(No Model.) 2 Sheets—Sheet 1.

H. C. REW.

GAS PURIFIER.

No. 290,928. Patented Dec. 25, 1883.

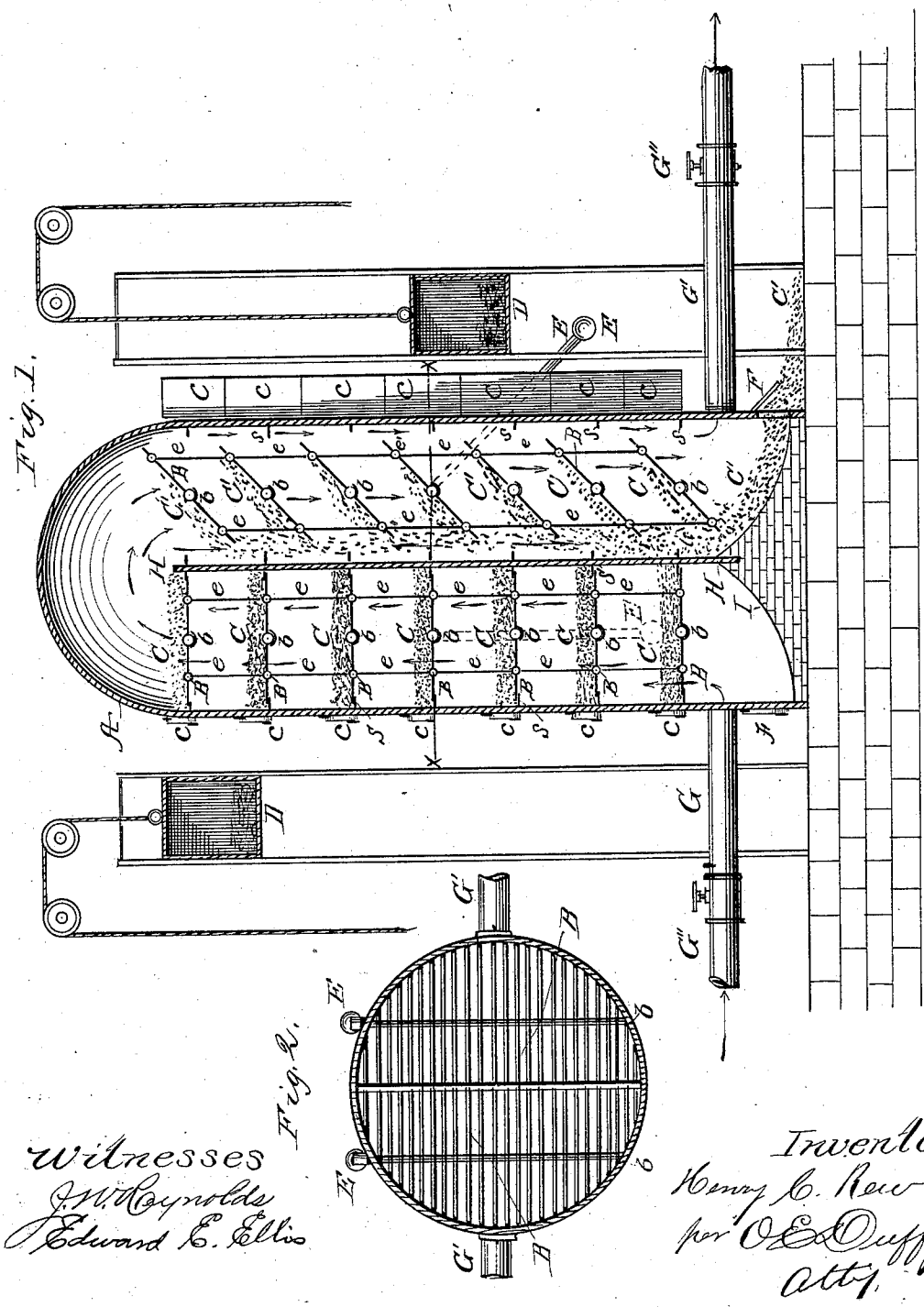


Fig. 1.

Fig. 2.

Witnesses
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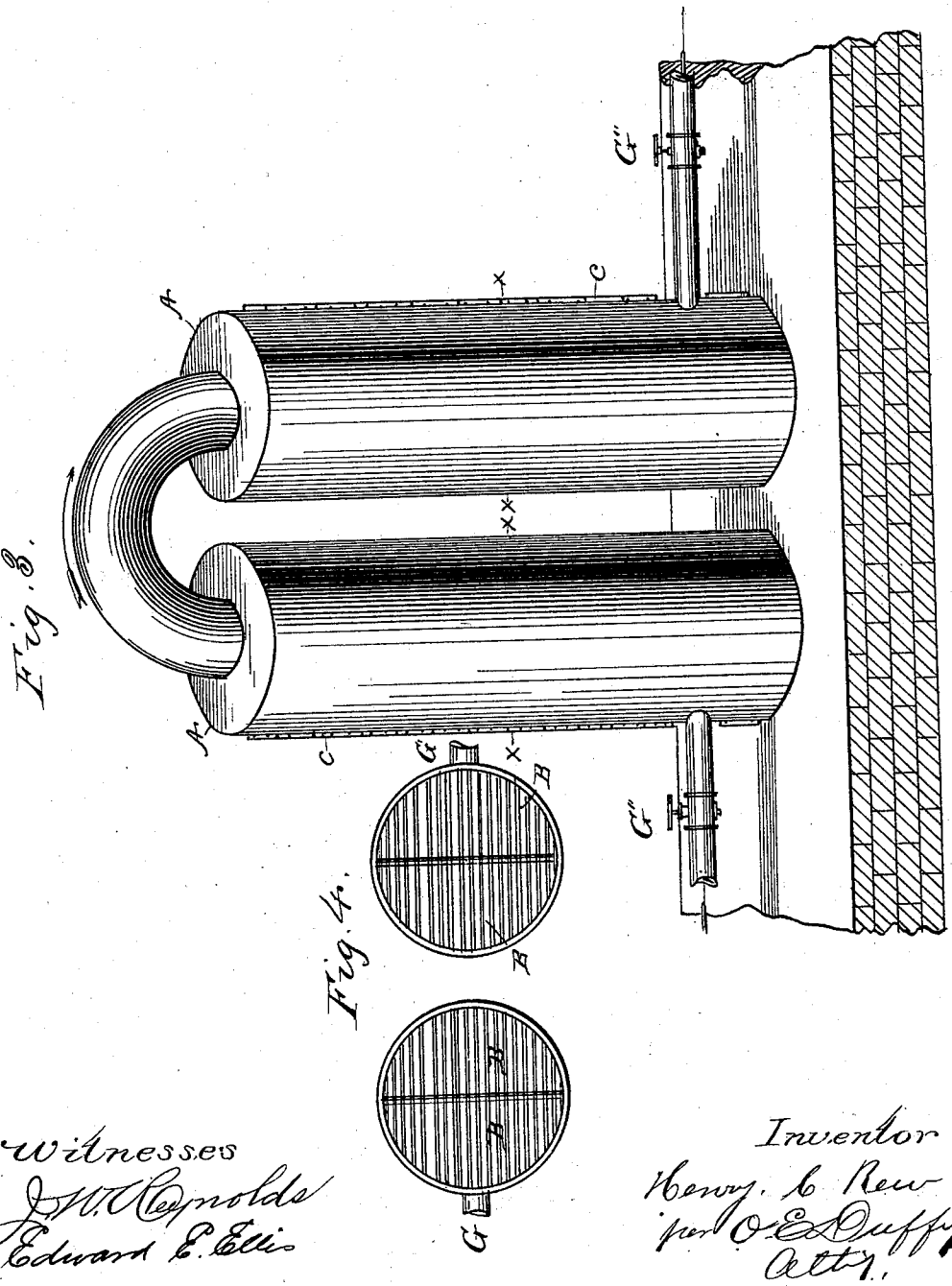
N. PETERS. Photo-Lithographer, Washington, D. C.

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UNITED STATES PATENT OFFICE.

HENRY C. REW, OF CHICAGO, ILLINOIS.

GAS-PURIFIER.

SPECIFICATION forming part of Letters Patent No. 290,928, dated December 25, 1883.

Application filed May 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. REW, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gas-Purifiers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

Heretofore in constructing lime-chambers for purifying gas they have been built in square or oblong form lying in a horizontal position, and requiring a large amount of ground and a large building to cover them from the weather. The have also required water-seals entirely around them in which to set the covers to prevent the leakage of gas, also hoisting and carrying apparatus to lift up and carry away the covers while they were being cleansed and recharged with fresh lime. A large amount of time and labor has also been required to remove the spent lime from the purifiers and recharge them. Considerable heat has also been required in cold weather to prevent the freezing up of the water-seals. To overcome these objections and difficulties, and to so construct a lime-purifier that it should require very little room, no water-seals, no apparatus for lifting and carrying off the covers, and the minimum of time and labor to clean and recharge them are the objects of my invention.

In the accompanying drawings, Figure 1 represents a vertical section of my improved purifier; Fig. 2, a cross-section of the same at the line *x x* of Fig. 1. Fig. 3 is a view in elevation of a modification of my purifier, and Fig. 4 a cross-section of the same at the line *x x* of Fig. 3, in both cases the cross-sections being shown with the trays for holding the lime in a horizontal position.

The purifier is preferably constructed in an upright position. Letter A represents the outside shell of the same, which is constructed of boiler-iron. Access to the interior is gained by the doors *c c c*, &c., used for charging the trays with fresh lime.

The letters B B B, &c., represent trays preferably made of slats or bars of wood, and they rest on the horizontal pivoted axles *b*, which rest in suitable bearings, in which they can be turned, in order to discharge the spent lime. The trays are connected by the upright connecting-rods *e e e*, &c., hinged to each tray at *e'*, and all the trays are thus operated together by moving the lever E, which is done to empty all the crates at once of spent lime, causing it to fall to the bottom of the purifier, from whence it is removed by the doors F. When the spent lime has been thus emptied, the trays are returned to a horizontal position (resting at their outer edges on the lugs *s*, projecting from the shell and vertical partition) by the use of the lever E, ready for being filled or charged with fresh lime. The lime to recharge the trays is lifted by the elevator D, and is placed upon the trays by opening the doors *c c c*, &c., which are then closed and fastened gas-tight.

Fig. 1 shows one half of the purifier in operation for purifying gas, and the other half with the trays tilted in position for discharging the spent lime; but in operation two complete purifiers are preferably used, one being employed in passing through it gas from the generator, while the other is being discharged of its spent lime and recharged in the manner indicated with fresh lime.

The letter G indicates the gas-inlet pipe, and G' the gas-outlet pipe, and G'' valves for shutting both pipes when the purifier is being cleaned and charged. The arrows indicate the direction in which the gas is passed. The purifier is divided by the diaphragm H, rising from the upper portion of a double-inclined floor, I, to a point above all the trays, in order that the gas may be passed up through one set of trays and down through the other. At the bottom the doors F are provided in the outer walls for the removal of the spent lime.

In the modification shown in Fig. 3 two separate upright cylinders are employed, connected at the top by a pipe, and each cylinder is provided with a series of tilting trays.

If desired, the purifiers may be constructed in square or rectangular upright form.

Having described the construction and operation of this invention, what I claim, and desire to secure by Letters Patent, is—

1. The upright purifying-vessel divided by the vertical partition into two chambers com-

municating at the top, in combination with the trays supported on pivotal axle-bars, and means for tilting and replacing the trays in position, and inlet and discharge pipes for gas, as described.

2. The divided purifying-vessel, as described, in combination with the trays supported on pivoted bars, the upright rods *e*, loosely connected with the trays by a hinged joint, and the tilting-lever connected to one or more of the axle-bars, as and for the purpose described.

3. The divided purifying-vessel A, provided with the pivoted trays, as described, and having the doors *c* adjacent to the trays, in combination with the elevators D, as described.

4. The divided purifying-vessel A, having the double-inclined floor I at the bottom, and the discharge-doors in the exterior walls, in combination with the pivoted and tilting trays and the inlet and outlet gas-pipes, as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HENRY C. REW.

Witnesses:
B. F. MORSELL,
O. E. DUFFY.