United States Patent

Lieberman

[15] 3,640,450

[45] Feb. 8, 1972

[54] WICKET BAGS

[72] Inventor: **Abraham Buddy Lieberman**, 4755 Boulevard des Grandes Prairies, St. Leonard, Montreal 457, Quebec, Canada

[22] Filed: **Feb. 9, 1970**

[21] Appl. No.: **9,626**

[52] **U.S. Cl.** ..... **229/53**, 206/57 A

[51] **Int. Cl.** **B65d 33/00**

[58] **Field of Search** ..... 206/57 A; 229/53, 66

[56] **References Cited**

UNITED STATES PATENTS

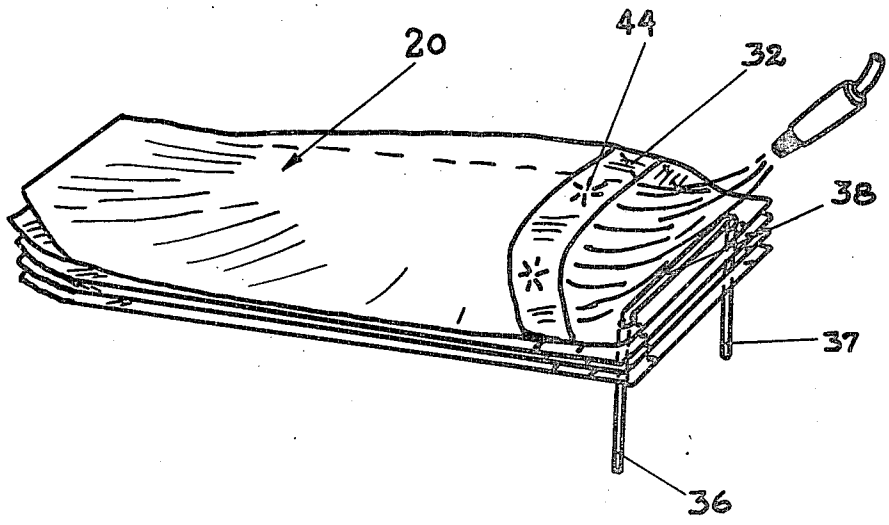
2,054,298	9/1936	Poppe	229/62 UX
2,709,467	5/1955	Hoeppner	229/53 UX
2,766,927	10/1956	Wallace	229/62
2,922,568	1/1960	Harker	229/62
3,385,428	5/1968	Kugler	206/57 A
3,519,197	7/1970	Campbell	229/62 X

Primary Examiner—Donald F. Norton

[57] **ABSTRACT**

The invention refers to wicket bags in which each bag is made from any suitable flexible material, such as polyethylene, polypropylene or other equivalent materials, and has two vertical closed sides and a bottom closed side and leaving an open mouth forming the fourth side. The rear and front walls of the bags are of equal lengths and have their vertical edges heat-sealed for the greater extent of their lengths, thus forming closed vertical sides, and leaving the vertical edges of the upper portions of the rear and front walls freely independent from one another so as to form the open mouth of the bag. The upper portion of the front wall thus becomes a free transverse portion, which is capable of being folded in a downward direction on the exterior surface of its front wall to form a lip, and leaving the upper portion of the rear wall exposed and which is provided with apertures located adjacent to its top edge for engagement by the legs or posts of a wicket. When the bag is filled with the required items, it is removed from the wicket, and the position of the folded lip is then changed and extended in an opposite direction so as to cause the front wall to be of equal length to the length of the rear wall. The open mouth of the bag is then suitably closed and tied.

2 Claims, 13 Drawing Figures



PATENTED FEB 8 1972

3,640,450

SHEET 1 OF 4

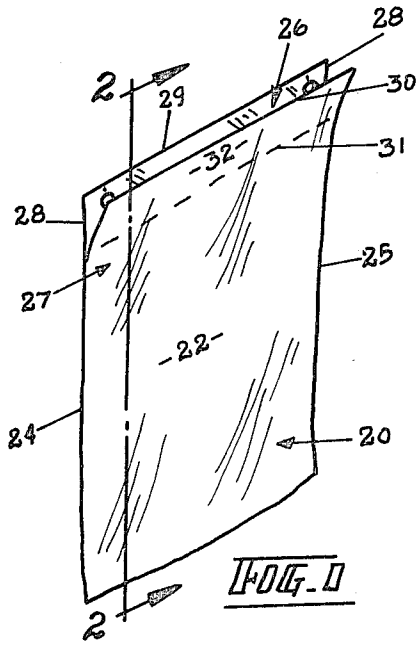


FIG. 1

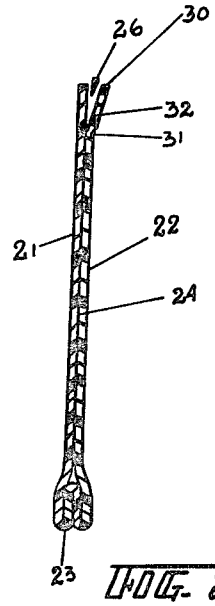


FIG. 2

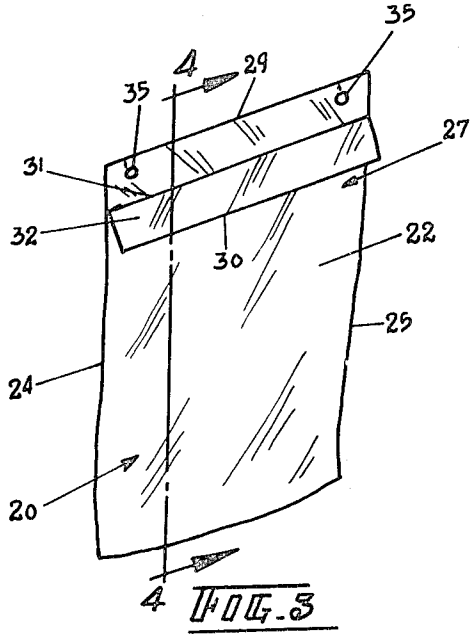


FIG. 3

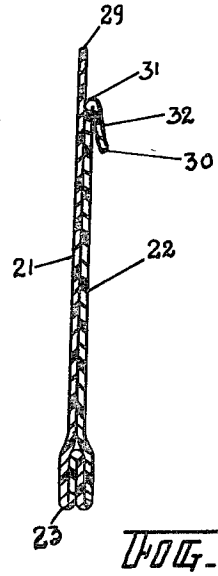


FIG. 4

INVENTOR

Abraham Buddy Lieberman

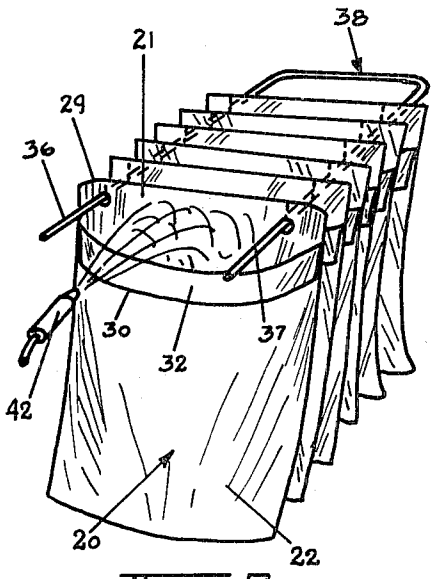


FIG. 5

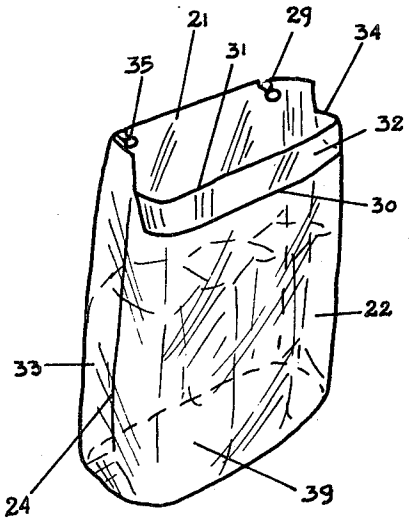


FIG. 6

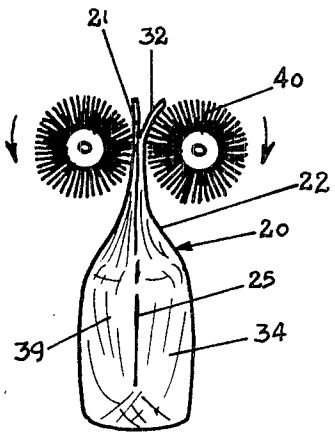


FIG. 7

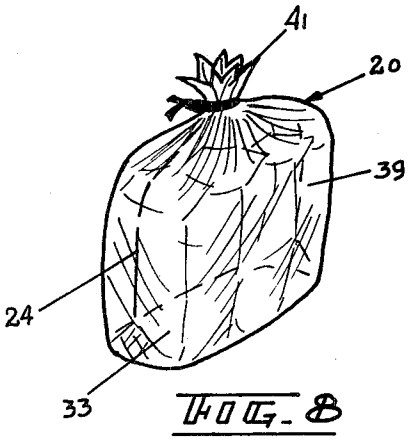


FIG. 8

INVENTOR

Abraham Buddy Lieberman

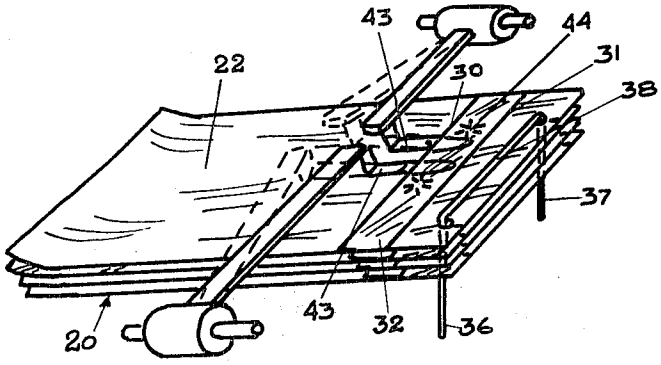


FIG. 9

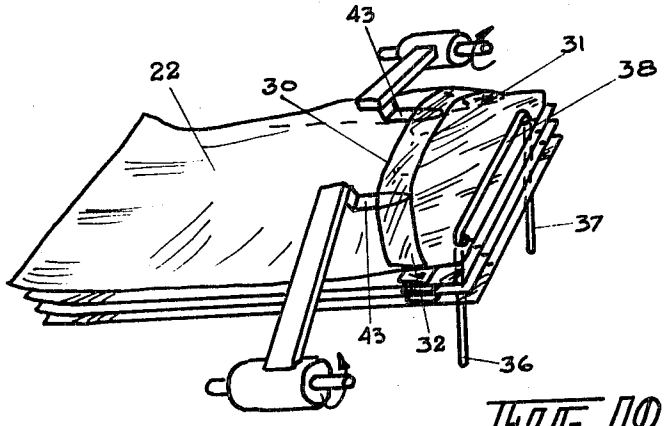


FIG. 10

INVENTOR

Abraham Buddy Lieberman

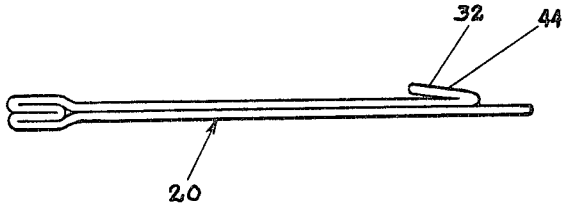


FIG. 11

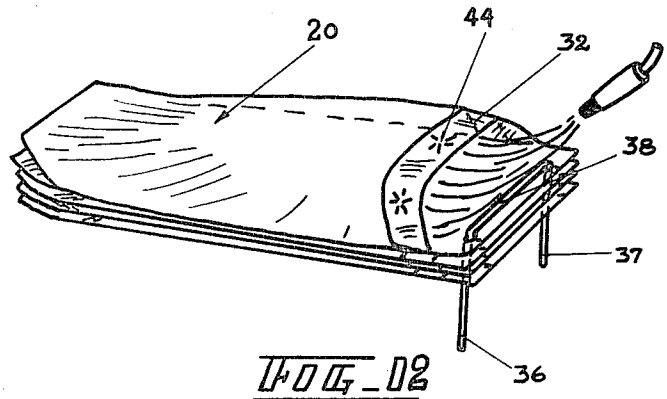


FIG. 12

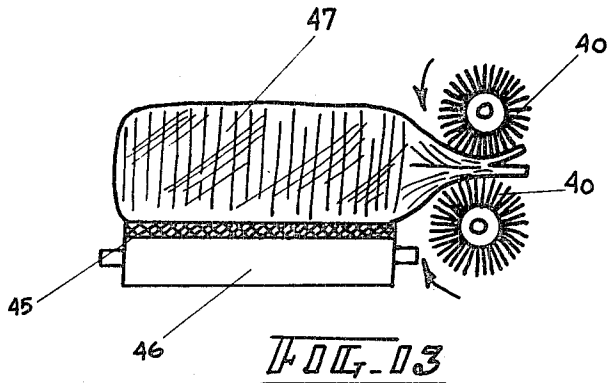


FIG. 13

INVENTOR

Abraham Buddy Lieberman

WICKET BAGS

The invention relates to Improvements in Wicket Bags and the method of making the same, as described in the present specification and illustrated in the accompanying drawings that form a part of the same.

The invention consists essentially in the novel features of construction and method of making wicket bags as pointed out broadly and specifically in the claims for novelty following a description in detail containing an explanation of the various forms of the invention.

In generality, wicket bags have been made from polyethylene, polypropylene or equivalent thermoplastic resinous materials and these bags are usually folded and heat-sealed on three sides, leaving an open mouth on the fourth side. The rear wall of each of these bags is longer in length than the front wall and forms an extension portion which continues beyond the free edge of the front wall and is provided with a pair of apertures so that a stack of bags may be readily handled by impaling them on the wicket legs of a wicket.

The wicket legs of the wicket extend through the apertures of the bag stack and, when the foremost has been filled with the requisite contents, it is torn or otherwise removed from the wicket. Furthermore, the rear and front walls of the polyethylene bags, when in a flattened position, have a tendency to adhere to one another and particularly at the open mouth portions of the bags. It is therefore necessary to open the mouth of a bag by suitable means, such as by directing a blast of air onto the inner surfaces of one or both of the walls of the bag prior to the insertion therein of the predetermined articles.

Upon the removal of the filled bag from the wicket, the open end portion of the bag is "bunched" together to twisted into a neck portion and is suitably tied so as to form an integral carrier-handle of the bag.

The structure of the wicket bags leaves much to be desired; for instance, by having the length of the rear wall longer than the length of the front wall, that portion of the rear wall that extends beyond the free edge of the front wall forms the wicket-engaging portion, and after the bag has been disengaged from the wicket, the wicket-engaging portion becomes useless and is simply surplus material, which unnecessarily increases the cost of the bags.

Furthermore, when the bag is provided with a gusset in its bottom side, and in its unopen position the bottom side portion of the bag will consist of four layers, while the upper portion or mouth of the bag will consist of two layers, the bottom side portion of the bag is thus twice the thickness of the upper portion or mouth of the bag. As a result, when the bags are stacked together, either vertically or horizontally, the rise at the bottom or end portion of the stack is greatly in excess to the rise at the upper or mouth portion of the stack. This materially decreases the efficiency in the handling of the bags and unnecessary takeup of space.

Furthermore, when the bags have been filled, before or after their removal from the wicket, as hereinbefore described, the free ends of the mouth portions of the bags are twisted and tied together to effect a carrier-handle. This creates unsightly ragged wicket ends of the bags which extend beyond the carrier-handle portions of the bags and constitute unwanted surplus material.

It is therefore the purpose of this invention to eliminate such and other objectionable features that have been found in former wicket bags, by devising a wicket that will have a load capacity equivalent to a load capacity of a former and bigger wicket bag and yet utilizing less material in its manufacture, as well as providing the bag with a three-layer thickness at its upper or mouth portion to a four-layer thickness in its lower or bottom side position, when the bag is in its collapsed or unopen position, thereby more equalizing the layer rises at both ends of the bag. Furthermore, in the present invention, when the bag is filled and removed from the wicket, the lateral free edges of the rear and front walls at the mouth portion of the bag may be "bunched" together or twisted into a neck portion, which forms the carrier-handle, and which is suitably tied, thus completing the package with the absence of any surplus material.

Among the objects of the invention is to devise a wicket bag that is made more economically than other types of wicket bags, due to the saving of material, without depleting the load capacity of the bag.

Another object of the invention is to construct a bag in which the number of layers of material incorporated in the formation of the open and closed ends of the bag will be more equalized to one another as to thickness or rises at such ends than in other types of wicket bags and thus enabling the handling, stacking and removal of the bags, when stacked on a wicket, in a more efficient manner and with the use of the minimum space.

Still another object of the invention is to devise a wicket bag whereby, through the adaptability of the free end portion of its front wall to be extended in one direction or folded in the opposite direction, the wicket bag, when removed from its wicket, is converted from a wicket bag into a regular bag with both its rear and front walls being of equal lengths, all being accomplished without the necessity of having the rear wall projecting beyond the free edge of the front wall for a predetermined distance to form a wicket-engaging portion.

Another object of the invention is to devise a wicket bag in which the free end of its front wall portion, when folded in one direction, is capable of forming a transverse outer lip which is adapted to provide a reinforced mouth portion, so that when an airstream is blown from an air nozzle onto the wall surfaces of the mouth portion there will be the minimum of flutter to the bag as the mouth thereof is being opened, and if it is desirable to use mechanical means, with or without the use of an air nozzle, the mechanical means is applied to the underside of the lip, thereby causing the front wall to be pulled away from the rear wall of the bag.

A further object of the invention is to devise a wicket bag with both its rear wall and front wall being of equal lengths and which is adapted to have only its rear wall to be engaged and supported by a wicket without any interference from the front wall of the bag.

Other objects of the invention will be apparent from the description of the disclosures of the invention and the illustrations thereof.

In the drawings:

FIG. 1 is a perspective view of a wicket bag having its front wall and its integral foldable transverse lip extending to its full height and equal to the height of its rear wall.

FIG. 2 is a vertical sectional view as taken along the line 2—2 in FIG. 1.

FIG. 3 is a perspective view of the wicket bag in which the transverse foldable lip of the front wall is folded downwardly for abutment with the exterior face of its front wall, while the rear wall remains in a straightened position.

FIG. 4 is a vertical sectional view as taken along the line 4—4 in FIG. 3.

FIG. 5 is a perspective view of a stack of wicket bags having their rear walls frangibly engaged by the legs of a supporting wicket and which extend over and across the folding line of each of the transverse foldable lips and illustrating the mouth of the foremost bag being blown open by suitable air means.

FIG. 6 is a perspective view of a wicket bag which has been filled with the requisite contents and having its mouth open, with the transverse lip of its front wall still extending in a downwardly lateral direction, the bag being removed from its wicket.

FIG. 7 is a side view of the filled bag having its upper portion being engaged by driving brushes for causing the foldable lip of the front wall to be extended to its full height and thereby effecting equal lengths to both its rear and front walls.

FIG. 8 is a perspective view of the filled bag with its mouth closed and its upper portions bunched together to form a carrying handle and provided with a tying member.

FIG. 9 is a perspective view illustrating the bags stacked on a wicket in a horizontal position and in which the transverse foldable lips are adapted to be engaged by mechanical fingers.

FIG. 10 is a perspective view which is similar to FIG. 9 and illustrating the mechanical fingers opening the mouth of the topmost bag.

FIG. 11 is a side view of a wicket plastic bag in which the transverse foldable lip is temporarily secured to the outer face of its integral front wall by spot-welding.

FIG. 12 is a perspective view of a stack of wicket bags arranged in a horizontal position and illustrating the topmost bag having its mouth portion being opened by suitable air means.

FIG. 13 is a side view of a horizontally arranged filled bag having its open end portion being engaged by driving brushes for causing the foldable lip of the front wall to be extended forwardly to its full length and thereby effecting equal lengths to both its front and rear walls.

Like numerals of reference indicate corresponding parts in the various figures.

In the following description, and in the claims, various details will be identified by specific names for convenience; the names, however, are intended to be generic in their application.

Referring to the drawings, the wicket bag, as indicated by the numeral **20**, may be made of any suitable flexible material, such as polyethylene, polypropylene, or equivalent thermoplastic resinous material, and consists of a rear wall **21**, a front wall **22** and a bottom wall **23**. The rear and front walls, which are of equal lengths, have their vertical edges **24** and **25** heat-sealed to one another and their lower horizontal edges are integral with one another to form the bottom wall **23**, which may be in the shape of a gusset, and when the bag is in its collapsed position effects a thickness to the bottom wall to form a rise of four layers of material. In this way, the bag is heat-sealed on three sides and leaving an open mouth **26** on the fourth side.

The upper portion **27** of the bag, which incorporates the open mouth **26**, has its vertical edges **28** separated from one another to complete the open mouth, the length of the separations of the free vertical edges **28** commencing from the top edge **29** of the rear wall **21** and the top edge **30** of the front wall **22** and terminating at the upper ends of the sealed vertical edges **24** and **25** of the vertical sides of the bag.

A transverse crease line **31** extends across the front wall **22** and terminates at the juncture of the free vertical edges **28** and the upper ends of the sealed vertical edges **24** and **25**, thereby providing the front wall **22** with a free transverse portion that is capable of being folded in one direction away from the mouth of the bag to form a lip **32**, or to be extended in the opposite direction to equalize the length of the front wall with the length of the rear wall **21**.

When the bag **20** is being filled with the required items, the portions of the bag that are located adjacent to the sealed vertical edges **24** and **25** expand to form the sidewalls **33** and **34**, and which constitute the two vertical sides of the bag.

The rear wall **21** is provided with the apertures **35** located adjacent to its top edge **29** and which are adapted to be engaged by the legs or posts **36** and **37** of the wicket **38** and are frangibly supported therefrom.

The bags, in their collapsed positions, are stacked on the wicket **38** and, when so arranged, the thicknesses of the upper and lower ends of the bags are more equalized in comparison with other types of wicket bags. When it is desirable to insert items into the foremost bag of the stack, suitable means may be provided to expand the open mouth of the bag, such as by utilizing an air nozzle **42** to blow an airstream onto the wall surfaces of the mouth portion of the bag to expand the open mouth thereof; the items are then inserted therein, until the sheer weight of the contents will cause the bag to break away from the wicket.

The upper portion of the filled bag is then engaged by rotatable brushes **40** or equivalent means which reverse the folded position of the free transverse portion or lip **32**, which is folded in a downward direction exteriorly of the bag, and project the lip upwardly in the opposite direction so as to extend the length of the front wall to the full length of the rear wall **21**. The open mouth portion of the bag is then "bunched" together or twisted into a neck portion and suitably tied so as to form an integral carrying handle for the bag.

In FIGS. **9** and **10**, the bags are similarly constructed as hereinabove described, with the exception that the lip **32**, in its folded position, is partibly heat-sealed at **44** to the exterior surface of the front wall **22** and forms a recess therewith which is adapted to be engaged by mechanical means to open and expand the mouth of the bag, with or without the use of air pressure, and may be in the form of mechanical fingers **43** that are secured to oscillating arms and suitably operated.

The mechanical fingers are adapted to be inserted between the folded lip and its front wall so as to pull the front wall away from frictional engagement with the rear wall and to expand the open mouth of the bag. While this is being accomplished, the spot-welding connections between the lip and the front wall are severed, thereby releasing the folded lip from its front wall and allowing it freedom of movement. When the bag has been filled with the required item or items, it is removed from the wicket. The lip of the front wall is then changed from its folded position to its extended position, so as to cause the front wall to be of equal length to the length of the rear wall. The material surrounding the open mouth of the bag is then "bunched" together or twisted and tied in any suitable manner.

In FIGS. **11**, **12** and **13**, the bag is illustrated in a horizontal position and is similarly constructed as shown in FIGS. **9** and **10**. In this instance, the folded lip **32** of the front wall **22** is lightly spot-welded to its front wall, and the mouth of the bag is expanded by a blast of air onto the wall surfaces of the bag from a suitable air nozzle.

When the bag has been filled with the required item or items **47**, it is removed from the wicket and carried away on a conveyor belt **45** travelling on idlers **46** and power-driven means, the folded lips of the front walls of the bags are automatically changed from their folded positions to extended positions so as to equal the length of the front walls to the length of the rear walls, and the open mouths of the bags are suitably closed and tied.

Since certain changes may be made in the above structure, and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim is:

1. A wicket bag made from a synthetic resin or other materials, comprising a rear wall and a front wall of equal lengths, having independent top edges and vertical edges heat-sealed to one another for the greater portions of their lengths and said heat-sealed vertical edges terminating at a predetermined distance from the top edges of the rear and front walls, upper portions forming a part of said rear wall and said front wall and bounded by free vertical edges which extend from the termination of the heat-sealed vertical edges and the top edges of said rear and front walls and forming the open mouth of the bag, the upper portion of said front wall having a transverse crease line extending across the width of said bag and terminating at the junctures of the free vertical edges with the heat-sealed vertical edges to form a transverse lip, said lip being folded from the aforesaid transverse crease line and heat-sealed to said front wall and forming a recess which is adapted to be engaged by means for opening and expanding the mouth of the bag.

2. A wicket bag made from a synthetic resin or other suitable materials, comprising a rear wall and a front wall of equal lengths, having independent top edges and vertical edges heat-sealed to one another for the greater portions of their lengths and said heat-sealed vertical edges terminating at a predetermined distance from the top edges of the rear and front walls, upper portions forming a part of said rear wall and said front wall and bounded by free vertical edges which extend from the termination of the heat-sealed vertical edges and the top edges of said rear and front walls and forming the open mouth of the

bag, the upper portion of said front wall having a transverse crease line extending across the width of said bag and terminating at the juncture of the free vertical edges with the heat-sealed vertical edges to form a transverse lip, said lip being folded from the aforesaid transverse crease line and partibly heat-sealed to said front wall and forming a recess which is adapted to be engaged by means for opening and expanding the mouth of the bag, whereby in operation, when the bag has been removed from its wicket, it may be converted from a wicket bag into a regular bag through severing the partibly heat-sealed connections between said folded lip and said front wall and unfolding the folded lip and extending the same, so that both the rear and front walls are of the same lengths.

* * * * *