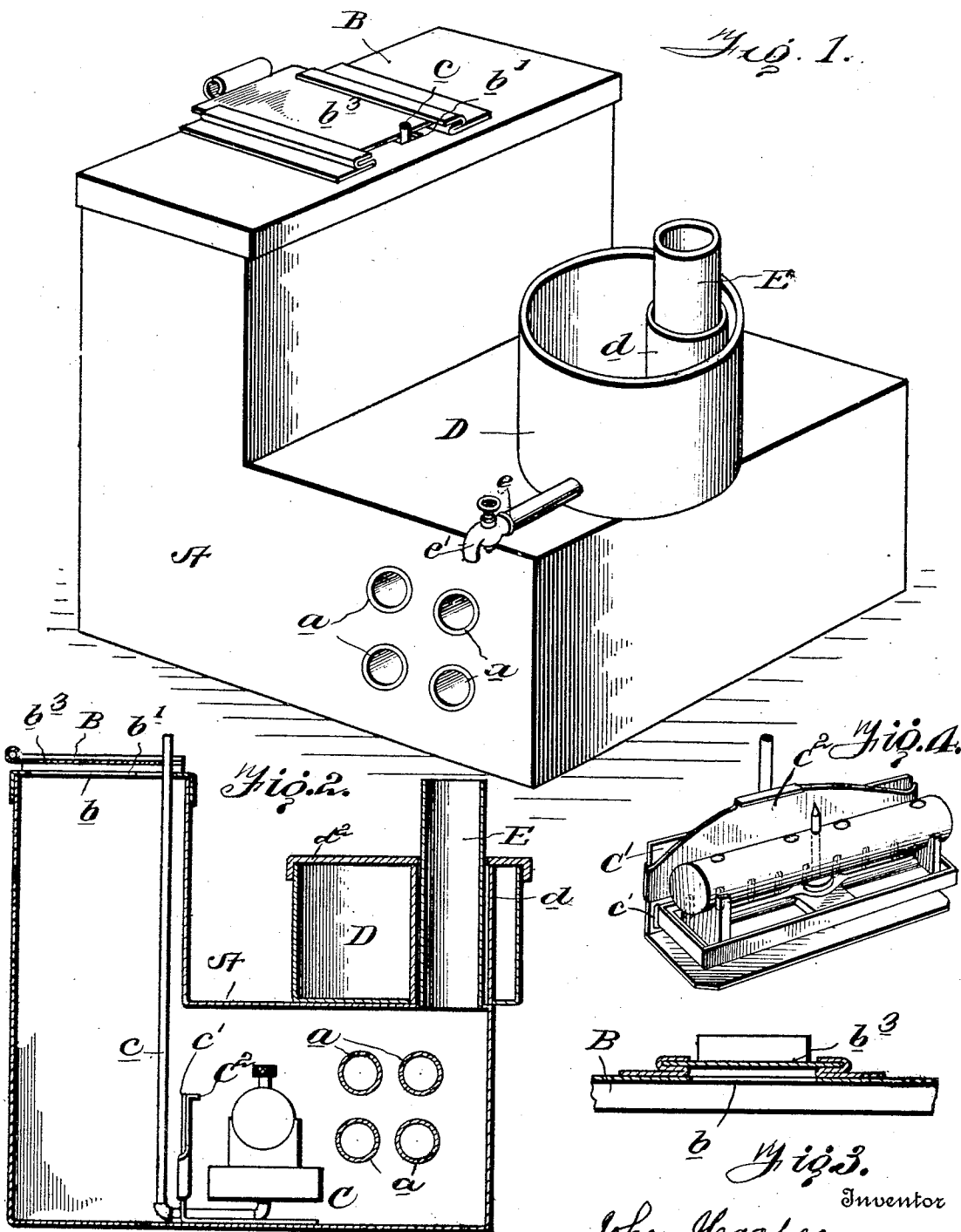


J. HARPER.
FURNACE.
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1,054,114.

Patented Feb. 25, 1913.



Witnesses

Helge Murray,
J. F. FitzGibbon.

By

John Harper

J. F. Beale.

Attorney

UNITED STATES PATENT OFFICE.

JOHN HARPER, OF FAIRFIELD, IOWA.

FURNACE.

1,054,114.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN HARPER, citizen of the United States, residing at Fairfield, in the county of Jefferson and State of Iowa, have invented certain new and useful Improvements in Furnaces, of which the following is a specification.

My invention relates to furnaces designed for agricultural, horticultural, and farming purposes generally, and it is my object to provide an improved furnace of this character adapted to a variety of uses on a farm and be simple in construction and effective in operation.

My invention chiefly consists in a water tight L-shaped drum or casing composed of a low flat base forming a fire box provided with hermetically sealed horizontal flues for the circulation of air or water; and an upright extension of said base of equal width forming an oblong passage way for the admission of air and lowering the burner or stove into said base. Also in providing an oblong stove for said base whereby the flame is spread at the draft opening from side to side of the fire-box and thus carried and spread by the draft throughout the length and breadth of said box to a smoke flue situated at the end of said box opposite the draft entrance thereof.

My invention further consists in the parts and combination of parts as hereinafter set forth.

In the accompanying drawings forming a part of this specification Figure 1 is a perspective view of my furnace, showing the lid of the vat removed. Fig. 2 is a vertical sectional view of the same; and Fig. 3 is a detailed sectional view of the cover for the extension showing the damper. Fig. 4 is a perspective view of burner and shield removed from furnace.

Referring more particularly to the drawings, A denotes the drum or casing consisting of a base or fire-box having flues *a* for circulation of air or water, and a vertical oblong extension of like width to the base and formed integral therewith.

B denotes a detachable cover for the top of the vertical extension provided with a draft opening *b* having a slot *b'*; *b²* denotes a draft-slide or damper for said draft opening.

C denotes an oblong burner or stove designed to be lowered through the oblong extension into the base.

c denotes a feed pipe for supplying oil to the burner and serves also as a means for lowering the burner and its shield hereinafter described into the base.

C' denotes an oblong L shaped shield provided with draft openings *c'* its vertical wall having an opening midway of its length for the passage of said feed pipe; said wall is provided with a vertical movable slide C² having its side edges flanged or bent forming ways which embrace the side edges of said wall. The base of said shield serves as a rest or bearing for the feed pipe as shown in the drawings. The upper end of said pipe projects above the vertical extension and passes through the slot *b'*, while its lower end is bent at right angles, forming an offset which passes through the vertical wall of the shield midway of its length, and fastened to the under part of the burner midway of its length; thus said feed pipe serves not only for lowering the burner and shield to the base, but also, by means of said offset, for thrusting the burner and shield forward in their position in fire-box. In position, the burner and shield, rest just inside the fire-box at its draft entrance as shown in Fig. 2. The oblong shape and dimension of the burner cause the flame to spread completely across the fire-box at its draft end, causing the draft to carry this wide sheet of flame the length and breadth of the fire-box to the smoke flue thus affording a maximum heating surface.

D denotes a vat detachably fastened to the top of the fire box by means of a sleeve *d* formed integral therewith adapted to fit over the smoke pipe E. This vat is provided with a cover *d'* and also an outlet pipe *e* having a spigot *e'*.

My furnace is adapted for various uses for example, among others, for warming water in cattle troughs in which case the fire-box is submerged in the trough and the water circulates around the fire-box and through its flues *a*.

My furnace is also useful in frost-proofing orchards and dry heating barns, and in such cases the flues *a* serve for the circulation of air. The vat serves for cooking and heating animal foods, also for scalding purposes.

In operation the burner and shield are lowered into the bottom of the drum or casing by means of the feed-pipe, and the offset in the lower end of said pipe allows the burner

to be pushed forward into the draft entrance of the fire-box. The burner is then lighted and the adjustable slide pulled up or closed, and the cover B placed in position, the upper
5 end of the feed-pipe passing through slot b' . The draft is then regulated by means of draft slide b^3 . Should the heat become too great the adjustable slide is lowered, thus causing part of the draft to pass over the
10 flame.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

15 A furnace of the class described comprising a wide flat fire box and an oblong ver-

tical extension thereof of like width, an oblong detachable burner for said fire box, an L shaped shield connected to said burner having draft openings and a vertically adjustable slide, a feed pipe having an offset
20 connecting said shield and burner and adapted to lower the same and place them in position in said fire box.

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

JOHN HARPER.

Witnesses:

L. D. HARPER,
ALEX. PICKARD.