, have invented certain new and useful Improvements in Safety Wrenches, of which the following is a specification.

My invention relates to safety wrenches of a type especially adapted for screwing up or unscrewing the joints in the sucker rods of deep well pumps and for other like uses.

In screwing up and unscrewing the sucker rods of a well pump, especially in a deep well, the upper end of the string of rods, when the wrench is applied, will often twist several complete turns, on account of the great length of the string, before the lower end is effectively moved, thereby setting up a torsional strain in the string. If any of the ordinary forms of wrenches are used, and the handle of such a wrench slips out of the operator's grasp, the torsional strain in the string of rods will cause its upper end to untwist, with great rapidity, thereby whirling the wrench around and, usually, throwing it violently off the rod. Such an accident is extremely hazardous, as the operator or any other person in the immediate vicinity, may be severely injured by the flying wrench, or, even if the wrench remains on the rod, its rapidly whirling handle is a source of great danger.

The object of my present invention is to provide a wrench, by the use of which the above described hazards are eliminated. I accomplish this object by providing means for retaining the wrench upon the sucker rod, so that it cannot be thrown off; by providing a wrench of such form that several men can conveniently grasp it at the same time, thereby lessening the probability of losing control of the wrench; and by providing a wrench of such form that it is not a source of danger, even if it is rapidly whirled by the untwisting of the sucker rod string.

Although my invention is described as particularly adapted for working upon the sucker rods of well pumps, it is obviously applicable for use upon any rods, springs, or other parts wherein there may be danger from reactive forces or back-lash arising from torsional strain. Moreover it should be understood that the form and construction of the device herein described and illustrated may be varied, within the limits of the claims hereto appended, without departing from the essential principles of the invention as expressed in said claims.

With this in view, my invention will now be fully described with reference to the accompanying drawings, wherein:—

Fig. 1 is a plan view of a preferred form of my safety wrench, showing its use in combination with an ordinary pipe wrench as the gripping member.

Fig. 2 is a transverse section of the same.

Fig. 3 is a broken plan view, showing my safety wrench without any associated gripping member.

Fig. 4 is a sectional detail of the preferred form of rim gate shown in Fig. 1.

Fig. 5 is a detail of a modified form of rim gate.

Fig. 6 is a broken plan view showing an ordinary monkey-wrench associated as the gripping member with my safety wrench.

Fig. 7 is a broken plan view showing an ordinary open-end wrench associated as the gripping member with my safety wrench.

In the drawings, the reference numeral 1 designates a circular or substantially circular rim having spokes 2 and 2′ converging toward a central hub 3. In practice I prefer to construct the rim 1 and the spokes 2 of ordinary iron pipe, said spokes being welded to said rim and to a flange 3′ welded or otherwise permanently secured to the hub 3. The spokes 2′ are preferably formed of solid flat stock for a purpose to be later set forth. The hub 3 is preferably formed of a flat plate of iron or steel, and is provided with a suitably shaped central aperture 4 which may serve as a gripping aperture or jaw to engage a nut or other object, not shown, to be turned.

For the sake of convenience, I prefer to provide the hub 3 with a slot 5 extending

from its rim to the jaw aperture 4, and said slot should preferably be made tortuous, as shown, to prevent the nut or other object from readily slipping out therethrough. The rim 1 may also be provided with a gap or opening 6, which should preferably be closed by some suitable gate, such for example as a sliding bolt 7, Fig. 4, normally held closed by a spring 8, and operated by an inwardly projecting knob or handle 9. As an alternative form of gate for closing the rim gap 6, I have shown in Fig. 5 a swinging gate 7′, closed by a spring 8′, and held closed by a latch 9′. The hub slot 5 may also be provided with any suitable form of closure, such for example as a gate 10, Fig. 6, held in position by any suitable means, such as removable pins indicated at 10′.

My device, as described above, may be used as a wrench if desired, the aperture 4 engaging the object to be turned, or, when the object is of such a size or form that it cannot be so engaged, the device may be used in combination with a suitable gripping member, which may be any ordinary form of wrench. For example, in Figs. 1 and 2 I have shown the device associated with a well known form of pipe wrench, as used upon sucker rods. For the purposes of such association, one of the flat spokes 2′ is provided with holes or slots 11, through which bolts 12 are passed, said bolts also passing through the handle 13 of the pipe wrench 14, and thereby firmly holding said pipe wrench in position with its jaws in functional alignment with the aperture 4. A second aperture 15, Fig. 3, may be formed in the hub plate 3 to permit convenient manipulation of the adjusting nut 16, Figs. 1 and 2 of the pipe wrench.

It should be understood that other means may be used for holding the wrench handle 13 in position, and that other forms of wrenches may be used as gripping members in association with my device. For example, I have shown in Fig. 6 a common monkey-wrench 14′, whose handle 13′ is secured to the spoke 2′ by clamps 12′, and as another example, I have shown in Fig. 7 a well known form of open-end wrench 14″, whose handle 13″ is secured to the spoke 2′ by the bolts 12 as in the case of the pipe wrench 14 shown in Figs. 1 and 2.

In the use of my device, either by itself or in combination with some well known form of wrench as a gripping member, the openings 5 and 6, in the hub and rim respectively, permit the ready positioning of the device upon the work; and this is especially true in working upon sucker rods, when the upper end of the string is supported from above by the hoisting or other means, and the lower end extends into the well. The circumferential rim or handle 1 enables a number of workmen to grasp it conveniently at the same time, and, even if it should slip out of their grasp, and be whirled around rapidly by the torsional strain in the sucker-rod string, no danger would result therefrom; the device could not be thrown off the rods because of the tortuous slot 5 and the gates 7 and 10; and the substantially circular form of the rim 1, without projecting handles or other parts, would prevent injury to adjacent persons.

I claim:

1. A safety wrench comprising a circumferential rim member having a gap formed therein; and a hub member positioned within said rim member and connected therewith, said hub member having a gripping aperture and a tortuous slot extending from said aperture to its outer edge.

2. A safety wrench comprising a circumferential rim member having a gap formed therein; a hub member positioned within said rim member and connected therewith, said hub member having a gripping aperture formed therein and a tortuous slot extending from said aperture to its outer edge; and a movable gate adapted to close said slot.

3. A safety wrench comprising a circumferential rim member having a gap formed therein; a movable gate adapted to close said gap; and a hub member positioned within said rim member and connected therewith, said hub member having a gripping aperture and a slot extending from said aperture to its outer edge; and a gate for closing said slot.

4. A safety wrench comprising a circumferential rim member having a gap formed therein; a slidable bolt associated with said rim member for closing said gap; and a hub member positioned within said rim member and connected therewith, said hub member having a gripping aperture and a slot extending from said aperture to its outer edge; and a gate for closing said slot.

5. A safety wrench comprising a circumferential rim member having a hollow portion and a gap formed in said hollow portion; a bolt slidably carried in said hollow portion and adapted to close said gap; and a hub member positioned within said rim member and connected therewith, said hub member having a gripping aperture and a slot extending from said aperture to its outer edge; and a gate for closing said slot.

6. A safety wrench comprising a circumferential rim member having a gate-controlled gap; a hub member positioned within said rim member and connected therewith, said hub member having a gripping aperture with a gate-controlled entrance slot; and supplementary gripping jaws associated with and positioned in functional alignment with said gripping aperture.

7. A safety wrench comprising a circumferential rim member having a gate-controlled gap; a hub member positioned within said rim member and connected therewith, said hub member having a gripping aperture with a tortuous entrance slot extending therefrom; a gate for closing said slot; and supplementary gripping jaws removably associated with and positioned in functional alignment with said gripping aperture.

In testimony whereof I have signed my name to this specification.

ALBERT L. TIETZE.