

Specification of William Chesterman : stoves.

Contributors

Chesterman, William.

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A.D. 1839 N° 8268.

S P E C I F I C A T I O N

OF

WILLIAM CHESTERMAN.

—
STOVES.
—

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

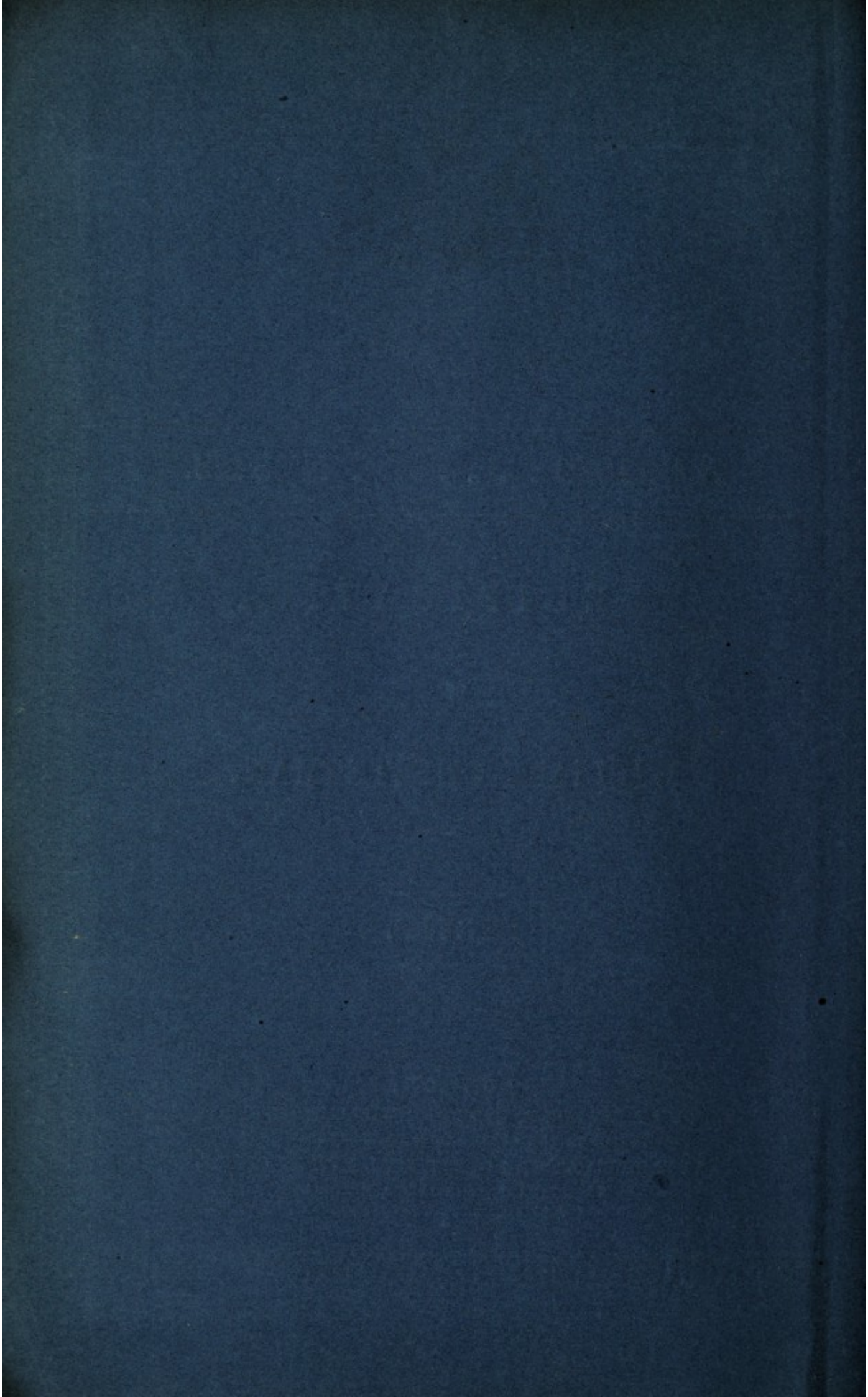
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:

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1855.





A.D. 1839 N° 8268.

Stoves.

CHESTERMAN'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, WILLIAM CHESTERMAN, of Burford, in the County of Oxford, Civil Engineer, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her
5 Royal Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the Twelfth day of November, in the third year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said William Chesterman, my exors, admors, and assigns, Her especial licence, full power, sole privilege and authority, that I, the said William Chester-
10 man, my exors, admors, and assigns, or such others as I, the said William Chesterman, my exors, admors, or assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend my Invention of "**IMPROVEMENTS IN STOVES**" within England, Wales, and the
15 Town of Berwick upon Tweed; in which said Letters Patent is contained a proviso obliging me, the said William Chesterman, by an instrument in writing under my hand and seal, particularly to describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, and to cause the same to be enrolled in Her Majesty's High Court of Chancery
20 within six calendar months next and immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

Chesterman's Improvements in Stoves.

NOW KNOW YE, that in compliance with the said proviso, I, the said William Chesterman, do hereby declare that the nature of my said Invention, and the manner in which the same is to be performed, are particularly described and ascertained in and by the following description thereof, reference being had to the Drawings hereunto annexed, and to the letters and figures marked 5 thereon (that is to say):—

Figure 1 is an elevation of a cylindrical stove with a square base and top; Figure 2 is a horizontal section of the same stove on the line A, B, (Figure 1); Figure 3 is a vertical section on the line E, F, (Figure 2); Figure 4 is a vertical section on the line G, H, (Figure 2); Figure 5 is a horizontal section 10 on the line C, D, (Figure 1); in all of which Figures the same letter of reference marks the same part of the apparatus. *a* denotes the base or ash-pit; *b*, the door of the ash-pit; *c*, the cylindrical case or body resting by a sand joint on *a*, in the usual way; *d*, the fire box, lined with fire-clay bricks or otherwise, having a grate or set of fire bars attached thereto in the ordinary 15 mode, or moveable, as may be deemed desirable. Close to the top and on opposite sides are two sockets L and M, cast on or fitted air-tight to the fire box *d*, one of which receives the mouth-piece *e, e*, and the other the flue pipe *f, f*. The fire box *d* is perfectly closed at its upper end and at its sides, except where the sockets before mentioned branch thereout, and its lower end is attached to 20 the top of *a*, and rendered air-tight by means of sand or cement in the usual way. *e, e*, is the mouth-piece for the admission of fuel to the fire box *d*, the outer door of which is closed in the ordinary mode. This mouth-piece fits closely against the side of the cylinder or body *c*, and into one of the sockets attached to the fire box *d*, as before mentioned. This part is shown in section detached 25 from the fire box *d*, in Figure 11. *f, f*, is the flue pipe, fitting closely against the other side of the cylinder *c*, and into the other socket on the opposite side of the fire box *d*; *g* is a rim projecting from the inside of the cylinder *c*, and fixed thereto; *h* is a guard plate fitting into the rim *g*, and covered with sand to the depth of about an inch; *i* is a vessel or water box, of cylindrical 30 form, having a rim *j*, which dips into the sand covering *h*; the vessel *i* passes through the plate *h*, as shown in the Drawing. *k* is another vessel, of quadrangular form, cast in one piece with the vessel *i*, or fitted thereto, so as to be water-tight. The vessel *k* rests on the upper edge of the cylinder *c*. *l* is the top or cover, resting on *k*, and fitting thereto by a water joint, which joint 35 is kept constantly supplied by the condensation of vapour arising from water in *k*; *m* is a ventilator in the cover *l*, for allowing steam to escape as may be required into the room from the water contained in the vessel *k*; *n* is a rim

Chesterman's Improvements in Stoves.

projecting from the bottom of the vessel *k*, immediately over and corresponding with the vessel or water box *i*; *o*, in Figure 4, is a small hole in the rim *n*, about one-eighth of an inch in diameter, to allow the water to pass from the vessel *k* into the water box *i*, to supply the loss by evaporation; *p* is an
 5 inverted cup, which works into the water box *i* in the manner of a gasometer or gasholder; *q* is a lever or beam, moving freely on its centre, supported by *r*, which is fixed on *k*; one end of *q* is attached to the centre of the convex top of *p*, and the other end to the top of a wire *s*, supporting the horizontal disc *t* over the aperture *u*, through which the external air is admitted into the part *a*
 10 to supply the fire. The rod *s* passes freely through a hole in the end of *q*, and is prevented passing through it by a nut at the end, resting on the upper side of *q*. *w* is a tube projecting from the bottom of *k* to the same height as the rim *n*, in order to allow the rod *s* to pass freely through the bottom of *k*, and yet prevent the water from running out, as it would do if there were only a
 15 simple hole. In the position of the apparatus in the Drawing, the inverted cup *p* (being rather heavier than the rod and disc attached to the other end of *q*) descends in the water box *i*, and lifts the disc to its greatest height from the aperture *u*. The vessel *k* and box *i* being filled with water nearly to the top of the rim *n*, as shewn by the blue dotted line on the Drawing, and a fire being
 20 made in *d*, the water in *i* will be first heated, and steam will gradually form in *i*, and rising into the cup *p*, will raise *p*, and allow *s*, at the other end of *q*, to fall and diminish the draft into *u*, and when the water has attained the temperature of two hundred and twelve degrees, will perfectly close *u*, when the apparatus will assume the position marked by dotted lines in Figure 4.
 25 It is necessary to have a small hole in the top of *p*, to allow the internal air to escape, so that it may sink into and be filled with the water in the vessel *i*. As soon as the temperature of the stove and of the water in *i* falls, for want of a supply of air to the fire, the cup *p* will fall, and by acting on *q*, raise the disc *t* gradually, until the supply of air is such as to maintain the stove at the
 30 uniform temperature required. Figure 6 shews another method of making the water box or vessel *i*, having an additional rim *n* 2. The cup *p* dipping into the water contained between the two rims *n* and *n* 2, which is supplied from the vessel *k* through the hole *o*, would act with less water in the water box *i*, which in certain cases may be thought desirable. Figure 7 exhibits another
 35 form of the apparatus, in which the fire box *d* is encircled with water, excepting at the bottom, and where the mouth-piece and flue pipe join it; all fittings below the blue water line must therefore be made water-tight. In order to bring the water nearer to the fire, and thereby render the action of *p* more

Chesterman's Improvements in Stoves.

sensitive, a bent pipe or pipes, as represented in Figure 8, may be inserted into the water box *i*, the vertical part of the pipe descending between the fire box and the external cylinder. Another variation of this part is to insert a straight pipe or pipes in the bottom of *i*, as in Figure 9, and place the box *i* out of the centre so far as to bring the said pipe or pipes into the vacant space 5 between the fire box and the cylinder. Another plan which I consider to answer the purpose still more completely is represented in Figure 10, and consists of a pipe coiled round the fire box, the two ends of which are inserted in the box *i*. This pipe may be carried from the stove round an apartment or elsewhere before it be made to return into the box *i*, and the water 10 circulating therein will considerably increase the effect of the stove in distributing its heat. Figure 11 is a sectional view of the mouth-piece *e* detached from the fire box; the door in front being opened shows a cylindrical tube, having its inner extremity bevelled off, and closed by the plate *v*, hinged at top, and shutting by its own weight. To supply the fuel and still keep this tube 15 closed, a scoop, Figure 12, is contrived, with which the fuel is put into the door or mouth-piece, until the rim or flange *y* fits against the face of the mouth-piece, when the rod passing through the handle projects the fuel out of the scoop into the fire box *d*, the valve or plate *v* yielding to admit it, and closing again on withdrawing the rod. Figure 13 is a variation of a stove 20 when applied for the purposes of cooking. It is a vertical section, in which 1 is the ash-pit; 2, the ash-pit door; 3, the grate; 4, 4, the boiler or vessel for containing water, the cylindrical opening through the centre of which, when lined with fire clay or brick, forms the fire box. The upper part of the boiler may be made of larger dimensions than the body of the stove, 25 if it be thought desirable, in order to suit the purposes for which it is intended, and on its top and sides may be fitted the various vessels required for steaming and other cooking operations. 5 is the flue pipe; 6 is the oven, having a flange or rim on its upper edge fitting into the sand joint 8, which sand joint is fitted to the inside of the cylindrical opening in the boiler, 30 and near to the top. 9 is the cover to the oven, fitting to it in the usual way. When the oven is not in use it may be removed, and a cover 10 fitted in its place into the sand joint 8. The fuel is supplied through the cylindrical opening before mentioned on removing the oven or the cover 10, as the case may be.

35

I do not confine myself to any particular mode of communicating the motion so produced in the cup *p*, to the closing or opening the passage for admitting air to the fire, nor to any particular situation of the water box in relation to

FIG. 1.

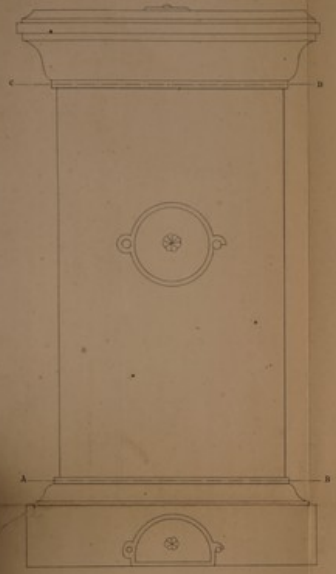


FIG. 3.

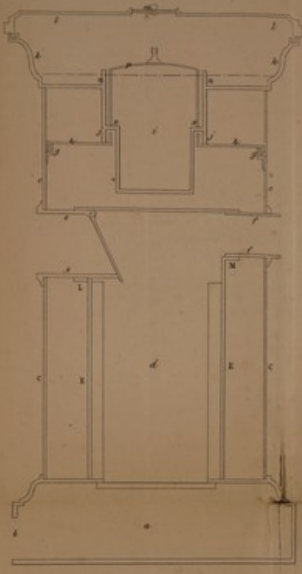


FIG. 4.

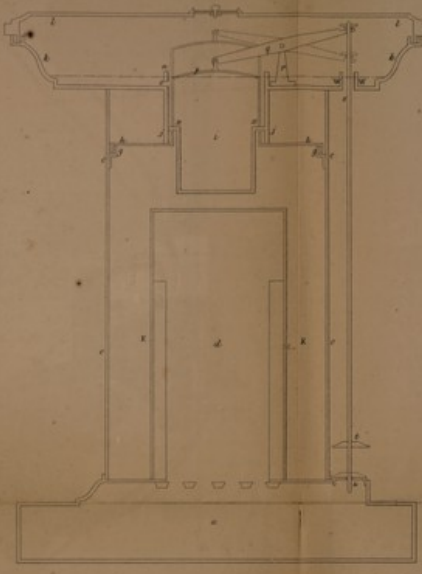


FIG. 7.

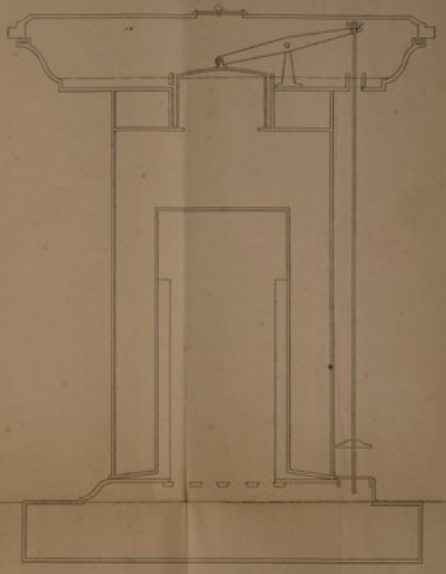


FIG. 2.

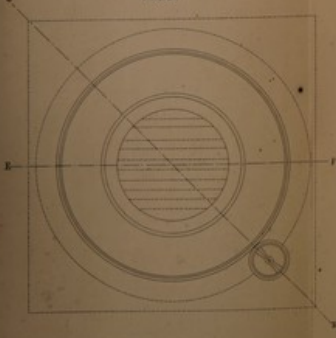


FIG. 5.

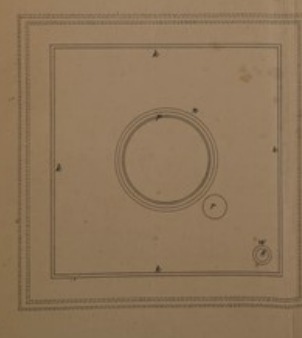


FIG. 8.



FIG. 9.



FIG. 6.

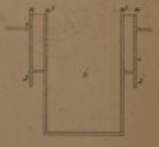


FIG. 11.



FIG. 10.

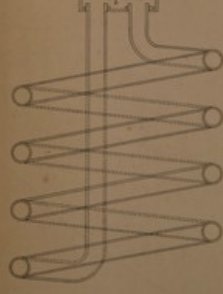


FIG. 12.

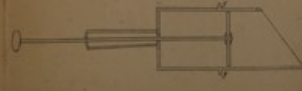
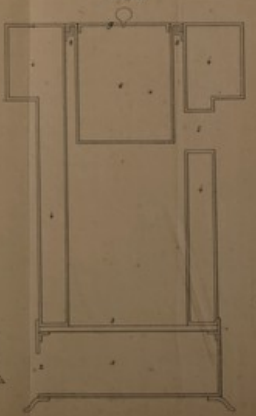


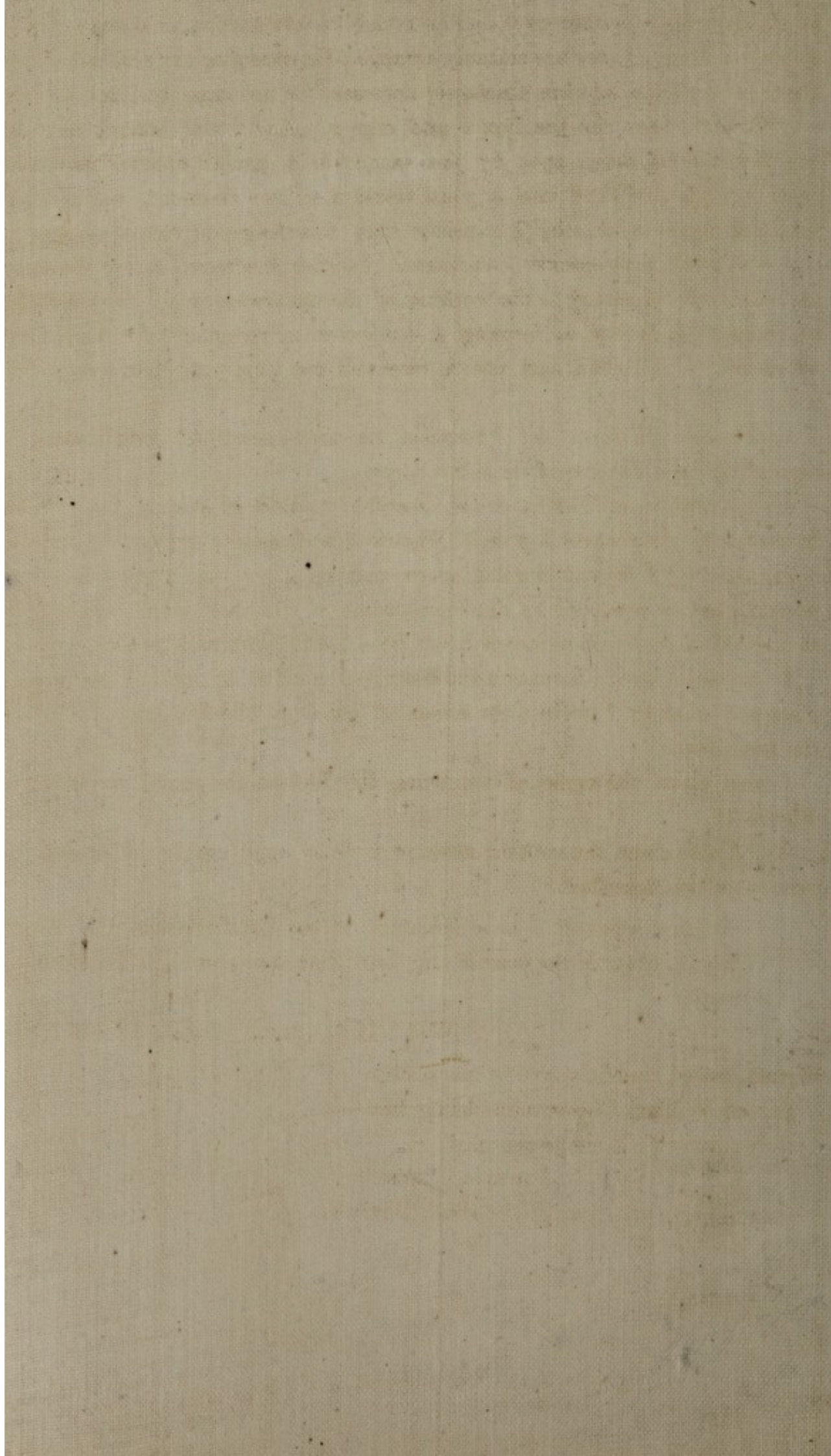
FIG. 13.



The several drawings are partly altered.

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Drawn by James H. & Co.



Chesterman's Improvements in Stoves.

the fire, provided that the heat can act upon it with a similar effect to that herein described; neither do I confine myself to any particular construction of stoves, so long as they are suitably arranged for receiving my said apparatus. There is no particular form absolutely necessary for my apparatus, but I prefer
5 a cylindrical shape for the box *i* and cup *p*. And I may remark that the cup *p* would be acted upon by the vapour in a similar manner as before described, if it worked into a plain vessel *i* of one diameter, without any ledge or recess at *x*, but I consider that this ledge or recess causes the cup *p* to work with greater steadiness. Neither the vessel *k* nor the rim *n*
10 are essentially necessary to the working of the apparatus, but I consider them to be of great utility, as forming a condenser or receptacle for the vapour which may arise from *i*, and also a reservoir for supplying that vessel with water.

I therefore claim as my Invention the above-described combination for
15 regulating the admission of air into a stove.

I also claim as my Invention the described method of closing the fire box by means of the sockets *L* and *M*, Figure 3, and thereby preventing its communicating with the surrounding space marked *E* of the stove, whereby I prevent the gas produced by the combustion of the fuel from escaping into
20 that space where in other stoves it has been found to accumulate and explode.

I also claim as my Invention the described method of making the mouth-piece *e, e*, whereby I prevent the escape of gas from the fire box on opening the outer door.

I also claim the mode of supplying the fuel to the stove, as shown in
25 Figure 12.

And I also claim the cooking stove or mode of applying the boiler and the oven, as above described.

In witness whereof, I have hereunto set my hand and seal, this Eighth
day of May, in the year of our Lord One thousand eight hundred and
30 forty.

WILLIAM (L.S.) CHESTERMAN.

Signed, sealed, and delivered by the within-
named William Chesterman (being first
duly stamped), in the presence of

35 JAMES S. PRICE,
Sol^r, Burford.

Chesterman's Improvements in Stoves.

PRICE, Extra.

AND BE IT REMEMBERED, that on the Eighth day of May, in the year of our Lord 1840, the aforesaid William Chesterman came before our said Lady the Queen in Her Chancery, and acknowledged the Specification aforesaid, and all and everything therein contained and specified, in form above written. And also the Specification aforesaid was stamped according 5 to the tenor of the Statute made for that purpose.

Inrolled the Twelfth day of May, in the year of our Lord One thousand eight hundred and forty.

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1855.