No. 617,428. Patented Jan. 10, 1899.

E. SPRANKLE.

TANK HEATER.

(Application filed Sept. 17, 1898.)

(No Model.)

FIG. 1.

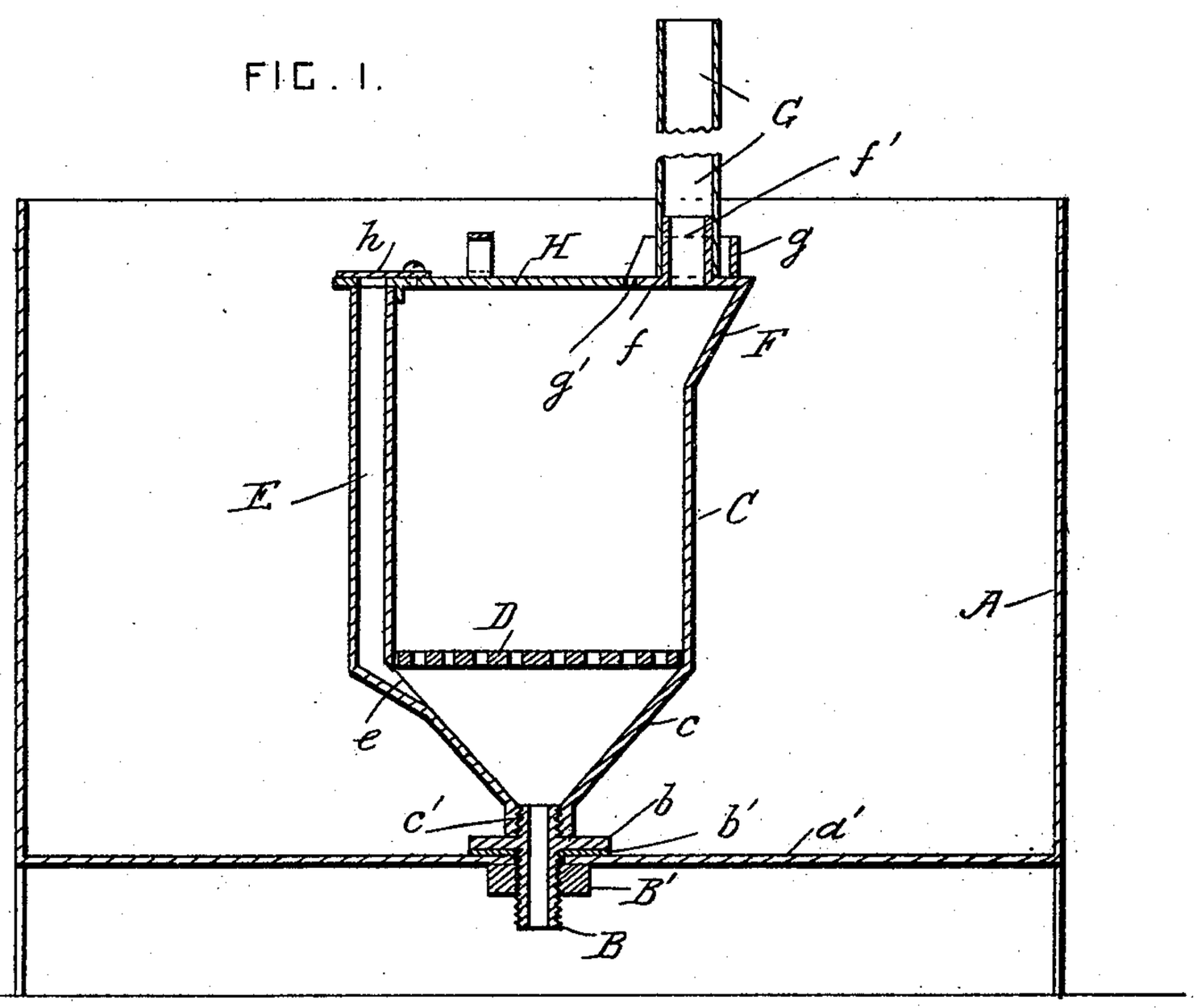


FIG. 2.

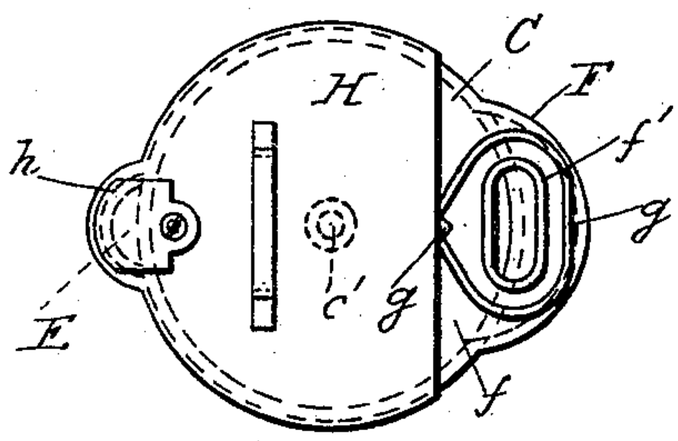
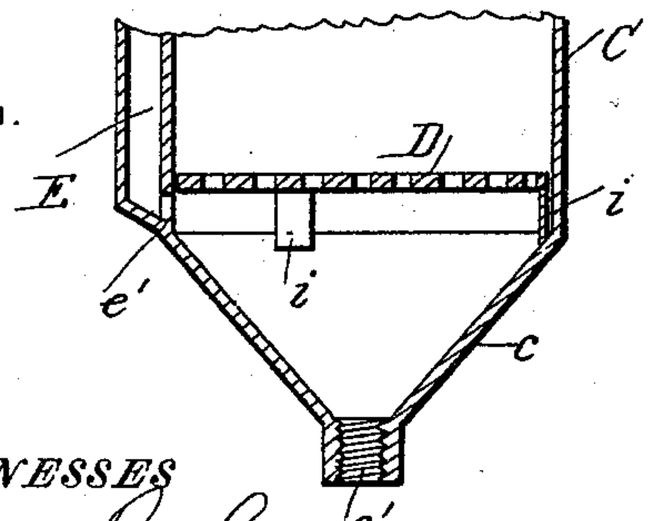


FIG. 3.



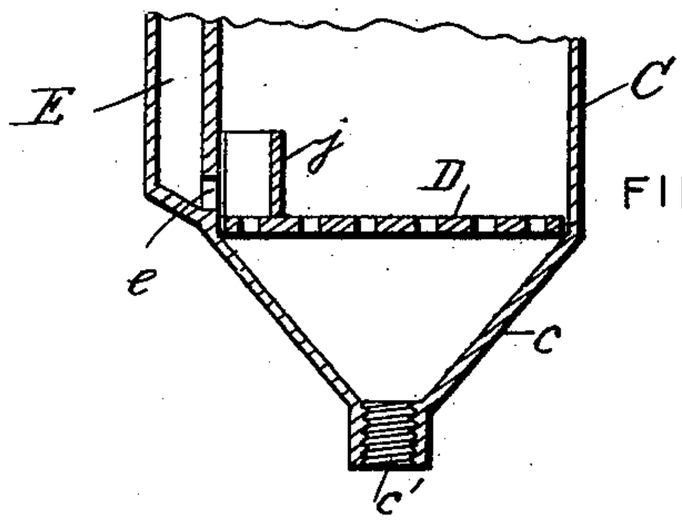
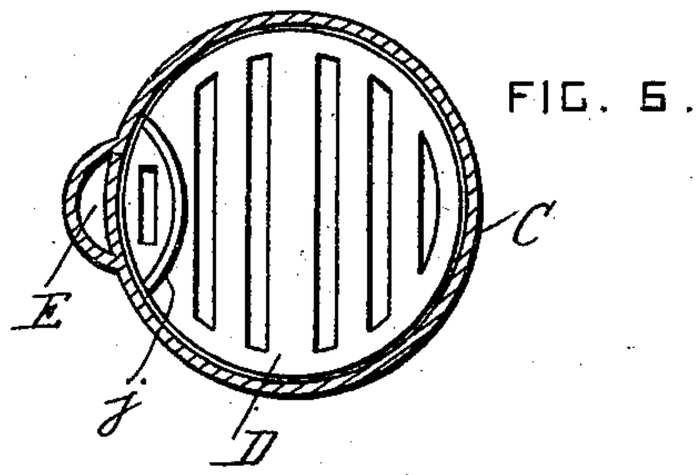


FIG. 4.

FIG. 5.



WITNESSES

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EDWARD SPRANKLE, OF KENDALLVILLE, INDIANA.

TANK-HEATER.

SPECIFICATION forming part of Letters Patent No. 617,428, dated January 10, 1899.

Application filed September 17, 1898. Serial No. 691,256. (No model.)

To all whom it may concern:

Be it known that I, EDWARD SPRANKLE, a citizen of the United States, residing at Kendallville, in the county of Noble and State of Indiana, have invented certain new and useful Improvements in Tank-Heaters; 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.

This invention relates to tank-heaters; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a vertical section through a tank provided with a heater according to this invention. Fig. 2 is a plan view of the heater. Figs. 3 and 4 are partial sectional views showing modifications in the arrangement of the combined draft and flushing pipe. Fig. 5 is a plan view of the parts shown in Fig. 4.

A is a tank of any approved construction, such as used for watering stock.

B is a screw-threaded pipe provided with a flange *b* and a packing-washer *b'*, which rests on the bottom *a'* of the tank. B' is a nut which is screwed on the lower part of the pipe B, which projects through the bottom of the tank, and secures it against the tank-bottom, so as to make a water-tight joint.

C is a fire-box provided with a conical base portion *c*, which forms an ash-receiver. The base portion *c* has a hole *c'* at its apex, which is screwed onto the upper part of the pipe B, and in summer it can be unscrewed and the heater removed from the tank.

D is a grate which is supported in the fire-box.

E is a combined draft and flushing pipe which extends downward from the top of the fire-box and connects with the ash-receiver by means of a lateral hole *e*.

F is a lip which projects upon one side at the top of the fire-box and is provided with a top portion *f*. The top portion *f* is provided with an upwardly-projecting branch *f'*, which forms an outlet for the smoke.

G is a removable chimney which is slipped over the branch *f'*. In order that the creosote and other volatile products of combustion may not get into the water in the tank, a raised guard *g* is formed on the top portion *f* around the branch *f'*. This guard is preferably open on the side which comes nearest to the center of the fire-box, and *g'* is a notch or opening which lets the creosote and other liquid substances which collect in the guard run into the fire-box. The creosote and certain other volatile products of combustion settle on the inside of the chimney, and if a guard were not used they would trickle down the chimney and the outside of the fire-box into the water in the tank and render it offensive to the cattle.

H is a removable lid which covers the remainder of the top of the fire-box and extends around the top of the draft and flushing pipe E. A damper *h* is pivoted to the lid or cover H over the top of the pipe E and affords a means for regulating the draft.

When a fire is started on the grate, air is supplied freely to support combustion through the pipes B and E. The pipe B is soon blocked up by the falling ashes, and the draft is then supplied entirely through the pipe E and is controlled by the damper *h*. Water is poured down the pipe E at intervals to quench the burning ashes and to wash them out of the ash-receiver after they have been quenched and are in a form in which they cannot set fire to anything. The fire in the fire-box can be kept burning and does not have to be let out to permit the ashes to be removed.

The draft and flushing pipe E may have its outlet-hole *e* in the side of the ash-receiver, as shown in Fig. 1, or it may be in the side of the fire-box, as shown in Figs. 3, 4, and 5.

In the modification shown in Fig. 3 the grate is provided with legs *i*, which rest on the upper part of the ash-receiver and raise the grate above the hole *e'*, which communicates with the draft and flushing pipe.

In the modification shown in Figs. 4 and 5 the grate is below the hole *e'*, and it is provided with a projecting guide-rib *j*, which causes the water to flow through the grate on one side thereof into the ash-receiver and prevents the water from quenching the fire which is burning on the grate in the fire-box.

What I claim is—

1. In a tank-heater, the combination, with

a fire-box provided with a pipe branch at its top, and a guard projecting from the top around the said branch and having an opening on one side for permitting any liquid in the guard to flow into the fire-box, of a chimney engaging with the said branch and draining into the said guard, substantially as set forth.

2. In a tank-heater, the combination, with a fire-box provided with a grate, of a conical ash-receiver arranged below the grate and having an outlet-hole at its apex for communicating with an opening in the tank-bottom, and a combined draft and flushing pipe extending down one side of the said fire-box and operatively connected with the said ash-receiver, substantially as set forth.

3. The combination, with a tank, and a pipe projecting through the bottom of the said tank; of a removable heater provided with a fire-box, a grate, a conical ash-receiver below the grate, said ash-receiver having an outlet-hole at its apex and being connected to the said pipe, and a combined draft and flushing pipe extending down one side of the said fire-box and operatively connected with the said ash-receiver, substantially as set forth.

4. In a tank-heater, the combination, with a pipe provided with means for connecting it with an outlet in the tank-bottom; of a fire-box, a conical ash-receiver provided with an opening at its apex and means for connecting it to the said pipe, a combined draft and flushing pipe connected with the said ash-receiver, and a grate for supporting the fuel in the said fire-box, substantially as set forth.

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

EDWARD SPRANKLE.

Witnesses:
CLYDE C. FRAZURE,
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