United States Patent [19]

Blair

[11] **3,773,591**

[45] **Nov. 20, 1973**

[54] **MANUFACTURE OF CARRIER BAGS**

[75] Inventor: **John Blair,** Higherford, England

[73] Assignee: **Coloroll Limited,** London, England

[22] Filed: **May 3, 1971**

[21] Appl. No.: **139,583**

[30] **Foreign Application Priority Data**

Feb. 1, 1971 Great Britain 3,585/71

[52] **U.S. Cl.** ..... **156/265,** 93/35 H, 150/1.7, 156/301, 229/54 C

[51] **Int. Cl.** **B31b 1/86,** A45c 3/04, B32b 31/20

[58] **Field of Search** ..... 156/264, 265, 300, 156/301; 229/54 R, 54 C; 93/35 H, 35 R; 150/1.7, 12

[56] **References Cited**

UNITED STATES PATENTS

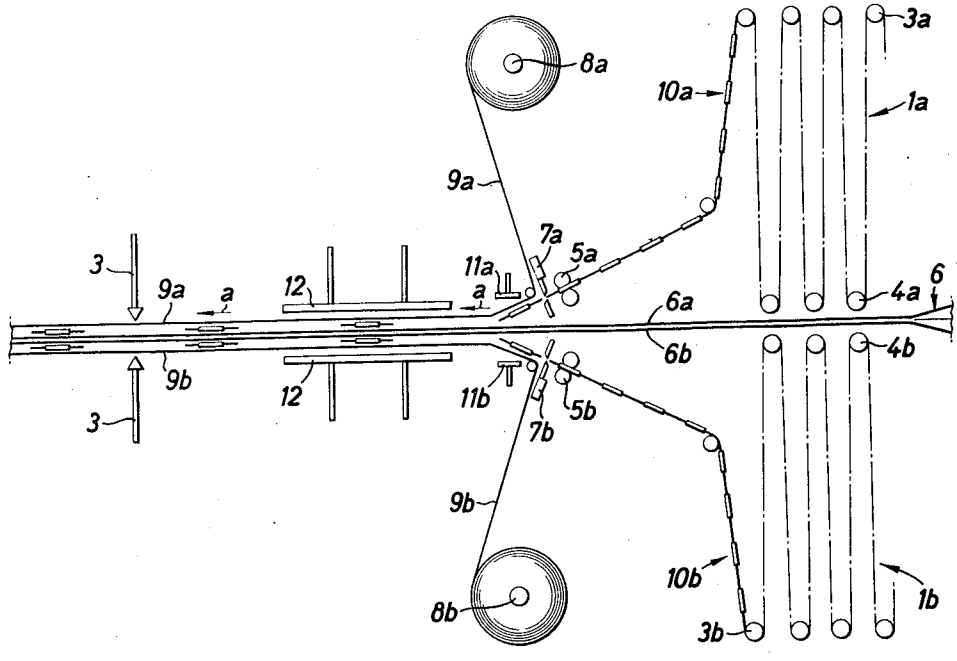
3,392,636	7/1968	Lindley	93/35 H X
3,335,941	8/1967	Gatward	229/54 C
3,549,084	12/1970	Canno	229/54 R
3,455,760	7/1969	Lindley	156/264
3,054,442	9/1962	Atwood et al.	93/35 H UX
3,081,674	3/1963	Steen	93/35 H
3,105,628	10/1963	Mack	229/54 C
3,156,206	11/1964	Hall et al.	93/35 H X
3,266,053	8/1966	Rochla	93/35 H
3,534,666	10/1970	Maccherone	156/344 X

Primary Examiner—Alfred L. Leavitt
Assistant Examiner—Thomas E. Bokan
Attorney—Stevens, Davis, Miller & Mosher

[57] **ABSTRACT**

The invention is concerned with the manufacture of a plastics carrier bag including a handle loop having the ends attached to an anchor element which is trapped between two layers of material adjacent the bag mouth. In the invention handle loop assemblies are drawn into a machine which continuously manufactures the bags and traps the anchor elements.

3 Claims, 4 Drawing Figures



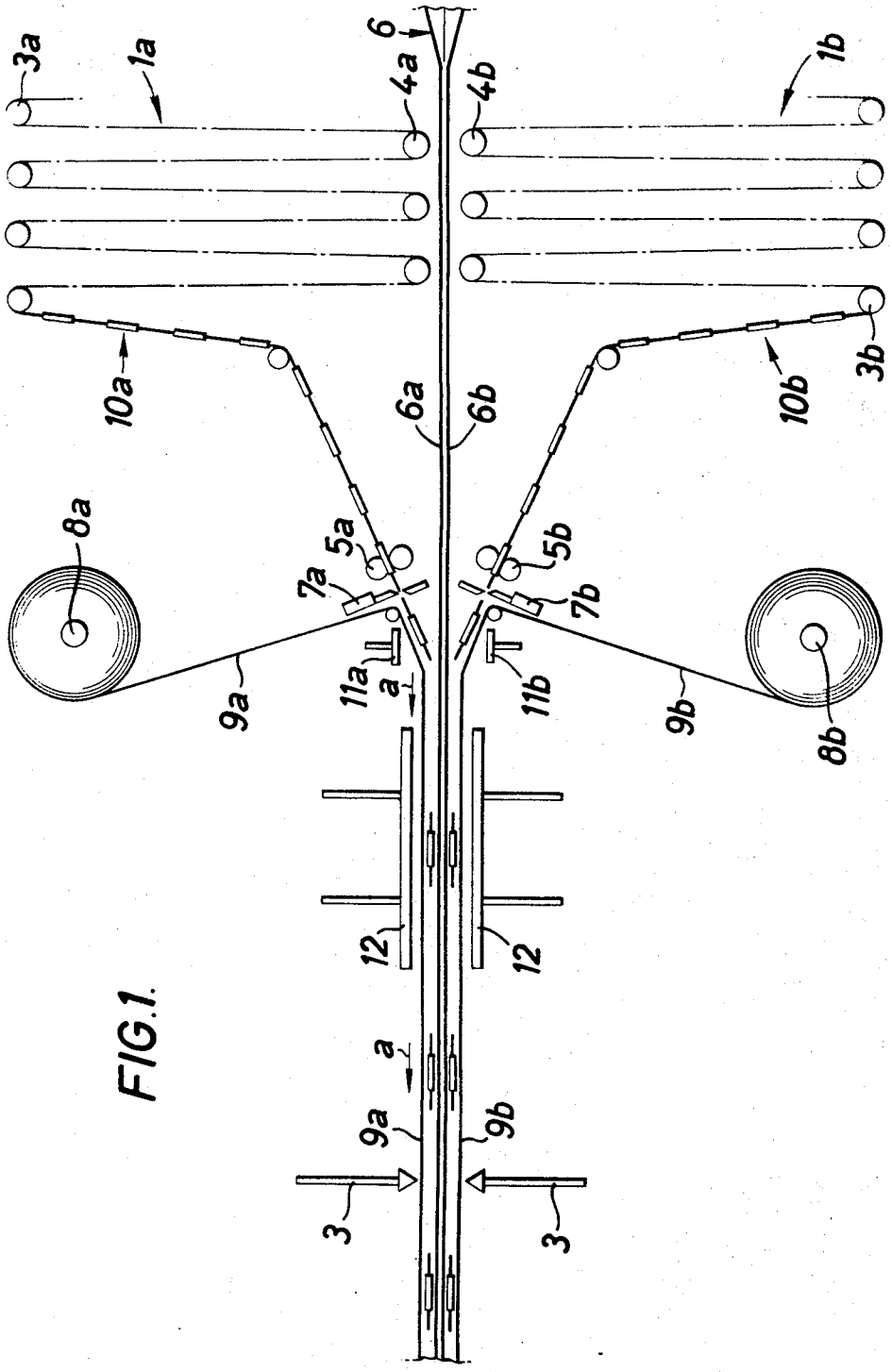

3a
1a
6
4a
4b
1b
10a
6a
6b
10b
3b
8a
5a
5b
7a
7b
9a
11a
a
11b
9b
8b
12
12
a
9a
9b
3
3

FIG.1.

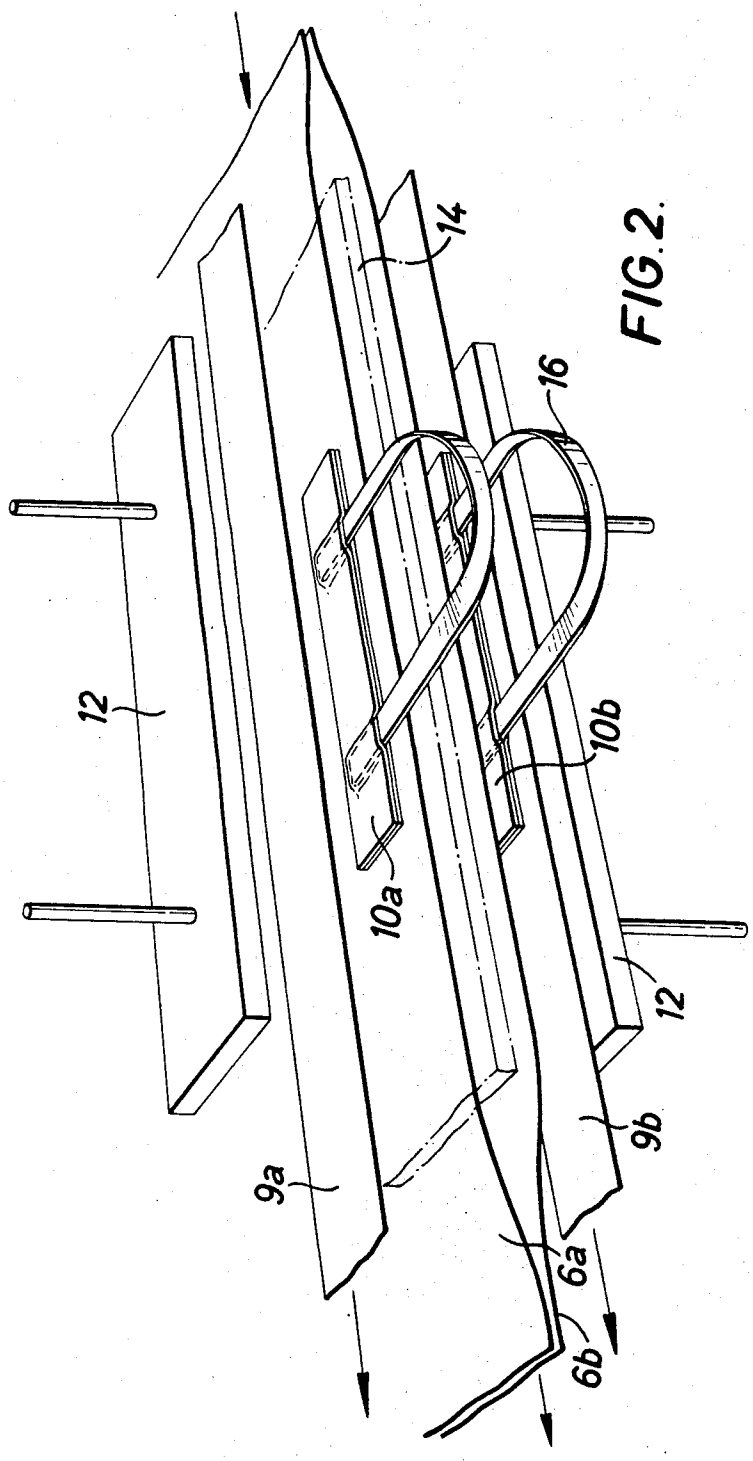


FIG. 2.

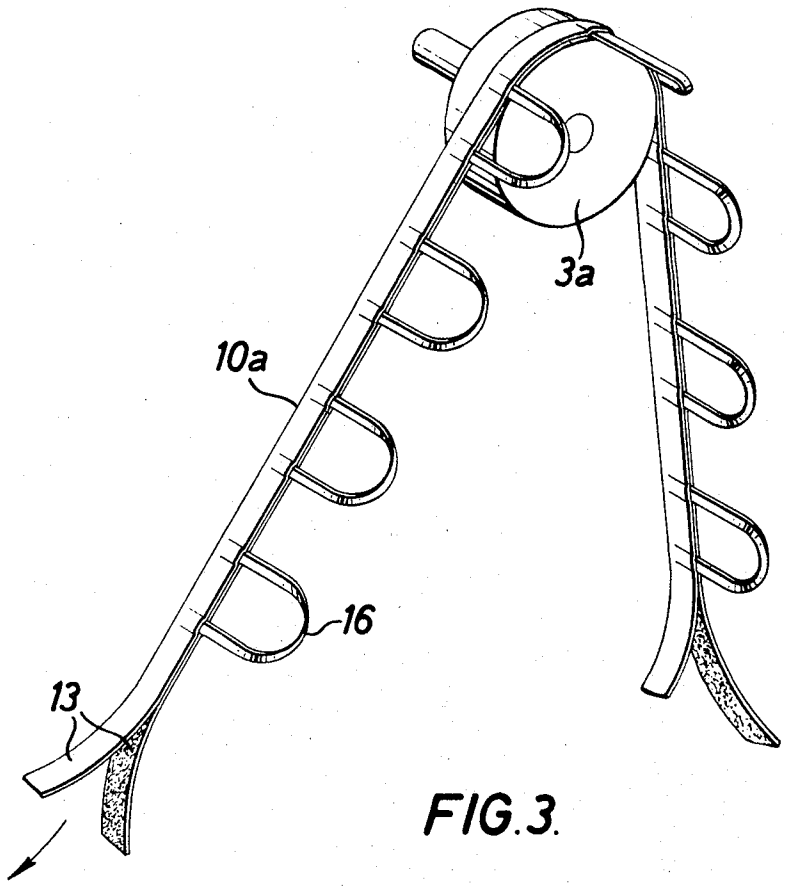


FIG. 3.

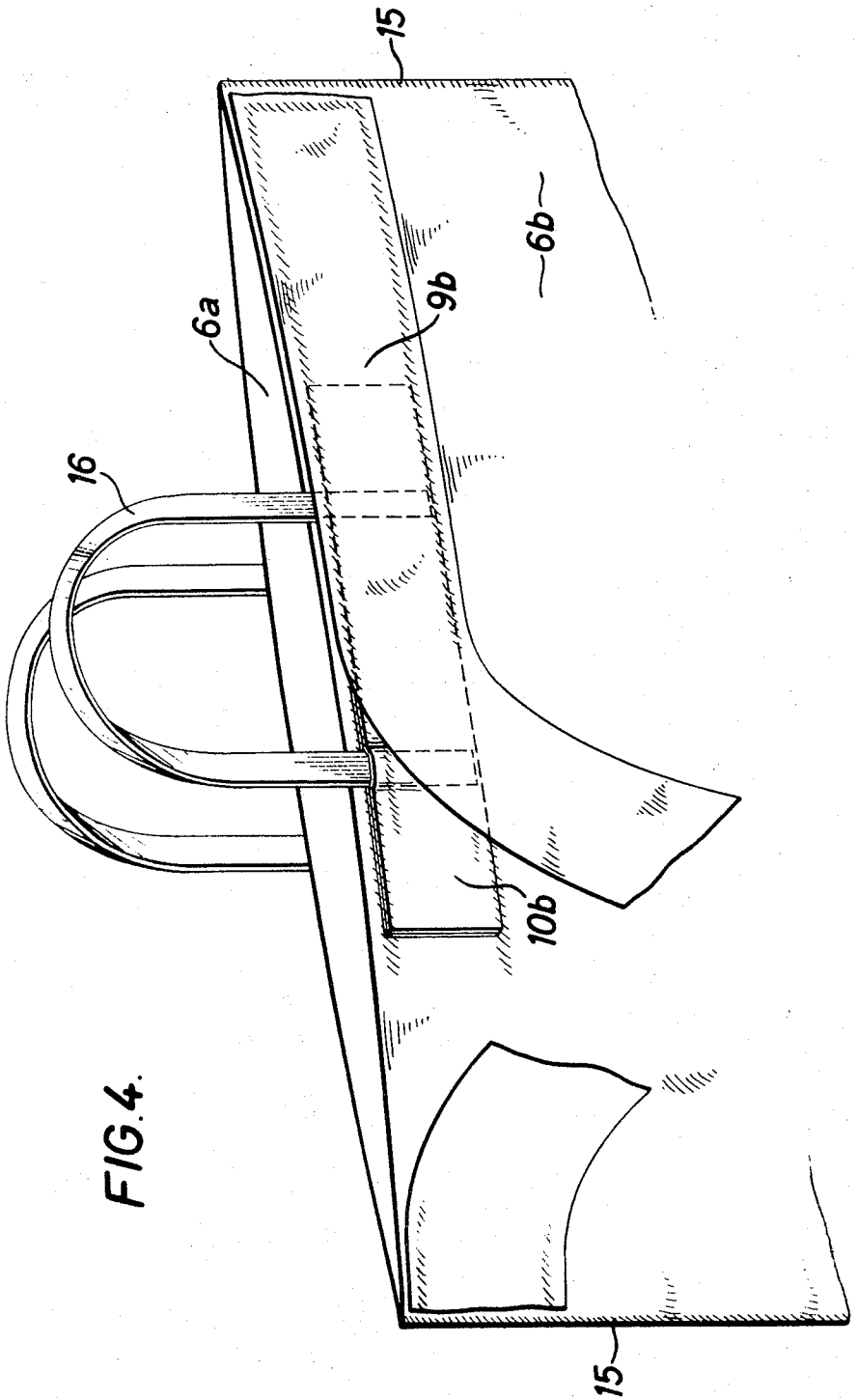


FIG. 4.

MANUFACTURE OF CARRIER BAGS

This invention relates to the attachment of handle loops to carrier bags and more particularly to the manufacture of carrier bags in accordance with the co-pending Pat. Application Ser. No. 139,584 of even date to C.H. Ferguson.

The said co-pending Patent Application provides a carrier bag including a handle loop having the ends thereof attached to a common anchor element which is trapped between two layers of material adjacent the mouth of the bag.

The present invention provides a method and a machine for manufacturing a carrier bag of this kind. In accordance with the present invention handle loop assemblies each comprising an anchor element and a loop are drawn from a supply into a machine which continuously manufactures the bags and traps the anchor elements.

The invention will now be described by way of example, and with reference to the accompanying schematic drawings:

FIG. 1 is a side schematic view illustrating a method and machine in accordance with the invention;

FIG. 2 is an exploded detail on an enlarged scale of part of the machine shown in FIG. 1;

FIG. 3 is a fragmentary view illustrating the feeding of handle loops to the machine; and

FIG. 4 is a perspective view of a bag manufactured by the method of the invention.

The machine shown in the drawings comprises two similar devices generally indicated at **1***a* (an upper device) and **1***b* (a lower device), each being adapted to store a continuous length of handle assemblies **10***a* and **10***b* in accordance with U.S. Pat. No. 3,335,941 assigned to Coloroll Limited. Each handle assembly **10***a*, **10***b* as can well be seen in FIGS. **2** and **3** comprises a thermoplastic loop **16** having the ends thereof sandwiched between two rectangular pieces of paper **13** having their meeting surfaces coated with a thermoplastic compatible with that from which the loop is formed. The assemblies are joined end-on to form a continuous length. Each storage device **1***a*, **1***b* comprises vertically spaced roller sets **3***a*, **3***b* and **4***a*, **4***b*. The continuous length of handle assemblies is threaded between the sets of each assembly, and at least one set of rollers in each assembly is mounted for movement in the vertical plane to allow for the intermittent operation of the machine.

Upper and lower pairs of draw rollers **5***a*, **5***b* for the handle assemblies are driven by a suitable drive mechanism (not shown). Photoelectric means are provided to interrupt this drive in response to a signal, triggered for example by an element or marking on the material forming the bag. A guillotine **7***a*, **7***b* for cutting the handle assemblies from the continuous length is provided in front of the rollers **5***a*, **5***b*.

The machine also has front drive rollers (not shown) to draw a longitudinally folded thermoplastic, for example, polythene wide strip or film **6** through the machine forwardly in the direction of the arrow (*a*). The upper ply of the fold is designated **6***a* and the lower **6***b*. Upper and lower rollers **8***a* and **8***b* carry thermoplastic, for example polythene, narrow strips **9***a* and **9***b* for trapping the handle assemblies in position. The films **9***a* and **9***b* are drawn in the direction of the arrow (*a*) by the front drive rollers which can be halted in response

to photoelectric means triggered by a signal printed on the bag forming strip **6**.

Upper and lower tack welding electrodes **11***a* and **11***b* in front of the guillotines **7***a* and **7***b* locate each handle assembly **10***a*, **10***b* between the film **6***a*, **6***b* and the strip **9***a*, **9***b*, main welding electrodes **12** completes the fixing of the handle assembly while electrodes **3**, one pair of which is shown, form the sides of the bag and simultaneously cut the bag from the continuous length. The main electrodes act against a platen diagrammatically indicated at **14** interposed between the plies **6***a* and **6***b* of the folded strip.

In operation of the machine the folded-over plastics film **6** and the fixing strips **9***a* and **9***b* are drawn from the front of the machine, the handle assemblies **10***a* and **10***b* being drawn forwardly by the rollers **5***a*, **5***b*. In response to the photoelectric means referred to previously the strips **9***a* and **9***b* are halted. The handle assemblies are then correctly positioned between the strips **9***a*, **9***b* and the plies **6***a* and **6***b*. The guillotines operate to sever the handle assemblies from the continuous length. The main drive of the machine is also halted, the tack weld is performed for one bag, the main handle welds on the next bag and side welds and cutting on the successive bag. The drive then resumes until the next signal on the film halts it and the sequence is then repeated.

A finished bag in accordance with our said copending application and manufactured according to the present invention is shown in FIG. **4**. The strip **9***b* has been broken away to show the construction. The fold of the strip **6** provides the bag front and rear walls **6***a* and **6***b*, and the welds **15** formed by the electrodes **3** provide the bag sides. The strips **9***a* and **9***b* extend across the outer surface of the upper part of each wall of the bag trapping the handle assemblies **10***a* and **10***b* inside a pocket closed by welds.

I claim:

1. A method of manufacturing plastics bags comprising the steps of:

advancing in the longitudinal direction a relatively wide longitudinally folded strip of thermoplastic material, the plies of the strip on either side of the fold defining the front and rear walls of the bag;

advancing in the same direction, adjacent the marginal part of at least one of the plies, a relatively narrow strip of thermoplastic material; advancing in the same direction handle loops, each loop having the ends thereof attached to a common anchor element, and inserting the handle loops between the adjacent ply and the narrow strip in an orientation such that the loop extends from the marginal part of the bag wall;

welding the strip and the adjacent ply together to trap the anchor element; and welding the plies together along lines at right angles to the fold to complete the bag.

2. The method of claim **1** further comprising the steps of:

advancing the handle loops in a continuous length;

correctly positioning the leading handle loop of the length of the ply;

severing the leading handle loop from the length;

and feeding the narrow strip over the severed handle loop prior to welding the strip and the ply together.

3. The method of claim **2** including the step of tack welding the handle loop to the adjacent ply prior to welding of the ply and the narrow strip.

* * * * *