H. A. ROE.

Valves to Heaters for Cheese Vats.

No. 35,396. Patented May 27, 1862.

Fig. 1

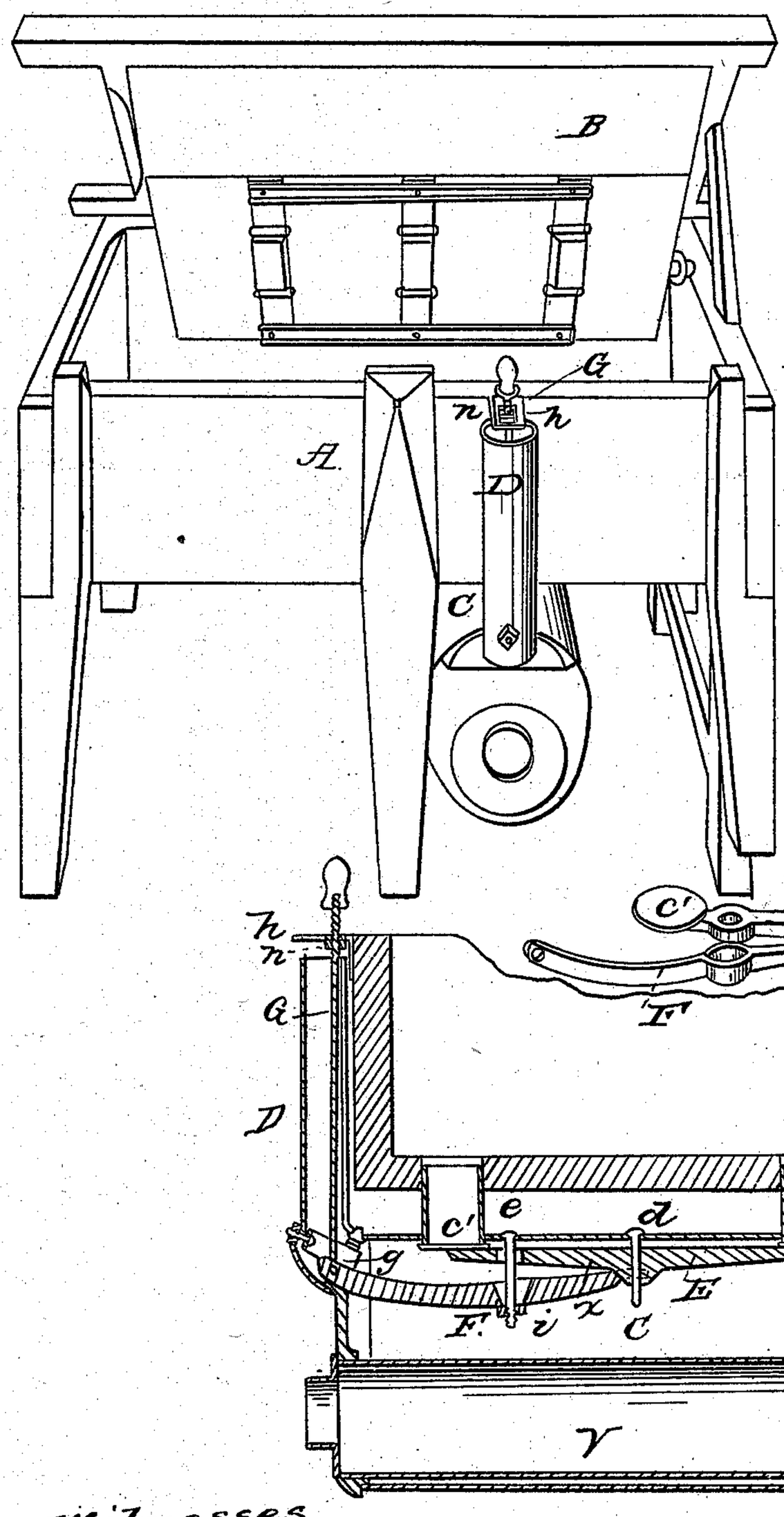

Fig. 5

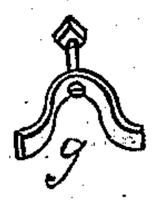

Fig. 4

Fig. 6

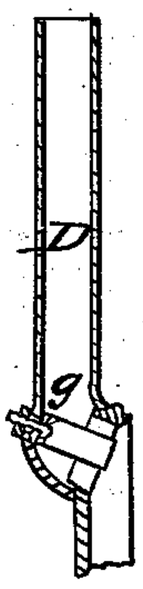

Fig. 3

Witnesses
E. L. Thympton
Orris Blair

Inventor
Henry A Roe

UNITED STATES PATENT OFFICE.

HENRY A. ROE, OF MADISON, OHIO.

IMPROVEMENT IN VALVES TO HEATERS FOR CHEESE-VATS.

Specification forming part of Letters Patent No. **35,396**, dated May 27, 1862.

To all whom it may concern:

Be it known that I, HENRY A. ROE, of Madison, Lake county, and State of Ohio, have invented certain new and useful Improvements in Valves to Heaters for Cheese-Vats; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a view in perspective of a cheese-vat and heater, showing the back end of the heater and the tube for the escape of steam, also the external part of the valve arrangement. Fig. 2 is a transverse vertical section through the center of the heater and valves. Fig. 3 is the valve-bar with the valves and the valve-lever. Fig. 4 is the valve-rod. Fig. 5 is the yoke and bolt with which the tube is fastened to the head of the heater. Fig. 6 is the open tube and a section of the head of the heater, showing the manner in which it is fastened by the yoke and bolt.

Similar letters of reference indicate corresponding parts in the figures.

My invention relates to a cheap and simple arrangement and more convenient manner of operating the valves in heaters to cheese-vats; and it consists, first, in placing the valve-lever below the valve-bar, so as to have it within the heater; second, in operating the valves, with a rod working through the tube on the end of the heater; third, in making the tube for the escape of steam separate from the heater, and fastening it to the same in such a manner that it may be readily taken off to give access to the interior of the heater for necessary purposes, by all of which I obtain an arrangement that is simple, practical, and cheap.

To enable others to fully understand and construct my invention, I will describe it more fully.

The water-vat A, Fig. 1, is a rectangular box, set on suitable legs, with the heater C underneath it. The milk-vat B is made of metal, and made smaller than the water-vat to leave a water-space between them. It is nailed fast to a frame that is also a little shorter than the water-vat to admit of turning water in at the end, and is hinged to the side of the water-vat with loose-jointed hinges, so that the milk-vat may be opened out of the water-vat to dry the space between them, substantially as described in specifications of my former patents; or they may be made in any other known way, they not being a part of my present invention.

The heater C, Figs. 1 and 2, is an irregular oval cylinder with its greatest diameter nearest the top. It is placed crosswise of and under the water-vat and in or near to the center from end to end. It should be as long or a little longer than the vat is wide, and may be of any desired capacity.

The fire-chamber V, Fig. 2, is in the lower part of the cylinder, a half inch or so from the bottom to allow the water to pass under and round it, and has a large water-space above it, called the "reserve-water chamber," to hold a supply of water for washing pails, strainers, &c., and which becomes boiling hot when the valves are closed. To the back end of the heater is attached the large open tube D for the escape of steam when the water boils. In this reserve-water chamber and tube is located my improved valve arrangement, which I will more particularly describe.

E, Figs. 2 and 3, is the valve-bar with the valves *c c'* on the ends. In the center of the bar is the pin *d*, which is fastened rigidly to the shell of the heater, and passes loosely through a hole drilled in the bar and serves merely to keep it from rocking or tipping. A hole is also cast in the bar near to the valve *c'*, through which it works loosely on the bolt *e* to keep it from swaying.

The valve-lever F, Figs. 2 and 3, is placed below the valve-bar, and is loosely hinged to its center by the forked ends of the lever working in notches filed in the ribs on the side of the bar. There is also a hole cast in the lever to correspond with the hole cast in the bar, and the bolt *e*, which passes through the bar, also passes through the lever, and the nut *i* answers as a fulcrum for the lever, and also to hold the entire valve arrangement in place. By turning this nut forward the valves are made to open less, turn it backward and they open more, and if turned off the lever and bar are loosened from the bolt and may be taken out through the opening covered by the tube D.

The lever F is operated by the valve-rod G, Fig. 4, working perpendicularly through the tube D. The lower end is bent at right angles and passes through a hole drilled in that end of the lever that reaches into the tube. The upper end passes through the elbow *h* above the tube, and is threaded and provided

with the nut *n*, and has a wood knob screwed onto the end to be taken hold of. The lever is so balanced that the valves open by their own weight, but are closed with the hand on the wood knob and are held closed by pressing the rod toward the vat, when the nut *n* catches under the elbow *h*, Fig. 2. The elbow *h* is bolted firmly to the vat just above the tube, and has a square hole through it for the nut to pass through easily and a slot from the hole toward the vat, into which the rod is moved when the valves are closed.

The pressure on the valves necessary to make them tight is governed by the nut *n*, which is turned up to increase the pressure and down to diminish it until the valves are tight.

The valves and parts belonging thereto being within the heater, it is important to have access to them without taking the heater apart. For this purpose the tube D is cast separate from the shell of the heater and the opening where it connects is sufficiently large for an armhole and to take out and put in the valves. The tube D is made the proper size and shape to cover the opening, and is fastened to the heater by means of a bolt and yoke, *g*, Fig. 5, in the manner more clearly seen in Fig. 6. To take the valves out, (for any purpose of repair or otherwise,) first remove the valve-rod and the tube and take off the nut *i*, when the lever and bar will fall down and may be taken out.

The purpose of these improvements is to avoid a stuffing-box and all other parts difficult for a farmer to keep tight and in order, and obtain an arrangement of the valve apparatus that will work easy and tight, is simple, cheap, and durable.

The use and operation of the valves are fully explained in the above description, and will be readily understood. When the milk has reached the temperature desired during the process of cheese-making, the valves are closed and the water in the heater becomes boiling hot, to be used in scalding strainers, pails, &c. As water is drawn from the heater, it is refilled from the water-vat, and when it is wished to increase the temperature in the vat to scald the curd the valves are opened until the desired temperature is reached, when the valves are again closed and the process of cheese-making completed.

Having thus explained the nature, construction, and use of my said improvements, what I claim therein as new, and desire to secure by Letters Patent, is—

1. Constructing and operating valves in heaters to cheese-vats with the valve-lever below the valve-bar and within the heater, one end of said lever being connected to the valve-bar and the other with a rod working through an open tube, substantially as and for the purpose specified.

2. Operating the valves in heaters to cheese-vats, with a valve-rod working through an open tube on the heater, as and for the purpose specified.

3. Making the tube for the escape of steam separate from and fastening it to the heater with a yoke and bolt, for the purpose specified.

HENRY A. ROE.

Witnesses:

ORRIS BLAIR,

E. L. PLYMPTON.