ABSTRACT: A draw string bag has an open mouth defined by tubular channels extending along the transverse top edges of the front and back walls of the bag. One of the channels has an opening at one longitudinal edge of the bag and the other channel has an opening at the other, opposite longitudinal edge of the bag. A separate string extends through each channel, one end of each string being attached to one of the opposite longitudinal edges of the bag and the other end of each string protruding through the transversely opposite opening. The strings are pulled in opposite direction whereby the channels are gathered tightly and regularly and the free ends of the strings are tied easily to each other.
DRA WSTRING BAG

This invention relates to draw string bags. Draw string bags generally comprise a bag of a flexible material, such as a thermoplastic film, a fabric material and the like. The bag has a mouth with open-ended tubular channels formed transversely on each wall of the bag adjacent said mouth and communicating with each other. A string, cord or tape is passed once, and extends, through the channels, both ends of said string, cord or tape being joined to each other to form an endless string. A portion of the string (cord or tape) extends through the open ends of the channels. The string may be pulled in one direction with one hand to form a loop while with the other hand the user pushes the tubular channels in the opposite direction, thus closing the mouth of the bag. Alternatively, the string may be passed twice through the channels before both ends of said string are joined to each other. A portion of the resulting double endless string extends through the open ends of the channels. Two loops of a single portion of the string, one on each side of the bag, are simultaneously pulled in opposite directions, whereby the tubular channels are caused to gather and the mouth of the bag is closed. These simple closures, however, present some disadvantages, particularly when the bag is formed of a plastic film. When said film is thin, there is a risk of tearing the channels when pulling the string. Also, in the case of a single loop closure, the plastic film defining the channels has a tendency to spring back to its original flat condition after the channels have been gathered and, in order to keep the mouth of the bag closed, the hanging loop has to be tied into a knot. It is somewhat difficult to tie a loop of string into a knot in such a manner that the knot is placed close against the gathered channels.

It is an object of the invention to provide a draw string bag in which the string is so positioned in the channels that the risk of tearing said channels when pulling the string has been overcome.

It is another object of the invention to provide a draw string bag wherein the ends of the string are no longer secured to each other and the loop is eliminated whereby the free extremities of the string may easily be tied to each other into a knot, if desired, after the channels have been gathered and firmly compressed.

The objects of the invention are attained by a new and improved draw string bag having an open mouth defined by tubular channels extending along opposed transverse top edges of front and back walls of the bag. The essential characteristics of the invention are that one of the channels has an opening placed on a longitudinal edge of the bag while the other channel has an opening placed on the opposite longitudinal edge of the bag and that a separate string extends through each channel. One end of the string protrudes through the open end of the channel while the other end of said string is attached to the longitudinal edge of the bag opposite said open end. In this manner, the strings are pulled in opposite directions which results in a more regular and tighter gathering of the channels and a better distribution of the pulling force exerted on said channels, whereby the risk of tearing the channels is eliminated.

The expression "string" used herein and in the appended claims means a length of any flexible material which might be employed to close the bag. It may be a length of rope, cord, ribbon or tape. The string may be solid, or in tubular form.

The invention will be more fully described with reference to the accompanying drawings illustrating preferred embodiments of the draw string bag, and in which:

FIG. 1 is a front view of one embodiment of the draw string bag of the invention;
FIG. 2 is a cross-sectional view taken at 2-2 of FIG. 1 on an enlarged scale;
FIG. 3 is a front view of another embodiment of the draw string bag of the invention; and
FIG. 4 is a cross-sectional view taken at 4-4 of FIG. 3 on an enlarged scale.

There is shown in FIGS. 1 and 2 an open draw string bag 10 made of a single sheet of heat sealable film material such as a thermoplastic film folded upon itself to form a front wall 12 and a back wall 14. The front and back walls are heat sealed to each other along their superimposed edges to form longitudinal edges 13 and 15 of the bag 10. In this embodiment, since the bag is formed of a single sheet, there is no transverse heat seal at the bottom of the bag.

The bag 10 is provided at its open top end or mouth with a draw string closure. Each end edge portion of the front and back walls 12 and 14, respectively, is inwardly folded against the inner surface of the adjoining wall and heat sealed thereto along lines 16 and 17 to form channels 18 and 20 in the top portion of the front and back walls 12 and 14, respectively.

The channels 18 and 20 define the mouth of the bag 10. A string in the form of a tape 22 extends through the channel 18 and another string in the form of a tape 24 extends through the channel 20. The tapes 22 and 24 extend in two different planes parallel to each other. They are made of heat sealable material, such as a thermoplastic film. The channel 18 has an opening 19 at the longitudinal edge 13 of the bag 10 through which one end of the tape 22 extends. The other end of the tape 22 is heat sealed to the opposite longitudinal edge 15 of the bag 10. The channel 20 has an opening 21 at the edge 15 of the bag 10 through which one end of the tape 24 extends. The other end of the tape 24 is heat sealed to the opposite edge 13 of the bag 10. It should be noted that in this first embodiment of the invention, the openings 19 and 21 are formed by cutting out a portion of each upper edge of the bag through both channels, in such a manner that the opening 19 is also an opening for the channel 20 and the opening 21 is also an opening for the channel 18. The bag 10 is closed simply by simultaneously pulling the free end of each tape in opposite directions which causes the channels to simultaneously shrivel and gather. Once the mouth of the bag is closed, the tapes 22 and 24 may easily be tied to each other.

Another embodiment of the draw string bag of the invention is illustrated in FIGS. 3 and 4. The difference between this embodiment and the embodiment shown in FIGS. 1 and 2 is that, instead of being offset, the tapes extend in the same plane, each in its own channel. Referring to FIGS. 3 and 4, a bag 30 has the same construction as the bag 10, with channels 18 and 20 defining the mouth of the bag 30. A tape 32 extends through the channel 18 and a tape 34 extends through the channel 20 in the same plane as the tape 32. The channel 18 has an opening 29 at the edge 13 of the bag 30 through which one end of the tape 32 extends, the other end of the tape being heat sealed to the opposite edge 15 of the bag. The channel 20 has an opening 31 at the edge 15 of the bag 30 through which one end of the tape 34 extends while the other end of said tape is heat sealed to the opposite edge 13 of the bag. By contrast with the first embodiment of the invention as shown in FIG. 1, the opening 29 is formed by cutting out an edge portion of the channel 18 only, and the opening 31 by cutting out an edge portion of the channel 20 only, see FIG. 3.

The bag 30 is closed simply by simultaneously pulling the free ends of the tapes 32 and 34 in opposite directions to cause channels 18 and 20 to gather as in the first embodiment and the tapes are tied to each other, if desired. While the invention has been described in detail with respect to certain preferred embodiments, it will be understood by those skilled in the art that various changes and modifications may be made without departing from the spirit and scope of the invention. If the bag is not made of a heat-sealable material, but of a fabric, for example, the string may be made of synthetic or natural fibers and sewn to the edges of the bag. In this case, the string may be in the form of a rope, a cord, or a ribbon, for example. The bag illustrated in the accompanying drawing is a flat bag, but the invention is not limited thereto. Other types of bags may be employed, with the draw strings disposed in separate channels in the same manner as in the flat-type bag illustrated.
3,547,341

a front wall and a back wall of flexible material joined to each other along edges of the bag; tubular channels extending along opposed transverse top edges of said front wall and back wall, respectively, said channels defining an open mouth for the bag, each of which channels having an opening at opposite longitudinal edges of the bag; and a separate length of string extending through each channel, one end of said string extending through the opening in the channel and the other end of said string being attached to the longitudinal edge of the bag opposite said opening.

2. A bag as claimed in claim 1, in which the strings extend in two different planes parallel to each other and to the transverse edges of the bag.

3. A bag as claimed in claim 1, in which the strings extend in a single plane parallel to the transverse edges of the bag.

4. A bag as claimed in claim 1, in which the walls are made of a thermoplastic film, and the string is in the form of a tape of thermoplastic material attached at one end thereof to the longitudinal edge of the bag by a heat-seal.