The present invention relates to a bag having closure profiles combined with a slider (20), characterized in that an end weld (3) made between the closure profiles is shaped according to a geometry which is the complement of the slider (20).

The invention also relates to a closure assembly, a method and a machine for manufacturing such a bag.
The present invention relates to the field of bags having complementary closure profiles designed to allow a series of successive openings/closures by a user.

Many types of bags and/or closure profiles have already been proposed for this purpose.


Yet more specifically, the present invention involves the field of bags whose closure profiles are opened or closed by a slider.

Various types of bags and closure profiles operated by a slider have also been proposed.

On this point, reference could be made, for example, to document FR-2778362.

Bags having closure profiles operated by a slider have the enormous advantage, with respect to bags having no slider, of easy handling.

This is because the slider facilitates the release of the profiles in order to open the bags, or the engagement of the profiles in order to close the said bags. For this, all that has to be done is to move the slider in translation along the profiles.

Nevertheless, bags equipped with closure profiles combined with a slider have a major drawback, namely the presence of the slider leads to faulty sealing, including in the closed position of the bags.

This is because, as illustrated in the appended FIG. 1, which shows an end view of a bag 10 equipped with a slider 20, the presence of the slider 20 produces, in the closed position, an open triangle T between the closure profiles upstream of the slider 20.

Various means have already been proposed in an attempt to overcome this drawback.

However, none of the means proposed to date are completely satisfactory.

The aim of the present invention is now to improve the situation.

This aim is achieved in the context of the present invention by virtue of a bag having closure profiles combined with a slider, characterized in that an end weld made between the closure profiles is shaped according to a geometry which is the complement of the slider.

The present invention also relates to closure assemblies, before they are fitted to a bag, comprising closure profiles combined with a slider, characterized in that an end weld made between the closure profiles is shaped according to a geometry which is the complement of the slider.

The present invention also relates to a method of producing bags, characterized in that it comprises the step which consists in shaping an end weld of closure profiles, in the hot welding state, according to a geometry which is the complement of a slider.

Preferably, this step of the method consists in pressing a slider and an end weld of the closure profiles one against the other, in the hot welding state, in order to shape the weld to the geometry which is the complement of the slider.

Furthermore, the present invention relates to a machine for manufacturing such bags, characterized in that it comprises means capable of shaping an end weld made between the closure profiles, according to a geometry which is the complement of the slider.

Other characteristics, aims and advantages of the present invention will become apparent on reading the following detailed description with regard to the appended drawings, given by way of non-limiting example and in which:

FIG. 1, previously described, is a schematic representation of the end of a bag with a slider according to the prior art;

FIG. 2 is a similar representation of a bag according to the invention;

FIG. 3 is a schematic view of a slider.

As has been indicated above, the present invention relates to the manufacture of re closable bags with closure profiles operated by a slider.

The present invention is equally applicable to machines automatically manufacturing bags moving horizontally and to machines automatically manufacturing bags moving vertically.

Moreover, the present invention is equally applicable to machines automatically manufacturing bags filled during a step subsequent to manufacture and possibly separated geographically from the place of manufacture, and to machines for manufacture, filling and closure in a single location and during successive steps.

Thus, the present invention is preferably, but not limitingly, applicable to machines for automatically manufacturing, filling and closing bags (generally called "form, fill and seal"), and very advantageously, to such machines moving vertically.

A description of such machines for automatically shaping, filling and closing bags moving vertically will be found in the documents cited in the prior art of the present application.

Of course, the closure profiles, based on plastic, may be the subject of many variant embodiments. Preferably, male/female profiles or complementary hooks are involved. Their structure will not be described in more detail below.

Similarly, the sliders 20 may be the subject of many variant embodiments. Preferably, each slider consists, as can be seen in FIG. 3, of a plate 22 which bears, on one face, two side flanges 24, 26 and a central separating rib 28 which defines, in combination with the side flanges 24, 26, two convergent/divergent passages depending on the direction in question, intended to receive respectively one of the profiles. The structure of sliders that can be used in the context of the invention will not be described in more detail below.
The bags according to the present invention are produced using two parallel sheets, welded together on three sides corresponding to the bottom and to the two side edges of the bags. The fourth side of the sheets, which corresponds to the mouth of the bags, is fitted with closure profiles combined with the slider.

The closure profiles may be moulded integrally with the sheets or attached and welded thereto by any suitable means.

The support sheets of the profiles, forming the bag, may be the subject of many variant embodiments. It may involve a single thermoplastic film, or even a composite thermoplastic film, that is to say formed by juxtaposition of various different layers, or else a complex film formed, for example, from plastic-coated paper or a metallized film.

As can be seen in FIG. 2, within the scope of the present invention, the end weld 30 made between the closure profiles, facing the end of the slider 20 corresponding to the wide end of the separating rib 28, is shaped according to a geometry which is the complement of the slider 20.

This weld may be shaped by many methods.

Preferably, it is produced by pressing the slider 20 on the weld 30, in the hot welding state, in order to "mould" the weld 30 on the slider 20.

Preferably, this shaping is carried out just after forming the weld 30, when the latter is still in the soft state.

According to the schematic and non-limiting representation illustrated in FIG. 2, after this shaping, the weld 30 has a plane face orthogonal to the direction of movement of the slider 20 (the slider 20 itself having a complementary face). However, the invention is not limited to this particular geometry and may be adapted to any other geometry of the slider.

It will be understood on examining FIG. 2 that since the weld 30 closely matches the shape of the slider 20, when the bag is closed, the gap existing according to the prior art is eliminated.

The present invention thus clearly makes it possible to improve the sealing of the bag, with respect to the prior art.

The pressure exerted by the slider on the hot weld 30, to shape the latter, may be produced by any means, such as pneumatic, electrical or mechanical means.

The weld 30 may be shaped before or after, or even at the same time as the closure profiles are fastened to the walls of the bag (in the case where the closure profiles are not integral by moulding with these walls, but are attached thereto) and may be shaped before or after, or even at the same time as, the welding of the end of the bag.

According to another variant of the present invention, the weld 30 may be shaped not on the slider 20 itself, but on an indentation similar thereto. Such an indentation may be incorporated into the production equipment.

Such an indentation may be a heating indentation in order to facilitate the shaping of the weld.

Of course, the present invention is not limited to the particular embodiments which have just been described but extends to any variant in accordance with its spirit.

1. Bag having closure profiles combined with a slider 20, characterized in that an end weld 30 made between the closure profiles is shaped according to a geometry which is the complement of the slider 20.

2. Bag according to claim 1, characterized in that the weld 30 has, after shaping, a plane face orthogonal to the direction of movement of the slider 20.

3. Bag according to either of claims 1 and 2, characterized in that the slider 20 has a plate 22 which bears, on one face, two side flanges (24, 26) and a central separating rib 28 which defines, in combination with the side flanges (24, 26) two convergent/divergent passages depending on the direction in question, intended to receive respectively one of the profiles.

4. Closure assembly, comprising closure profiles combined with a slider 20, characterized in that an end weld 30 made between the closure profiles is shaped according to a geometry which is the complement of the slider 20.

5. Assembly according to claim 4, characterized in that the weld 30 has, after shaping, a plane face orthogonal to the direction of movement of the slider 20.

6. Assembly according to either of claims 4 and 5, characterized in that the slider 20 has a plate 22 which bears, on one face, two side flanges (24, 26) and a central separating rib 28 which defines, in combination with the side flanges (24, 26), two convergent/divergent passages depending on the direction in question, intended to receive respectively one of the profiles.

7. Method of producing bags, characterized in that it comprises the step which consists in shaping an end weld 30 of closure profiles, in the hot welding state, according to a geometry which is the complement of a slider 20.

8. Method according to claim 7, characterized in that the shaping of the weld 30 consists in pressing the slider 20 on the weld 30, in the hot welding state, in order to "mould" the weld 30 on the slider 20.

9. Method according to claim 7, characterized in that the weld 30 is shaped using an indentation similar to the slider 20.

10. Method according to claim 9, characterized in that the indentation is a heating indentation.

11. Method according to one of claims 7 to 10, characterized in that the shaping is carried out just after forming the weld 30, when the latter is still in the soft state.

12. Machine for manufacturing bags, characterized in that it comprises means capable of shaping an end weld 30 made between closure profiles, according to a geometry which is the complement of a slider 20.

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