June 7, 1932. D. A. JACOBI 1,861,444

BRAKING ATTACHMENT FOR AGITATORS

Filed Aug. 8, 1929

Fig. 1.

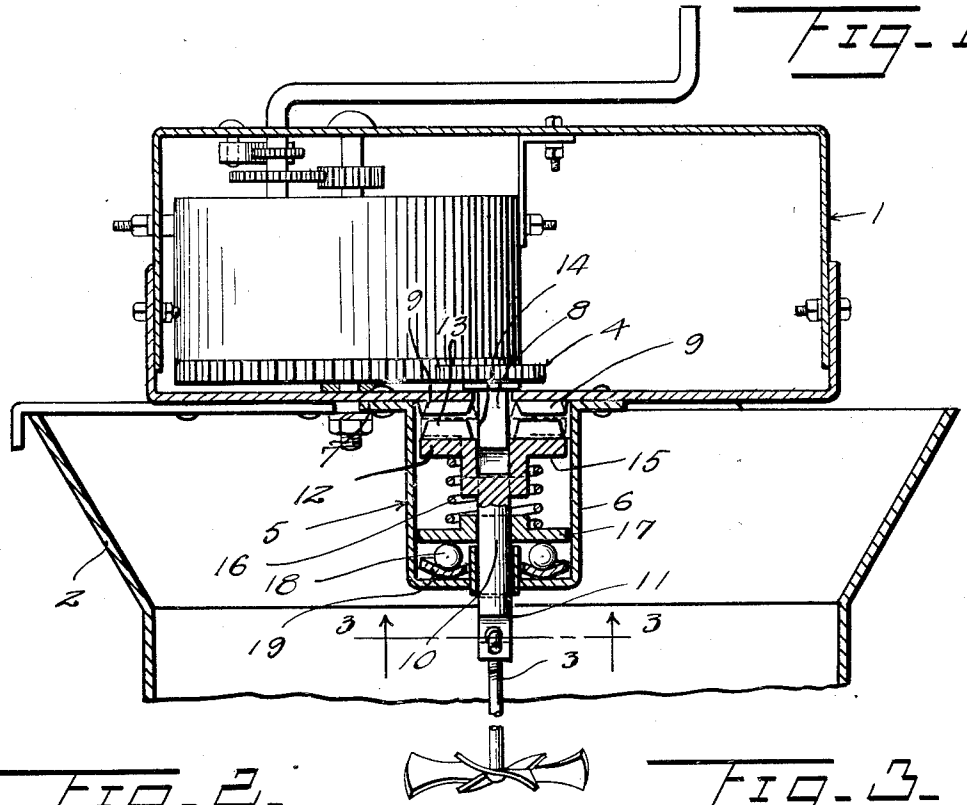


Fig. 2.

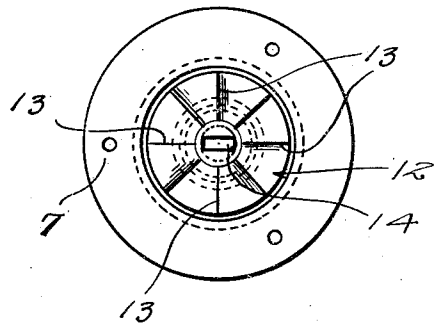
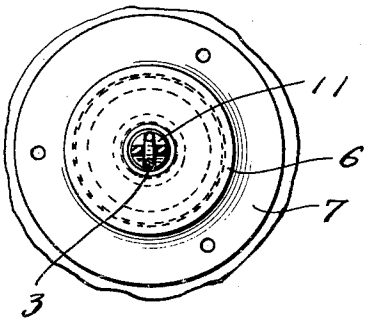


Fig. 3.



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UNITED STATES PATENT OFFICE

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BRAKING ATTACHMENT FOR AGITATORS

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This invention relates to improvements in agitating devices and pertains particularly to a braking attachment designed for use in connection with spring operated milk and cream stirrers or agitators.

In certain types of stirring devices designed for use in dairies spring operating means is employed for rotating a propeller member which is dependent in a can containing milk or cream, the propeller acting to circulate the milk around the sides of the can so it will be cooled through contact therewith, the can being set in a suitable cooling medium such as cold water. These devices are so constructed that if the propeller is removed from the machine there is nothing to prevent the spring from completely unwinding itself thus necessitating a complete rewinding of the machine spring each time the stirring propeller is attached thereto for use.

The primary object of the present invention is to provide a device connected with the machine and to which the stirring propeller is attached which will act, when the propeller is removed, to check the operation of the machine spring so that a complete rewinding thereof will not be necessary when it is desired to again place the machine in operation. The replacing of the stirring propeller upon the machine for use acts to release the spring holding device so that it will immediately start to operate.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming a part of the present invention with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:—

Figure 1 is a view in longitudinal section of the braking attachment embodying the present invention showing the same applied.

Figure 2 is a bottom plan view of the attachment, per se.

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

Referring more particularly to the drawing wherein like numerals of reference indicate corresponding parts throughout the several views, the numeral 1 indicates generally a well known type of spring operated machine designed to be mounted over the mouth of a milk can 2 to rotate a propeller carrying shaft 3 depending therefrom into the can, this shaft carrying the propeller upon its lower end. At the present time the propeller carrying rod or shaft 3 is connected directly to the depending vertical shaft of one of the gear elements within the machine 1, as for example the element 4. With this construction the machine, when wound for operation must run until the operating spring thereof is completely relaxed as there is no means associated therewith for stopping the same until it reaches a complete run down condition.

The braking attachment for the machine which embodies the present invention is indicated as a whole by the numeral 5. This attachment, as shown, comprises a cylindrical body 6 open at one end and having a laterally projecting surrounding flange 7 at the open end, which flange is designed to be secured against the underface of the machine with the shaft 8 of one of the spring operated elements within the machine, as for example the gear 4, extended thereinto upon the longitudinal center thereof.

Formed upon the underface of the body of the machine 1 about the depending shaft 8 is one or more lugs 9 which also extend into the open end of the attachment cylinder 6, in the manner shown.

Within the cylinder 6 is arranged a vertical stub shaft 10, the lower end of which projects beyond the lower end of the cylinder, in the manner shown, and is apertured as at 11 to receive the hooked upper end of the propeller carrying shaft 3.

The upper end of the stub shaft 10 carries a flat circular head 12, the upper face of which is provided with a plurality of radially arranged teeth 13, which when the device operates to hold the machine from running down upon removal of the propeller shaft 3, engage the lugs 9 upon the casing of the machine body, in the manner hereinafter described.

The central portion of the head 12 has formed in its upper face the polygonal shaft socket 14 which receives the lower end of the shaft 8 projecting from the machine, which shaft is, of course, similarly formed so that a positive coupling of this shaft with the head 12 is obtained.

There is formed about the upper end of the stub shaft 10 directly beneath the head 12 a shoulder 15 about which one end of a coiled spring 16 engages, this spring, of course, surrounding the stub shaft 10 also. The lower end of the spring 16 is supported by a plate 17 which surrounds the shaft 10 and which is in turn supported upon a plurality of bearing balls 18 disposed about the shaft in a suitable race member 19.

From the foregoing description it will be readily seen that when the machine 1 carrying the braking attachment 5 which constitutes the present invention is placed over a milk can mouth the spring 16 will normally act to force the stub shaft and the head carried thereby upwardly for engagement of the teeth 13 with the lugs 9 formed upon the underface of the machine so that rotation of the stub shaft will not take place and consequently the machine spring will be prevented from acting. When the propeller carrying rod 3 is attached to the lower end of the stub shaft 10 the weight of the rod and the propeller carried thereby will pull the stub shaft 10 down so that the teeth 12 will be disengaged from the lugs 9 and the machine can then operate to rotate the stub shaft of the propeller attached thereto.

The propeller is preferably made of metal and is sufficiently heavy to overcome the buoyancy of the liquid, and its blades are so disposed with respect to the direction of rotation that its normal tendency, upon operation, is to draw itself downwardly.

It is, of course, obvious that a reversal of the operation just described will take place when the propeller rod 3 is removed from the stub shaft so that further operation of the machine will be instantly stopped.

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

1. A braking means for power driven shafts comprising a stub shaft arranged in alignment with the driven shaft, a head carried by the stub shaft and formed having a slidable but non-rotatable connection with the driven shaft so that the shafts are at all times drivingly connected, resilient means normally urging said stub shaft toward the driven shaft, and a clutching structure between said head and a fixed structure adjacent thereto, said clutching structure being designed to be engaged to restrain rotation of the shafts by the action of the resilient means and to be released upon application of a pull on said stub shaft to overcome the resilient means.

2. A braking mechanism for use in connection with a power driven agitating device having a depending shaft, comprising a depending stub shaft, means for establishing a sliding drive connection between said stub shaft and the driven shaft, resilient means normally urging the stub shaft toward the driven shaft, and a clutching mechanism designed to act upon the movement of the stub shaft toward the driven shaft to hold the shafts against rotation, said stub shaft being designed to have an agitating element suspended therefrom.

3. A braking mechanism for use in association with a power operated agitating device having a depending driven shaft and a propeller carrying agitator rod, a stub shaft adapted to be arranged in alignment with said driven shaft, a disk head carried by the stub shaft and having a slidable but non-rotatable connection with said driven shaft, a clutching mechanism between said disk head and a fixed structure, a spring element surrounding said stub shaft and normally urging the same toward the driven shaft for the engagement of the clutching mechanism, and means for attaching said propeller carrying agitator rod to the other end of the stub shaft for operation therefrom.

4. A braking mechanism for use in association with a power operated agitating device having a depending driven shaft and a propeller carrying agitator rod, a stub shaft adapted to be arranged in alignment with said driven shaft, a disk head carried by the stub shaft and having a slidable but nonrotatable connection with said driven shaft, a clutching mechanism between said disk head and a fixed structure, a spring element surrounding said stub shaft and normally urging the same toward the driven shaft for the engagement of the clutching mechanism, means for attaching said propeller carrying agitator rod to the other end of the stub shaft for operation therefrom, and antifriction means supporting said stub shaft, spring and agitator rod.

5. In a device of the character described, a casing, a driving shaft mounted in said casing, a toothed member non-rotatably mount-

ed from said casing and concentrically arranged with respect to said driving shaft, a driven shaft having a toothed portion engageable with the other said toothed portion, and splined on said shaft, means constantly urging said toothed portions into engagement and means to hold said toothed portions out of engagement when in operative position.

In testimony whereof I hereunto affix my signature.

DANIEL A. JACOBI.