

(No Model.)

2 Sheets—Sheet 1.

T. R. KENNEDY.
STOVE OR RANGE.

No. 597,320.

Patented Jan. 11, 1898.

Fig. 1.

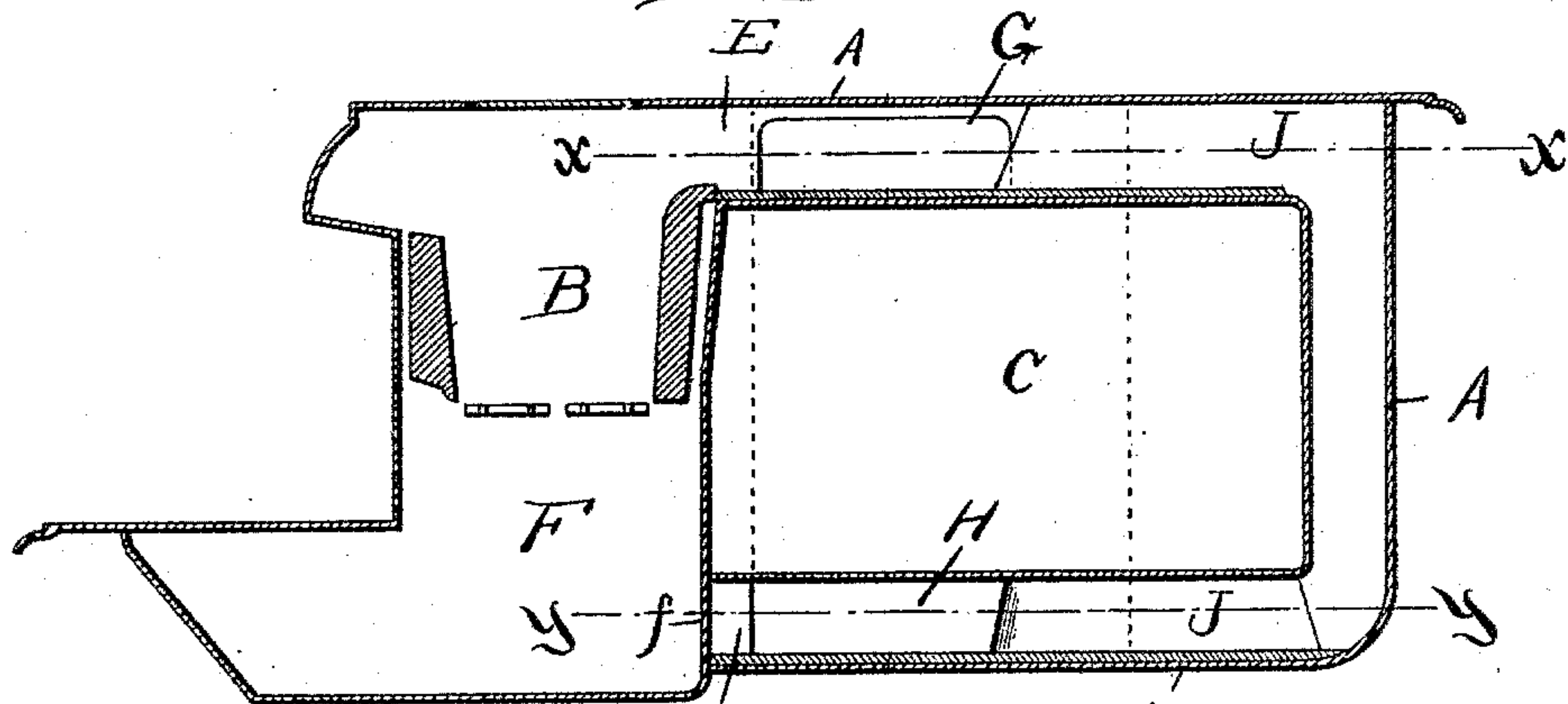


Fig. 2.

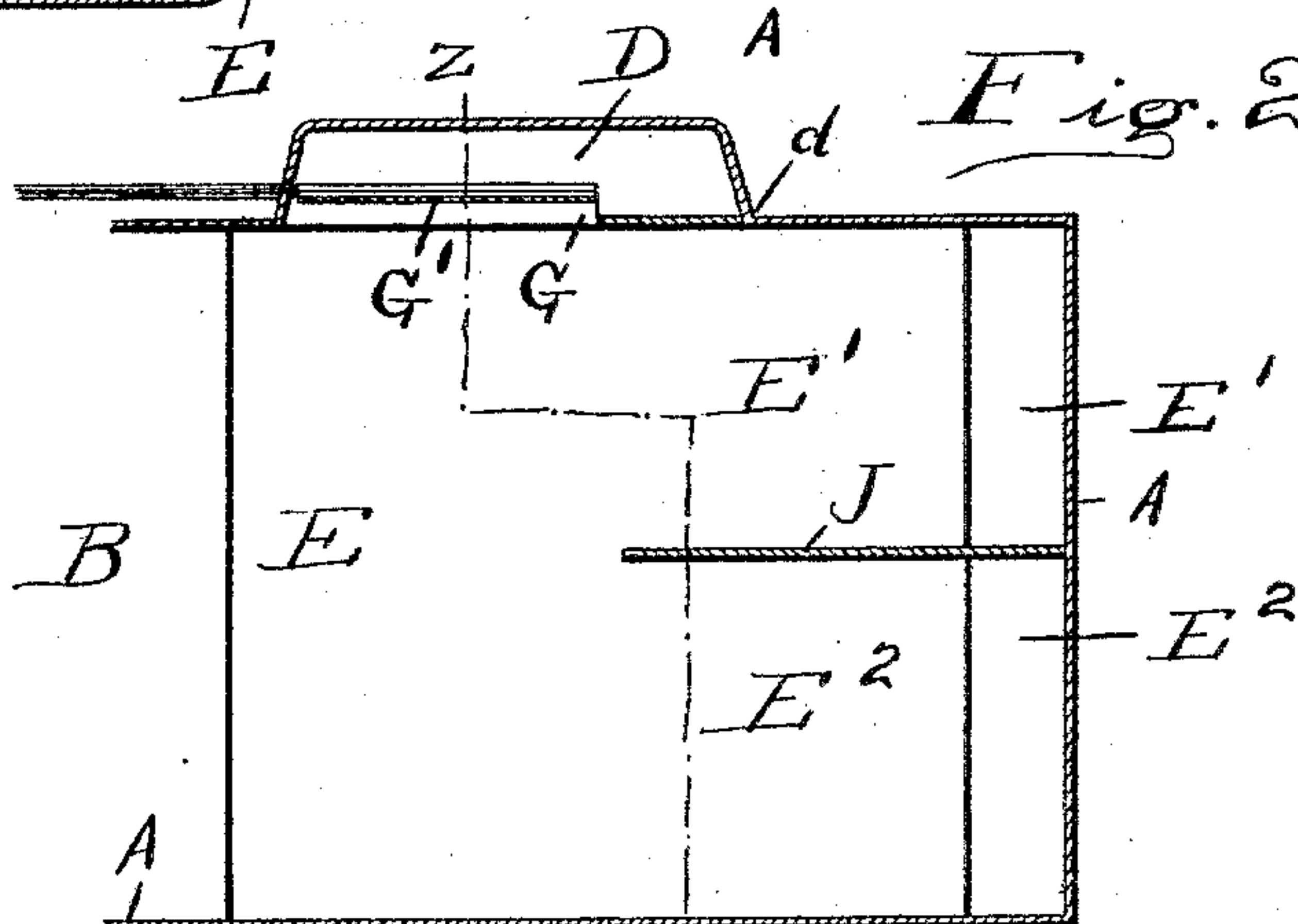


Fig. 3.

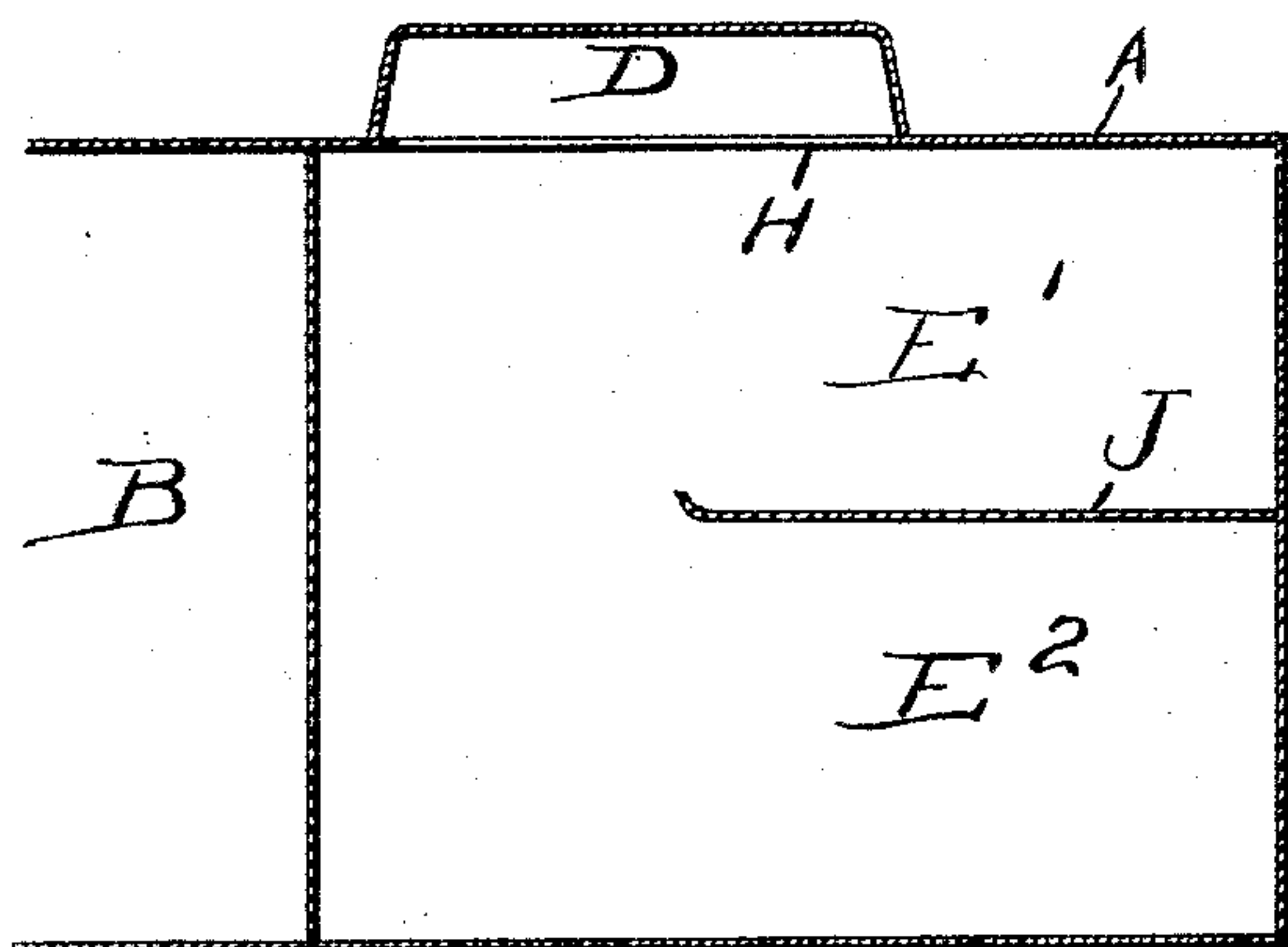
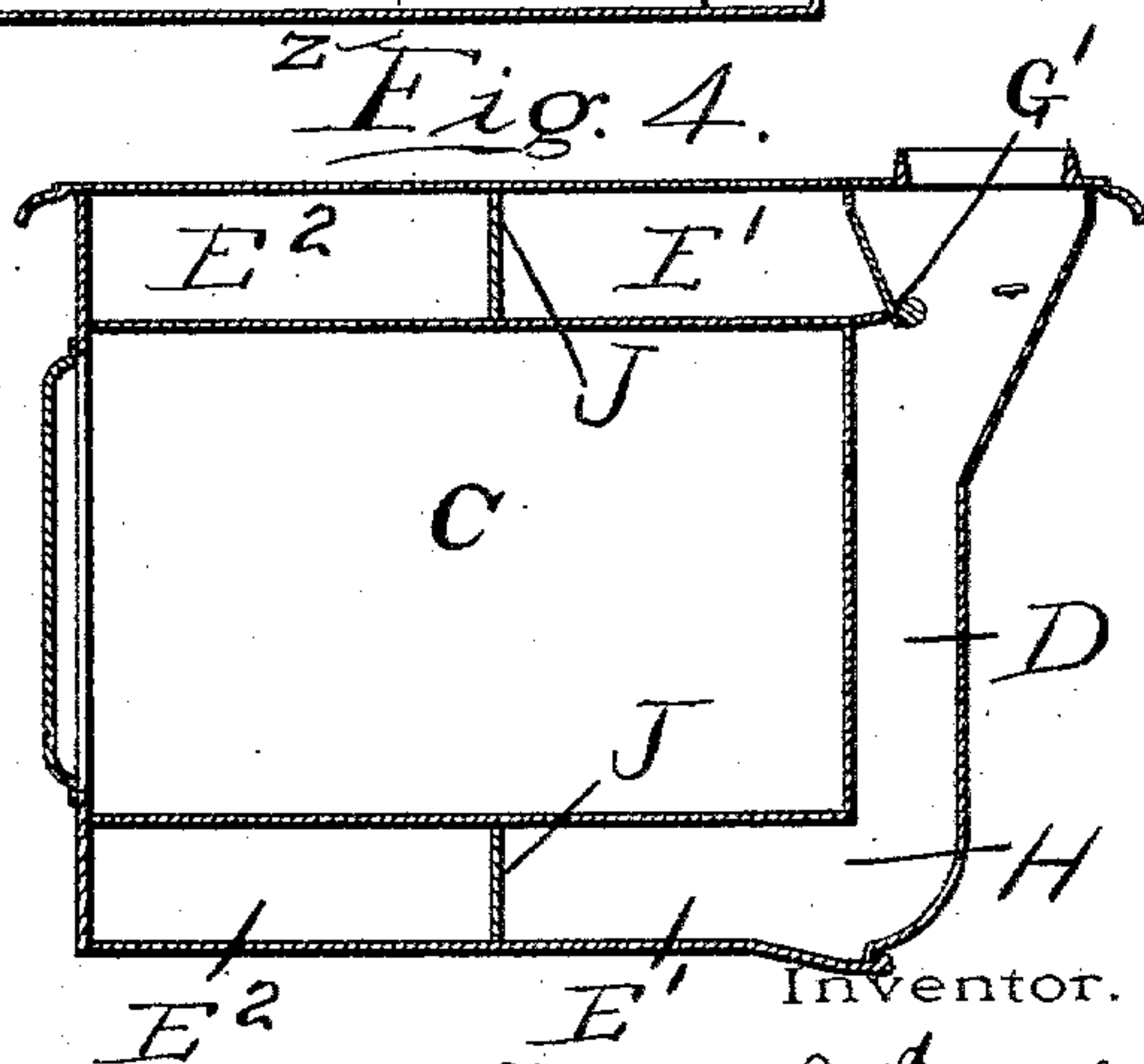


Fig. 4.



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Fig. 5.

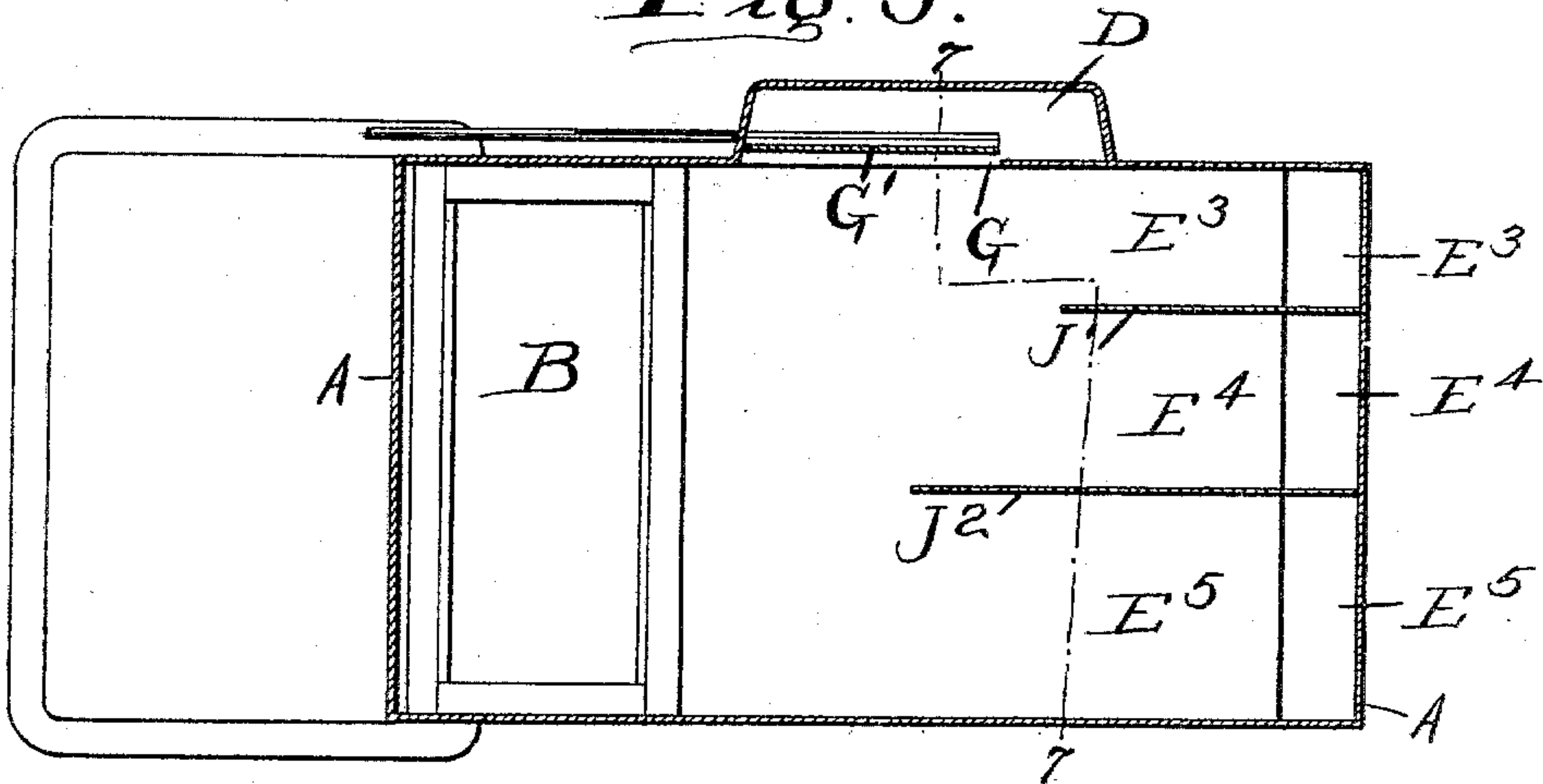


Fig. 6.

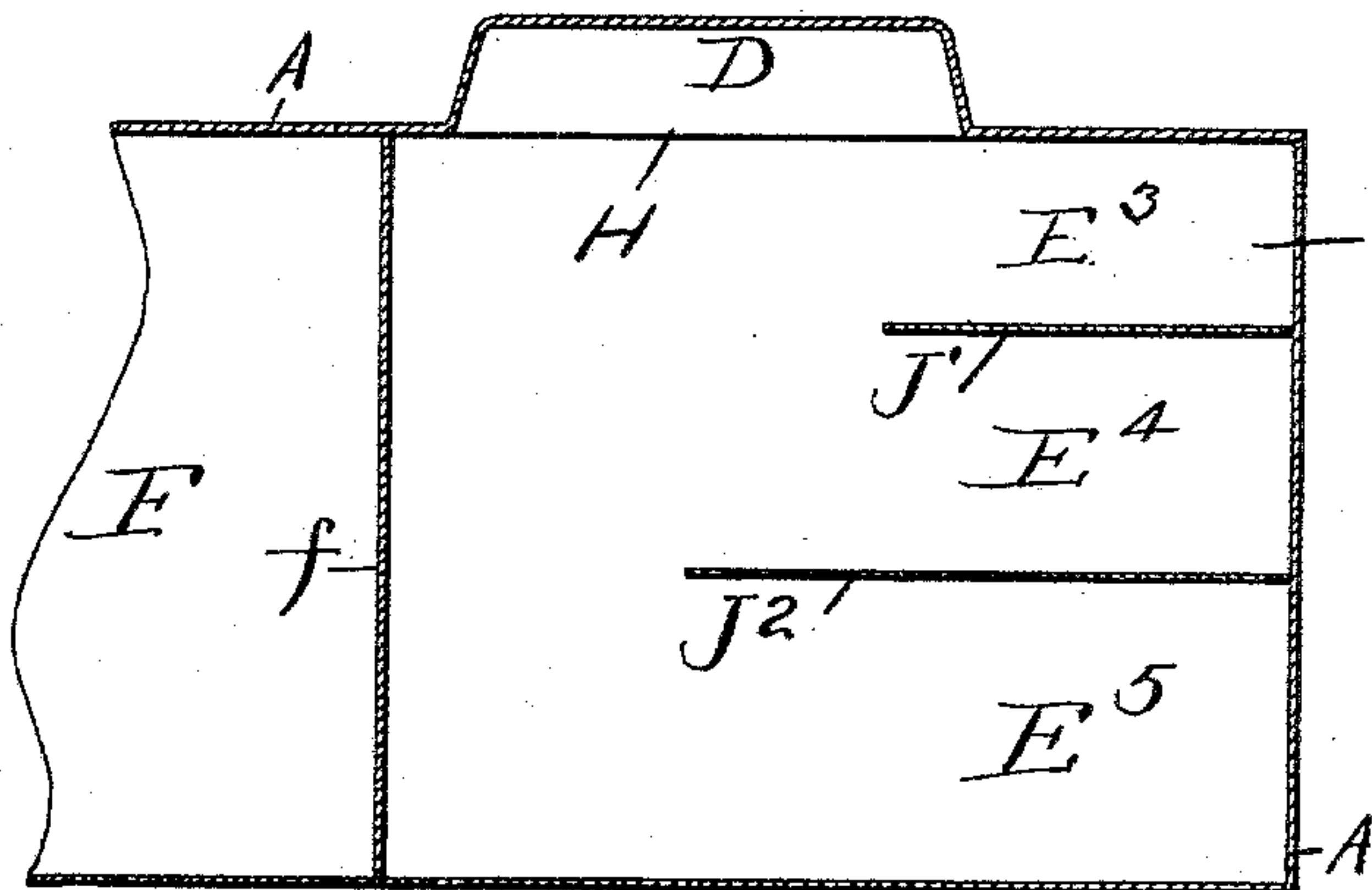
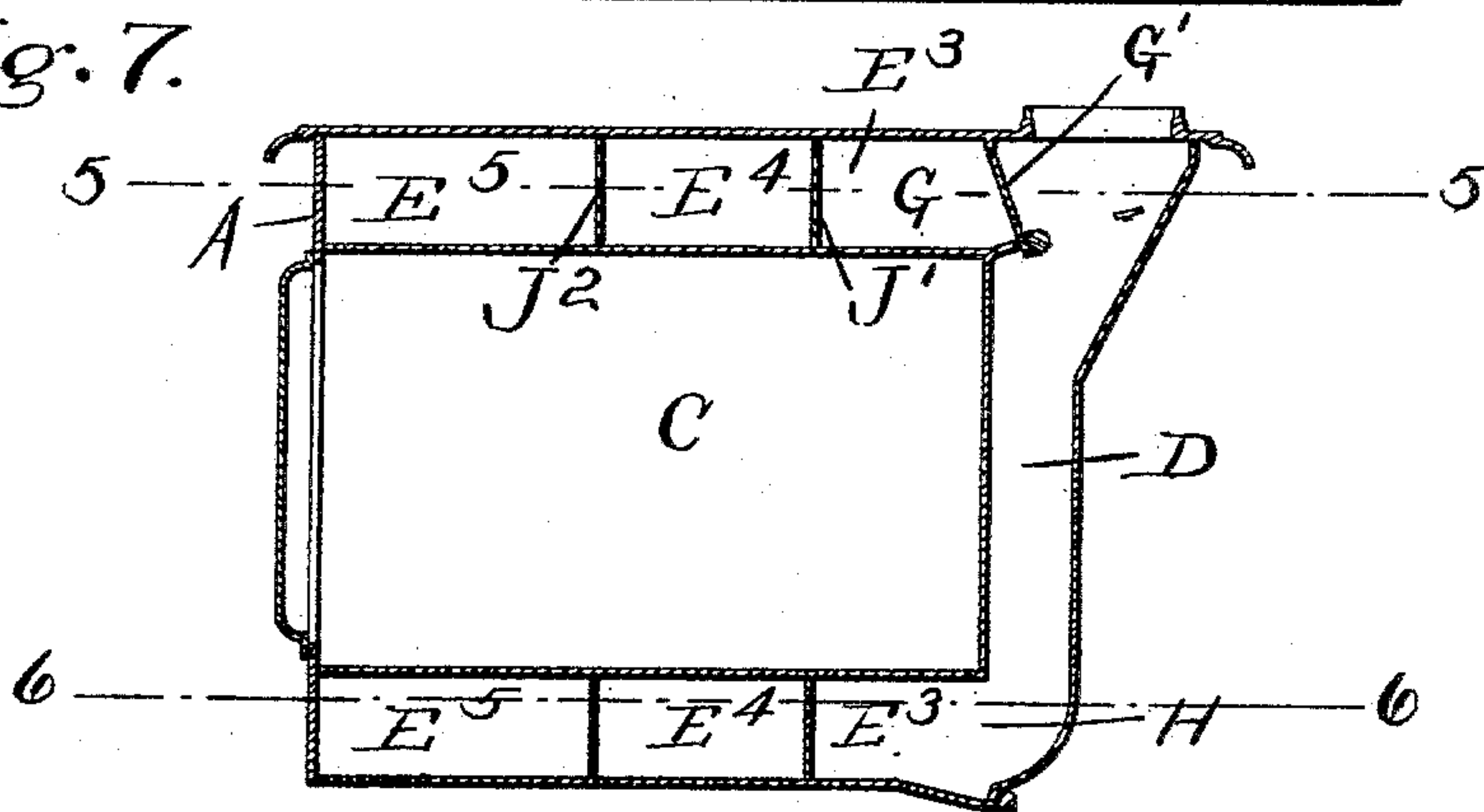


Fig. 7.



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UNITED STATES PATENT OFFICE.

THOMAS R. KENNEDY, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE
CO-OPERATIVE FOUNDRY COMPANY, OF SAME PLACE.

STOVE OR RANGE.

SPECIFICATION forming part of Letters Patent No. 597,320, dated January 11, 1898.

Application filed August 6, 1897. Serial No. 647,356. (No model.)

To all whom it may concern:

Be it known that I, THOMAS R. KENNEDY, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Stoves or Ranges; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

My present invention relates to stoves or ranges, and has for its objects to improve the construction and operation of the flues and passages for smoke and products around the oven, whereby the latter will be evenly heated at all parts, the draft of the stove will be improved, and the formation of counter-currents, eddies, or cold corners and the collecting of soot, dust, &c., in the stove will be prevented.

I find in practice that what are known as "sheet-flue" stoves—that is, those in which the products have comparatively short and approximately straight and unobstructed passages from the fire-pot to the smoke-pipe—are preferable for cooking-stoves over what are known as "return-flue" stoves, for the reason that in the latter the long course of the products around the oven creates so much friction of the flame and products in the flues that an exceptionally strong and steady draft is required to draw the flame and products twice around the oven before their entry in the smoke-pipe.

Although numerous attempts have been made to accomplish the even heating of an oven by means of a broad sheet-flue, nearly, if not all, of these attempts have involved the use of deflectors of various sizes extending into the flue at an angle to the course of the flame and heated products and has resulted in checking the draft and in the formation of cold corners in the oven and counter-currents or eddies in the flue, which latter cause the accumulation of soot and ashes, thereby materially interfering with the proper operation of the stove.

In carrying out my invention I divide the sheet-flue into a plurality of comparatively straight and unobstructed passages by one

or more longitudinally-extending partitions, said passages having their areas so proportioned that the quantity of the flame and products passing through them in a given time will be approximately equal, thereby insuring the even heating of the oven around which the passages extend and without choking or causing any counter-currents or a diminution of the draft. As it is necessary that the entrances to the passages in the sheet-flue be arranged in proximity to the fire-pot, which is located at one end of the stove, while the smoke-flue is at the back thereof, the ends of the partition or partitions that form the passages must be so positioned relative to the flues and fire-pot that the products may be permitted direct access to said flue when a direct draft is desired, as in starting the fire, and I therefore locate the ends of the said partition or partitions back of a line from the front corner of the fire-pot to the rear edge of the entrance to the smoke-flue, as will be described.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a stove constructed in accordance with my invention. Fig. 2 is a horizontal section on the line $x x$ of Fig. 1; Fig. 3, a horizontal sectional view on the line $y y$ of Fig. 1; Fig. 4, a vertical sectional view on the line $z z$ of Fig. 2; Fig. 5, a horizontal sectional view of a modification of my invention, taken on the line 5 5 of Fig. 7; Fig. 6, a horizontal section taken on the line 6 6 of Fig. 7; Fig. 7, a vertical sectional view on the line 7 7 of Fig. 5.

Similar reference-letters in the several figures indicate similar parts.

Referring particularly to the construction shown in Figs. 1 to 4, A indicates the casing or body of the stove or range; B, the fire-pot, located at one end thereof, and C the oven. D indicates the vertical smoke-flue, located at the back of the stove, having its inner wall formed by the back of the oven and preferably broad enough to cover a large portion of the latter, as much as two-thirds thereof, so as to heat this portion. The sheet-flue (indicated by E) extends from the fire-pot over the top of the oven, down one end thereof, and beneath it to the plate f , constituting the rear wall of the ash-pit F, as shown in Fig.

1. The front end of the sheet-flue, or that nearest the fire-pot, is in communication with the rear smoke-flue by a direct-draft aperture G, controlled by a pivoted damper G' and adapted to be opened for affording a direct draft, as when starting the fire, and to be closed when the oven is used for baking, and the lower end of the sheet-flue is open to the smoke-flue at H. J indicates a partition formed, if desired, of two or more separate plates extending through the sheet-flue parallel with the front and rear walls of the stove and dividing said flue into two passages E' E² of unequal width, the former, nearer the rear of the stove, being narrower than the latter, and by reason of the fact that the smoke-flue D is at the rear the passage E' from the fire-pot to the lower entrance of the flue D is the shorter, but the passage E² being the wider the relative capacities of both passages with a given draft in the smoke-flue will cause them to draw equally, so that the flames and products being divided at the top of the flue will pass from the fire-pot around the oven evenly distributed over the surface of the latter, heating all sides equally.

The upper end of the partition J is so far from the fire-pot that a straight line drawn from the front corner of the latter to the farther edge of the aperture G will not intersect it, thereby insuring an even draft from all parts of the fire and the equal combustion of the fuel. The lower end of said partition J is also so far from the plate *f* at the end of the sheet-flue that a line drawn from the forward end of the latter to the farther corner *d* of the flue D will not intersect it, although this end is preferably slightly nearer said plate *f* than the width of the passage E², thus narrowing the exit end of said passage and slightly choking it to cause the flame and products to cover the entire bottom of the oven and thoroughly heat all parts thereof.

Inasmuch as the dimensions of various stoves are different no definite rule can be given as to the size of the two flue-passages E' E²; but if substantially the proportions shown in the drawings are preserved the advantages of the invention will be obtained.

It will be noticed that the passages in the sheet-flue are unobstructed, but extend substantially straight and with parallel sides from end to end, thereby avoiding eddies and counter-currents, which would tend to decrease the draft and give opportunity for the deposit of soot, ashes, &c., and the division of the flue into the separate passages is accomplished at the forward end near the fire-pot, so that there is no opportunity for the choking of a flue to such an extent as to decrease the volume of flame and products and thereby interfere with the draft and the even discharge of all that enters the passage and at the same speed.

In Figs. 5, 6, and 7 I have shown a modification of my invention, in which the top, the bottom, and end portions of the flue are

divided into three passages E³, E⁴, and E⁵ by partitions J' and J², and in this arrangement also the lengths of the passages are so proportioned to their widths that there will be such a division of the products at the fire-pot that those passages having the greater draft will be smaller in cross-sectional area, which causes an even distribution of the flame and products and the even heating of all parts of the oven without diminution of the draft. The ends of the partitions in this arrangement also are so arranged that the direct draft from all parts of the fire-pot will be equal,

It is immaterial so far as my present invention is concerned whether or not the partition-strip serves any other function than that of a division-strip or partition.

I claim as my invention—

1. In a cooking-stove, the combination with the casing, the oven, the fire-pot at one end of the latter, and the vertical smoke-flue at the rear of the stove, of a broad sheet-flue divided into a plurality of passages unobstructed by laterally-extending projections and extending from near the fire-pot over, down one end of, and beneath the oven, openings from the sheet-flue above and below the oven into the smoke-flue, and a direct-draft damper at the upper opening of the smoke-flue for controlling communication with it, said passages having parallel walls and being of decreasing widths and increasing lengths from the rear to the front of the stove.

2. In a cooking-stove, the combination with the casing, the oven, the fire-pot at one end of the latter, and the vertical smoke-flue at the rear of the stove, of a broad sheet-flue divided into a plurality of passages unobstructed by laterally-extending projections and extending from near the fire-pot over, down one end of, and beneath the oven, openings from the sheet-flue above and below the oven into the smoke-flue and a direct-draft damper at the upper opening of the smoke-flue for controlling communication with it, said passages having parallel walls and being of decreasing widths and increasing lengths from the rear to the front of the stove and the entrance ends being so far removed from the fire-pot as not to interfere with the direct draft from all parts of the fire-pot.

3. In a cooking-stove, the combination with the casing, the oven, the fire-pot at one end of the latter, and the broad vertical smoke-flue at the rear of the stove, of a broad sheet-flue extending from the fire-pot over, down one end of, and beneath the oven, said flue being unobstructed by laterally-extending projections and opening into the smoke-flue above and below the oven, a direct-draft damper at the upper opening of the smoke-flue for controlling communication between it and the sheet-flue, and a dividing-partition arranged in the sheet-flue and parallel with the front and rear walls thereof, said partition being located nearer the rear than the front of the stove and dividing the flue longitudi-

nally into two flues of unequal widths, the forward end of said partition being so far removed from the fire-pot as not to be intersected by an imaginary straight line extending from the forward corner of the fire-pot to the farther side of the upper opening into the smoke-flue, whereby a free direct draft may be had from all parts of the fire-pot, and the currents in the flue around the oven will be equalized and the oven evenly heated.

4. In a cooking-stove, the combination with the casing, the oven, the fire-pot at one end of the latter, and the broad vertical smoke-flue at the rear of the oven, of the broad sheet-flue extending from the fire-pot over, down one end of, and beneath the oven, said flue being unobstructed by laterally-extending projections and opening into the smoke-flue above and below the oven, a direct-draft damper at the upper opening of the smoke-flue

for controlling communication between it and the sheet-flue and a dividing-partition arranged in the sheet-flue and parallel with the front and rear walls thereof, said partition being nearer the rear than the front of the stove and dividing the flue longitudinally into two passages, the upper end of the partition commencing at a point far enough removed from the fire-pot to permit a free direct draft from all parts of the latter, and the lower end terminating at a less distance from the end of the flue than the width of the front passage, whereby a free direct draft is had from all parts of the fire-pot and all parts of the oven are evenly heated without obstructing the draft through the sheet-flue.

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Witnesses:

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