

(No Model.)

2 Sheets—Sheet 1.

F. L. McGAHAN.  
OIL BURNER.

No. 506,331.

Patented Oct. 10, 1893.

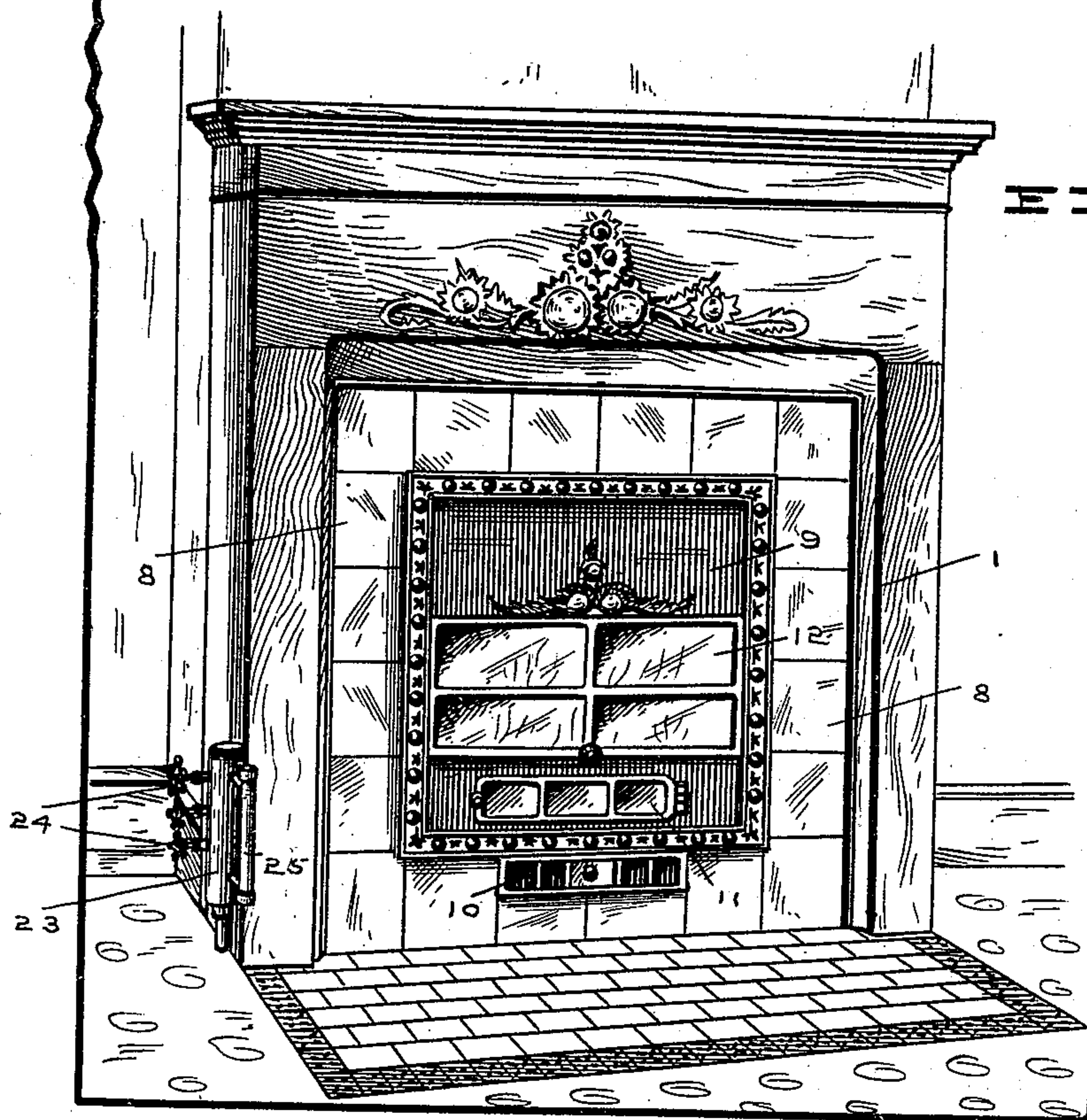
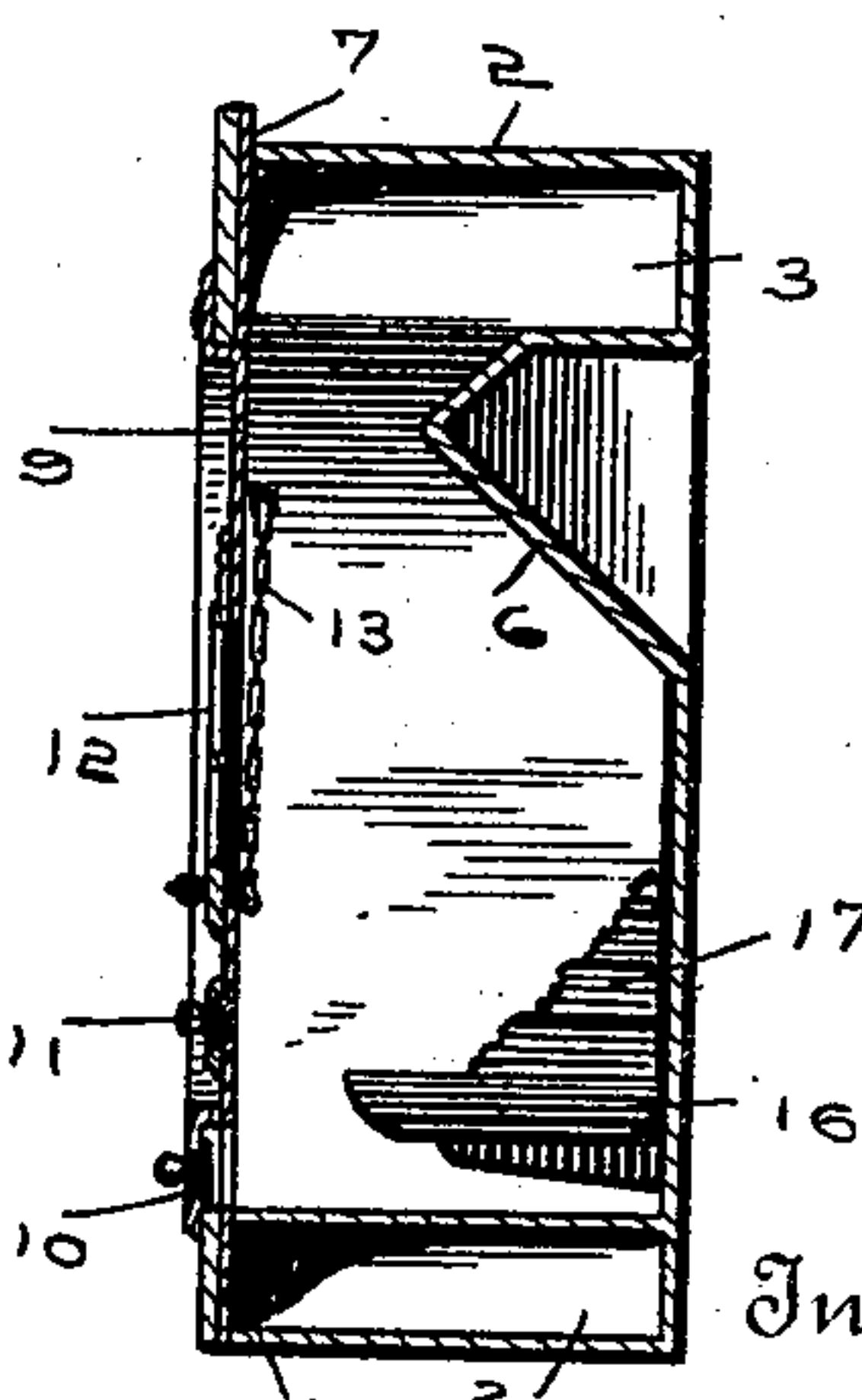
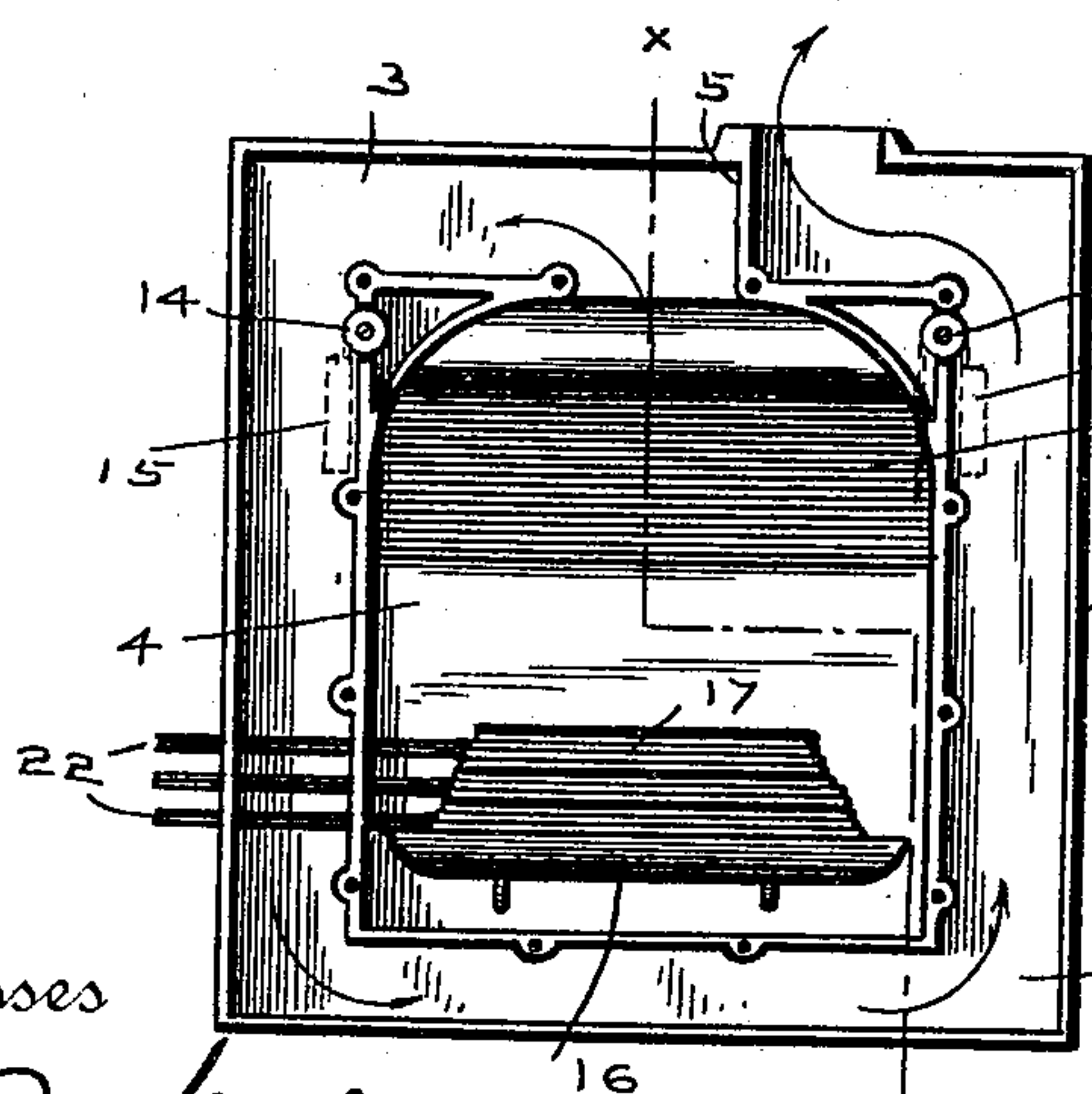


FIG. 1.

FIG. 2.

FIG. 3.



Witnesses

G. D. Kraly  
P. B. Rubush

Fred L. McGahan,  
By his Attorney

G. D. Kraly

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2 Sheets—Sheet 2.

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FIG. 4.

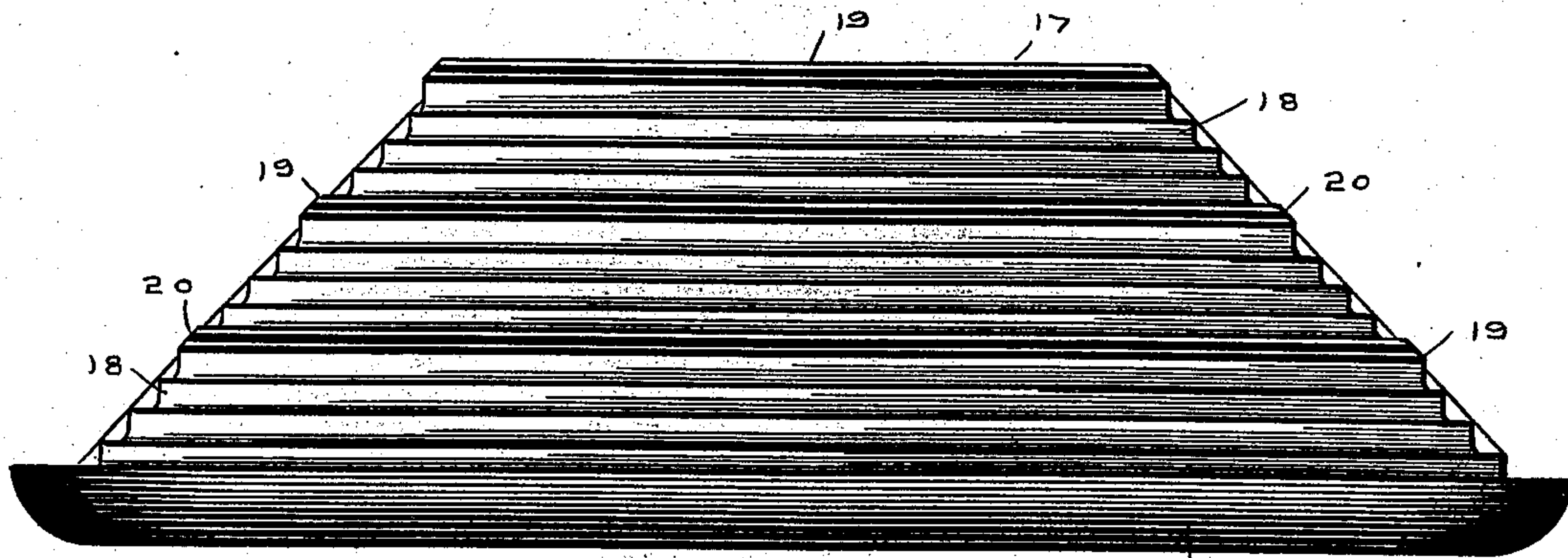


FIG. 5.

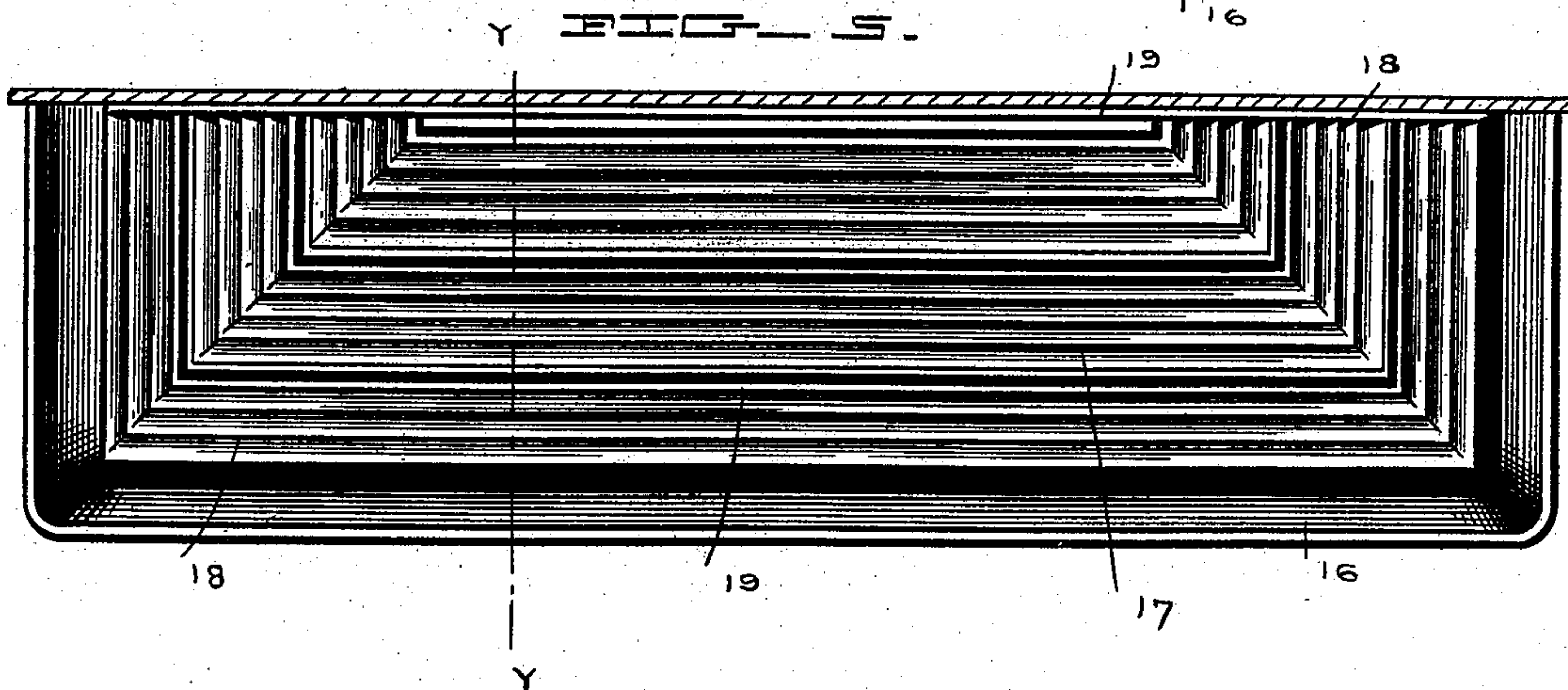
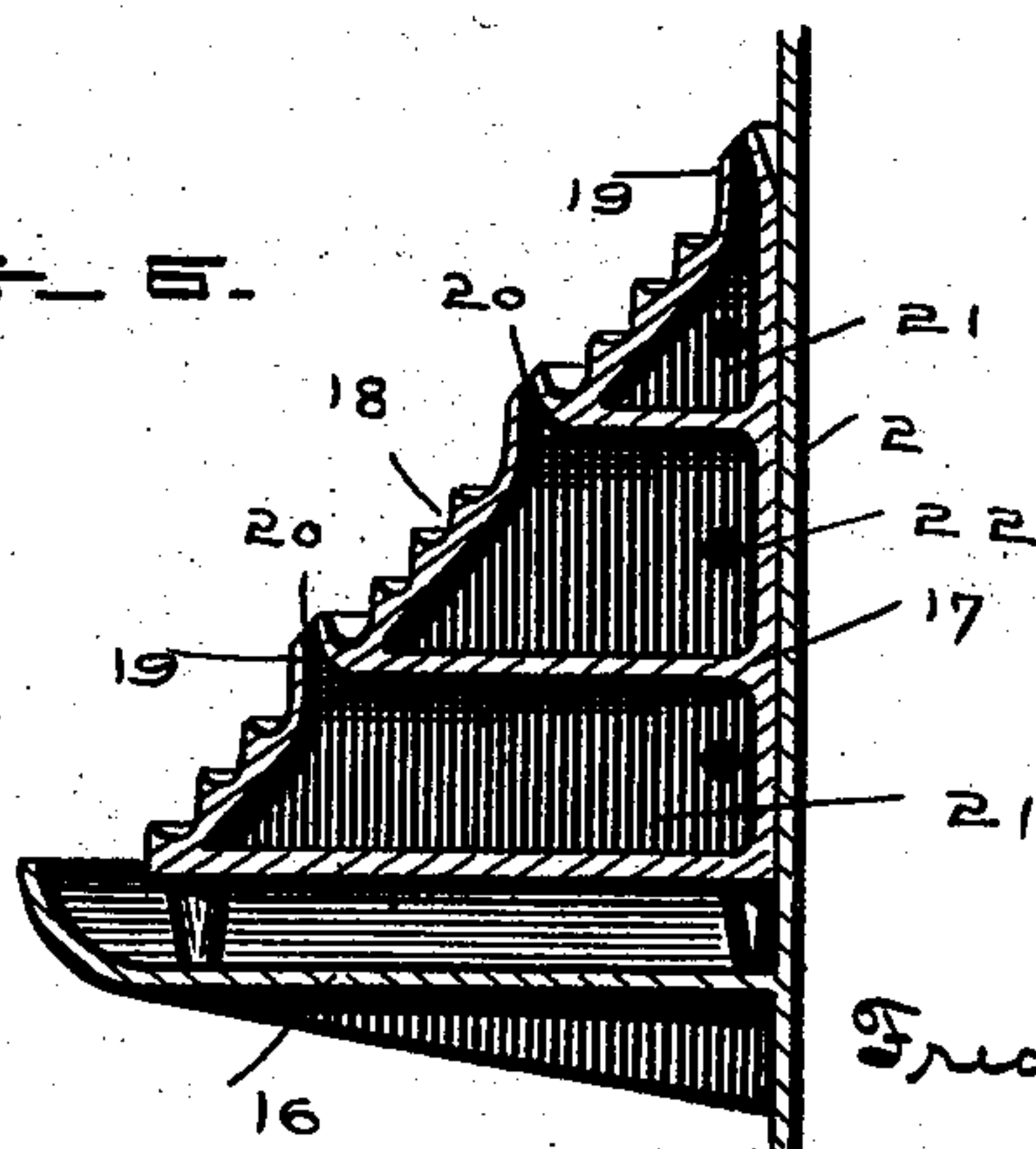


FIG. 6.



Witnesses

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Inventor

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By his Attorney

H. D. Kealy



# UNITED STATES PATENT OFFICE.

FREDERICK L. MCGAHAN, OF INDIANAPOLIS, INDIANA.

## OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 506,331, dated October 10, 1893.

Application filed December 14, 1892. Serial No. 455,118. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK L. MCGAHAN, of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Oil-Burners; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

My invention relates to new and useful improvements in an oil burner which is specially adapted for use in grates and closed fire places, and whose effect will be equal to natural gas, superior to coal, and whose flame will be clean and present an attractive appearance, this result being obtained through the construction and form of the burner, as will be hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view of a fire place specially constructed for use with my improved burner. Fig. 2 is a front view of the casting in which the burner proper is placed and shows the flue leading from the burner chamber to the chimney, the front or facing of the fire place being removed. Fig. 3 is a vertical section of Fig. 2 on the line X—X, the front or facing being in place. Fig. 4 is an enlarged elevation of the burner proper and the lighting or drip pan in which it sits. Fig. 5 is a top view of the same, and Fig. 6 is a cross section through the same on the line Y—Y.

In detail, 1 represents a fire place of the usual form, and 2 is a metal casting or shell which is adapted to be set therein, this casting having a flue 3 extending entirely around it and surrounding the burner chamber 4, a partition 5 closing the flue at the top, and an opening being formed on either side, one into the burner chamber and the other into the chimney above.

A deflector 6 is formed in the rear wall of the chamber 4 for throwing the flame toward the front of the same before it enters the flue 3 and the entire fronts of the flue and the burner chamber are closed, a layer of asbestos paper 7 or other fire-proof material being first secured over the front of the flue, this being covered by tiling 8 when the front 9 of the burner chamber, which is preferably of metal, is set in place, it being secured to the

main casting or shell 2 by means of screws, the front 9 holding firmly in place the fire-proof covering and tiling over the flue 3.

The front 9 has closable draft openings 10 near its bottom which may be regulated as desired, and a door 11 above for lighting the fire, a larger sliding door 12 the width of the front 9 working above this having mica lights, and has also chains or cords 13 attached to its lower end on the inside, these working over slides or pulleys 14 with bearings in the walls of the casting 2, weights 15 being secured to the other ends of the chains for balancing the door 12 and making it convenient and easy to open.

On the rear wall of the main casting and near the bottom of the burner chamber is formed or secured a pan 16, this being above a line of the draft openings 10, and a burner 17 is supported in this pan, as shown in detail in Figs. 4, 5 and 6, it having a sloping front and ends with two or more series of grooves formed therein, three being shown, and above each is a projecting rib 19 in the outer face of which is a slot 20, these opening into the oil chambers 21, there being one of these chambers for each slot, and the two lower ribs forming drip pans for the series of grooves 18 above them.

Connected with each of the oil chambers 21 is a pipe 22 which extends out through the shell 2 and comes out into the room from behind the mantel, where they are all connected with an oil cylinder 23 which has a valve 24 seated therein for regulating the flow of oil through each of the pipes 22, the oil entering the cylinder from any suitable source through the pipe 26. There being a separate valve 24 for each pipe 22, the feed of oil to the burner 17 can be perfectly controlled and regulated as desired, and a glass gage 25 attached to the front of the cylinder 23 always indicates the proper supply of oil.

The operation of the burner is as follows: It being connected with a supply of oil, the lower valve is preferably opened and the oil flows out into the lower oil chamber 21 in the burner and through the slot 20 into the grooves 18 and pan 16, when it may be lighted, and as soon as the burner is heated, the other valves may be opened and the oil will flow



from the other chambers 21 and the desired heat be obtained, the burner when perfectly heated having an effect to warm the oil before it escapes from the chambers 21, and thus  
 5 aids in securing perfect combustion. The flame from the burner is thrown out toward the front of the burner chamber 4 by the deflector 6, and then escapes into the flue 3, where it and the accompanying products of  
 10 combustion are carried entirely around the chamber 4 before they reach the chimney, and during which time the tiling 8 is heated and thus more heat is radiated into the room, securing the most favorable result with an eco-  
 15 nomical use of oil. Through the draft openings 10, the air draft may be regulated and the air admitted is heated by contact with the flue 3, and being thus lighter, when it mixes with the flame a perfect combustion is ob-  
 20 tained, and no soot or carbon deposits are left in the burner chamber.

The construction of the burner is such as to operate successfully in any fire place, but the best results are obtained where it is set  
 25 in a shell constructed as hereinbefore described.

The burner may be modified, if desired, to represent fire logs, and where this is done a separate series of grooves with an oil cham-  
 30 ber would be formed in each log, the grooves always being perfectly horizontal, but the method of feeding and the construction of the other parts would remain the same, giving a fire that is equal to natural gas and superior  
 35 to coal, the flame being the same over all parts of the burner.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An oil burner having two or more cham- 40  
 bers therein connected independently with an oil supply, two or more series of grooves formed in the sides of such burner and open-  
 45 ings from such oil chambers to such grooves for feeding them with oil, substantially as set forth.

2. An oil burner having sloping sides with two or more series of grooves formed therein, each series connected by a slot with a separate chamber within the burner through which 50  
 they are supplied with oil, and a drip pan below each series of grooves, substantially as set forth.

3. In an oil burner, a casting having two or more chambers formed therein independently 55  
 connected with an oil supply, two or more series of grooves formed in the sloping sides of such burner, projecting ribs above each series of grooves, the upper ones forming drip  
 60 pans for the series above, slots in such ribs opening from the oil chambers, and a drip pan suitably supported in which the burner is adapted to rest, substantially as set forth.

4. An oil burner having sloping sides with two or more series of grooves formed therein, 65  
 each series connected by an opening with a separate chamber within the burner, such chambers connected by pipes with an oil cylinder outside the fire-place having independent  
 70 valves therein for regulating the oil supply to each pipe, substantially as shown and described.

In witness whereof I have hereunto set my hand this 3d day of December, 1892.

FRED. L. MCGAHAN.

Witnesses:

H. D. NEALY,  
 JAMES P. BAKER.