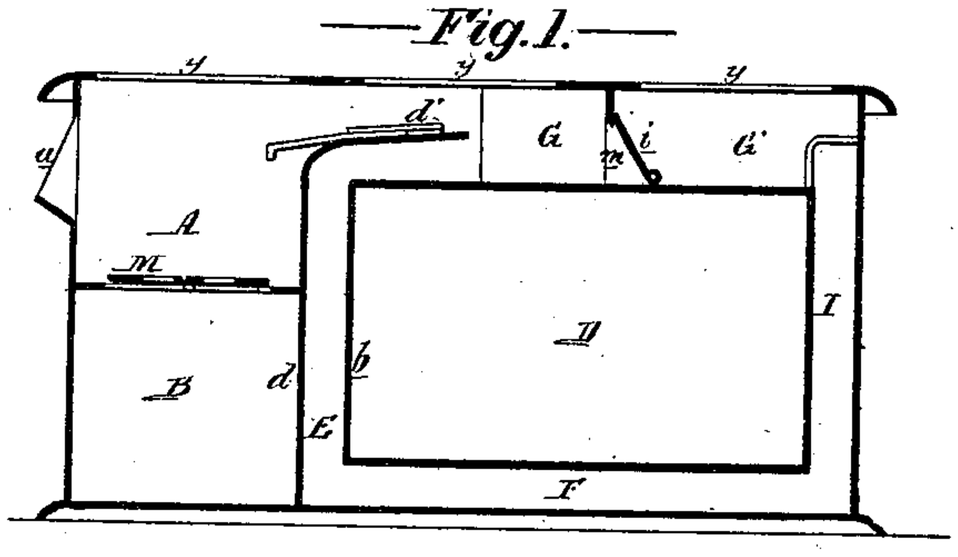
2 Sheets—Sheet 1.

STUART & BRIDGE.

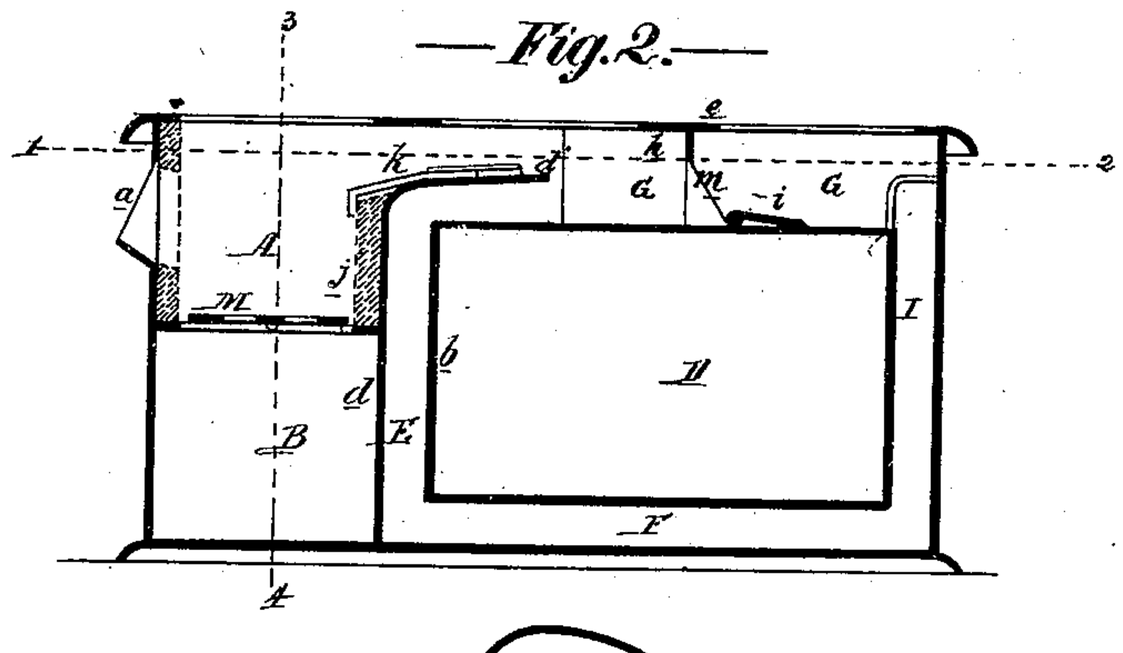
Range.

No. 108,736. Patented Oct. 25, 1870.

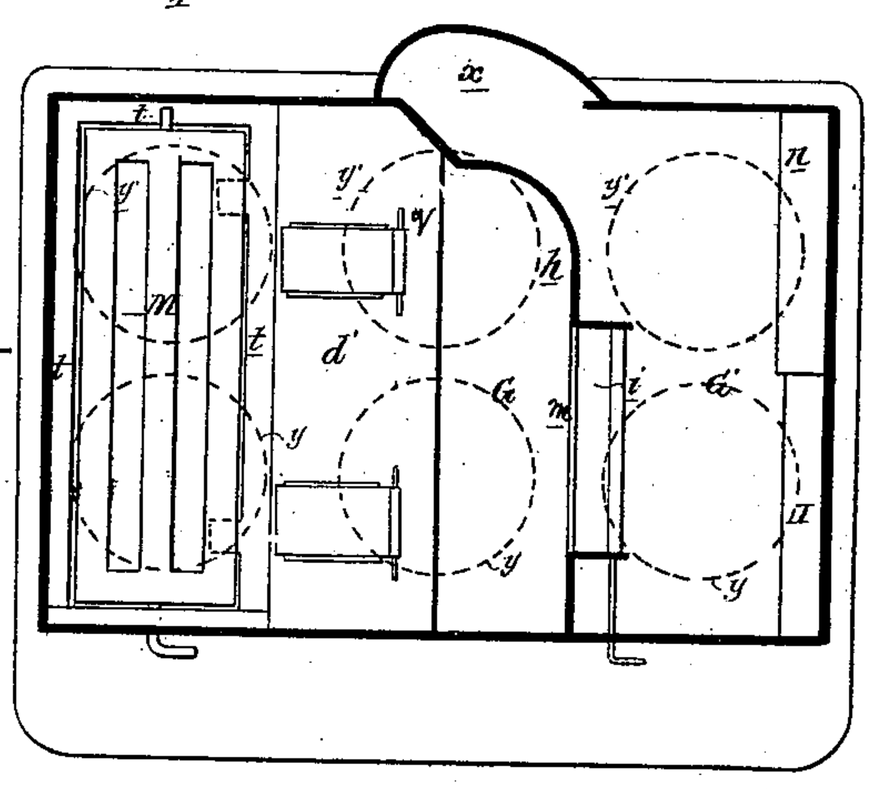
—Fig. 1.—



—Fig. 2.—



—Fig. 3.—



Witnesses { Wm. A. Stuart
John Parker

D. Stuart and L. Bridge
by their Attys
Munson and Son

2 Sheets—Sheet 2.

STUART & BRIDGE.

Range.

No. 108,736. Patented Oct. 25, 1870.

Fig. 4.

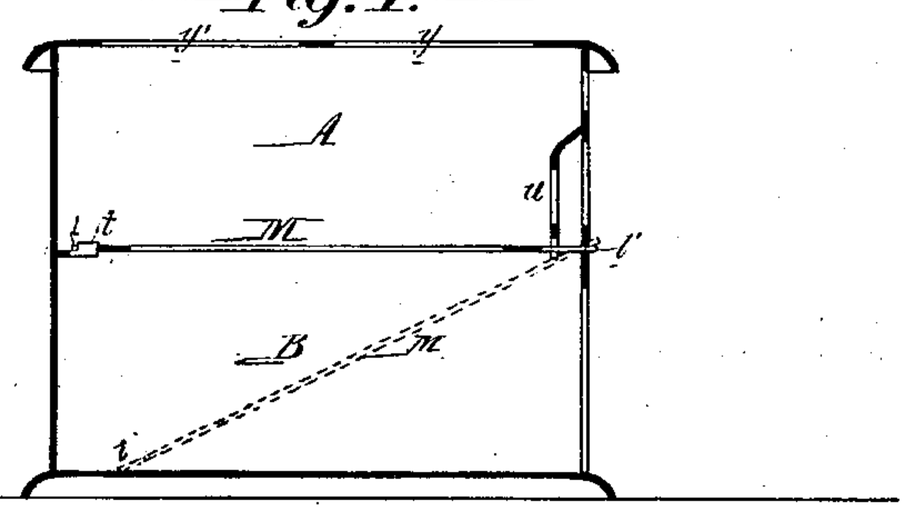


Fig. 5.

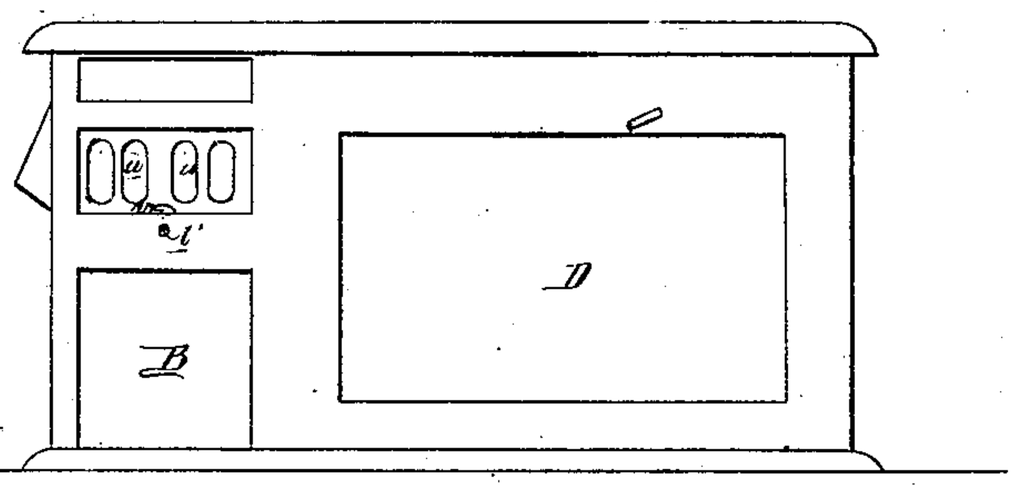
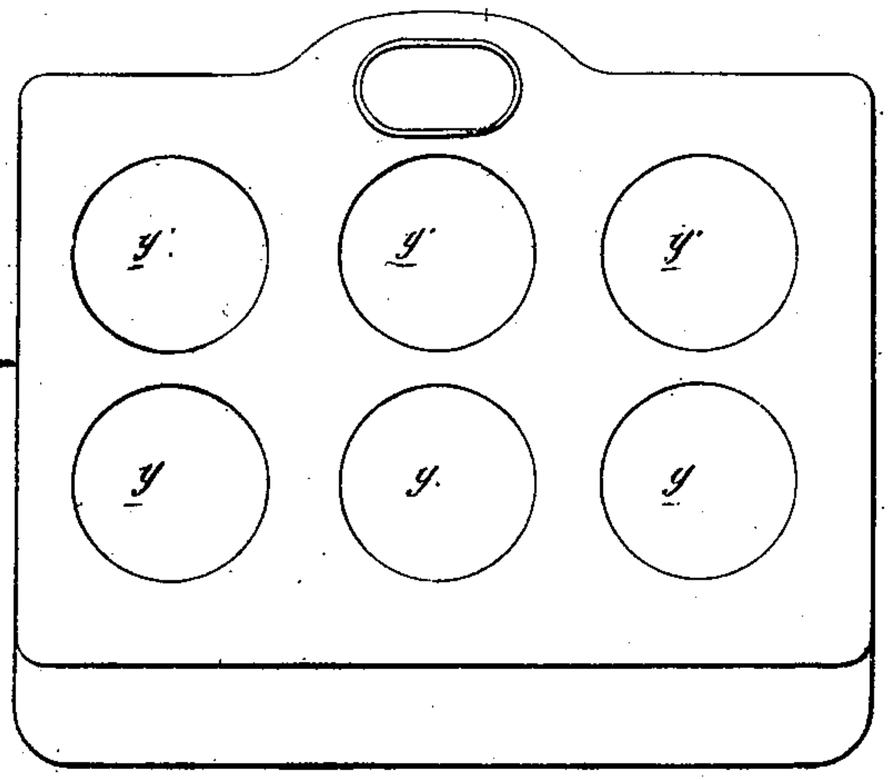


Fig. 6.



Witnesses { Wm. A. Clive. John Parker

D. Stuart and L. Bridge
by their Attys
Munson and Son

United States Patent Office.

DAVID STUART AND LEWIS BRIDGE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO STUART, PETERSON & CO., OF SAME PLACE.

Letters Patent No. 108,736, dated October 25, 1870.

IMPROVEMENT IN COOKING-RANGES.

The Schedule referred to in these Letters Patent and making part of the same

We, DAVID STUART and LEWIS BRIDGE, both of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improved Range, of which the following is a specification.

Nature and Object of the Invention.

Our invention relates to improvements on that class of ranges in which the fire-place extends across one end of the range, the remainder of the latter being occupied by the oven and its flues; and our improvements, which are too fully described hereafter to need preliminary explanation, have been designed with the view of distributing the heat more uniformly to the oven and to the vessels on the boiler-holes.

Description of the Accompanying Drawing.

Figures 1 and 2, Sheet No. 1, are vertical sections of an improved range;

Figure 3, a sectional plan on the line 1 2, fig. 2;

Figure 4, Sheet No. 2, a transverse vertical section on the line 3 4, fig. 2;

Figure 5, a front view; and

Figure 6, a top view.

General Description.

A is the fire-place of the range, and

a, an opening through which a gridiron or frying-pan can be inserted, the said opening being provided with a suitable door.

D is the oven, having a suitable door or doors in front of the range, and between the plate *b* of the oven and plate *d* of the fire-place and ash-pit, is a flue, E, communicating below with a horizontal flue, F, between the bottom-plate of the oven and bottom-plate of the range, and above with the flue G between the top of the oven and top-plate *e* of the range.

A plate, *d'*, forming a horizontal or nearly horizontal continuation of the vertical plate *d*, divides a flue, G, throughout a portion of its length, the products of combustion passing over the top of the plate *d* and returning beneath the same, and passing under the oven, or taking a direct course over the top of the oven, according to the position of the damper, which can be depressed as shown on fig. 2, thereby exposing an opening, *m*, in a transverse partition, *h*, or elevated as shown in fig. 1, so as to close the said opening.

This partition *n* is bent toward a corner of the exit-opening *x*, as seen in fig. 3, so as to prevent the access to the said opening of all the products of combustion, saving such as pass through the opening *m*. The portion, G' of the top flue to the right of the partition *h*, however, communicates with the exit-opening, and also with the vertical flue I at the end of the range opposite the fire-place, and with the flue F beneath the oven.

In single-oven ranges or range-shaped stoves of the class to which our invention relates, it has been the practice either to carry the products of combustion from the fire-place downward beneath the oven and under the four rear holes *y*, or to so divide the flues longitudinally that the products of combustion passed round or nearly round the oven through one flue and returned through an adjacent flue; hence the heat was unequally distributed; for instance, the vessels on the front row of boiler-holes, marked *y y y* in fig. 6, were subjected to a more intense heat from the products of combustion passing direct from the fire-place, than vessels on the row of holes *y' y' y'* above the return flue in which the products of combustion, after passing through a tortuous course, had lost much of their heat.

This unequal distribution and loss of heat is avoided in our improved range by causing the products of combustion to pass in an undivided volume beneath the first four boiler-holes, and then through a single flue above or around the oven.

It will be readily understood, by noting the position of the boiler-holes shown by dotted lines in fig. 3, that vessels on the four boiler-holes to the left will be equally or very nearly equally heated, while vessels on the two boiler-holes to the right will be heated alike by the products of combustion which pass from beneath the oven and through the flue I to the exit opening.

By our arrangement of flues, too, the oven is more equally heated than by the direct diving-flue, or by return flues, as in the latter case the oven must necessarily have a greater heat imparted to it at the portion where it is subjected to the action of the products of combustion passing through the first flue, than at the other portion, where it is subjected to the products of combustion decreased in temperature on passing through the return flue.

It will be observed on reference to fig. 3 that one-half, or thereabout, of the flue I, where it communicates with the flue G', is covered by a shield, *n*, but for which much of the products of combustion would pass from the said flue I direct to the exit opening *x*, without imparting heat to the vessel on the front boiler-hole *y* at the corner to the right, the shield causing the products of combustion to pass beneath this boiler-hole before it passes beneath the adjacent hole at the rear.

Another important feature of our improvement relates to the fire-place, on the opposite sides and rear ends of which are horizontal flanges, *t*, for supporting the fire-brick lining, there being in front of the fire-place a vertical grate, *w*, to which access may be had through an opening, *v*, in the front plate of the range.

The fire-brick linings at the rear and on the left of

the fire-place can be retained in their proper position by the top plate of the range, but the lining *j* to the right, fig. 2, is held by two plates, *k*, arranged to move in guides on the plate *d'*, and bent at the ends so as to overlap the said lining *j*, the opposite ends being arranged to receive pins, *y*, which serve to retain the plates and lining.

The grate M is entirely independent of, and may be free from contact with, the lining of the fire-place, the grate having at the rear a pin adapted to a projection on the ledge *t*, fig. 4, and another pin, *t'*, passing through a hole in the front plate of the range, so that it can be readily agitated by applying a suitable instrument to this pin.

Claims.

1. In a single-oven range the fire-place A, oven D, and flue E F G G', arranged as described, so that the products of combustion, after passing beneath the first four openings *y*, pass entirely round the oven and beneath the remaining holes.

2. The oven D directly beneath the four rear openings *y*, in combination with the plate *d'* extending from the fire-place beneath the central openings, as specified.

3. The plates *k*, bent at their inner ends, sliding in guides on the plate *d'*, and secured by pins *q* as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

DAVID STUART.
LEWIS BRIDGE.

Witnesses:
A. H. PERKINPINE,
JOS. MCCLARY.