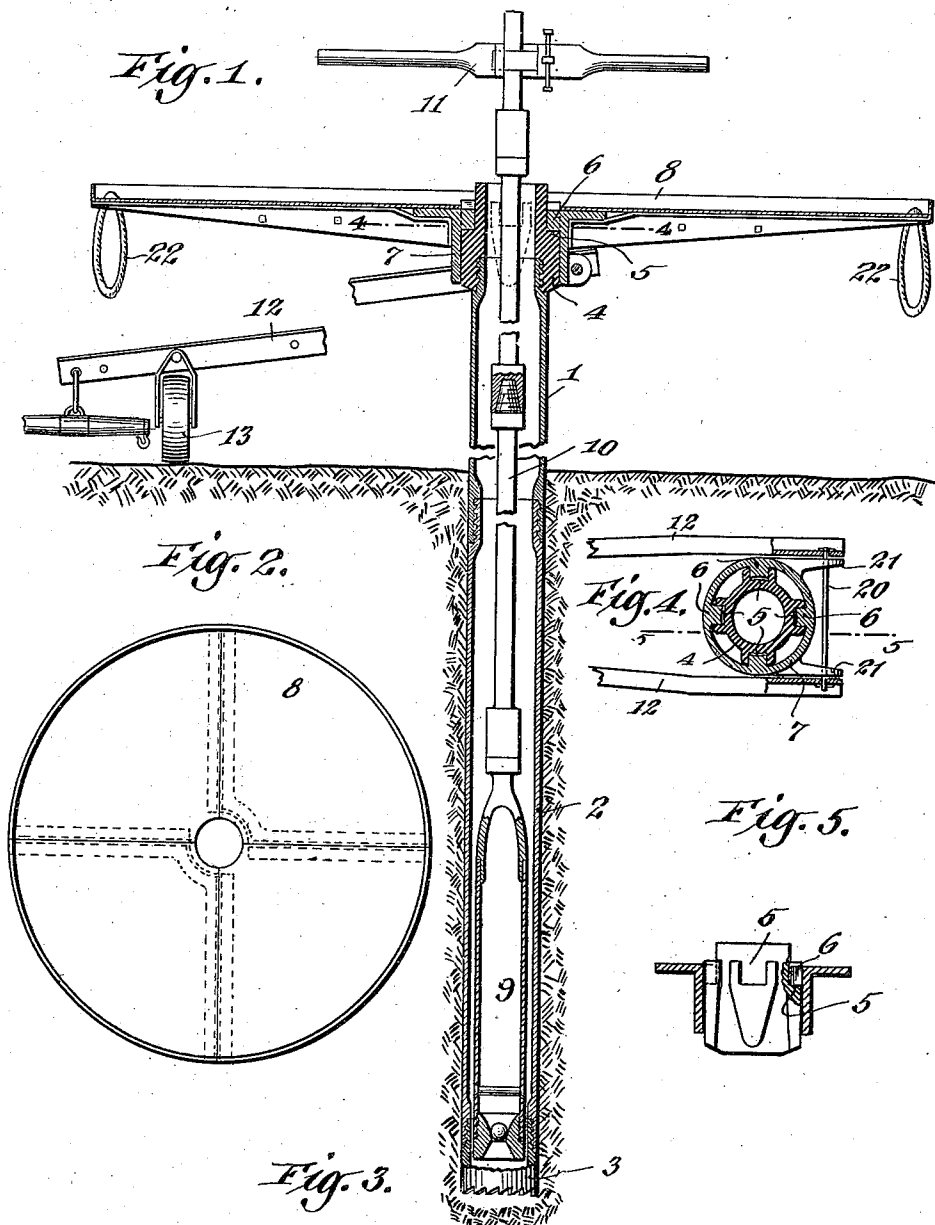


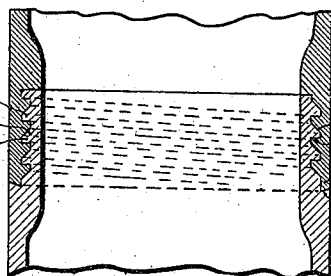
A. C. LUDLUM.
 DRILL.
 APPLICATION FILED MAY 28, 1910.

984,825.

Patented Feb. 21, 1911.



WITNESSES
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ALBERT C. LUDLUM, OF NEW YORK, N. Y., ASSIGNOR TO NEW YORK ENGINEERING COMPANY, A CORPORATION OF NEW YORK.

DRILL.

984,825.

Specification of Letters Patent.

Patented Feb. 21, 1911.

Application filed May 28, 1910. Serial No. 563,936.

To all whom it may concern:

Be it known that I, ALBERT C. LUDLUM, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Drills, of which the following is a specification.

This invention relates to an improved drill designed and adapted to drill or bore a hole in the earth, and for the recovery of the displaced material.

The invention consists of the construction hereinafter set forth and more particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, and in which like reference numerals designate corresponding parts, the drill is shown in its preferred form.

Figure 1 is a vertical section of the drill assembled for operation. Fig. 2 is a plan view of the platform. Fig. 3 is a longitudinal section showing the coupling of two adjoining sections of the casing. Fig. 4 is a detail view showing a horizontal section on the line 4—4 of Fig. 1. Fig. 5 is a detail view in vertical section on the line 5—5 of Fig. 4.

Referring now more particularly to the structure shown in the drawings, 1 and 2 are the sections of a tubular sectional casing carrying a cutting shoe 3 secured to its lower end by screw threads.

4 is a casing head screwed on to the upper end of the casing and provided with shouldered recesses 5 which receive the lugs 6 of the sleeve 7 secured to the platform 8.

Within the casing works a suitable drilling tool which, in the present instance, is a drilling pump 9. The drilling tool is worked by men standing on the platform 8 and for this purpose a sectional rod 10 is preferably provided, the drilling tool being screwed on to the lower end of this rod. To the upper end of the drill rod 10 is secured a removable handle 11. In the operation of the drill, three or four men stand on the platform 8 and grasping the handle 11, work the drilling tool up and down in the casing while the casing is being rotated or turned. The turning of the casing keeps it loose in the earth and the weight of the men on the platform, together with the weight of the casing and the weight of the drill rod and drilling tool, cause the casing to sink

in the earth, the cutting shoe 3 preparing and cutting the core of the material to be removed by the drilling tool.

For the purpose of rotating the casing, it is provided with a detachable sweep which may be operated either by a draft animal or by one or more men. As shown in the drawings, the sweep 12 is designed for operation by a draft animal, its outer end being supported by a wheel 13. Its inner end is forked and is secured by a rod 20 to the ears 21 on the sleeve 7. In case the casing is to be rotated by man-power, a sweep or pole may be thrust through each of the loops 22 secured to the platform 8, the inner end of said sweep or pole resting against the sleeve 7 on the casing, and power being applied to the outer end.

The platform 8 is made in sections, preferably four in number as shown in the drawings, so that it may be separated when removed from the casing for convenience in transportation.

In sinking the drill, additional sections of the casing and additional sections of the drill rod may be added from time to time as required. When the drill is to be removed, the parts may be readily separated for convenience in transportation.

In operating the drill, the rotation of the casing puts the screw coupling under very great strain which is effectually resisted by the special arrangement of screw coupling shown more particularly in Fig. 3. In this screw coupling the female member is provided with interior peripheral threads having substantially flat upper shoulders 14 and intervening inclined faces 15. The male member is provided with outer peripheral threads which have substantially flat lower shoulders 16 and intervening inclined faces 17. The threads of the male member are off-set so that the outer surfaces of the sections fit flush and so that the male member provides a shoulder 18 to receive the lower edge 19 of the female member, said edge and said shoulder being beveled inwardly, as shown. As a result of this arrangement, the strain on the coupling, when the casing is rotated, which would otherwise tend to cause the female member to spread radially outward at the coupling is counteracted. The beveled shoulder 18 prevents the lower edge of the female member from spreading radially and because of the flat contacting

shoulders of the threads, there is no tendency for the female member to spread radially at points above its lower edge.

What is claimed and what is desired to be secured by Letters Patent is:—

1. In a drill, the combination of a tubular sectional casing, the sections of the casing having their ends threaded for coupling together; a cutting shoe having screw threads for attachment to the lower end of said casing; a removable platform secured to the upper end of said casing; means associated with said casing for turning it; and a drilling tool working in said casing.

2. In a drill, the combination of a tubular sectional casing, the sections of the casing having their ends threaded for coupling together; a cutting shoe having screw threads for attachment to the lower end of said casing; a removable platform secured to the upper end of said casing; means associated with said casing for turning it; a drilling rod adapted to work up and down within said casing; a removable drilling tool on the lower end of said rod; and a removable handle on the upper end of said rod for operating said drilling tool.

3. In a drill, the combination of a tubular sectional casing, the sections of the casing having their ends threaded for coupling together; a cutting shoe having screw threads for attachment to the lower end of said casing; a removable sectional platform secured to the upper end of said casing; means associated with said casing for turning it; and a drilling tool working in said casing.

4. In a drill, the combination of a tubular sectional casing, the sections of the casing having their ends threaded for coupling together; a cutting shoe having screw threads for attachment to the lower end of said casing; a removable recessed head on the upper end of said casing; a removable platform adapted to rest on said head and engage its recesses; means associated with said casing for turning it; a drilling rod adapted to work up and down within said casing; a removable drilling tool on the lower end of said rod; and a removable handle on the upper end of said rod for operating said drilling tool.

5. In a drill, the combination of a tubular sectional casing, the sections of the casing having their ends threaded for coupling together; a cutting shoe having screw threads for attachment to the lower end of said casing; a removable platform secured to the upper end of said casing; a traction sweep removably connected with said casing for turning it; a drilling rod adapted to work up and down within said casing; a removable drilling tool on the lower end of said rod; and a removable handle on the upper end of said rod for operating said drilling tool.

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

ALBERT C. LUDLUM.

Witnesses:

C. C. HARLEY,
R. E. SCHULTZ.