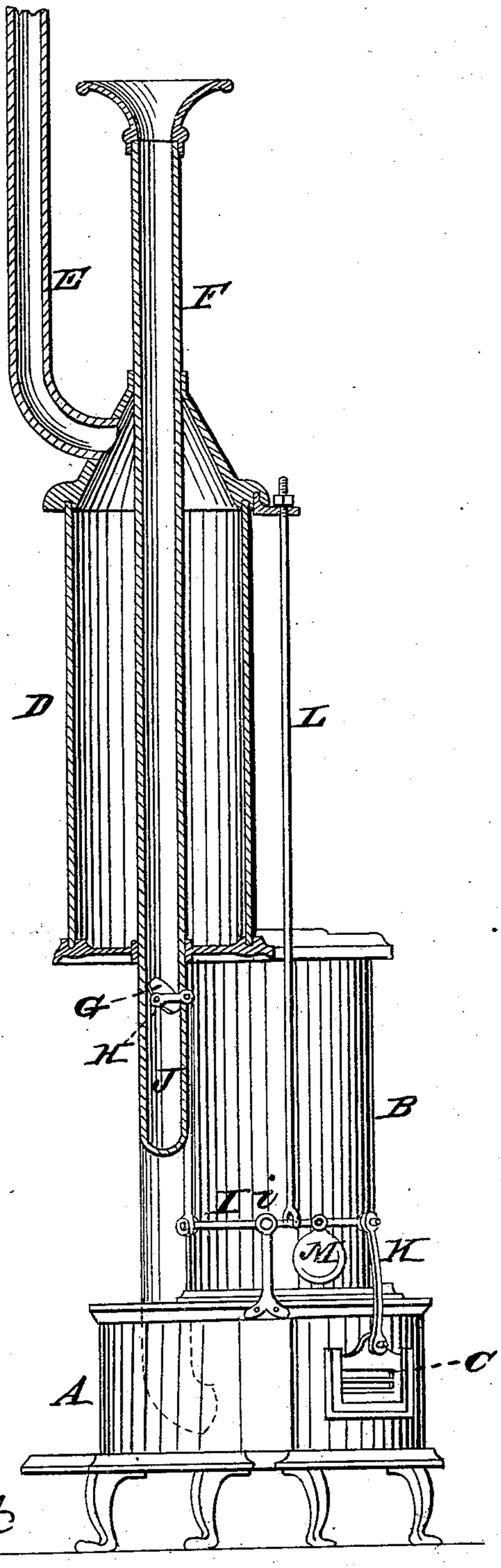
R. EATON.

Heating Stove.

No. 70,979. Patented Nov. 19, 1867.



Witnesses:

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United States Patent Office.

RICHARD EATON, OF LONDON, ENGLAND.

Letters Patent No. 70,979, *dated November* 19, 1867.

AUTOMATIC VENTILATING STOVE.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, RICHARD EATON, of London, in the county of Middlesex, England, have invented a new and useful Automatic Ventilating Stove; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

This invention relates to an automatic apparatus for regulating the draught of ventilating stoves, and is especially, though not exclusively, applicable to the ventilating stove for which Letters Patent, numbered 54,830, were granted to me on the fifteenth day of May, A. D. 1866.

The stove derives its character as a ventilator from the fact that it has a provision whereby the air to support combustion is conducted to the fire-chamber from the upper part of the room or apartment wherein the stove is located, the vitiated air being thus removed, utilized, and ultimately carried off by the smoke or discharge pipe. Under this improvement, the expansion and contraction of the body of the stove and "chimney" or drum, due to changes of heat, are made to regulate the draught so as to preserve an equable temperature, and at the same time maintain the effective ventilation of the apartment.

The drawing is a sectional elevation of a stove illustrating my invention.

A may represent the ash-pan, surmounted by the shell or body B of the stove, which may be provided with the ordinary appurtenances of a heating-stove, such as the internal lining, grate, and a door for supplying fuel—coal, wood, or peat being employed as such. The ash-pan is provided with a vertically-sliding register, C, which admits a draught to the fire when first kindled, and during the first stages of its progress, but which is closed when the fire is well under way, as hereinafter explained. D is a "chimney" or drum, mounted upon and communicating with the stove B, and provided with a pipe, E, which carries off the products of combustion. F is a ventilating tube, which extends vertically alongside of the stove B, and rises through and above the chimney D. The lower end of this tube opens into the ash-pan A. When the ventilating appliances are in action, the upper end of the tube F takes air from an upper stratum within the apartment, and conducts the same to the ash-pan A, whence it passes to the fire. The tube F is provided with a damper, G, to the axis or spindle of which is attached an arm, H, which is connected to the lever I through the medium of the rod J. The lever I is suitably fulcrumed at *i*, and is connected to the register C by the rod K. L is a rod, the upper end of which is made fast to the crown-flange of the chimney or drum D, while the lower end of said rod is attached to the lever I, near its fulcrum, *i*, so that a given extent of motion at the point of attachment is increased at the extremities of the lever to which the respective rods J and K are attached.

The operation is as follows: When the fire is first started, the register C is open, and the ventilating tube closed by the damper G. As soon as the heat has attained a certain degree, the expansion of the stove B and chimney or drum D raises the rod L, and vibrates the lever I, which closes the register C, and opens the damper G, through the connections H, J, and K. The draught, being then shut off at C, descends through the tube F, and in this way the ventilation of the apartment is effected, as before explained. If the heat continue to increase, the correspondingly-increased expansion of the stove and drum has the effect to close or partially close the damper G, the register C maintaining its closed position in the mean time. The reduction or limitation of draught, thus effected, prevents the heat from becoming excessive. During the normal or ordinary state of the fire, the damper G is open to the full extent, and C closed, and the damper G, by movements derived from the expansion and contraction of B and D, serves to increase or diminish the draught-capacity of tube F, so as to supply to the fire a greater or less amount of air, according as the combustion lags or becomes unduly active.

By the above-described means an equable temperature is maintained, and thorough ventilation effected.

I propose to substitute a wooden rod, a cord, or other connection, for the metallic rod L, the rigidity of which rod is merely useful in adapting it to vibrate the lever I in both directions. When a flexible connection is employed in lieu of L, a weight, M, may be so attached to the lever I as to give it the motion which closes the ventilating damper G, and opens the direct register or damper C.

The ventilating and automatic apparatus is equally applicable to all kinds of cooking-stoves and kitchen-

ranges, as to the particular variety of stove shown in the drawing, and will prove to be of great service in removing the hot and contaminated air and smells from the kitchen or other apartments.

Having described my invention, the following is what I claim as new, and desire to secure by Letters Patent:

1. I claim the combination, with a ventilating stove, of an automatic apparatus for operating the direct-draught register or damper, and the ventilator damper, so as to transfer the draught from the one to the other, and regulate the same, substantially as and for the purpose set forth.

2. I claim the combination, with the ventilating stove A B D E F, of the damper or register C, damper G, rod L, lever I, and connections I J K, or their equivalents, arranged and operating substantially as and for the purpose described.

3. I claim the weight M, applied and operating, in connection with an automatic ventilating stove, substantially as and for the purpose specified.

RICHARD EATON.

Witnesses:

JAS. SMITH, *of Montreal, Notary,*
E. O. MURDEN.