P. MUNZINGER.

HINGED COVERS FOR GAS-RETORTS.

No. 187,768. Patented Feb. 27, 1877.

*Fig. 1*

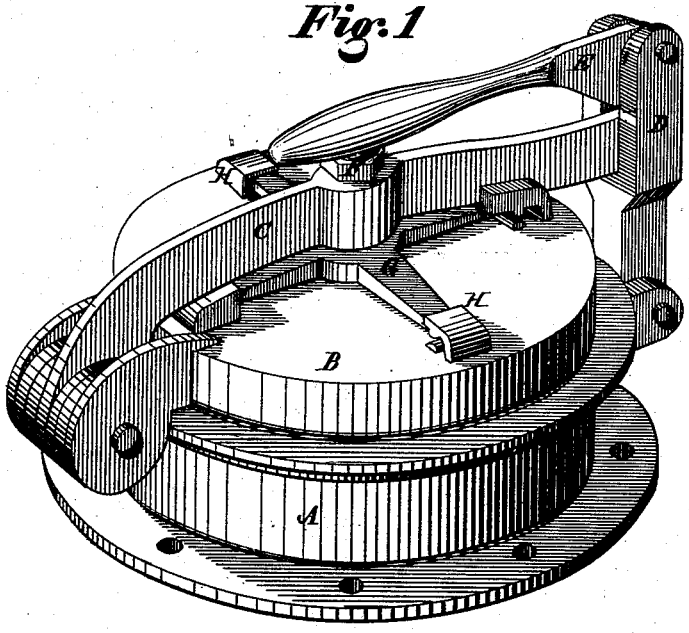
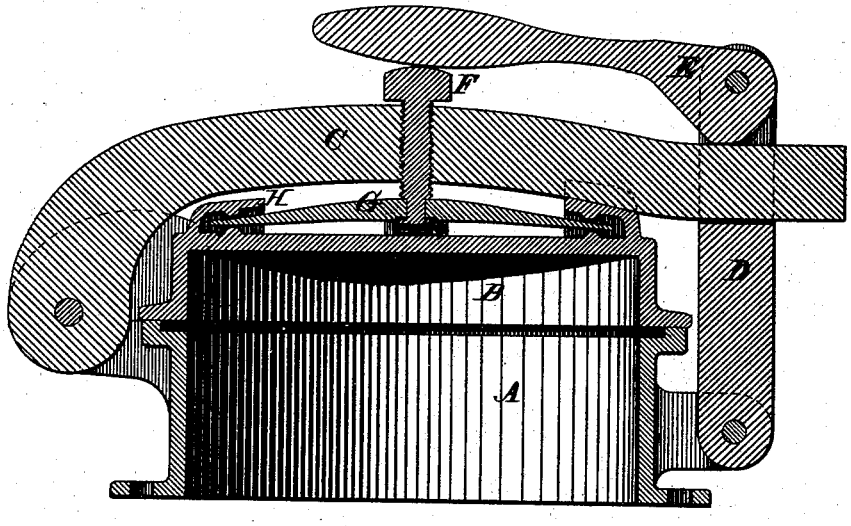



*Fig. 2*

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## IMPROVEMENT IN HINGED COVERS FOR GAS-RETORTS.

Specification forming part of Letters Patent No. **187,768**, dated February 27, 1877; application filed March 29, 1876.

*To all whom it may concern:*

Be it known that I, PETER MUNZINGER, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Hinged Covers for Gas-Retorts, of which the following specification is hereby declared by me to be a full, clear, and precise description, and sufficient to enable those skilled in the art to which my invention appertains to construct and employ it, reference being had to the accompanying drawing, forming part of this specification, and representing a retort mouth piece and cover embodying my invention—in Figure 1 in perspective, in Fig. 2 in central sectional elevation.

Similar letters of reference indicate corresponding parts in both the figures.

My invention relates to a class of devices aiming to effect a fluid-tight joint between the cover and mouth-piece of gas-retorts without the employment of loam or other luting, and has for its object such a joint; to which end it consists in the interposition between the cross-bar and the cover of what I term a radial presser-piece, connected at a single central point to the cross-bar, and at two or more peripheral points to the cover, and which operates to divert the clamping-pressure exerted upon its central portion by the cross-bar from the central portion of the cover to a series of points or to a line approximately above and following the line or surface of contact of the cover and mouth-piece, whereby a very tight closure is effected by the uniformly-distributed pressure bearing alike down upon every portion of the parts forced into contact, all substantially as hereinafter set forth and claimed.

With reference to the drawings, the construction of my device is as follows:

A is the neck or mouth-piece of the retort; B, the cover; C, the cross-bar, hinged to the mouth-piece, all made in any convenient and well-known form, the special structure shown, however, being preferred. D is the hinged bar, carrying the cam-lever E, as specified and claimed in my Letters Patent No. 166,131, of July 27, 1875, and here employed in similar manner to exert pressure upon the cross-bar. F is a set-stud, screwing through the cross-bar and rotatably shouldered into my radial presser-piece G, in the construction and employment of which this my invention centers.

This radial presser-piece is formed conveniently, as shown in the drawings—that is to say, with four branching arms, tending outward and downward from an elevated central portion, in and through which portion the set-stud F abuts and acts to adjust the bearing-tension of the entire piece, such adjustment being, when desired, made possible by the employment of elastic material, such as wrought-steel, in the manufacture of the presser-piece; but two or three arms may be employed, or their number may to such extent exceed four that, becoming practically infinite, the presser-piece assumes the form of a concavo-convex plate of any desired conformation of periphery, centrally acted upon by the stud, but, by reason of its arched form, transmitting the pressure so intermediately imparted, but derived from the cam-lever and cross-bar, to above the peripheral contact-surface of the cover with the mouth-piece.

When the presser-piece assumes the form of branching arms and the cover and mouth-piece are of irregular shape, the length of the different arms will vary, and when it assumes the form of a plate under like condition of cover and mouth-piece the radial dimension of different portions of the plate will likewise vary; but in every case the structure of the piece is such that the pressure is diverted from the elevated central portion to the peripheral points or line of contact of the presser-piece with the cover, which, as hereinbefore set forth, is approximately above the contact-surface of the cover with the mouth-piece.

When the cover is elliptical two set-studs may be employed, having bearings upon the foci of the cover, and, when desired, the presser-piece may be rigid and not elastic, solid connections replacing adjusting set-studs.

The extremities of the arms of the presser-piece are loosely secured to the cover by caps H or by an annular overlapping ring. When the piece is a plate, a certain amount of play being allowed to enable the cover to settle

2 Sheets—Sheet 1.

# W. T. NICHOLS.

## ROTARY HARROWS.

No. 187,769. Patented Feb. 27, 1877.

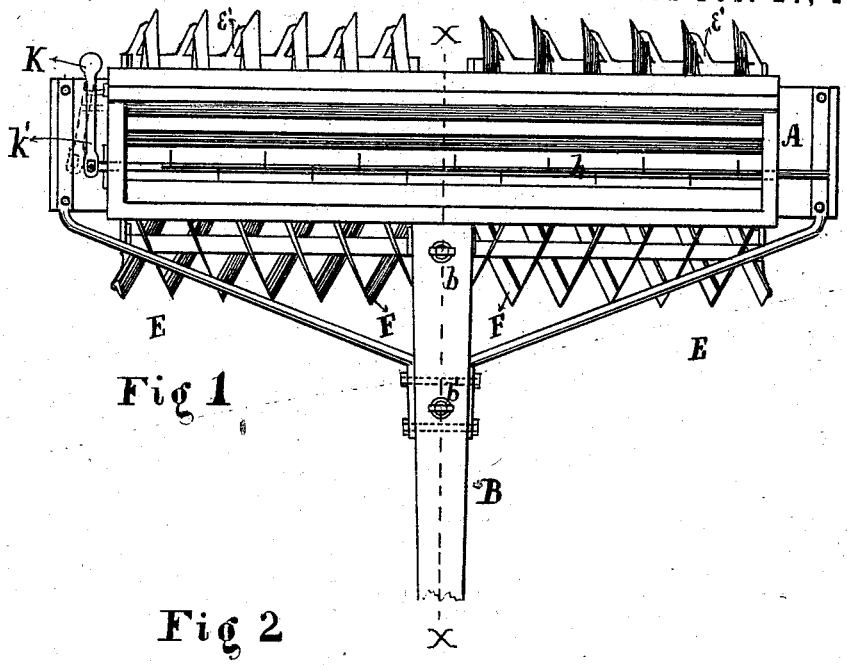


Fig 1

Fig 2

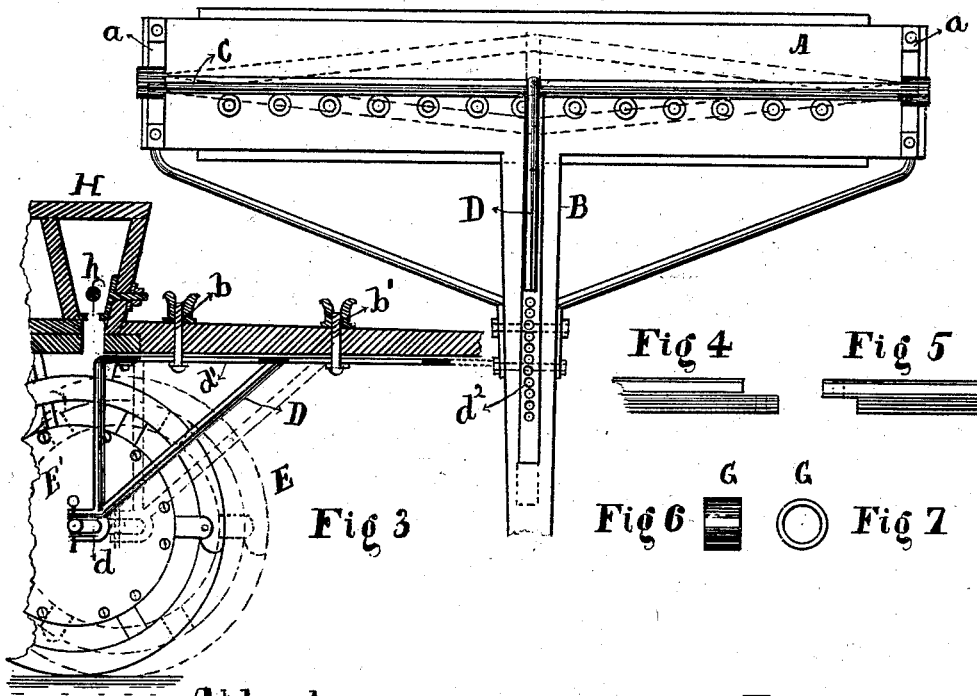


Fig 3

Fig 4

Fig 5

Fig 6

Fig 7

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