

R. MILLER, JR.
WRENCH.

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944,270.

Patented Dec. 28, 1909.

FIG. 1.

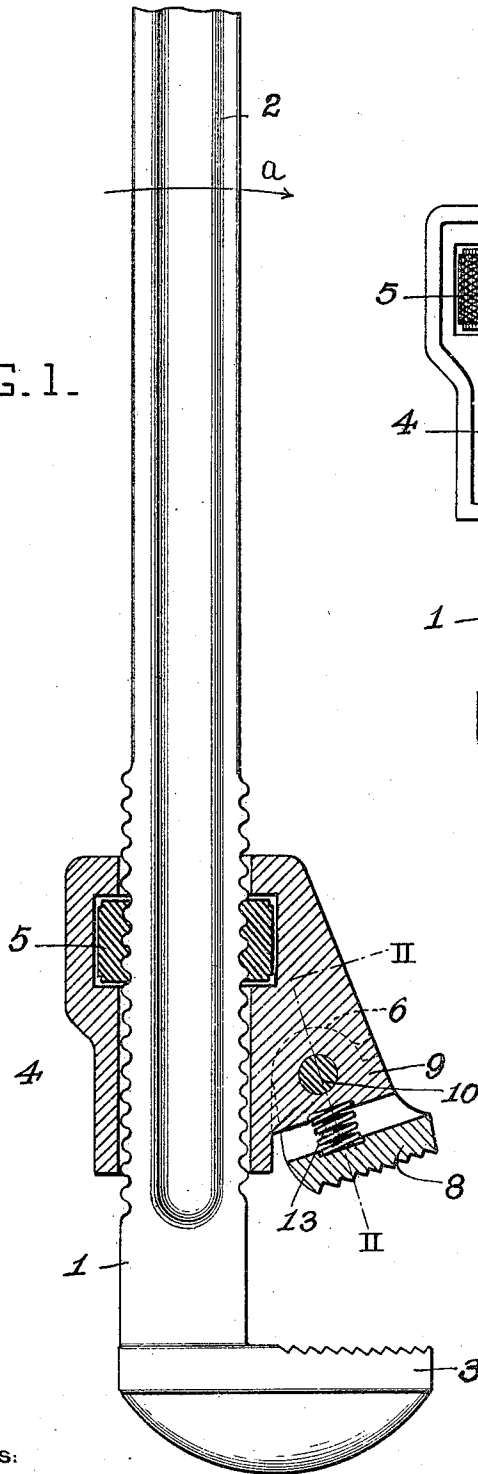


FIG. 3.

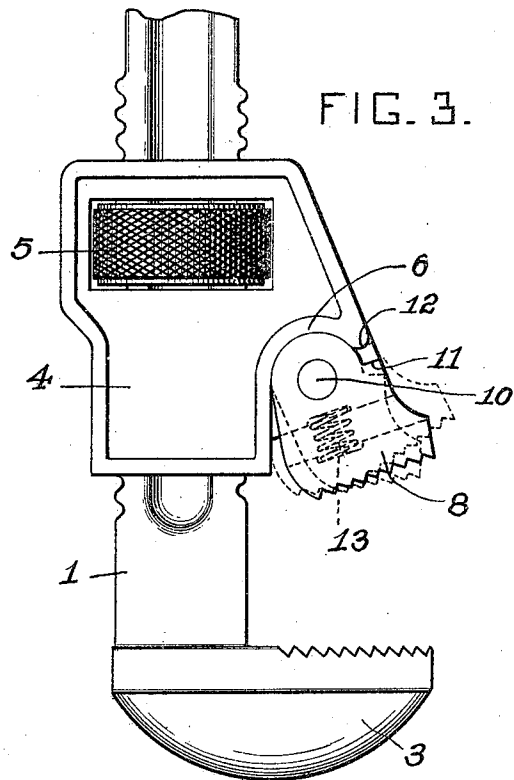
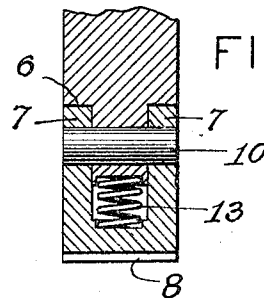


FIG. 2.



WITNESSES:

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WRENCH.

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To all whom it may concern:

Be it known that I, REUBEN MILLER, JR., residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Wrenches, of which improvements the following is a specification.

Many pipe wrenches have heretofore been constructed having the inner jaw pivotally mounted on the sliding sleeve, said jaw being yieldingly held outwardly from the shank, or against the shank by a suitably arranged spring. When such jaw is held outwardly by the spring and is pressed inwardly by the turning of the wrench when in engagement with a pipe a firmer grip can be had, but as the outward movement is necessarily limited by a stop difficulty is at times encountered in releasing the wrench from the pipe. On the other hand when the jaw is held inwardly the spring or stop limiting the outward swing is necessary, and the jaw can move far enough to permit of the easy removal of the wrench from the pipe, but in such construction difficulty is frequently encountered in obtaining a tight grip on the pipe.

The invention described herein has for its object a construction in which the movable jaw is normally held in mid-position by a suitably arranged spring so that it can move inwardly to give an increased bite and sufficiently far outwardly to permit the easy detachment of the wrench.

The invention is hereinafter more fully described and claimed.

In the accompanying drawing forming a part of this specification Figure 1. is a view partly in elevation and partly in section of a wrench embodying my improvement, Fig. 2 is a sectional view on a plane indicated by the line II—II Fig. 1 and Fig. 3 is a side elevation of the wrench.

In the practice of my invention the shank 1 which is extended to form a handle 2 has the outer jaw 3 formed integral therewith. The slide 4 which is movably mounted on the handle has an opening intersecting the opening for the handle, for the reception of the internally threaded nut 5 constructed to engage the partial threads on the edges of the shank. The slide is provided on the side in line with the jaw 3 with a socket or seat 6 for the reception of the rounded ends of lugs 7 formed on the underside of the jaw 8,

a ridge or projection 9 is formed across the socket or seat 6 and extends between the lugs 7. A pin 10 is passed through the lugs and ridge thus connecting the jaw 8 to the slide. When applied to a pipe and the handle turned in the direction of the arrow *a*, the jaw 8 will be pressed back until it bears against the back wall of the seat 6 or an upward extension thereof. When the wrench is turned in the opposite direction the jaw 8 can move outwardly until the stops 11 and 12 contact, when the jaw 8 will be in a position permitting the easy removal of the wrench from the pipe. As in this release position shown in dotted lines in Fig. 3, there might be some trouble in applying the wrench, and as the additional or increased gripping action of the jaw 8 cannot be had when the latter is back against the slide, provision is made for yieldingly holding the jaw 8 normally midway or approximately midway between gripping and release positions. A convenient construction to that end consists in a spring 13 having one end seated on the ridge or projection 9 and its opposite end bearing on the underside of the jaw 8. This spring is so constructed and arranged that the jaw can swing either in or out and will be restored by the spring to mid or normal position.

It will be observed that when applying the wrench to an article the gripping face of the jaw assumes a position nearly parallel with the face of the fixed jaw, and also approaches the same. And further when the wrench is being removed from an article the movement imparted to the jaw 8 causes the face of the latter not only to move away from the fixed jaw but to assume a more angular position relative thereto so that the space between the outer ends of the jaws will be much larger than the article and the wrench can be easily removed.

The spring is not subjected to any compressive action except that incident to the movement of the jaw to release and gripping positions. The severe thrust to which jaw 8 is subjected is taken by the seat 6 on which the ends of the lugs bear.

I claim herein as my invention:

1. In a wrench the combination of a shank provided with a stationary jaw, a slide adjustably mounted on the shank, a jaw so pivotally mounted on the slide that in its movements the gripping face will move toward or from the face of the fixed jaw and

the angular relation of such faces will be increased or decreased dependent upon the direction of movement of the pivoted jaw and a spring engaging the pivoted jaw and the slide and interposed between the inner face of the jaw and its pivotal point whereby the jaw is normally held in mid position.

2. In a wrench the combination of a shank provided with a stationary jaw, a slide adjustably mounted on the shank and provided with curved seats, a jaw provided with lugs having their ends curved and pivotally attached to the slide with the ends of the lugs bearing on the seats, the pivotal

axis of the jaw being such that in its swing the face of the jaw will move toward and from the face of the fixed jaw and change its angular relation thereto, and a spring engaging the pivoted jaw and the slide and interposed between the inner face of the jaw and its pivotal point whereby the jaw is normally held in mid position.

In testimony whereof, I have hereunto set my hand.

REUBEN MILLER, JR.

Witnesses:

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FRANCIS J. TOMASSON.