

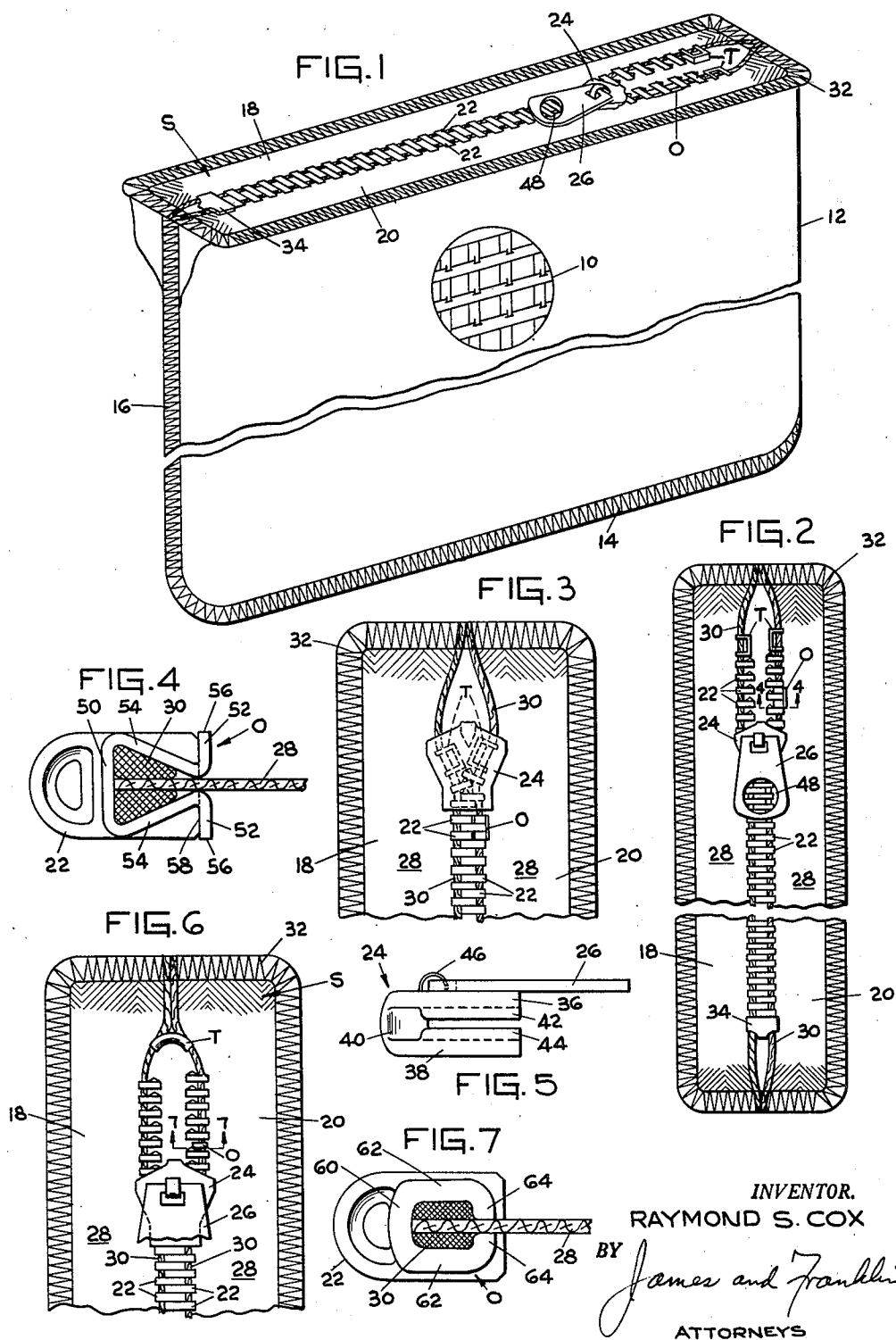
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R. S. COX

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LAUNDRY BAG

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LAUNDRY BAG

Raymond S. Cox, Bayonne, N. J., assignor to Conmar Products Corporation, Newark, N. J., a corporation of New Jersey

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The invention relates to laundry bags of the type used to contain clothing or the like during washing.

In commercial laundries, articles to be washed are processed in bags formed of open mesh or net fabric. Each bag is tagged, or otherwise identified with the particular customer's mark or code number, and in this manner the laundry is able to segregate an individual customer's articles during the washing or/and drying cycles, and thereby prevent articles of different customers from being mixed during processing. A slide fastener would seem to be a convenient closure for such a bag.

However, during the washing cycle, as many as forty article-filled bag at a time are subjected to washing fluids and rinsings in a large perforated stainless steel drum. The drum has rigid baffle plates which assist in agitating the bags. The drum is rotated first in one direction and then the other for a period as long as two hours. Thereafter the filled bags are removed from the drum, and are subjected to a drying operation, generally in a centrifugal dryer. These operations would pound the slider of a slide fastener vigorously against the wall of a washer drum and also later against the wall of the dryer. If a slide fastener were to open the result would be that loose articles would be spilled into the washing drum or dryer. Time and effort then would be required to identify the loose items, lest there be customer ill-will because of items lost.

It might seem easy to simply use a slide fastener with a locking slider. However, on reflection it will be realized that a "pinlock" slider would not serve because during the tumbling the pull would be moved out of locking position. A so-called "winglock" slider would not serve because the locking action of such a slider depends upon the application of cross-pull or sideward pull on the tapes, whereas in the present case the tapes are secured together at both ends, and there may be no cross-pull. This would leave the "automatic locking" slider, commercially available examples of which are shown in Norton et al. Patent 1,966,457, granted July 17, 1934, and Disinger et al. Patent 2,521,453, granted September 5, 1950. However, the locking members of such sliders would soon become distorted and damaged by the pounding in the washing drum and in the dryer, because the locking members project above the top of the slider. When damaged they would no longer lock, with consequent opening of the bag.

The primary object of the invention is to provide a laundry bag with a slide fastener closure constructed with means for locking the fastener in closed condition, which means for locking is highly resistant to the distortive forces encountered in washing, or washing and drying the article-filled laundry bag. Notwithstanding the secure locking of the fastener in its closed condition during the processing of the article-filled bag, the fastener may be easily opened for access to the bag's contents, and just as easily closed.

These, and other objects, advantages and results will be apparent from the following detailed description taken in conjunction with the accompanying drawing, in which:

Fig. 1 is a perspective view of a laundry bag provided

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with a slide fastener closure constructed in accordance with my invention;

Fig. 2 is a top plan view of the laundry bag showing the bag in partially opened position just prior to fully closing the bag and locking the slide fastener in its fully closed condition;

Fig. 3 is a partial top plan view of the fully closed bag; the slider of the fastener being in locked position;

Fig. 4 is a section taken approximately in the plane of line 4—4 of Fig. 2;

Fig. 5 is a side elevation of a preferred form of slider used for the laundry bag closure;

Fig. 6 is a view similar to Fig. 2 showing another embodiment of the invention; and

Fig. 7 is a section taken approximately in the plane of line 7—7 of Fig. 6.

Referring to the drawing, the laundry bag of my invention is formed of a porous net or open mesh fabric 10 which readily allows washing fluids to pass there-through to clean the articles which are to be contained in the bag during the washing and drying cycles. Also, the open or porous character of the fabric allows a drying medium to act upon the articles within the bag. The porous fabric is made from a fibre which will not unduly elongate, and which is resistant to detergents and other washing solutions. A preferred form of fibre for these purposes is nylon. A sheet of the fabric is folded at 12 providing an opposite pair of walls which are seamed in any suitable fashion along the sides 14 and 16 to provide a bag having an opening. The seam may be suitably reinforced to enable the bag to withstand the severe action to which it will be subjected during the washing and drying cycles. The opening of the bag is provided with a slide fastener closure, generally designated S.

The slide fastener comprises a pair of stringers 18 and 20, each provided with spaced interlockable fastener elements 22, and a slider 24 movable therealong by means of a pivoted tab, or so-called "pull;" 26. The stringers 18 and 20 comprise tapes 28 (Fig. 2) provided with beaded edges 30 about which the fastener elements 22 are clamped. The edges of the tapes opposite the edges to which the fastener elements are secured are stitched or otherwise secured to the periphery of the bag opening. This connection between the bag material and the tapes of the slide fastener preferably extends completely around the opening as indicated at 32. To limit movement of the slider in fastener-opening direction, a permanent bottom stop 34 of any known variety is secured to the beaded edges 30 of the tapes. To limit movement of the slider in fastener-closing direction, a permanent top stop, generally designated T, is secured to the beaded tape edges immediately above the uppermost fastener elements 22. The top stop may be any well-known variety, such as the two-element type, each individually secured to a tape edge, as shown in Figs. 1, 2, and 3. The top stop may be a single element stop, or a so-called "bridge" stop, as shown in Fig. 6. It will be understood, however, that the top and bottom stops may also be provided by sewing both tapes together above the uppermost and below the lowermost fastener elements.

As shown in Fig. 5, the slider 24 comprises the usual spaced top and bottom wings 36 and 38, respectively, joined by a neck or post 40. The top wing is provided with inturned rails or side flanges 42, and the bottom wing with inturned side flanges 44, which together with the post 40 form the usual Y-shaped channel for engaging and disengaging the fastener elements. The pull 26 is pivotally connected to a lug 46 provided on the top wing 36. The pull is formed with an opening 48 through which means for securing a tag or other indicia may be passed for identifying the owner or customer whose articles are contained in the bag. The pull is preferably made of a

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width at its free end which is greater than the diameter of the perforations in the walls of the washing drum, such perforations usually being one-quarter inch in diameter. The described slider is a conventional non-locking slider, which is quite flat on its top or exposed surface, and has no parts thereof which may be injured or damaged during processing of the laundry bag and its contents. The lug 46, although it projects a very small amount from the top wing of the slider, is squat, rugged and highly resistant to distortion or damage. In this conventional slider, the wings 36 and 38 are slightly resiliently separable at their free ends or stem of the Y. In fact, the entire slide fastener closure thus far described is a conventional non-separable fastener of the non-locking type.

To maintain or lock the fastener of the bag in fastener-closed condition in a manner which resists the forces tending to open the fastener during the washing or washing and drying operations, while permitting easy closing and opening of the fastener manually, means O is provided. Such fastener locking means is independent of the slider, and comprises a temporary obstacle or stop secured to a stringer or stringers in such positional relationship to the permanent top stop T that the slider is locked in fastener-closed position when the slider is moved beyond the temporary stop to a position adjacent the permanent top stop. The temporary stop preferably is formed and so dimensionally related with respect to the fastener elements that the fastener elements serve to protect it against damage during the processing of the bag and its contents. By grasping the pull, and applying a more than normal force or jerk to the slider in a direction parallel to the plane of the stringers, the slider may be moved readily from its secure fastener-closed position, as shown in Fig. 3, to the position shown in Figs. 1 and 2, after which the fastener may be fully opened.

In the embodiment of the invention shown in Figs. 1 to 4, the locking means O comprises a resilient member having a pressure receiving portion 50 joined to a pair of outwardly extending brake flanges 52 by a pair of spaced legs 54. The member is clamped around the beaded edge 30 between a pair or pairs of fastener elements 22. The pressure receiving portion 50 is disposed between the heads of the fastener elements on a stringer for engagement by the heads of the fastener elements on the opposite stringer, and the brake portions 52 are arranged for spreading or brake action against the flat inside faces of the wings 36 and 38 of the slider. The height of the pressure receiving portion 50 is substantially the same as the width of an adjoining fastener element 22. The distance between the brake surfaces, or the exposed edges 56 of the brake portions 52 is approximately equal to the distance between the top and bottom wings of the slider. The distance between the flange edges 56 may be made slightly less than the distance between the slider wings so that in effect this distance is substantially the same or slightly greater than the width of an adjoining fastener element. The brake portions are in effect backed up or supported by the ends of the legs, designated 58, of the adjacent fastener element or elements. This temporary stop construction has a length transverse of the stringer such that when added to the length of a fastener element on the opposing stringer, the overall distance is slightly greater than the distance between the slider rails. The resilient construction of the member allows the slider to be manually pulled thereover when a greater than normal force is applied in a direction parallel to the plane of the stringers. With the slider in the position shown in Fig. 3, the described locking means will not permit the slider to move from its position, even though the bag is severely tumbled and agitated in washing and drying. The bag may be opened by manually pulling the slider in fastener-opening direction along both stringers and over the temporary stop. The locking means is small and well-protected against the distortive forces encountered in processing the bag.

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In the embodiment of the invention shown in Figs. 6 and 7, the locking means is a rigid element clamped about the beaded edge of a tape intermediate a pair of fastener elements. As shown in Fig. 7, this stop which is smaller in all directions than the adjoining fastener elements comprises a fastener element engaging head 60 and a pair of spaced jaws 62 having at their extremities projections or hooks 64. Although the stop is formed of solid metal and is in itself inflexible, it coacts with another metallic and relatively inflexible element, a fastener element 22 on the opposing stringer within the slider 34 which is also relatively rigid. The obstacle to slider movement is supplied by the resiliency, elasticity, or flexibility of the beaded edge 30 of the stringer tape upon which the stop is mounted. The fastener elements on each side of the stop support the portion of the beaded edge tape which is subjected to flexure, thereby supplying a resilient resistance to the passage of the slider. As in the embodiment of the invention shown in Figs. 1 to 4, this locking means will not allow the slider to move from its uppermost or fastener-closed position when the slider is beyond the locking means during the washing and drying of the bag and its contents. However, by the application of a force manually to the slider in fastener-opening direction in a plane parallel to the plane of the stringers the slider may be moved readily along both stringers past the locking means or temporary stop. This small, solid locking means or temporary stop is completely protected against damage by the adjacent fastener elements.

It will be apparent that my invention permits the use of a rugged, substantially flat, non-locking slider, the parts of which are greatly resistant to the distortive forces encountered when processing the laundry bag and its contents. A wing-lock slider, though equally as strong as a non-locking slider, would in itself be unsuitable for a laundry bag of the type under consideration, because it depends upon the continued application of cross-pull forces to afford the locking action. However, a wing-lock slider may be used in lieu of the preferred non-locking slider, in combination with the disclosed locking means, which is independent of any locking means provided by the slider, no reliance being placed upon the locking action of the wing-lock slider. Similarly, a pin-lock slider, which relies upon the provision of a pin on the pull and the position of the pull to lock the slider against movement, is in itself not suitable for the laundry bag of my invention, because the bag is tumbled and otherwise subjected to vigorous mechanical movement, so that the pull is likely to be moved out of locking position. However, a pin-lock slider may be used (superfluously) in combination with the disclosed locking means which is independent of the slider. Also, a friction-lock or automatic-locking slider may be used (superfluously) in combination with the disclosed independent locking means, since the locking means provided by the sliders are not relied upon.

The drawing may be misleading as to dimension because Fig. 1 is shortened in vertical dimension, and the size of the fastener elements is exaggerated. By way of example, and not in limitation of the invention, it may be stated that the particular laundry bag here illustrated is made with a slide fastener 24" long, used at the upper end of a big which is 24" wide and 30" high. Another commercially made size is 30" wide and 36" high. The material of the bag is knitted nylon net, which is run-resistant and snag-resistant, and the net formation provides holes about $\frac{1}{16}$ " square, which fill the surface of the bag, except for the threads making up the net. To resist the action of detergents and corrosive agents which may be present in the washing fluids, the tapes of the slide fastener, and the cords at the edges which receive the fastener elements, are preferably made of nylon. Also, the metal elements of the fastener are preferably fabricated from a corrosion-resistant metal such as nickel-silver. The tapes are held together at both ends, either by

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the stops, or stitching, or by the bag structure itself at the ends of the opening therein.

The small elements marked O in the drawing are not themselves new, but heretofore have been used in a quite different way, as is explained in U. S. Patent 2,618,828, granted November 25, 1952 to Otto J. Moehler, and U. S. Patent 2,558,239, granted June 26, 1951 to Claude Disinger. In those patents the slide fastener is a so-called "Q. D." or quick-disassembly fastener in which the tapes are not secured to one another at their upper ends, and in which the fastener elements continue for a short distance further on one stringer than the other, with the objective that when the slider is moved all the way to the top or closing end, the stringers may be pulled apart quickly all the way from top to bottom, while the slider remains idle at the upper end. The fastener is usually a long one, as on a soldier's sleeping bag. When the fastener is to be kept closed the slider is intentionally stopped short of the upper end, at a point where both tapes still have fastener elements, so that a tape cannot be pulled sideways from the slider. The small elements marked O in the present drawings have been used in the "Q. D." fastener to help locate and to easily find the said stopping point, that is, they have been used above the slider, to discourage movement of the slider in fastener-closing direction, until an emergency arises when quick exit is wanted.

It will be apparent that while I have shown and described my invention in several preferred forms, changes may be made in the structure disclosed without departing from the spirit of the invention as sought to be defined in the following claims. In the claims the term "laundries" is intended to include dry cleaning plants, and "washing" is intended to include dry cleaning.

I claim:

1. A laundry bag of the type used in laundries to contain articles during their washing, said bag having an opposite pair of walls disposed in bag-defining relation and being formed of a net fabric to readily allow washing fluids to pass therethrough, said bag having an opening through which the articles are inserted and removed from the bag, and a slide fastener closure provided for said opening, said slide fastener comprising a pair of stringers each having spaced interlockable fastener elements secured to the beaded edge of a tape, a non-locking slider having an internal Y-shaped channel for engaging and disengaging the fastener elements to close and open the fastener, a bottom stop permanently connecting the stringers together at their lower ends, means permanently connecting the stringers together at their upper ends, permanent top stop means effective as to both stringers to limit the movement of the slider in fastener-closing direction, both stringers having fastener elements thereon substantially all the way up to said top stop means, and a temporary stop secured to the beaded edge of a tape

intermediate a pair of fasteners elements and positionally related to said permanent top stop to lock the slider in fastener-closed position while the bag and its contents are subjected to washing, said temporary stop being formed and dimensionally related to said fastener elements so that the fastener elements protect the temporary stop against distortive forces encountered in washing, said fastener being opened by manually applying a greater than normal force to the slider in fastener-opening direction to cause the slider to be moved along both stringers past said temporary stop.

2. A laundry bag as set forth in claim 1, wherein the temporary stop comprises a small, resilient member having a pressure receiving portion and a brake portion, said pressure receiving portion being disposed between a pair of fastener elements on one stringer and having a surface extending generally transversely of the plane of the stringer for engagement by a fastener element on the opposite stringer, said pressure receiving portion having a height substantially the same as the width of a fastener element, said brake portion being disposed inwardly of the pressure receiving portion for action against an inside face of the slider, said pressure receiving portion and brake portion being so shaped and interconnected that when the end of a fastener element on the opposite stringer exerts a pressure in the plane of the stringer on the pressure receiving portion of the member as the fastener elements are meshed in the internal channel of the slider, the brake portion expands in a direction transverse to the plane of the stringers.

3. A laundry bag as set forth in claim 1, wherein the temporary stop comprises a small rigid member having a portion thereof extending beyond the beaded edge of the tape to which it is secured sufficiently for engagement with an opposing fastener element on the other stringer, said stop being no greater in width than the height of the channel within the slider so that it offers no resistance to the passage of the slider except when an opposing fastener element on the other stringer is in engagement therewith within the stem portion of the internal Y-shaped slider channel, said opposing fastener element and temporary stop having a combined overall length less than the width of the stem portion of the slider channel, the engagement of said opposing fastener element with the temporary stop causing the beaded edge upon which the member is mounted to be flexed outwardly to thereby provide resilient resistance to the passage of the slider.

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