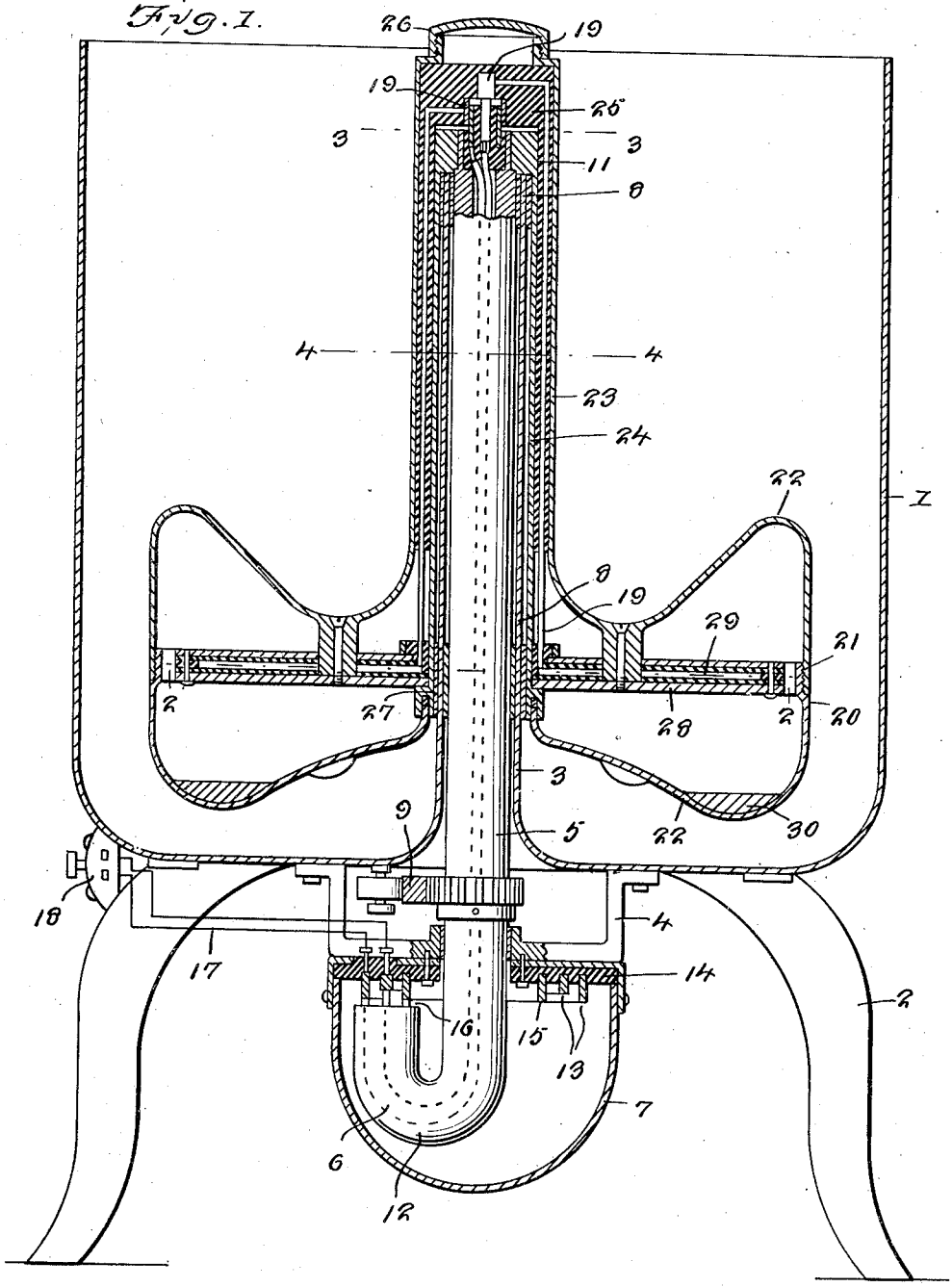
Nov. 10, 1936. J. C. MEEK 2,060,378

ELECTRICALLY HEATED AGITATOR

Filed May 2, 1936 2 Sheets-Sheet 1

Fig. 1.



John C. Meek
INVENTOR

BY Victor J. Evans & Co.
ATTORNEY

Nov. 10, 1936. J. C. MEEK 2,060,378

ELECTRICALLY HEATED AGITATOR

Filed May 2, 1936 2 Sheets-Sheet 2

Fig. 2.

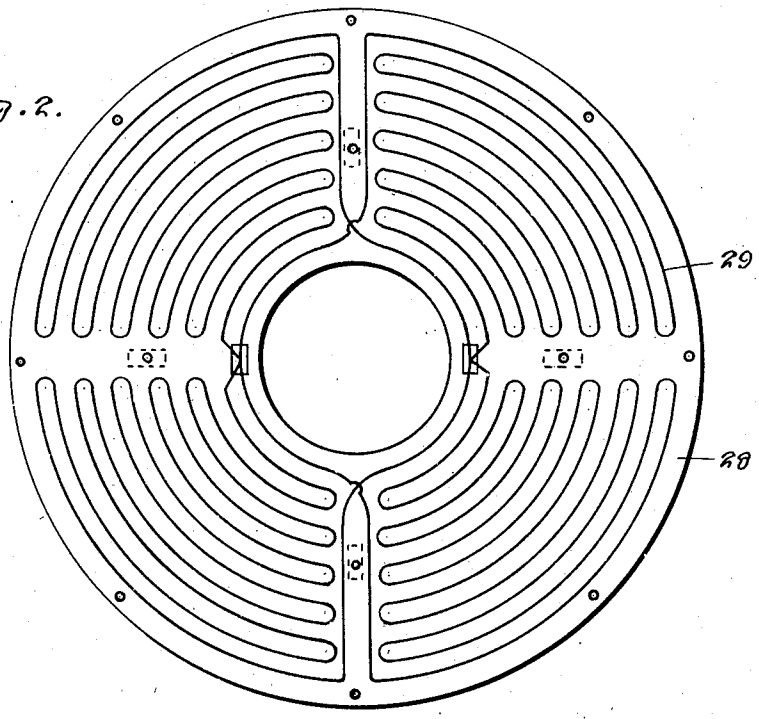


Fig. 3.

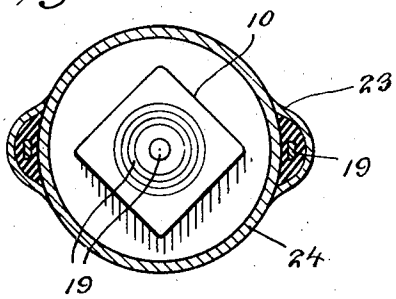
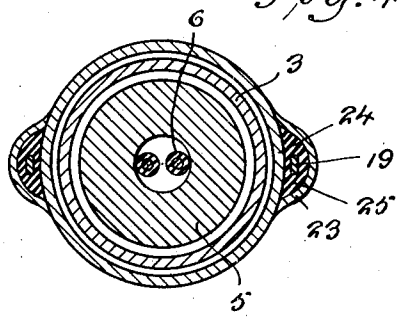


Fig. 4.



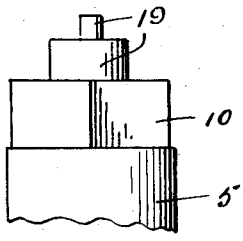


Fig. 5.

John C. Meek
INVENTOR

BY Victor J. Evans & Co.
ATTORNEY

Patented Nov. 10, 1936 2,060,378

UNITED STATES PATENT OFFICE

2,060,378

ELECTRICALLY HEATED AGITATOR

John C. Meek, Portage, Pa.

Application May 2, 1936, Serial No. 77,605

3 Claims. (Cl. 219—38)

This invention relates to agitators adaptable for washing machines and other similar devices and has for the primary object the provision of a device of this character which will have all of the advantages of a conventional type of agitator with the additional advantages of heating the liquid acted on for the purpose of maintaining the liquid at a desired temperature to prevent chilling of the liquid during the use thereof.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is had to the following description and accompanying drawings, in which

Figure 1 is a vertical sectional view illustrating an electrically heated agitator adapted to a washing machine and constructed in accordance with my invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a fragmentary side elevation, partly in section, illustrating the propeller shaft for the agitator.

Referring in detail to the drawings, the numeral 1 indicates a container of a washing machine supported by legs 2 and has formed centrally of its bottom wall a sleeve 3 which opens outwardly through the bottom of the container and terminates a short distance below the upper edge of the container. Secured to the bottom of the container 1 is a bracket 4 forming a journal for a propeller shaft 5. The shaft 5 extends upwardly through the sleeve 3 and the lower end is bent to form a goose neck 6 lying within a casing 7 supported by the bracket 4. The propeller shaft 5 is rotatably supported by the bracket 4 and bushings located in the sleeve 3. The propeller shaft 5 is adapted to be oscillated or rotated by any suitable power means shown generally at 9. The upper end of the shaft 5 is equipped with angularly related faces 10 to fit in a correspondingly shaped opening of a block 11 forming a part of an agitator which will be hereinafter more fully described. The shaft 5 is of hollow formation and has extending therethrough conductors 12 suitably insulated from each other and from the propeller shaft. The conductors project beyond each end of the shaft. The conductors at one end ride upon annular contacts 13 secured to an insulated support 14 forming a part of the casing 7. An annular track 15 is also carried by the support 14 and is engaged by a guide element 16 mounted on the goose neck end of the propeller shaft. Conductors 17 are electrically connected to the contacts 13 and to a control switch 18 forming a part of an electric circuit (not shown). The other ends of the conductors 12 or the ends of said conductors which project beyond the upper end of the propeller shaft engage conductors 19 carried by the agitator.

The agitator includes an annular body 20 of sectional formation threaded together, as shown at 21, and of hollow formation. The sections of the body 20 are offset to form blades 22 for the agitator. One of the sections of the body is formed integrally with an outer sleeve 23 while the other section is suitably secured to an inner sleeve 24. The inner sleeve has the casing block 11 secured thereto. The conductors 19 extend into the hollow body 20 by passing through the space provided between the inner and outer sleeves. Suitable insulation 25 insulates the conductors 19 from said outer sleeve. The upper end of the outer sleeve 23 terminates in a reduced screw threaded neck to which is threaded a cap 26. The inner and outer sleeves 24 and 23 surround the sleeve 3 of the container 1 and suitable bushings 27 are provided between the inner sleeve 24 and the sleeve 3 so that the agitator may rotate or oscillate freely upon the sleeve 3 and may be readily removed therefrom in an endwise direction.

An insulated support 28 is arranged in the hollow body 20 of the agitator and has mounted thereon a series of heating coils 29 electrically connected to the conductors 19. Thus it will be seen that electrical current may flow to the heating coils when the switch 18 is closed during the rotation or oscillation of the agitator. The heat cast off by the heating coils heats the body 20 and the latter in turn heats the contents of the container 1, maintaining the liquid at a desired temperature.

While this invention has been described and shown as adapted to a washing machine, it is to be understood that it may be successfully employed in other devices wherein it is desired to agitate a liquid and maintain the liquid at a desired temperature.

A counter balance weight 30 may be suitably secured in certain of the offsets 22 of the body 20 for balancing the agitator.

Having described the invention, I claim:

1. In combination with a container having a sleeve opening outwardly through the bottom thereof, a journal carried by the container, a propeller shaft rotatably supported by the journal and extending through the sleeve and having one end bent to form a goose neck, a casing carried by said journal and having the goose neck confined therein, an agitator journaled on the sleeve and secured to the shaft, an electrical heating element mounted in the agitator, conductors extending through the shaft and insulated therefrom, means connecting the conductors to the heating element, annular contacts mounted in said casing and engaged by the conductors, and an electrical switch electrically connected to said contacts and adapted to be electrically connected to an electrical output.

2. In combination with a container having a sleeve opening outwardly through the bottom thereof, a journal carried by the container, a propeller shaft rotatably supported by the journal and extending through the sleeve and having one end bent to form a goose neck, a casing carried by said journal and having the goose neck confined therein, an agitator journaled on the sleeve and secured to the shaft, an electrical heating element mounted in the agitator, conductors extending through the shaft and insulated therefrom, means connecting the conductors to the heating element, annular contacts mounted in said casing and engaged by the conductors, an electrical switch electrically connected to said contacts and adapted to be electrically connected to an electrical output, a track located in said casing, means carried by said goose neck to ride the track.

3. In combination with a container having a sleeve opening outwardly through the bottom thereof, a propeller shaft extending through said sleeve, means for rotatably supporting the propeller shaft, electrical feed means extending through the propeller shaft, an annular body located in the container and including spaced sleeves, one of said sleeves journaled on the first-named sleeve, said body having offset portions to form blades, an electrical heating element mounted in said body, electrical conductors connected to said electrical heating element and extending between the second-named sleeves and contacting the electrical feed means carried by the shaft, and means connecting one of the second-named sleeves to the shaft.

JOHN C. MEEK.