

No. 771,460.

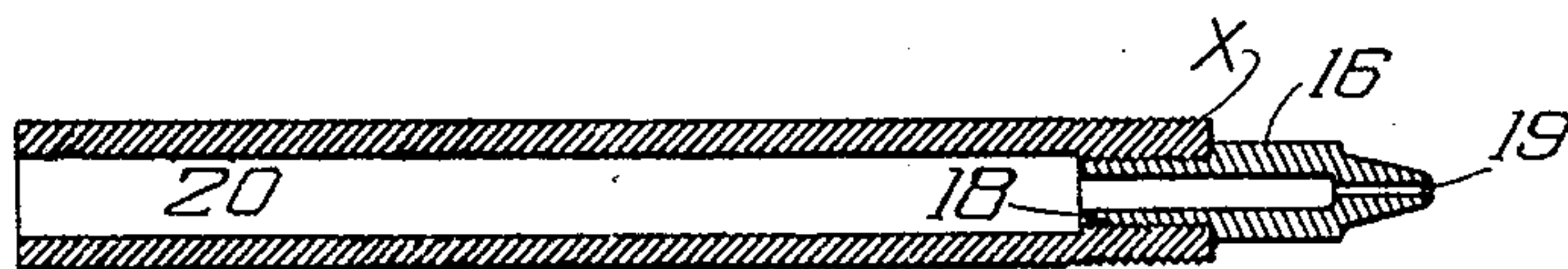
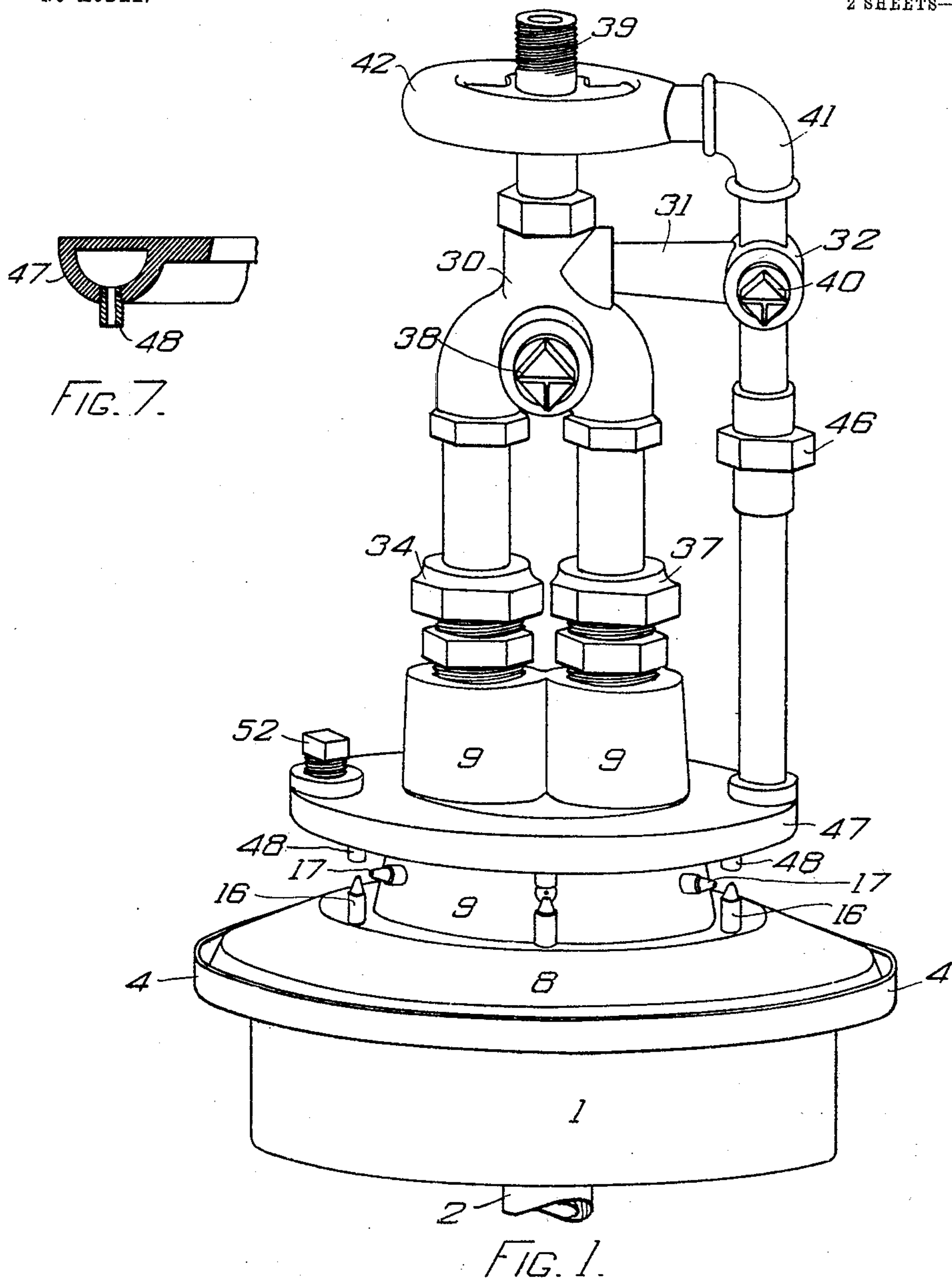
PATENTED OCT. 4, 1904.

A. CLARKSON.
HUMIDIFIER.

APPLICATION FILED JAN. 29, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

E. A. Allen.
J. M. Laing

INVENTOR

Alfred Clarkson
by his attorney
Edward S. Beach

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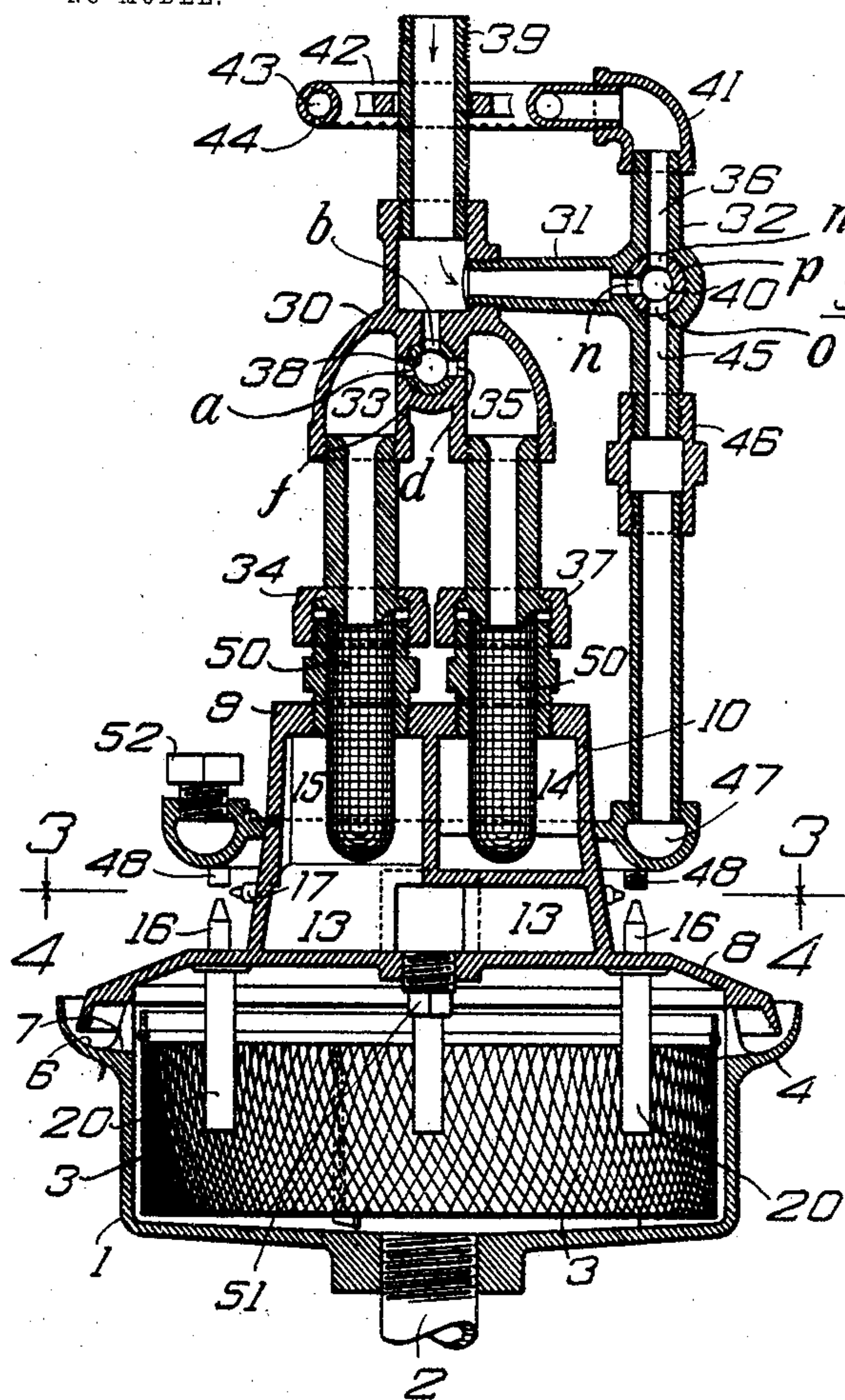


FIG. 2.

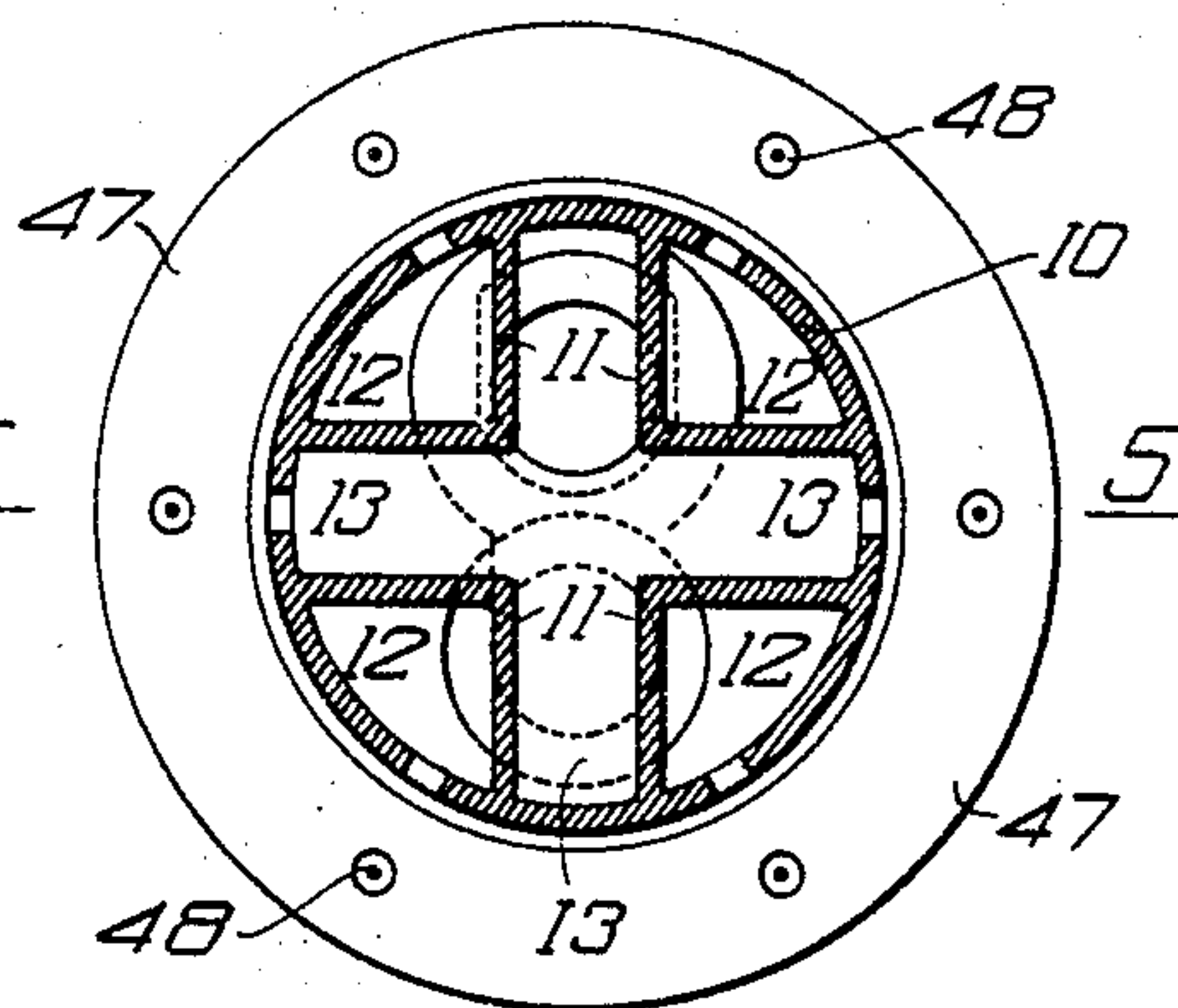


FIG. 4.

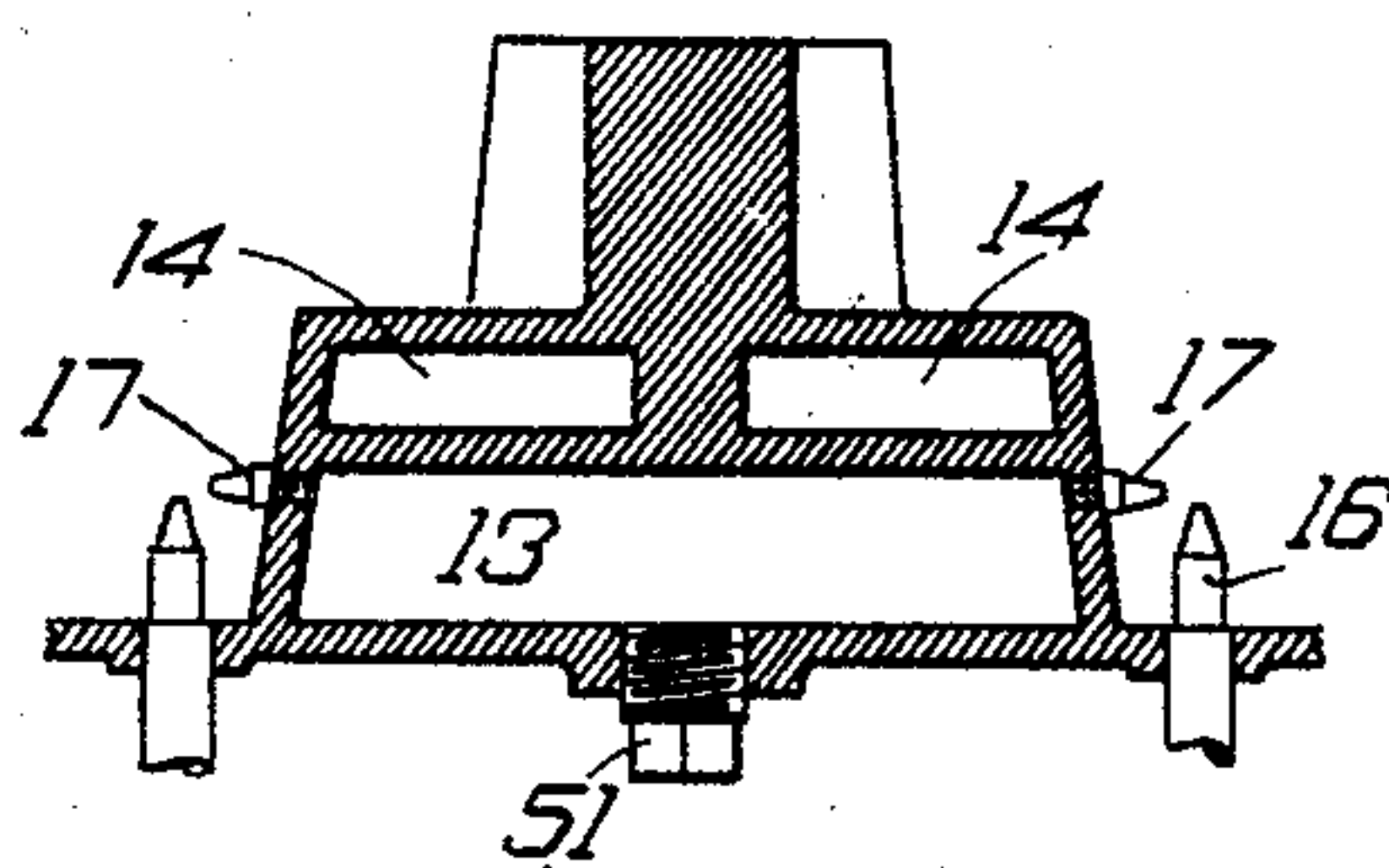


FIG. 5.

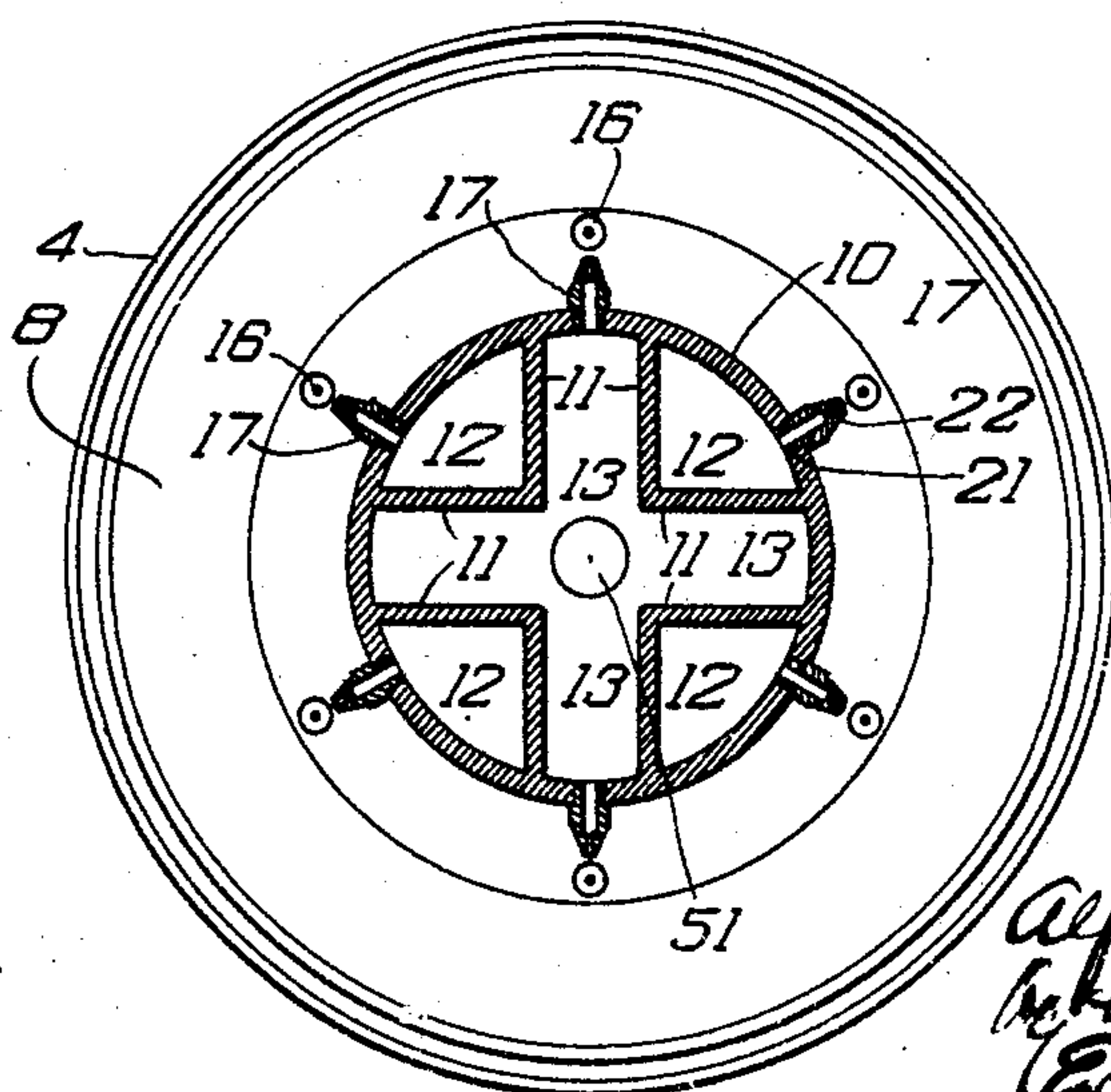


FIG. 3.

WITNESSES
E. A. Allen.
J. M. Lang

INVENTOR
Alfred Clarkson
By his attorney
Edw. S. Beach

UNITED STATES PATENT OFFICE.

ALFRED CLARKSON, OF FALL RIVER, MASSACHUSETTS, ASSIGNOR TO
GLOBE MOISTENING COMPANY, OF KITTERY, MAINE, A CORPORATION
OF MAINE.

HUMIDIFIER.

SPECIFICATION forming part of Letters Patent No. 771,460, dated October 4, 1904.

Application filed January 29, 1904. Serial No. 191,397. (No model.)

To all whom it may concern:

Be it known that I, ALFRED CLARKSON, a citizen of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Humidifiers, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a perspective, and Fig. 2 a vertical central section, of my improved humidifier. Fig. 3 is a horizontal section of the cover-turret at line 3 3 of Fig. 2 looking down, and Fig. 4 is a horizontal section at line 3 3 of Fig. 2 looking up. Fig. 5 is a central vertical section of the cover-turret at a line corresponding to line 5 5 of Fig. 4. Fig. 6 is a section of the water-nozzle. Fig. 7 is a sectional detail at line 5 5 of Fig. 4 of the air-escape in the lower cleaning-ring.

My present invention is in the nature of an improvement on the atomizer set forth in my United States Letters Patent No. 675,556, granted June 4, 1901.

The main objects of my present invention are to provide means for automatically blowing out the water and air nozzles, either or both, but principally the water-nozzles, and for automatically cleansing the exterior of the humidifier from dust and fibrous waste.

Another object of my invention is to facilitate the construction of the main body of the humidifier.

In the drawings, 1 is the water-reservoir, which may be of any desired form, and 2 is the water-inlet to the basin.

3 is the strainer, which constitutes a lining for the bottom and sides of basin 1.

4 is an integral upwardly-extending flange extending around the water-basin, and 5 is an upward extension of the side wall of the basin. 6 is a drip-channel formed between the flange and said upward extension, and 7 the water-escape passage from the channel back into the basin. 8 is the basin-cover, which rests on said upward extension, with its outer surface sloping downwardly into the drip-channel and its lower edge slightly above the bottom of the channel, so that drip-water may fall off the cover into the channel and escape

back into the water-basin. Cover 8 is formed with an air-turret 9, having a plurality of air-chambers which may be diminished or decreased, as desired, without departure from my invention. These air-chambers will be readily provided by persons skilled in the art of making castings, the cover, with its turret, being preferably one casting.

The present form of chambered turret will be best understood by reference to Figs. 3, 4, and 5. In Fig. 3, which is a horizontal sectional view of the turret looking down, cover 8 is formed within the turret-wall 10 with vertical partitions 11, which form, with wall 10, the four quadrant-shaped chambers 12 and the intersecting chambers 13, which separate the quadrant chambers one from another. The turret has two independent chambers 14 and 15 in its upper part, chamber 14 communicating with the four quadrant chambers and the chamber 15 communicating with the four intersecting chambers 13. Cover 8 in the present form is provided with six vertical water-nozzles 16, which are held in the cover and project outwardly thereof in line with corresponding horizontal air-nozzles 17, which are each screw-socketed in the wall of the turret and lead into the described air-chambers therein.

I find in practice that it is of substantial importance to have the water and air nozzles removable, so that they may be readily replaced in case their exits become jammed. Accordingly I form water-nozzles 16 with exterior screw-threads 18, the exit-orifices 19 being constricted relatively to the water-tubes 20, which extend from the bottom of the nozzles down into the water-reservoir. Preferably the tops of the tubes 20 are exteriorly threaded at *x* and screw into holes through cover 8. The air-nozzles have threaded shanks 21 and constricted exits 22. If any of the nozzles become bruised, jammed, or clogged, they may be readily removed and new ones inserted. This is highly advantageous, as it does not necessitate the removal of the humidifier from its location on its supply-pipes. It is obvious that when air is forced through the air-nozzles across the wa-

ter-nozzles that water will be sucked up and distributed as a spray into the room.

The foregoing part of my invention is an improvement on the construction of the so-called "atomizer" set forth in my said United States Letters Patent; but other features of my invention about to be described are of wide applicability, adapted to all forms of my humidifier and to various other forms of humidifiers.

30 is a three-way cock-body having a side outlet 31 to the three-way cock-body 32. Cock-body 30 has its way 33 coupled with turret-chamber 15 by a coupling 34 and has its way 35 coupled with turret-chamber 14 by a coupling 37.

38 is a three-way plug for cock-body 30, and 39 is the air-inlet nozzle to cock-body 30.

40 is the three-way plug for cock-body 32.

41 is a coupling connecting way 36 of cock-body 32 with the cleaning-ring 42, which is chambered at 43 and provided with a plurality of perforations 44 on its under side, so that air may be blown through the perforations down on the humidifier to blow off dirt, lint, and waste. Cock-body 32 has its way 45 connected by a coupling 46 with the chambered jet-cleaning ring 47, which is provided with air-escape ducts 48, discharging against the exits of the air and water nozzles and directly against the water-nozzle exits, blowing down into them. Consequently if the water-nozzles become clogged a discharge of air under considerable pressure through the air-escape ducts 48 will blow out lodgments in the water-nozzles, and such a discharge of air will also blow off lodgments on the outer surface of cover 8. Screens 50 are preferably employed to prevent foreign matter from being drawn into the air-chambers 12 and 13, the upper ends of these thimble-shaped screens being secured in the couplings 34 and 37.

As is well known, a good deal of labor is required on humidifiers now in use to clean them without and within, and heretofore when water-nozzles or air-nozzles have become clogged it has frequently become necessary to remove the obstructions by inserting needles manually into the nozzles.

The air-turret is preferably formed with an orifice stoppered by a removable plug 51. By taking off cover 8 and removing plug 51 the turret may be readily cleansed, if necessary. Similarly the jet-cleaning ring is provided with a removable plug 52. The orifices, respectively stoppered by plugs 51 and 52, are formed when the respective parts are cast and facilitate the casting of the turreted cover and jet-cleaning ring.

As shown in Fig. 1, both three-way cock-plugs 38 and 40 are open. In this position air under pressure will come in at 39 and be discharged not only through the air-nozzles 17, but also through the orifices 44 of the cleaning-ring 42 and the jets 48 of the clean-

ing-ring 47. When water is in reservoir 1, the flow of air through nozzles 17 will atomize the water sucked up through tubes 20 and nozzles 16. By properly turning plug 40 air may be wholly shut off from both cleaning-rings or admitted to one or the other ring, as desired. By properly turning plug 38 air may be shut off from either turret-chamber 14 or 15, as desired.

My invention may be embodied in many different forms. The shape of the cleaning-rings is immaterial, and either one may be omitted without departure from my invention. The cock-bodies and connections shown are simply the preferred form of air-supply devices for the air-reservoir, of which the described turret is merely the preferred form, and for one or more cleaning-rings, which severally constitute a blowing mechanism.

I am the first, so far as is known to me, to provide any device for automatically cleaning either water or air nozzles; but in my present arrangement the water-nozzles are more efficiently cleaned by reason of the direct action of the air-nozzles on the water-nozzles, the air-passages and the water-passages of these nozzles being in line.

The form in which the features of my invention are embodied is wholly immaterial.

In my said patent the top of the water-reservoir is flat. I have found this to be objectionable, as water and dirt are apt to collect thereon. In my present construction the outer surface of cover 8 slants downwardly into drip-channel 6, so that water of condensation and dirt may be readily carried off the over surface of the cover into the drip-channel.

In accordance with my present invention the cover 8 rests on the upward extension or brim 5 of the water basin or reservoir 1; but the water-escape passages 7 form a vent for the water-reservoir, so that water may flow readily into the water-reservoir. This is important, as generally in installing the humidifiers a considerable number of them are attached to a common water main or pipe, and it is desirable to have the water stand at the same level in all the humidifiers, in order that the water-jets may discharge uniformly into the room. If the water in a number of the reservoirs or a common main stood at different levels, then the atomizing action of the water and air nozzles would vary in consequence of variation in distances through which the water would have to be lifted by the air-jets.

The cock 38 has three ways *a*, *b*, and *d* in its circumference, these ways being in one half of the circumference and separated by intermediate solid portions. The imperforate half is marked *f*. Cock 32 similarly has three ways *m*, *n*, and *o*, all in one half of the circumference, the imperforate half being marked *p* and the ways *m*, *n*, and *o* being

separated by solid portions. In both these valves the imperforate half is adapted to cover two of the three ways in its cock-body. Detailed explanation of this matter is unnecessary, because it is readily understood by skilled mechanics.

The ring 42 constitutes an upper and the ring 47 a lower air-jet device. The shape of these "rings," as well as the shape of what I called the "quadrant" chambers, may be changed without departure from my invention, for I use these designations for better description of the preferred form of my device and not as limitations of my invention. The air-turret or air-receptacle is made of cast metal to avoid all joints and consequent leakages and for economy of construction. The chambers 14 and 15 are the upper and the chambers 12 and 13 the lower chambers in the air-turret.

I wish to be understood as claiming my invention in the broadest manner legally permissible.

What I claim is—

1. In a humidifier, the combination of a water-receptacle; an air-receptacle; a water-nozzle which discharges outside the humidifier; an air-nozzle which discharges exteriorly of the humidifier in operative proximity to the water-nozzle; and blowing mechanism which discharges upon the outside of the humidifier; and a conduit device which operatively connects said blowing mechanism with said air-receptacle.

2. In a humidifier, the combination of a water-receptacle; an air-receptacle; a water-nozzle which discharges outside the humidifier; an air-nozzle which discharges exteriorly of the humidifier in operative proximity to the water-nozzle; and blowing mechanism which discharges upon the outside of the humidifier, and is operatively connected with an air-supply device for the air-receptacle; and an air-supply device for the air-receptacle.

3. In a humidifier, the combination of a water-receptacle; an air-receptacle; a water-nozzle which discharges outside the humidifier; an air-nozzle which discharges exteriorly of the humidifier in operative proximity to the water-nozzle; and blowing mechanism which discharges upon the outside of the humidifier and is provided with air-exits that discharge against the water-nozzles.

4. In a humidifier, the combination of a water-receptacle; an air-receptacle; a plurality of water-nozzles; a plurality of air-nozzles in atomizing relation to the water-nozzles; a chambered cleaning device having ex-

its in proximity to the water-nozzles; a chambered cleaning device having exits toward the outside of the humidifier; a valve-controlling air-supply device for the air-reservoir and having a plurality of independent ways; a many-way valve therefor; a valve-controlled air-supply device for said chambered cleaning device, and having a plurality of independent ways; and a many-way valve therefor.

5. The combination with a humidifier of a chambered device mounted exteriorly of the humidifier, extending therearound, and provided with a plurality of air-escapes discharging toward the outside of the humidifier, and means for supplying air to said device.

6. In a humidifier, the combination of a water-receptacle and a cast-metal cover for said receptacle, having a plurality of outwardly-projecting water-nozzles, and also having an integral cast-metal, chambered air-receptacle comprising a plurality of independent upper chambers; a plurality of independent quadrant chambers, and intersecting chambers between the quadrant chambers, one of the upper chambers communicating with the quadrant chambers and the other upper chamber communicating with the intersecting chambers, substantially as set forth; a many-way cock-body and cock; and a plurality of independent conduit connections, one to one of said upper chambers and another to another of said upper chambers.

7. In a humidifier, the combination of a water-receptacle having water-nozzles; an air-receptacle having air-nozzles which are in atomizing relation to the water-nozzle; and also having independent air-chambers; a many-way cock-body independent conduits between cock-body ways and the independent air-chambers; one of the cock-body ways being an air-inlet way; a many-way cock having a solid portion adapted to close two ways of the cock-body at a time and having three ways separated by solid portions; a blowing mechanism comprising a three-way cock-body, one way to said other cock-body, a second way to an upper air-jet device, and a third way to a lower air-jet device; and a three-way cock in the cock-body of the blowing mechanism; said cock having a solid portion adapted to close two ways at a time, all substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED CLARKSON.

Witnesses:

GEORGE E. BREEUFORD,
JOSEPH LEDOUX.