

(No Model.)

S. WICKIZER.

GROUND SCREW FOR BORING WELLS.

No. 334,919.

Patented Jan. 26, 1886.

Fig. 1.

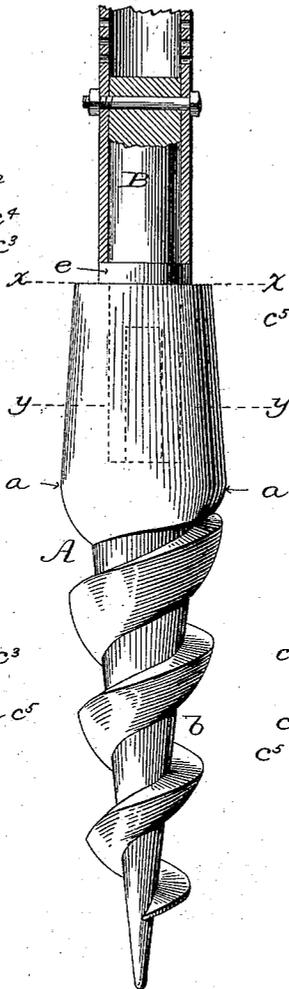


Fig. 2.
on x-x.

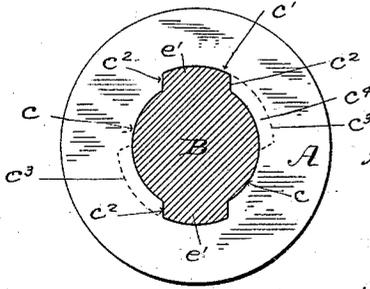


Fig. 4.
on y-y.

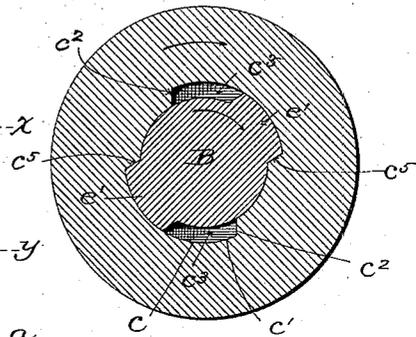


Fig. 3.
on y-y.

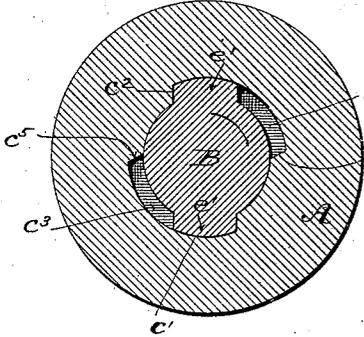


Fig. 5.

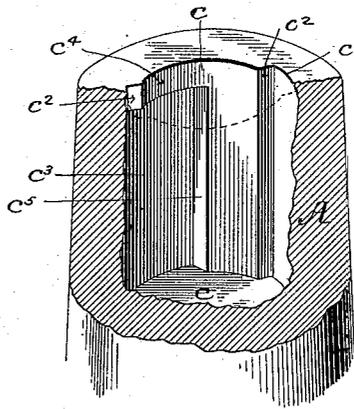
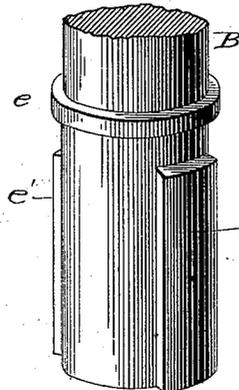


Fig. 6.



Witnesses:

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Inventor:

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by Hodges Son,
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UNITED STATES PATENT OFFICE.

SAMUEL WICKIZER, OF PIERRE, DAKOTA TERRITORY, ASSIGNOR TO WILLIAM C. EICKEMEYER, FRANK HASSLER, JOHN F. HUGHES, AND HARRY ERNEST, ALL OF SAME PLACE.

GROUND-SCREW FOR BORING WELLS.

SPECIFICATION forming part of Letters Patent No. 334,919, dated January 26, 1886.

Application filed September 12, 1884. Serial No. 142,935. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL WICKIZER, of Pierre, in the county of Hughes and Territory of Dakota, have invented certain new and useful Improvements in Ground Screws for Boring Wells, of which the following is a specification.

My invention relates to tools for boring in the ground; and it consists in a novel construction and arrangement of parts, as hereinafter set forth.

In the drawings, Figure 1 is a side view of my improved device; Fig. 2, a section on the line $x x$; Figs. 3 and 4 sections on the line $y y$, and Figs. 5 and 6 views illustrating certain details.

My invention is designed for use in boring wells and for similar purposes, the object being to simplify and cheapen the construction of the tool, while at the same time giving it the required strength.

A indicates the screw, which in practice is made about ten inches in length, said screw tapering both ways from a line, a , near its upper end. It is provided with a spiral thread, b , forming a "gimlet-point," which causes it to enter the ground readily, the thread terminating at the upper end a little below the line a .

Upon reference to Fig. 1 it will be seen that the screw is widest at the line a , and that the hole made will depend upon the diameter of the screw at this line. The upper end of the screw is flat, and the head is provided with a cavity or socket, c , which extends downward to about the point a . The form of this hole or socket c will be now explained, reference being had to Figs. 2 and 3. The hole or opening at the upper face of the screw is substantially circular, but has two offsets or enlargements, c' , diametrically opposite each other, and each about one-sixth of the circumference of the opening in width. The walls of these offsets or enlargements c' form four shoulders, c'' , two of which extend from top to bottom of the socket. A short distance below the top of the screw the socket c is enlarged, as shown in Figs. 2 and 3, for about one-sixth of the circumference of the socket, the walls of this enlargement c'' having the same radius as the offsets c' . As a result of this construction ledges or

shoulders c'' are formed, as shown in Figs. 2 and 4, the end walls of these ledges c'' being coincident with two of the upright walls, c' . The inner end walls or termination of the enlarged sockets c'' form shoulders c'' , which extend from the ledge c' downward to the bottom of the cavity.

B indicates a stem or plug, which fits the hole c in the screw, as shown in Fig. 1. The main body of the stem or plug is cylindrical, and is formed with a collar, e , to rest upon the top of the screw. The portion of the plug below the collar is formed with two longitudinal webs or ribs, e' , which accurately fit the offsets c' of the socket c , the space between the collar e and the top of the webs e' being equal to the height or width of the projecting flange or ledge c'' . The plug or stem B is inserted in the screw A, the ribs e' passing through the enlargements c' , and the end of the plug rests on the base of the socket. By giving the plug or stem a quarter-turn to the right the ribs e' pass under the flanges or ledges c'' into the enlargement c'' of the socket until the edges of the ribs come into contact with the walls c'' of the socket and prevent further rotation of the stem or plug independently of the screw. Any further rotation of the plug B will cause a similar movement of the screw, and by this means the screw is forced into the ground. In order to withdraw the plug it is only necessary to turn the latter to the left until the ribs e' come into line with the enlargements c' , when the plug can be lifted out. This construction produces in effect a "bayonet-joint."

In the drawings, I have shown the plug or stem connected by means of bolts or rivets to the lower end of a perforated well-tube; but I do not limit myself to the use of the invention for boring wells.

The flange or collar e is essential to the practical use of the device, serving as it does to cover the offsets or enlargements c' of the socket c , and thus to exclude dirt, pebbles, sand, and other foreign matters, which, if permitted to enter the sockets, would prevent the plug from being turned back sufficiently to be withdrawn from the socket.

I am aware that ground-screws have heretofore been cast in one integral piece; that

others have been formed in segmental sections capable of being secured together for use and separated after the boring operation is completed in order to withdraw the point
5 from the hole bored, and that a screw-point has been formed with a socket to receive a detachable boring rod or bar. These features I do not claim, broadly. I, however, believe myself to be the first to construct a point in the
10 peculiar form shown and described—that is to say, with a swell or enlargement about midway between its upper and lower ends, above the termination of the screw-thread; and I also believe myself to be the first to provide
15 the boring rod or plug with a collar to cover the lateral enlargements of the socket made to receive the rod or plug. By the peculiar form of the point I cause the side walls of the hole to be compressed or compacted, and
20 to be made of a diameter greater than the threaded portion of the point, as also larger than the tube or rod employed as a boring rod or bar. This entirely relieves the bar or
25 tates the operation of sinking the point.

By making the screw in one integral piece I not only lessen the expense of manufacture, but I am enabled to form the socket within the casting, avoiding the necessity of screw joints or couplings, and by providing the collar to cover the socket I avoid all danger of
30 the withdrawal of the rod being prevented.

Having thus described my invention, what I claim is—

1. A ground-screw consisting of body A, enlarged at a point between its upper and lower
35 ends, as at *a*, tapered each way from said point, provided with an external thread below the enlargement, and having a socket in its upper
40 end undercut, substantially as shown and described.

2. In combination with point A, having socket *c*, with lateral enlargements *c'*, boring rod or plug B, having ribs *e* and collar *e*, substantially as shown and described.

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Witnesses:

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