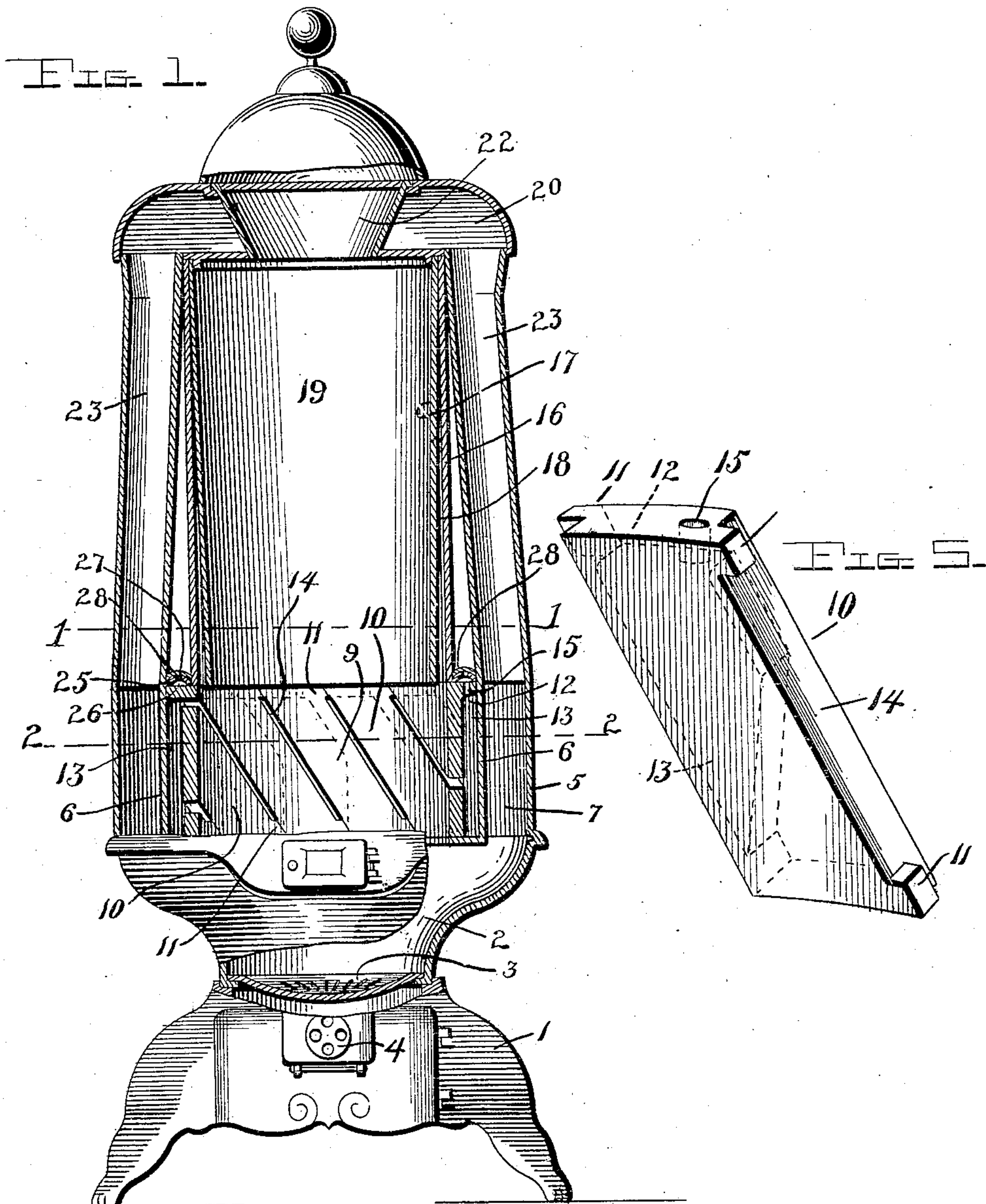


No. 863,269.

PATENTED AUG. 13, 1907.

M. M. DILLON.
STOVE AND FURNACE.
APPLICATION FILED APR. 7, 1906.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

FIG. 2.

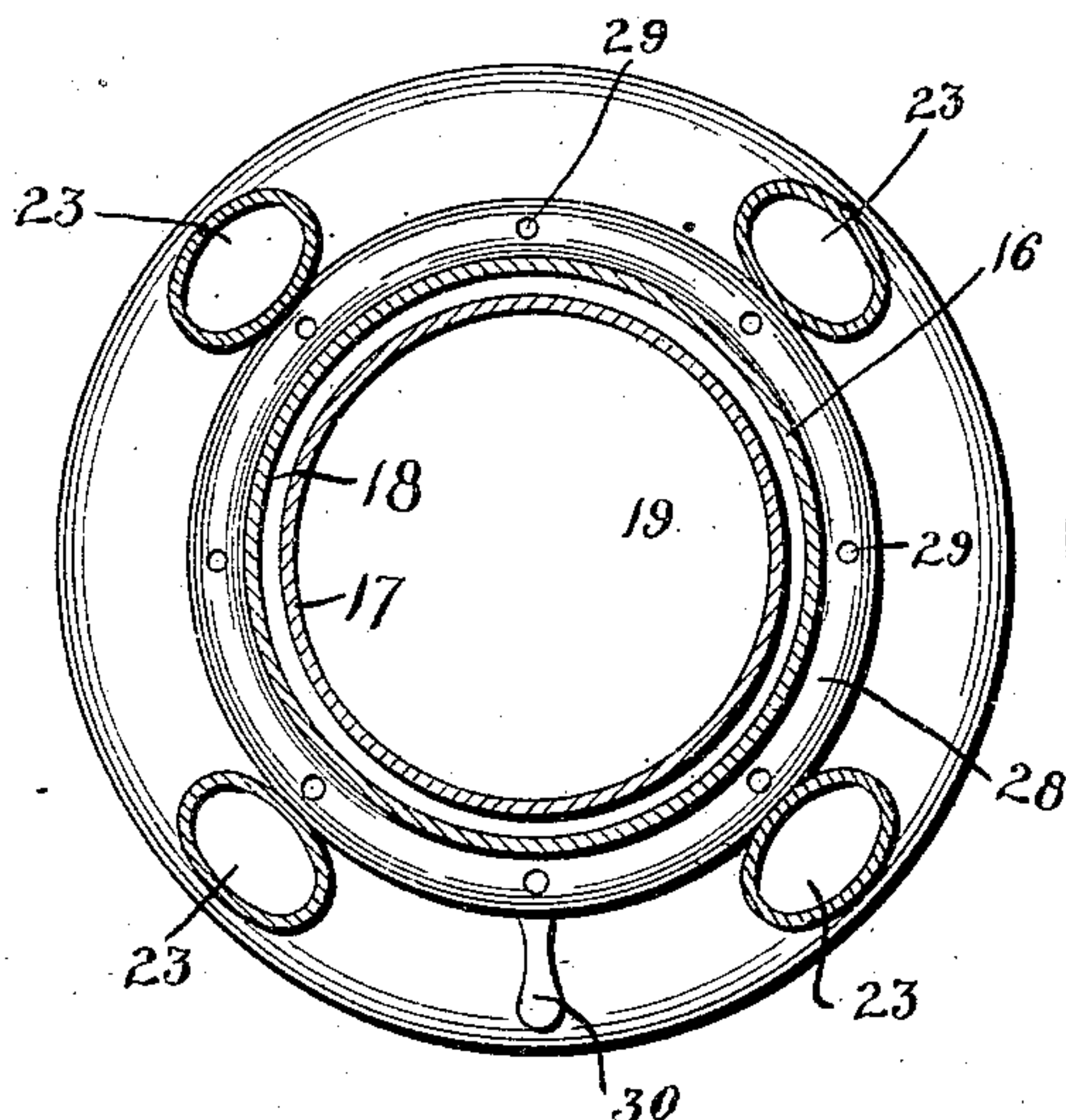


FIG. 3.

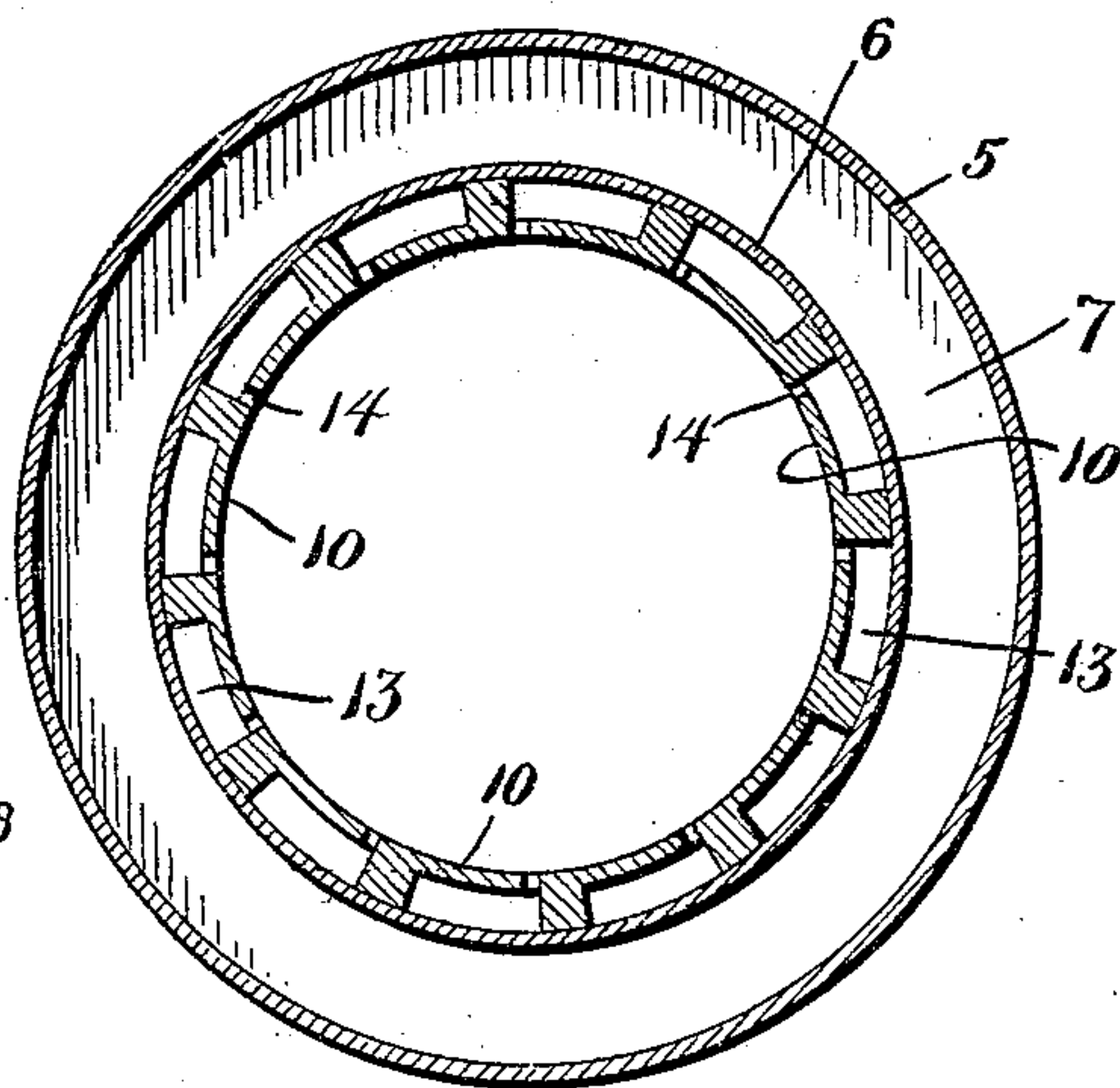


FIG. 4.

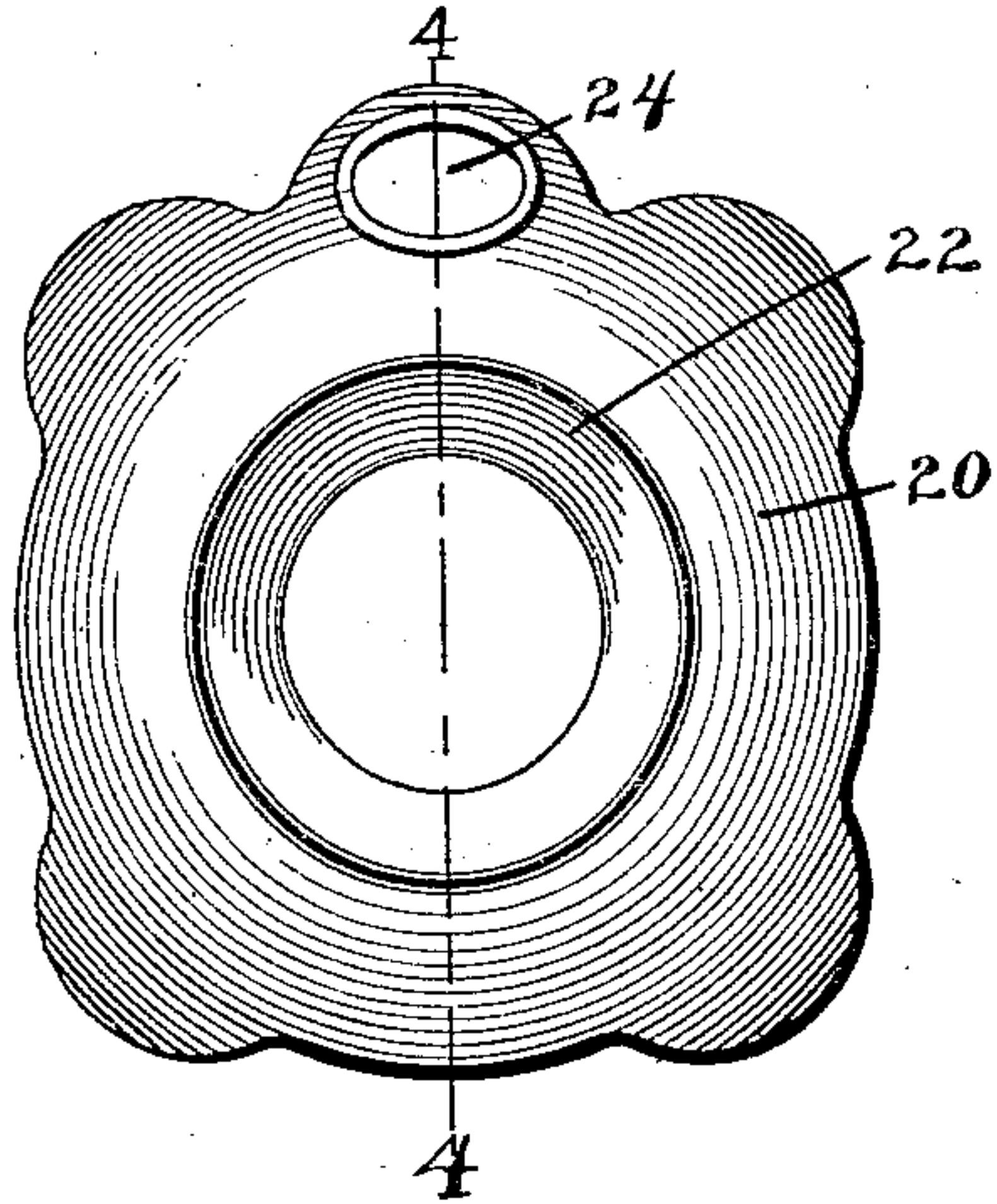
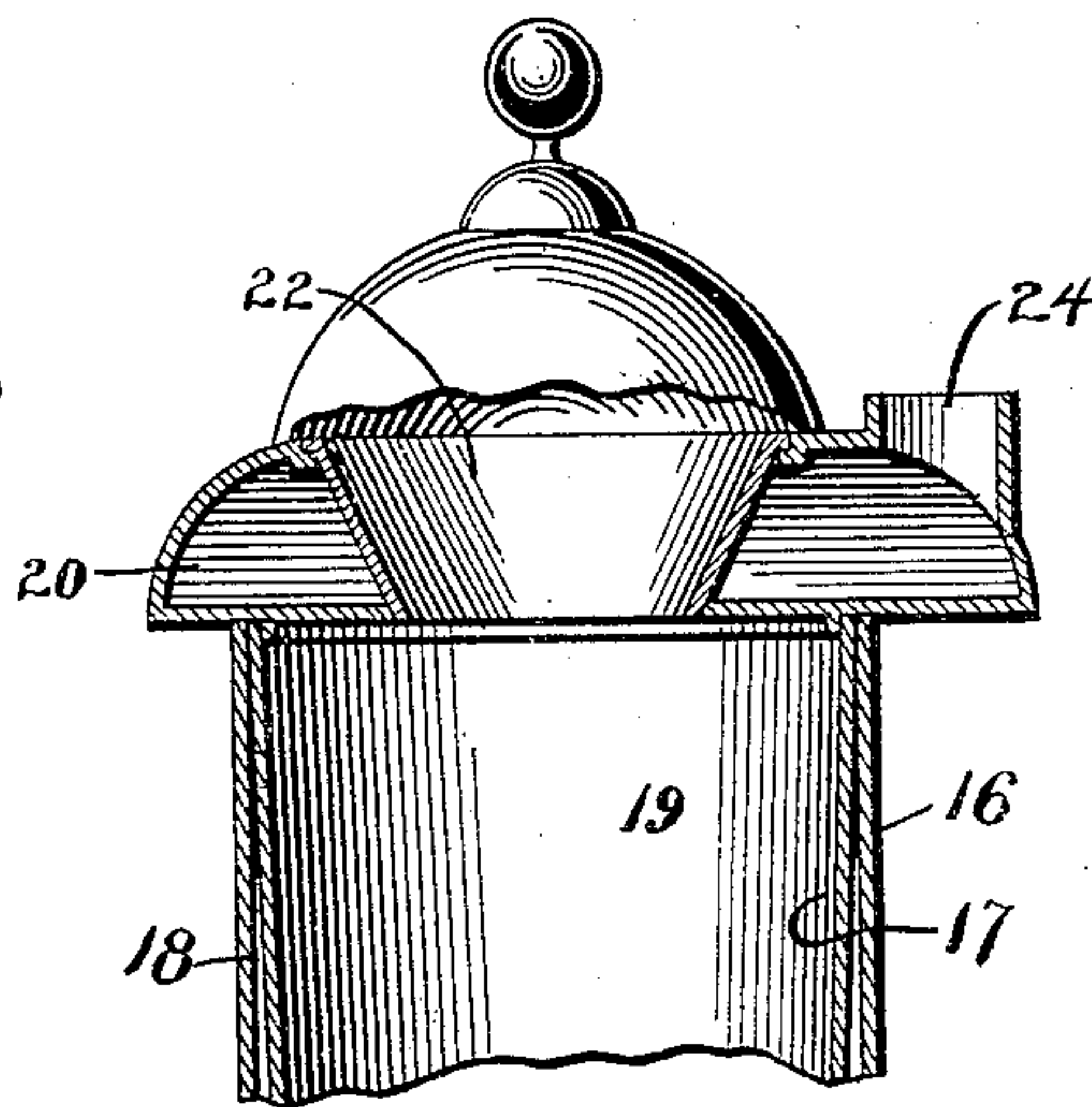


FIG. 5.



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UNITED STATES PATENT OFFICE.

MILTON M. DILLON, OF MILAN, MICHIGAN.

STOVE AND FURNACE.

No. 863,269.

Specification of Letters Patent.

Patented Aug. 13, 1907.

Application filed April 7, 1906. Serial No. 310,438.

To all whom it may concern:

Be it known that I, MILTON M. DILLON, a citizen of the United States, residing at Milan, in the county of Washtenaw and State of Michigan, have invented a new and useful Improvement in Stoves and Furnaces, of which the following is a specification.

My invention relates to improvements in stoves and furnaces.

The object of my invention is to provide a stove which is adapted to burn soft or bituminous coal or other cheap grades of coal with a minimum amount of annoyance from soot, smoke and dirt, at the same time obtaining a maximum consumption of the combustion portions of said coals.

Another object of my invention is to provide a stove of this character in which a down draft is used and thus providing means for a magazine chamber by means of which the coal is properly fed to the fire as it is consumed.

In the accompanying drawings, Figure 1 is a vertical sectional view of my improved stove as applied to a heating stove. Fig. 2 is a transverse horizontal sectional view taken on the line 1—1 of Fig. 1. Fig. 3 is a transverse horizontal sectional view taken on the line 2—2 of Fig. 1. Fig. 4 is a top plan view of the stove. Fig. 5 is an enlarged perspective view of one section of the fire brick of which the fire pot is formed, and Fig. 6 is a vertical sectional view of the stove taken on the line 4—4 of Fig. 4.

Referring now to the drawings, 1 represents the base, which is provided with a sub fuel chamber 2, having a grate 3, and below said grate is a damper 4 by means of which air can be admitted to the fire from below as will be hereinafter more fully described. Carried by said base is an upwardly extending cylindrical casing 5, and an inner cylindrical casing 6, which as shown forms a circumferential space 7 forming the combustion chamber. The space above the sub fuel chamber within the inner casing, forms the fuel chamber or fire box 9, and is necessarily provided with a lining of fire brick or metal castings which is to prevent the burning out of the casing and also serving as means by which the draft is admitted to the fire in a downward and central direction, which I will now proceed to describe. The said lining as shown is formed of several sections 10, obliquely arranged, and formed with overlapping ledges 11, by means of which they are properly held and interlocked so as to retain themselves in place. The said sections as shown in Fig. 1, are curved inwardly at 12 forming an air space 13 between the same and the inner casing 6, said space as shown being intermediate, the upper and lower ends and entirely encircling the fire pot. The edges of the bricks, intermediate the ends, are provided with cutaway portions 14, and the sections being obliquely arranged, it will be

seen that the said air passages between the sections are obliquely arranged. The air passing from the space 13, through the openings 14, passes in a downward and spiral direction in and around the fuel in the fire chamber. The upper edge of said sections of fire brick are provided with openings 15, which have their lower ends in communication with the air space 13 for supplying the same with air. Above said fire pot and flush with the inner edge thereof, is an upwardly extending cylinder 16 which is provided within the same with a slightly smaller cylinder 17 forming a dead air space 18 between the same. The space 19, within the inner cylinder forms the magazine which is filled with fuel as is well understood. The upper end of said cylinders 16 and 17, supports a circular heating chamber 20, which has no communication whatever with the magazine. Passing centrally through said chamber 20 and in communication with the magazine, is a passage 22, by means of which the fuel is fed to the magazine.

In communication with the upper end of the combustion chamber 7, are four upwardly extending flues 23, which have their upper ends in communication with the heating chamber 20 and means of which the gases and products of combustion are conveyed to said chamber. The rear edge of the heating chamber is provided with a flue 24 which conveys the gases to the chimney. The flues 23 as shown stand separated from the magazine between the combustion chamber and the heating chamber, and preventing the magazine from becoming heated, at the same time allowing a greater heating surface exposed to the air within the room. The space between said flues and the magazine, as shown, is of a width equal to the thickness of the fire brick. The upper end of the fire brick, as shown, is exposed to the outside atmosphere and resting upon the same, and secured thereto in any desired manner is a circular inverted U-shaped plate 25 which forms an annular air space 26 around the entire upper end of the fire brick. Said space is in communication with the openings 15 in the brick and air is fed to the space surrounding the brick and thence to the fire as heretofore described. The upper face of said plate forming the air chamber, is provided with a series of openings 27 and resting upon said face is a ring 28 having openings 29 to register with the openings 27. The said ring as shown encircles the magazine as well as the plate 25 and is adapted to freely oscillate. The plate is provided with a handle 30 by means of which it is oscillated, and whereby the openings 29 may be brought to register with the openings 27, and the proper amount of air is fed to the fire, the same serving as the damper.

In operation, the air passes through the openings 29 and 27, to the space 26 and through the openings 15 in the fire brick to the annular space 13, surrounding the brick sections. From there the air passes downwardly

and spirally to the fire owing to the oblique arrangement of the brick sections and the slots between the same. The air passes through the fire and causes the proper combustion of the fuel within the combustion chamber 7, and the products of combustion pass out through the flues as before described. The coal that has not been thoroughly consumed falls to the grate 3, and by opening the damper 4, an up draft passes through the grate and causes the perfect consumption of all products in the coal.

From the foregoing description, it will be appreciated that the fuel is subjected to two drafts of air during the progress of its consumption. When it is admitted to the fire chamber from the fuel magazine, it is first subjected to a draft from the air chamber surrounding the magazine being admitted through the spiral slots between the sections forming the lining of the cylindrical casing 6. The air being in a heated condition commingles with the gases escaping from the fire, which, when thus commingled with the air becomes ignited. Thus a continuous blast of burning gas is directed upon the fuel under combustion, which passing downward encounters an upward draft through the grate 3 beneath the sub-fire chamber effecting the consumption of the soot from the coal. Thus a down blast is an essential feature to obtain the object of my invention. These drafts may, under the influence of the draft of a chimney flue be lead on through the space 7 or combustion chamber, as is shown in the drawings. It will be seen that there are two distinct currents or drafts discharged upon the fuel successively causing in the first instance the rapid combustion of the gases and pitch and carrying off the non-combustible gases,

and subsequently the slow combustion in the sub fuel chamber under the influence of the upward draft.

What I claim is:—

1. A stove of the character described, comprising a fuel magazine, a fire pot below the magazine formed of a series of fire bricks having obliquely arranged openings between the fire bricks, an air chamber surrounding said fire pot and means for controlling the admission of air thereto, a sub-fire chamber below the said fire pot, and a combustion chamber surrounding the fire pot and in communication with the fire pot and the sub-fire chamber.

2. A stove comprising a magazine, a fire pot below the same formed of obliquely arranged interlocking fire brick, said fire brick having obliquely arranged openings between them, an air chamber surrounding said fire pot and means for controlling the admission of air thereto, a sub-fire chamber below the fire pot, a combustion chamber surrounding the said fire pot and air chamber and in communication with the said fire pot and the sub-fire chamber, and upwardly extending flues in communication with the combustion chamber.

3. A stove of the character described, comprising a fuel magazine, a fire pot below the magazine formed of a series of sections of fire brick obliquely arranged having longitudinal openings between said fire brick for admitting air to the fire, an air chamber surrounding said fire pot and means for controlling the admission of air thereto, a sub-fire chamber below the fire pot, a combustion chamber surrounding said fire pot and air chamber and in communication with the fire pot and the sub-chamber, upwardly extending flues in communication with the combustion chamber and a circular chamber partly covering the magazine and receiving the products of combustion from the flue.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

MILTON M. DILLON.

Witnesses:

F. M. MILLER,
JNO. E. WHALEY.