(No Model.)

S. RUSSELL.

SELF FEEDING FIRE GRATE.

No. 275,525. Patented Apr. 10, 1883.

Fig: 1.

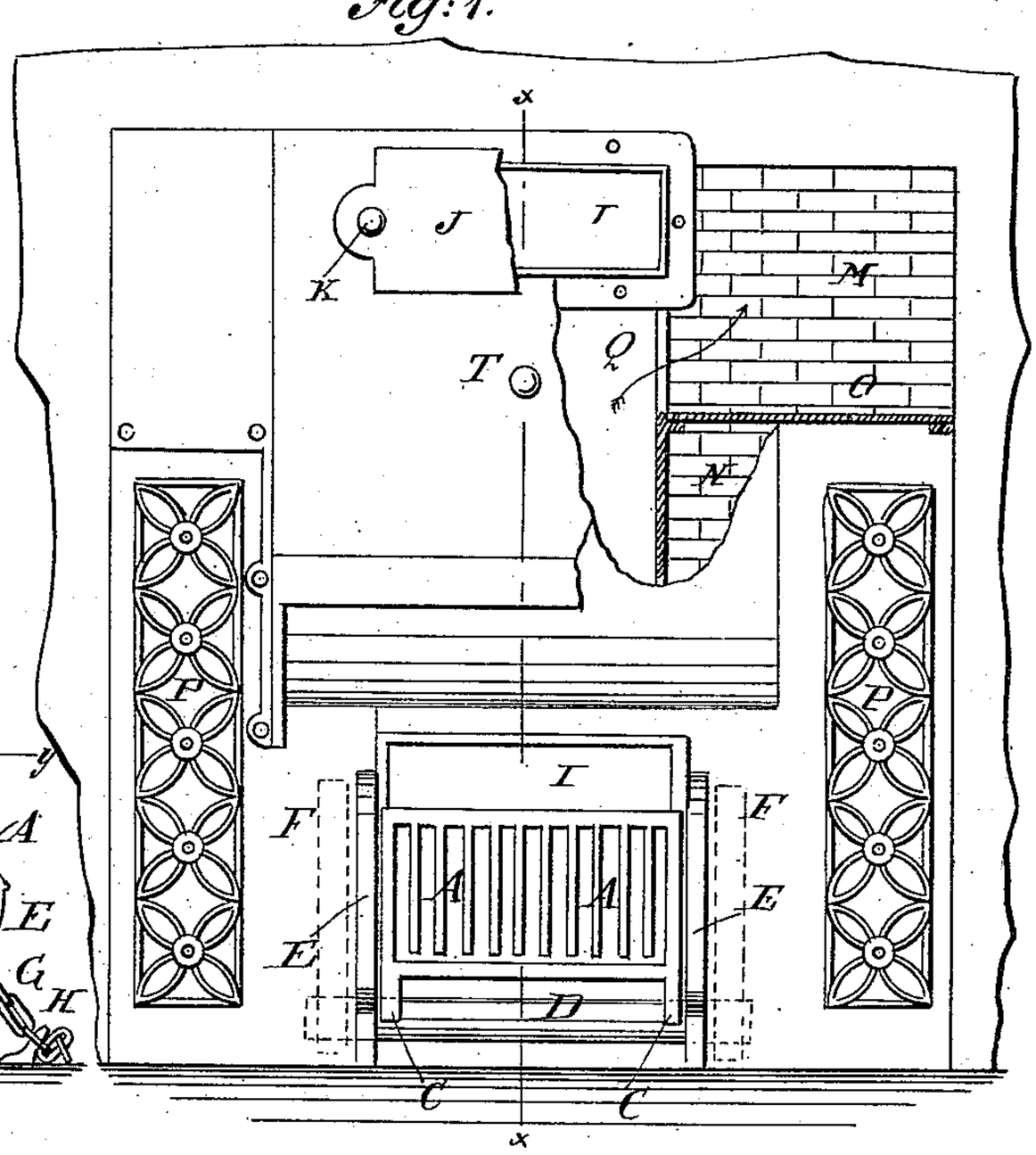


Fig: 2.

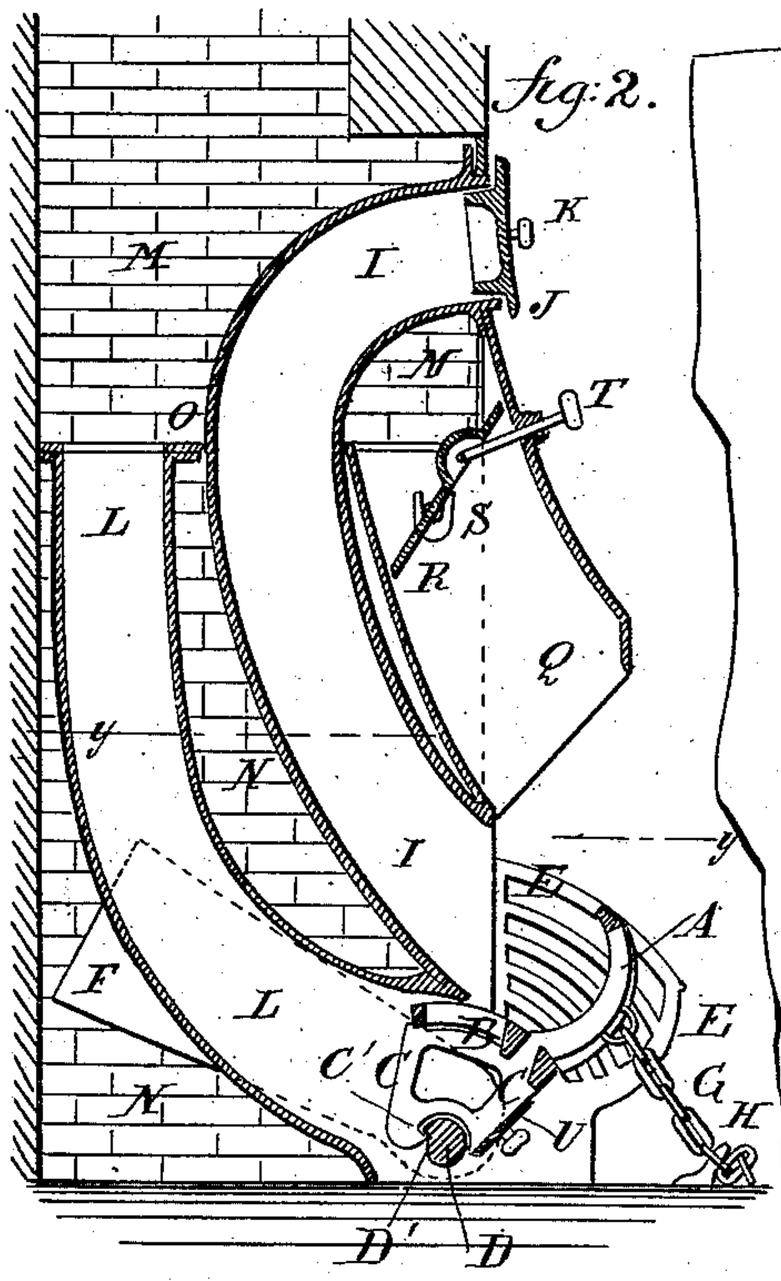
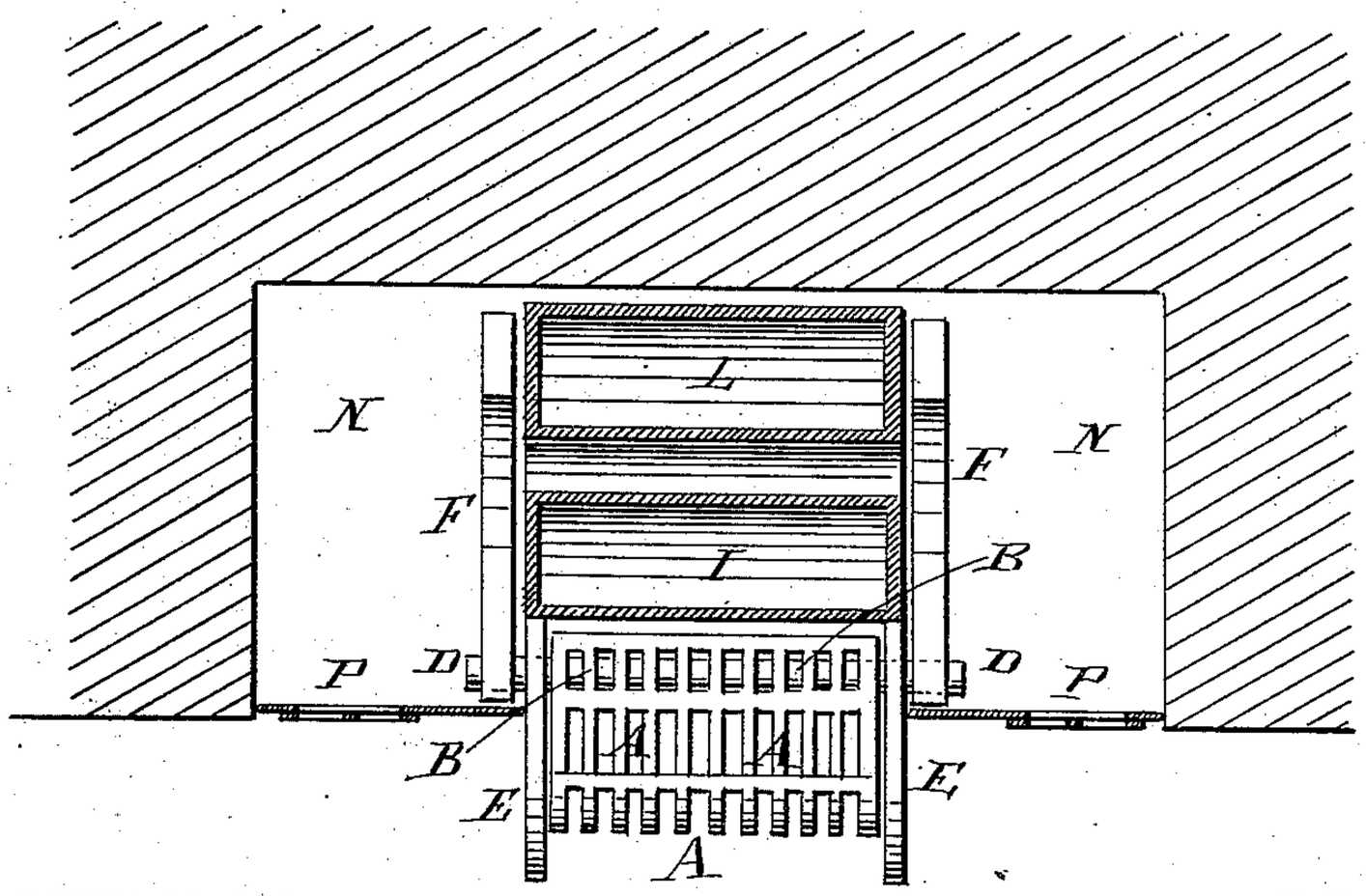


Fig: 3.



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UNITED STATES PATENT OFFICE.

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SELF-FEEDING FIRE-GRATE.

SPECIFICATION forming part of Letters Patent No. 275,525, dated April 10, 1883.

Application filed January 29, 1883. (No model.) Patented in England May 3, 1875, No. 1,631.

To all whom it may concern:

Be it known that I, SAMUEL RUSSELL, of Apperton Villa, London Road, Staines, Middlesex county, England, have invented a new and useful Improvement in Self-Feeding Fire-Grates, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of my improvment, part being broken away. Fig. 2 is a sectional side elevation of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a sectional plan view of the same, taken through the line *y y*, Fig. 2.

The object of this invention is to provide fire-grates constructed in such a manner that they will be self-feeding, and will allow the quantity of fire and the quantity of heat derived from the fire to be readily controlled.

A are the front bars of the grate. B are the bottom bars of the grate, which are separable and rest upon inwardly-projecting arms C, formed upon the ends of the front grate, A. The arms C also project downward, and have hooks C′ formed upon their lower ends to hook into recesses D′ in the bar or rod D, the ends of which turn in bearings in the casing of the grate. The ends E of the grate are slotted, as shown in Fig. 2, and are stationary.

To the ends of the bar D are attached heavy or weighted arms F, which are made of such a gravity as to swing the front grate, A, inward when left free. The front grate, A, is held outward against the action of the weighted arms F by a chain, G, attached to the said front grate, and the links of which are hooked upon a catch, H, attached to the floor or hearth, or to the ash-pan where an ash-pan is used. With this construction the front grate, A, can be adjusted to form a fire-chamber of any desired size. The grate-arms C and the weighted arms F should be at right angles with the bar D, and the weighted arms F and the front grate, A, should be about at right angles with each other, as shown in Figs. 1, 2, and 3.

I is the fuel-magazine, the open lower end of which is at the rear of the fire-chamber, as shown in Fig. 2. The fuel-magazine I curves upward and forward, and its upper end terminates at an opening in the upper part of the casing. The upper end of the fuel-magazine I is closed by a door, J, which may be secured in place by hand-screws K, cam-fastenings, or other suitable means, and can be made to close tightly by a packing of vulcanized rubber or felt, or by other suitable means, to prevent gas from escaping into the room. With this construction the fire will be fed automatically as the coals in the fire-chamber is consumed.

The bottom bars, B, of the grate should be curved or inclined, so that the ashes may be pushed forward by the descending coal, and thus made to fall into the ash-pit or ash-pan.

L is the lower draft-flue, the opening at the lower end of which is below the bottom bars, B, of the grate. The draft-flue L is below and in the rear of the fuel-magazine I, and its upper end opens into the chimney-flue M. The space N at the sides of the magazine I and flue L is separated from the chimney-flue M by a partition, O, so that the said space can be used as an air-chamber, into which cold air can be introduced to be heated and discharged into the room, or through which the air in the room may be allowed to circulate.

In the front casing, at the sides of the grate, are formed ornamental openings P, for the passage of air, as shown in Figs. 1 and 3.

In front of the fuel-magazine I, and above the fire-chamber, is formed a second draft-flue, Q, the upper end of which opens into the chimney-flue M at the sides of the upper part of the fuel-magazine I, as shown in Figs. 1 and 2. The flue Q is provided with a damper, R, pivoted to supports S at the sides of the said flue, and operated by a rod, T, passing through the front of the said flue. With this construction, when the damper R is closed the draft passes through the fire-chamber into the flue L, and the fire will burn brightly; but when the damper R is open a large part of the draft will pass into the flue Q without passing through the fire-chamber, and the intensity of the fire will be lessened, so that the fire can be readily controlled. With this construction, when the fastening G is released the weighted arms F will draw the

front grate, A, inward as the coal is consumed, and thus prevent the coal in the fuel-magazine I from feeding downward, so that the fire will gradually get low and finally die out.

The space below the grate-bottom B should be closed by a removable plate, U, so that all the air that enters the flue L must pass through the fire-chamber.

The magazine and flues L Q can be used in connection with a stationary grate; but I prefer the construction herein shown and described, as giving the operator a better control over the fire.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the grate A B, having the downwardly-projecting hooked arms C C′, of the hinging-bar D, provided with weighted arms F and fastening G H, as and for the purpose specified.

2. The combination, with the grate A B E, of the upper draft-flue, Q, provided with a damper, R T, and the lower draft-flue, L, substantially as herein shown and described, whereby the whole draft can be made to pass through the fire-chamber, or a part of the draft may be made to pass to the chimney-flue without passing through the fire-chamber, as set forth.

3. The chamber N, arranged between the magazine I and the flue L to receive cold air, which may be heated and used, as described.

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