No. 616,496. Patented Dec. 27, 1898.

T. RUSSELL.

BORING TOOL.

(Application filed Jan. 5, 1898.)

(No Model.)

Fig. 1

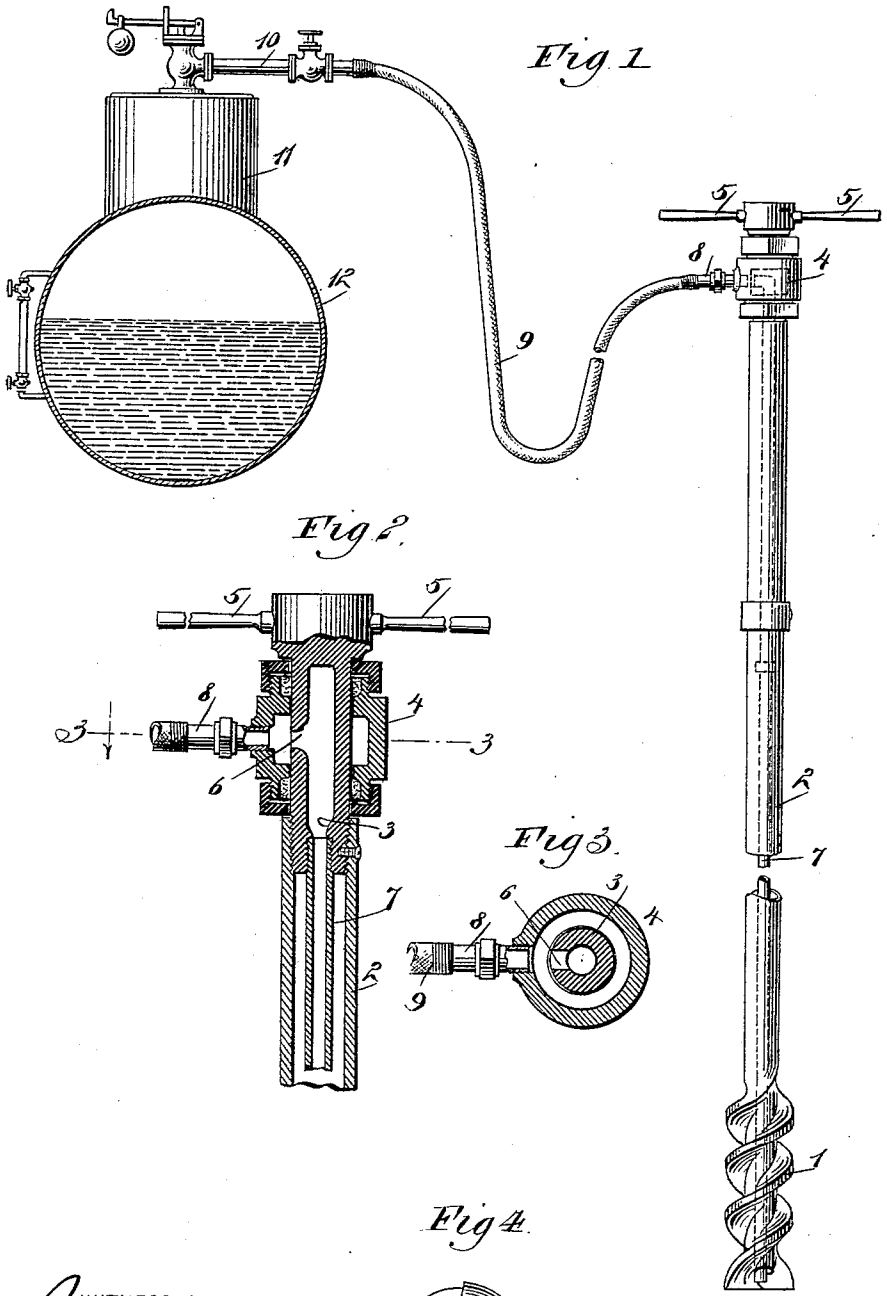
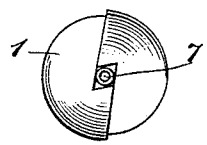


Fig. 2

Fig. 3

Fig. 4



WITNESSES:

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BORING-TOOL.

SPECIFICATION forming part of Letters Patent No. 616,496, dated December 27, 1898.

Application filed January 5, 1898. Serial No. 665,613. (No model.)

To all whom it may concern:

Be it known that I, THOMAS RUSSELL, of Grand Rapids, in the county of Itasca and State of Minnesota, have invented a new and Improved Boring-Tool, of which the following is a full, clear, and exact description.

This invention relates particularly to augers for boring in frozen ground; and the object is to provide an auger with means for directing a heating medium to the cutting end, whereby the frost will be thawed out of the ground, thus softening the ground so that the auger may easily penetrate it.

I will describe my invention, and then point out the novel features in the appended claims.

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 views.

Figure 1 is a view in elevation of an auger embodying my invention and showing a heating device connected therewith. Fig. 2 is a longitudinal section of a portion of the same. Fig. 3 is a section on the line 3 3 of Fig. 2, and Fig. 4 is an end view of the auger.

The auger 1 is made tubular, the opening extending through the lower or cutting end. The shank 2 is also tubular, and this shank may be extended to any desired length by adding sections as the auger penetrates the ground. The upper end of the shank is to be removably connected to a hollow head 3, mounted to rotate in a steam-chest 4. The upper end of the head 3 above the chest is provided with handles 5, by means of which a person may turn the head and auger.

Communication is provided between the interior of the head 3 and the interior of the chest 4 by means of a port 6 through the wall of the head, and a tube 7 leads from the interior of the head 3 through the tubular shank and also through the auger, terminating, however, a short distance above the end of the auger, the cutting-lips of which are so lapped as to prevent the entrance of dirt. The tube 7 is of less diameter than the interior of the shank, so that an air-space is formed around the tube which protects the tube from outside air, thus preventing to a considerable extent the cooling or condensation of the steam or other heating medium.

While hot air may be employed as the heating agent, I have here shown means for employing steam for such purpose. From a nipple 8, leading into the chest 4, a flexible pipe 9 leads to a valve-controlled pipe 10, having connection with the steam-dome 11 of a boiler 12. The flexible pipe 9 will allow the auger to move downward, and as said pipe is connected to the chest 4, in which the head 3 rotates, the pipe will not be turned around the auger-shank while the device is in operation.

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

1. A boring-tool, comprising a chest adapted to be connected with a source of heat, a hollow head mounted to rotate in the chest and provided with a port in its wall, said head being provided with means for rotating it, a hollow auger having a hollow shank, the upper end of which is secured to the head and a tube secured to the lower end of the head and extending down through the shank and auger, said tube being of less diameter than the interior of the auger-shank and terminating short of the end of the auger, substantially as described.

2. In a boring-tool, the combination with a hollow auger having a hollow shank, of a steam-chest provided with a nipple for attachment of a pipe leading to a source of steam-supply, a hollow head mounted to rotate in the steam-chest and with which the auger-shank is detachably secured, said head having a port in its wall opposite the nipple of the steam-chest, handles on the upper end of the hollow head, and a tube secured to the lower end of the head and extending down through the shank and auger, said tube being of less diameter than the interior of the auger-shank and terminating short of the end of the auger, substantially as described.

THOMAS RUSSELL.

Witnesses:
JOHN SWAIN BERNEY,
JOHN S. LOFBERG.