THE COMBINED SOLAR HEATER OF THE LIQUID AND GASEOUS HEAT-CARRIER

Description

The offered solar heater can find application in a heat supply systems of various technological objects (hothouses, drying installations, etc.), inhabited and industrial buildings. The known combined air-water solar collectors are difficult on a design, are inconvenient in assemblage and installation, have considerable weight, are insufficiently energetically effective and are expensive devices. The power institute, develops a design of the simple and effective device with use of the accessible and cheap materials, providing simultaneous or separate heating of the liquid and gaseous heat-carrier, in particular, water and air, and convenient in operation. Energy intensity decrease of the food industry production is now the purpose of innovative development in this area.

Innovative Aspect and Main Advantages

The innovative elements are the discrete absorber consisting of a row parallel located with backlash from each other of pipes of oval section, located under a corner 10° - 20° to a case cover. Besides, absorber pipes in other variant of execution have the rectangular form and are located in parallel to case cover. Lateral walls of the heater case are executed hollow of heat isolated material, and the formed channels serve for air passage.

The absorber pipes can be made of metal, polymeric or composite materials, and as a heat-absorbing material for absorber pipes use a black matte paint, including selective. The absorber is placed on the hollow basic punched elements through which it is selected heated air.

Technical result is improvement of operational characteristics, decrease in thermal losses of a heater, and also increase of its reliability and design simplification. Use of accessible and inexpensive materials for manufacturing of pipes of an absorber, the case of a heater and basic elements causes low cost of the device as a whole. The cut of the combined solar heater is shown on fig. 1.

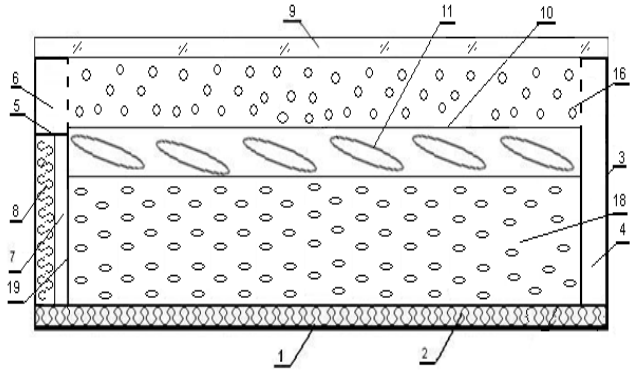

Fig.1. The cut of the combined solar heater

Stage of Development

The researches are executed. On a design patent MD 135 Z from 2010.01.31 is granted.