

W. INGHAM.  
SHOWER BATH MIXER.  
APPLICATION FILED AUG. 22, 1907.

953,787.

Patented Apr. 5, 1910.

Fig. 1

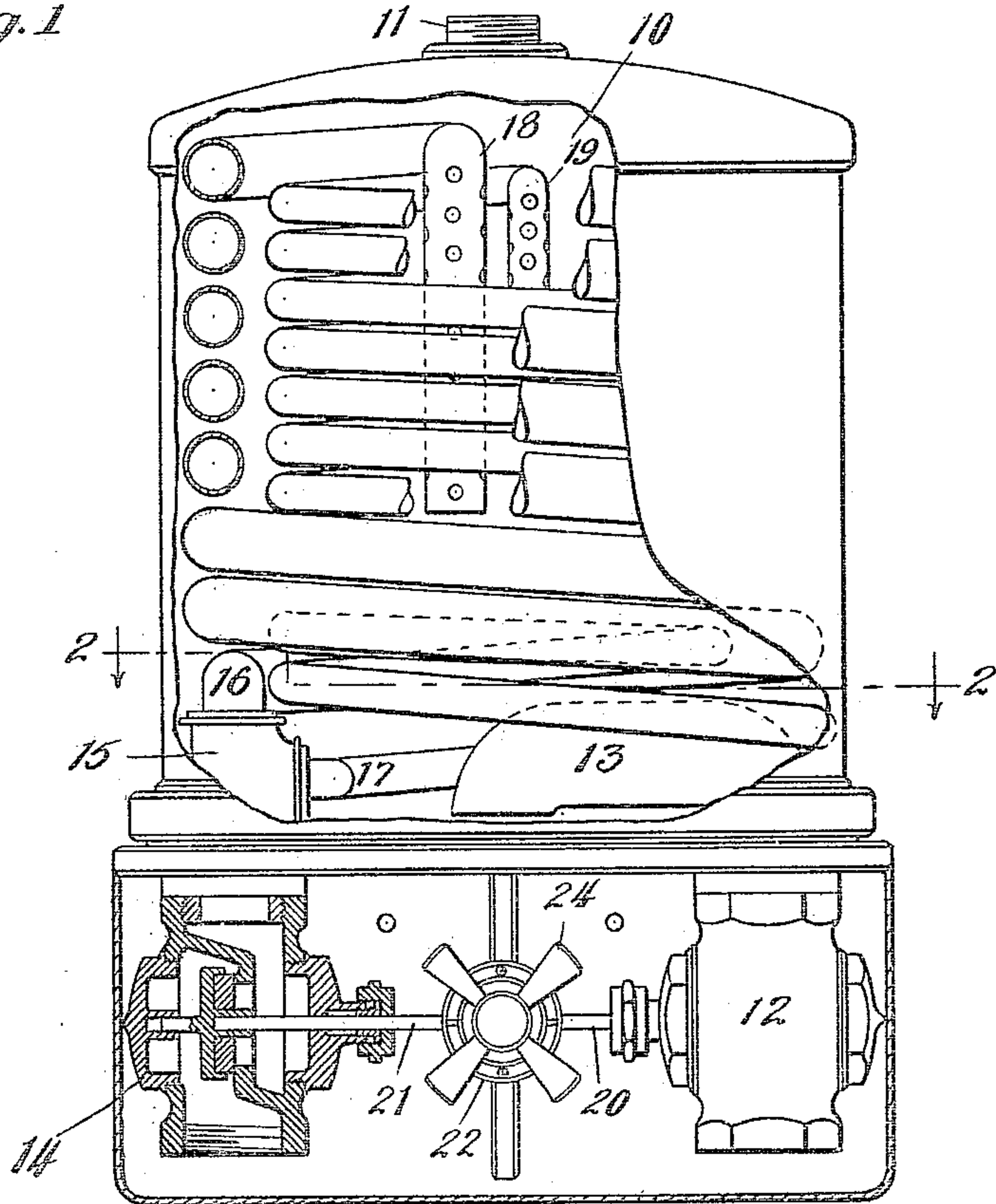


Fig. 2

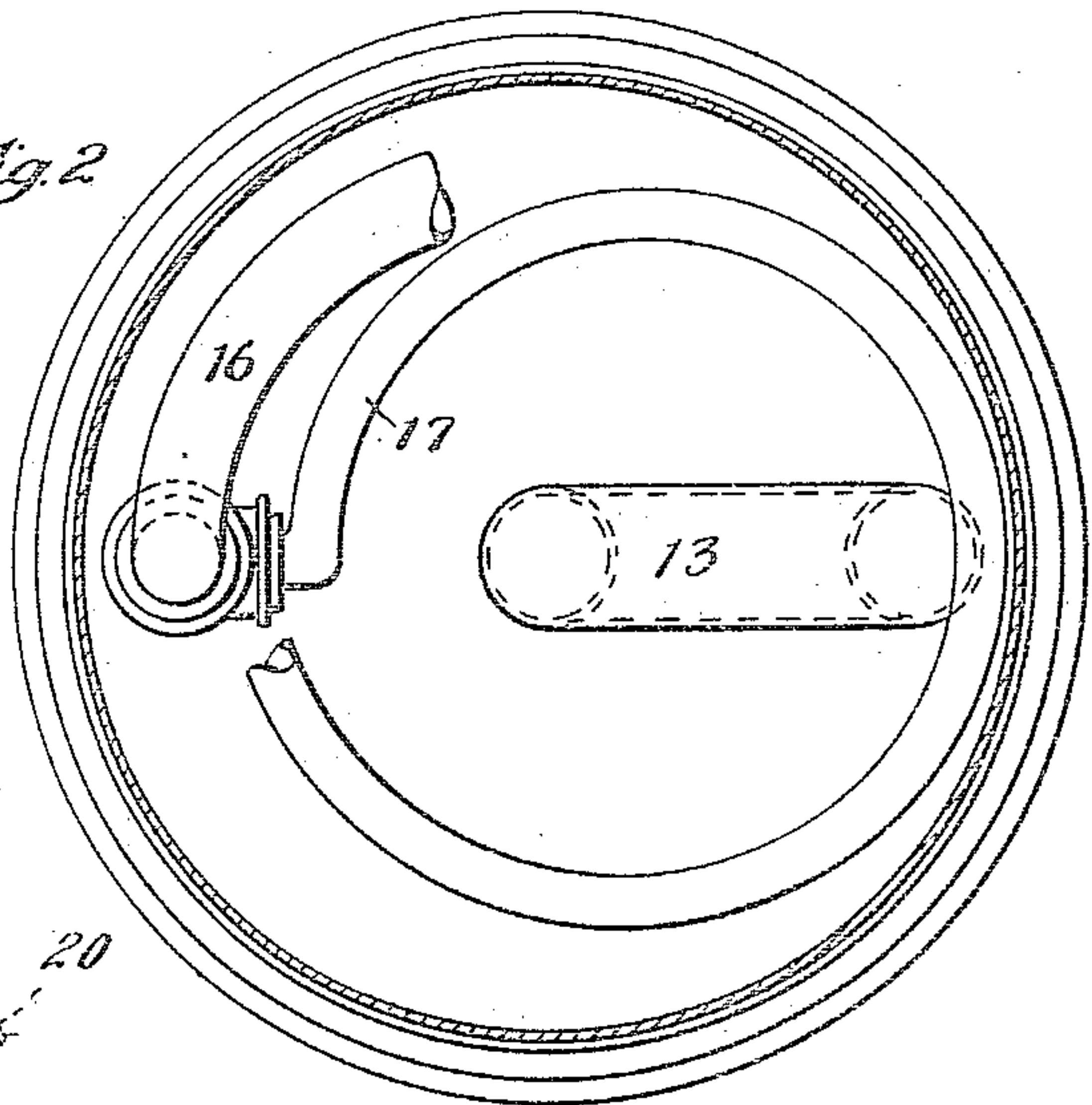


Fig. 3

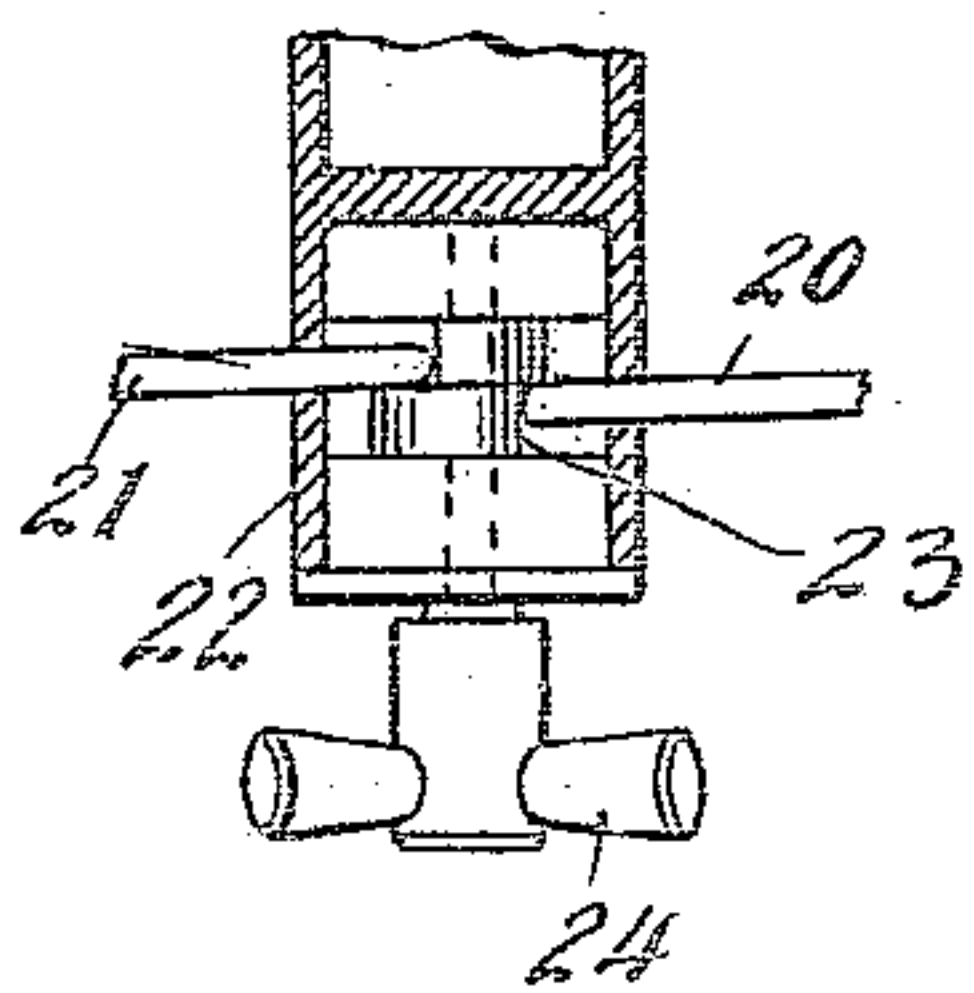
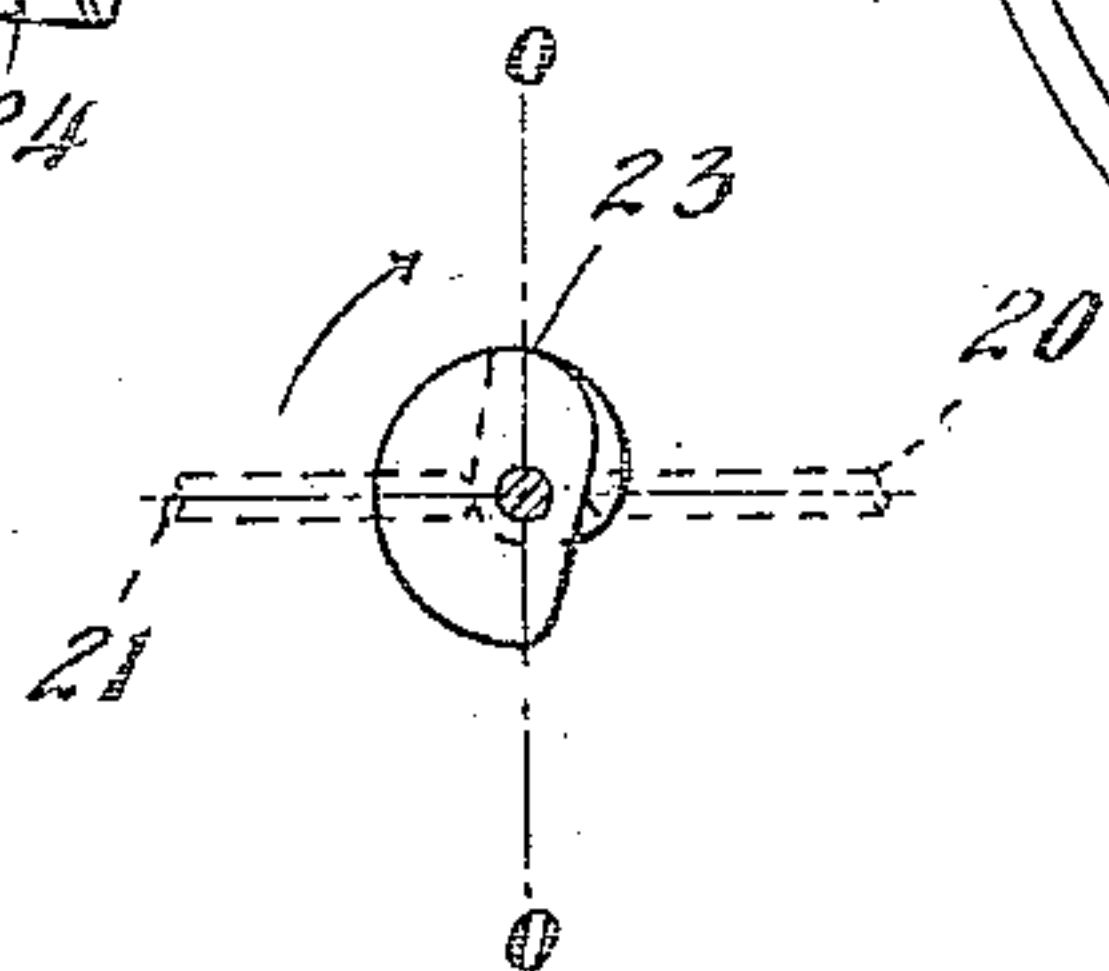


Fig. 4



Witnesses

Wm. Geiger  
A. W. Munday,

Inventor:  
William Ingham.

By Munday, Evans, Adcock & Clarke.

Attorneys



# UNITED STATES PATENT OFFICE.

WILLIAM INGHAM, OF CHICAGO, ILLINOIS.

SHOWER-BATH MIXER.

953,787.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed August 22, 1907. Serial No. 339,634.

*To all whom it may concern:*

Be it known that I, WILLIAM INGHAM, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Shower-Bath Mixers, of which the following is a specification.

My invention relates to improvements in shower-bath mixers; or devices for tempering the water of the shower bath spray; and it has for its primary object the production of a mixing device that shall most effectively temper the spray of water to any desired extent and variation and with the most perfect possible uniformity, and that shall be under the most convenient and complete possible control of the user; and it has for its further objects all such new advantages of function or construction as may be found to obtain in the devices hereinafter described or claimed.

In the accompanying drawing, forming a part of this specification, Figure 1 is a front elevation of the device with a part of the wall of the mixing chamber broken away and one of the inlet valves shown in vertical section; Fig. 2 is a vertical section on line 2—2 of Fig. 1; Fig. 3 is a fragmentary sectional view of the valve-controlling device; and Fig. 4 is a plan view of the compound cam of said valve controlling device.

Like reference numerals indicate like parts in all the figures.

10 is the mixing chamber having the outlet 11, which leads to the shower bath spray. Cold water is introduced to the chamber through the valve 12 and inlet nozzle 13, and said nozzle is so recurved toward the center of the bottom of the chamber as to direct the outflow of cold water against the middle of said bottom and so cause a centrifugal spreading or distribution of the cold water current toward the cylindrical vertical wall of the chamber. Super-heated hot water or steam is introduced into the chamber through the valve 14 and inlet 15, said inlet having two orifices, the one leading into the larger coil 16 that rises in close proximity to the inner face of the vertical wall of the mixing chamber, the other leading into the coil 17, of lesser bore and diameter, that rises within the aforesaid coil 16. The lesser coil 17 also makes one loop about the cold water nozzle 13 before its spiral rises toward the top of the chamber. At the top of the chamber the free end of each coil

is brought over to and extended down through the middle part of the chamber within both coils, and such vertical legs, 18 and 19, constituting the free ends of the coils, are each provided with perforations so that super-heated water or partially condensed steam discharged from the said coils shall be comminuted or divided into a relatively fine spray as it comes into contact with and is distributed through the body of water within the chamber. The cold water introduced into the chamber is first tempered indirectly by the superheated water or steam passing up through the coils, and is then further heated by direct contact with the comminuted spray from the perforate legs of the coils; and reciprocally the temperature of the superheated water is reduced, or the steam partially condensed, while passing through the coils so that when discharged through the aforesaid perforations the contents of the coils do not produce the explosive pounding or backlash that results from discharging superheated water or steam too directly into relatively colder water within a closed chamber. At the same time any steam pressure within the coils is of course transmitted to the body of water within the mixing chamber and serves to augment the pressure of the shower spray. This disposition of the cold water inlet and the steam or hot water coils effects a complete and instant mixing and tempering of the spray water, so that the outflow entering the discharge orifice at the top of the mixing chamber is always of uniform temperature throughout its cross section, and effectively prevents the possibility of separate currents of cold and heated water simultaneously reaching different sides or parts of the shower spray.

To conveniently control both the cold water valve and the steam valve at one motion of the hand of the operator I carry both valve stems 20 and 21 from their respective valves to an intermediate controlling device 22, consisting in the compound cam 23 rotated by the handle-grip 24. The greater member of this compound cam engages the valve stem of the cold water valve, and the lesser member of said cam engages the valve stem of the steam valve. And the two members of the cam are so shaped and disposed that, as the hand grip is turned from its zero or closed position, the first quarter turn of the compound cam



opens the cold water valve only, and then the next quarter turn partially opens the steam valve, and the third quarter turn completely opens the steam valve, the cold  
 5 water valve remaining open throughout the said second and third quarters of the total three quarter movement of the cam. The movement is checked at the three quarter point and its reversal simply reverses the  
 10 condition of the valves and regulation of the steam and cold water flow.

My invention is hereinabove set forth as embodied in one particular form of construction, but I do not limit myself thereto  
 15 or to less than all the possible forms in which the said invention as hereinafter claimed may be embodied and distinguished from prior devices for like purposes.

I claim:—

20 1. In a shower bath mixer, in combination a mixing chamber having an outlet and a cold water inlet, and a contained coil for superheated water or steam, said coil having at its free end means for comminuting  
 25 the discharge of its contents within said chamber, substantially as specified.

2. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, means for spraying the in-  
 30 pour of cold water at said inlet, and a contained coil for superheated water or steam, said coil having at its free end means for comminuting the discharge of its contents within said chamber, substantially as specified.  
 35

3. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, means for directing said cold water against the bottom of the cham-  
 40 ber, and a contained coil for superheated water or steam, said coil having at its free end means for comminuting the discharge of its contents within said chamber, substantially as specified.

45 4. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, said inlet being a recurved nozzle for directing said cold water against the bottom of the chamber, and a contained  
 50 coil for superheated water or steam, said coil having at its free end means for comminuting the discharge of its contents within said chamber, substantially as specified.

55 5. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, and a contained coil for superheated water or steam, said coil having at its free end a perforated member for comminuting the discharge of its contents  
 60 within said chamber, substantially as specified.

65 6. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, and a contained coil for superheated water or steam, said coil hav-

ing at its free end a perforated leg for comminuting the discharge of its contents within said chamber, substantially as specified.

7. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, and a contained coil for superheated water or steam, said coil having at its free end a perforated vertical leg for comminuting the discharge of its contents within said chamber, substantially as specified.  
 75

8. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, and two contained coils for superheated water or steam, said coils  
 80 having at their free ends means for comminuting the discharge of their contents within said chamber, substantially as specified.

9. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, and having an outer major coil and an inner lesser coil for superheated steam or water, said coils having at their  
 90 free ends means for comminuting the discharge of their contents within said chamber, substantially as specified.

10. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, and an outer major coil and an inner lesser coil for superheated steam or water, each of said coils having at its free end separate means for comminuting the discharge of its contents within said chamber, substantially as specified.  
 100

11. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, and an outer major coil and an inner lesser coil for superheated steam or water, each of said coils having at its free end a perforated member for comminuting the discharge of its contents within said chamber, substantially as specified.  
 105

12. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, and an outer major coil and an inner lesser coil for superheated steam or water, each of said coils having at its free end a perforated leg for comminuting the discharge of its contents within said chamber, substantially as specified.  
 115

13. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, and an outer major coil and a lesser inner coil for superheated steam or water, each of said coils having at its free end a perforated vertical leg for comminuting the discharge of its contents within said chamber, substantially as specified.  
 120  
 125

14. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, a contained coil for superheated water or steam, said coil having at its free end means for comminuting  
 130



the discharge of its contents within said chamber, said chamber having adjacent to it separate valves for said cold water inlet and the inlet of said coil, and a single controlling device for simultaneously controlling both valves, said device being adapted first to open fully the cold water inlet and then to open progressively the hot water inlet, substantially as specified.

15. In a shower bath mixer, in combination a mixing chamber having an outlet and a cold water inlet, and contained coils for superheated water or steam, said coils having at their free ends means for comminuting the discharge of their contents within said chamber, said chamber having adjacent to it separate valves for said cold water inlet and the inlet of said coils, and a single controlling device for simultaneously controlling both valves, said device being adapted first to open fully the cold water inlet and then to open progressively the hot water inlet, substantially as specified.

16. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, an outer major coil and an inner lesser coil for superheated steam or water, each of said coils having at its free end means for comminuting the discharge of its contents within said chamber, separate valves for said cold water inlet

and the inlet of said coils, and a single controlling device for simultaneously controlling both valves, substantially as specified.

17. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, an outer major coil and an inner lesser coil for superheated steam or water, each of said coils having at its free end a perforated vertical leg for comminuting the discharge of its contents within said chamber, separate valves for said cold water inlet and the inlet of said coils, and a single controlling device for simultaneously controlling both valves, substantially as specified.

18. In a shower bath mixer, in combination, a mixing chamber having an outlet and a cold water inlet, an outer major coil and an inner lesser coil for superheated steam or water, each of said coils having at its free end a perforated vertical leg for comminuting the discharge of its contents within said chamber, separate valves for said cold water inlet and the inlet of said coils, and a single cam-device for simultaneously controlling both valves, substantially as specified.

WILLIAM INGHAM.

Witnesses:

H. M. MUNDAY,  
HENRY LOVE CLARKE.