No. 614,227. Patented Nov. 15, 1898.

F. KRAEMER.

DEVICE FOR THAWING EARTH FOR PLACER MINING.

(Application filed Sept. 7, 1897.)

(No Model.)

Fig 1

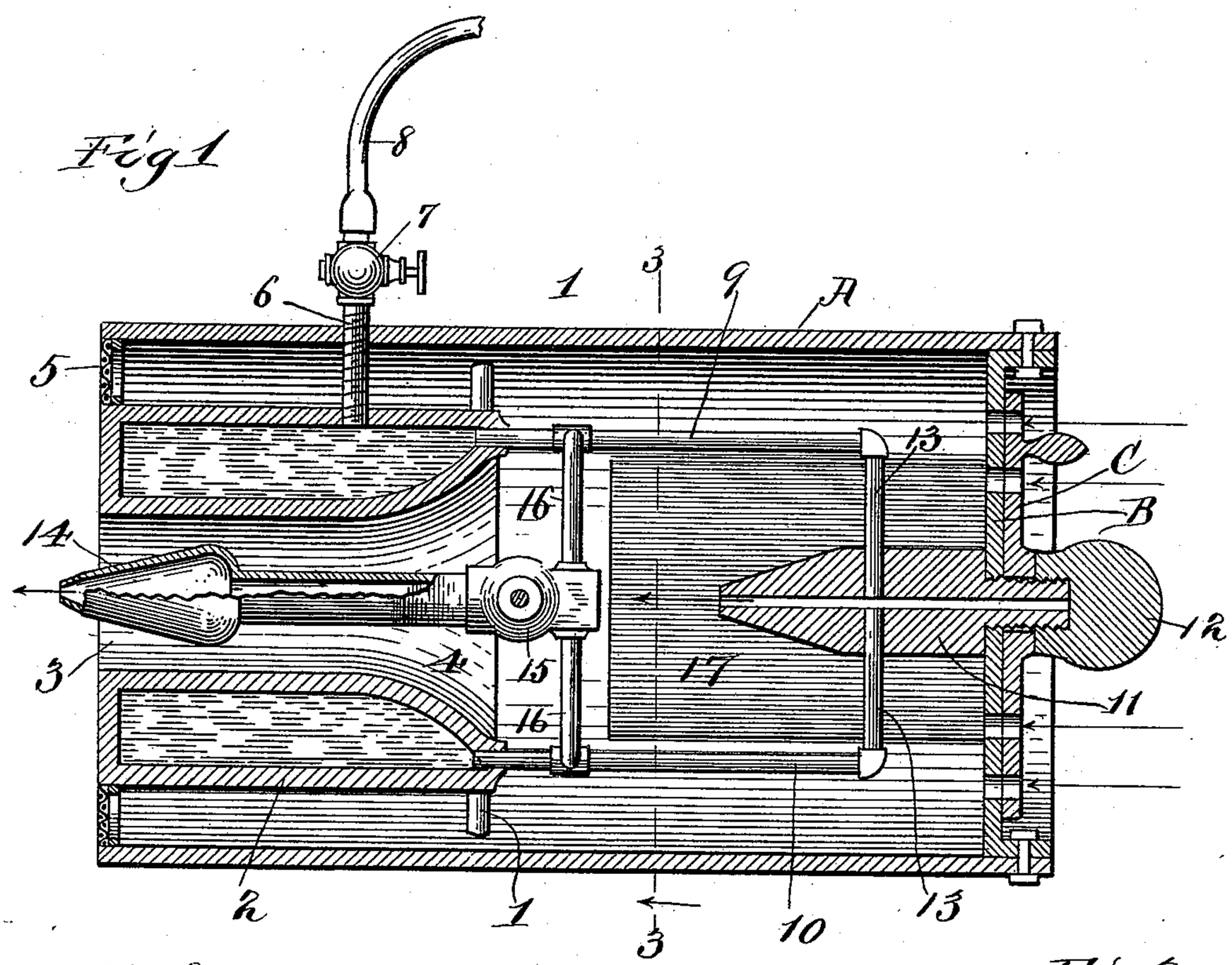


Fig 2

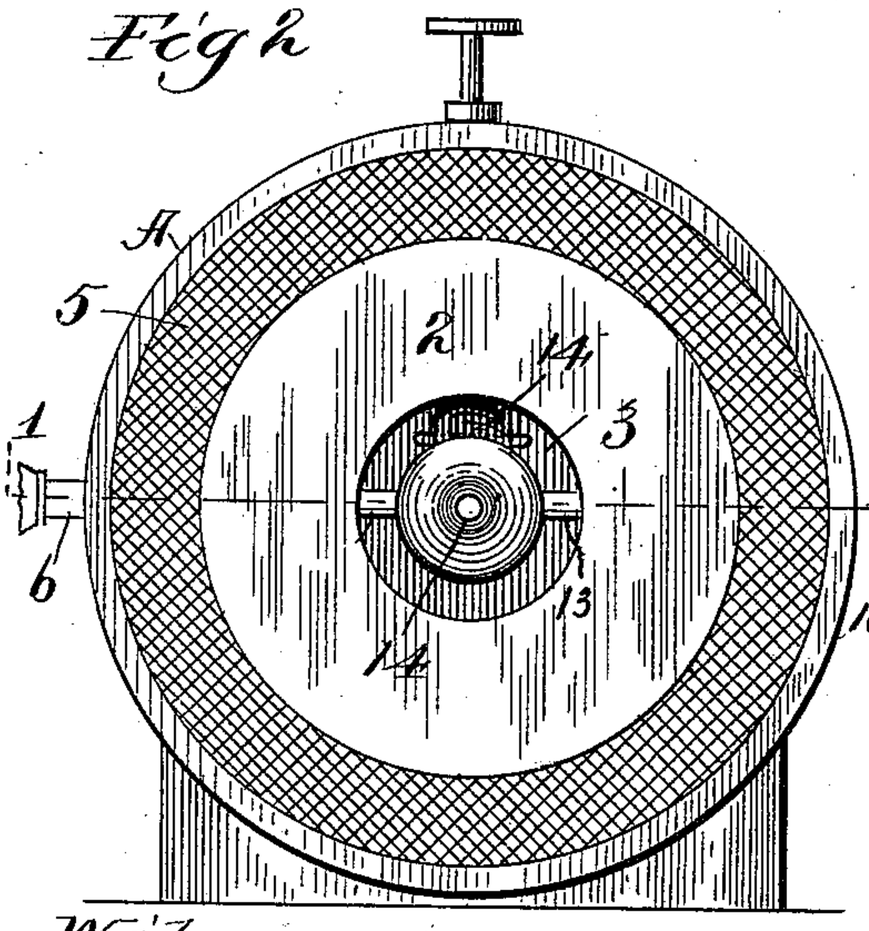
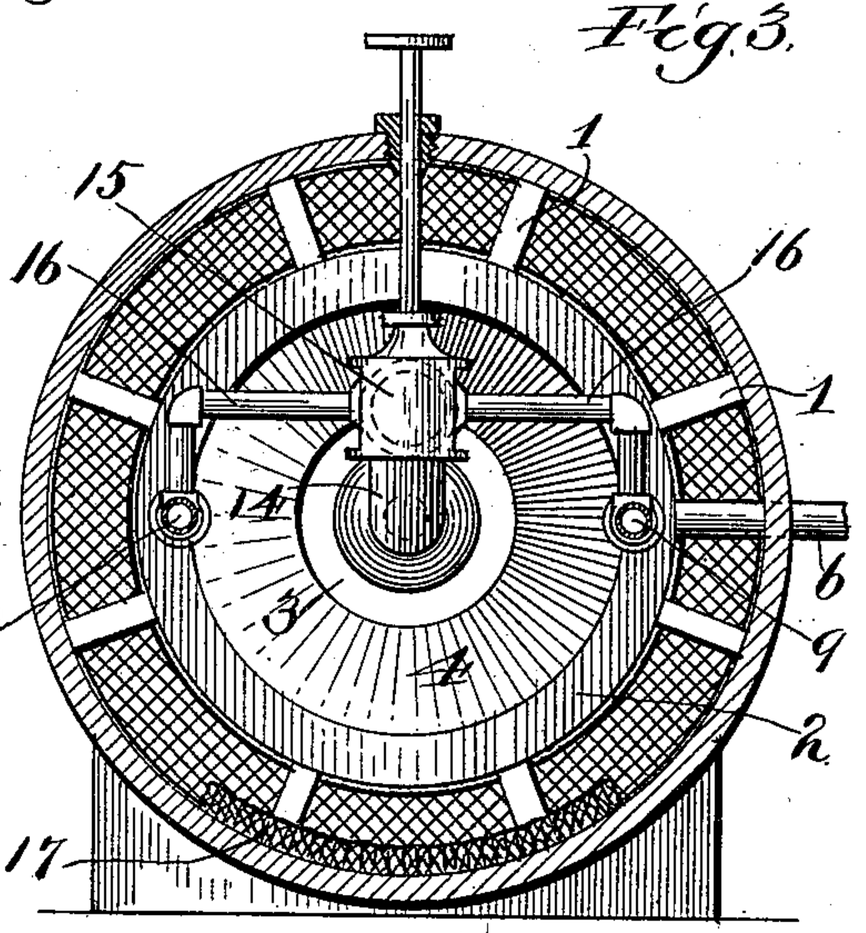


Fig 3.



Witnesses.
W. C. Cooke
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Inventor:
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UNITED STATES PATENT OFFICE.

FRANK KRAEMER, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ADOLPH BLOCH AND SOL KURZ, OF SAME PLACE.

DEVICE FOR THAWING EARTH FOR PLACER-MINING.

SPECIFICATION forming part of Letters Patent No. 614,227, dated November 15, 1898.

Application filed September 7, 1897. Serial No. 650,783. (No model.)

To all whom it may concern:

Be it known that I, FRANK KRAEMER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Devices for Thawing Earth for Placer-Mining; 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.

My invention relates to a novel construction in a device for thawing earth for placer-mining or other purposes, the object being to provide a device of this description of simple and durable construction and efficient operation; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a longitudinal section of a heater constructed in accordance with my invention on the line 1 1 of Fig. 2. Fig. 2 is an end elevation of the same. Fig. 3 is a transverse section of the same on the line 3 3 of Fig. 1.

My device consists of an outer cylinder A, provided at one end with a perforated head B, upon which a plate C is pivotally mounted, which has perforations corresponding with said perforations in said head B, thus forming a valve for opening and closing said perforations. Concentrically mounted within said cylinder A by means of spokes 1 is a smaller and shorter chamber 2, having two concentric walls, so as to leave an opening 3 through the center thereof. The innermost wall of said chamber 2 converges toward said outer wall at its rear end, thus forming a flaring mouth 4, which contracts to form said opening 3. Said cylinder A and chamber 2 are flush at their forward ends, and the ring-shaped space between the same is closed at its mouth by means of a section 5 of wire-cloth, which is adapted to prevent the entrance of dirt. A pipe 6, provided with a valve 7, passes through said cylinder A and enters said chamber 2, connecting the latter with an oil-tank (not shown) by means of a flexible tube 8. Pipes 9 and 10, entering the rear end of said chamber 2 at diametrically opposite points, connect the latter with a burner 11, mounted in said head B and closed at its outer end by a cap 12, by means of the pipes 13, which enter said burner 11 at diametrically opposite points. A burner 14 is mounted in said opening 3, which is controlled by means of a valve 15, the stem of which passes through said cylinder A. Said valve 15 is situated out of the path of the flame thrown by said burner 11 and is fed from the pipes 9 and 10 by means of the connecting-pipes 16.

The burner 14 is provided with an enlarged end or head, as shown in Fig. 1, the sides of the said head converging toward the outer end of the burner. The enlarged head is hollow in its interior, and thus as the vapor is generated in the burner 14 the enlarged head forms a cavity for the reception of such vapor and the vapor is expelled with great force at the end of the burner.

A piece 17 of asbestos is secured in the cylinder A at a point which will be in vertical alinement with the burner 11 when said device is held in the position in which it will be started into operation and is adapted to receive oil allowed to drip from said burner 11. When said valve 7 is opened, the chamber 2 will fill with oil, which will flow through the pipes 9 and 10 to the burner 11 and thence drip upon the asbestos, which will absorb it and upon which it can be ignited. The flame produced will obviously heat the oil in the pipes 9 and 10 and cylinder 2, and thus generate vapor, which as it flows from said burner will be ignited, and this flame will impinge against the burner 14 and the inner wall of the chamber 2, thus heating the latter to an intense degree and creating pressure therein. By then opening the valve 15 this superheated vapor will flow from the burner 14 and be ignited from the burner 11, thus creating a very hot flame, which can be directed as desired to thaw frozen ground or for other purposes.

It will be observed that the valve 15 is located beyond the inner end of the chamber 2 and that the said valve can thus be easily manipulated. By the manipulation of the

said valve the supply of vapor to the burner 14 may be regulated, and thus the intensity of the flame coming from the burner may be correspondingly regulated. The valve 15 being located out of the path of the flame of the burner 11 the said valve is not subjected to the intense heat incidental to such flame. The inner end of the oil-chamber being flared the heat contained within the cylinder A is led through the opening of the chamber. The said opening, gradually decreasing in dimension, compresses the flame and it is expelled at the outer end of the chamber with great force.

I claim as my invention--

1. A heater of the kind specified consisting of an outer cylinder, an oil-chamber concentrically mounted within said cylinder, said oil-chamber having a central opening, an oil-supply pipe connected with said oil-chamber, a burner located within the cylinder and rearwardly of the oil-chamber, pipes located within the cylinder and connecting the oil-chamber with the said burner, a burner located within the central opening of the oil-chamber, pipes connecting the last said burner with the oil-chamber, a valve located beyond the inner end of the oil-chamber and adapted to control the supply of oil from the last said pipes to the burner located within the opening of the oil-chamber.

2. A heater of the kind specified consisting of an outer cylinder, an oil-chamber concentrically mounted within said cylinder, said oil-chamber having a central opening, an oil-supply pipe connected with the oil-chamber, a burner located within the cylinder, rearwardly of the oil-chamber, pipes located within the cylinder and connecting the oil-chamber with the said burner, a burner located within the central opening of the oil-chamber, pipes connecting the last said burner with the oil-chamber, a valve eccentrically located within the cylinder between the inner end of the oil-chamber and the rear burner, said valve adapted to control the supply of oil from the last said pipes to the burner located within the opening of the oil-chamber.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK KRAEMER.

Witnesses:
ERWIN J. LOTZ,
WM. H. BENNETT.