

Sept. 4, 1928.

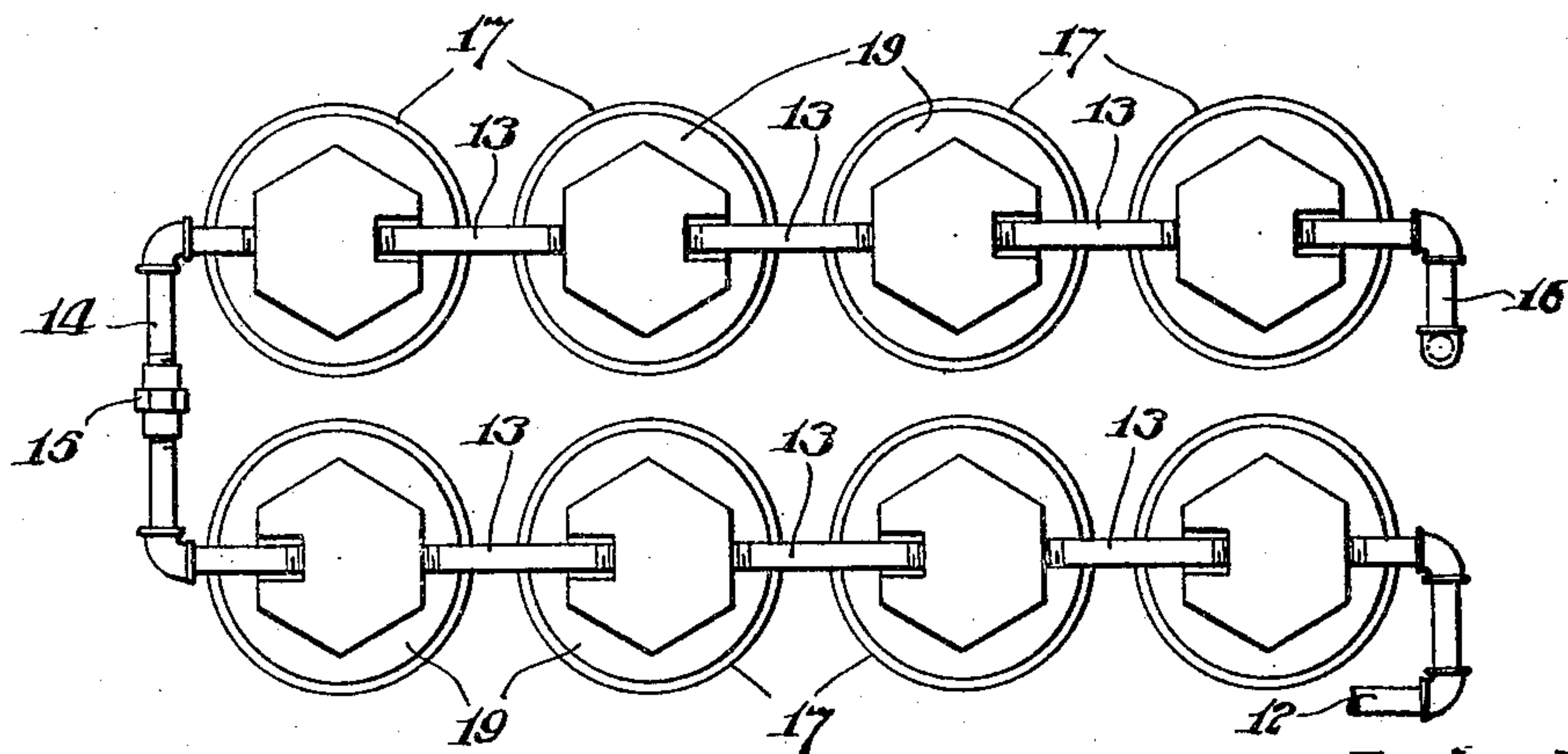
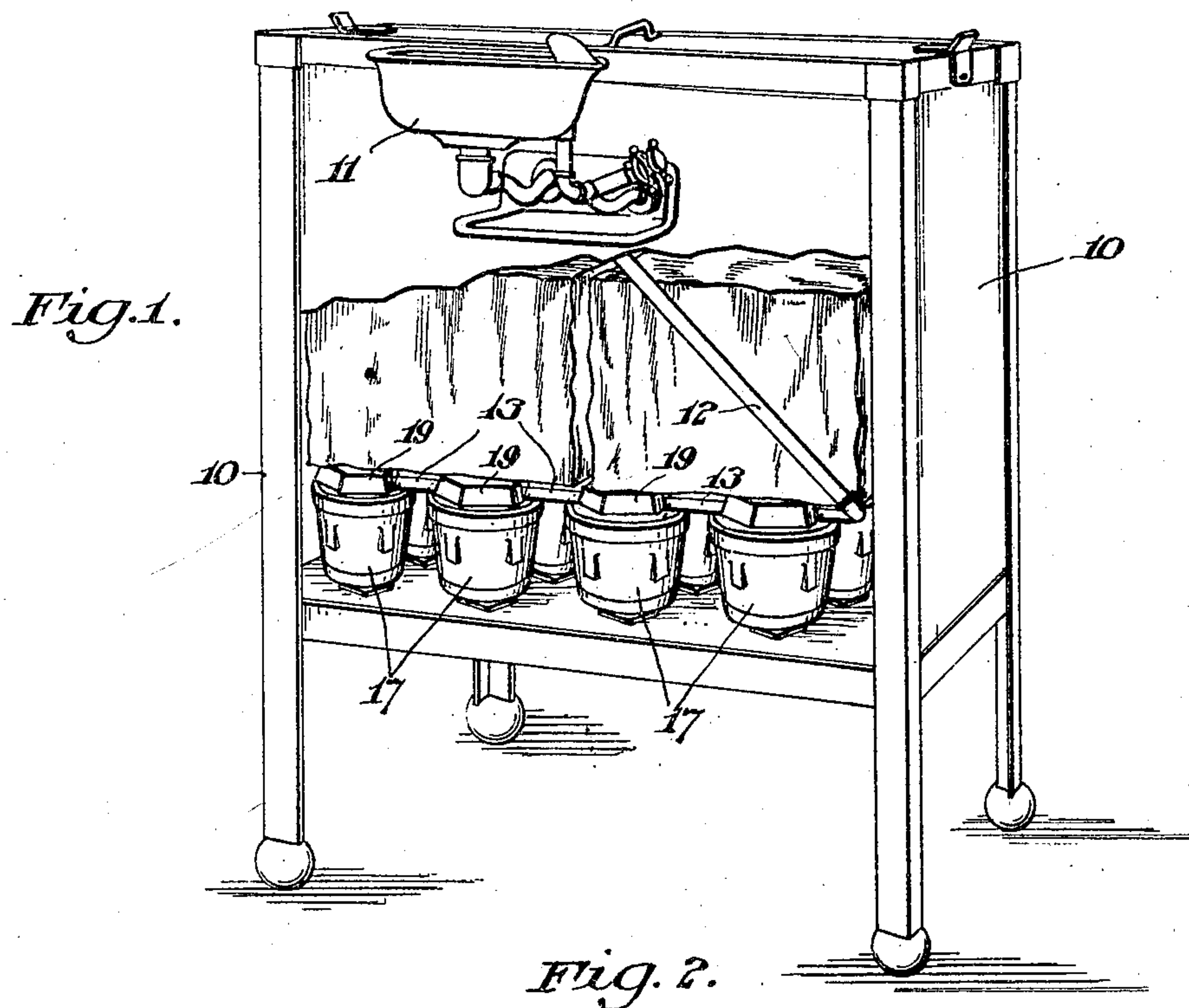
1,683,381

H. K. BUSH

WATER COOLER

Filed Oct. 31, 1925

2 Sheets-Sheet 1



Inventor:  
Harry K. Bush,  
By Jas. C. Wobensmith  
Attorney.

Sept. 4, 1928.

1,683,381

H. K. BUSH

WATER COOLER

Filed Oct. 31, 1925

2 Sheets-Sheet 2

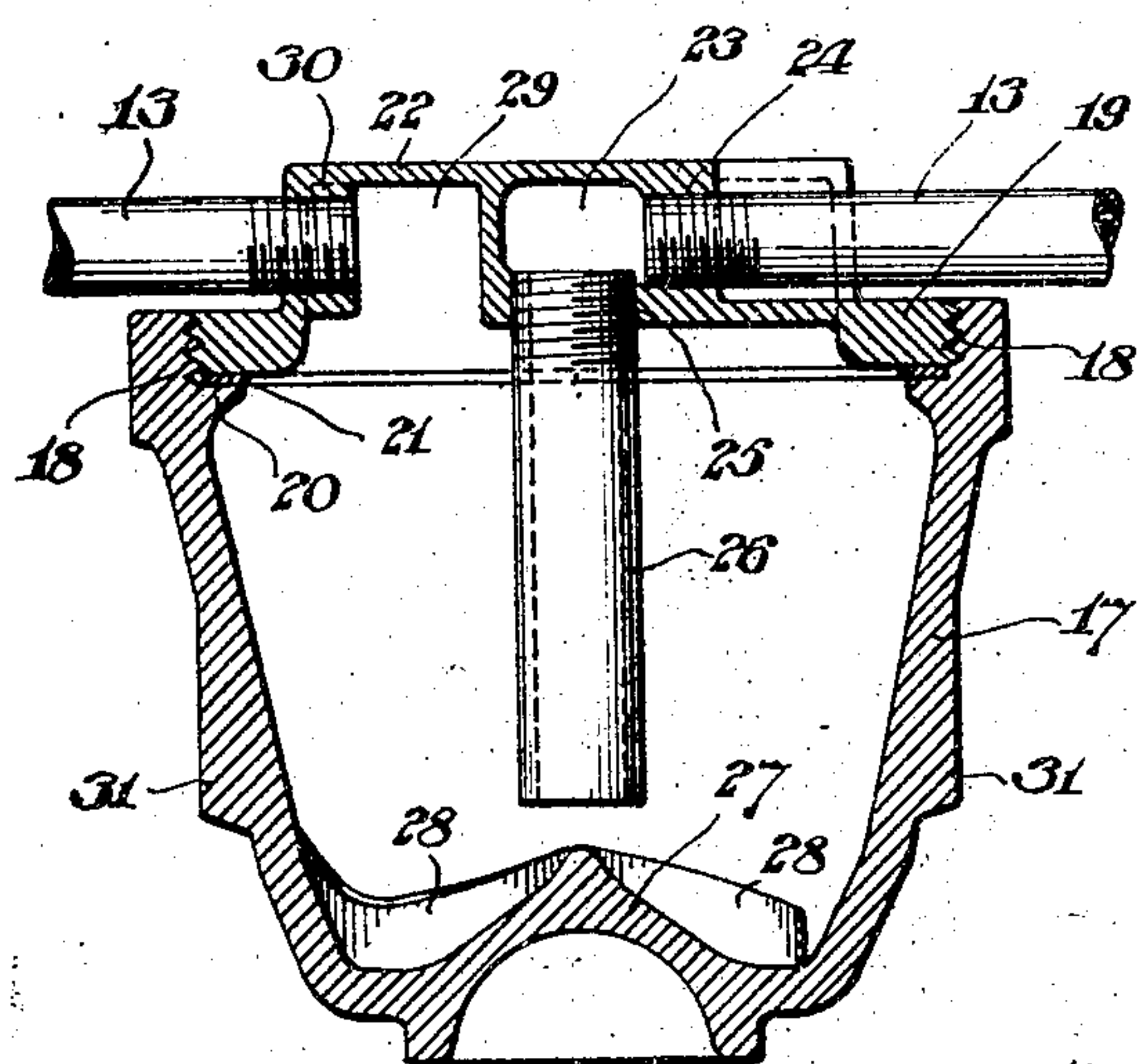


Fig. 3.

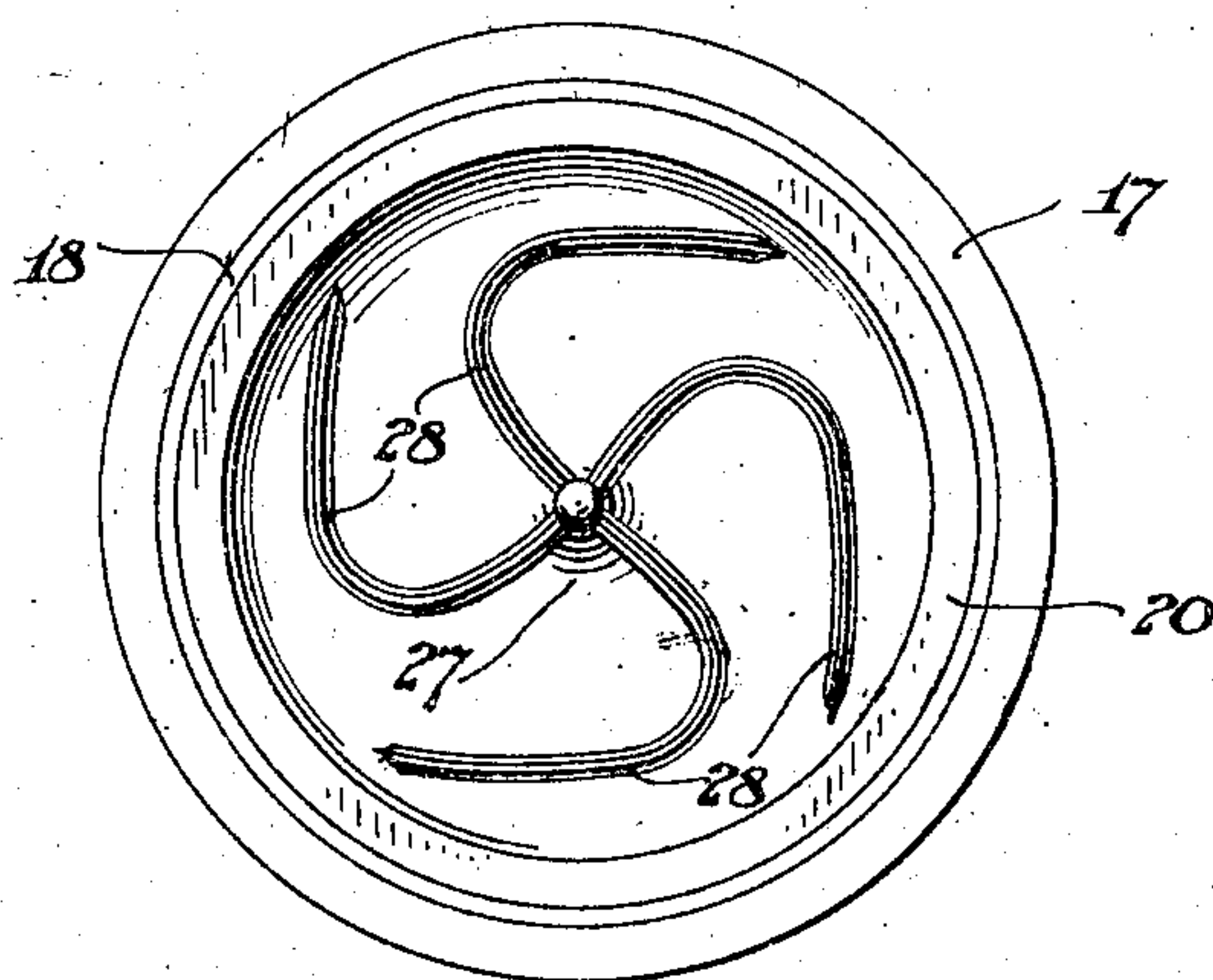


Fig. 4.

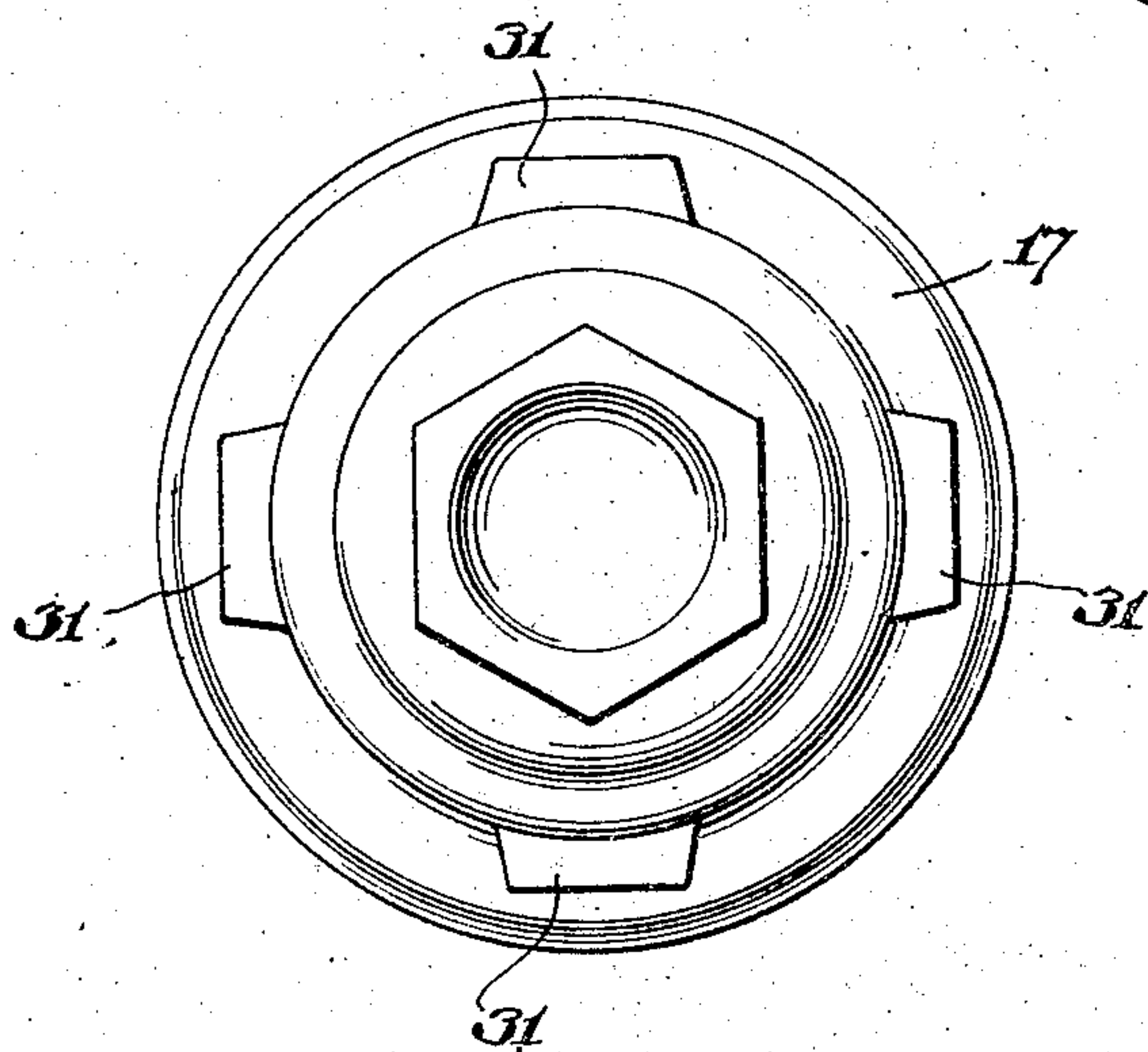


Fig. 5.

Inventor:  
Harry K. Bush,  
By Jas. C. Wobensmith  
Attorney.



## UNITED STATES PATENT OFFICE.

HARRY K. BUSH, OF POTTSTOWN, PENNSYLVANIA, ASSIGNOR TO READING FOUNDRY AND SUPPLY CO., A CORPORATION OF PENNSYLVANIA.

## WATER COOLER.

Application filed October 31, 1925. Serial No. 65,968.

My invention relates to improvements in water coolers, and it has particular relation to a water cooling apparatus adapted for use in connection with drinking fountains and the like, where comparatively large quantities of cooled water are required to be delivered.

My present invention relates to that type of water cooler wherein there is provided a plurality of cooler units, connected in series, through which units the drinking water is successively passed, said cooler units being disposed within a tank, whereby the ice or other refrigerant may be superimposed thereon to effect the cooling of the water passing through the units.

More specifically considered, the present invention contemplates certain improvements upon the construction and arrangement of the cooler units shown in Letters Patent No. 1,493,016, dated May 6, 1924, to Harry K. Bush and Bertolet F. Frame.

The object, therefore, of my present invention is to provide an improved form of cooling unit adapted to be arranged as aforesaid, which will be more simple and efficient than the cooler units of this type heretofore provided, which may be inexpensively manufactured, and which may be readily assembled and dismantled as desired.

The nature and characteristic features of my invention will be more readily understood from the following description, taken in connection with the accompanying drawings forming part hereof, in which:

Figure 1 is a perspective view, partly broken away, illustrating a tank provided with a drinking fountain of an ordinary type and having cooler units embodying the main features of my present invention mounted in the interior thereof;

Fig. 2 is a top or plan view of a series of cooler units, showing the preferred manner of connecting the same whereby the drinking water may be passed successively there-through;

Fig. 3 is a vertical central sectional view of one of the individual cooler units;

Fig. 4 is a plan view of one of the individual cooler units, with the top or cap member removed therefrom; and

Fig. 5 is an underneath plan view of one cooler unit.

Referring to the drawings, in the particular embodiment of my invention therein

shown, 10 is a tank or cabinet having mounted on the front thereof a drinking fountain 11 or delivery device of any other preferred type. It should, of course, be understood that the drinking fountain or other delivery device, such as an ordinary spigot, may be located elsewhere than upon the front of the tank or cabinet 10, if desired. A pipe 12 extends from the fountain or other delivery device, said pipe 12 being arranged within the cabinet and being connected to the cooler units which are located in the lower portion of the tank or cabinet 10.

The cooler units are preferably arranged in one or more rows, and are connected to each other in series by means of pipes 13, in a manner which will be hereinafter more fully set forth. Suitable piping 14 is provided to connect the series of units in one row with the series in another row, said piping including, in the arrangement thereof shown in the drawings, a union joint 15 to facilitate the assembly and dismantling of the apparatus. The drinking water enters the first of the series of cooler units by means of piping 16, which is connected to a suitable source of supply.

Each of the cooler units comprises a main body portion 17, frusto-conical in shape and having its small end at the bottom. The upper enlarged end of the main body portion of the cooler units is interiorly threaded, as at 18, for the reception of a complementally threaded cap member 19. There is provided an interior ledge 20, arranged below the threaded portion 18, and a gasket 21 is interposed between the bottom of the cap member 19 and the upper surface of the ledge 20, whereby, when said cap member is screwed tightly in place, an effective seal at the top of the cooler unit is provided.

The cap member 19 is provided with an upwardly extending portion 22, preferably polygonal in outline, having a central chamber 23. A threaded opening 24 is provided adjacent the chamber 23, for the connection of the inlet pipe thereto. There is also provided a threaded opening 25 in the bottom wall of the central chamber 23, whereby a depending pipe 26 is mounted therein, which pipe terminates adjacent the bottom of the body portion 17. The pipe 26 is open at its lower end.

Arranged in the lower or smaller end of



the body portion 17 of the cooler unit is an upward extension 27, having a plurality of curved vanes 28 associated therewith, so arranged that as the incoming water emerges from the end of the pipe 26, the same will be given a swirling motion against the sides of the body portion 17, thereby increasing the efficiency of the cooler unit and serving to thoroughly agitate and mix the water within the unit.

The cap member 19 is also provided with a chamber 29, in direct communication with the interior of the body portions of the unit and having a threaded outlet opening 30, whereby the outlet pipe may be connected therewith so as to permit the water to pass from the cooler unit.

It will, of course, be understood that the ice, which is preferably in block form, rests on the tops of the several units which are arranged in the bottom of the tank or cabinet, and the bodies of the units are submerged in the water which results from the melting of the ice, which may be drawn off by an overflow (not shown) at the desired height. In this manner, the cooling effect of the ice is applied to the exterior surfaces of the cooler units, thereby effecting the cooling action in an efficient manner without contamination from impurities contained in the ice.

The body portion 17 of the cooler unit is preferably made of cast iron or the like, and enameled on its inner and outer surfaces to prevent corrosion, the shape being such that said inner and outer surfaces may be properly coated with porcelain or burnt-on enamel of a lasting character. The cap member 19 is preferably made of a non-corrosive material such as brass, although, if desired, the same may be made of enameled cast iron in a manner similar to the body portion of the unit.

For the purpose of facilitating the insertion and removal of the cap member 19 with respect to the body portion 17, the body portion is provided with a plurality of lugs or projections 31 having vertical faces, whereby the body portion of the unit may be firmly gripped by a suitable tool while threading the cap member in or out of the body portion.

It will be noted that, by the foregoing arrangement, there is provided a sanitary cooling apparatus which may be readily assembled and easily dismantled for the purpose of thoroughly cleansing the interior surfaces thereof, and in which, when in operation, the cooling action will be efficiently carried out by reason of the peculiar arrangement and conformation of the various parts.

Having thus described the nature and characteristic features of my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a water cooler, a unit comprising a hollow frusto-conical casing integrally closed at its smaller end, said smaller end of the casing having internally arranged curved vanes adapted to impart a swirling motion to water passing through the unit, a removable cap member secured in the larger end of said casing, said cap member having two chambers, an inlet pipe connected to the cap member and in communication with one of said chambers, a pipe mounted in said cap member in communication with said chamber and extending within the casing and terminating adjacent the smaller end thereof, and an outlet pipe connected to the cap member and communicating with the other chamber thereof.

2. In a water cooler, a unit comprising a hollow frusto-conical casing integrally closed at its smaller end, said smaller end of the casing having an internal extension and curved vanes associated therewith adapted to impart a swirling motion to water passing through the unit, a removable cap member secured in the larger end of said casing, said cap member having two chambers, an inlet pipe connected to the cap member and in communication with one of said chambers, a pipe mounted in said cap member in communication with said chamber and extending within the casing and terminating adjacent the smaller end thereof, and an outlet pipe connected to the cap member and communicating with the other chamber thereof.

In testimony whereof, I have hereunto signed my name.

HARRY K. BUSH.