4 Sheets—Sheet 1.

W. H. ROSEWARNE.

Coke-Oven.

No. 208,930. Patented Oct. 15, 1878.

Fig. 1.

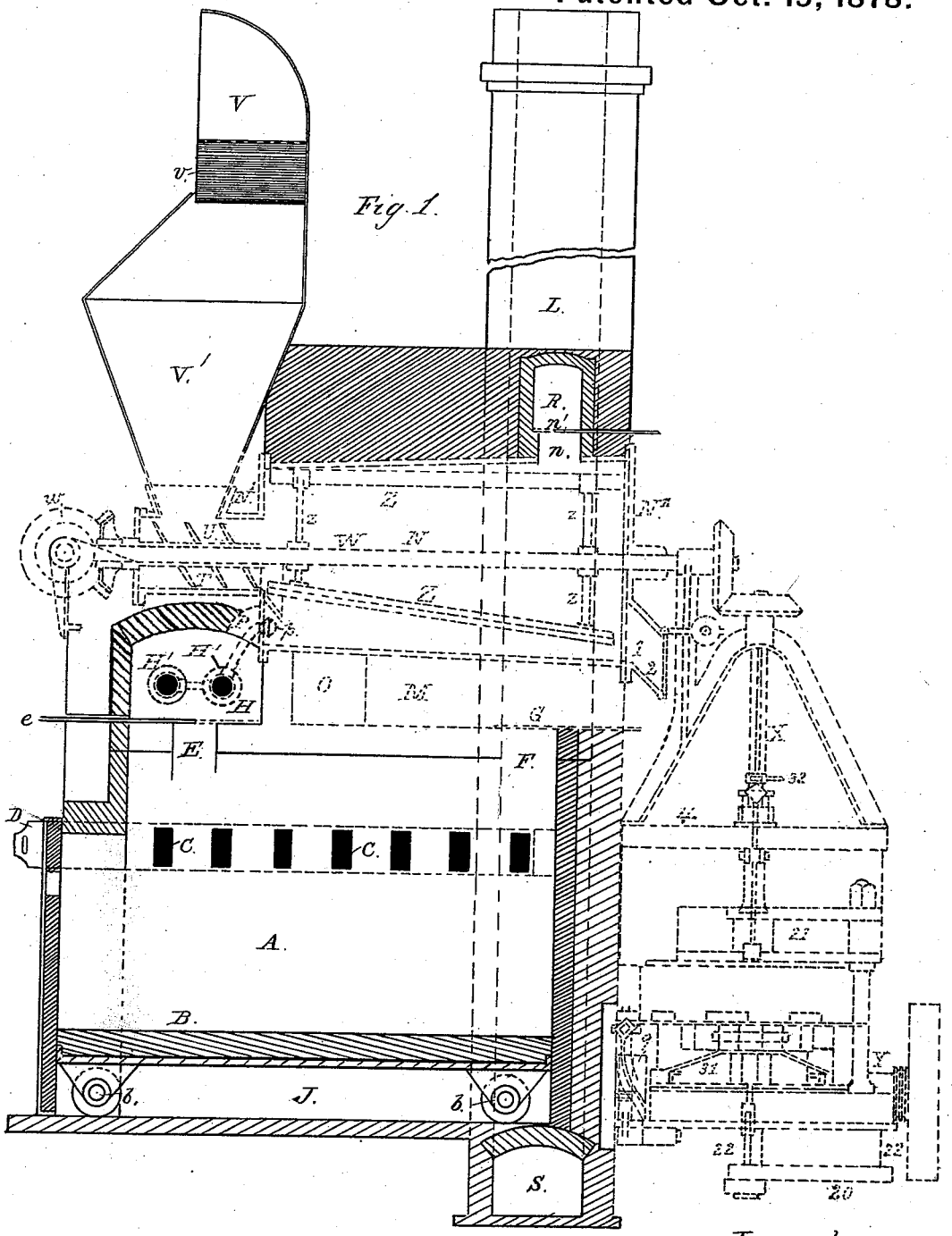

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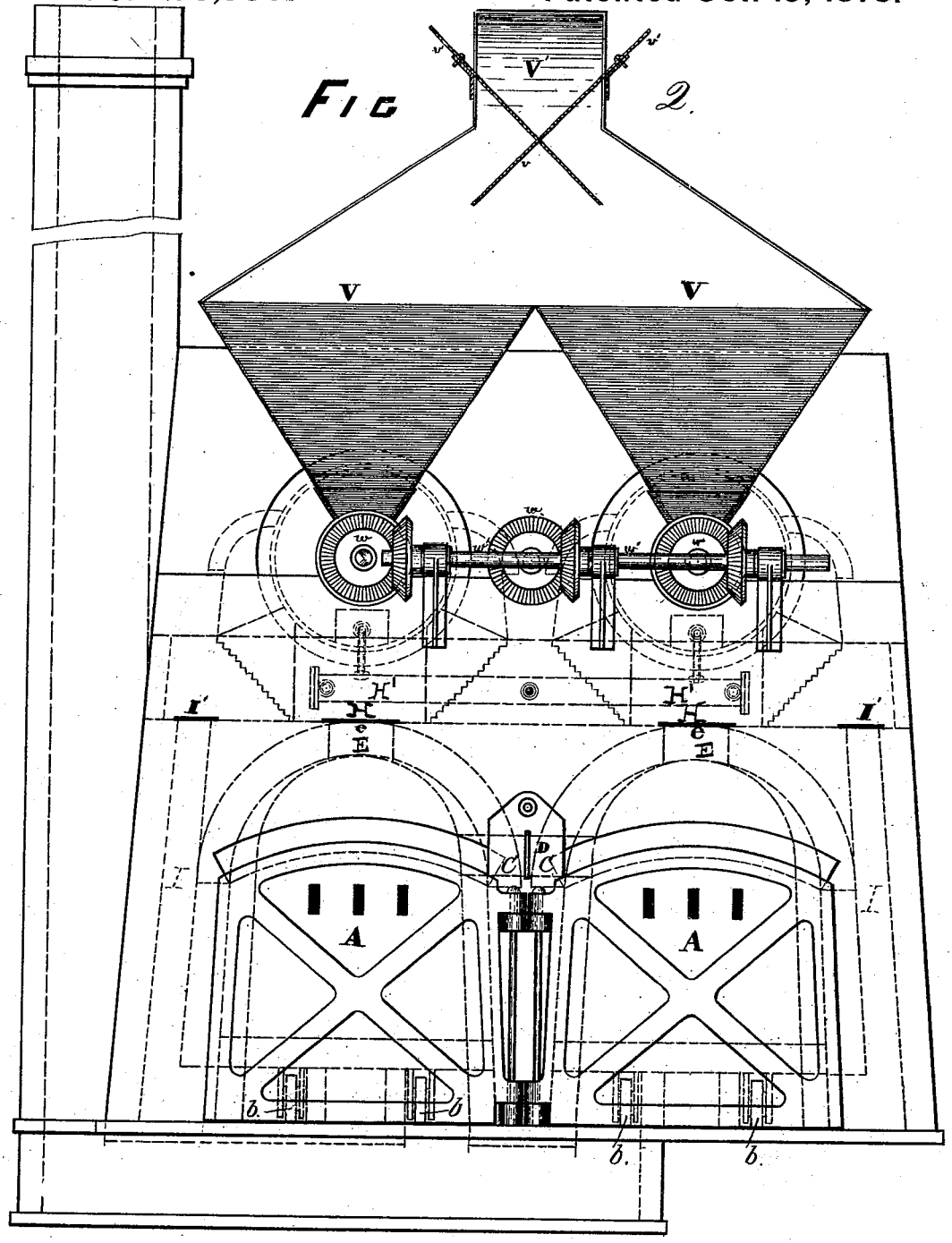
FIG 2.



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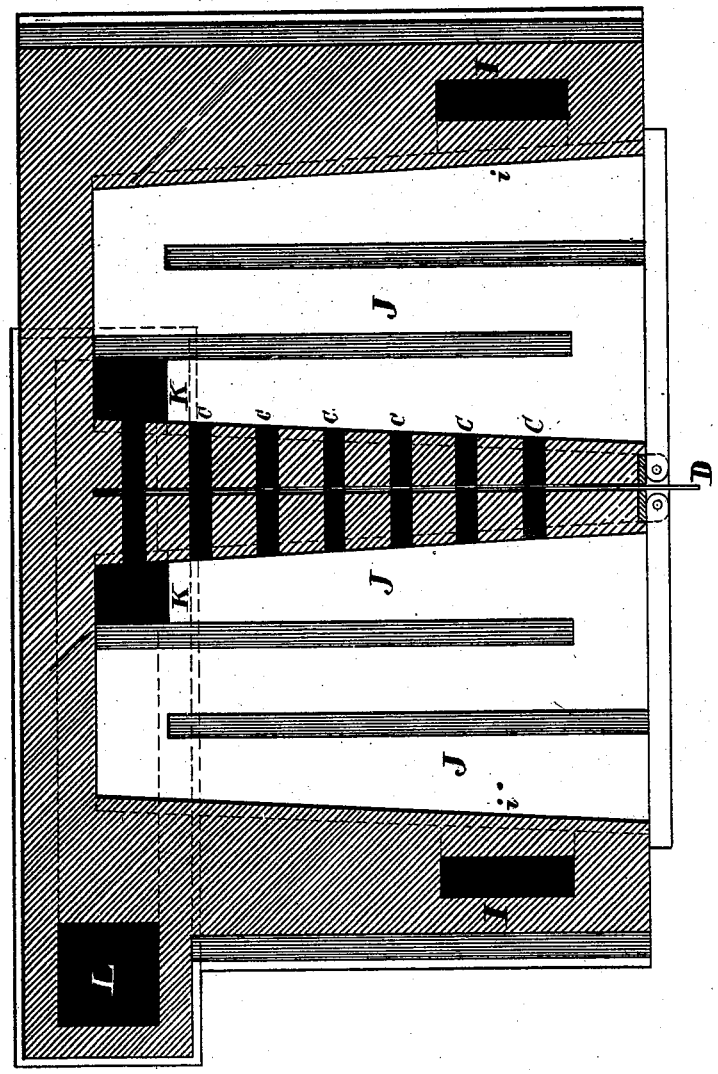

FIG 3

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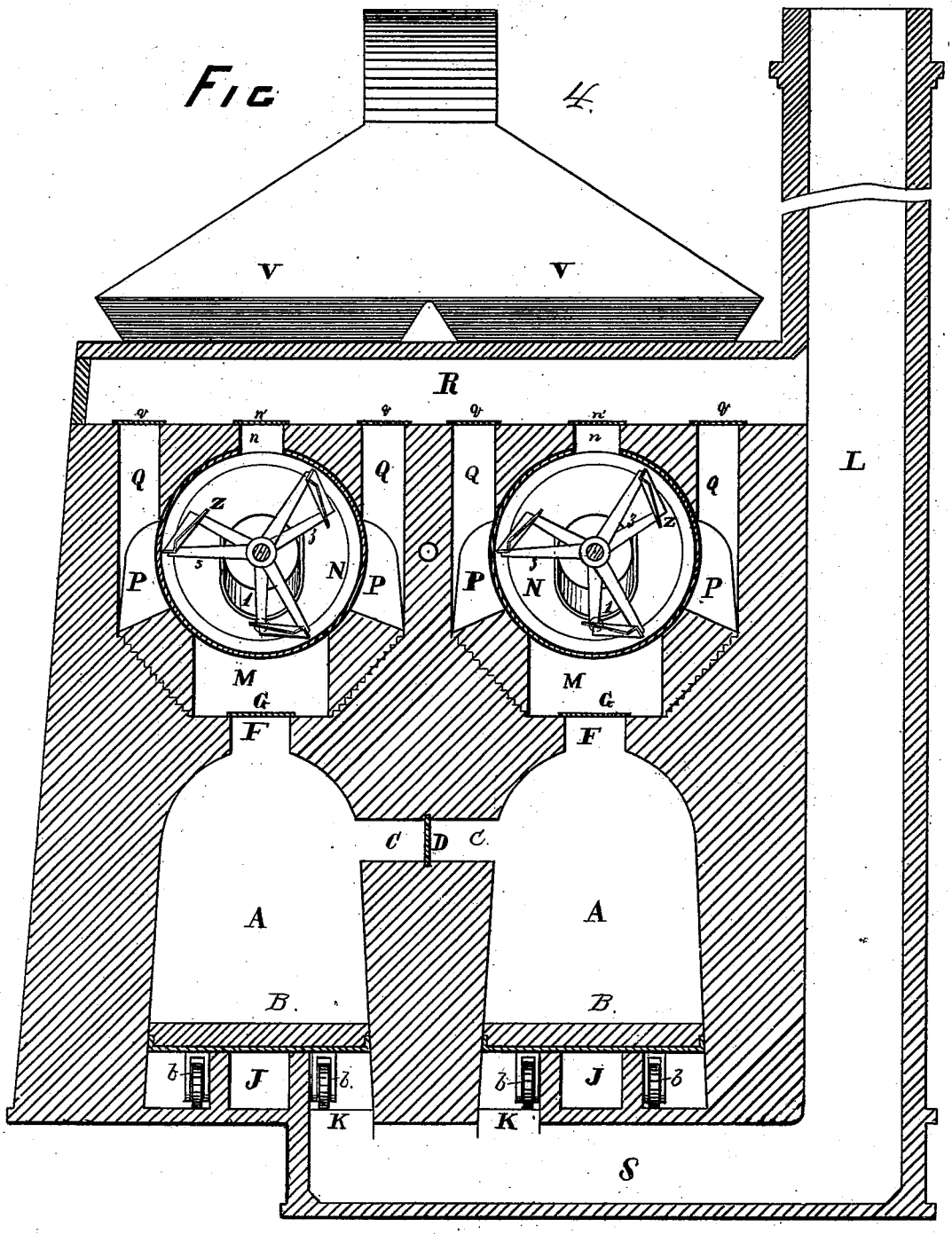
Coke-Oven.

No. 208,930. Patented Oct. 15, 1878.

FIG 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. ROSEWARNE, OF CINCINNATI, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HIMSELF, DANIEL PHILLIPS, JOHN REES, AND MARGARET J. PHILLIPS, OF NEWPORT, KENTUCKY.

IMPROVEMENT IN COKE-OVENS.

Specification forming part of Letters Patent No. **208,930**, dated October 15, 1878; application filed June 18, 1878.

To all whom it may concern:

Be it known that I, WILLIAM HENRY ROSEWARNE, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Coke-Ovens, of which the following is a specification:

Heretofore, in the process of coke-making, a considerable amount of fuel has been consumed in igniting the charge of coal, and after ignition a still greater waste was occasioned by allowing the burning gases from the charge to pass off without doing any useful work. To prevent this loss, and to also shorten the time of the process, I construct the coke-ovens in pairs, so that they may act conjointly, and in the dividing-wall, near the top, I arrange, in a horizontal line, a number of connecting-flues, capable of being closed or opened by a horizontal damper, so as to allow the burning gases from the operating-oven to be conducted over for the purpose of igniting the fresh charge in the other oven; and in order to insure rapid combustion, I also provide a series of flues, so arranged as to conduct the gases from the ignited charge under the hearths, said hearths being sufficiently elevated and mounted on rollers in order to facilitate the charging and discharging of the ovens. Walled spaces beneath the hearth, and formed by it, constitute subhearth-flues, which communicate by other similarly-formed flues with the stack.

In the accompanying drawings, which represent in full lines the subject of the present application and in broken lines the subject of an application filed 3d May, 1878, Figure 1 represents a longitudinal section through one coke-oven. Fig. 2 is an end elevation, showing the coke-ovens. Fig. 3 is a horizontal section, showing the hearth-flues, connecting-flues and damper, downtakes, and stack. Fig. 4 is a longitudinal section through the rear end of oven.

A A are two similarly-built coke-ovens, provided with hearths B B. These hearths consists of cast-iron frames lined with fire-brick and mounted upon rollers *b*. By this arrangement the whole charge, when coked, may be preserved intact and easily run out to any desired place, thus avoiding the waste consequent upon the usual method of breaking the mass in order to remove it from the oven.

C C are connecting-flues in the dividing-wall between the ovens, which communicate directly with both ovens, and are capable of being opened or closed by a suitable damper, D, so as to throw the ovens A A in or out of communication. Each of the ovens is provided at the top with an exit, E, controlled by damper *e*, which leads to a flue, H, extending across both the ovens, and which, at each end, enters downtakes I I, that lead to subhearth-flues J under the hearths B B, which communicate by flues K K and S S with the stack L. The downtakes I I can be closed at the top by dampers I′ I′, by means of which all the gases may be made to pass under either one of the hearths to the exclusion of the other.

The operation is as follows: The contents of one of the ovens having become thoroughly ignited, the other oven is then charged and the damper D opened, whereupon the burning gases from the combustion in the first oven pass through flues C, and, after igniting the fresh charge from above, pass through flue E (the damper *e* being open) into flue H and downtakes I I to the hearth-flues J J, where they raise the temperature of the hearth in the second oven to a degree sufficient to ignite the charge of coal supported upon it. From the hearth-flues J the products pass through flue K into the flue S, and thence escape into stack L.

The separability of the portable hearths and constant closure of the flue and oven doors, save at the instant of withdrawal, enables a batch of coke to be easily discharged without fracture of the blocks or injury to the workmen, and with great economy of time, labor, and fuel. This arrangement materially reduces the cost of coke by dispensing with the arduous and expensive services of coke-drawers.

By causing the gases to pass under the hearth I secure a thorough and rapid baking of the coke and a certain remedy for raw coal and chilled hearths, and for the same reason reduce the time of coking to about one-half of that usually required.

I claim as new and of my invention—

1. The compound coke-ovens A A, having in the wall dividing said ovens, at the upper part, the horizontally-arranged single line of connecting-flues C, controlled by damper D, operating in a horizontal direction, whereby the respective ovens may be thrown in or out of communication, so as to utilize the burning gases from the coke in one oven for igniting a fresh charge of coal in the other oven, substantially as set forth.

2. In a coke-oven, the portable hearth or hearths B, in combination with the subjacent walled spaces J, constituting subhearth-flues, substantially as set forth.

3. The combination, with a portable or detachable hearth, B, of the flue H, downtakes I, and subhearth-flues J, controlled by dampers *e* I′, so that by closing the dampers I′ I′ and opening the damper *e* the burning gases from the oven in full heat shall pass under the hearth of the (for a time being) freshly-charged oven.

In testimony of which invention I hereunto set my hand.

WILLIAM HY. ROSEWARNE.

Attest:
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WALTER ALLEN.