

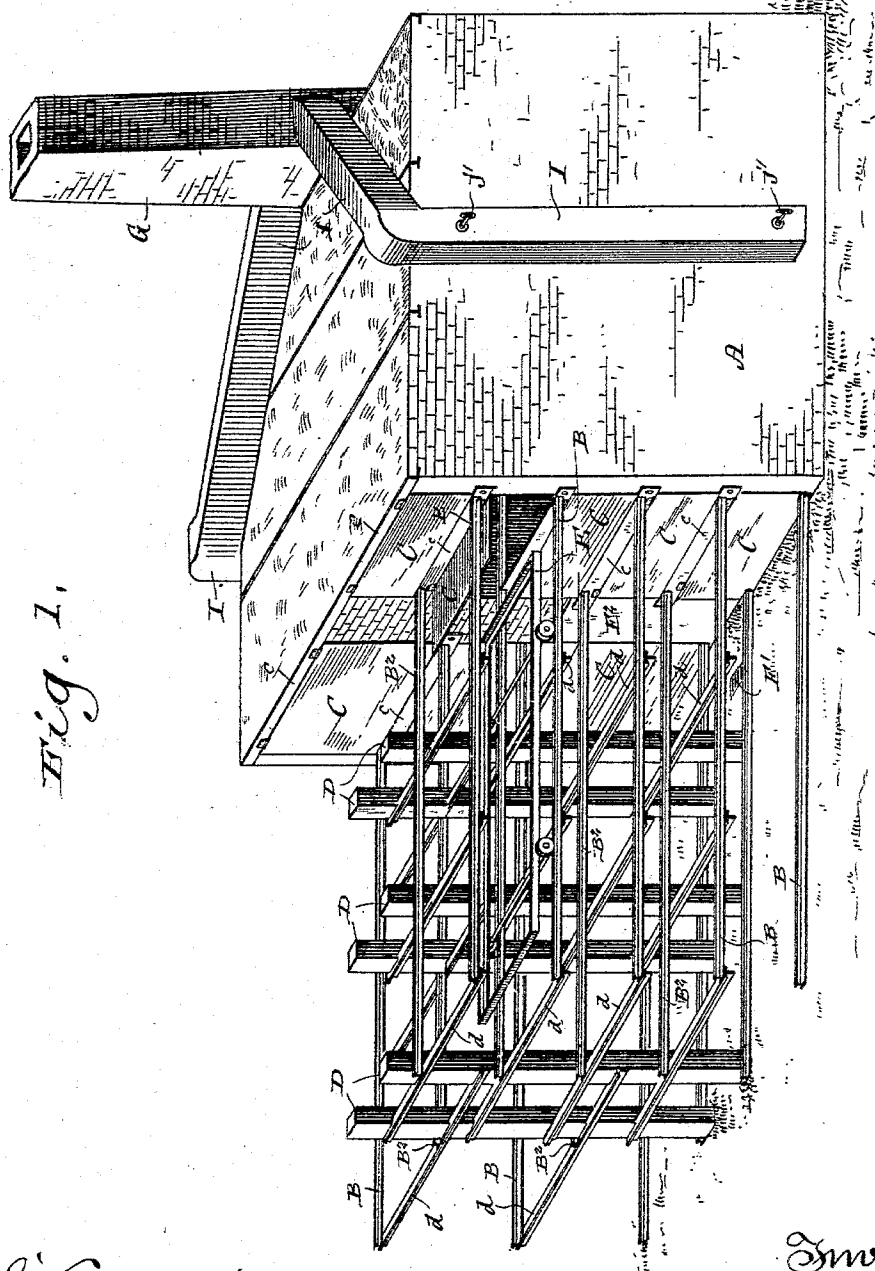
(No Model.)

8 Sheets—Sheet 1.

D. C. GREEN.
OVEN.

No. 514,456.

Patented Feb. 13, 1894.



Witnesses
Geo. W. Young
C. H. Scott

Inventor
David C. Green
By H. G. Underwood
Attorneys

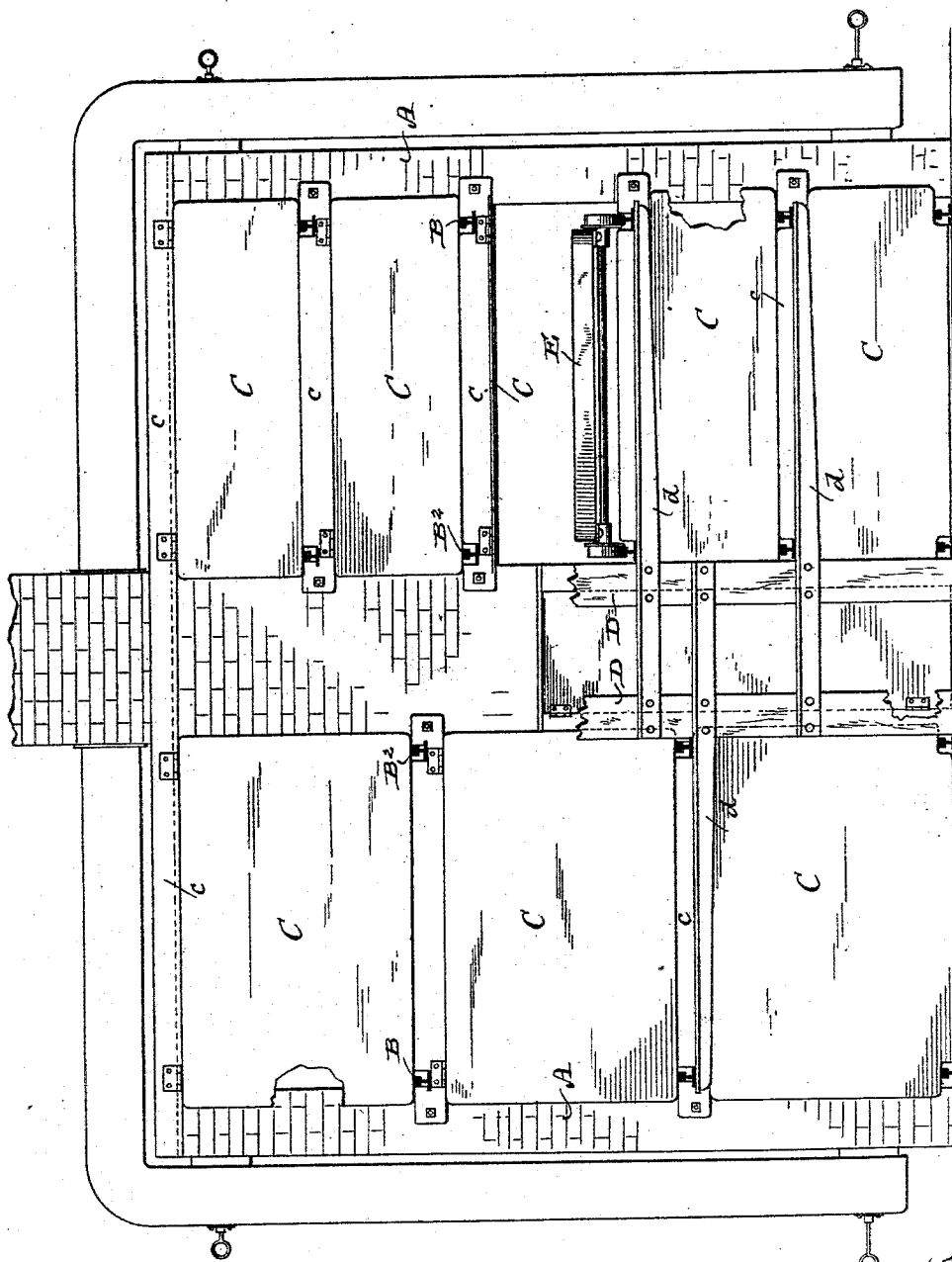
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Fig. 2.

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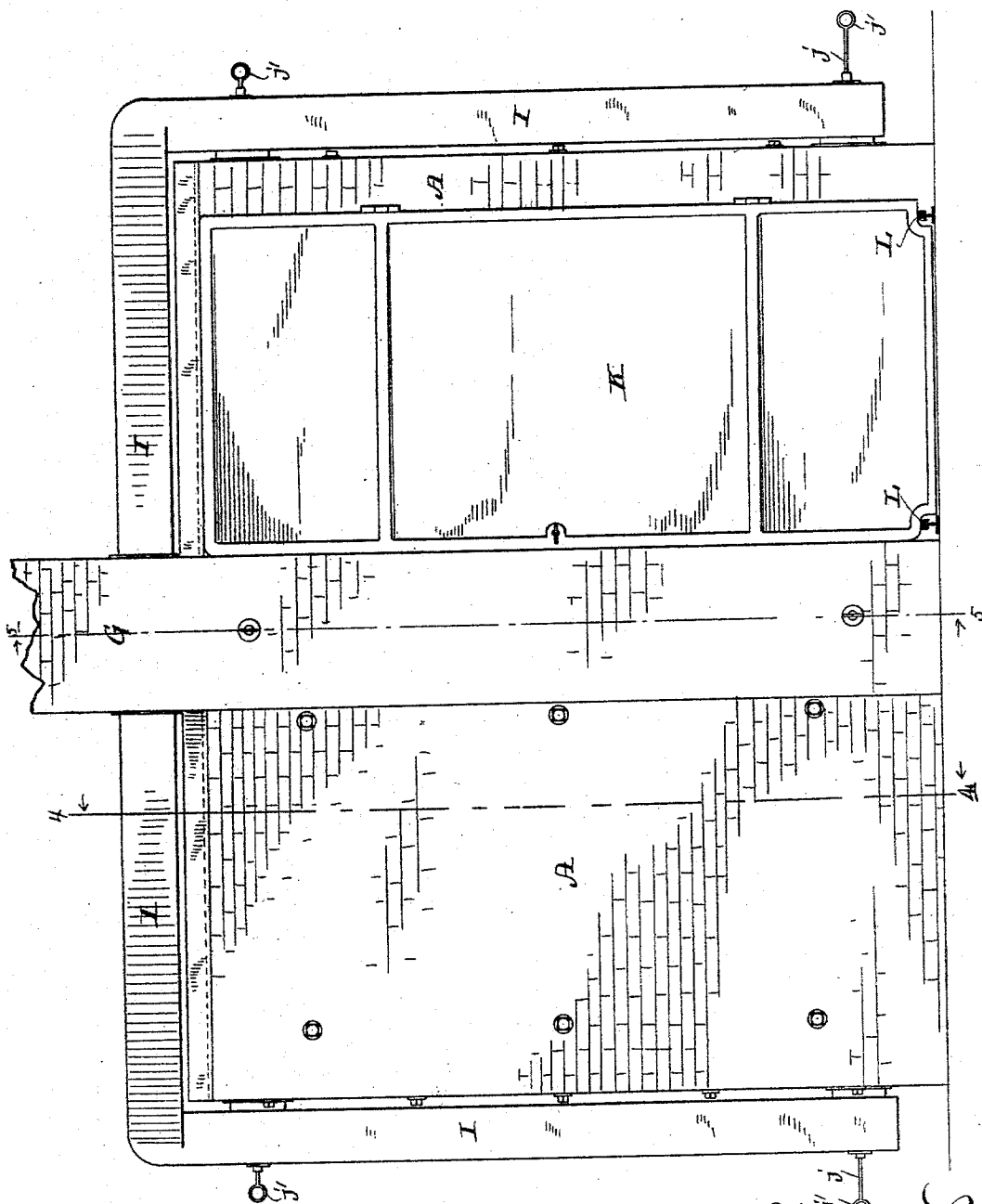
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Fig. 3.

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(No Model.)

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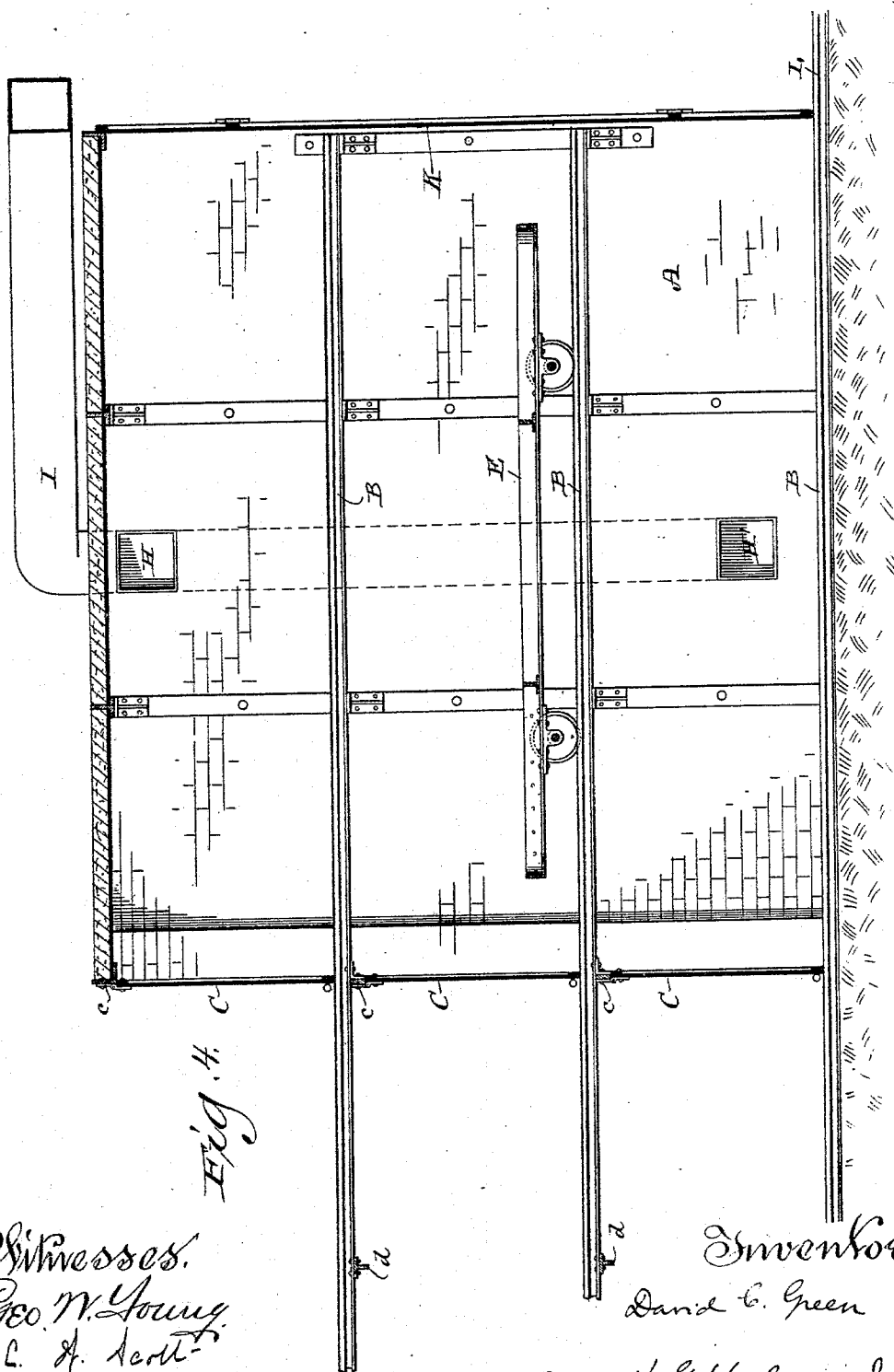


Fig. 4.

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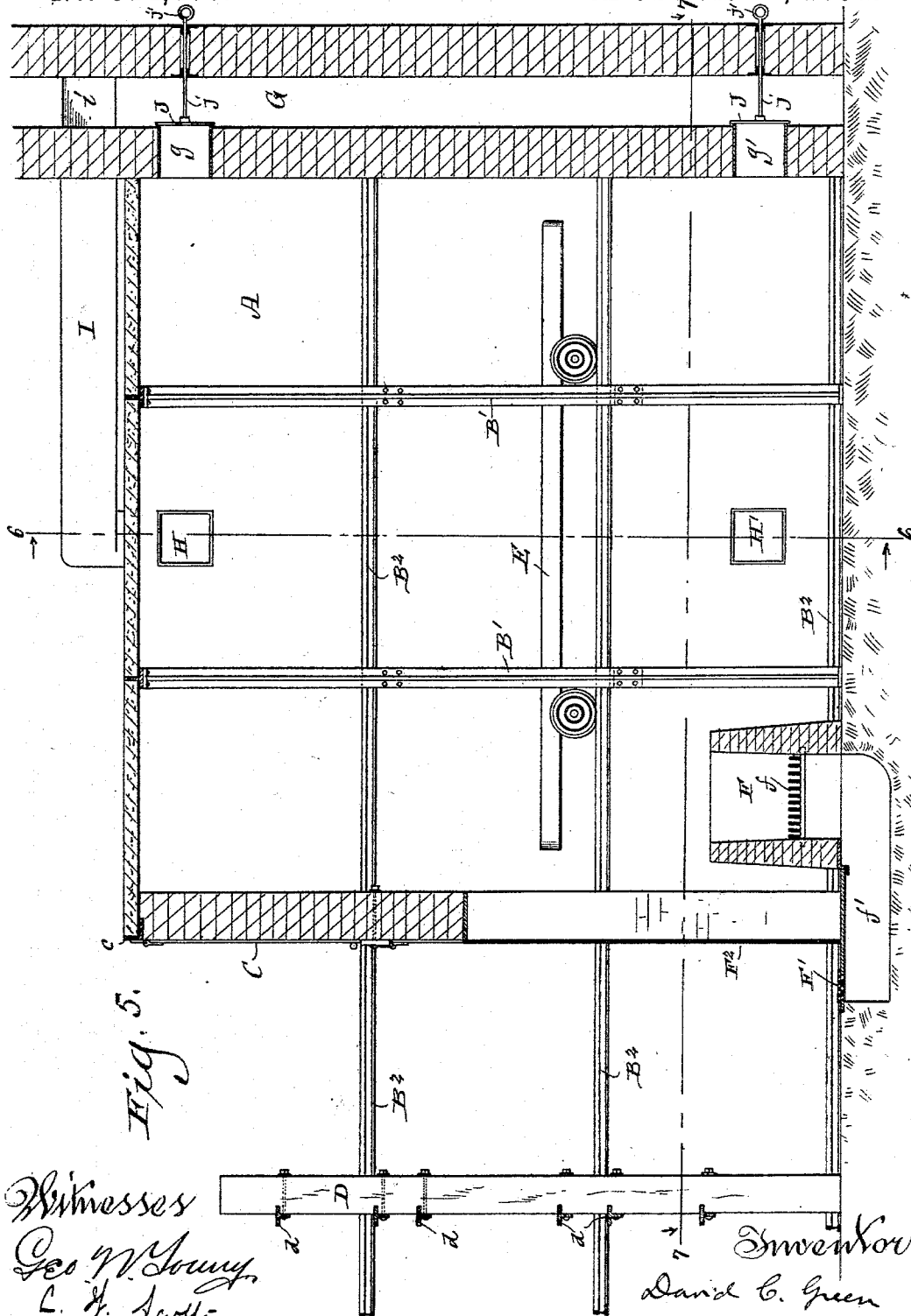
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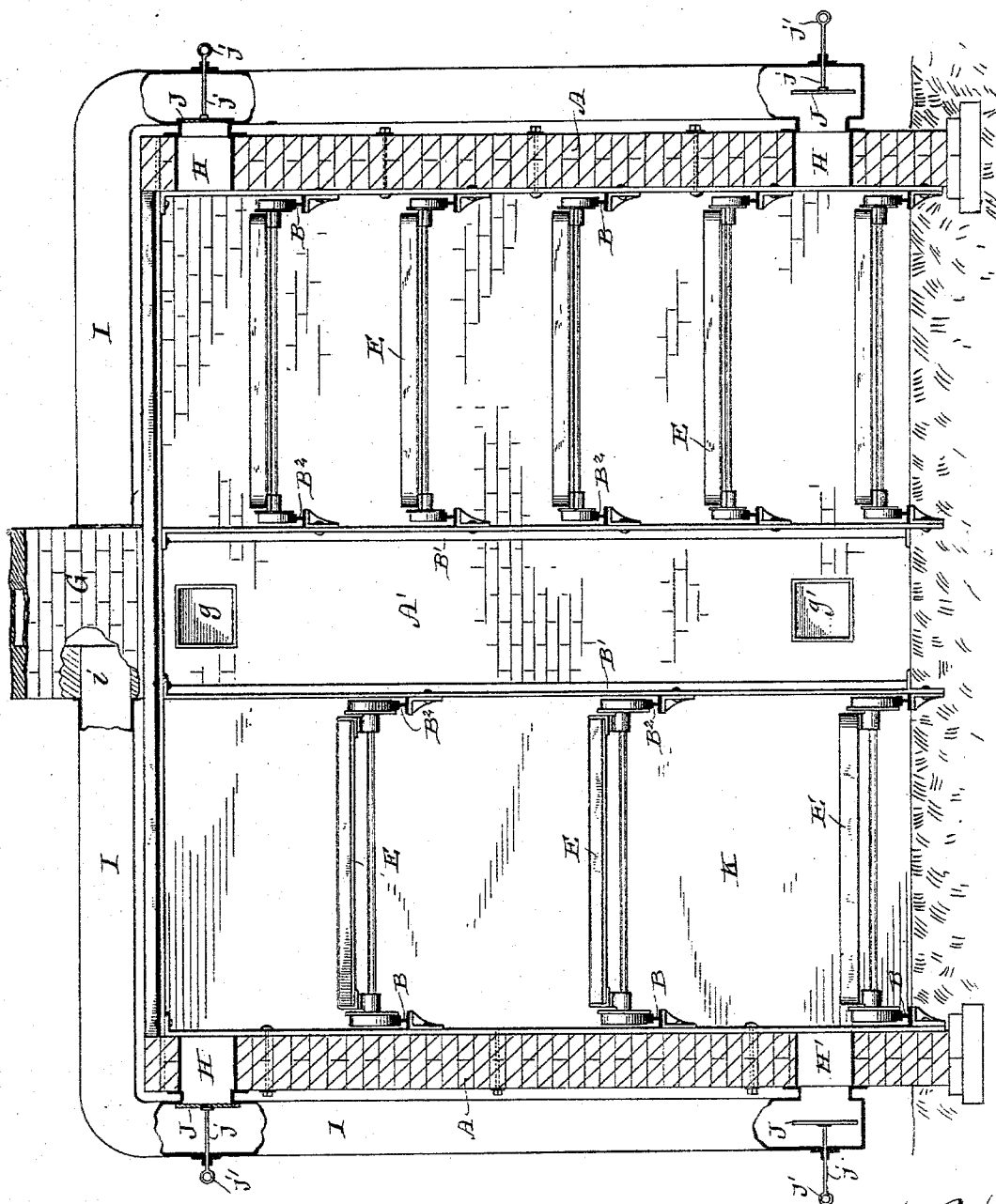
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Fig. 6.

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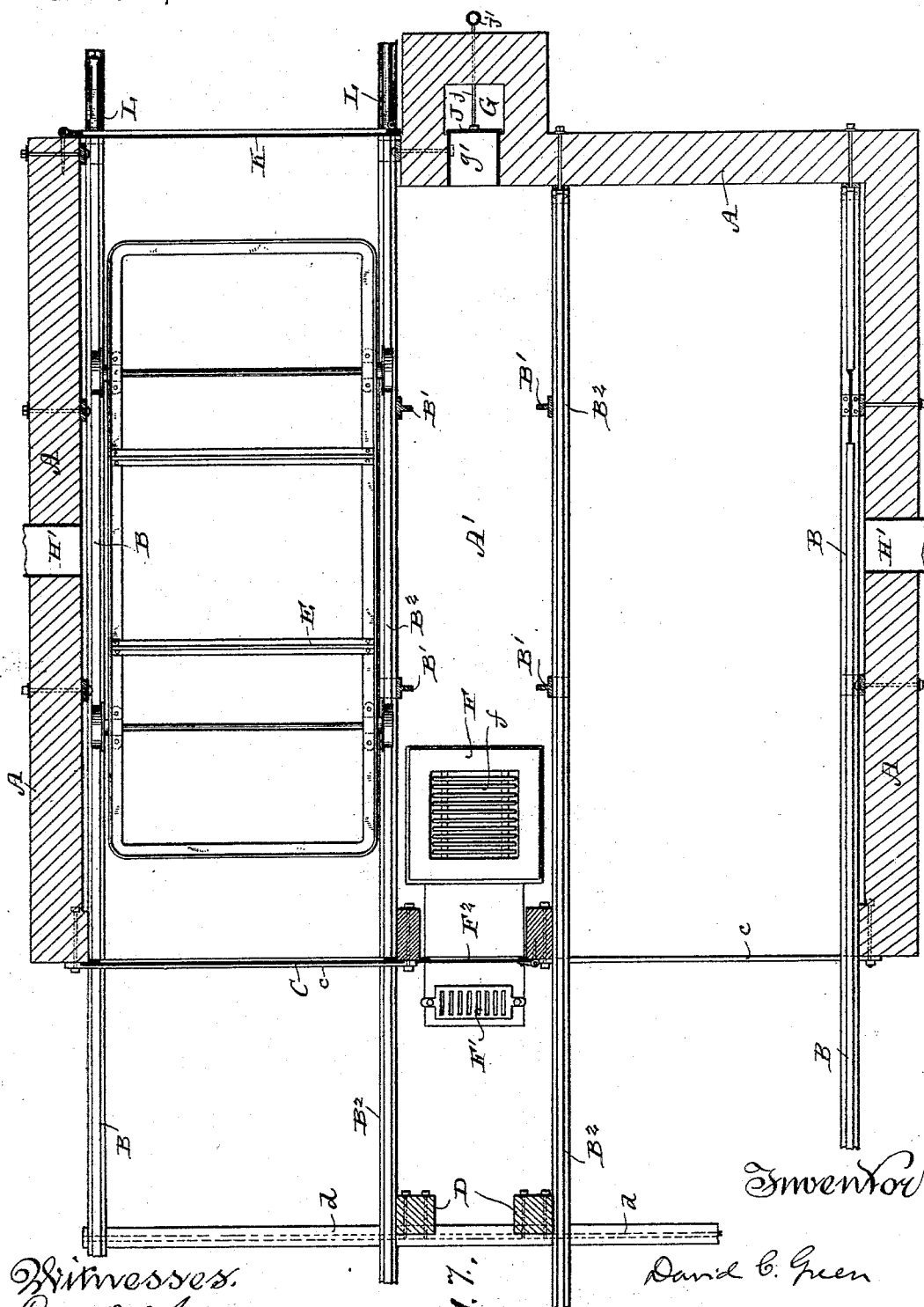
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D. C. GREEN.
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Fig. 7.

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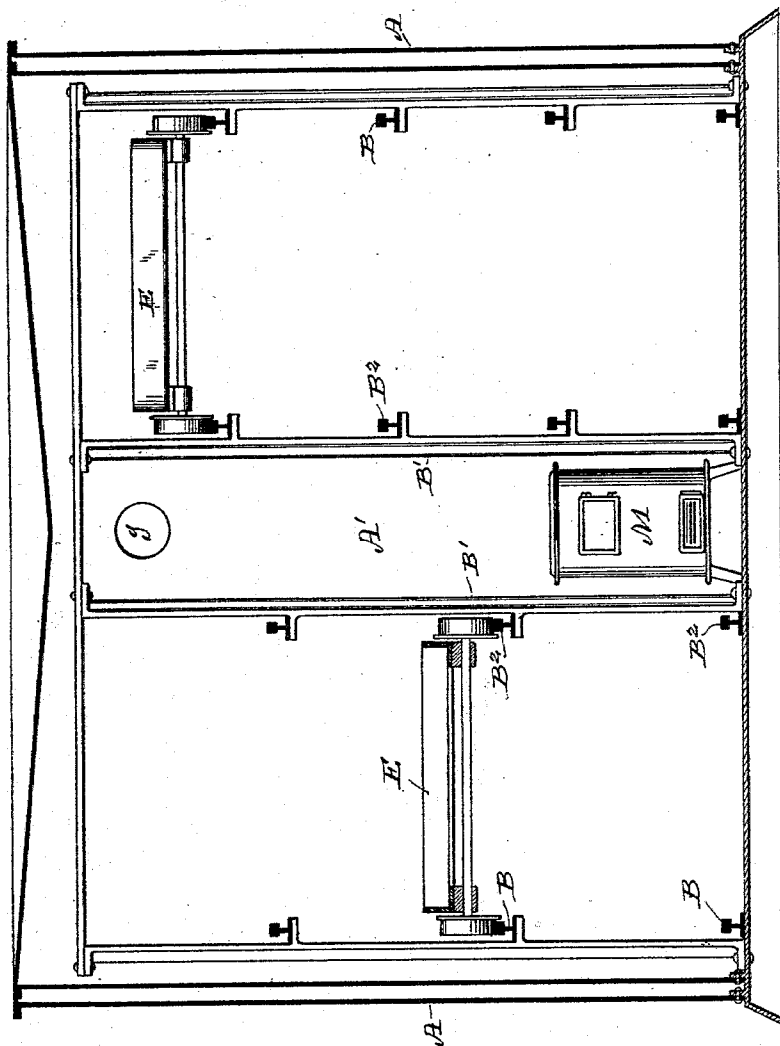
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Patented Feb. 13, 1894.



Witnesses,
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C. H. Kerr.

Fig. 8.

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UNITED STATES PATENT OFFICE.

DAVID C. GREEN, OF MILWAUKEE, WISCONSIN.

OVEN.

SPECIFICATION forming part of Letters Patent No. 514,456, dated February 13, 1894.

Application filed May 12, 1893. Serial No. 473,931. (No model.)

To all whom it may concern:

Be it known that I, DAVID C. GREEN, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Ovens or Furnaces; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to new and useful improvements in the construction of ovens or furnaces and relates more particularly to that class of ovens or furnaces designed for baking cores.

In the accompanying drawings illustrating my invention:—Figure 1 is a perspective view of an oven or furnace constructed according to my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a rear elevation of the same. Fig. 4 is a vertical longitudinal sectional view of the same taken on line 4—4 of Fig. 3. Fig. 5 is a similar view taken on line 5—5 of Fig. 3. Fig. 6 is a vertical cross sectional view taken on line 6—6 of Fig. 5. Fig. 7 is a horizontal sectional view taken on line 7—7 of Fig. 5. Fig. 8 is a vertical transverse sectional view illustrating a somewhat different form of construction.

Referring by letter to said drawings, A A represent the side walls of the structure, upon the inner surfaces of which are secured suitable track rails B B, extending from front to rear of the oven and conveniently arranged at different elevations so as to form a series of tracks one above another.

As shown in the drawings, I find it convenient to construct the oven of sufficient width to permit two series of such tracks to be located therein with an open space A' between them, and in this construction, suitable standards B' B' are erected along the sides of the central space or passage A', and to these standards, suitable rails B² B² are secured.

As shown more particularly in Figs. 1, 2 and 4, I provide doors C C in the front wall of the oven, which are hinged to transverse strips c c and arranged to close the spaces between the tracks.

Outside of the front wall of the oven, I provide suitable standards D D, to which cross-

pieces d d are secured, and the track rails B B and B² B² are prolonged in Fig. 1 and are arranged to rest upon said transverse strips d d. I provide suitable trucks or carriages E E arranged to run upon said tracks and adapted to carry the articles to be baked, these carriages or trucks being arranged to pass into or out of the oven through the doors C C. It follows from this construction that one or more of the trucks or carriages may be loaded with cores or other articles to be baked and run into the oven, and by simply opening the proper doors other loaded trucks may be introduced from time to time, as desired, or any desired truck removed, without the necessity of disturbing any of the other trucks or the articles upon them, and without the necessity of the attendant entering the oven.

I find it convenient to locate the furnace proper, or combustion chamber in the space A' between the two tiers of tracks, and to this end I arrange a suitable fire pot F provided with the usual grate f and communicating with the outside air by a suitable inlet flue f' controlled by a regulator F', and also provide a door F² in the front wall of the structure by which the attendant may obtain access to the fire pot to attend to the fire.

At the back of the oven, I provide a suitable uptake flue or chimney G, which has draft openings g and g' leading respectively from the upper and the lower portions of the central space or passage A'. Similar openings H H and H' H' are provided in the upper and the lower portions respectively of the side walls A A, and are arranged to communicate with suitable external, vertically disposed pipes or conduits I I, which lead to and communicate with the uptake flue or chimney G as shown at i.

Suitable dampers or covers J J are provided for controlling the apertures g g' and H H', one of these dampers being arranged opposite to each of said apertures and secured to the inner end of a sliding rod j which projects through the flue to the outside of the structure, and is provided with a suitable handle j'. By this construction, the attendant may close any desired one or more of said aper-

tures and thus cause the draft to pass only through such of said apertures as are left open. In this manner, the currents of heated air may be directed to one side of the oven or may be evenly distributed throughout the oven, so as to cause the said currents of heated air to come into contact with the articles upon any desired one or more of the trucks.

As a further and separate improvement, I provide a suitable door K at the rear of the oven, and arrange a track L to extend through said door to the rear of the furnace.

As shown in Figs. 1 and 2 of the drawings, the doors C C in the front wall of the oven, are made of different sizes, and the spaces between the tracks for the carriages or trucks vary correspondingly, so as to enable cores of various shapes and sizes to be placed upon the said trucks, and introduced into the oven, while by means of the larger door K, at the rear end of the oven, cores may be run in upon a truck mounted upon the track L, which could not be passed through any of the smaller doors in the front wall of the structure. By this arrangement cores of any desired height, up to the full height of the oven, may be introduced through the large door K, any one or more of the carriages or trucks which would interfere with the introduction of the large cores, being run out upon the tracks in front of the oven.

In the first seven figures of the drawings, I have shown the walls of the ovens as constructed of mason-work, and the oven arranged as a permanent structure, while in Fig. 8, I have shown the oven walls as constructed from sheet metal, and the device arranged to be transported from place to place without destroying the walls. In this latter form also, is shown a heating stove M located within the oven instead of the fire pot F, shown in the other form of construction.

In the construction of core ovens heretofore made which admit of a continuous baking operation, no provision has been made for baking cores above a certain specified limit of size, and such structures are designed chiefly for use in baking small cores, while by my improvement, cores of any desired size from the very smallest, up to the extreme limit of the length and height of the oven may be baked at one and the same time. With the ordinary construction of such furnaces or ovens it is impracticable to bake and remove the smaller cores while large sized cores are being baked, from the fact that the oven must be sufficiently cooled for the attendant to enter before any of the cores can be removed, and it has been common to prepare as many cores as the oven will accommodate and to place them all in the oven at one time, and then to fire up, when the oven is left closed until all the cores have been sufficiently baked. The ovens have usually been filled during the daytime and the fire started in the evening

and allowed to burn all night and then allowed to die out and the oven permitted to cool in the morning, when the cores are removed. With my improved construction however, the operation of baking the cores may be carried on continuously, inasmuch as by simply opening the proper door, a truck loaded with fresh cores, may be run into the oven without disturbing those already in process of baking, or a truck loaded with baked cores may be removed and the truck refilled with fresh cores. In this manner, small cores which take a comparatively short time to bake may be rapidly baked and removed, while the operation of baking large cores is continuously progressing. By my improvement therefore, I am enabled to perform a much greater amount of work than is possible with core ovens of the ordinary construction from the fact that, with my improved oven, there is no loss of time due to letting the oven cool off in order to remove the baked cores and refill it with unbaked cores. By my improvement therefore, I am also enabled to effect a great saving in fuel, in proportion to the amount of work done from the fact that the oven being kept continuously heated, less fuel is required to maintain the desired temperature than if the oven were alternately heated and then permitted to cool.

A further advantage gained by my improved construction is that by reason of the continuous operation of the oven, more work may be done in an oven of a given size than would be possible in an oven of the ordinary form, and by reason of the extreme compactness of the structure much less fuel is required to heat it than would be necessary to heat one of the ordinary form having an equal capacity.

A still further advantage gained by my construction is, that by the arrangement of the tracks for the reception of the carriages or trucks, one above another, I am enabled to utilize all of the available space within the oven for the baking of cores.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An oven comprising a suitable chamber, tracks arranged in tiers adjacent to opposite sides of said chamber and extending through openings in the front wall of the chamber, suitable means for heating said chamber, an uptake flue, independent draft apertures in the side walls communicating with said flue and suitable means for closing any desired one or more of said apertures, substantially as set forth.

2. An oven comprising a suitable chamber, tracks arranged in tiers adjacent to opposite sides of said chamber and extending through openings in the front wall of the chamber, a heater located within the chamber between said tiers of tracks, suitable means for heat-

ing said chamber, an uptake flue, independent draft apertures in the side walls communicating with said flue and suitable means for closing any desired one or more of said
5 apertures, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee,

in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

DAVID C. GREEN.

Witnesses:

JOHN E. WILES,
N. E. OLIPHANT.