because of unsatisfactory unions connecting the releaser to the milk and air piping and to unsatisfactory releaser brackets.

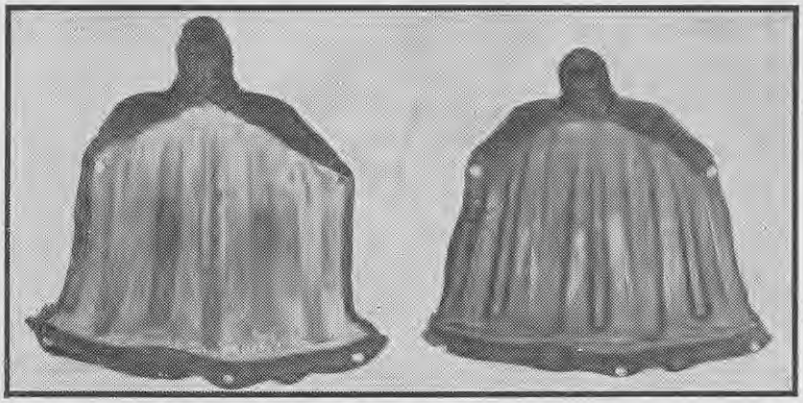
The fittings used on milking machines, particularly the unions connecting the lengths of milk piping to each other and to the releaser, must be such that these parts can be taken apart conveniently. Many types of unions used on milk piping and releasers are unsatisfactory because spanners and tools have to be used to disconnect and take down these vital parts. The screwed, wing-nut type is favoured, as it can be loosened easily and conveniently without tools.

In their own interests farmers should insist on their milking machines being fitted with unions and brackets of a type which will facilitate the taking down of piping and releaser for regular inspection and cleaning.

Cleaning of 1-bail Bucket Machines

As 1-bail bucket milking machines have no releaser and no vacuum tank, there is no simple method of cleaning all parts by flushing and the methods advocated for machines of larger size must be modified slightly. The glass vacuum jar provided on most models has some value as a detector, but it has insufficient capacity to accommodate the liquids required to flush the air section adequately and there is a tendency for the glass, through expansion, to break when filled with boiling water. There is considerable contamination in the vacuum sections of these machines, owing to milk vapours being constantly drawn from the bucket through the vacuum rubber to the vacuum pump. Therefore, the rubber and vacuum jar require regular and thorough cleaning.

The milk system, comprising the teat cups and milk rubbers, should be treated by flushing to the vacuum bucket, using the same detergents and the same methods as recommended for larger machines. After this has been done the pulsation rubber leading from the cups to the pulsator and the vacuum rubber leading from the bucket to the vacuum jar should be disconnected, brushed in caustic soda solution, and rinsed. The glass vacuum jar is then taken apart and cleaned and the rubber ring washed in caustic soda solution to retard absorption of fat and replaced to prevent it from stretching. The teat cups and rubbers should be kept in a clean, dry place protected from sunlight and the glass jar and bucket on a clean bench in the open air.



Left—A hard-moulded teat-cup inflation after one season's use, showing perished surface due to the penetration of fat. Right—The same type of inflation as that at left after two years' use during which it was treated by the boiling water-caustic soda method.

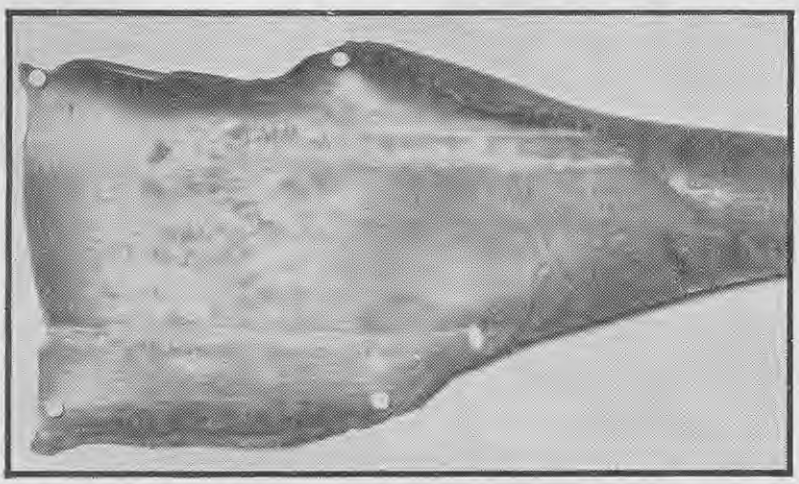
Separator Parts and Utensils

The separator parts, especially the discs, and the cooler, milk vat, and other utensils can be a source of considerable contamination unless effectively cleaned and sterilised. Unless fat is removed completely, very unsatisfactory flavours develop from oxidation and from the development of bacteria. No metal parts of this kind can be cleaned thoroughly without brushing and they must be scrubbed regularly with a hard brush. An alkaline wash is the most suitable for cleaning the equipment and one of the common preparations or washing soda is generally used. A soap solution is also useful, and a weak solution (1 level teaspoon to 8 gallons of boiling water) of caustic soda will give excellent results.

Good results are obtained by collecting and aggregating the caustic solution used in cleaning the milking machine with the boiling water used in flushing it. By the addition of the water used in the final flushing the strength of the caustic solution previously used in the milking machine is reduced from 1 teaspoon to 4 gallons of water to 1 teaspoon to 8 gallons.

All tinware and utensils after being scrubbed adequately in an alkaline wash must be sterilised. Boiling water is a suitable rinse and immersion in it will destroy bacteria. All metal parts should be kept on a clean, dry bench in the open air.

Because transport to the manufacturing dairy causes considerable agitation of milk and cream, it is essential that the cans used for this purpose should be properly and completely tinned and cleaned and sterilised effectively. Pitted metal in cans and incomplete sterilisation of them are the cause of much poor-quality produce. The can-washing machines of dairy factories are not intended to complete the cleaning of cans, which remains the responsibility of the supplier. Milk and cream cans must be scrubbed daily in an alkaline solution and sterilised with boiling water. After cleaning they should be kept in clean, fresh air to drain and dry completely.



A milk-elevator inflation perished by fat penetration. Analysis showed that the rubber had absorbed 1.8 per cent. fat by weight in 2 months.

Appliances for Boiling Water

Almost all dairy farming districts are served by electricity and the electric cylinder is the most common appliance for boiling water. Coppers mainly are used in districts not connected to electric supply systems. Whatever appliance is used it is essential that it should produce boiling water when cleaning of equipment is to begin. The copper boiler, properly bricked in and under cover, is particularly useful where fuel is plentiful,