(No Model.)

R. W. HUNT.

CONVERTER.

No. 379,894. Patented Mar. 20, 1888.

Fig. 1.

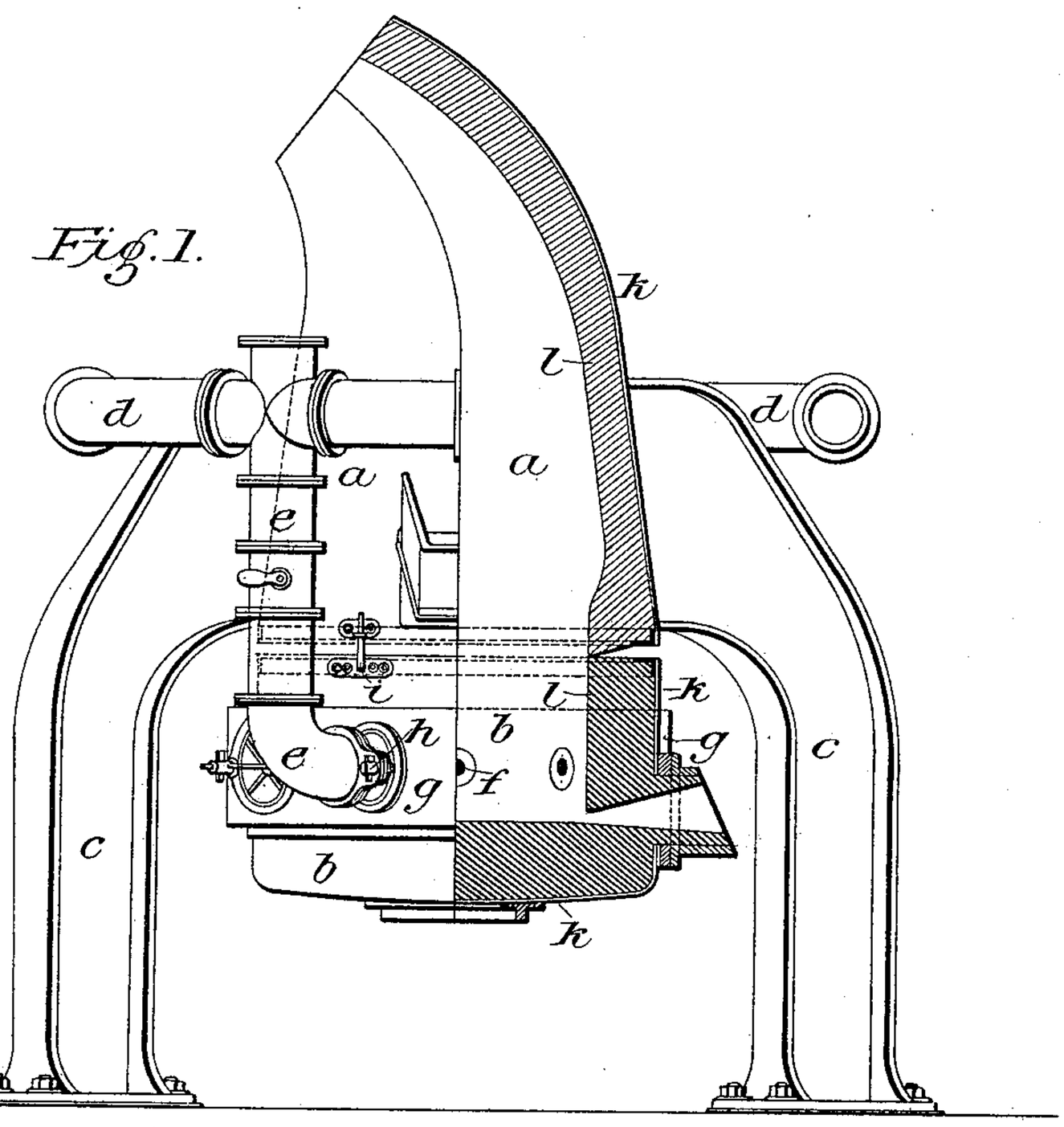
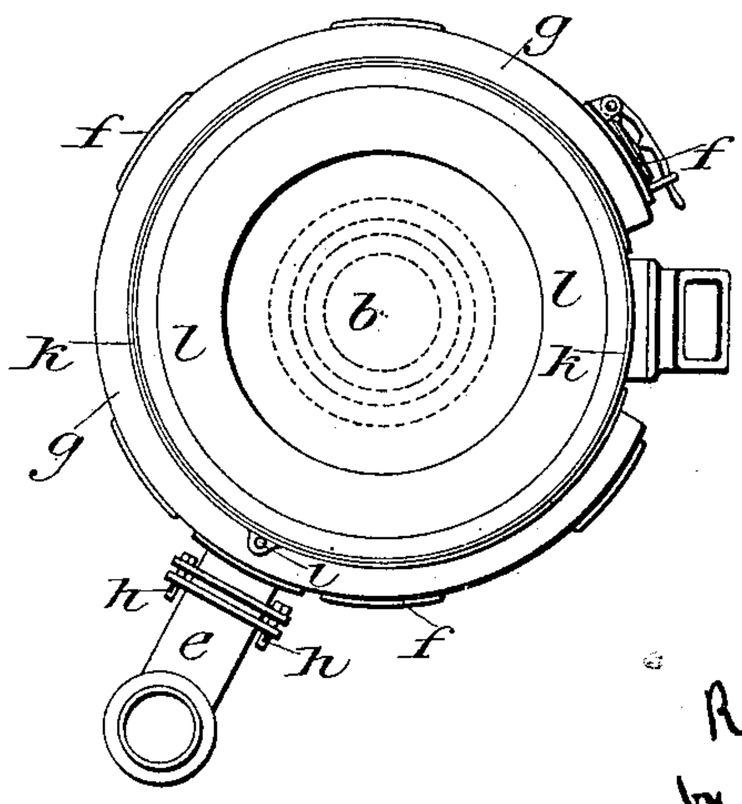


Fig. 2.



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UNITED STATES PATENT OFFICE.

ROBERT W. HUNT, OF TROY, NEW YORK, ASSIGNOR TO THE CLAPP & GRIFFITHS STEEL COMPANY, OF PITTSBURG, PENNSYLVANIA.

CONVERTER.

SPECIFICATION forming part of Letters Patent No. 379,894, dated March 20, 1888.

Application filed February 25, 1886. Serial No. 193,202. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. HUNT, of Troy, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Converters; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improved construction of converters whereby a removable bottom having low sides, so as itself to constitute a vessel of sufficient capacity to contain the charge under treatment and provided with side tuyeres, is used. This construction not only permits the use of a low-pressure blast, whereby the silicon is more completely eliminated than where a high-pressure blast is used, and reduces the cost of the blowing-engine, but also enables the converter to be worked more easily and regularly, facilitates the lining and repairing of the same, and reduces danger and loss in case of accident, as it permits the speedy removal of the bottom, with its contained charge, and its replacement with another, so that the operations of the converter can go on without delay.

To enable others skilled in the art to make and use my invention, I will now describe it by reference to the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of my improved converter. Fig. 2 is a view of the removable bottom.

Like letters of reference indicate like parts in each.

The form of converter I have illustrated in the drawings is what is known as a "fixed" or "stationary" converter, to distinguish it from a tilting or tipping converter. In this case the upper or main section of the converter is supported in a fixed vertical position on suitable columns, while with a tipping converter it is supported by means of suitable trunnions formed thereon.

My invention is applicable to both classes, and I desire to so claim it.

The converter is formed of two parts, *a* and *b*, the part *a* or main body being fixed and supported on suitable columns, *c*. It is provided with a blast-trunk, *d*, having a suitable pipe, *e*, which leads down to the blast-box. The lower section or removable bottom, *b*, is made of sufficient depth to constitute a vessel capable of containing the charge of metal, and is provided with tuyeres *f*, which extend through its sides, preferably at stated intervals, around the entire circumference. On the outer side of the bottom *b* is a circular blast-box, *g*, which receives its air from the blast-main *d* by means of the pipe *e*, the latter being removably coupled to the blast-box *g* by suitable keys or other fastening devices, *h*. The bottom *b* is supported or suspended from the upper section, *a*, being secured thereto by bolts or hooks *i*, or other suitable fastening devices capable of being loosened readily when it is desired to remove the bottom; or it may be supported from below—as, for instance, upon the hydraulic piston, by which it is raised to place. The outside of the converter consists of a metal shell, *k*, and the inner surfaces are composed of a lining, *l*, of any desired thickness, formed of ganister or other suitable refractory material. That portion of the lining which contains the charge of metal wears out more rapidly than any other part, and so I have provided that the removable bottom which contains the tuyeres shall be at least of sufficient size to contain the charge, in order that when it is worn out or the casing becomes seriously injured the bottom or damaged part may be removed without interfering with the main body *a* of the converter, which removal is easily and quickly effected by unfastening the suspension devices and lowering the bottom on a hydraulic ram, or by other suitable means. A second bottom, properly lined and dried, being prepared, can be instantly put in place of the removed one, and thus the operation of the converter go on without serious delay. If it should be desired to take the bottom off while the charge of metal is contained therein, it may be done without loss of the charge, because the bottom is at least of sufficient holding capacity to contain the same as it is being lowered and removed. If desired, the tuyeres may extend vertically through the bottom, as will be understood, the removable bottom in all cases, however, being such as will contain the usual charge.

I am aware that horizontal tuyeres are not

new in coverters, and that it is proposed in Letters Patent No. 271,683, dated February 6, 1883, Fig. 6, to make the lower end of a cupola-furnace removable upon a suitable carriage, said end being provided with horizontal tuyeres; but this differs from my improved converter in that such removable portion is practically the whole of the converter, containing the tuyeres, charging and tapping holes, and is not a removable bottom capable of containing the charge, nor a bottom suspended from the main body of the converter.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A sectional converter having a supported upper section and a removable lower section for containing the charge suspended on the upper section, and provided with tuyeres extending through its sides at intervals entirely around the converter, substantially as and for the purposes described.

2. A sectional converter having a supported upper section, in combination with a removable lower section for containing the charge, provided with tuyeres extending through its sides, substantially as and for the purposes described.

3. A sectional converter provided with tuyeres having a supported upper section, in combination with a removable lower section for containing the charge, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 18th day of February, A. D. 1886.

ROBERT W. HUNT.

Witnesses:
WM. R. JONES,
W. B. CORWIN.