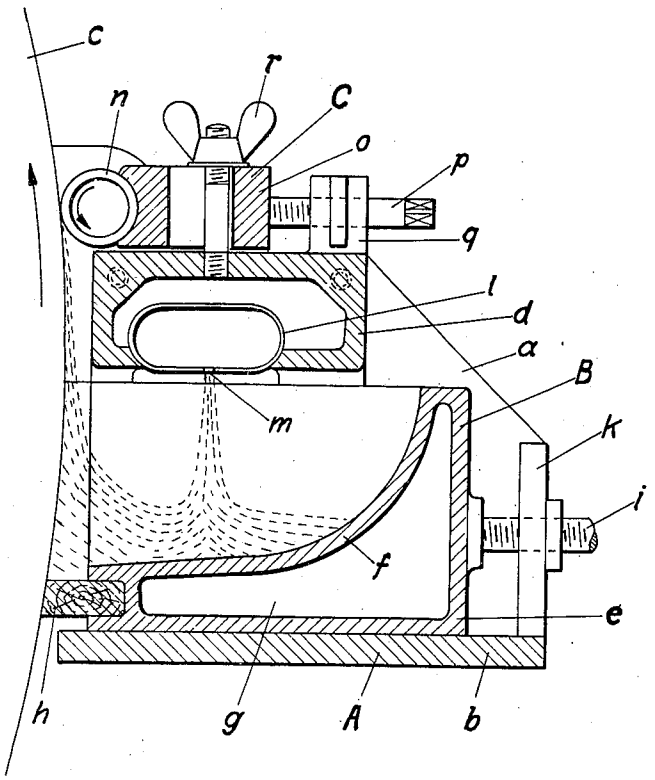
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APPARATUS FOR APPLYING LIQUID FATS, FAT EMULSIONS, AND THE LIKE TO A ROTATING DRUM

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APPARATUS FOR APPLYING LIQUID FATS, FAT EMULSIONS, AND THE LIKE TO A ROTATING DRUM

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1 Claim. (Cl. 91—49)

The invention relates to a device for applying liquid fats, fat emulsions or the like in a layer of regulatable thickness to a rotating drum by means of an applying chamber, one wall of which is formed by the wall of the drum, and the invention has for its object to incorporate advantageous novel features as regards that arrangement in such an applying device.

The essential characteristic of the invention resides in a division of the whole applying device into two parts in such manner that the applying trough or chamber is arranged so as to be movable in a fixed frame in the direction towards the drum wall in the manner of a sliding box. This applying trough should be open at the top in this arrangement and according to the invention it is only partially covered by a strut of the fixed frame which strut, on the one hand, holds together and stiffens the frame and, on the other hand, is particularly advantageously utilized to contain the emulsion supply conduit.

As compared with the known applying devices of this kind, this arrangement possesses considerable advantages. In all applying devices of this kind, it is necessary to arrange the applying trough with reference to the wall of the drum so that it can be placed against it and so that it is adjustable. In the earlier applying devices of this kind, the whole applying device with all its parts had to be moved or adjusted. This is naturally inconvenient and cumbersome and necessitates a relatively complicated construction.

Also it is particularly disadvantageous as regards the emulsion supply conduit which in the earlier arrangements had to be moved or swung with the apparatus. It was therefore not possible to do otherwise than either to employ a flexible tube or to insert some other flexible connection in the supply conduit. Obviously it is of considerable advantage if the supply conduit can be made entirely rigid so that it is never moved or swung.

It is a necessary condition for the production of faultless materials that the parts which contain the emulsion, particularly therefore the applying trough, should be kept clean. In the earlier arrangements, therefore, at every cessation of the operations, the whole applying device had to be drawn away or swung outwards in order to facilitate cleaning.

In the new arrangement according to the invention, on the other hand, the bearing frame of the applying device can be constructed so that it is entirely fixed and undisplaceable. For adjusting and for cleaning purposes, it is sufficient to displace the trough. The fact that the trough remains open at the top likewise offers considerable advantages as regards cleaning, since the interior of the supply trough always remains accessible. This trough which is open at the top has also the further very great advantage, as compared with closed troughs, that the process of application of the emulsion can always be directly supervised.

The fat emulsions to be applied are comparatively sensitive and readily susceptible to variation. It is therefore highly desirable, by a glance into the trough, for the operator to be able to satisfy himself as to the quality of the portions of the emulsion actually being supplied.

It is also known that such emulsions, coming from the disintegrator, always bring with them a certain quantity of air.

The arrangement of the open trough permits a considerably easier escape for the air which is carried along, than is the case with a closed applying box, particularly if the latter, as was usual hitherto, is provided with a stirring roller which constantly beats the air escaping into the closed box, back into the emulsion again. This stirring roller gives rise to unfavorable variations of the emulsion principally insofar as the stirring roller constantly throws the emulsion against the cold wall of the drum. A part of this emulsion which has come in contact with the cold wall of the drum then flows again into the trough and is mixed with the warm emulsion. In this way a disruption of the emulsion is easily brought about which is all the more serious, since in the use of stirring rollers the applying box must be at least three quarters full.

In the new applying device very small quantities of emulsion pass into the trough all the time and they are immediately used up; and the fact that the open trough always permits of inspection, enables the operator to ascertain at a single glance whether or not more emulsion is being introduced than is necessary for application to the drum. In this way every possibility of a disruption of the emulsion is at once prevented.

In general in such applying devices there is arranged outside the applying trough a smoothing and distributing device which serves for accurately regulating the thickness of the layer applied and for returning any excess of emulsion into the trough at once.

The particular arrangement of the applying device according to the invention offers the possibility of arranging the smoothing device so as to be adjustable in a particularly favorable manner, in that it may be mounted upon the upper strut of the fixed frame which therefore serves as a sliding track for this adjustable smoothing device.

Finally, it is advantageous to provide the movable trough itself, and also the upper strut of the device, with heating means in order to maintain the necessary temperature of the emulsion and accurately to regulate it. An embodiment of the subject of the invention is illustrated by way of example, in vertical section transverse to the axis of the drum, in the drawing.

The single illustration is a cross-section of the device.

In the embodiment illustrated the actual applying device consists of the fixed frame A, and the movable applying trough B, a device which is completed by the additional smoothing device C. The frame A is provided with a lower sliding track *b* between two side cheeks *a*, which track advantageously extends over the whole width of the drum *c*. Above the sliding track *b*, a space is provided in which the trough B can move. Above this space a strut or beam *d* is arranged which likewise connects the cheeks *a* and which, as it likewise stretches over the whole width of the drum, acts to stiffen the frame. The applying trough B consists of a sliding box *e*, movable in a direction radial to the axis of the drum and open at the top and double walled and so formed that the inner wall *f* by reason of its suitable concavity and inclination to the wall of the drum serves for receiving the emulsion actually supplied and leading this to the wall of the drum, which upon its forward movement in the direction of the arrow takes with it suitable quantities of emulsion. Heating spaces *g* are provided between the walls of the trough.

At the end which is directed towards the wall of the drum the trough is likewise open and is provided at its lower edge with a packing, for example a wooden block *h*, which by movement of the trough can be pressed against the wall of the drum. It prevents any downward escape of the emulsion. The movement of the trough is effected by means of adjustable screws *i* which can be fixed in position and which are passed through corresponding bridges *k* of the frame A. The upper beam *d* is made as much narrower than the sliding track *b* as is necessary to permit of an inspection and manipulation within the trough which is open at the top. The sliding track *b* is of such depth that the trough can be drawn back entirely from the drum wall so that cleaning of the trough is made possible without dismantling it. Also the upper beam *d* is advantageously formed hollow and receives the emulsion supply conduit *l*, which is provided with suitable downwardly directed outflow nozzles *m*, the width of which is so regulated that just the necessary quantity of emulsion flows into the trough. Obviously the inlet tube *l* is provided with throttling and regulating means. The top of the beam *d* can serve as a sliding track for the smoothing device C. In the embodiment illustrated, a smoothing device of known type is shown, in which a smoothing roller *n* is pressed by means of a displacing device *o* against the drum wall. The smoothing roller *n* in the embodiment illustrated is rotated in the opposite direction to the direction of rotation of the drum and in this way it smooths away all excess of emulsion. The displacement of the smoothing device is advantageously effected by means of a displacing screw *p* which is passed through a support *q* which is fixed to the top of the beam. In addition, clamping screws *r* may be arranged which pass through elongated slots in the displacing block *o* and by which this can be fixed in the adjusted position.

In the example, a cooling drum for treating fat emulsions has been selected for illustration, but the new applying device can also be used for the treatment of any other suitable materials and could also be used, for example with a heated drying drum.

I claim:

Apparatus for applying liquid fats, fat emulsions, or the like to a rotatable drum in a layer of regulatable thickness, comprising a trough having an open top and an open side, said open side being directed toward the drum so that the trough and drum form an applying chamber, a frame providing a support along which the trough may be slid toward and from the surface of the drum, means for holding the trough at a selected distance with respect to the surface of the drum, said frame including a fixed strut extending across the top of the trough and being of limited dimensions at right angles to the surface of the drum whereby the contents of the trough may be inspected through said open top, an emulsion supply conduit on said strut and having openings in communication with the trough, a sliding track on said strut, and a smoothing device guided by said track and adjustable therealong toward and from the surface of the drum.

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