(No Model.)

E. LAWTON.

WELL DRILL.

No. 602,339. Patented Apr. 12, 1898.

Fig. 3.

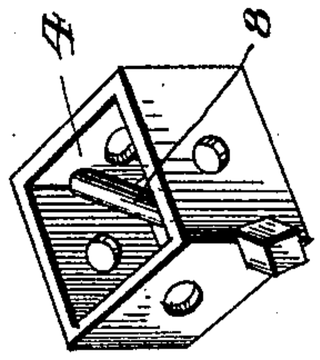


Fig. 4.

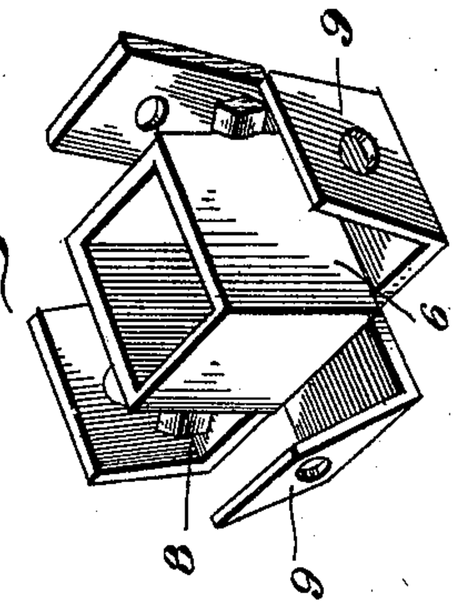


Fig. 2.

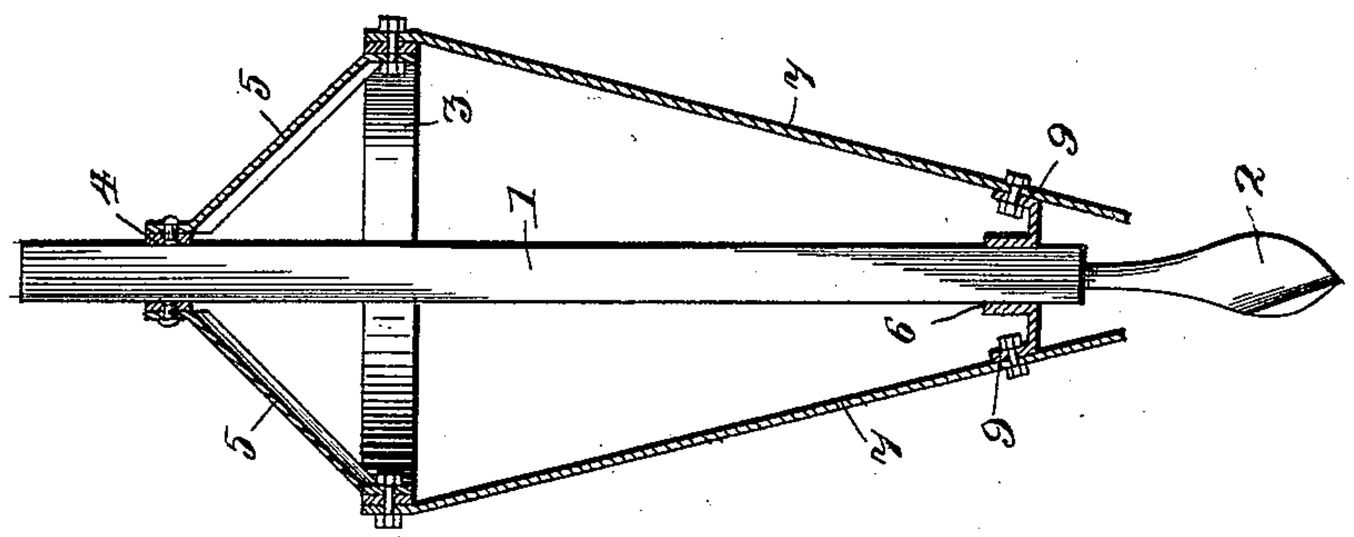
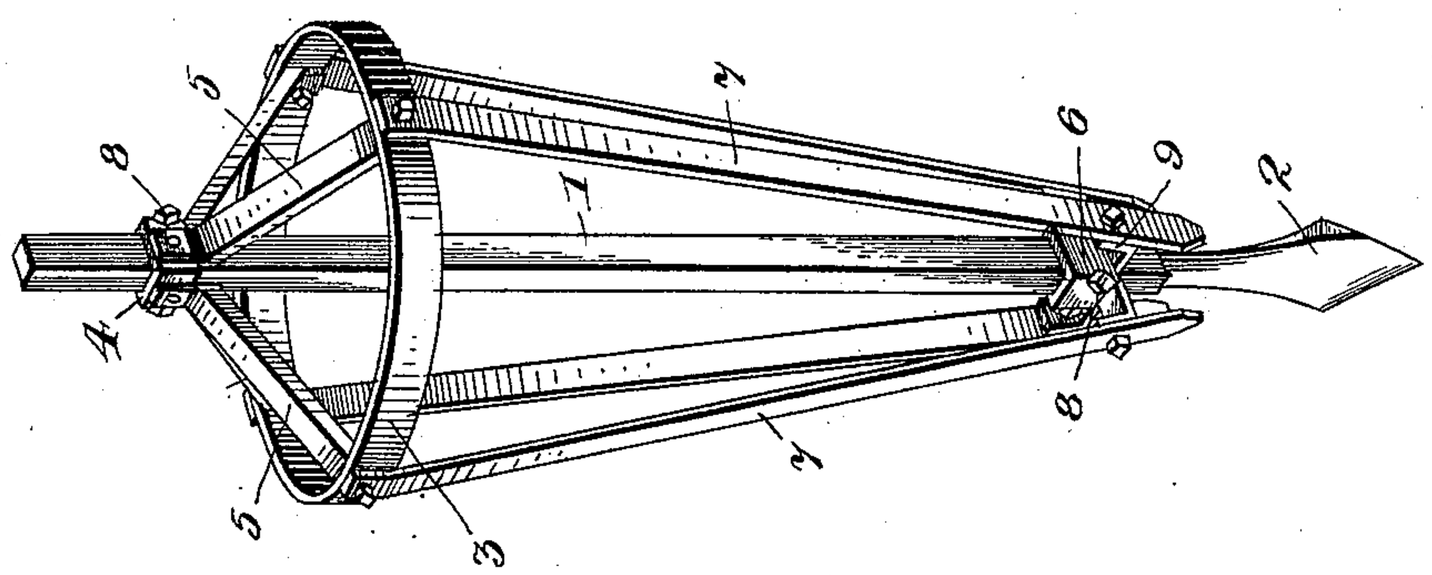


Fig. 1.



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UNITED STATES PATENT OFFICE.

EDGAR LAWTON, OF OMEMEE, NORTH DAKOTA.

WELL-DRILL.

SPECIFICATION forming part of Letters Patent No. 602,339, dated April 12, 1898.

Application filed September 20, 1897. Serial No. 652,304. (No model.)

To all whom it may concern:

Be it known that I, EDGAR LAWTON, a citizen of the United States, residing at Omemee, in the county of Bottineau and State of North Dakota, have invented certain new and useful Improvements in Well-Drills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to provide an improved attachment for well-boring drills which will facilitate the operation of said drills through hard-pan.

The invention consists of a basket-like frame adapted to be connected to the drill-shaft, comprising angularly-arranged knives or cutters and supports therefor, the lower ends of said knives or cutters being located just above the drill-point.

The invention also consists in other details of construction and combinations of parts, which will be hereinafter more fully described and claimed.

In the drawings forming part of this specification, Figure 1 represents a perspective view of the lower end of the drill-shaft with my improved attachment applied thereto. Fig. 2 is a vertical sectional view of the same. Figs. 3 and 4 are detail perspective views of the collars employed at the upper and lower ends, respectively, by means of which the device may be attached to the shaft.

Like reference-numerals indicate like parts in the different views.

The shaft 1, to which the drill-point 2 is attached at its lower end, is preferably rectangular in cross-section, although it may be of any desired shape. My improved attachment consists of a frame made up of a ring 3, encircling the shaft 1, a rectangular collar 4 at the upper end thereof, connected to the ring 3 by angularly-arranged bracing-bars 5 5, a rectangular collar 6 at the lower end thereof, and a series of angularly-arranged cutting-blades or knives 7 7, connected to the ring 3 and to the collar 6. The collars 4 and 6 are of the same shape in cross-section as the shaft 1 and are intended to fit closely around said shaft, being held in place thereon by means of bolts 8 8, passing therethrough. These bolts are held in place by suitable nuts, by means of which the removal of the attachment may be easily effected. The cutting-blades 7 7 are also preferably removably connected to the ring 3 and collar 6 by means of bolts and nuts. The lower collar 6 is formed with outwardly and upwardly extending flanges or lips 9 9, to which the cutting-blades 7 are directly attached, so that the lower ends of said blades are held out of contact with the shaft 1 and the drill-point 2 upon the lower end thereof. This construction also enables the extreme lower ends of said blades to project below the collar 6, as clearly shown in the drawings.

The ring 3 is to be of the same diameter as the bucket ordinarily attached to the shaft 1, and when my device is attached to said shaft the bucket is first removed.

By the use of my device the drill may be readily passed through hard-pan as well as ordinary earth and greatly facilitates the boring operation.

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

1. The combination with a drill-shaft, of an attachment therefor consisting of a frame made up of a ring or band, collars at the upper and lower ends thereof of smaller dimensions than said ring, the lower of said collars having outwardly and upwardly extending flanges thereon, bracing-bars connecting the upper collar with said ring, and cutting-blades or knives secured at their upper ends to said ring, and at their lower ends to said flanges.

2. The combination with a drill-shaft, of an attachment therefor consisting of a frame, made up of a ring or band, collars at the upper and lower ends thereof, of smaller dimensions than said ring, the lower of said collars having outwardly and upwardly extending flanges thereon, bracing-bars connecting the upper collar with said ring, and removable cutting-blades or knives secured at their upper ends to said ring, and at their lower ends to said flanges.

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

EDGAR LAWTON.

Witnesses:
E. B. GOSS,
A. W. MCKINNON.