L. E. SHOUP.

FEED DEVICE FOR DRILLING RIGS.

APPLICATION FILED MAR. 9, 1911.

1,003,011.

Patented Sept. 12, 1911.

3 SHEETS—SHEET 1.

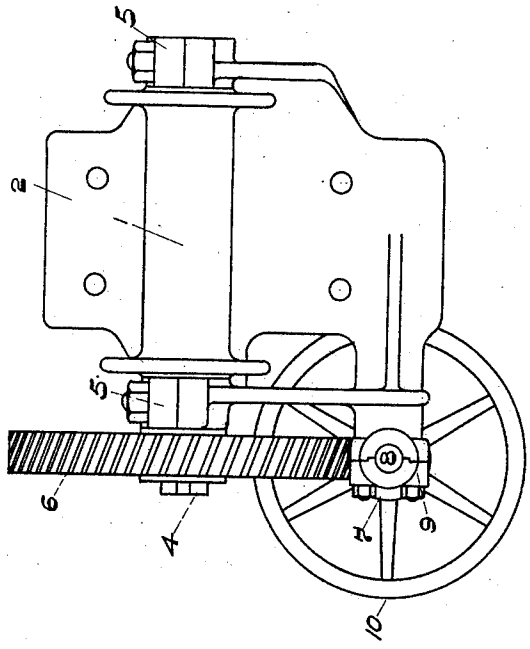

FIG. 2.

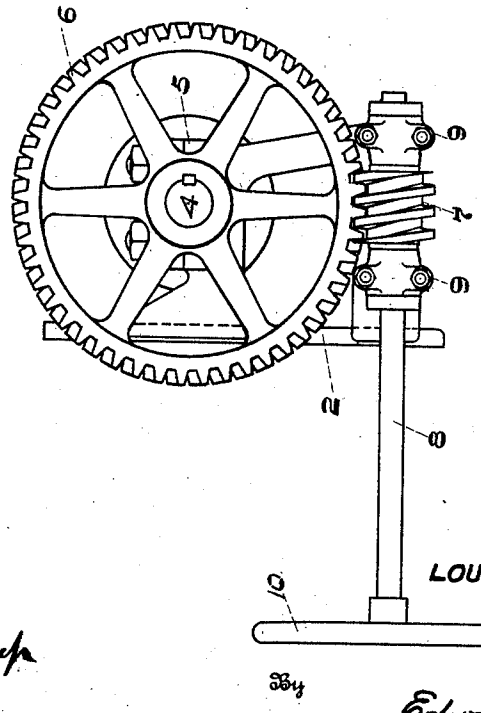

FIG. 1.

Witnesses

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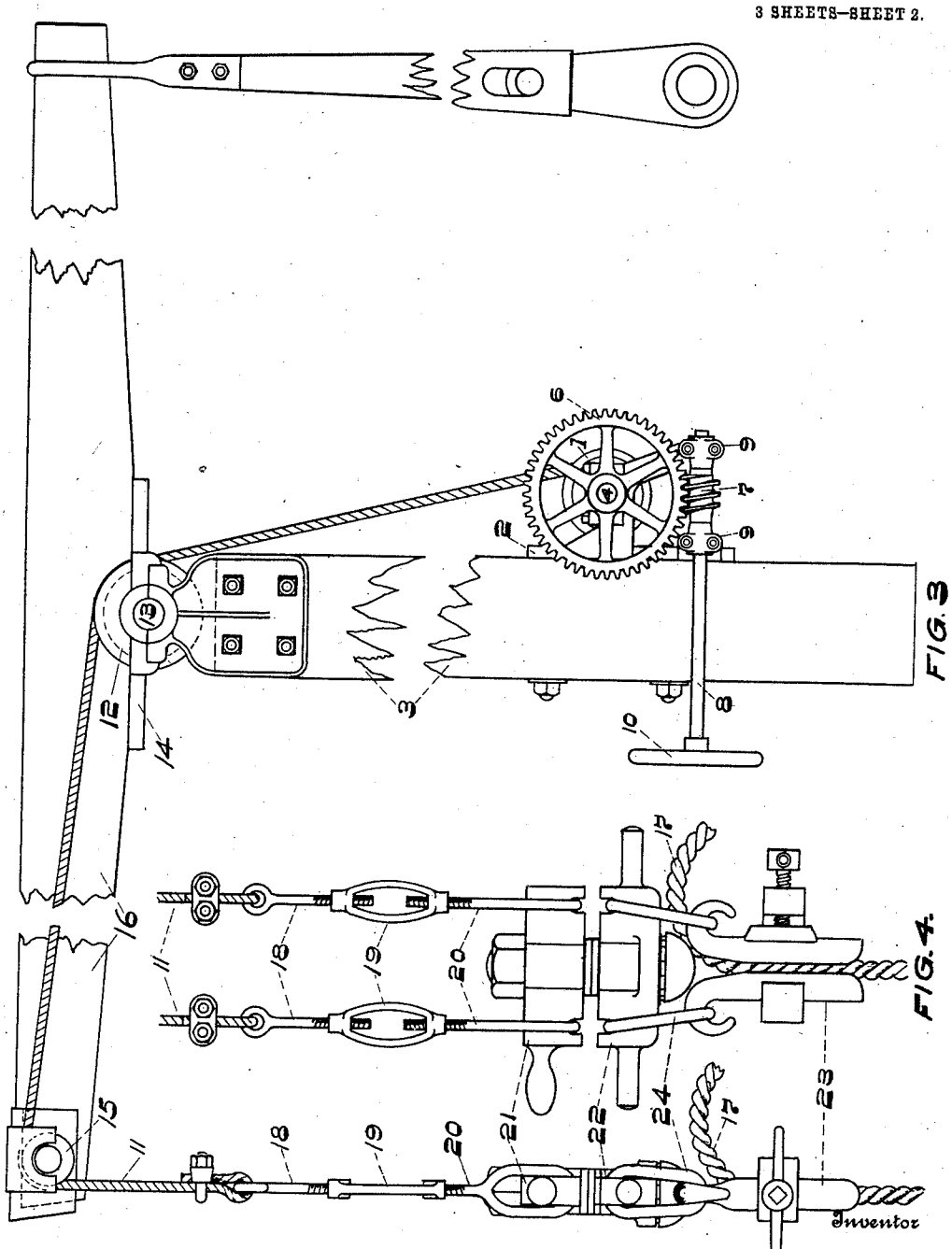

FIG. 3

FIG. 4.

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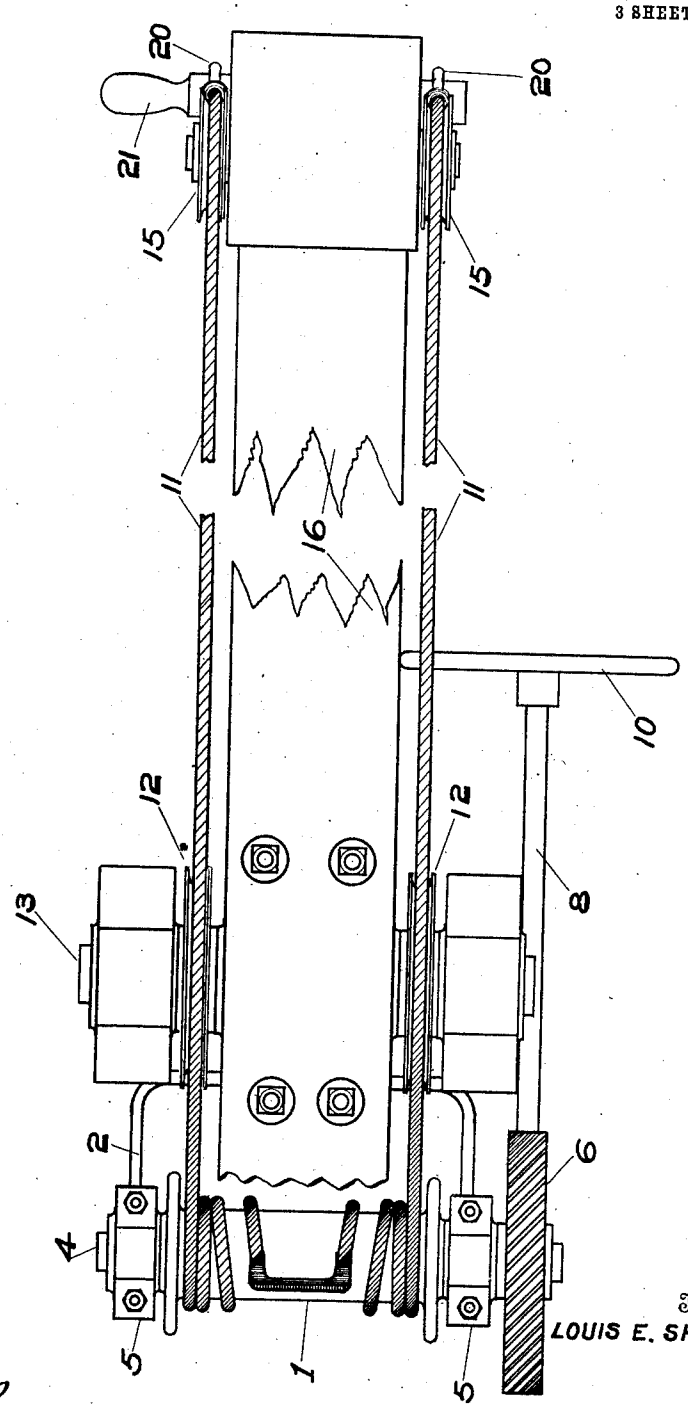

FIG. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

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FEED DEVICE FOR DRILLING-RIGS.

1,003,011. Specification of Letters Patent. Patented Sept. 12, 1911.

Application filed March 9, 1911. Serial No. 613,283.

To all whom it may concern:

Be it known that I, LOUIS E. SHOUP, citizen of the United States, residing at Franklin, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Feed Devices for Drilling-Rigs, of which the following is a specification.

The object, construction and operation of my improved feed device for drilling rigs, are herein set forth with sufficient clearness to enable those skilled in the art to which it appertains, to make and use the same.

The object of my invention is to provide a feed device for the tools of a well drilling rig, such as are used for drilling deep wells, and more especially Artesian and oil wells. The device now commonly employed for this purpose, is what is known as a "temper screw", and all drillers are familiar with the construction and operation of this device. It is, moreover, a well known fact that the temper screw, especially when used in connection with heavy tools, is very difficult to operate and adjust, its use involving much hard manual labor. It is located quite high up, out of the reach of the driller when standing on the derrick floor, and it is necessary for him to climb upon some support, as a bench or a ladder to reach it, and when in reach the labor of operating it is arduous.

The particular object of my invention, therefore, is to provide a feed device for drilling rigs which will be easy of access, easy to operate, and which may be easily adjusted in either direction,—upward or downward. I accomplish said object by means of the construction shown in the drawings the various figures of which are as follows:

Figure 1 is a side elevation of my improved feed device. Fig. 2 is a front elevation of same. Fig. 3 is a side elevation of a portion of a drilling rig, showing my feed device attached thereto. Fig. 4 is a front view of the tackle to which the drilling cable is directly attached. Fig. 5 is a plan view of the walking-beam, with portions broken away, and showing the arrangement of pivotal and terminal pulleys thereon.

As will be readily seen by an inspection of Figs. 1 and 2, my device consists of a drum 1, mounted in a frame-work or bracket 2, which bracket is arranged to be attached to the samson-post 3 or an equivalent portion of a drilling rig. A shaft 4 passes through drum 1, in which it is rigidly inserted, so that the drum and shaft revolve together. The respective ends of said shaft pass revolubly through the boxes 5, 5, of the bracket 2. A worm-wheel 6 is rigidly attached to one end of shaft 4. Below wheel 6 and meshing therewith is a worm 7 which is arranged to revolve wheel 6. Said worm is rigidly affixed to shaft 8, which passes revolubly through the bearings 9, 9. One end of shaft 8 is extended to any desired length, and has a hand-wheel 10 upon the outer end thereof by means of which the worm, the wheel, and the drum may be revolved.

When the feed device, thus constructed, is placed in operation, it is attached to the samson-post 3 or an equivalent member of the drilling rig, or it may be attached to any other convenient portion of the drilling rig. Suitable cables 11, are attached to the drum 1 and from thence they are passed over the pulleys 12 that are mounted, one on either side of post 3, upon the gudgeons 13 of saddle 14. From pulleys 12, cables 11 are extended outward and pass over the terminal pulleys 15, which are affixed to the outer end of the walking-beam 16. From pulleys 12, the cables 11 extend downward and have attached thereto suitable tackle for the attachment of a drilling cable 17. which equipment preferably is as follows: eye-bolts 18, threaded at their lower ends for the reception of a turn-buckle 19, a stirrup-bolt 20, also threaded at its upper end for the reception of said turn-buckle 19. The loops of said stirrups engage the upper yoke 21. Below yoke 21 and attached thereto is a swivel-yoke 22, so constructed that it is free to revolve horizontally. Cable clamps 23 are attached to yoke 22 by means of the links 24. Drilling tools are attached to the lower end of cable 17 in the usual manner.

The turn-buckles 19 constitute a valuable feature of my invention, as by these I am enabled to accurately equalize the strain upon each of the cables 11, and without some provision of this sort, such equalization of strain would be difficult to secure.

In the operation of my improved feed, the weight of the drilling tools is sustained by the cables 11, and said tools are fed downward by revolving drum 1 by means of the worm-gear, so that said cables are fed out as the necessity of the work requires,—that is,

as the drill works its way downward into the rock. Said feed may be regulated as desired, and with much greater ease and facility than with a temper screw.

My improved feed device may be located at any desired height that best suits the convenience of the operator. It may be attached to the samson post, or to any other convenient part of the rig, or with slight modification, it may be located upon, or attached to the floor of the derrick. Shaft 8 may be of any desired length, to position the hand-wheel 10 in the most convenient place for the operator. Adjustments may be as readily made with my device when the drill is in operation as when it is not operating, and from the position which the operator usually occupies when he is tending the tools.

While the drawings show a particular construction by means of which my inventive idea may be mechanically embodied, I do not wish to be understood as confining myself to the exact construction here shown, as various modifications thereof could be employed without departing from the scope of my invention, the essence of which is the provision of a stationary feed mechanism, of easy access and manipulation, which may be readily substituted for the temper-screw now commonly used, and which is so difficult of access and operation.

What I claim and desire to secure by Letters Patent is:—

1. In a feed device for drilling rigs, the combination of a walking beam, a support for said beam, a pulley mounted upon each side of said beam at the pivotal support thereof, terminal pulleys mounted upon the outer end of said beam, one upon either side thereof, an adjusting means, cables attached at one end to said adjusting means and passing over said pivotal and said terminal pulleys, means upon the other end of said cables arranged for the attachment of drilling tools, and means arranged to equalize the tension upon said cables.

2. In a feed device for drilling rigs the combination of a walking beam, a support for said beam, a pulley mounted upon each side of said beam upon the pivotal support thereof, terminal pulleys affixed to the outer end of said beam upon either side thereof, a drum mounted upon said support, a worm-gear arranged to revolve said drum, feed cables attached to said drum and passing over said terminal and pivotal pulleys, means attached to said cables arranged to equalize the tension thereon, and means carried by said equalizing device for the attachment of a drilling cable.

3. In a feed device for drilling rigs, the combination of a walking-beam, pivotal pulleys attached to said beam at the pivotal point thereof, terminal pulleys attached to the outer end of said beam, a drilling cable, means for engaging said cable, feed cables attached to said engaging means and passing over said terminal and said pivotal pulleys, an adjusting means to which said cables are attached for the purpose set forth, and means for equalizing the tension upon said cables.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS E. SHOUP.

Witnesses:
C. S. SHOUP,
H. G. JOHNSON.