

No. 612,608.

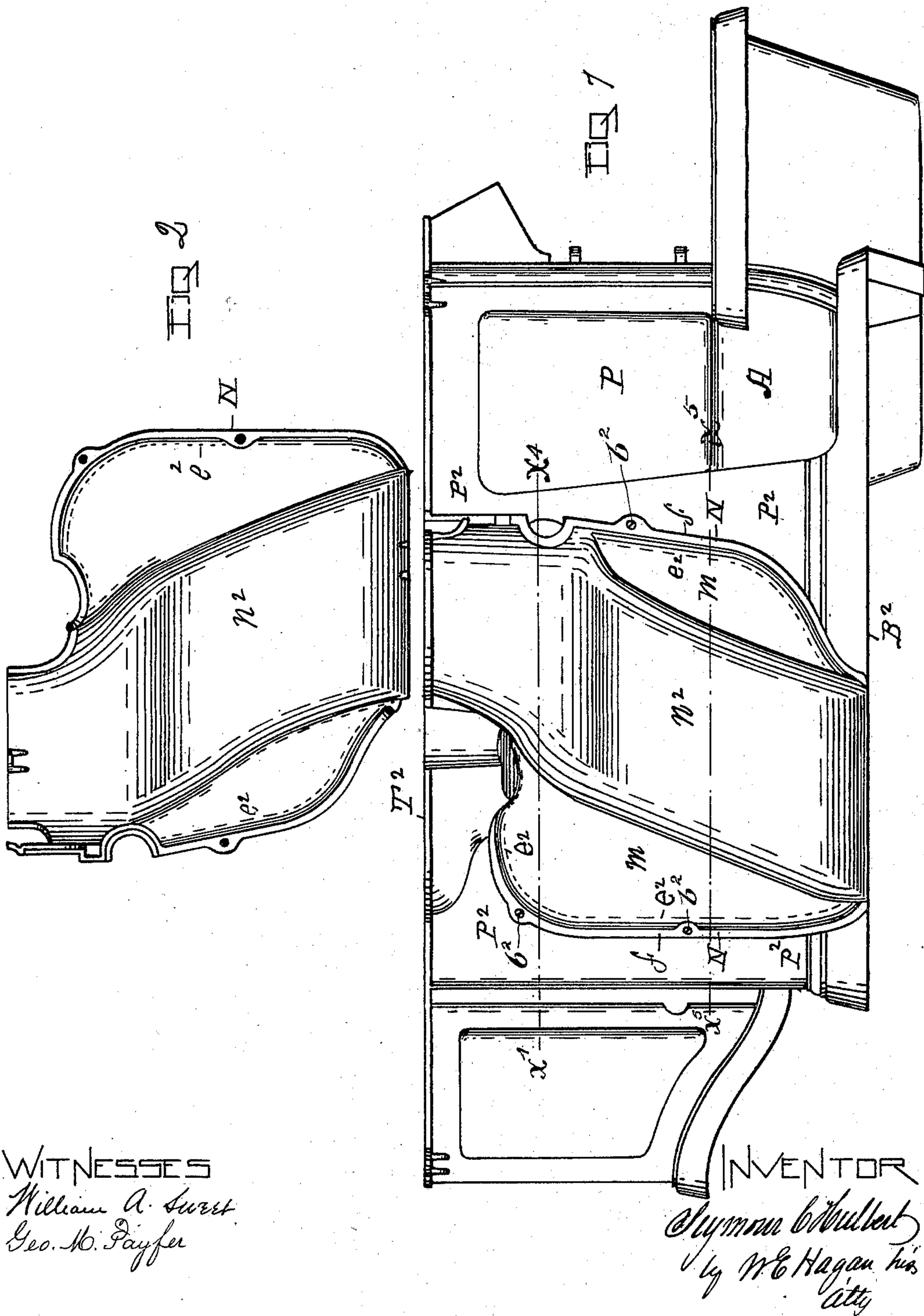
Patented Oct. 18, 1898.

S. C. HULBERT.
BACK FLUE FOR RANGE OVENS.

(Application filed Sept. 27, 1897.)

(No Model.)

5 Sheets—Sheet 1.



WITNESSES
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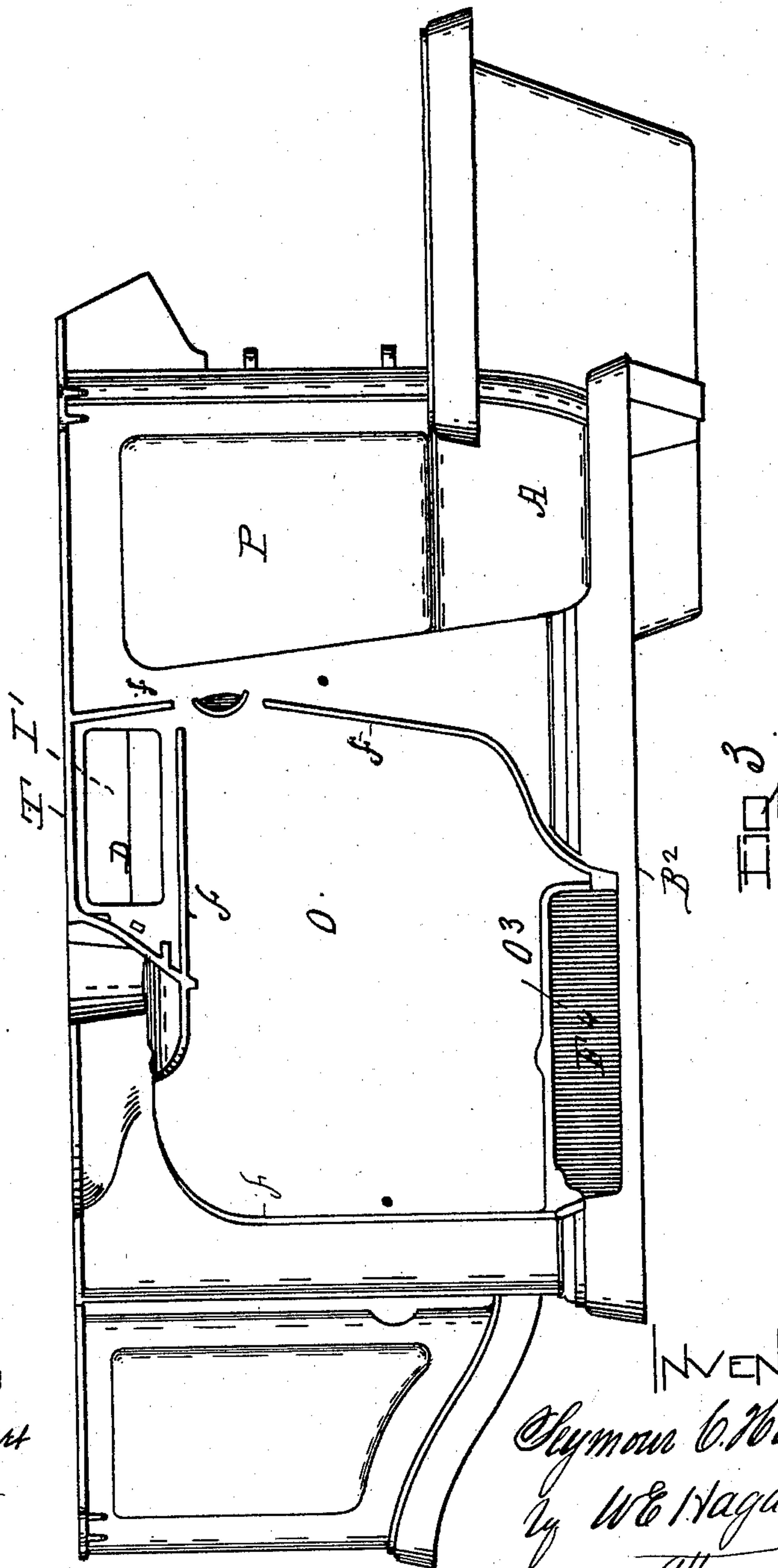
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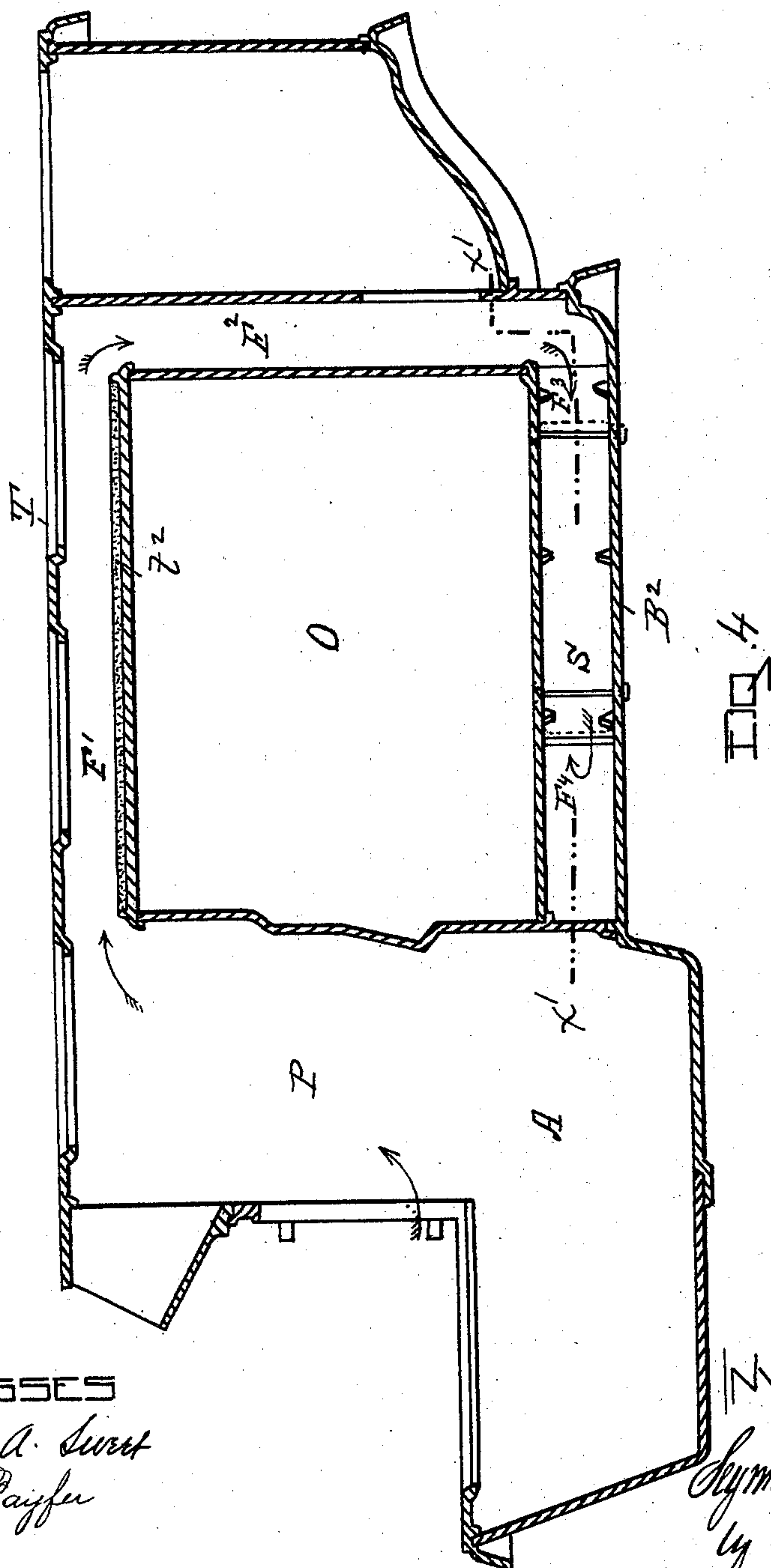
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FIG 5

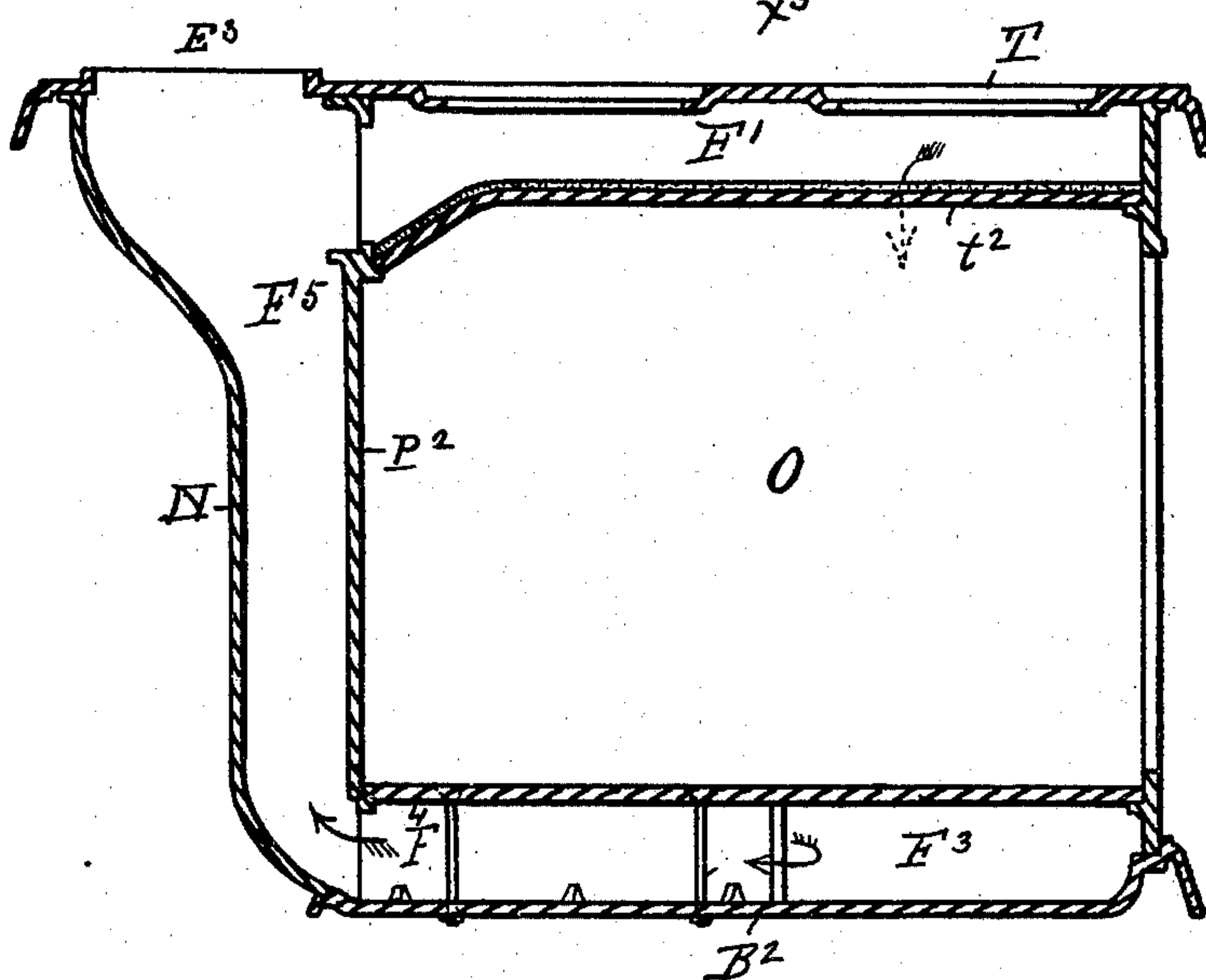
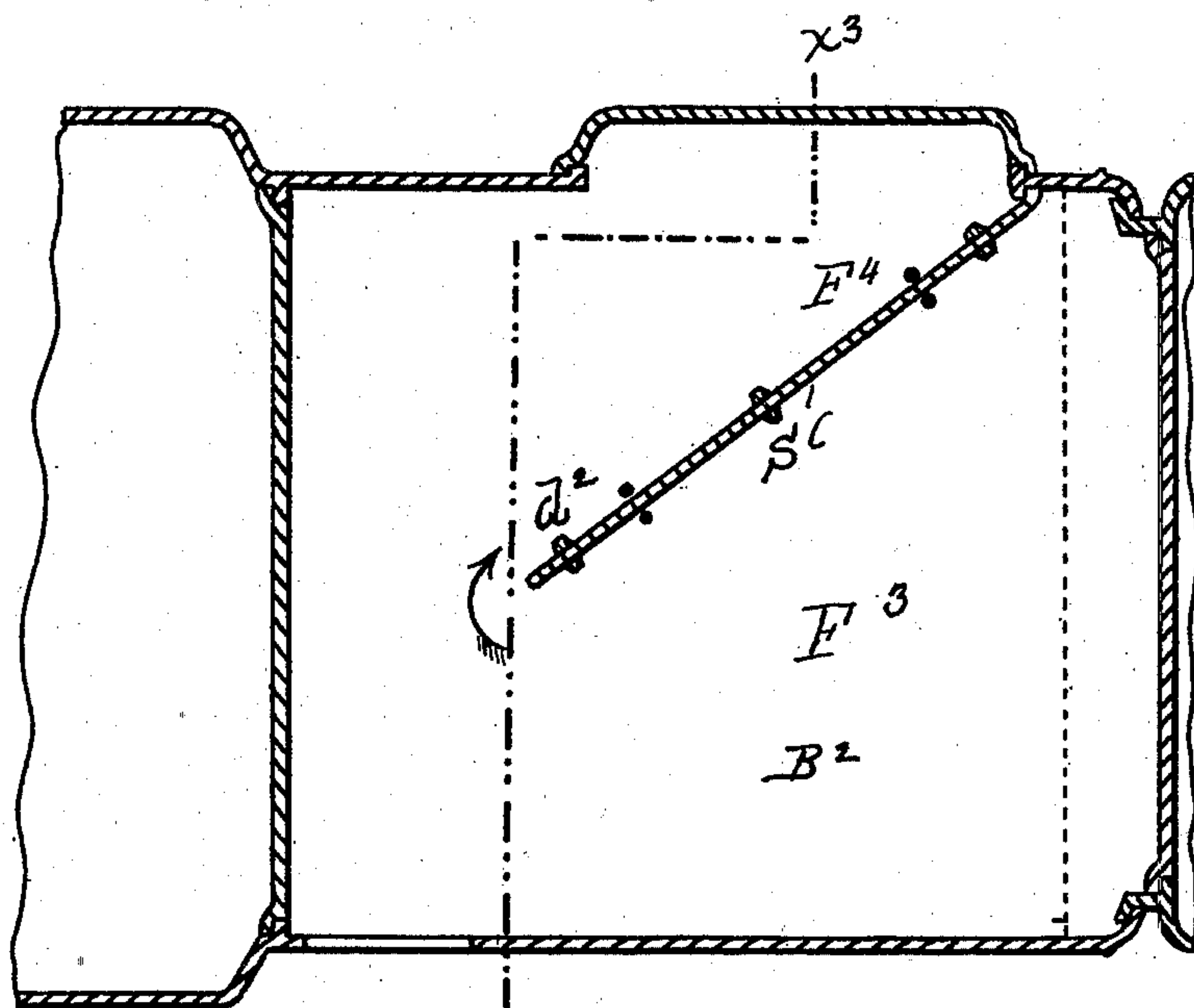


FIG 6

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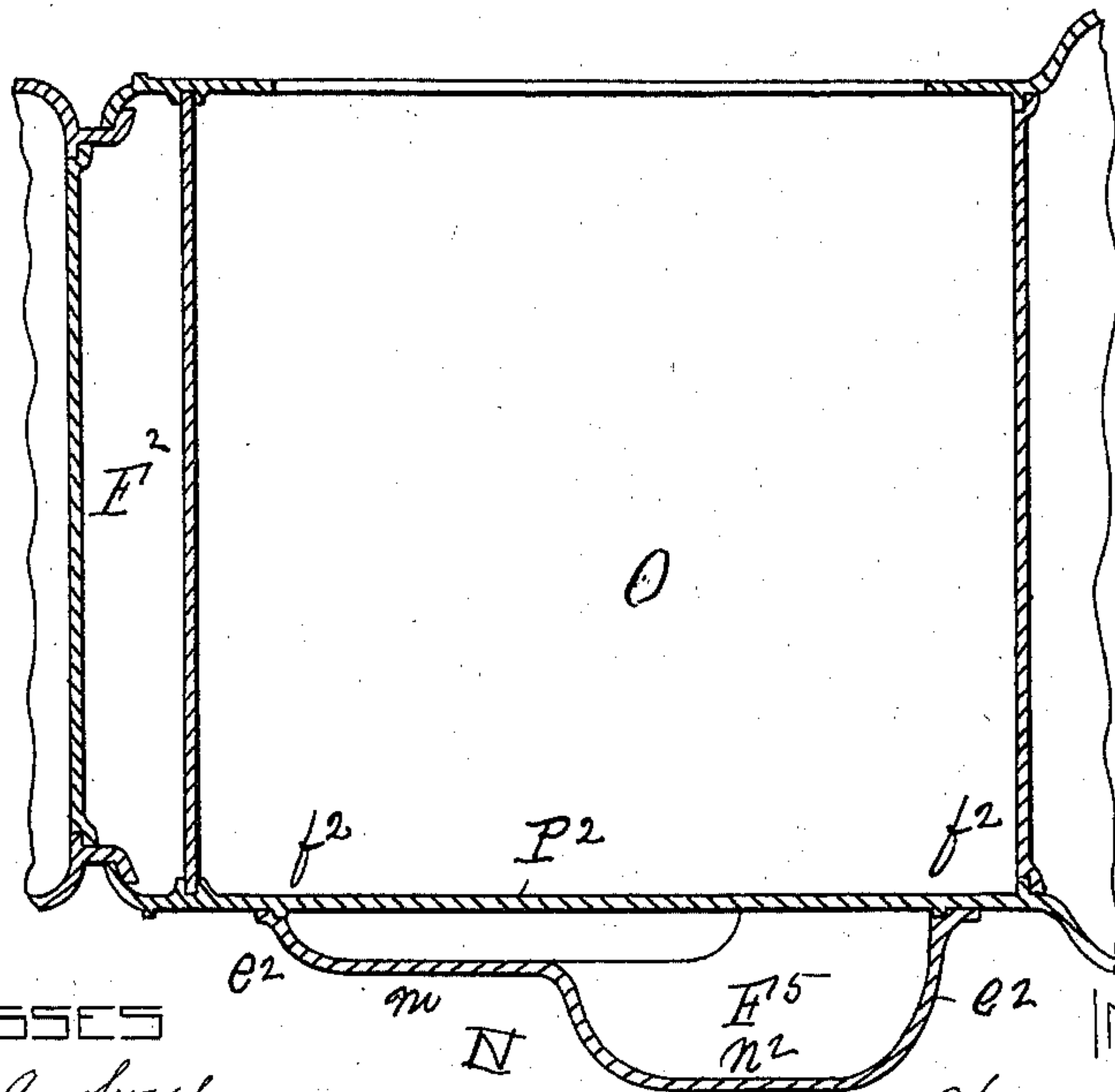
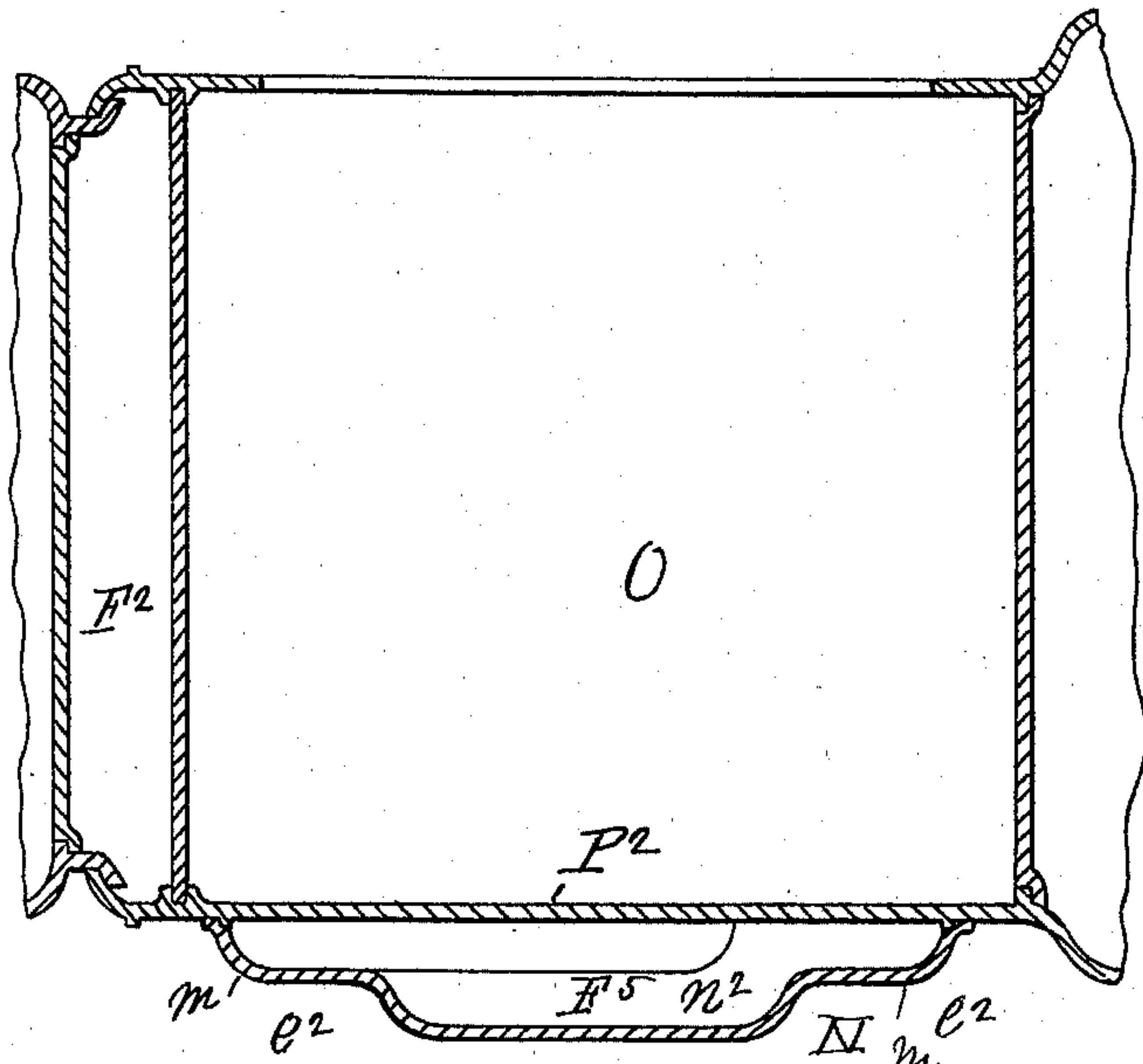
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5 Sheets—Sheet 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

SEYMOUR C. HULBERT, OF GENEVA, NEW YORK, ASSIGNOR TO THE
PHILLIPS & CLARK STOVE COMPANY, OF SAME PLACE.

BACK FLUE FOR RANGE-OVENS.

SPECIFICATION forming part of Letters Patent No. 612,608, dated October 18, 1898.

Application filed September 27, 1897. Serial No. 653,115. (No model.)

To all whom it may concern:

Be it known that I, SEYMOUR C. HULBERT, of the village of Geneva, county of Ontario, and State of New York, have invented new and useful Improvements in Back Flues for Range-Ovens, of which the following is a specification.

My invention relates to cooking-ranges and certain improvements in the manner of constructing and connecting the flue which leads from the range-oven bottom flue to the exit at the back of the range, by which improvements the heat and gases passing to the exit-pipe under the draft impulse are made better available to heat the oven.

Accompanying this specification to form a part of it there are five plates of drawings containing eight figures illustrating my invention, with the same designation of parts by letter-reference used in all of them.

Of the illustrations, Figure 1 is an elevation of a range with my improvement applied thereto and with what is the back of the range whereat the exit-pipe is located shown as facing the view. Fig. 2 is a side elevation of a plate forming the outer wall of the back ascending flue of the range and shown as detached and with what is its interior surface when in position shown as facing the view. Fig. 3 is an elevation of the range with what is its back shown as facing the view and with the plate forming the rear wall of the ascending flue back of the oven removed. Fig. 4 is a central vertical section of the range, taken from end to end. Fig. 5 is a transverse section taken on the line $x'x'$ of Fig. 6. Fig. 6 is a section taken on the line x^3x^3 of Fig. 5. Fig. 7 is a transverse section taken on the line x^4x^4 of Fig. 1, and Fig. 8 is another transverse section taken on the line x^5x^5 of Fig. 1.

The several parts of the range thus illustrated are designated by letter-reference, and the function of the parts is described as follows:

The letters A designate the ash-pit section of the range, P the fire-chamber section, and F' the horizontally-arranged flue passing over the top t^2 of the oven O, between the latter and the pot-hole top of the range, (indicated at T,) said flue F' conducting the heat and

gases evolved from the fire-chamber over the oven to connect with the end descending flue F², which passes downwardly between the end of the oven and the end flue-wall to connect with the flue beneath the oven and arranged between the bottom of the latter and the range-bottom B². The flue-space beneath the oven is divided in two parts F³ and F⁴ by the vertically-placed and diagonally-arranged flue-strip S, and the heat and gases descending through the flue F² enter the horizontally-arranged oven bottom flue F³ to pass toward the fire-chamber end of the range around the end d^2 of the flue-strip S to enter the other bottom flue part F⁴, and to return through the latter and by means of the opening O³ to enter the ascending flue F⁵, upon the upper end of which the exit-pipe collar is placed.

All of the before-named parts, excepting those forming the ascending back oven-flue F⁵ as I construct and connect it, are well-known features of range structure and to which, apart from their combination with my improved construction and connection of the ascending flue back of the oven, I make no claim.

The letter P² designates a plate forming the rear wall of the range and also the rear wall of the oven, and where forming the latter it is provided with exteriorly-projected flanges f , as shown at Fig. 3, and at its upper end this plate P² is provided with a passage-way I', opening out from the oven top flue F', which opening is provided with a damper D, and at its lower end this plate P² is made with a passage-way O³, opening out from the oven bottom flue F⁴, at the end of the latter most remote from the fire-chamber end of the range.

The letter N designates a plate constructed to attach to the outer face of the plate P², so as to produce thereon where the latter forms the rear wall of the oven an ascending flue back of the latter, with the exit-pipe collar E³ formed in part on this plate. This plate N on its outer edges e^2 is exteriorly convex to form the flue, which it incloses against the rear wall of the oven, with its outer surface where extending inwardly from its rounded

edges flat. This plate N is provided with a channel n^2 , outwardly projected from the plate m and which channel is diagonally extended from its top to its bottom, with said channel at its upper end closing around the opening I' in the flue F', and at its lower end this channel exteriorly closes around the opening O³, leading from the oven bottom flue F⁴. This plate N is connected to the plate P² forming the rear wall of the oven by being cemented at its inturned edges to the flanges f and by screw-bolts b^2 .

The operation of the range thus constructed and arranged to be operated is as follows:
 15 When fire is kindled in the fire-chamber, to have the fire start promptly the damper D is opened, so that the products of combustion evolved from the fire will pass directly to the exit-pipe. When the fire has become well
 20 ignited and it is desired to heat the oven, the damper D is closed, which causes the heat and gases to pass through the flues F', F², F³, and F⁴ to enter the flue F⁵ at the back of the oven and to pass from thence to the exit.
 25 By forming the flue F⁵ upon the oven-back and constructing it with the channel n^2 projected diagonally across the rear wall of the oven, with it extending downwardly to inclose within the flue F⁵ the opening O³ and upwardly to inclose the opening I', this channel
 30 furnishes a passage-way for the more rapidly-moving currents of heat passing through the flue F⁵, inclosing them against the rear wall of the oven in their passage, while the more
 35 slowly-moving currents of the heat where within the flue at each side of the channel n^2 also tend to heat the oven-side, and thus the oven of a range can be heated at the back by a broad or sheet flue in which the contingency
 40 of a trap occurring to interfere with the operation of the draft movement through a broad sheet-flue to an exit-pipe is avoided by the

construction of the channel n^2 as applied to and combined with such a flue.

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

1. The combination with a range-oven provided with a fire-chamber at one of its ends and having a flue passing from the fire-chamber over the oven-top, thence down at one end of the oven, and thence to pass beneath the oven toward the fire-chamber end of the range, and to return to the opposite end of the range; of an ascending flue formed on the back of the oven to cover the latter, and connecting with the oven bottom flue at its return end, and with the top flue by an opening formed in the latter, having a damper; said ascending flue having an outwardly-projected channel extending diagonally from the bottom to the top of said back flue, and at its upper end having thereon the exit-pipe collar substantially as and for the purposes set forth.

2. The combination in a range having the fire-chamber section P, the oven O, and the flues F', F², F³, and F⁴, of the rear ascending flue F⁵, arranged to cover the back of the oven, and provided with the outwardly-projected, and diagonally-extended channel n^2 , connecting at O³, with the flue F⁴, and at I', with the flue F', and at its upper end connecting with the exit-pipe collar, constructed and arranged to be operated substantially in the manner as and for the purposes set forth.

Signed at Geneva, Ontario county, State of New York, this 21st day of September, 1897, and in the presence of the two witnesses whose names are hereto written.

SEYMOUR C. HULBERT.

Witnesses:

GEO. F. ANNAS,
 HORACE WEBSTER.