Dec. 4, 1934. L. T. STAMPFLI ET AL 1,982,835

DRILL STEEL PULLER

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Fig. 1

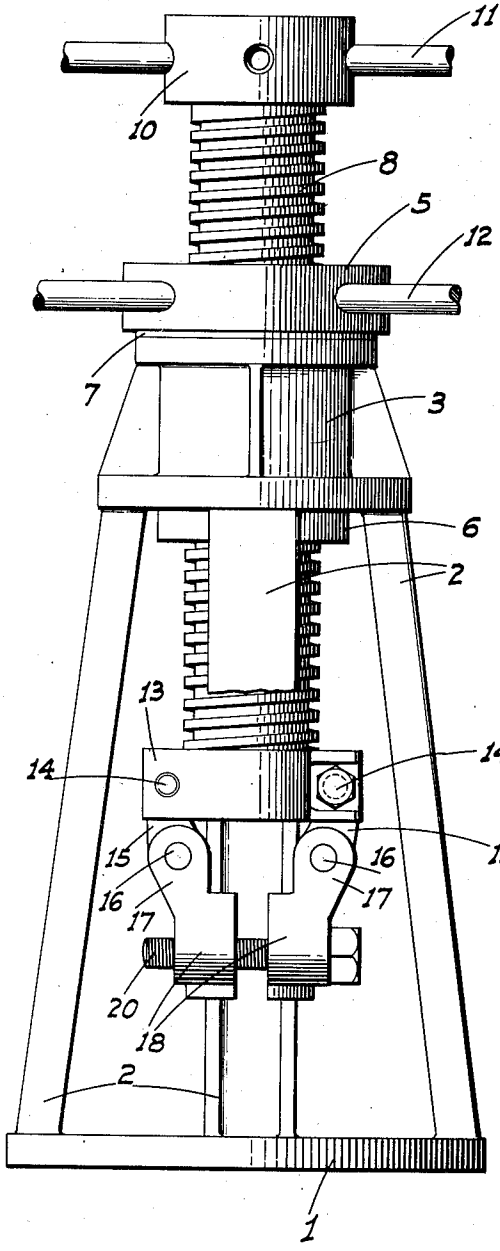
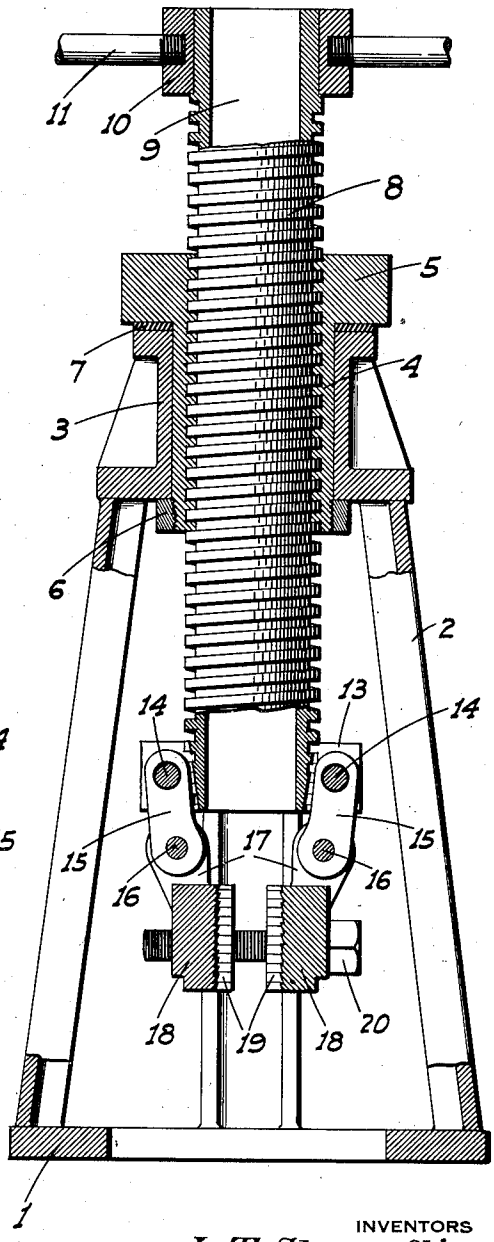


Fig. 2



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Fig. 3

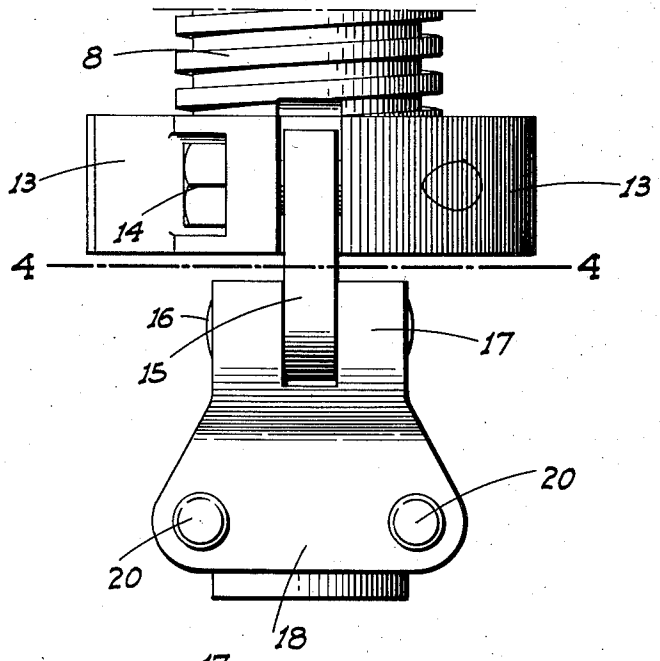
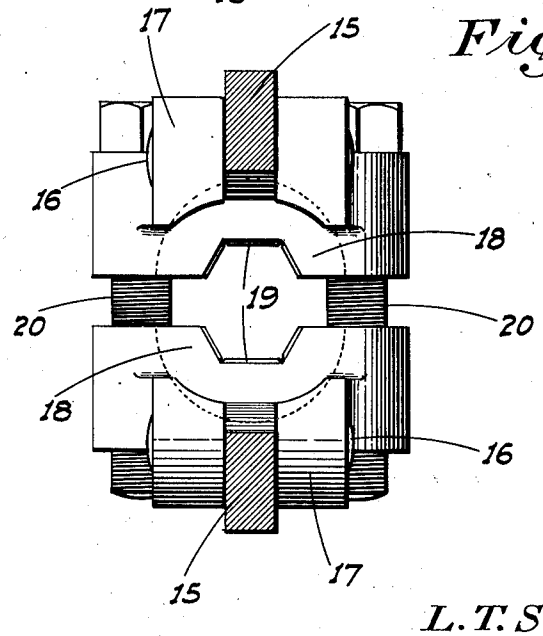


Fig. 4



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UNITED STATES PATENT OFFICE

1,982,835

DRILL STEEL PULLER

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Application July 1, 1933, Serial No. 678,654

2 Claims. (Cl. 254—30)

This invention relates to drill pullers for use in loosening and excavating drills which are stuck in the ground or are broken off short some distance above the ground.

The structure of the present invention particularly represents improvements over our Patent, No. 1,937,171, dated November 28, 1933, the principal objects now being to arrange the parts of the puller so that it may be conveniently used on a drill when only a short portion projects from the ground; and so that the manipulation of the puller in removing a drill when once clamped to the tool is greatly facilitated.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects we accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a side elevation of the improved tool.

Fig. 2 is a similar view mainly in section.

Fig. 3 is a fragmentary enlarged elevation of the jack screw and the depending drill clamp taken in a plane at right angles to that of Fig. 1.

Fig. 4 is a plan view from the line 4—4 of Fig. 3.

Referring now more particularly to the characters of reference in the drawings, the tool comprises a ring-like base 1 having rigid upstanding legs 2 which rigidly support a top collar 3. Turnably mounted in the collar is a sleeve 4 held against axial movement by an enlarged head 5 on its upper end above the collar, and by a ring nut 6 on its lower end below the collar. A thrust washer 7 is disposed between the head and collar.

Threaded through the sleeve is a jack screw 8 having a passage 9 therethrough open from end to end to enable a drill steel to freely project therethrough. A collar 10 is secured on the upper end of the screw from which removable handle rods 11 of suitable length project radially, so that the screw may be conveniently turned by hand. Similar handles 12 for controlling the rotation of the sleeve 4 are mounted in the head 5.

Supported by and depending from the lower end of the jack screw, which end is disposed between the collar 3 and the base 1, is the drill clamping device. This comprises a collar consisting of split and separated sections 13 threaded on the lower end of the screw and rigidly clamped thereto by bolts 14. These bolts also serve as pivots for depending links 15 whose lower ends in turn are connected by pins 16 parallel to the bolts 14, to ears 17 projecting upwardly from opposed and cooperating jaw blocks 18. The links fit loosely between the collar sections and the bolts 14 are loose in said links so that the blocks can tilt laterally to a certain extent, as well as being free to swing to a limited extent in a plane at right angles to a tilting motion.

The blocks are provided with cooperating vertical grooves 19 in line with the screw passage and of such shape and size as to be suitable for engagement with drill steels of different sizes and of either the circular or multiple sided form. Take-up or clamping bolts 20 connect the blocks on opposite sides of the grooves so that said blocks can be readily adjusted to and clamped about a drill to be pulled.

In operation, to pull any stuck drill the tool is lifted over the drill so that the latter projects between the jaws 19, which of course are first separated sufficiently to collar the drill. If only a short portion of the drill projects above ground it may be necessary to lower the jack screw somewhat, which can be done to such a point that the clamping jaws are almost at the ground level. If, on the other hand, a large length of the drill steel projects above ground, the initial adjustment of the jack screw is of course of no importance as will be evident. With the drill in position relative to the tool the bolts 20 are tightened about the drill, the loose mounting of the clamping unit enabling the same to accommodate itself to the drill regardless of whether the latter is in exact axial alinement with the puller or not. If the condition of the drill is such as to permit it, a combined rotating and raising effect may be imparted to the tool by a turning movement on the handles 11 while holding the sleeve 4 stationary. If, on the other hand, rotation of the drill is found to be impossible the sleeve 4 alone is turned by manipulation of the handle rods 12, the screw being positively held against rotation and possible straining of the clamping unit by maintaining a grip on the handle rods 11. In this case the jack screw will of course be raised straight up without any rotation being imparted thereto. At the same time the operator can always rotate the jack screw or attempt to do so by suitable pressure on the handle rods 11, without having to stop and disconnect or couple together certain parts as was the case with the previous structure. The construction of the base with its relatively widely

spaced legs places the clamping unit and the take-up bolts 20 in a thoroughly accessible and easily reached position, so that said bolts are easy to get at for loosening or tightening under all conditions.

Also with any drill steel to be engaged, it is exposed to full view as soon as the base of the tool is placed over the same so that no trouble is ever encountered in manipulating the tool to get the drill steel to pass between the clamping jaws.

From the foregoing description it will be readily seen that we have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described our invention what we claim as new and useful and desire to secure by Letters Patent is:

1. A drill puller including a tubular jack screw, means supporting the screw for vertical movement, a drill clamp at one end of the screw, said clamp comprising opposed links projecting from and swivelly mounted in connection with the screw, opposed jaw blocks supported by the links, and means between the blocks to draw them together about a drill.

2. A drill puller including a tubular jack screw, means supporting the screw for vertical movement, a collar clamped about one end of the screw, opposed links projecting from and pivoted on the collar, ears between which the outer ends of the links are loosely pivoted, opposed jaw blocks beyond and rigid with the ears, and clamping blocks disposed at right angles to the screw connecting the blocks toward the opposite sides.

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