

E. M. CARLIN.  
MIXING MACHINE.

APPLICATION FILED APR. 8, 1913.

1,125,814.

Patented Jan. 19, 1915.

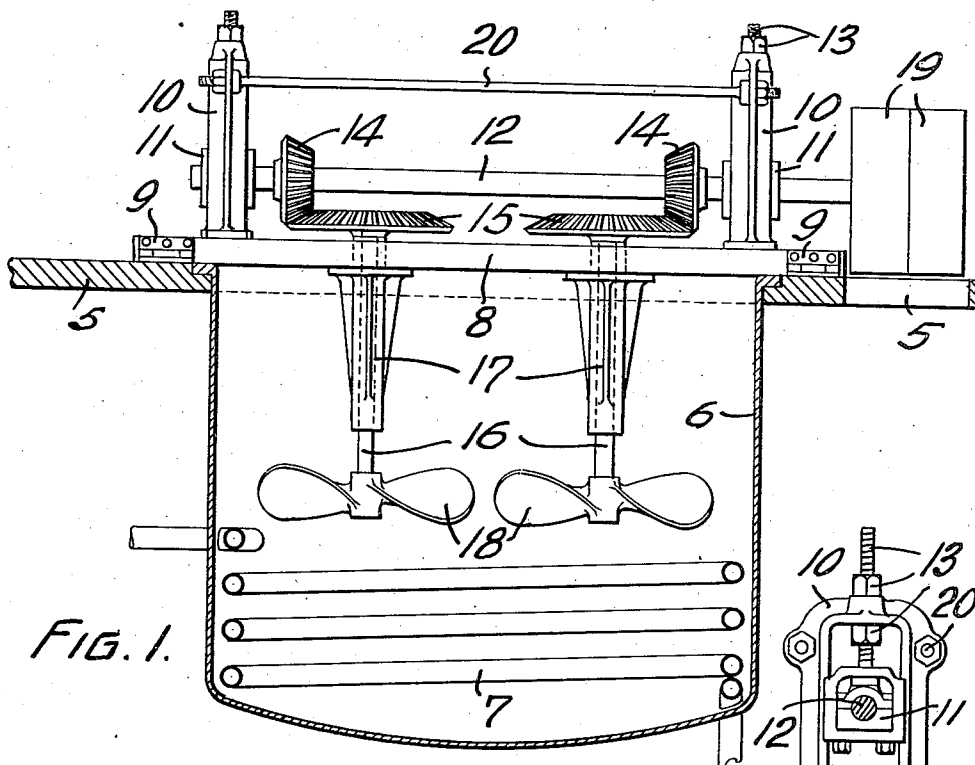


FIG. 1.

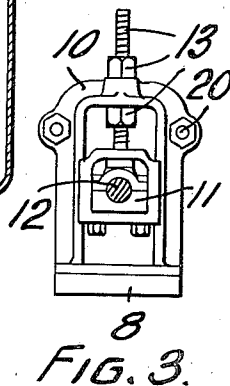


FIG. 3.

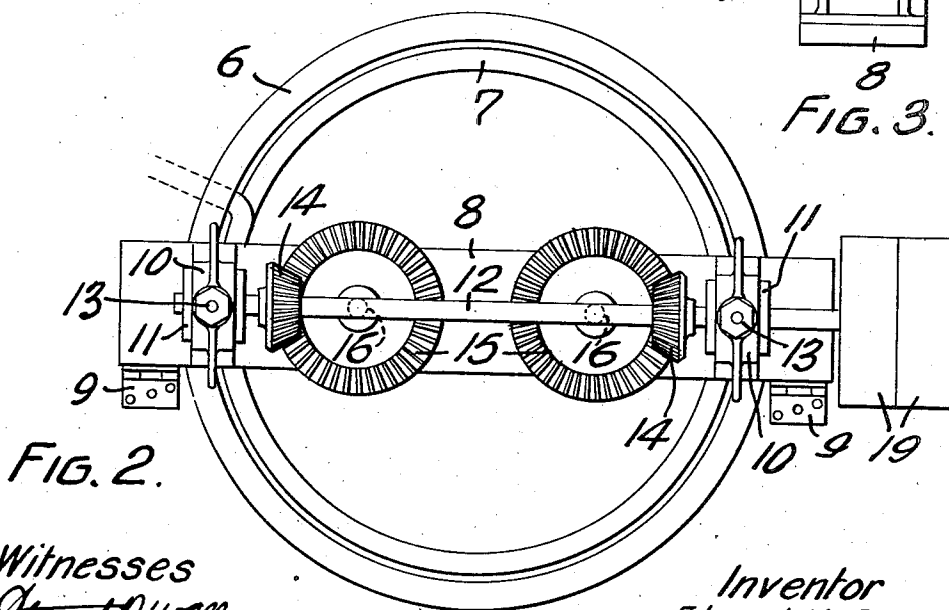


FIG. 2.

Witnesses  
*Stuart R. Allen*  
*lym Moreland*

Inventor  
Edward M. Carlin  
By *Jud. B. Zethenstreich*  
His Attorney.

# UNITED STATES PATENT OFFICE.

EDWARD M. CARLIN, OF MONTREAL, QUEBEC, CANADA.

## MIXING-MACHINE.

1,125,814.

Specification of Letters Patent.

Patented Jan. 19, 1915.

Application filed April 8, 1913. Serial No. 759,671.

*To all whom it may concern:*

Be it known that I, EDWARD M. CARLIN, a subject of the King of Great Britain, and resident of the city of Montreal, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Mixing-Machines, of which the following is a full, clear, and exact description.

This invention relates to improvements in mixing machines, and the object is to provide an inexpensive and durable machine which may be operated with the greatest ease.

A further object is to provide a machine specially adapted for making solutions, such as solutions of sugar and water for aerated beverage factories and the like.

A still further object is to provide a machine of this character having the maximum agitating or mixing effect.

To accomplish the above objects, I provide a boiler or other vessel having near the bottom thereof temperature controlling coils. The mixing blades are mounted on a hinged head so that they may be easily swung up out of the mixing vessel, and are furthermore arranged to rotate in opposite directions.

In the drawings which illustrate the invention: Figure 1 is a vertical sectional view of the device. Fig. 2 is a plan view. Fig. 3 is a side elevation of one of the bearings.

Referring more particularly to the drawings, 5 designates a floor, table or other platform supporting a boiler 6. Within the boiler, the sides are lined near the bottom with a pipe coil 7 through which freezing or heating fluid may be circulated to regulate the temperature of the ingredients during mixing. At the top of the boiler, a cross piece 8 is provided connected at its ends to the platform 5 by hinges 9. A pair of bearing frames 10 are mounted on this cross bar 8, and carry vertically slidable bearings 11 in which a shaft 12 is journaled. The position of the bearings is adjusted by means of the nut and bolt arrangement 13 shown in Fig. 3. Mounted on the shaft 12 are a plurality of beveled pinions 14 which mesh with beveled gears 15, mounted on vertically disposed spindles 16 journaled in sleeves 17 secured to the cross bar 8. The mixing blades 18 are secured to the lower ends of the spindles 16 and are formed similarly to the screws used in propelling ves-

sels. It will be seen from the drawings that these propellers are both pitched in the same direction, but that the pinions 14 are mounted facing one another, so as to engage opposite sides of the gears 15 and thus rotate the spindles 16 and mixing blades in opposite directions. This arrangement produces much greater agitation and circulation of the ingredients during mixing than if both screws turned in the same direction. Obviously, an equivalent result would be obtained by rotating both spindles in the same direction, and using oppositely pitched mixing blades. Power to drive the device is supplied to the fast and loose pulleys 19, and the bearing frames 10 are preferably steadied by braces 20. One of the advantages of this device is that it may be easily arranged to drive the propellers at a different rate of speed by merely raising the bearings 11 and substituting larger pinions 14, or conversely substituting smaller gears 15 and slipping the pinions 14 along the shaft 12 into mesh with the smaller gears. In this way, the two mixing blades may be each driven at a different rate of speed.

While only two mixing blades have been shown, it is obvious that as many more as needed may be mounted in the same way and driven from the same shaft, or that a cross shaft may be provided driving additional blades, said cross shaft being miter-gearred to the shaft 12. Such variations clearly fall within the scope of this invention, as they involve nothing more than multiplication of the element shown and described.

In the use of the device, for example in making a solution of sugar and water, the necessary amounts of the ingredients are placed in the boiler 6 and are heated by steam passed through the coils 7. Rotation of the mixing blades in opposite directions produces a circulation which promotes dissolving of the solid in the well known manner, and also prevents the solid settling to the bottom of the boiler. The use of a steam coil within the boiler constitutes a very considerable improvement over the old method of applying heat or flame externally, as it absolutely prevents the boiler becoming burned by reason of a coating of solid which prevents access of the fluid to the boiler. When the mixing operation is completed the cross bar 8 is tilted on its hinges, and thus draws the mixing blades up out of the

boiler, so that both they and the boiler may be cleaned with the greatest ease. If the device is used for making chemical compounds or the like which must be mixed at low temperatures, cold gas or brine may be circulated through the coil 7 as desired.

Having thus described my invention, what I claim is:—

In a mixing device, a mixing vessel, a temperature regulating coil in the lower portion of said vessel, a platform supporting the vessel, a cross bar above the vessel connected to said platform, a shaft revolvably mounted on said cross bar, sleeves secured to said cross bar, vertically disposed spindles journaled in said sleeves, mixing

blades arranged to circulate the contents of the vessel in opposite directions secured to the lower ends of said spindles, and beveled gear connection between the upper ends of said spindles and said shaft, said cross bar being pivotally mounted whereby the tilting of said box results in a corresponding movement of said shaft, sleeves, spindles and blades.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

EDWARD M. CARLIN.

Witnesses:

STUART R. W. ALLEN,  
G. M. MORELAND.