(No Model.)

J. GJERS.

APPARATUS FOR EQUALIZING THE TEMPERATURE OF STEEL INGOTS.

No. 291,045. Patented Jan. 1, 1884.

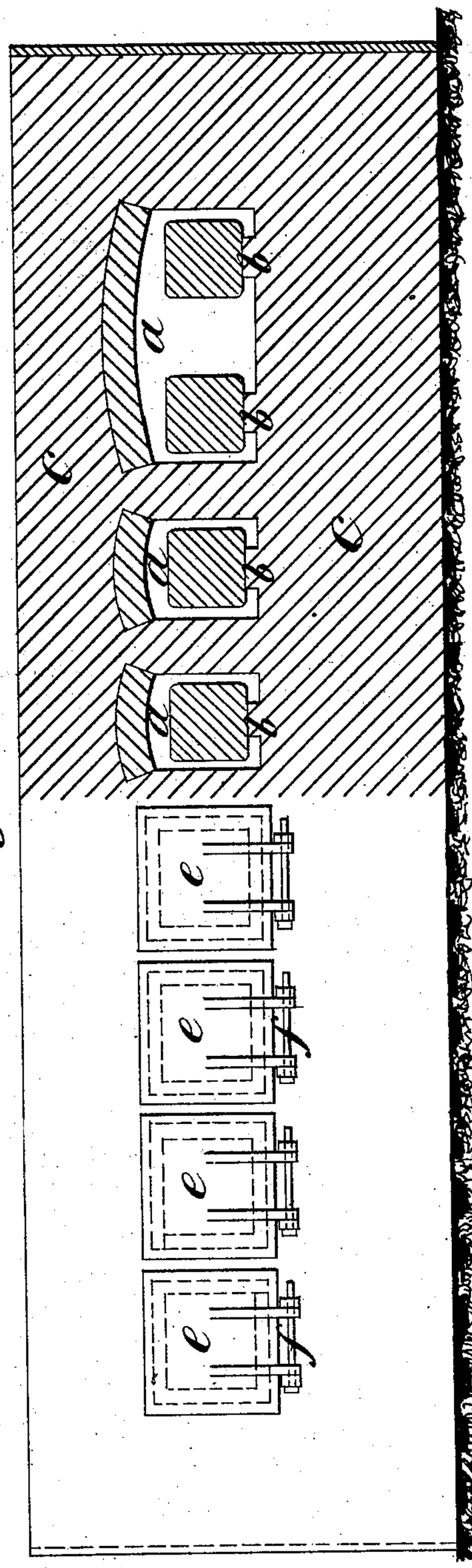

Fig 1.

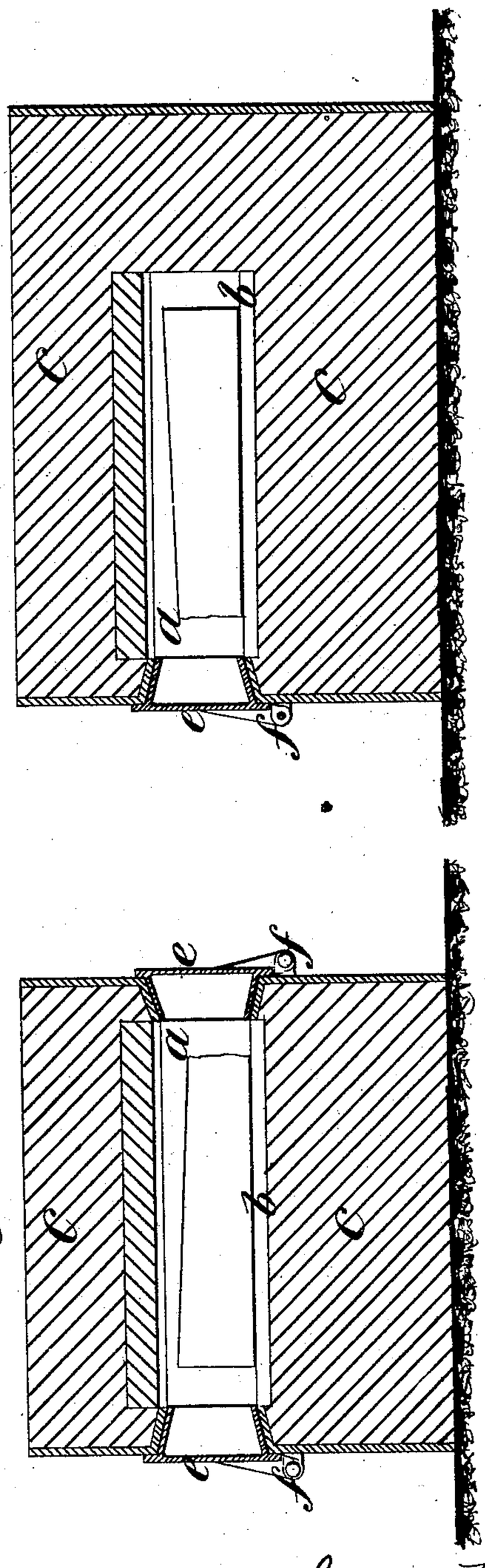

Fig 3.

Fig 2

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UNITED STATES PATENT OFFICE.

JOHN GJERS, OF MIDDLESBROUGH, IN THE NORTH RIDING, COUNTY OF YORK, ENGLAND.

APPARATUS FOR EQUALIZING THE TEMPERATURE OF STEEL INGOTS.

SPECIFICATION forming part of Letters Patent No. 291,045, dated January 1, 1884.

Application filed March 23, 1883. (No model.) Patented in Germany May 9, 1882, No. 21,716; in England July 26, 1882, No. 3,545; in Belgium April 13, 1883, No. 61,080, and in Luxemburg October 30, 1883, No. 317.

To all whom it may concern:

Be it known that I, JOHN GJERS, a subject of the Queen of Great Britain and Ireland, residing at Middlesbrough, in the North Riding of the county of York, Kingdom of Great Britain and Ireland, have invented new and useful Apparatus for Equalizing the Temperature of Steel Ingots, (for which, with other improvements, I have obtained a patent in Great Britain, No. 3,545, bearing date July 26, 1882,) of which the following is a specification.

My invention has reference to an arrangement of apparatus wherein steel ingots can be treated in such a way that they may be converted into a finished or partly-finished state without reheating them in a furnace.

According to my present invention for this purpose, I employ chambers constructed in a mass of brick-work after the manner of pigeon-holes, so that ingots may be treated therein in a horizontal position, and may, when ready, pass out in the same horizontal attitude in which they are to be treated by the rolls. Such an arrangement of apparatus is shown in the accompanying sheet of drawings, in which—

Figure 1 is a front view, partly in section, of my improved apparatus; Fig. 2, a cross-section showing one construction of pigeon-holes; and Fig. 3, a similar section showing a second construction of pigeon-holes. These pigeon-holes or cells *a* may, as is evident, be arranged for the reception each of more than one ingot, as shown at the right-hand portion of Fig. 1, where two ingots are placed in one pigeon-hole or cell; but it is not usually desirable to arrange the pigeon hole or cell to contain more than one ingot. The bottom of each pigeon hole or cell contains a ledge or projection, *b*, for the ingot to rest upon and to facilitate the charging.

In the drawings I have shown seven pigeon-holes or cells in a single structure or mass of brick-work, *c;* but I need scarcely remark that any other convenient number may be employed. Doors or covers *e* are used to close the mouths of the pigeon-holes or cells, and these doors or covers may conveniently be hinged or jointed, as shown at *f*. The pigeon-hole or cell, as represented in Fig. 2, extends throughout the whole width of the structure or mass of brick-work, and two doors or covers, *e*, are used to inclose the ingot or ingots—one at each end of the pigeon-hole or cell. In cases where the hole or cell extends only partly through the mass of brick-work (illustrated in Fig. 3) only one door or cover, *e*, is required for each pigeon-hole or cell. Into these pigeon-holes or horizontal cells the ingots are charged in the manner usual for charging ingots into ordinary heating-furnaces, a two-pronged tool being used for charging the ingot, which, when deposited on the aforesaid ledge *b*, will allow of the pronged tool being readily withdrawn.

It will be evident that cells or chambers in a mass of brick-work, as above described, may be inclosed in an iron casing provided with girders and mounted on wheels to form a portable apparatus, as described with reference to vertical pits in the specification of an application for Letters Patent of the United States filed by me on the 23d day of March, 1883, Serial No. 89,275, care being taken that the mouths of the pits shall be in positions clear of the supporting-girders.

I do not herein claim the process of equalizing the temperature of steel ingots, such having been made the subject of a separate application, No. 58,689, filed by me April 18, 1882, nor the construction shown and described in my application, No. 89,280, filed March 23, 1883; but

What I do claim is—

1. An apparatus for equalizing the temperature of steel ingots, comprising a series of permanent horizontal chambers resembling pigeon-holes formed in a mass of brick-work constructed to act as an accumulator of heat, and each chamber being arranged to inclose an ingot (or ingots) and allow it (or them) to soak, (with exclusion of air,) so as to attain throughout a suitable temperature for rolling off successfully into blooms or directly into a finished article without reheating in a furnace, substantially as described.

2. In an apparatus for equalizing the temperature of steel ingots, a series of horizontal chambers resembling pigeon-holes formed in and extending entirely through a mass of brick-

work constructed to act as an accumulator of heat, each of said chambers being provided at each end with a removable cover, so that ingots may be inserted at one end, be inclosed in the chamber, (with exclusion of air,) so as to soak therein, and be afterward withdrawn at the other end of the chamber, substantially as described, for the purpose specified.

3. In an apparatus for equalizing the temperature of steel ingots, a cell or chamber constructed in the manner of a pigeon-hole in a mass of brick-work designed to act as an accumulator of heat, said chamber being provided with a ledge or projection, *b*, for the ingot to rest upon and to facilitate the charging, and also with a cover at each end, so arranged that an ingot may be fed in at one end, then inclosed within the chamber practically to the exclusion of air, and afterward may be withdrawn at the other end, substantially as described, for the purpose specified.

4. A horizontal chamber for equalizing the temperature of steel ingots, constructed to open at the end or ends, and not at the top, substantially as described.

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