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SAVING EQUIPMENT FOR MILK FLOW CONTROL IN THE VACUUM AND PRESSURE OF THE MILK

B. Korshunov, Ph.D.

A. Uchevatkin, Ph.D.

F. Maryahin, A. Korshunov, Ph.D.

A. Orlov, Researcher

All-Russian Scientific Research Institute

Electrification of Agriculture

e-mail: koral314@yandex.ru

The growth of automation and improved production technologies mo-Lok on farms and dairy complexes led to the development needs bridges and create a resource-saving equipment to control the flow of milk in the milk of vacuum and pressure.

The purpose of research - development of equipment to control the flow of milk in the milk.

Materials and methods of research. Equipment to control the flow of milk in the milk vacuum and pressure includes a means of indirect and direct measurement. By means of an indirect measurement of the amount of milk supplied by the vacuum and discharge the milk are devices based on the measurement of indirect values associated with the measured amount of milk known functional dependence. Used, for example, depending on defined divider ratio between separated by divider control the volume of milk is sent to the measuring cup and the measured volume of the milk flowing through the milk suction. For this type of device is a device for accounting separation of milk at milking a cow udder quarters, accounting for zootechnical milk and taking the average of the sample during milking.

By means of direct measurement include devices based on the methods of measuring the volume of milk by its direct comparison with the volume of the metering device of the device. As a reference, in this case, the measuring cells are taken representing volume rigidly bounded on all sides by measuring surfaces.

The management system at the checkpoint is issued remote electric analog or digital signal proportional to the pro who was walking through the measuring cross-section of the unit amount of milk. For this type of device is a device for the group, and general commercial accounting of milk coming from milking plant and issued in milk floats. For this purpose the means designed indirect measurement, including electromagnetic action. They use the functional relationship between the rate of flow of milk flowing through the uniform magnetic field, and thus on the suggestive installed in the flow electrodes of the electromotive force.

For private and commercial accounting of milk, a large number of devices of indirect and direct measurement. This is a device for metering the milk type USM-1 (factory Kurganselmash, Russia); NYM-1 (GMP Fe max, Russia), Milkoskop (company A / S Foss Elektric, Denmark); Tru-Test (company Destributors LTD, New Zealand); Waikato (company Products LTD, New Zealand). Operating them in a production environment has shown that these devices have a number of design flaws that adversely affect their metrological performance and weight and size, which limits their application.

The results of research. In VIESH create a set of equip-ment to control the flow of milk in the vacuum pressure and the milk cattle-breeding farms and complexes. This kit includes: a device for the separate accounting of milk at milking a cow udder quarters УРБ-1 [1]; Control device for zootechnical milk sampling during milking УЗКМ-1 [2]; device for general accounting of milk and commercial calculations МР-2 [3] and a device for differentiation-balanced, taking into account the milkУКМ-Бк [4].

Apparatus ASU-1 (Fig. 1, 2) operates on the principle of proportional division random milk flow coming from each quarter of cow's udder for milking.

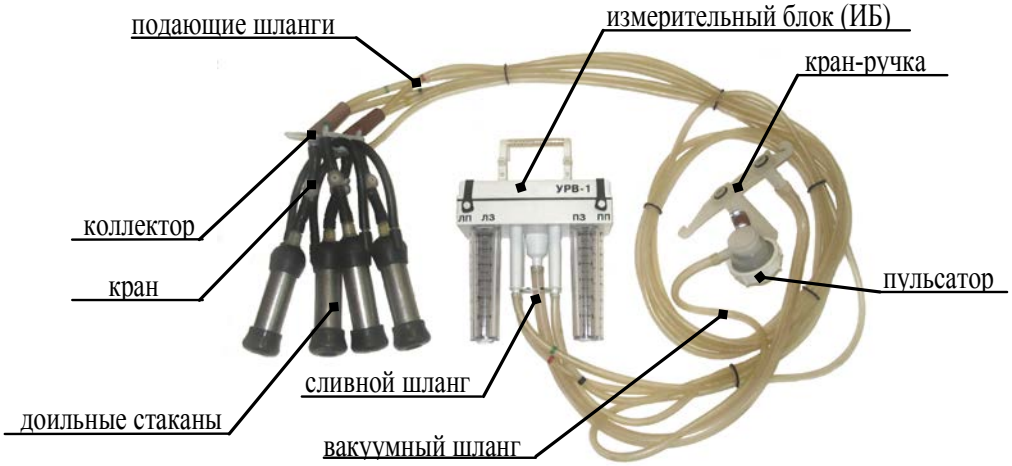

Fig. 1. A device for metering of milk at separate milking cows udder quarters УРВ–1

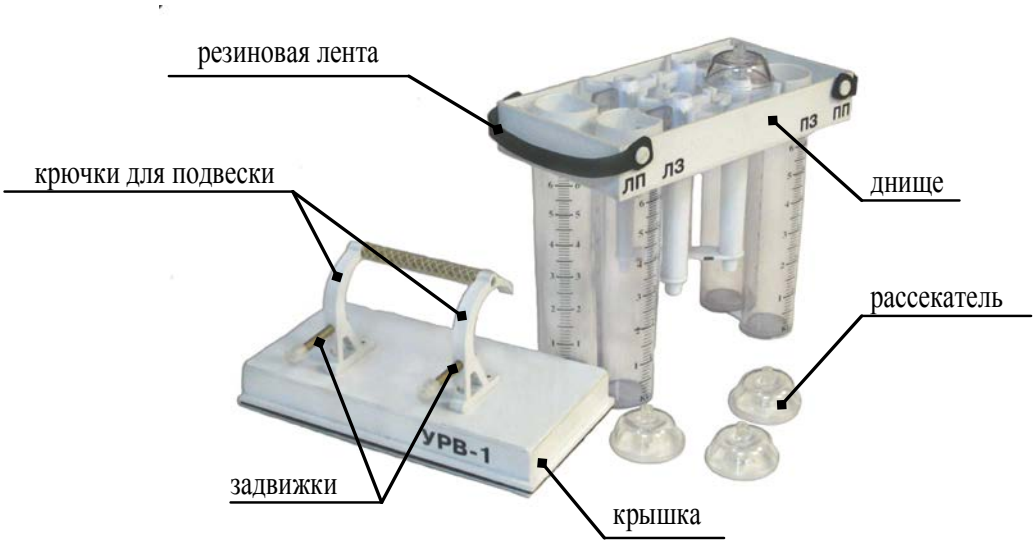

Fig. 2. The measuring unit

Apparatus УЗКМ-1 (Fig. 3) operates on the principle of proportional division random flow of milk coming from milking machine.

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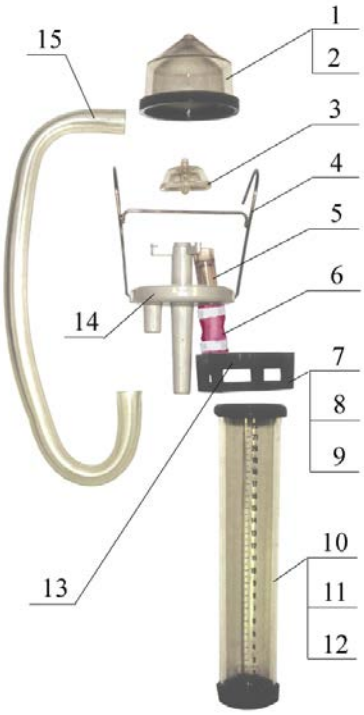

Fig. 3. Device for zootechnical control of milk and sampling during milking УЗКМ 1:

1 cover; 2-rubber lid collar; 3 divider with holder; 4 Suspension; 5-receiving tube; 6-coupling; 7-housing; 8-petal valve located within the housing and partially overlapping the channel for the passage of the milk into a glass; 9-tumbler holder; 10-flask; 11-bulb rubber collar; 12 rubber bottom of a flask; 13 of the tongue; 14-base; 15 - a hose for evacuation of milk

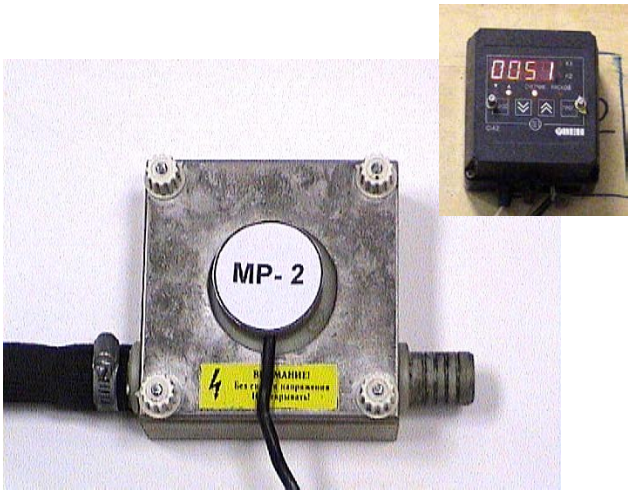

Fig. 4.The device MP-2

The device MP-2 (Fig. 4) operates on the principle of direct measurement obё-atoms milk by dividing it by measuring the volume of a given dose of BPA-rotating rotors, and the subsequent conversion of pulses via the counter equipped with soft-ware device with power electronic adjustment.

Apparatus УКМ-Бк (Fig. 5) works on the principle of measuring the flow rate of milk through the measuring unit of the electromagnetic action with di-station issu-ing a signal proportional to the volume of milk has passed through the device.

Fig. 5. The device for differential accounting milk УКМ-Бк

Conclusion

The developed devices are superior in weight and size and performance indica-tors, foreign and domestic counterparts, promote resource conservation and reduce the consumption of materials milking system, reduce energy consumption, increase operator productivity in 1,5 ... 2 times, maintain the quality of products obtained. The devices are patented and introduced in the main agricultural regions of Russia.