

July 13, 1926.

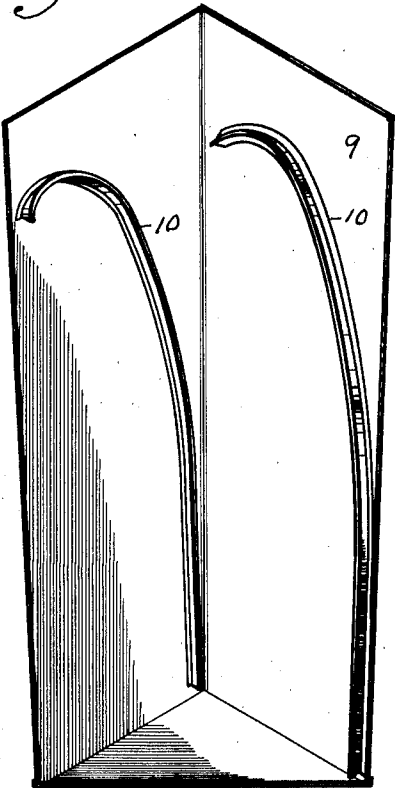
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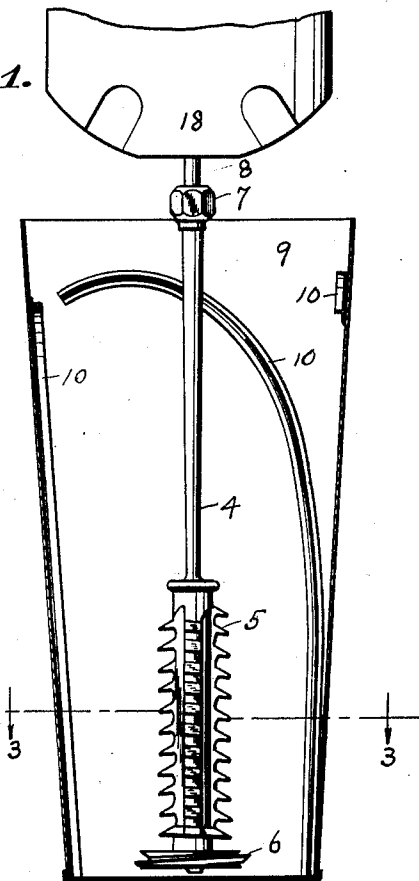
MIXING DEVICE

Original Filed June 21, 1923

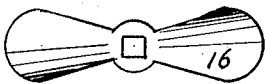
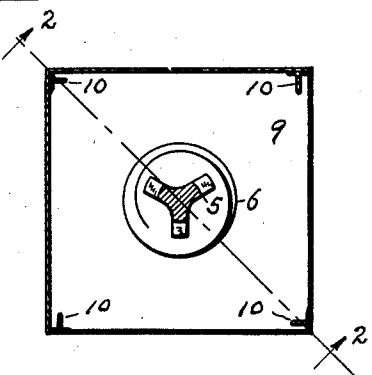
*Fig. 2.*



*Fig. 1.*



*Fig. 3.*



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

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## MIXING DEVICE.

Application filed June 21, 1923, Serial No. 646,743. Renewed January 5, 1926.

My invention relates to a mixer and more specifically to a device adapted for mixing drinks in which ice cream, malt, fruits or similar ingredients form a part.

5 The object I have attained is the construction of a mixer which will cut up fruits into small particles and dissolve ice or ice cream, malt and similar products, and will thoroughly commingle such products with the  
10 fluid which is in the mixing container. The rapidity with which this can be done is my main object. Other objects are hereinafter set forth.

I accomplish these results by means of the  
15 device hereinafter described and illustrated on the accompanying drawing, in which Figure 1 shows the agitator and an inside view of the container. Figure 2 is a separate view of two sides of the container, showing the  
20 shape of the vanes therein. Figure 3 is a sectional view of the screw along the line 3 in Figure 1. Figure 4 shows a modified form of propeller.

The device consists of an agitator constructed with a stem 4 having a screw thread 5 projecting from a portion of said stem, and terminating at the bottom with an enlarged screw 6. A propeller 16 shown in  
30 Figure 4 can be substituted for the screw 6. I have formed three channels equidistant apart across the thread 5, but a smaller or larger number of such channels can be used. 7 is a nut at the top of the stem to attach the bit, or agitator to a shaft 8 of a motor  
35 18, or other source of power.

The container shown as 9 contains a plurality of uniformly curved vanes 10 on the inside thereof. In the drawing I have shown the container shaped like an inverted  
40 frustum of a rectangular pyramid. The vanes are shown as beginning at the lower right hand corner of the side of the container and curving upwardly toward the right, the radius of the curve decreasing toward the upper end. One of these vanes  
45 should be on each of the four sides of the inside of the container. I do not want to be confined to a container having four sides only inasmuch as it is practical to use a container formed with a larger number, and  
50 with vanes formed on each of the sides. Or the container can be the shape of an inverted frustum of a cone, or tubular, and a plurality of vanes can be placed inside starting  
55 ing at the bottom and curving upward to-

ward the left. The object of the vanes is to force the contents of the cup downward and to break or crush lumps and fruit which is in the mixture in the cup. It is also noted that the relative diameter of the screws 5  
60 and 6 are shown in the drawing and such relations should be adhered to approximately. The screw 5 is approximately two-thirds the diameter of screw 6. The screw 6 should be proportionately short, to wit, approximately one-sixth of the length of screw 5.  
65 The threads of screw 5 are broad at the base and taper to a sharp edge along the circumference. The threads of screw 6 run opposite to the threads of screw 5, threads 5  
70 being left handed. In using this device the agitator is attached to the shaft of a motor or source of power which will give it a rapid rotary motion in the direction of the travel of the hands of a watch. When thus  
75 rotating, the screw or propeller 16 tends to throw the contents of the cup, which is adjacent to the bottom, in an upward direction, and screw 5 tends to throw the contents of the cup downward. The sharp edges and  
80 broad base of screw 5 which is aided by the lateral channels 8 hereinbefore referred to, makes the screw 5 act as a cutter and the rapid rotation of the agitator will chop, mangle or break the fruits, ice, ice cream,  
85 malt, and similar ingredients into small particles and will assist in dissolving them. The channels 8 hereinbefore referred to serve to permit the fruit and other contents of the bottom of the cup to be raised upwards so  
90 the knives formed by the cutting portions of the screw 5 can cut said fruit.

In my experiment a mixer of this character will thoroughly mix ingredients in one-fifth the time necessary to perform the  
95 same degree of work by other mixers now in use, and the construction of the vanes and screws as described keeps the contents of the container therein while being agitated.

I claim as new and ask for Letters  
100 Patent:—

1. In a mixer, in combination with a container, an agitator adapted to be rotated within the container, the agitator consisting of a stem having a circular plate threaded  
105 on its periphery attached to the bottom, said stem having an enlarged diameter above the circular plate with threads thereon reverse to the threads on the circular plate, the diameter of the enlarged portion of the stem 110

being approximately one-half to two-thirds the diameter of the plate, said stem being adapted to be rotated.

2. In a mixer, in combination with a container an agitator consisting of a stem having an enlarged threaded head at the lower end, and a reverse threaded portion adjacent to the head, said reverse threaded portion having transverse channels thereon, said agitator being adapted to be rotated.

3. In a mixer, the combination of a container having interior vanes extending upwardly and curving toward the left at the upper end thereof, and an agitator consisting of a stem terminating at the lower end with a right hand screw having an enlarged diameter, and having immediately above the

said lower screw, a left threaded screw of lesser diameter than the lower screw, the left hand screw having channels cut transversely across the threads, and means for rotating the agitator clockwise, substantially as described.

4. In a mixer, the combination of a container having interior vanes, and an agitator adapted to be rotated vertically within the container, the agitator having a screw propeller at the lower end, and a screw of less diameter and with reverse threads to the propeller immediately above said propeller, and channels being formed transversely and to the depth of the threads, substantially as described.

PETER C. HINES.