May 22, 1928. 1,671,050

G. C. SNYDER

METHOD OF MAKING REENFORCED BAGS

Original Filed May 9, 1924 2 Sheets-Sheet 1

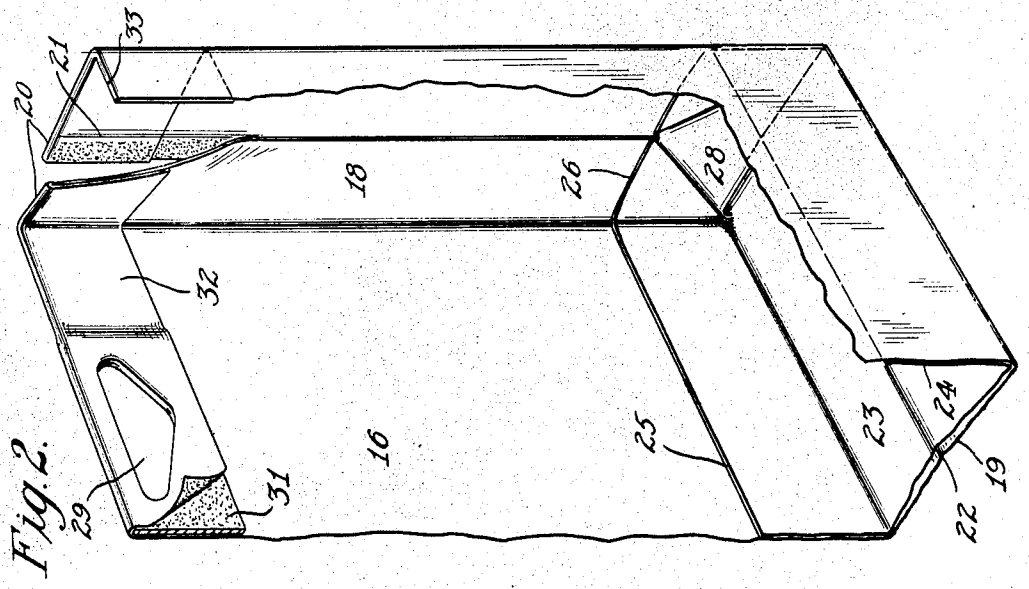


Fig. 2.

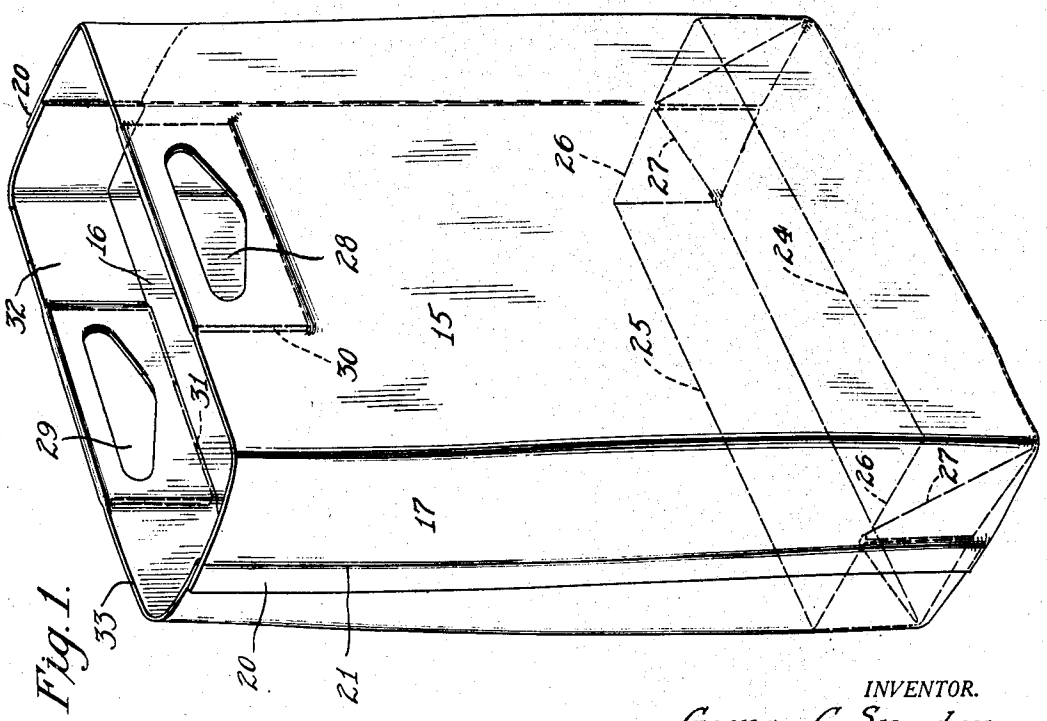


Fig. 1.

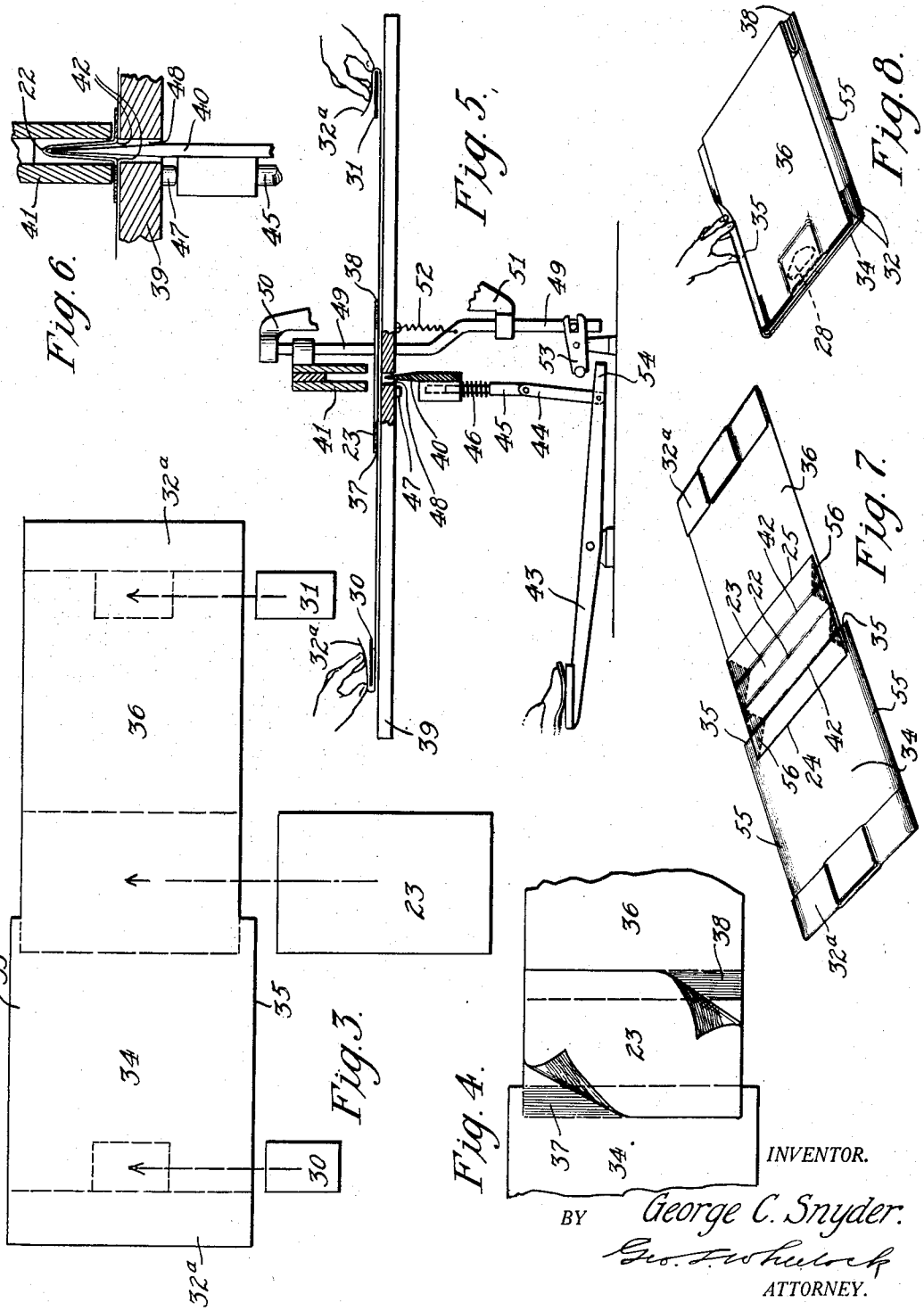
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METHOD OF MAKING REENFORCED BAGS

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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING REENFORCED BAGS.

Original application filed May 9, 1924, Serial No. 712,037. Divided and this application filed October 24, 1925, Serial No. 64,610. Renewed November 10, 1927.

This invention relates to improvements in the method of making reenforced bags, and has particular reference to the provision of a method of making such reenforced bags as form the subject-matter of my co-pending application filed May 9, 1924, Serial No. 712,037. My improved method of making reenforced bags is disclosed in said co-pending application but is not claimed therein, the present application being a division of the said application Serial No. 712,037.

An important object of this invention is to provide a method of making reenforced bags with a view to low production cost without sacrificing physical strength in the article produced.

Another object is to provide novel steps in the method of making bags with reenforced bottoms which will be readily collapsible.

Another object is to provide novel steps in the method for providing reenforced handles in the sides of a bag, by which it may be conveniently carried.

With these and other objects in view, the invention resides in the novel steps in the method of making bags as hereinafter set forth, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In the drawings, wherein one embodiment of the invention is shown by way of illustration,—

Fig. 1 is a perspective view of the improved reenforced bag, parts being shown in broken lines;

Fig. 2 is a perspective view of portions of the bag to more clearly illustrate the construction thereof;

Fig. 3 is a plan of the preferred blank from which the improved bag is made, said view having associated therewith the reenforcements which are to be pasted to the blanks;

Fig. 4 is a fragmentary view of the middle portion of the blank showing how the bottom lining is secured to the blank;

Fig. 5 is a sectional side elevation to illustrate a form of work table on which certain of the operations on the blank may be performed;

Fig. 6 is an enlarged detail section of the main parts of the work table;

Fig. 7 is a perspective view of a completed reenforced bag blank, illustrating additional steps in the method; and

Fig. 8 is a perspective view of the reenforced bag blank of Fig. 7 doubled up and showing some of the final steps in the completion of the improved bag.

The bags made under the present invention are composed mainly of sheets of flexible material, such as paper, and the outlines of the bag blanks and the basic method of making the bags is preferably along the lines of U. S. Letters Patent to Andrew C. Campbell, No. 227,147, dated May 4, 1880, a reference to which will avoid the necessity of more detailed description.

In order that the invention may be more readily understood, I will first describe my improved bag, for the manufacture of which my method is particularly adapted. Referring to Figs. 1 and 2, the bag is shown as comprising two opposite main walls 15 and 16 which are continuous and unbroken throughout their surfaces, so that they may be directly printed upon and the bag also comprises walls 17, 18 intermediate of the main walls 15, 16 and also a bottom wall 19. The bag shown in said figures has rectangular corners formed by creases between the main walls and the intermediate walls, but preferably these creases are omitted from the bags, they being shown in the drawings for enabling better illustration. Such creases may, however, be provided if desired.

When the improved bag is made according to the patented construction before-mentioned, it will have side seams 20 and longitudinal side folds at 21, which enable the bag to be folded down flat. The bottom 19 of the bag has a central crease or fold line 22 and when the bag is opened or squared out, it will have triangular transverse inner infolds at the ends of the crease line 22, and these triangular infolds form pockets which open out from the bottom of the bag. The triangular infolds are pasted to the side walls 17, 18 as in the patented construction mentioned. Also as in the said patent the fold lines will be not only at the creases 21 but at the crease 22, so that when the bag is flattened, the bottom 19 will fold upwardly within and between the main walls 15, 16.

A bottom reenforcing lining is shown as comprising a bottom portion 23 having low main walls 24, 25 and with low side or end walls 26. Said lining also has triangular portions 27 which correspond to the triangular infolds of the bag bottom. The bottom lining preferably has the outer surfaces of its low walls 24, 25 and 26 pasted to the corresponding inner surfaces of the bag, this being done before the bag is made, with the result that the bottom 23 of the lining is left free and undetached from the bag bottom 19 although the surfaces of both bottoms may be pasted or gummed together if desired. They are preferably left free, however, to permit easy folding or flattening of the bag bottom when the bag is collapsed, as if they were pasted together, this would interfere somewhat with ready folding. The exact manner in which the reenforcing lining is preferably applied to the bag will appear clear from the hereinafter described method, but it may now be stated that the said lining forms in reality a part of the bag bottom and follows all the surfaces thereof and hence follows the creases and folds therein together with the triangular infolds corresponding with the triangular portions 27.

Handles for the bag are provided by forming hand-holes 28, 29 which are located in the opposite main walls 15, 16, at the mouth of the bag. At these points there are provided reenforcing sections or members 30, 31 which are of preferably rectangular shape and composed of heavy card or pasteboard or the like and they have hand-holes corresponding with the hand-holes 28, 29. The material of the bags extends, in the blank, beyond the reenforcing sections 30, 31 and the portion 32 of the bag material is folded within and pasted to the walls of the bag, said portion 32 providing an infold which extends entirely around the mouth of the bag and to points within the side seams 20. Such construction provides a turned over edge 33 at the mouth of the bag. The reenforcing sections 30, 31 are gummed or pasted within the bag and underneath infolded mouth portion 32. Hence, no parts of the reenforcing sections in which the hand-holes are formed are located on the outside of the bag, and they are fully enclosed within the material of the bag so that there is no danger of their being stripped or detached from the bag, as they form permanent material parts thereof. Also, because of the fact that the seams of the bag are at the side edges, there will be no seam extending around the reenforcing sections 30, 31 to interfere with neat and efficient pasting together of the adjacent parts of the bag structure.

Fig. 3 illustrates the preferred form of blank to be used, it being shaped as in the patented construction beforementioned. It will therefore have a wide portion 34 which provides two lateral extensions 35, 35 beyond the narrower portion 36. Associated with Fig. 3 are shown the reenforcements corresponding with the reenforcements 23, 30 and 31 which go into the ultimate bag, the arrows indicating the points to which the said reenforcements are secured on the blank 34, 35, 36.

A large quantity of such blanks and reenforcements having been provided, a worker may first take a reenforcing lining 23 and paste it approximately at the middle of the elongated blank, so that it will be located as illustrated in Fig. 4. The reenforcing lining 23 preferably does not extend upon but terminates short of the lateral extensions 35. The paste is preferably applied along the lines 37, 38 so as to secure the lining 23 to the blank along opposite transverse edges of the lining, thereby leaving the intermediate portion of the lining free from the blank. The length of the reenforcing lining 23 will therefore correspond to the width of the narrow portion 36 of the blank.

Referring to Figs. 5 and 6 a suitable table and operating means associated therewith are illustrated, adapted to facilitate operation of the workers in carrying out the method. The table 39 has its top arranged at a suitable height from the floor so that two workers may sit thereat, one at each end of the top 39. The operating table is provided with a creaser 40 for forming a transverse central crease conforming to the crease line 22 of the bag, and a creaser 41 which is recessed to receive the creaser 40 and which is adapted to form the parallel crease lines 42, 42, one at each side of the crease line 22, the fold at 22 being thereby imparted in a direction opposite to the folds at 42, 42. The creases 42, 42 correspond with the folds at the long edges of the bottom of the bag.

Preferably the pasting on of the bottom reenforcing lining 23 is accomplished before the so-reenforced blanks are supplied to the workers at the table 39 although one of the two workers could be utilized to paste on the lining 23 before the said workers perform their conjoint work. The two workers will take the blank which is reenforced by the lining 23 and will adjust it on the table top 39 so that each of them will have access to one end of the blank and so that the middle reenforced portion of the blank will be positioned in between the creasers 40, 41. One of the workers may now form the transverse creases in the middle portion of the reenforced bag blank or this may be done by said worker after the reenforcements 30, 31 for the handles have been applied by the workers. Each of the workers takes a reenforcing member or section, and one of them pastes or gums the section 30 at one end of the blank

and the other worker pastes the section 31 at the other end of the blank, taking care that each section is pasted about midway of the side edges of the blank and at a suitable distance from the corresponding end edge of the blank. This will leave at both ends of the blank, portions 32^a, 32^a, which extend beyond the gummed-on reenforcing sections. Each worker will then apply paste or gum to a portion 32^A and will paste it over and to the corresponding reenforcing section and also throughout the width of the blank.

The creasing of the blank may be done either before or after the reenforcing sections 30, 31 are applied by the workers. The creasing may be performed by one of the workers making use of mechanism now to be described. The table 39 is provided with a foot treadle 43 pivotably connected with a link 44, which in turn is pivotably connected with a stem 45 which has a suitable sliding connection with the creaser 40. A spring 46 supports the creaser 40 and tends to push the stem 45 away from the creaser 40. The bottom of the table is provided with a stop 47 against which an abutment on the said creaser may strike when the treadle 43 is operated. The table top 39 is provided with a transverse slot 48 through which the creaser 40 may be upwardly projected against the reenforced blank.

The other creaser 41 is carried at its upper end by means of a slide rod 49, so that said creaser is positioned above the table top 39 and directly above the creaser 40, so that the creaser 40 may move into the space of creaser 41. A supporting arm 50 provides a guide for the upper end of the slide rod 49 while a suitably supported arm 51 provides a guide for the lower end of the rod 49. A tension spring 52 tends to pull the rod 49 and the creaser 41 upwardly away from the table. A lever 53 is loosely connected at one end with the lower end of the slide rod 49, while the other end of said lever is located so that it may be struck by a toe 54 on the treadle 43 when the treadle is operated.

It will be seen that when one of the workers operates the treadle 43, the creaser 40 will be moved upwardly to form the intermediate transverse crease 22 in the blank, and that before the full movement of the treadle 43 is made, the abutment on the creaser 40 will strike the stop 47, but that on completion of the treadle movement the stem 45 will slide in the creaser 40, and at this time the toe 54 will strike the lever 53 and cause the creaser 41 to move downwardly and form the two creases 42, 42 at each side of the crease 22, but the creasing will be in opposite directions. When the foot is removed from the treadle 43, the creasers will automatically move in opposite directions and the bag blank will be released therefrom. One of the workers then pulls the bag blank, reenforced as described, from between the creasers, so that the blank is ready for the next operation.

Fig. 7 illustrates a complete reenforced and creased bag blank. The next step in the operation is to apply paste or gum to the inner surfaces of the lateral extensions 35 along the lines 55 and also in triangular daubs at 56, 56. This is usually done by a worker who then takes the reenforced blank and folds it along the middle, so that the parts between the creases 42, 42 will fold inwardly along the line of the crease 22, and suitable means is employed, as the hand of the worker, for turning over the lateral extensions 35, 35 on to the narrow portion 36 of the blank as shown in Fig. 8, thereby providing the side seams and the side folds for the completed bag. Suitable pressure means may be employed to press the bag, when completed along the lines shown in Fig. 8. The complete bag will now be flat and when the gum is sufficiently dry the bag may be opened out into the shape shown in Fig. 1.

One step remains to be performed, and that is the making of the hand-holes. This may be done by placing the bag, which is flat as in Fig. 8, under a suitably shaped cutting punch, which may be operated by hand. The hand-holes will thus be cut according to the dotted lines in Fig. 8.

It is clearly obvious that the operations described herein as performed by hand may be carried out by suitable mechanism in a continuous running machine so that no hand work at all would be required. It is also obvious that the invention is susceptible of more or less modification and that it would still be within the scope of the appended claims.

What I claim as new is:

1. In a method of making reenforced bags, providing a flexible blank having a portion wider than the remaining portion, securing opposite edge-portions of a flexible sheet transversely to the blank at a middle portion of the blank, and leaving the intermediate portion of the sheet free from the blank, and forming a bag from said blank, so that the said sheet reenforces the bottom of the bag.

2. In a method of making reenforced bags, providing a flexible blank having a portion wider than the remaining portion, securing opposite edge-portions of a flexible sheet transversely to the blank at a middle portion of the blank, and leaving the intermediate portion of the sheet free from the blank, creasing the blank and the sheet transversely, along three lines, gumming together triangular portions of the blank end sheet at the side portions of said blank, and forming a bag from said blank, so that the said sheet reenforces the bottom of the bag.

3. In a method of making reenforced

bags, providing an elongated flexible blank, securing reenforcing sections to the opposite ends of the blank and leaving free end-portions beyond said sections, turning said end-portions over on to the reenforcing sections and securing them thereto, forming a bag from the blank, and producing hand-holes through the bag and the reenforcing sections to provide handles.

4. In a method of making reenforced bags, providing an elongated flexible blank having a portion wider than the remaining portion and adapted to form one wall of the bag, gumming reenforcing sections to the opposite ends of one surface of the blank and leaving free end-portions beyond said sections, turning said end-portions over on to the reenforcing sections and adhesively securing them to said sections, transversely creasing the blank, forming the bottom of the bag and securing the side edge-portions of the wider portion of the blank to the edges of the narrow portion, and producing hand-holes through the bag and the reenforcing sections to produce handles.

5. In a method of making reenforced bags, gumming reenforcing sections to the ends of a bag-blank, and leaving free end-portions, gumming the end-portions over on to the said sections, forming a bag from the blank, having edge seams, and the sections in opposition at the mouth of the bag, and producing hand-holes in the bag through said sections.

6. Steps in the method of making reenforced bags, consisting in forming a bag-body blank with an inwardly turned edge, securing a reenforcing member under said inwardly turned edge, and forming a hand-hole through the reenforcing member and co-extensive portions of the bag-body blank and inwardly turned edge.

7. Steps in the method of making reenforced bags, consisting in forming a bag-body blank with opposed inwardly turned edge portions, securing and concealing reenforcing members under each of said edge portions, and forming hand-holes through said reenforcing members and the co-extensive portions of the bag-body blank and inwardly turned edges.

GEORGE C. SNYDER.