[PANEL A]

FISH DESCALLER

[Technical field]

This invention relates to a fish scales descalling machine.

[Background]

The present method of removing fish scales from it's body by manual conventional way is very tedious and environmental unfriendly. It is very difficult to clean up the removed scales on the floor or environment after fish descaling.

This new designed machine will solve the abovementioned problems as the designed descaling process means to collect all removed scales in the collecting compartment of the machine. It improve environmental cleanliness, descaling efficiency and productivity.It saves the environment without fear of the removed scales will block the drainage system. The removed scales can now be properly collected, wraped and disposed.

The design of this machine is in response to the world call for environment protection.

[Essential technical] [features]

According to the present invention there is provided a fish descaling machine comprising a housing (A), means for holding of all the varies parts as shown in FIG 3. Deflector (B), means to deflect the removed scales into the collecting compartment (E) and to prevent the removed scales to return to the outside environment Scales catcher roller(D)which designed with gripping edge all over the circumference surface of the roller means to serve grip and pulling action against the fish scales, pressure springs (C) on both ends of the roller shaft to ensure firm pressure against the scales to be removed through the joint effort between roller (D) and base plate (F). while the base plate (F) which design with straight grooves on the pressure surface (H) which ensure excellent gripping surface and with the straight groove designed, it allow less friction surface and minimise the vacuum pressure between fish scales and empty spaces in the grooves while the step (G) help to further break the vacuum pressure which provide easy collection of removed scales.

This fish scalling machine's design is also flexible in the sense to serve two different market i.e. industrial and household.

For the case of industrial use, as it is going to be a big quantity scales descaling process, a vacuum line can be connected at discharge port(K) which is located at the rear of collecting compartment(E) to suck all the removed scales from the collecting compartment. Where for the case of house hold use, it is not necessary to have vacuum suction. In this case the opening at vacuum connection port can now serve to dispose removed scales by gravity and wash cleaning.

Note : The roller (D) is driven by an electric motor (J) through a set of gear-train and the motor is mounted in the machine housing. see FIG 3.

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[PANEL B]

[Example] A special embodiment of the invention will now be described by the way of example with reference to the accompanying drawing in which :-

FIG 1 shows in perspective, the cross-sectional partial view shown how the direction of scales being feed and enter in the machine. see arrow (Z).

FIG 2 illustrates the separation top partial view of the base plate (F).

FIG 3 shows the complete line diagram of this machine.

FIG 4 shows the different orieantation of machine application.

Refering to the drawing the edge of the base plate (F) is first feed from the tail of the fish. When motor starts, it drive the roller (D) in the rotating direction as indicated and the scales on the tail of fish body will slide into the edge of base plate and angle (α) cause the scales to first break and feed and the turning roller pull all the scales into the machine. The pulling action of the roller will also cause the machine to travel forward in the direction towards fish head untill the last scale is removed. The removed scales will be collected in the collecting compartment and dispose either through vauum suction or by gravity dropping or wash spraying. With the present of base plate feeding edge (measurement 'X'), it ensure the skin of the fish will not slip or slide into the machine.

Alternatively refer to FIG 4, the machine can be vetically mounted or mounting in any direction. Instead of hand feed the machine to descale, the fish can slide against the mounted machine to descale. The machine can also be mounted in level with the table surface for the descaling of fishes above the table.

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[PANEL C]

CLAIMS

1 A descaling machine comprising machine housing which is designed to hold all parts and components which include motor, gear train, roller, deflector, base plate and disposer port which can also be connected with vacuum suction hose/pipe, the small opening gap along the scales feeding edge of the base plate and machine housing prevent human finger in contacting with the roller.

2 A descaling machine as claimed in claim 1wherein edge of the base plate and pressure surface (H) is specially design to serve the following functions inclusive:-

- Angle α: this angle allow scales to lift up from the fish body resulting less force being required to separate scales from the fish body. When the first scales are removed, the following scales are also lifted due to the first layer of lifted scales which allow ease of feeding for the rest of the scales layers.

- Dimension X : This dimension need to be properly determined to allow sufficient space for feeding of smaller size scales. The design of this machine allows base plate to flexibly slide to make fine adjustment. The 'X' dimension will also prevent the flesh of the fish from feeding into the machine.

- Dimension Y : It allows sufficient gripping surface to support gripping action between the roller and the base plate.

- Step G : Step G allow to break the vacuum pressure from surface 'H'.

- Straight grooves on surface 'H' : These grooves guide the scales to slide inward into the machine and minimise vacuum pressure between the surfaces of scales and surface 'H'. These grooves reduces surfaces friction between scales and suface 'H' as compared to the higher surface friction between roller and scales. Thus improve the inward sliding speed.

3 A descaling machine as claimed in claim 1 or claim 2, wherein roller C means is driven by a motor(J) through a set of gear train which allow sufficient torque for roller gripping and pulling actions, gripping edge is cut on the circumference of the roller which ensure excellent gripping and pulling action.

4 A descaling machine as claimed in claim 1 or claim 2 or claim 3, wherein deflector 'B' is position as indicated in FIG 3 to ensure that the removed scales when discharge into the collecting compartment is not return back to the outside environment.

5 A descaling machine as claimed in claim 1 or claim 2 or claim 3 or claim 4, wherein the set of pressure springs means to ensure sufficient pressure between the roller and gripping surface 'H' to support the gripping and pulling action, it is also useful to descale scales of different thickness without the need to further adjusting the gripping gap between roller and surface 'H', this give thanks to the compressibility of the pressure spring, a set of stoppers is installed on both the pressure springs to stop or prevent the roller from rubbing against base plate surface 'H' which may result in wear and tear, set of adjustable nuts are installed at location of pressure springs to adjust the gap between roller and base plate surface 'H'.

6 A descaling machine as claimed in claim 1, wherein the inner wall surface of the housing are of rough/coarse surface design which provide ease of wash/cleaning.

7 A descaling machine as claimed in any preceeding claim, wherein the machine can be mounted in any direction to perform the descaling activity.

9 A descaling machine substantially as described herein with reference to Figures 1-4 of the accompanying drawing.

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