

(No Model.)

2 Sheets—Sheet 1.

C. G. MENZEL & J. C. EMMITT.
BARREL HEATER.

No. 539,875.

Patented May 28, 1895.

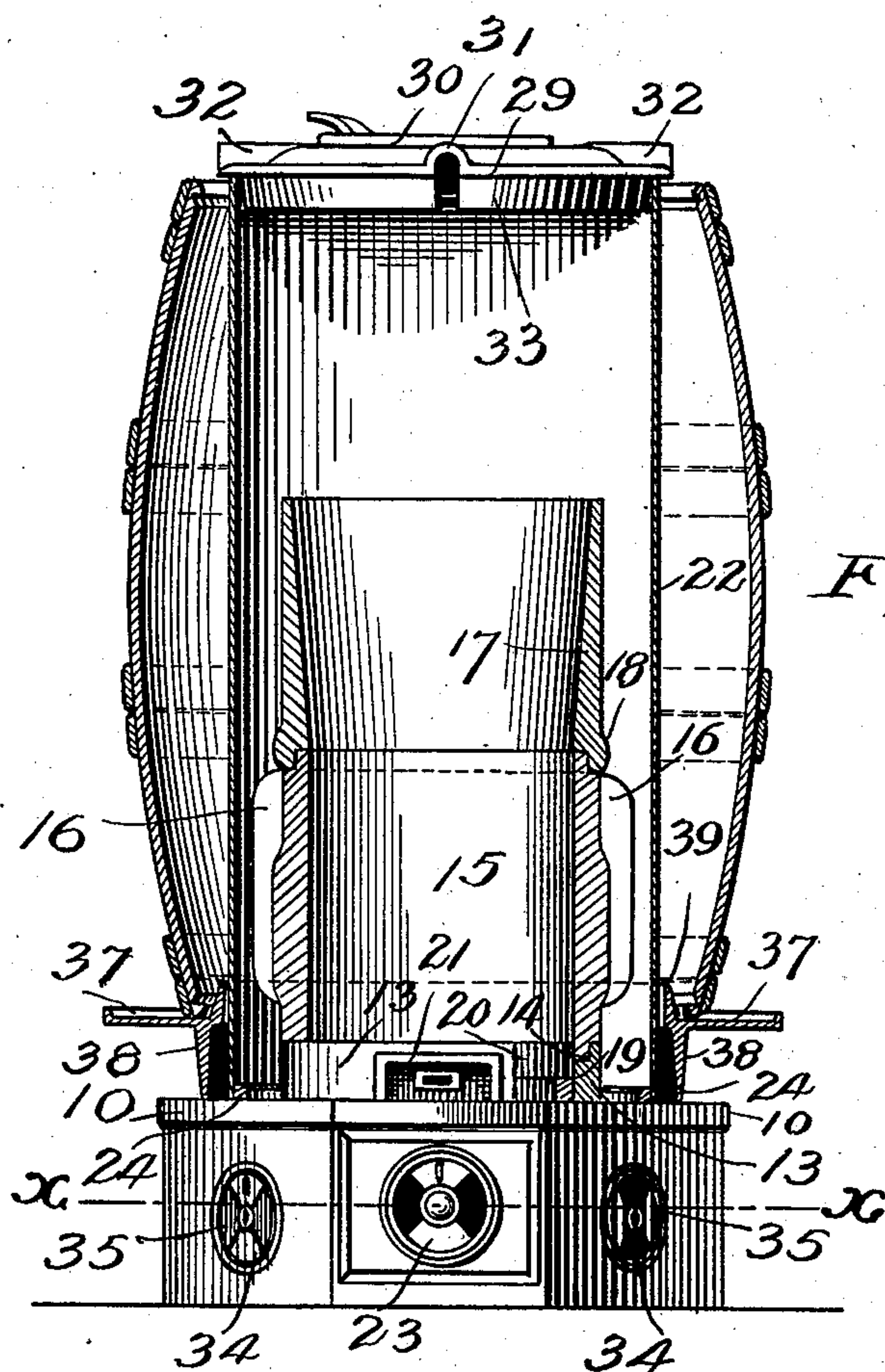


Fig. 1.

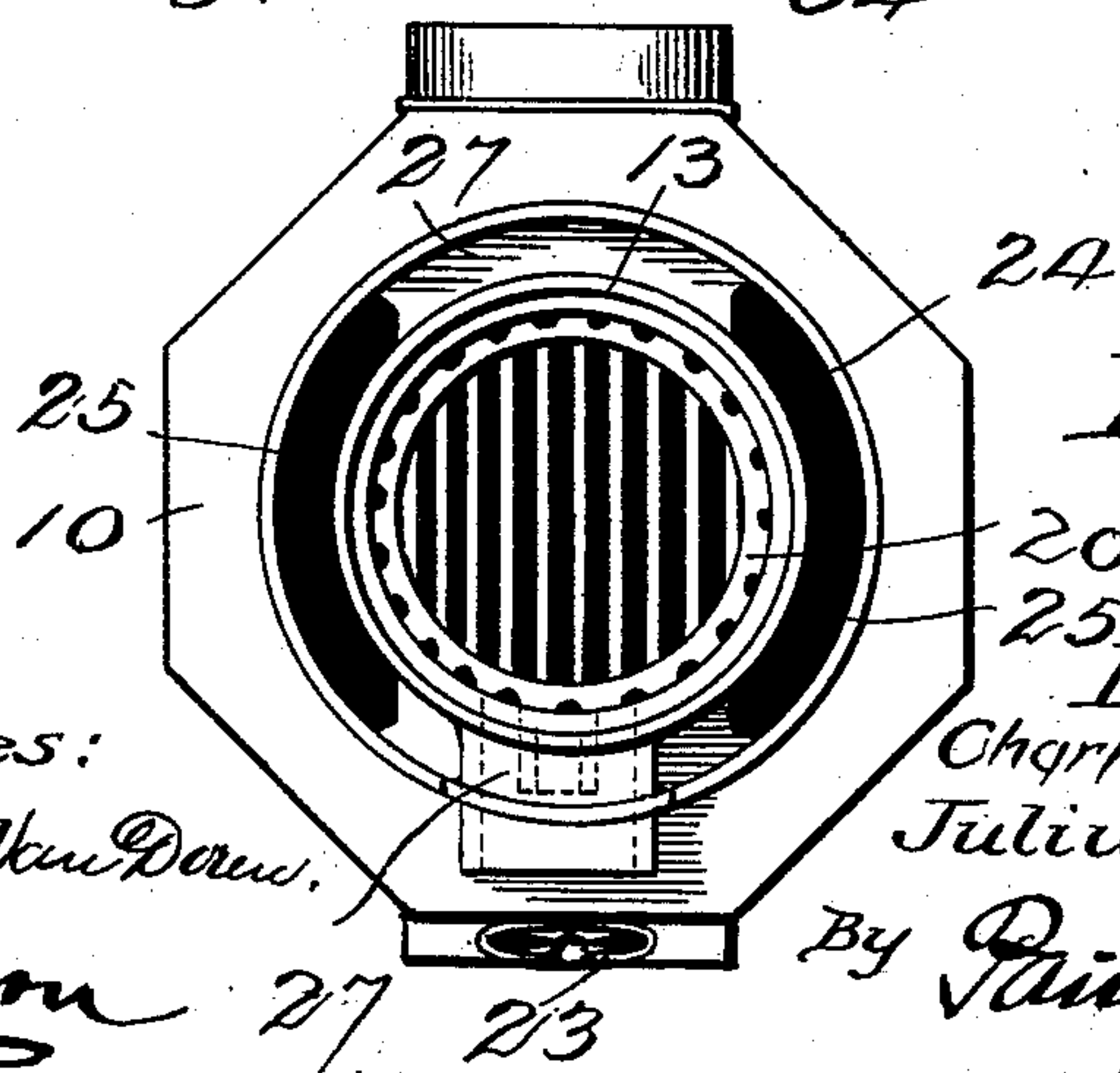


Fig. 2.

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By Paul H. Hawley
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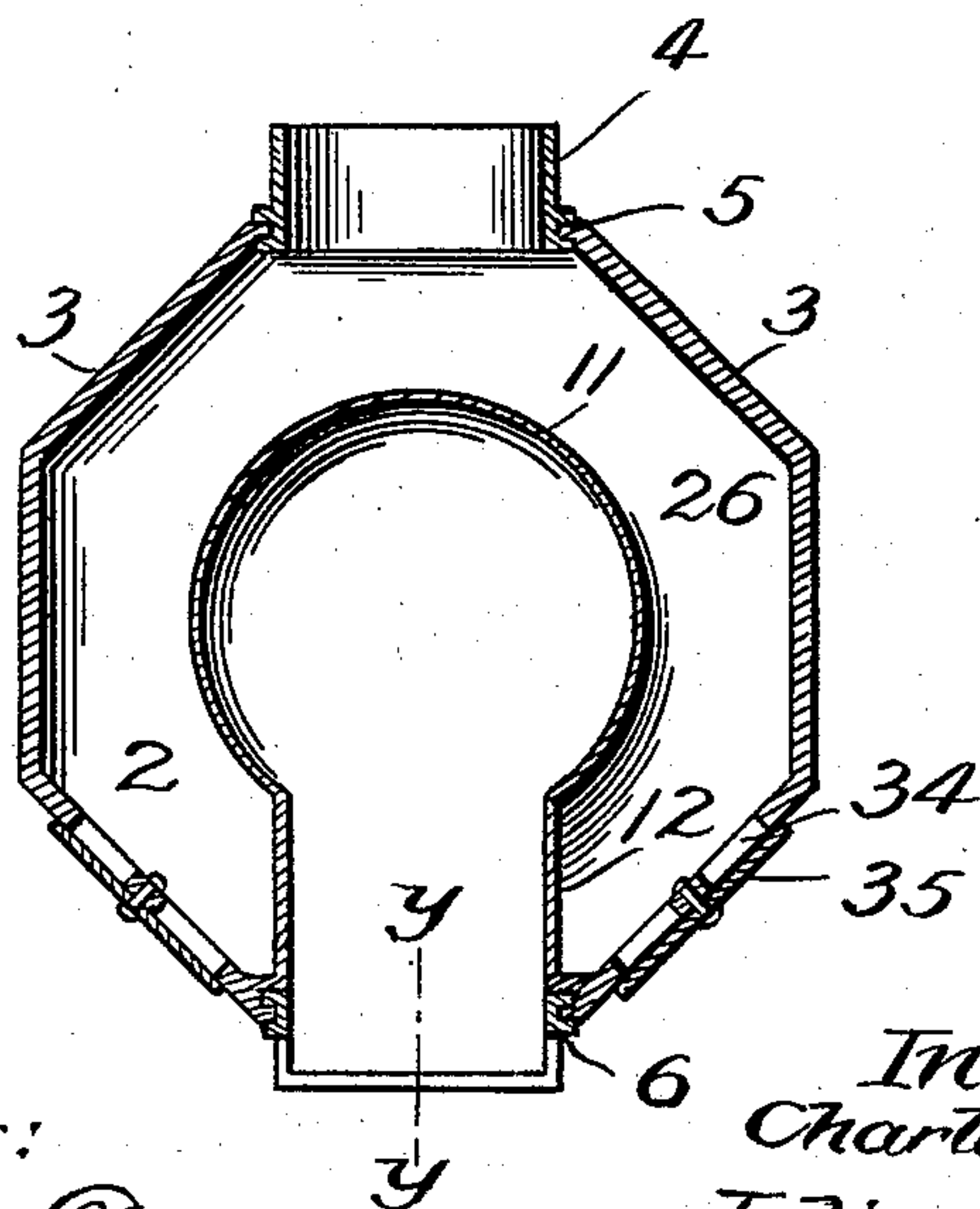
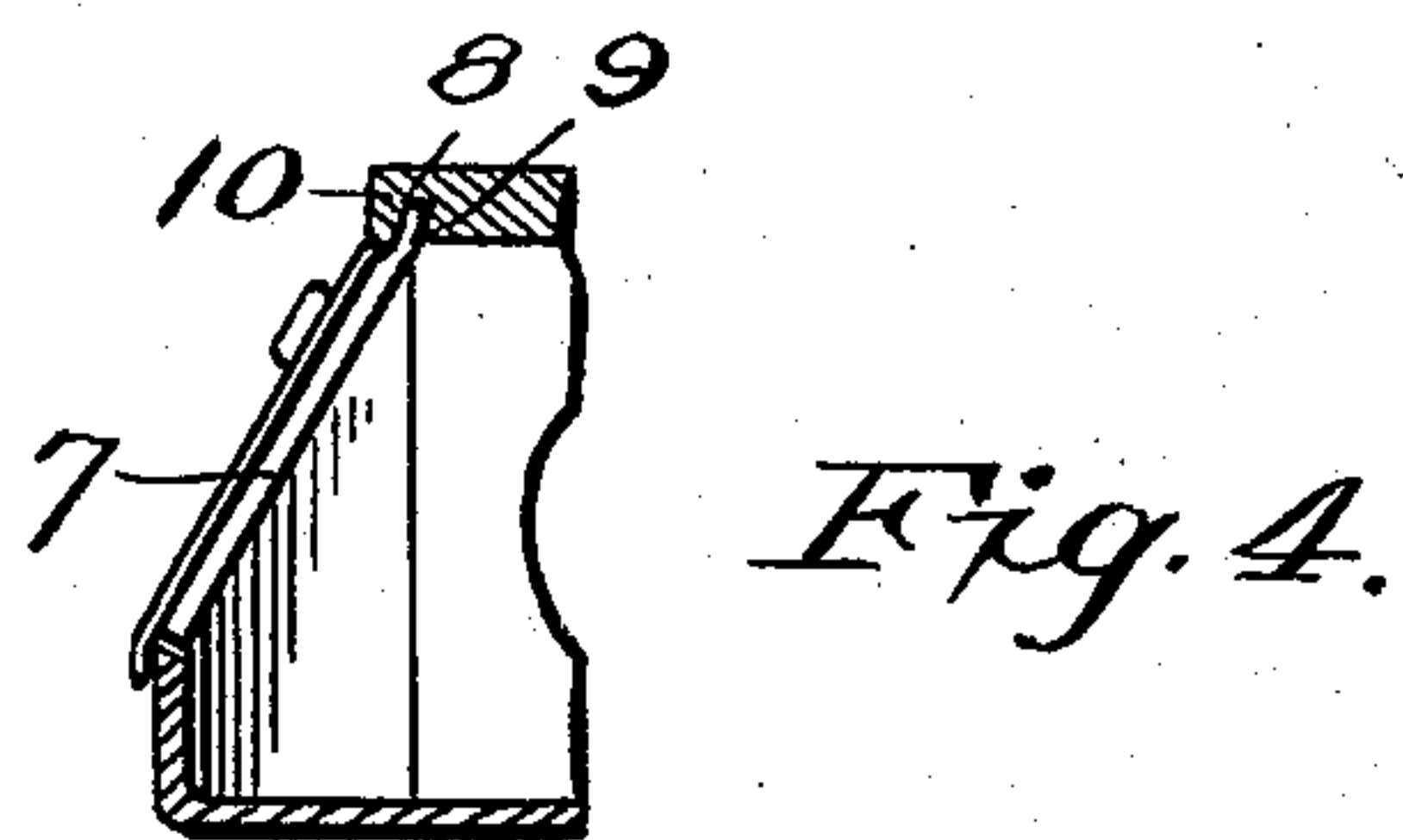
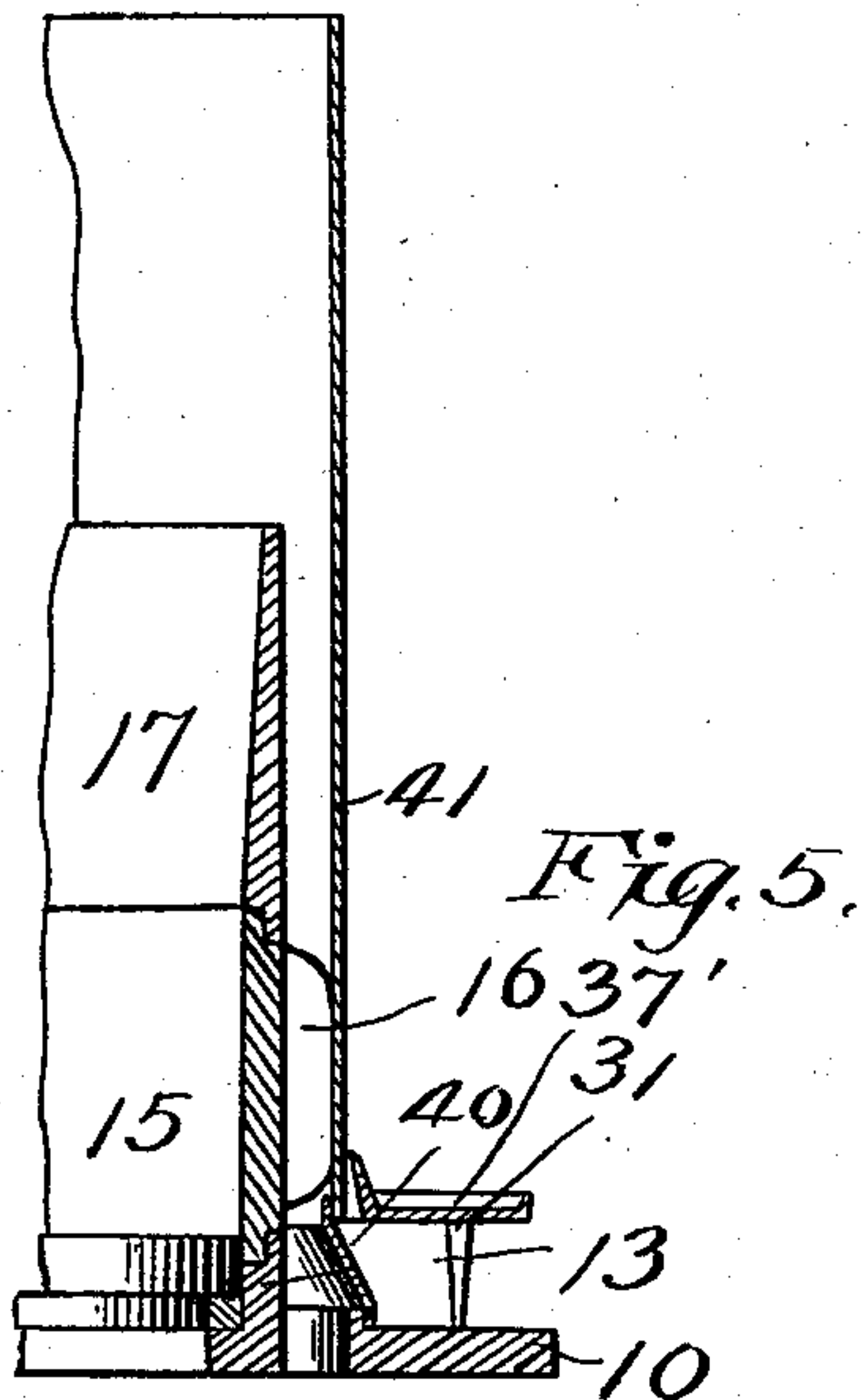
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UNITED STATES PATENT OFFICE

CHARLES G. MENZEL AND JULIUS C. EMMITT, OF MINNEAPOLIS, MINNESOTA.

BARREL-HEATER.

SPECIFICATION forming part of Letters Patent No. 539,875, dated May 28, 1895.

Application filed March 20, 1894. Serial No. 504,404. (No model.)

To all whom it may concern:

Be it known that we, CHARLES G. MENZEL and JULIUS C. EMMITT, of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented a certain new and Improved Barrel-Heater, of which the following is a specification.

Our invention relates to barrel heaters; and the objects which we have in view are to provide a barrel heater of a cheap and neat construction, and which will occupy a small floor space; the parts of which will be all interchangeable; which will have a self-centering part for holding the barrel equi-distant from the heating drum or shell; which will be economical in the use of fuel; and which will be provided with convenient draft and draft checking dampers. A last and most important object is to provide a barrel heater which will furnish an even and intense heat at all points upon the drum or shell.

Our invention consists in general in a barrel heater of the construction and combination of parts hereinafter described, and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a vertical section of a barrel-heater embodying our invention, the base thereof being shown in full lines. Fig. 2 is a plan view of the base with the upper parts of the heater removed. Fig. 3 is a horizontal section of the base on the line *x x* of Fig. 1. Fig. 4 is a detail vertical section on the line *y y* of Fig. 3. Fig. 5 is a detail vertical section showing the means for decreasing the size of the heater by the employment of a smaller drum or shell.

As shown in the drawings, the base is preferably octagonal in form, consisting in the bottom 2 and the side walls 3, the front and rear sides of the octagon being cut away so that the smoke outlet sleeve casting 4 provided with the vertical grooves 5 may be slipped down into place and the door casting or frame 6 similarly secured. The door casting is provided with a level face adapted to receive the lid or door 7, the upper edge 8 of which, when the door is in place, rests in the groove 9 provided in the top casting 10 of the base. Within

the base is the circular wall 11 provided with the straight walls 12 which lead out to the door, all together forming the ash-pit.

In the top of the casting 10 we provide the ring 13, preferably having the groove 14 in its upper edge, which groove is to accommodate the lower edge of the lower section 15 of the fire-pot, which lower section is preferably of the same diameter as the ring 13 and is provided with the vertical wings 16, used to increase the heating surface of the fire-pot, which fire-pot is made of cast iron.

On the upper edge of the lower section 15, we arrange the upper section 17, the inside of which preferably flares and enlarges toward the top. The lower edge is preferably strengthened by the bead 18, and has a groove so that it fits down nicely over the thin upper edge of the part 15. The openings in the top casting 10 and within the ring 13 are of less diameter than said ring, so that a shelf is formed to receive the grate ring upon which the grate 20 rests.

The ring 19 raises the grate above the casting 10 and a small housing or duct 21 is preferably cast on the top 10 and leads through the outer shell 22 of the device. The shaker of the grate extends through this housing, and air is ordinarily admitted beneath the grate through the same channel, though a damper 23 may be provided in the door 7 if desired.

An annular rib 24 is formed on the top and the opening within the same is of greater diameter than the ring 13.

Openings 25 in the top 10, and between the ring 13 and the rib 24 form diving flues leading into the space or chamber 26 within the base and around the ash-pit walls. These openings 25 preferably occupy about one-half of the full circumference of the annular opening within the rib 24, parts 27 being left to support the ring 13 and the grate.

The shell 22 fits down upon the top 10 and outside of the rib 24 and is preferably of about one and one-half times the height of the fire-pot. This shell is made of thin sheet-metal, and the top thereof is closed by the casting 29, which has a central opening closed by the door 30, which door may be of any desired construction.

For furnishing air to the gases in the upper

part of the shell we preferably provide the small inlet channels 31 in the lid casting 29, forming the same beneath simple bases 32 on said casting, and cutting the groove down
5 through the flange 33 thereof, so that the pattern for said casting may be drawn from the sand and the casting made without the use of cores.

In the front sections of the octagonal base
10 we preferably provide openings 34 and arrange the check dampers 35 for closing the same. Through these air may be let into the chamber 26 to check the draft of the stove.

37 represents the barrel rest or ring supported on a flange or legs 38 resting on the top of the base and the ring is provided with the tapered inner flange 39 which fits snugly to the shell 22, and by means of which the barrels are centered on the rest 37.

20 For use with smaller barrels the heater is accompanied by a smaller shell with a barrel rest having an inner opening of correspondingly decreased size. For this purpose we provide the reducing ring 40. See Fig. 5. A
25 similar reducing ring may also be used beneath a smaller fire-pot. The base of this ring 40 rests around the rib 24 while the upper edge supports the smaller shell or drum 41. 37 represents a correspondingly reduced barrel rest.

30 A stove of this construction occupies a very small floor space and owing to the use of the narrow annular diving flues between the outer walls of the fire-pot and the shell 22, insures an intense and even heat on the full surface
35 of said shell; further the nicest regulation may be obtained, the stove may be easily fed with fuel, and further the castings of which the stove is formed are small and complete in themselves, of regular sizes and consequently
40 interchangeable.

As shown in Figs. 1 and 5 we provide a fire-pot having thick walls at or near its base, tapering gradually toward the top of the pot, so that at the point where the heat of the fire
45 will be most intense the pot will be thicker and will not burn out as rapidly as it would if it were made the same thickness at the top and bottom.

Having thus described our invention, we
50 claim as new and desire to secure by Letters Patent—

1. In a barrel-heater, the combination, of the base containing the independent ash-pit, the smoke outlet leading from the chamber
55 surrounding said ash-pit, the rib 24 surrounding an opening provided in the top of said base, the ring 13 supported by the parts 27 within said rib 24, the grate 20 supported within said ring 13 and raised above the upper edge thereof, the fire-pot arranged to rest upon said ring 13, the shell arranged to rest upon said base outside of said ring 24, openings being provided between said rings 24 and
60 13 through which the smoke and gas pass into the chamber surrounding said ash-pit, and a cover 30 for closing the top of said shell, substantially as described.

2. The combination, in a barrel-heater, of the base provided with an opening in its top, the ring 24 surrounding said opening, the
70 shell supported by said base outside of said opening, the movable ring 13 supported within said ring 24, the grate 20 arranged within said ring 13, means for shaking the same, openings 25 being provided between said rings 13
75 and 24, the fire-pot resting upon said ring 13, the barrel rest supported upon said base outside of said shell and having the upward and inwardly inclined flange 39, for the purpose set forth. 80

3. The combination, in a barrel heater, of the base, the shell arranged to rest upon said base over an opening provided in the top thereof, the ring 13 supported by parts 27 within said shell, the openings 25 upon either
85 side of said ring, the fire pot supported by said ring 13, the walls of said fire pot being thicker near the base thereof than at its upper end, the grate 20 supported within said ring 13, and means for shaking said grate, substantially as described. 90

4. The combination, in a barrel heater of a polygonal base, comprising the bottom 2 and the side wall 3, provided with the front and rear openings, the door frame, and the smoke
95 outlet casting provided with vertical grooves and arranged to fit said openings respectively, the casting 10 forming the top of said base, the shell to rest upon said base over an opening provided therein, the ring 13 supported
100 within said shell, the fire-pot resting upon said ring, the openings 25 between said ring 13 and said shell, the grate 20 within said ring, means for shaking the same, and the barrel rest supported by said base outside of said
105 shell, substantially as described.

5. The combination, in a barrel heater, of the base, having an independent ash-pit, the smoke outlet leading from the chamber surrounding said independent ash-pit, the shell
110 arranged to rest upon said base over an opening in the top thereof, the ring 13 supported by the parts 27, within said shell, and over the opening in the top of said base, said ring being smaller than said opening the fire-pot
115 to rest upon said ring, the grate 20 within said ring, the ring 19 upon which the grate is supported above the ring 13 the housing or duct 21 leading through the shell to said grate, for the purpose set forth. 120

6. The combination, in a barrel heater, of a base, a shell supported by said base over an opening provided in the top thereof, a ring supported within said shell, the fire pot adapted to rest upon said ring, the grate supported
125 within said ring and beneath said firepot, means for shaking the same, openings or flues being provided outside of said ring and between the same and said shell, through which the smoke and gas pass from said fire-
130 pot into the base beneath the shell, and the wall of said fire-pot being thicker at the point where it would be subjected to the most intense heat, for the purpose set forth.

7. In a barrel heater, the combination, of a
base containing the independent ash-pit, a
smoke outlet leading from the chamber 5, sur-
rounding said ash-pit, the shell supported in
5 the base over an opening provided therein,
the ring 13 supported within said shell, open-
ings being provided between it and said shell
through which smoke and gas pass into the
base, the fire-pot supported by said ring, the
10 grate within said ring beneath said fire-pot,

the casting 29 for closing the top of said shell,
and the air inlet channels 31 provided in said
casting 29, for the purpose set forth.

In testimony whereof we have hereunto set
our hands this 12th day of March, A. D. 1894. 15

CHARLES G. MENZEL.

JULIUS C. EMMITT.

In presence of—

C. G. HAWLEY,

F. S. LYON.