

CLEANING EQUIPMENT FOR PUNCTURE-RESISTANT GLOVES AND THE LIKE

The invention relates to cleaning equipment for puncture-resistant gloves and the like; puncture-resistant gloves are used in the meat- and fish-processing industry and protect the personnel, working with cutting tools, against hand injuries.

It is understandable that such puncture-resistant gloves become soiled during work, that is, become clogged with meat fibers, meat residues, blood etc. Because of the hygiene regulations in force, it is necessary that these puncture-resistant gloves, which have been soiled during the work, are cleaned thoroughly.

Until now, puncture-resistant gloves were cleaned by taking off the gloves and cleaning them manually with a hose.

This cleaning is difficult and time-consuming and therefore also unfavorable with respect to the working time spent. Furthermore, with the manual cleaning of the puncture-resistant gloves described, it is also very difficult to achieve very thorough cleaning of the puncture-resistant gloves and, with that, to comply with the corresponding hygiene regulations, which are imposed on the food processing industry.

In slaughterhouses, there is a large number of butchers and employees and, accordingly, a large number of puncture-resistant gloves are used. It is understandable that, with the large number of puncture-resistant gloves, which are used and which have to be cleaned, the previously known method of manually cleaning each individual puncture-resistant glove is time consuming and difficult.

It is an object of the invention to make possible an easier, less expensive and time-saving cleaning of the puncture-resistant gloves and other equipment, as found in the food processing industry.

This objective, on which the invention is based, is accomplished by the teachings of the characterizing part of the main claim.

The invention starts out particularly from the concept of cleaning the soiled puncture-resistant gloves automatically, that is, of making it possible, for example, to suspend several soiled puncture-resistant gloves in an apparatus and, after the cleaning apparatus is started, to clean the soiled puncture-resistant gloves automatically. This automatic cleaning has the advantage that the cleaning takes place according to previously specified criteria and does not depend on the time available or the care of an individual. In addition, this apparatus has the advantage that several puncture-resistant gloves can be cleaned simultaneously, which is advantageous particularly where, because of the large number of meat-processing persons, there is a large number of soiled puncture-resistant gloves, which must be cleaned.

Advantageous developments of the invention are described in the dependent claims.

An embodiment of the proposed equipment is shown in the enclosed drawings, in which

- Figure 1 shows cleaning equipment for puncture-resistant gloves in a perspective view and
- Figure 2 shows a holding device for the puncture-resistant gloves, which are to be cleaned.

The cleaning equipment in this embodiment is constructed in the form of a carousel, that is, recesses 1, in which the puncture-resistant gloves 9 are suspended, are disposed in a round holding plate 2. In this embodiment, the holding plate 2 is constructed round. However, it may also have other shapes. On the other hand, it is also possible to transport the objects, which are to be cleaned, such as puncture-resistant gloves 9, on a different type of conveying equipment, such as an appropriate conveyor belt, conveyor chain, etc.

The holding plate 2 is disposed on a support 17. In the lower region of the support 17, a base plate 3 is disposed, which has a diameter smaller than that of the holding plate 2. The holding plate 2, as well as the base plate 3, are driven by a driving mechanism, which is not shown. Moreover, they are driven in the same direction and at the same speed.

Below the holding plate 2, a semi-circular basin 7 is disposed, which is open at the top and closed off at the faces by face walls, the face walls having an approximately U-shaped opening 8, which is open at the top.

Of course, the basin 7 can also have a different shape or be constructed longer or shorter. On one side of the proposed cleaning equipment, there is the actual washing unit 19, which is disposed on a support 20, so that the washing unit 19 is disposed at a small distance above the rotating holding plate 2. The washing unit consists of a washing nozzle, which is not shown, and is constructed approximately peg-shaped. The outer periphery of this washing nozzle has holes and water under high pressure can be passed into the whole of the washing nozzle, so that this water emerges from the nozzles and cleaning of the puncture-resistant glove is achieved. The washing nozzle in the washing unit 19 is movable and, when there is a recess 1 below the washing nozzle and this recess 1 is "filled" with a puncture-resistant glove 9,

is lowered into the suspended puncture-resistant glove 9. After the spray washing with water under high pressure, the washing nozzle is raised once again out of the puncture-resistant glove 9 and, thereupon, lowered into and raised out of the glove a few times once again and, at the same time, sprayed with water or cleaning liquid in order to achieve intensive cleaning of the puncture-resistant glove 9 as a whole by this oscillatory movement. The washing unit 19 also has washing equipment, which is not shown, is disposed stationarily and sprays the water onto the suspended puncture-resistant glove 9 in order to bring about cleaning of the puncture-resistant glove 9 also from the outside. On the other hand, the washing nozzle cleans the puncture-resistant glove 9 from the inside toward the outside in order to achieve an optimum cleaning effect.

Below the base plate 3, metal contacts are disposed in each case to correspond to the recesses 1 in the holding plate 2 above. A sensor, which is disposed below the base plate 3, brushes over these contacts. Depending on the information of this sensor, the holding plate 2 is clock controlled by a motorized driving mechanism, that is, whenever there is a recess 1 below the washing nozzle of the washing unit 19, the driving mechanism of the holding plate 2 stops and the washing nozzle can now be lowered into the recess 1 and into the glove suspended therein. The arrangement of the sensor and of the individual contact surfaces below the base plate 3 has the advantage that the space below the base plate 3 is protected from spray water and contamination of this technical equipment is therefore prevented.

A second sensor is located in the washing unit 19 and senses whether a puncture-resistant glove 9 is suspended in the recess 1. If a glove is not suspended, this is recognized by a second sensor and, accordingly, there is no lowering of the washing nozzle. Instead, the holding plate 2 is advanced in order to check whether a puncture-resistant glove 9 is suspended in the next recess 1.

The actual cleaning of the suspended glove 9 takes place under a high pressure of, for example, 200 bar. Either water or a special cleaning solution is suitable for the cleaning. Below the washing unit 19, a discharge pipe 14 is provided, through which the consumed wash water is discharged to a discharging basin 15, which is provided with a screen, in order to filter off the coarser components of the effluent. The filtered water is carried away through a discharge pipeline 21.

After the puncture-resistant glove 9 is cleaned, the whole of the holding plate 2 is advanced by means of the motor-driven mechanism. The freshly cleaned glove first of all passes into the region of the basin 7, in which the liquid, dripping from the cleaned glove, is collected.

In order to suspend the gloves 9, which are to be cleaned, the gloves, which are provided at their cuffs with a textile tape having three openings, are suspended from below in the recesses 1. The recesses are provided, in each case, with three upwardly directed hooks 22, as is evident from Figure 2. The openings in the cuffs of the puncture-resistant gloves 9 are pushed onto the hooks 22, so that, as can be seen from Figure 1, the gloves hang down from the holding plate 2 accommodating them.

After the recesses have been loaded with gloves 9, which are outside of the basin 7, the holding plate 2, by depressing pedal 4, can be set in motion, so that it carries out half a revolution, that is, after this movement of the holding plate 2, the recesses 1, loaded with gloves 9, are in the region of the basin 7, and the recesses 1, which are still free, are in the direction of the user and can thus easily be loaded with gloves 9, since the loading is not made difficult by the basin 7 below. After all or most of the recesses 1 have been loaded with gloves 9, the equipment shown is set in motion by pressure on pedal 5.

The support 17 is constructed like a cupboard and therefore protected against contamination. A door 6 is disposed at the support 17, so that the electronics and the gearing within the support 17 can be attended to. An emergency switch 12 is provided, so that the equipment shown can be stopped quickly. The gearing for the movable washing nozzle of the washing unit 19 is located in the housing 11. Two lamps 13 signal if the equipment shown is being operated. When two lamps are lit, water, with a cleaning liquid, is sprayed into the glove 9. After the first washing step, only water is introduced into the glove 9 in order to remove the cleaning liquid and only one lamp 13 is still lit. Of course, the cleaning processes for the puncture-resistant gloves 9 can be adjusted individually as required and depending on the degree of contamination, that is, the nature and number of cleaning processes can be pre-programmed.

With the equipment shown, it is also possible to wash and rinse other devices, which turn up in such slaughter houses, fish-processing plants and the like, such as knives, aprons, etc. By changing the type of suspension for the objects to be cleaned, that is, by not using a hook 22 and using, instead, a flatware holder or the like, it is easily possible to employ this arrangement, for example, for cleaning cutlery.



Claims

1. Cleaning equipment for puncture-resistant gloves and the like, characterized by a support, which accommodates one or several holding mechanisms for puncture-resistant gloves (9), the support being constructed in a mobile fashion, so that each holding mechanism can be brought into the sphere of action of a washing nozzle, which is connected with a supply of cleaning liquid.

2. The cleaning equipment of claim 1, characterized by a circular holding plate (2) as carrier.

3. The cleaning equipment of claims 1 or 2, characterized by holding mechanisms, which are constructed as recesses (1) provided with hooks (22).

4. The cleaning equipment of one of the preceding claims, characterized by a washing nozzle, which can be moved during the cleaning process in the puncture-resistant glove (9), which is accommodated in the holding mechanism.

5. The cleaning equipment of one of the preceding claims, characterized by a collecting basin (7), which is disposed below the support and is open at the top.

6. The cleaning equipment of one of the preceding claims, characterized by a sensor for identifying whether a holding mechanism is or is not occupied by a puncture-resistant glove (9), which sensor is disposed in the region of the washing nozzle.



7. The cleaning equipment of one of the preceding claims, characterized by the washing nozzle, which has a washing liquid duct in its interior and outlet openings, which are connected with the outer periphery of the washing nozzle.

8. The cleaning equipment of one of the preceding claims, characterized by a control system for the driving mechanism of the support, consisting of position contacts, which are disposed on the support or on a synchronous position contact carrier, and a sensor brushing over the position contacts.

9. The cleaning equipment of claim 8, characterized by a base plate (3), which is formed below the support plate (2) and is synchronous therewith, position contacts being disposed at the underside of the base plate (3).