

# PLANT & BALL.

Range.

No. 14,591.

Patented April 8, 1856.

Fig. 1,

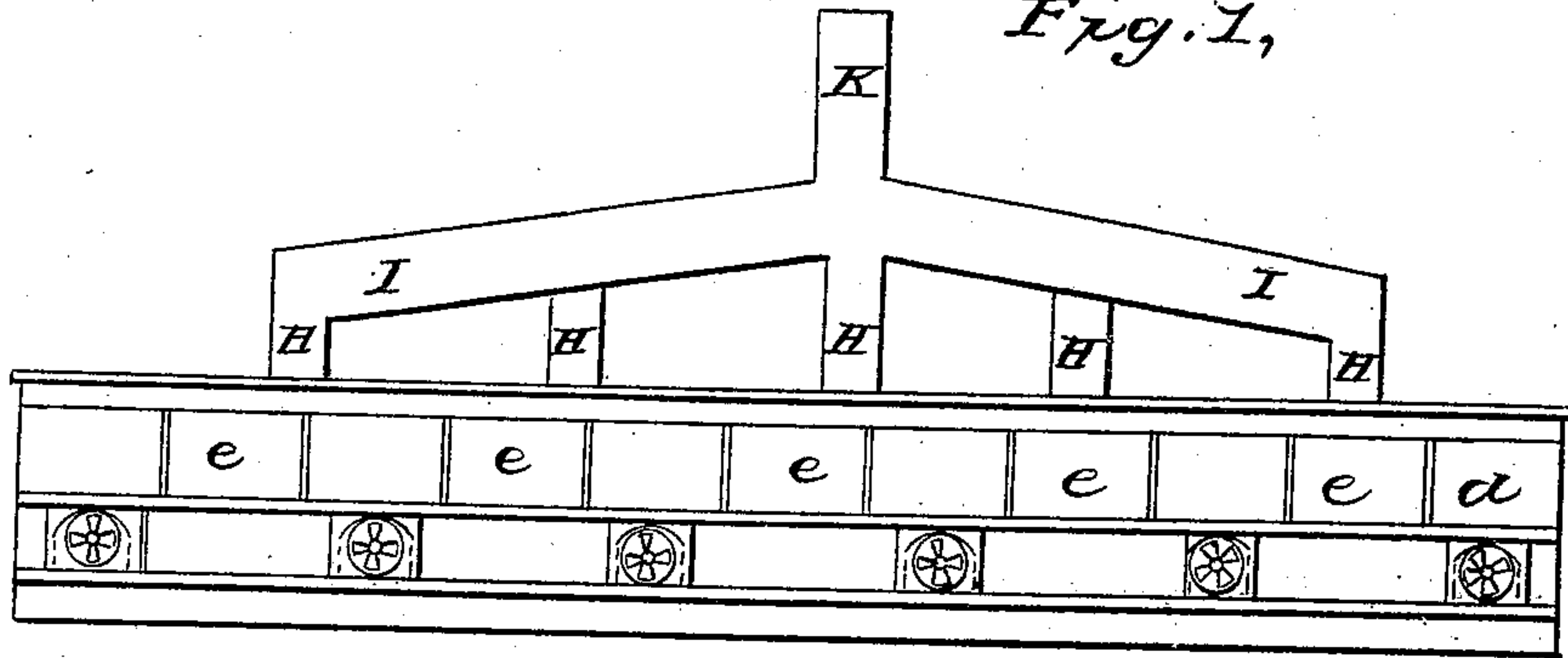


Fig. 2,

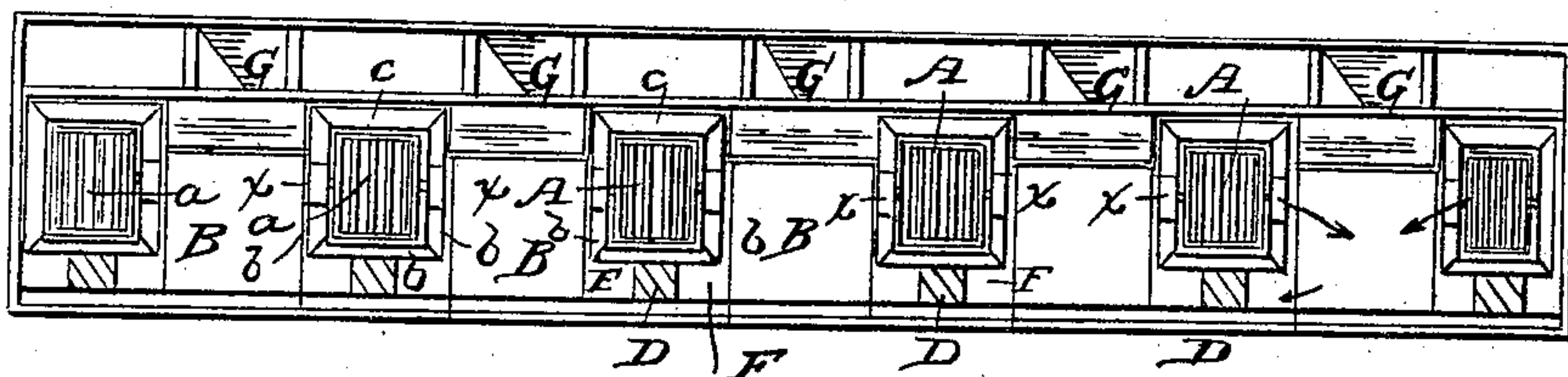


Fig. 3,

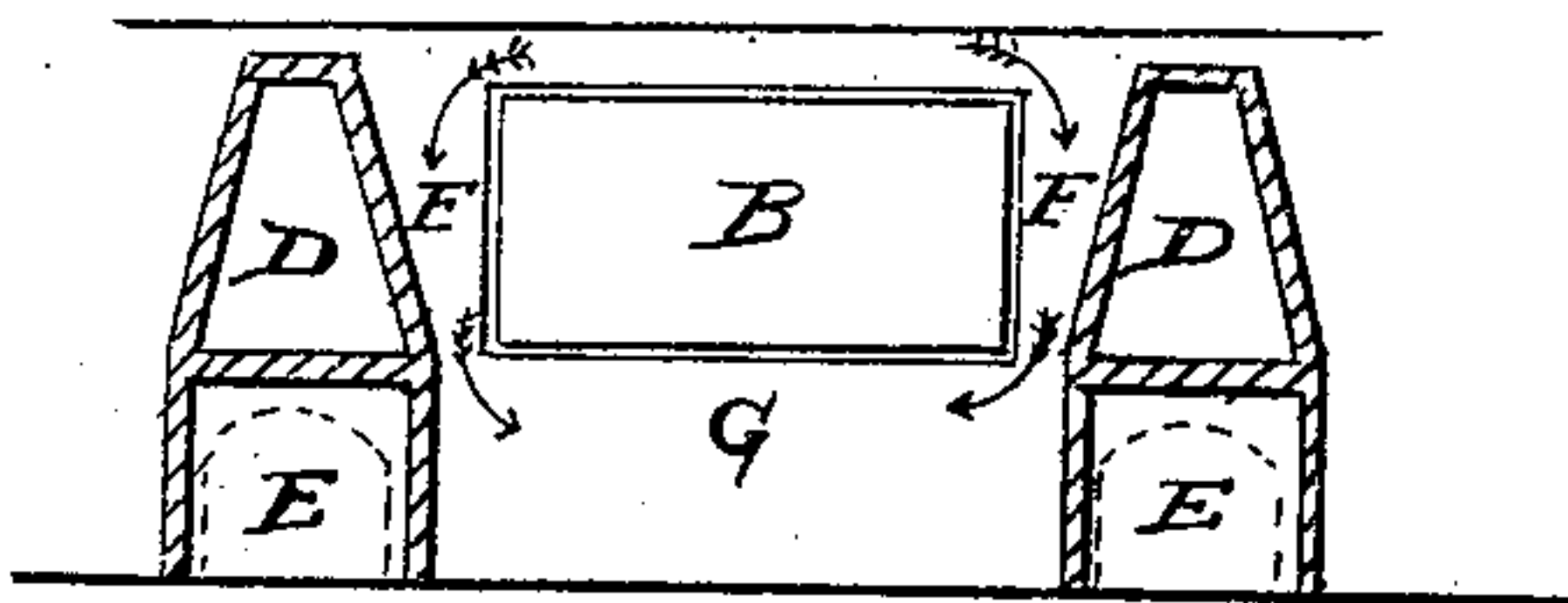


Fig. 5,

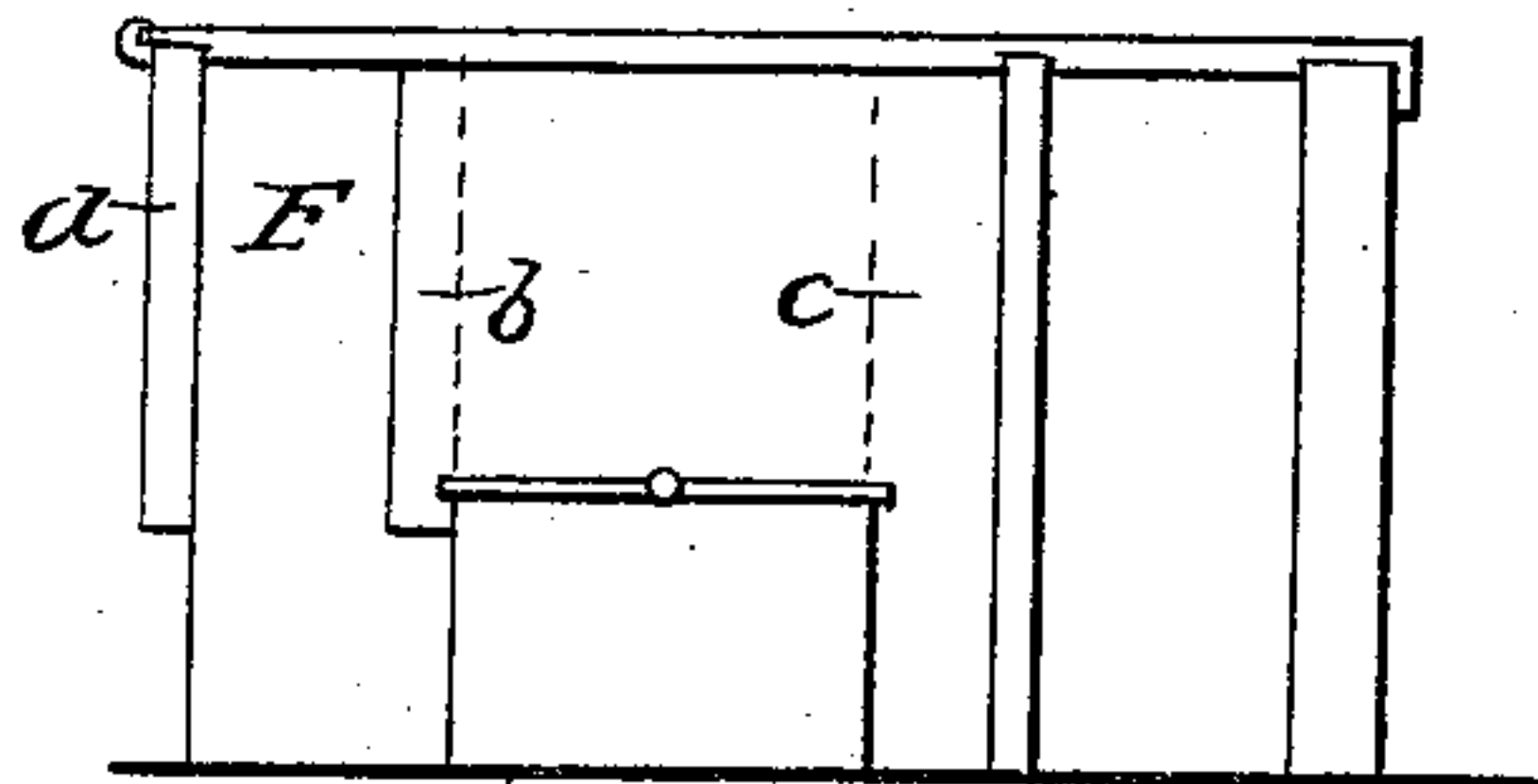
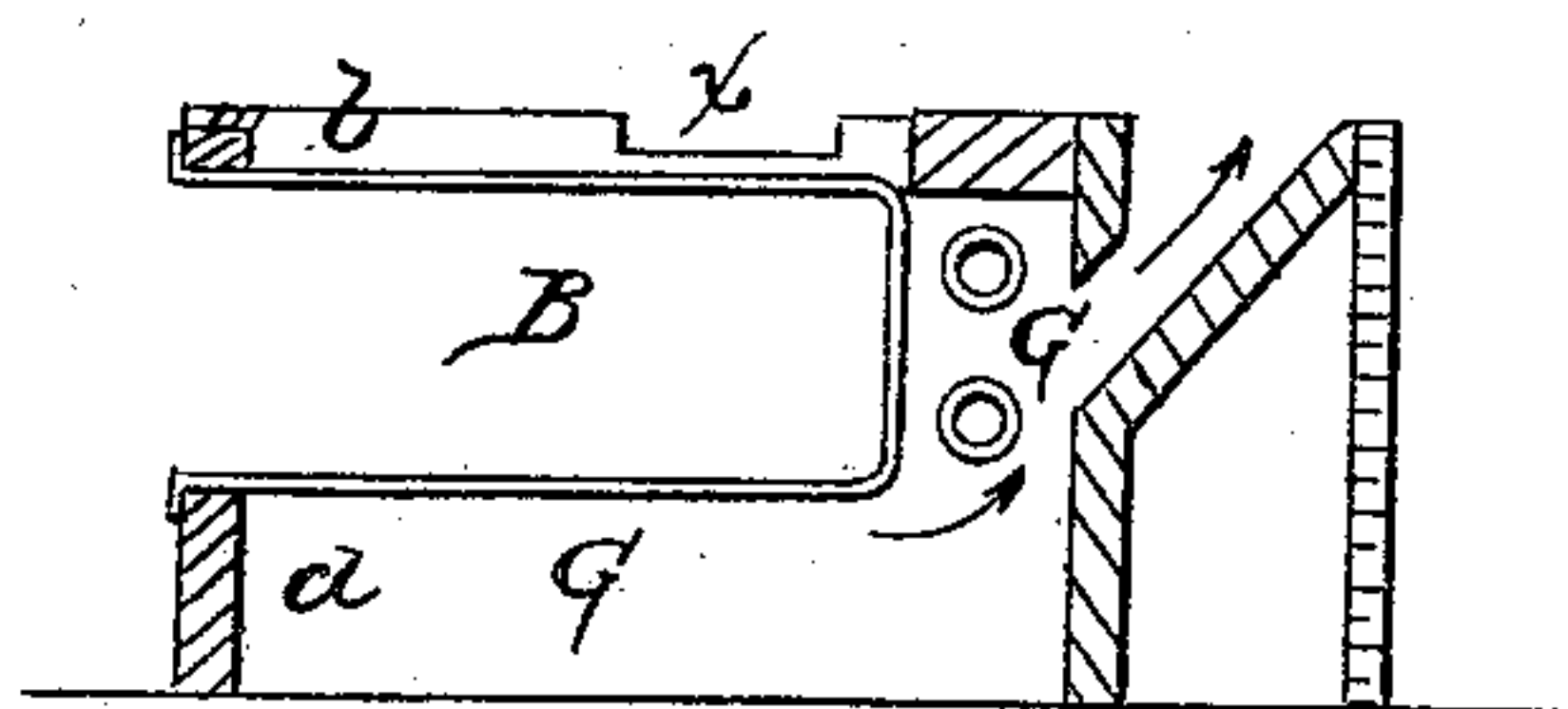


Fig. 4,



# UNITED STATES PATENT OFFICE.

JNO. PLANT AND CHS. G. BALL, OF WASHINGTON, DISTRICT OF COLUMBIA.

## COOKING-RANGE.

Specification of Letters Patent No. 14,591, dated April 8, 1856.

*To all whom it may concern:*

Be it known that we, JOHN PLANT and CHAS. G. BALL, of the city of Washington and District of Columbia, have invented certain new and useful Improvements in Cooking-Ranges; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a part of this specification.

The nature of our improvement consists in arranging the several fire chambers, so that by bridging the ash-pit, we are enabled to place the descending flues in such a position as to cause the heat and products of combustion to pass under the front of ovens placed between each pair of fire chambers; while at the same time we obtain the full benefit of the fire on the sides of the ovens by the contact of the sides of the fire chambers therewith, and use the heat in its passage to the smoke stack flues for heating the rear of the oven by appropriate flues, thereby obtaining the diffusion of heat more equally over the whole range and area of each oven than heretofore has been obtained.

We also combine with this improvement of the flues, that of the ascending smoke stack flues by having so arranged them by inclination, that the draft shall be equalized when all the fire chambers are in use and open; or when a portion of those chambers are in use.

The major part of the range is of brick work laid in suitable cement; the front and top plate being of iron as well as the ovens and fire grates. To make the range complete we use water backs to our fire chambers so as to insure an abundance of hot water.

In the accompanying drawings A A A A are the fire chambers, the sides and front *b b b*, formed of clay tile; the remaining side *c* a hollow iron water back; a tilting grate or set of bars (*a*) completes the fire chamber.

B B B represent ovens formed either of sheet or cast iron placed between each pair of fire chambers, the front of the oven extending to the front plate (*d*) of the range; it is most simply closed by sliding doors (*e, e, e*).

D D D are bridges formed of brick or

metal, placed over the ash pit E, and with the sides of the ovens forming the diving flues F, F, F F.

G G G are flues from under the ovens, leading to the smoke stack flues H H.

At the rear of the sides (*b, b*) Figs. 2 and 4 of the fire chamber a portion of the top edge is cut out, thus forming an exit flue (*x*) from the fire chamber; I, I are connecting leads or flues uniting the flues H H, conducting the smoke (if any) to the center flue K which may be connected with the chimney.

The ash pit doors are furnished with suitable registers for the admission of air under the grates.

To understand the operation of this improved range or ovens, it will be noticed, that while the whole heat from the fire chamber on the right or left of the range is passed by its diving flue, that only the one half of the heat from the adjoining fire chamber, say No. 2, passes by the diving flue on the right side of the bridge, while the other portion of heat from No. 2 passes to the next oven by its diving flue, and so in succession to each oven, all receiving a portion of the heat from two fires. By thus dividing the heat, it is more regularly diffused throughout the whole range of ovens and a degree of heat obtained by passing it under the ovens, by which their floors are heated and thus the baking property is secured in them.

In starting the fire in this range, the covers of the fire chambers may be placed on the openings of the top plate, but after the draft is established the removal of the cover admits the excess of atmospheric air, which commingling with the products of combustion insures the more perfect combustion thereof, and as this takes place in the diving flues and under the ovens, a material saving of fuel results, while all escape of gases is prevented. As the top plate over the ovens is kept at a sufficient heat for the purposes of cooking; by placing stew pans and boilers thereon a vast increase of cooking space is secured without interfering with that over the fire chambers.

Figure 1, is a view of the range with the smoke flues or pipes in place; Fig. 2 a top view with the top plate removed; Fig. 3 a longitudinal section (enlarged); Fig. 4 a



transverse section under the ovens; Fig. 5  
a transverse section through the fire cham-  
ber.

We do not claim the alternate arrange-  
5 ment of a series of furnaces and ovens;  
but

What we do claim and desire to secure  
by Letters Patent is—

10 The arrangement of the fire chambers A,  
ovens B and front plate, *d*, in such relation  
to each other, as to admit the products of  
combustion to pass through the flues X,

over the top plate of the oven, thence down  
through the flue F, in front of the fire  
chamber to the flue G, beneath the oven, 15  
substantially in the manner described for  
the purposes specified.

In testimony whereof we have signed our  
names before two subscribing witnesses.

JOHN PLANT.

CHAS. G. BALL.

Witnesses:

WM. S. CLARKE,

JOHN S. HOLLINGSHEAD.