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GARMENT BAG FORMING MACHINE

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2 Claims. (Cl. 53—256)

This invention relates to a garment bag forming machine and method, and it more particularly pertains to a machine for forming bags from a supply roll of tubular plastic film sheet disposed for a length from the feed end to be partially drawn over a garment, suspended on a conventional hanger, for said length to be fabricated into a bag by cutting it off from the supply sheet and heat-sealing the cut edges of the adjacent opposite walls of the tube in from the opposite outside edges of the bag to a central slot which is unsealed to provide an open slot for the garment hanger. Thereafter, the bag is further pulled down over the garment with the hanger hook projecting through the central slot.

Bag forming machines heretofore used employed paper which first needed to be made into tubular form, cut into bag lengths, and then have opposite corners on one end of the bag length folded and fastened for sealing them. Because of the need for folding and fastening the bag corners at one end, means was required for carrying this into effect. Such machines were necessarily involved and complicated in construction, and they were not suitable for small dry cleaning establishments.

Another practice is to form lengths of the tubular stock into bags with a small uncut portion left between the formed bags for them to be connected together in a chain for each bag to be severed from the chain when it is to be used. The disadvantage of this is that the bags are of uniform size, and chain stocks need to be carried for bags of different size, the same as must be done where the preformed bags are completely severed from the stock to be stacked rather than being left chained together.

Accordingly, one of the main objects of this invention is a bag forming machine which is simple in construction and efficient in operation.

Another object of the invention is a bag forming machine in which the corners of the bags are cut off and the cut edges are sealed to close the bag end.

Another object of the invention is a bag forming machine for bags without any folded corners.

Another object of the invention is a bag forming machine in which the corners are severed and removed, and the cut edges of the bags are sealed.

Another object of the invention is a bag forming machine in which the bag stock is heat sealable material and the machine simultaneously severs the corners and heat seals the severed edges.

Further objects, and objects relating to details of construction and economies of operation, will readily appear from the detailed description to follow. In one instance, the objects of the invention have been accomplished by the device and means set forth in the following specification. The invention is clearly defined and pointed out in the appended claims. A structure constituting a preferred embodiment of the invention is illustrated in the accompanying drawings, forming a part of this specification, in which:

FIG. 1 is a front elevational view of a machine embodying the invention.

FIG. 2 is a vertical sectional view on line 2—2 of FIG. 1 looking in the direction of the arrows.

FIG. 3 is a view on line 3—3 of FIG. 2 looking in the direction of the arrows.

FIG. 4 is a detained view of the bag stock from which a bag is cut.

Referring specifically to the drawings in which like numerals designate like parts, numeral 2 is a frame having a base 3 with two opposite side upright posts 4 connected at their top ends by a head member 5 which may be advantageously covered with a hood if desired.

Two rollers 6 and 7 are mounted at the top of the posts on the head member 5 over which a sheet of tubular plastic film stock 8, such as polyethylene, is threaded from the supply reel 9 journaled at its opposite ends on the posts 4. A conventional brake device 10 is provided for the supply reel 9 to prevent its overrunning as the tubular film sheet is pulled from said reel to form the bags as hereinafter described. This brake is of any conventional construction for normally braking the reel but being yieldable enough to permit the supply film being unwound without overrunning as the film stock is pulled by the operator from the reel.

A gravity roller 11 may be advantageously journaled on the posts 4 at a distance below the top rollers 6 and 7 for festooning the sheet of tubular film stock 8 thereover as it passes from one roller to the other in being pulled through the machine. Each end of the gravity roller 11 is provided with a gear 12 meshing with a ratchet 13 mounted on the posts. The length of the festooned portions of the sheet over the gravity roller 11 is about equal to a bag length to be withdrawn from the supply stock 8, and the weight of this gravity roller is such as to slightly overcome the resistance of the brake 10. Hence, as a bag length is pulled from the stock supply, the gravity roller 11 will be elevated from its normal lowered position, shown in FIG. 2, and, in dropping back from elevated position to its normal lowered position, will overcome the braking resistance on the supply reel for it to unwind another length of bag stock.

A garment bag 14 is formed from a bag length cut from the feed end of tubular stock, said bag having its opposite corner edges 15 inclined outwardly and downwardly from the center toward the side edges, and sealed. A mid-portion is cut transversely along line 16, between the inner ends of the inclined edges 15. These cut edges along the line 16 are not sealed, thereby leaving an open slot through which the hook 17 of a garment hanger may be projected. At the time the inclined edges 15 are sealed, the corners 18 are severed from the formed bag to be left suspended on the bag stock until a subsequent transverse cut along perforated line 19.

In order to effect this cutting off of corners 18 and sealing the resultant cut edges 15 of the bag, a hot blade 20, with a stripper 21, is mounted on a plate 22 pivoted at 23 to the head 5 and operatively connected with a piston-cylinder means 24 for actuating the plate in and out of contact with a platen 25. This platen 25 is mounted in position on a support 26 fixed to the head 5 or the posts 4 in position for stock 8 to be fed between the hot blade 20 and the platen 25. The platen 25 is yieldably mounted on a support 26 by means of springs 27. Blade 20 is electrically heated, and, therefore, heat seals the inclined edges 15 of the bag when the corners 18 are severed. At the same time the short transverse cut along line 16 is made by a cold or unheated knife 28.

These cut off corners 18 from the formed bag are then partially severed from the supply stock by a transvers perforated cut 19 across the full width of the stock along transverse perforated line 19 by a knife 29 having a saw tooth edge 30. This knife 29 is mounted on the support 26 and projects through a slot 31 in the platen 25 for cooperating with a channel bar 32 disposed on the pivoted plate 22 in position for the toothed edge of the knife to project into the channel 33 thereof to effect the perforated cut 19. The full transverse perforated cut along line 19 may be made in the single operation for heat sealing

the edges 15 when cutting off the corners 18 and making the short cut with knife 28 along line 16.

In forming the bag from a bag length, the formed bag is cut along the two inclined edges 15, with said edges sealed, and the line 16, thereby severing it from the bag stock, leaving an end portion on the supply stock comprising the two cut-off corners 18 connected by an intervening web 18a so that this entire end portion can be torn off along the perforated line 19 by the operator when the next bag length is to be formed into a bag.

A garment 40 is suspended from a sectional standard 41 by a conventional garment hanger 42 with its hook 17 engaged with a hook 43 on the top of the standard. The top section 41a of the sectional standard 41 is slidably mounted in the bottom section 41b, and may be elevated by air supplied to said bottom section from an air compressor having air line containing a valve controlled by a foot pedal 44. The top section 41a is elevated to the position shown in FIG. 2 for the bottom end of the tubular stock to be partially pulled down over the garment 40 suspended thereon. The bag 14 is formed and cut from the tubular supply stock, after which it is pulled down completely over the garment with the hanger hook 17 projecting through the central slot in the partially closed end of the garment bag. The air supply is cut off to permit the section 41a of the hanger support to drop for the operator to remove the covered garment and permit another garment to be hung thereon with the section 41a of the hanger support elevated. The bottom of the end of the bag stock is torn off along the perforated line and the next bag length is again pulled down for the operation to be repeated in forming the next bag.

It will be seen from the foregoing description of the foregoing device that bags of any length may be formed each time that a bag is made, depending on the length of the garment to be covered. The formation of the bag is made with opposite sealed edges on its upper end and a central slot between the sealed edges. The use of heat sealable bag stock lends itself to the end of the bag being sealed with the corner portions removed rather than being retained and folded upon the bag.

I am aware that there may be various changes in details of construction without departing from the spirit of my invention, and, therefore, I claim my invention broadly as indicated by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by United States Letters Patent, is:

1. In a machine for fabricating a plastic garment covering about a garment to be covered, said machine including a hanger support on which the garment to be covered is adapted to be hung, means for supporting a supply of heat-sealable plastic tubular stock adjacent said hanger support for permitting the end of said stock to be pulled from said supply down over a garment hung on said hanger support, the improvement which comprises spaced apart and downwardly inclined heated members for simultaneously heat-sealing and severing opposite wall portions of the tubular stock from spaced-apart mid portions outwardly toward opposite side edges to provide a medial open slot therebetween, a centrally located and horizontally disposed cold knife member for simultaneously severing said tubular stock transversely along a line between the spaced apart inner extremities of said heat-sealed portions to detach said garment covering from said supply of tubular stock, and a cold knife-perforating member for simultaneously transversely perforating said tubular stock along a plane immediately above that of the upper extremities of the downwardly inclined heated members whereby surplus corner material may be removed from the supply roll.

2. A machine as set forth in claim 1 wherein said downwardly inclined heating members are carried by a pivotally mounted platen having a horizontally disposed channel bar secured thereto and the perforating member is mounted on the side of the tubular stock opposite to that engaged by said heated members and cooperates with said channel bar to effect transverse edge-to-edge perforation of said tubular stock.

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