C. A. BUTLER.

ATTACHMENT FOR TEMPER SCREWS.

APPLICATION FILED JULY 1, 1919.

1,399,603. Patented Dec. 6, 1921.

FIG. 1.

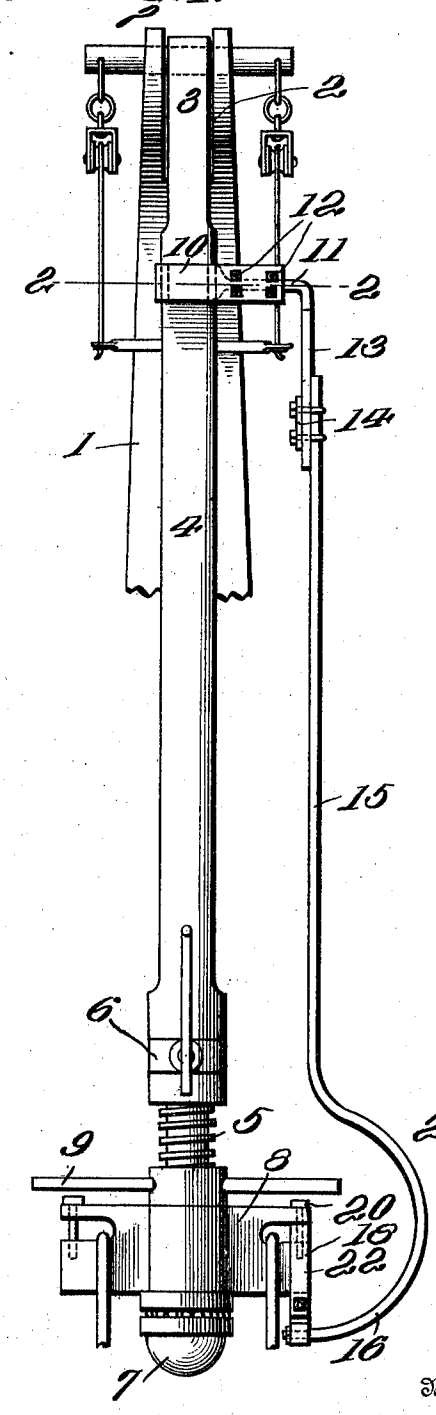


FIG. 2.

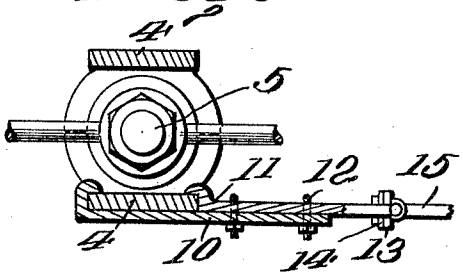


FIG. 3.

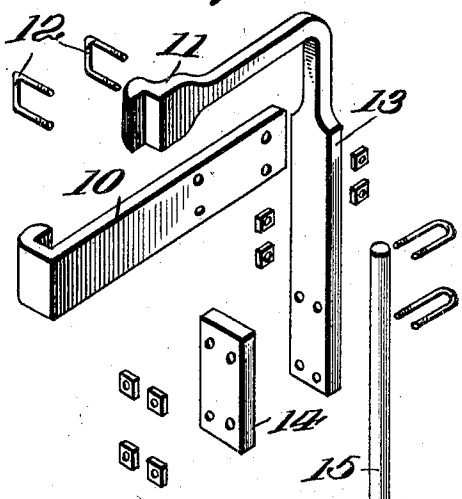
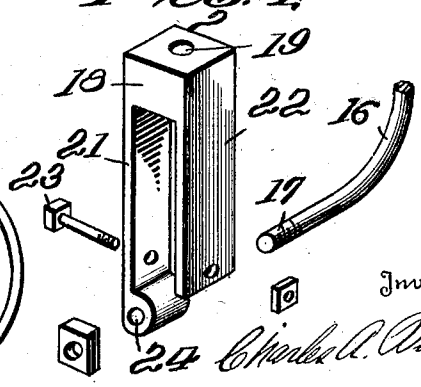


FIG. 4.



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ATTACHMENT FOR TEMPER-SCREWS.

1,399,603. Specification of Letters Patent. Patented Dec. 6, 1921.

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To all whom it may concern:

Be it known that I, CHARLES A. BUTLER, a citizen of the United States, residing at Okmulgee, in the county of Okmulgee, State of Oklahoma, have invented certain new and useful Improvements in Attachments for Temper-Screws, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

This invention relates to a device for preventing the whirling of temper screw swivels in well-drilling apparatus, and more particularly to a device which can be adjustably attached to any of the temper screws now in use, in which type of apparatus the temper screw is vertically adjusted by rotation through a split nut carried by the temper screw-reins, the lower end of the temper screw having mounted thereon the usual swivel block to which the well drilling cable and tools are attached.

In drilling deep wells with a device as above described, the swivel block has a constant whirling motion due to its ball bearing mounting on the end of the temper screw and the long cable connection depending from its lower end. Thus, as the tools are raised on the upward stroke of the walking beam and the full weight of the tools is on the cable, it has a tendency to untwist which causes the swivel and cable clamp to whirl in one direction and, when the tools are dropped on the downward stroke of the beam and the cable is released from the weight of the tools, it has a tendency to whirl in the opposite direction. This whirling motion is a great source of annoyance to the driller who has to turn the screw out by means of the hand bar as the tools drill the bottom of the well deeper. The object of the present invention is to prevent this objectionable whirling of the swivel block in devices of this character by a simple attachment which is readily connected thereto and which is adjustable to various sizes of such apparatus.

In the drawings, which show by way of illustration one embodiment of the invention:—

Figure 1 is a side elevation of my attachment as applied to a well drilling apparatus of the above described type;

Fig. 2 shows details of the temper screw-reins clamp;

Fig. 3 is a detailed elevation of the lower clamp adapted to be attached to the swivel block; and

Fig. 4 is a detail view of the lower clamp.

The present invention resides in providing a device adjustably attachable to any type of apparatus of the above character, in which the whirling of the swivel is eliminated by holding the same against torsional movement by means of a member clamped to the reins above the temper screw in such a manner that it is free to slide down the reins as the screw moves down therethrough but is held torsionally rigid with the reins. This clamp is in turn rigidly connected to the swivel block by a long adjustable rod.

Referring more particularly to the drawings, there is shown a walking beam 1 provided with the usual slot 2 to receive the stem 3 of the temper screw reins 4 which are pivoted thereto in the usual manner. Between the reins is arranged the temper screw having the usual connection to raise the same when the split nut is disengaged therefrom. As in all former constructions of this type, the lower end of the temper screw 5 passes through a split nut housed in the case of the temper screw reins, which is provided with the usual means 6 for disengaging said split nut from the screw when it is desired to turn the same back. The lower extremity of the temper screw has an enlarged head 7 with the usual ball bearing seat providing a rotating mounting for the swivel bar 8 which is of the ordinary construction. Arranged above the swivel bar is the hand bar 9 for rotating the screw relatively to the split nut to lower the screw as the drilling proceeds, so that on each stroke the tools will strike the bottom of the hole. All of the foregoing is, of course, well-known in the art.

The invention as applied to such a construction includes an adjustable clamping member of any desired construction adapted to have sliding fit with the temper screw-reins just above the upper extremity of the temper screw. As shown in the drawings, one form of this clamp comprises the two temper screw-reins engaging pieces 10 and 11 held in adjustable position by means of the U-bolts 12. To provide a non-torsional adjustable connection between the reins and the swivel block there is integrally attached to one of these clamp pieces a downwardly

projecting rod 13 to which is attached by means of any desirable type of adjustable clamp 14 a second rod 15 of greater length. This rod is provided at its lower end with an outwardly curved portion 16 having threaded connection 17 with a hole in a second clamp adapted to be rigidly connected to the swivel bar. This second clamp is in the form of a yoke 18, the top portion of which is provided with a vertically arranged bore 19 for a screw 20, while passing horizontally through bores in the lower legs 21 and 22 of the yoke is arranged a second adjusting screw 23 so that, when this clamp 18 is fitted over the usual slot in the swivel bolt, it is firmly held in fixed relation thereto by means of these two adjusting screws. The downwardly projecting connecting rod 15, extends substantially parallel with the temper screw 5 and the lower portion of said rod threads into a hole 24 in the downwardly projecting arm 21 of the yoke 18. The swivel bar 8 being thus rigidly connected to the upper portion of the reins 4 is restricted from torsional movement, while the sliding clamp connection of the rod 15 with the reins permits free rotation of the temper screw. It will also be seen that by reason of the adjustable clamps 10, 11 and 14, the attachment may be adjusted upon any size of these temper screws now in use.

By means of the lower bowed portion of the rod, the driller is protected from being struck by the rotating arm of the screw in case the latter should run away, as is frequently the case.

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

1. In combination with a commercial temper screw having the usual reciprocable reins formed with the usual split nut for engaging the temper screw, such temper screw being provided with the hand bar for rotating it and a swivel seat for the swivel bar, an attachment therefor comprising a rigid bar having a sliding connection with the reins and extending longitudinally exteriorly of said reins and having a connection with the swivel bar to prevent the latter from rotating, said bar also constituting a handle to be grasped by the operator.

2. In combination with a commercial temper screw having the usual reciprocable reins formed with the usual split nut for engaging the temper screw, such temper screw being provided with the hand bar for rotating it and a swivel seat for the swivel bar, an attachment therefor comprising a rigid extensible bar having a detachable sliding connection with the reins and a detachable connection with the swivel bar, said extensible bar extending longitudinally and exteriorly of said reins to constitute a handle to be grasped by the operator.

In testimony whereof, I affix my signature.

CHARLES A. BUTLER.