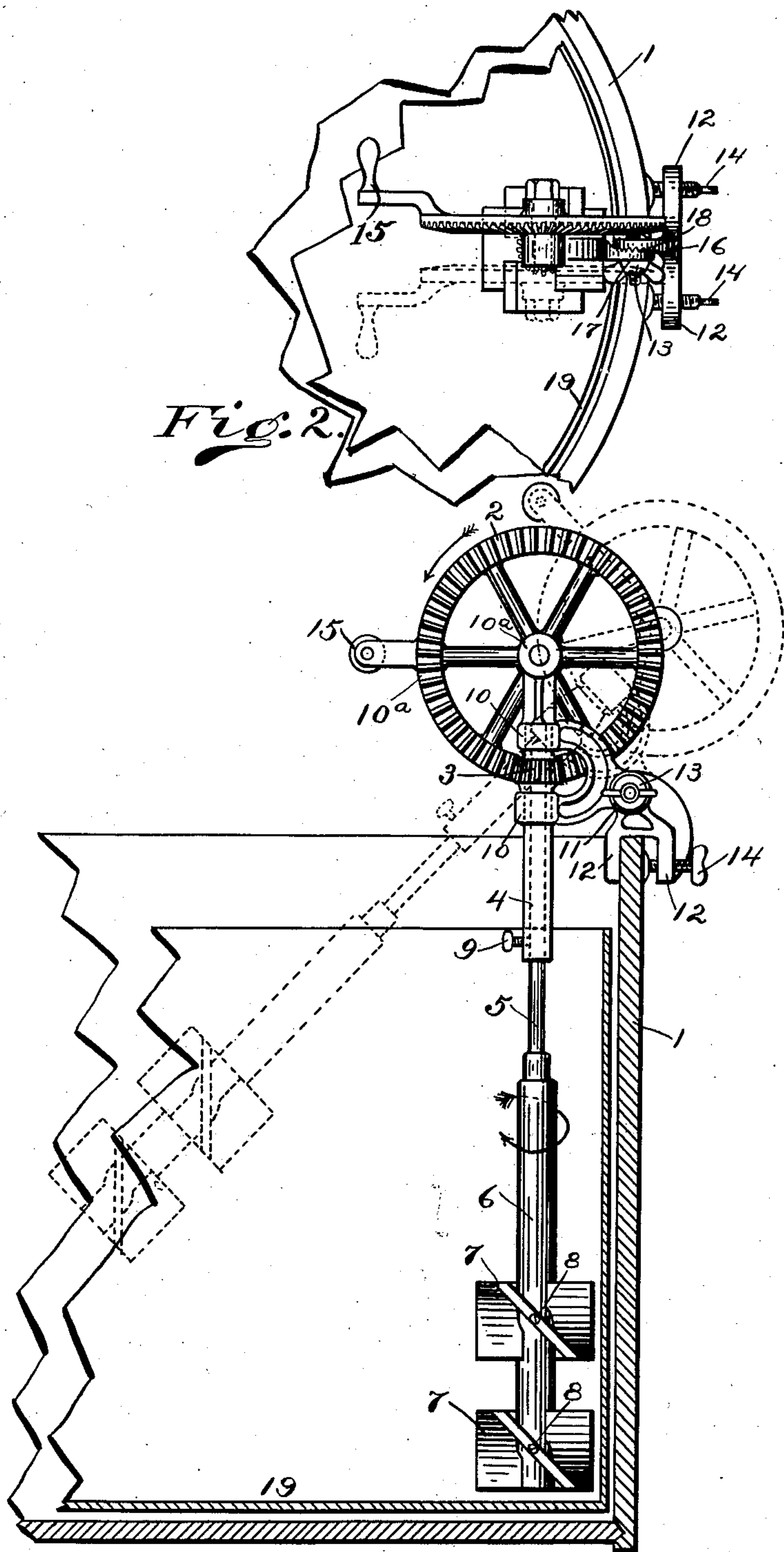


No. 859,943.

PATENTED JULY 16, 1907.

E. G. HOLDEN.  
MIXER FOR LIQUIDS OR SEMILIQUIDS.

APPLICATION FILED OCT. 3, 1906.



Witnesses  
C. M. Palmestock  
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Fig. 1.

Inventor  
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# UNITED STATES PATENT OFFICE.

ELBRIDGE G. HOLDEN, OF HOME CITY, OHIO.

## MIXER FOR LIQUIDS OR SEMILIQUIDS.

No. 859,943.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed October 3, 1906, Serial No. 337,217.

To all whom it may concern:

Be it known that I, ELBRIDGE G. HOLDEN, a citizen of the United States, residing at Home City, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in a Machine or Device for Mixing, Purifying, Aerating, &c., Liquids or Semiliquids, Preferably Named a "Mixer."

My invention relates to that class of mixer by which the material treated thereby is thoroughly agitated and is subjected, simultaneously with said agitation, to forceful currents of air which pass through it.

The objects of my invention are: first, to provide a mixer simple in construction, durable and cheap; second, to provide a mixer which adapts itself in any shaped receptacle of reasonable size and having an adjustable shaft adapted to operate at any position from a vertical to an angle of forty-five degrees or more; third, to provide a mixer so constructed as to revolve an inner receptacle, in which it works, by impingement of the material treated against the inner side of said receptacle made revoluble by floating in water or other liquid. I attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical view of the mechanism with a sectional view of the receptacle. Fig. 2, a top view of the actuating mechanism.

Similar numerals refer to similar parts throughout the drawings.

In Fig. 1, 1 is the receptacle in which or to which the mechanism is attached, as hereinafter more fully described, 2 the driving wheel meshed into teeth on pinion 3, 4 being top section of a sectional shaft designated as parts 4, 5 and 6, 4 being a hollow section into which the reduced section 5 is adjustably retained by thumb screw 9, the lower end of said section 5 is permanently connected to section 6 which is the largest section of said sectional shaft to which the blades 7 are fastened in said section 6 in grooves or otherwise at an angle about forty-five degrees by means of screws or other suitable means, 10, 10, being a support for pinion 3, upper section 4 is retained in place by a pin or other suitable means, 12, 12, being parts of clamp 11, of which 13 is the thumb-nut on bolt through the top portion of the clamp, as hereinafter more fully described, as will also be the means of engagement of the mechanism to said clamp which clamp is retained by contacting the inner lug 12 of the clamp to the inner side of the receptacle by means of thumb screw 14, 15 indicates the handle attached to the driving wheel 2 for the purpose of operating the mechanism, 19 shows an inner receptacle designed to float in fluids, in which the material to be treated may be placed. Said inner receptacle is that to which

we have hereinbefore alluded as revolving by the force of the material impinging against the side while the mechanism is in operation.

In Fig. 2, 16 being one member of the toothed clamp to which we have hereinbefore alluded, 17 being the upper portion of clamp, 18 being that portion of the toothed clamp which is a part of the U-shaped part in Fig. 1, of which in said Fig., 10, 10, are "supports" etc.; as previously described, said toothed clamp 16 has said parts 17 and 18 reciprocally toothed for setting the dash or shaft at any desired angle up to forty-five degrees or more and by tightening the thumb nut 13 the shaft will be retained rigidly in position as indicated by dotted lines in Fig. 1.

My mixer is assembled and operated as follows: Into receptacle 1, liquid or other fluid may be put into which the inner receptacle 19 may be put about which hot water or water and ice may be put to produce a desired temperature for the material being treated. The clamp 11 is rigidly fastened to the outer receptacle by means of thumb screw 14, the upper section 4 extending up through supports 10, 10, the pinion 3 is retained rigidly to the upper section 4 of shaft by means of a pin, 10—A having a pin as the means of retaining the drive wheel 2 on its bearings. These assembled parts are then fastened to the clamp already on the receptacle by means of the toothed clamp whose respective parts 17 and 18 are clutched together, retaining the combination or sectional shaft in any desired position from a vertical to any angular position by means of thumb nut 13 as shown in Fig. 1, sections of the shaft 5 and 6 are permanently engaged, and the length of the shaft is regulated by raising section 5 up into the hollow section 4 and retaining it therein by means of the thumb screw 9.

It is obvious that my mechanism is adapted for use in any sized vessel or receptacle from one large enough to permit the revolving of the wings up to a vessel two feet or more in diameter. The receptacle may be circular, oblong or angular.

Receptacle 19 may be used when desired to maintain a required temperature by means of putting into the outer receptacle a sufficient quantity of fluid to give buoyancy to the inner vessel, so that the impingement of the fluid or material being treated in said inner vessel will revolve, as may be advantageous in the making of ice-cream, or maintaining the better temperature for butter making in summer time by the application of ice and water or hot water in the outer receptacle, or hot or warm water applied in cold weather, etc.

It is apparent that my mixer as such may be used with the outer receptacle alone for the treatment of different fluids.

The adjustable features of my shaft gives valuable points of advantage over a vertical shaft, especially as



follows:—it will operate in various sizes or shapes of vessels; it creates greater agitation, and inducts much more air.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is,—

1. In a mixer of the class described, a shaft sectionally made, a hollow section 4 thereof adapted to receive portions of section 5, said section 4 provided with thumb screw 9 as the means of retaining sections 5 and 6 to said section 4, blades set angularly on said section 6, and the means for retaining said blades to said shaft section, the pinion 3 on section 4 and the means for securing said pinion to said shaft section, substantially as described and for the purpose set forth.
2. In a mixer of the class described, a shaft sectionally made, a hollow section 4 thereof adapted to receive portions of section 5, said section 4 provided with thumb screw 9 as the means of retaining sections 5 and 6 to said

section 4, blades angularly set on said section 6, and the means for retaining said blades to said shaft section, the pinion 3 on section 4 and the means for securing said pinion to said shaft section, the toothed clamp section 18 as an extension and part of the U-shaped support, its terminal ends 10, the toothed clamp section 17, with its lugs or parts 12, said toothed clamp section 17 engaging said tooth clamp section 18, said engagement maintained by thumb nut 13, and bolt therefor, said lugs or portions 12, 12, clamped to receptacle 1, by means of thumb screw 14 and the actuating driving wheel 2 and handle 15 as the means of operating the entire mechanism, substantially as described and for the purpose set forth.

I have hereunto set my hand in the presence of two subscribing witnesses.

ELBRIDGE G. HOLDEN.

Witnesses:

G. W. BENEDICT,  
C. I. VILLARS.