

(No Model.)

J. CRUTCHETT.

APPARATUS FOR CLEANSING, CONDENSING, AND WASHING GASES.

No. 306,676.

Patented Oct. 14, 1884.

Fig. 1.

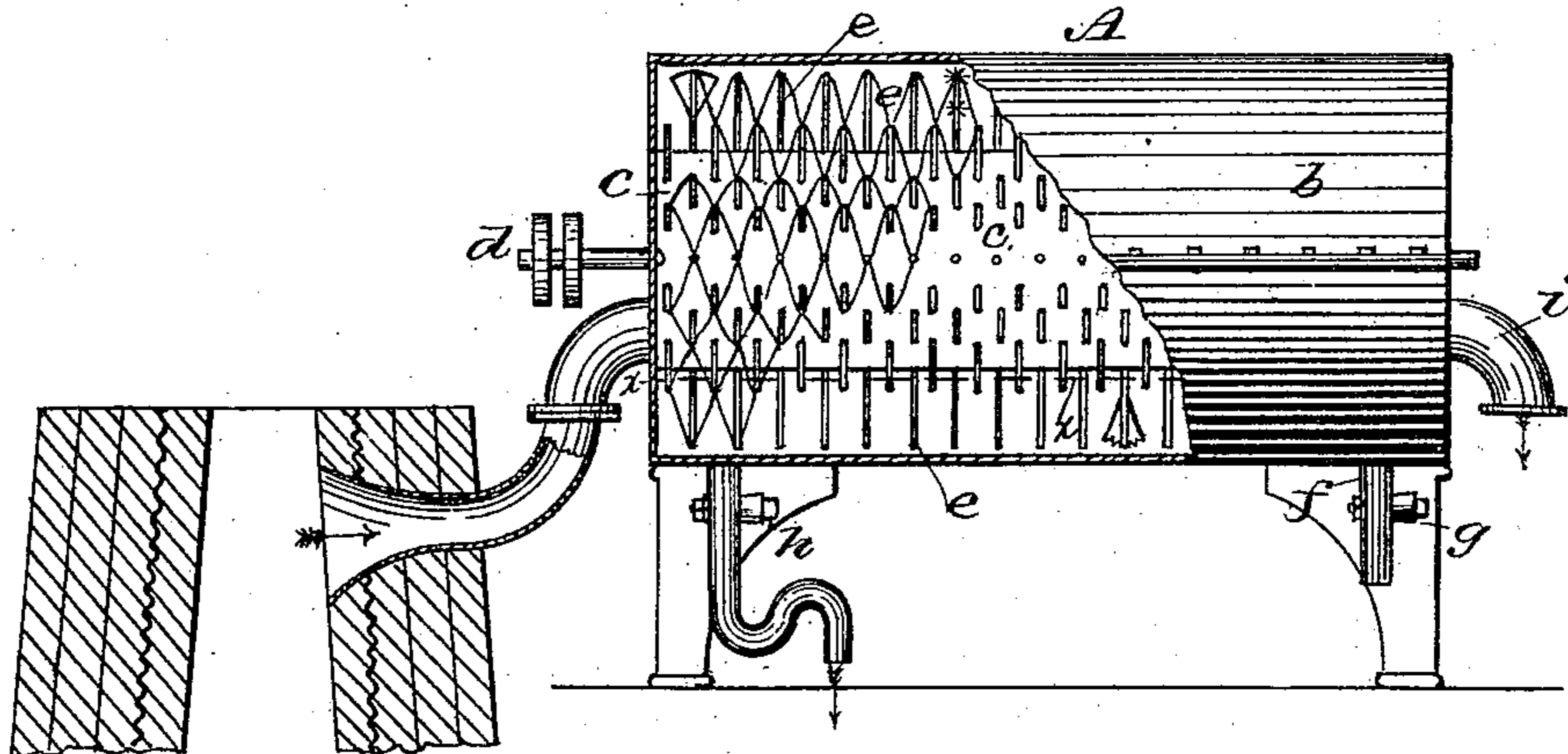
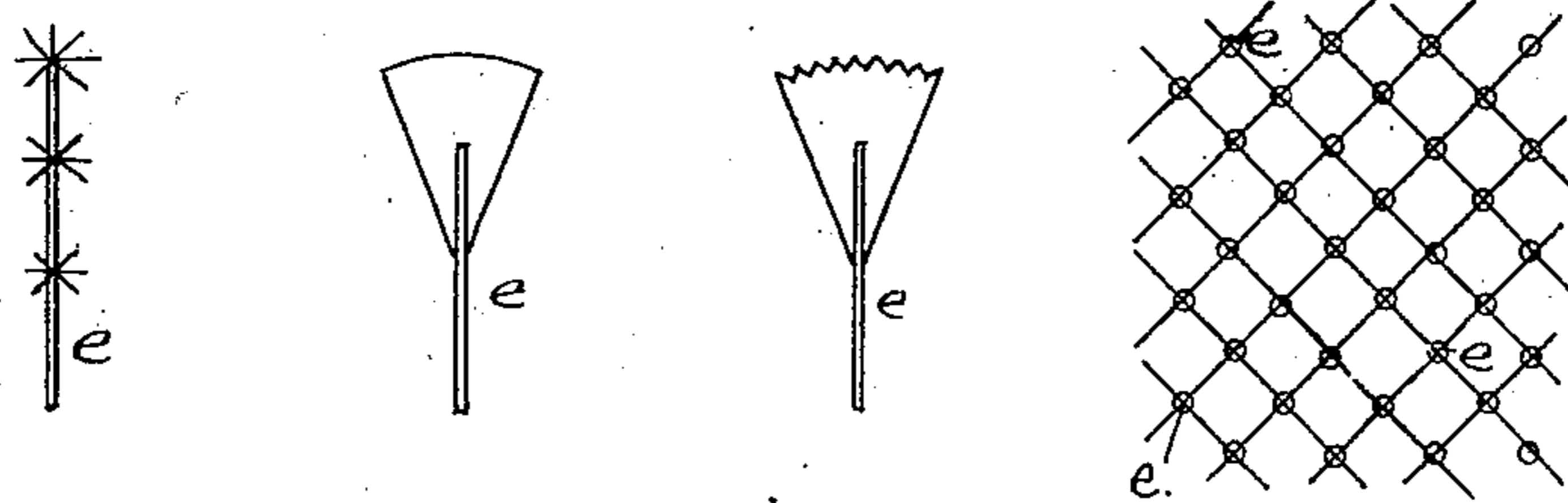


Fig. 2.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CLEANSING, CONDENSING, AND WASHING GASES.

SPECIFICATION forming part of Letters Patent No. 306,676, dated October 14, 1884.

Application filed April 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES CRUTCHETT, a subject of the Queen of Great Britain, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Washing, Condensing, and Cleansing Gases; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 letters of reference marked thereon, which form a part of this specification.

My invention relates to a special construction of apparatus for washing, condensing, and cleansing gases, and it is more especially intended for use in the treatment of gases for illumination, though applicable for treating other gases, if desired, and the apparatus is adapted for connection with the cupola or other part of the gas-generator or furnace in which the gas is manufactured, so that the gas as made may pass directly into this cleanser. Figure 1 is a sectional view of the apparatus, and Fig. 2 represents detail views of the rods used in the washing-cylinder.

The drawings illustrate my invention as applied to the cupola or tower of a gas-generating apparatus, whether for illuminating, for heating, for motive power, or for other purposes—such, for instance, as that shown in my application for a patent filed November 30, 1883, which will serve by way of illustration.

A represents a longitudinal view of an apparatus embodying my invention, a portion of the casing being broken away, the better to display the interior. A cylindrical chamber, *b*, for holding water and gas, incloses a revolving cylinder, *c*, whose shaft *d* has its bearings in the ends of the cylinder. Radial rods *e* are secured from end to end on this revolving cylinder, projecting from it all around its circumference. These rods may be inserted in the cylinder, or may be fastened to it in any desired manner, and they should be small and numerous, somewhat like those of a brush. The rods may project from twelve to eighteen inches beyond the cylinder, and may in their cross-section be either round, flat, or angular, and of metal or any other material having suffi-

cient durability. If desired, their extremities may in some cases be made with flat or broad surfaces, and with their extreme edges serrated or corrugated to effect a more complete action on the gas; or these rods may have barbs or irregular projections placed on them for the greater part of their length at intervals or intermediate points between their extremities and the points or places of connection with the shaft, as shown in Fig. 2, and all the rods may be connected together by a wire net-work or wire fastenings, as also shown in Fig. 2, this net-work connection being at or near the extremities of the rods or at other points on the rods, and serving to bind and strengthen the whole and more thoroughly agitate the water and gas. The radial rods or wires should extend from their cylinder to (as nearly as practicable) the inner face of the chamber *b* without touching it, in order to operate equally when the cylinder revolves upon substantially the whole body of the gas admitted to the chamber and passing through it, and within the chamber a supply of water is kept, as indicated by the dotted lines *x x*, and into which the rods, when in action, enter as they descend, and from which they emerge as they rise again, and whereby every one of the rods or wires operates upon and serves to cleanse and wash the gas to the extent of its surface and friction, the whole series of rods serving to cleanse uniformly the whole body of gas within the case, because the revolving cleansing-cylinder practically fills the case, with only enough space or clearance around it to permit its revolutions, and at the same time all the rods or wires are free from any liability of becoming clogged at their surface, and are left free to be revolved continuously without any impediment arising within the chamber. The water may enter at *f*, and be controlled by a cock, *g*, and be discharged with its impurities by a cock, *h*, into any appropriate vessel by siphons or valves, as desired or preferred. The impurities leave the cleansing-chamber with the continuous run and change of water. The washed and cleansed gas leaves the chamber by any appropriate exit-pipe, *i*.

The barbed pieces or projections may be placed and secured on the rods in any convenient manner—as, for instance, they may have central or other holes, and be threaded like

beads upon the wire and held to place by a nut or other simple means. The case being cylindrical, instead of square or oblong, in cross-section, permits the rods of the revolving cylinder to act upon the whole body of gas from center to circumference. The cylinder and its rods, reaching as they do from end to end of their inclosed case, leave no space in which the washing-cylinder does not act on the gas; nor does my construction involve the need of a system of cylinders one above another that one may aid in performing the duty that the others individually can but imperfectly accomplish. In my construction and arrangement of casing and cylinder one cylinder performs the whole duty required.

I claim—

1. In combination with a horizontal case, as described, a revolving gas-cleanser within such

case, provided with a system of radial rods having thereon sets of barbs or irregular projections at or near their extremities, and also smaller sets at points between such extremities and the axis or shaft of such cleanser, substantially as and for the purpose set forth.

2. In combination with the revolving cylinder and its inclosing-casing having inlet and outlet pipes at its opposite ends, the radial rods on such cylinder, and wires connected to and serving to unite the extremities or other parts of such rods, substantially as set forth.

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