

DEVICE FOR CONNECTING AND DRAINING A POUCH

BACKGROUND OF THE INVENTION

The invention relates to a device for connecting and draining a pouch containing a liquid, which can be fitted on a joint integral with said pouch, in particular for enteral or parenteral feeding.

U.S. Pat. No. 3,685,795 relates to a collecting bag, in particular for blood, comprising a coupling system allowing said bag to be opened and closed at will so as to distribute some of the blood from the collecting bag to a second bag. This coupling system advantageously replaces a distributing valve and in no way relates to enteral or parenteral feeding.

Numerous joining devices for the enteral or parenteral feeding of patients are known. If the join is made at the base of the feeding bag, joints or pipes will have to be inserted into the actual bag, and this leads to defects in sealing which are absolutely unacceptable. Furthermore, the production of bags of this type, which end in a funnel shape and on which there are welded joints with pipes or tubes through which a needle has to be introduced, is very complicated and expensive. If the join is made on the side of the feeding bag, a needle which remains engaged in the bag during use and which risks perforating the opposite face during draining is usually used. Moreover, since the needle remains inside the bag, the bag cannot drain entirely.

SUMMARY OF THE INVENTION

The present invention provides the user with an absolutely safe device which is also economical, quick to use and of relatively simple design and which allows complete drainage of the product and use of a bag which is simple to make up.

The device according to the invention comprises a portion which can be adjusted to the joint integral with the pouch, a needle having an axis of symmetry substantially coinciding with that of the adjustable portion, a means for automatic or manual return of the needle into its starting position and a system for discharging the liquid.

The adjustable portion is rendered integral with the joint of the pouch by a screw system, a bayonet fitting, a catch, or by nesting, preferably using a system with an annular groove, on the joint and an annular bead on the adjustable portion or vice-versa. A perfectly watertight connecting system must be produced in each case.

The material used is a plastics material suitable for use in the food industry which has good properties of elasticity, such as polyolefins, for example, polyethylene, natural elastomers such as rubber or synthetic elastomers such as silicones.

Thus, in a first embodiment, the device of the present invention is adjustable and is capable of being affixed to a joint affixed to a pouch containing liquid to be dispensed. An end portion is capable of being affixed to the joint. An end-piece is connected with the affixing end portion by means for allowing reciprocation of the end-piece in a direction towards and in a direction away from the affixing end portion. A void is defined by the end-piece, the reciprocation means, the affixing end portion and the joint for liquid from a pierced pouch to flow towards the end-piece. A needle is affixed to the end-piece and extends within the void. The needle is tapered to a point in a direction from the end-piece to

the affixing end portion. The needle has a length such that when the end-piece is at a reciprocated position away from the affixing end portion, the point of the needle is displaced away from the pouch. The needle, however, has a length sufficient for penetrating through the joint for piercing the pouch when the end-piece is at a reciprocation position towards the affixing end portion. The needle has a diameter smaller than a diameter of the void for allowing liquid to flow through the void about the needle. A pipe is positioned between the end-piece and reciprocation means for dispensing liquid flowing from a pierced pouch towards the end-piece about the needle via the void.

In a second embodiment, the reciprocation means terminates in an end portion integral with the reciprocation means in lieu of a separate end portion. A pipe is affixed within the integral end portion and is integral with a needle. The needle, while having a diameter smaller than the void, has a diameter sufficient for accommodating at least one opening communicating with a channel which terminates at and communicates with a channel of the pipe for dispensing liquid flowing from a pierced pouch via the void to the needle opening and through the needle channel to the pipe.

In a third embodiment, the device has an adjustable portion which has a first portion defining a void through which a needle passes into an extension pipe of the joint. The needle has an opening and channel connected to a pipe passing out of the first portion of the adjustable portion for delivery of liquid from the extension pipe away from the adjustable portion. A second portion of the adjustable portion circumscribes the extension pipe, and abutments on the second portion and extension pipe define a void between them. Means to reciprocate the adjustable portion and needle are positioned in the void between the extension pipe and the second portion of the adjustable portion.

In a fourth embodiment, an adjustable portion contains an end-piece, needle and pipe, as in the first embodiment, and circumscribes an extension pipe of a joint and is reciprocated and then positioned with a system of grooves and beads.

DESCRIPTION OF PREFERRED EMBODIMENTS

According a first embodiment, the means allowing return of the needle is a bellows-type system arranged in the extension of the portion which can be adjusted to the joint. This bellows-type system comprises between 1 and 5 folds, preferably between 1 and 3 folds. The use of the device according to the invention will be explained with reference to the Figures.

According to a second embodiment, the means allowing return of the needle is a spring fitted in the portion which is adjusted to the joint. This spring is preferably a coil spring which is coaxial to the needle.

According to a third embodiment, the means allowing return of the needle is a system with a double annular groove on the exterior of the joint cooperating with a bead system in the internal portion of the portion which can be adjusted to the joint. It is also possible to provide two annular beads at the end of the joint and an annular groove on the adjustable portion.

With regard to discharge of the food product, this is effected either by a piping system outside the needle or by piping in the extension of the needle, said needle thus comprising at least one opening.