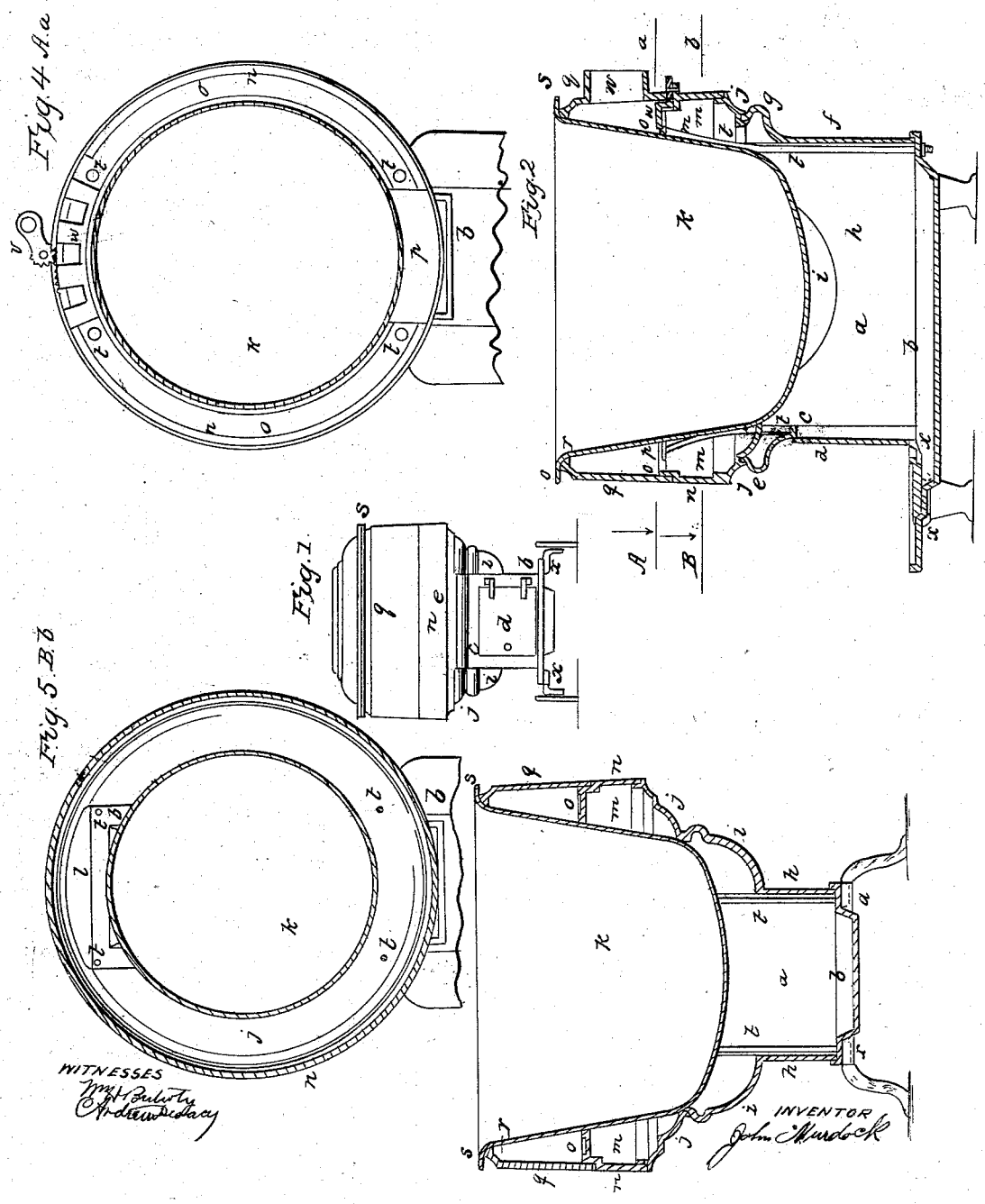
J. MURDOCK.

Portable Kettle Furnace.

No. 48,302. Patented June 20, 1865.



UNITED STATES PATENT OFFICE.

JOHN MURDOCK, OF SOUTH CARVER, MASSACHUSETTS.

PORTABLE KETTLE-FURNACE.

Specification forming part of Letters Patent No. **48,302**, dated June 20, 1865.

To all whom it may concern:

Be it known that I, JOHN MURDOCK, of South Carver, Plymouth county, in the State of Massachusetts, have invented certain new and useful Improvements in Portable Kettle-Furnaces; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front elevation; Fig. 2, a longitudinal vertical section without the cover; Fig. 3, a cross-vertical section without the cover, and Figs. 4 and 5 horizontal sections taken at the lines A *a* and B *b* of Fig. 2.

The same letters indicate like parts in all the figures.

My said invention relates to improvements on the portable kettle-furnace generally used by farmers, whereby the flame and other heated products of combustion are caused to act more equally on every part of the kettle than by any other mode of construction before known, and by which the construction is facilitated.

In the accompanying drawings, *a* represents a quadrangular fire-place of greater length than breadth. The bottom plate, *b*, is formed with a slightly sunken hearth. The front plate, *c*, is made with an opening of sufficient size for the introduction of the fuel, to which is fitted a hinged door, *d*, and the upper end of this plate spreads out in front, as at *e*, in the form of a segment of a circle, to receive a ring, to be presently described. The back plate, *f*, is flat up to within a short distance of the upper edge at *g*, where it spreads out in the form of a segment of a circle. The two side plates, *h h*, are flat, with the exception of an outward swell, *i i*, at the upper part, which extends to within a short distance of each end. The swell or spread of each is such as to present on the inner upper edge segments of a circle, and to the upper edge of the four plates above described, and constituting the fire-chamber, is fitted a ring, *j*, the inner edge of which forms a seat for the lower part of the kettle *k*, leaving the bottom of the said kettle exposed to the direct heat of the fire below. The inner periphery of this ring does not continue along over the back part of the fire-place, an open flue-space, *l*, being left there, between the back plate and the outer surface of the kettle, for the passage of the products of combustion to a flue-space, *m*, which extends all around the kettle above the said ring *j*, which, for distinction, will be termed the "lower ring." The outer periphery of the said ring *j* is formed to receive a short cylinder, *n*, the upper edge of which is formed with a flange, *o*, projecting inward, except at a segment corresponding with the front end of the fire-place, as at *p*. This flange I term the "upper ring," and its inner edge extends to and is in contact with the outer surface of the kettle when in in place, except at the flue-space *p*, thus forming the upper boundary of the flue-space *m* around the kettle. To the upper edge of this first cylinder is fitted a a second or upper cylinder, *q*, which, when in place, forms a continuation of the first or lower cylinder. The upper edge of the upper cylinder is formed with an inward-projecting flange, *r*, to form a seat for the rim *s* of the kettle.

All the plates are secured and firmly held together by four screw-rods, *t t t t*, which extend down from the flange *o*, or upper ring, and extend down in the four corners of the fire-place and through the bottom plate below, where they are provided with nuts. That portion of the flange *o*, or upper ring, which is over the flue-space *l* in the lower ring is formed with a series of holes controlled by a sliding damper, *u*, the outer edge of which is formed with rack-teeth engaged by the teeth of a circular rack on a handle, *v*, outside, by the turning of which the damper can be operated to open or close the said apertures, and just above this damper the upper cylinder is formed with an exit-aperture, *w*, suitable for receiving a stove-pipe.

From the foregoing arrangement it will be seen that the bottom of the kettle, below the bottom ring, is exposed to the direct action of the flame and other heated products of combustion. The draft passes toward the back and up between the back of the kettle and the back plate of the fire-place, through the flue-space *l* in the bottom ring, *j*, to the flue-space *m*, and, if the damper *u* on the ring *o* is open, the draft will pass directly to the exit-pipe; but when the damper is closed the draft will pass around both sides of the kettle in the flue-space *m* to the front part of the upper ring, and through the flue *p* into the upper flue-

space between the upper ring and the flange on which the rim of the kettle rests, and there the draft will divide and pass each side of the kettle to the exit-pipe behind. By these means the heat will be distributed properly all around the kettle—a result which is not attainable by any arrangement heretofore employed, while at the same time a direct draft can be obtained, when desired, for kindling the fire.

The under side of the bottom plate is cast with projecting flange-pieces *x*, forming dovetail grooves, to which are fitted the upper ends of legs or stands, so that they can be readily inserted or taken out. One set are formed as legs, on which the furnace stands when required to be used for any considerable length of time in the same place, and the other set are provided with truck-wheels, and are to be used when it is desired to move the furnace from place to place.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Combining with the fire-place, kettle, and surrounding cylinder the two rings, termed the "lower" and "upper" rings, to form the two series of flue-spaces around the kettle, the lower ring having a flue-space through it at one end of the fire-place and the upper ring a like flue-space above the opposite end of the fire-place, and apertures governed by a damper over the flue-opening in the lower ring, substantially as and for the purpose specified.

2. Making the cylinder which surrounds the kettle in two parts, the upper part to receive and support the flange of the kettle and the lower part with an inward-projecting flange to form the upper ring, in combination with the ring on which the lower part of the cylinder rests, and which forms what is termed the "lower ring," as and for the purpose specified.

JOHN MURDOCK.

Witnesses:

ANDREW DE LACY,

WM. H. BISHOP.