No. 719,290. PATENTED JAN. 27, 1903.

M. ZIEGENFUS.

DRIVEN WELL DRILL.

APPLICATION FILED JULY 22, 1902.

NO MODEL.

Fig. 1

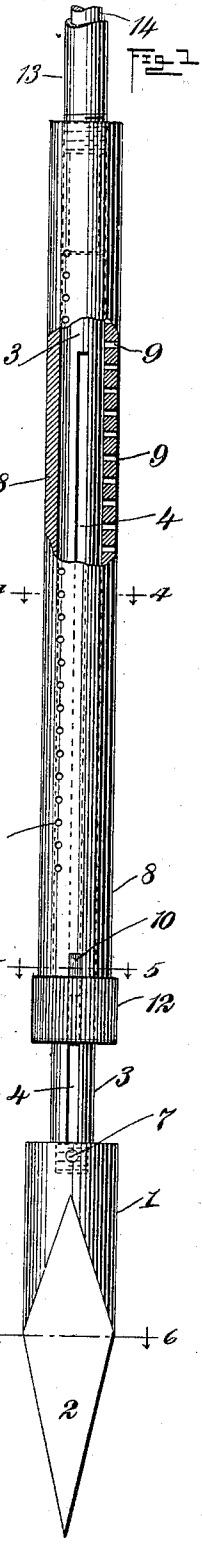


Fig. 2

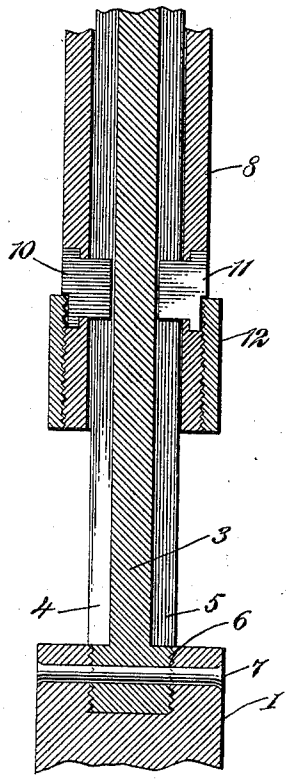


Fig. 3

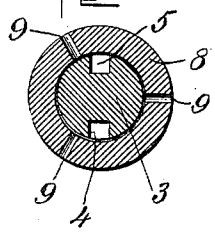


Fig. 4

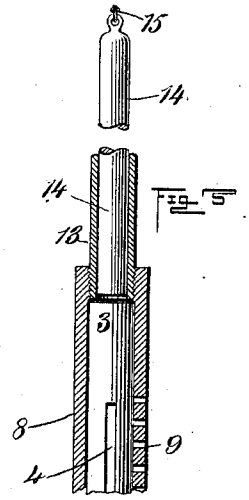


Fig. 5

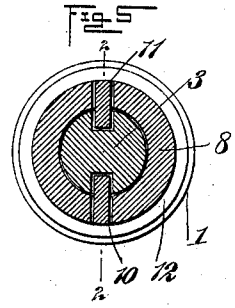


Fig. 6



WITNESSES:

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DRIVEN-WELL DRILL.

SPECIFICATION forming part of Letters Patent No. 719,290, dated January 27, 1903.

Application filed July 22, 1902. Serial No. 116,536. (No model.)

To all whom it may concern:

Be it known that I, MARCUS ZIEGENFUS, a citizen of the United States, and a resident of Burns, in the county of Harney and State of Oregon, have invented new and useful Improvements in Driven-Well Drills, of which the following is a full, clear, and exact description.

My invention relates to a driven-well drill—that is to say, to an instrument for boring or drilling the type of well designated in the art as a "driven" well.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a fragmentary elevation, partly in section, showing my drill ready for use. Fig. 2 is a fragmentary vertical section of the drill upon the line 2 2 of Fig. 5. Fig. 3 is a vertical section otherwise analogous to the upper portion of Fig. 1. Fig. 4 is a horizontal section, somewhat enlarged, upon the line 4 4 of Fig. 1 looking in the direction of the arrows. Fig. 5 is a horizontal section, somewhat enlarged, upon the line 5 5 of Fig. 1 looking in the direction of the arrows; and Fig. 6 is a horizontal section upon the line 6 6 of Fig. 1 looking in the direction of the arrows.

A head 1 of substantially cylindrical shape is integrally provided with an angular point 2 and is mounted upon the lower end of a solid longitudinal member or plunger 3 of substantially cylindrical shape, this member being provided with longitudinal slots 4 5 and secured to the cylindrical head 1 by means of threads 6 and a rivet 7.

A cylindrical jacket 8 is provided with perforations 9 and is fitted with a pair of flat cleats 10 11 of the general form indicated in Fig. 2, these cleats projecting inward and engaging the longitudinal slots 4 5 in the longitudinal member 3. This arrangement of the cleats in the slots 4 5 constitutes a very efficient form of slideway, the slots 4 5 acting as guides for the cleats.

A thimble 12 is threaded and fitted upon the lower end of the jacket 8, as shown more particularly in Fig. 2, and serves to hold the cleats in position. A pipe 13 is screwed into the upper end of the jacket 8 and is used for the purpose of forcing the same downward into the well as rapidly as the latter is driven or bored by the cylindrical head 1.

A hammer consisting, preferably, of a solid longitudinal cylinder 14, which may be several feet in length, is loosely fitted into the pipe 13 and is free to partially enter the jacket 8 for the purpose of striking the upper end of the longitudinal member 3.

The operation of my device is as follows: The parts are fitted together as indicated in Fig. 1, and the pipe 13 is so mounted and guided as to be driven by a pile-driver in the usual manner, which need not here be described. The hammer 14 is mounted upon a small rope 15, preferably of wire, and is alternately raised a slight distance and dropped. The cylindrical head 1, provided with an angular point 2, is driven into the soft earth, the jacket 8 of course readily following. As the thimble 12 has a smaller diameter than the head 1 the jacket 8 readily descends and is at first quite loose in the hole formed by the head 1. The pipe 13 being connected with the jacket and with the pile-driver, as above described, is forced downward as far as may readily be done. The hammer 14 is then raised and dropped to strike the upper end of the longitudinal member 3, forcing the cylindrical head 1 downward, the point 2 of course serving to open the passage. This leaves the jacket 8 slightly behind. If the weight of the jacket does not carry it down so that the sleeve 12 engages the cylindrical portion 1 of the head, the pipe 13 is forced down by means of the pile-driver. After the drill has proceeded some distance into the ground its action is quite simple. First a blow of the hammer carries down the longitudinal member 3, pushing the head 1 downward and deepening the hole. Next the pile-driver forces the pipe 13 downward until the sleeve 12 lodges against the head. Any superfluity of pressure applied to the pipe 13 merely drives the head 1 still farther downward. The normal operation of my device therefore consists of alternate thrusts of the pointed head 2 and of the jacket 8 and pipe 13. As the joining up of sections of the pipe into one continuous member is old it need not be described. When the boring is finished, the longitudinal member 3 is driven to its

lowermost position, the pipe not being forced down so as to follow it. The parts are left permanently in this position. The water now flows through the perforations 9 into the jacket 8 and up through the pipe 13. The hammer is raised and the well is now complete. Should any water be encountered before the boring is finished, no particular harm is done, for the reason that both the hammer 14 and the longitudinal member 3 are free to move through the water, and the water can be forced in and out of the jacket 8 by means of the perforations 9.

As the general art of driving wells is already known to the public I deem it necessary to describe only my particular form of drill.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A driven-well drill, comprising a hollow cylindrical jacket provided with cleats projecting internally, a longitudinal member mounted within said jacket and provided with longitudinal channels mating said cleats, thus constituting a slideway for the same and provided with a pointed head, and means for intermittingly forcing said longitudinal member in the general direction of its length.

2. A driven-well drill, comprising a hollow cylindrical jacket, provided with perforations and with guides, a solid cylindrical plunger mounted within said jacket and provided with guideways engaging said guides, a pointed head connected with said plunger and provided with a cylindrical portion of greater diameter than said jacket, a pipe connected with said jacket, and a longitudinal cylindrical hammer of a diameter smaller than said pipe and free to strike said plunger and to drive the same independently of movements of said jacket.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARCUS ZIEGENFUS.

Witnesses:

MAURICE FITZ GERALD,

BEN BROWN.