No. 668,234. Patented Feb. 19, 1901.

M. M. SUPPES.

APPARATUS FOR USE IN THE MANUFACTURE OF COKE.

(No Model.) (Application filed Dec. 27, 1898.)

Fig. 2.

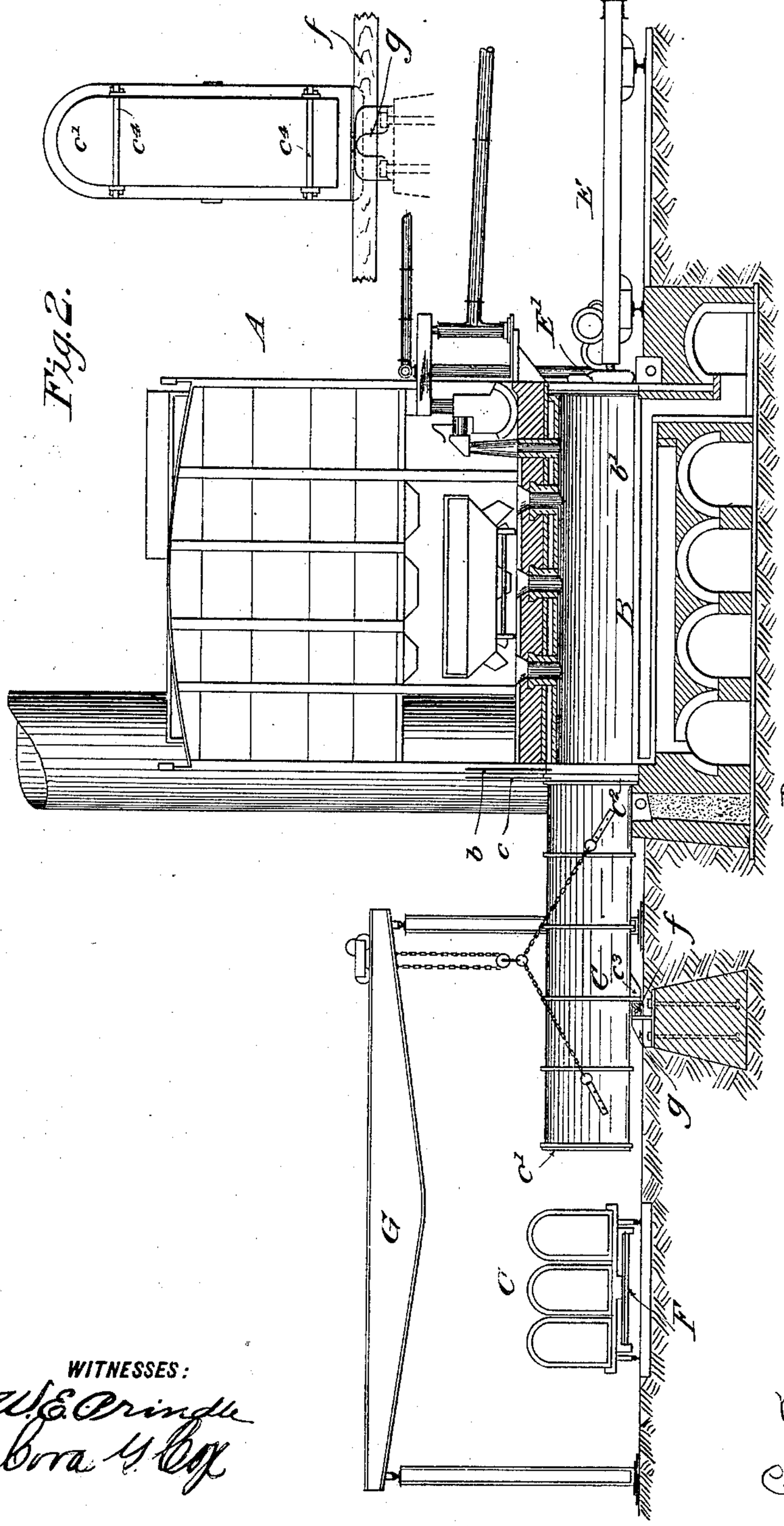

Fig. 1.

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MAXIMILIAN M. SUPPES, OF ELYRIA, OHIO.

APPARATUS FOR USE IN THE MANUFACTURE OF COKE.

SPECIFICATION forming part of Letters Patent No. 668,234, dated February 19, 1901.

Application filed December 27, 1898. Serial No. 700,450. (No model.)

To all whom it may concern:

Be it known that I, MAXIMILIAN M. SUPPES, of Elyria, in the county of Lorain and State of Ohio, have invented a new and useful Improvement in Apparatus for Use in the Manufacture of Coke, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to apparatus for use in the manufacture of coke, and more particularly to means for facilitating the removal of the coke from the coke-ovens and for the cooling of the same in such a manner as to produce a firm hard coke free from "breeze" and with a minimum wastage, and the transferring of the coke thus made to the yards of the smelting-furnace at which it is to be used.

My invention is especially devised for use in connection with what are known as "by-product" ovens; but I do not, of course, limit myself to its use with ovens of this general type.

Before my invention it had been usual to discharge the coke produced by the oven upon a chute or into a perforated receptacle and cool the coke by a stream of water, so as to prevent as far as possible the waste of material by combustion, which begins the moment the hot coke is placed in communication with the atmosphere. This water-cooling is itself, however, extremely deleterious, for the coke thus cooled contains considerable moisture, to evaporate which part of the heat units of the coke are wastefully consumed. This wastage is particularly heavy when using by-product coke, as it is well known that it absorbs more moisture than does the old "beehive" coke. I avoid this difficulty by transferring the coke direct from the oven to a vessel which is adapted to be sealed, so as to be air-tight, as soon as it has received the coke. As the air is thus kept entirely from the heated coke, no combustion is possible and the cooling may be as slow as desired, and if water is used on the outside of the vessel to hasten the cooling it will not be transmitted to the coke and no moisture will therefore be absorbed. By the provision of this vessel for receiving the coke from the oven I am also enabled to transfer the coke directly, as by cars or by a traveling crane, from the oven to the stock-yard without intermediate handling. Each time that coke is loaded or unloaded a certain amount is broken into small fragments known as "breeze," which is much inferior for use in smelting-furnaces to coke of normal size.

My invention further resides in the construction of my coke-receiving vessel and in the general combination, arrangement, and construction of the plant, the details and advantages of which will appear more fully during the course of the following description.

Referring to the drawings, Figure 1 is an elevation, partly in section, of a plant embodying my invention; and Fig. 2 is an end view of a coke-receiving vessel and the means for retaining the same in position to receive the coke.

The coke-oven is represented as A, the coke-making chamber being designated as B.

b and *b'* are the doors sealing the chamber B during the converting of the coal into coke.

The particular oven shown is one of the by-product type; but as the means for treating the products of distillation and manufacturing the by-products is immaterial to my present invention it is unnecessary for me to describe the oven in detail.

C is a coke-receiving vessel having end doors *c* and *c'* and formed, preferably, of open-ended iron castings secured firmly together, so as to have air-tight sides. This vessel has a cross-section about that of the coke-making chamber. It is formed with an end flange C^2, which fits into a recess c^4 in the foundation-wall D of the oven.

C^3 is a lug or downward projection from the vessel C, and *f* is a stop (shown as consisting of a wooden beam and a piece of rail secured thereto) which is engaged by lug c^3 and aids in holding the vessel to its position. Stop *f* is carried by a casting *g*, supported upon a suitable foundation.

The position of the vessel C being that shown in the drawings and the coke being ready for ejection from the furnace, doors *b* and *b'* of the chamber B and door *c* of the vessel C are opened. The ejecting apparatus E or any other suitable apparatus is then operated, the plunger-head E' of the same engaging the coke and pushing the same directly into the vessel C. As soon as this is

done the door *c* is closed and the vessel removed in any suitable manner. For this removal I prefer to employ the traveling crane G and cars F, which are adapted to transfer the vessel and contents to the stock-yards after the coke has been sufficiently cooled, or I may, if desired, dispense with the cars F and remove the vessels directly to the stock-yard by means of crane G.

I have shown the opposite end door *c'* of the vessel secured in place by bolts c^4, secured to lugs on the ends of the side walls of the vessel. Where necessary to complete the substantial sealing of the vessel, the crevices about the doors may be effectually sealed by daubing them with clay or other suitable material.

It is not essential to the practice of my invention that the vessel C should be of such a length as to receive the entire contents of chamber B, although I prefer to so construct it. Neither is the particular construction of the vessel material. It may or may not be lined with bricks or other refractory material. I do not therefore restrict myself to the specific construction of parts shown and described, for these and other details may be modified without departing outside the scope of my invention.

The novel process herein described will form the subject-matter of a divisional application to be filed by me.

Having thus described my invention, what I claim, and desire to protect by Letters Patent, is—

1. The combination of a coke-oven having a coke-making chamber therein, a vessel of substantially the same internal section as that of the said chamber, doors, as *b* and *c*, for closing respectively one end of said vessel and one end of said chamber, and a flange at the same end of the vessel engaging a recess in the foundation-wall of the oven adjacent to the door *b*, and providing means whereby said vessel may be constituted an end continuation of said chamber.

2. The combination of a coke-oven having a coke-making chamber therein, a vessel of substantially the same internal section as that of said chamber, a recess in the foundation-wall at one end of the said oven, a flange at one end of said vessel adapted to enter said recess, a projection from a central portion of said vessel and a fixed stop adapted to be engaged by said projection.

3. The combination of a coke-oven, having a coke-making chamber therein, a vessel of substantially the same internal section as that of the chamber, a recess in the foundation-wall of the oven at one end thereof, a flange at one end of said vessel adapted to enter the said recess, a projection from a central portion of said vessel, a fixed stop adapted to be engaged by said projection and doors for the adjacent ends of said vessel and chamber.

4. The combination with a coke-oven having a coke-making chamber therein, and a recess in its foundation-wall adjacent to one end of said chamber, of a portable vessel adapted to form an end continuation of said chamber and having an end flange adapted to fit said recess, means for sealing the said vessel to make it substantially air and water tight, means for holding said vessel in a fixed position with respect to the oven, and carrying mechanism for transferring said vessel from the furnace to a cooling-place and for returning the same.

I testimony whereof I have affixed my signature in presence of two witnesses.

MAXIMILIAN M. SUPPES.

Witnesses:
FRED W. WATERMAN,
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