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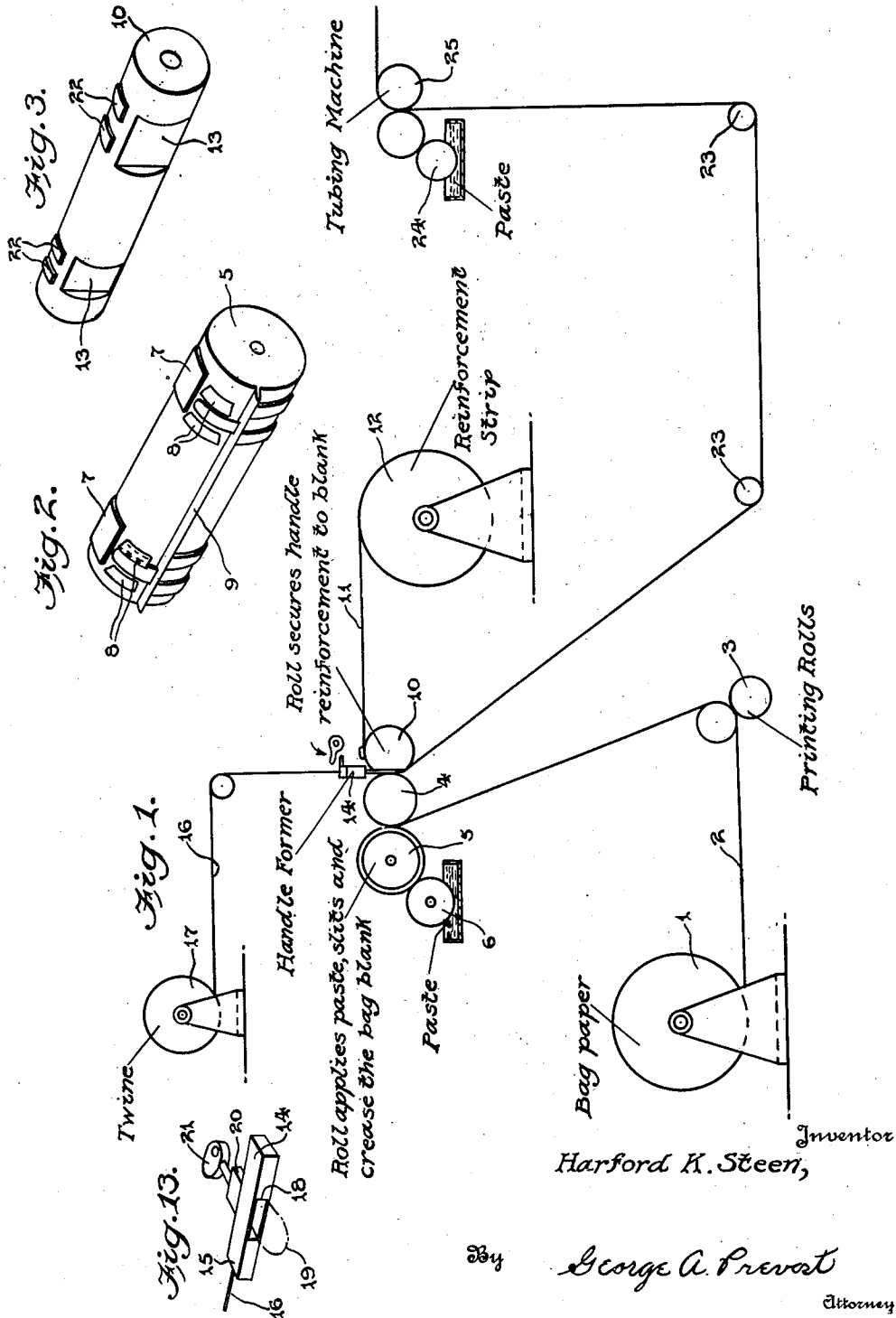
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METHOD OF MANUFACTURING SHOPPING BAGS

Filed March 22, 1930

2 Sheets-Sheet 1



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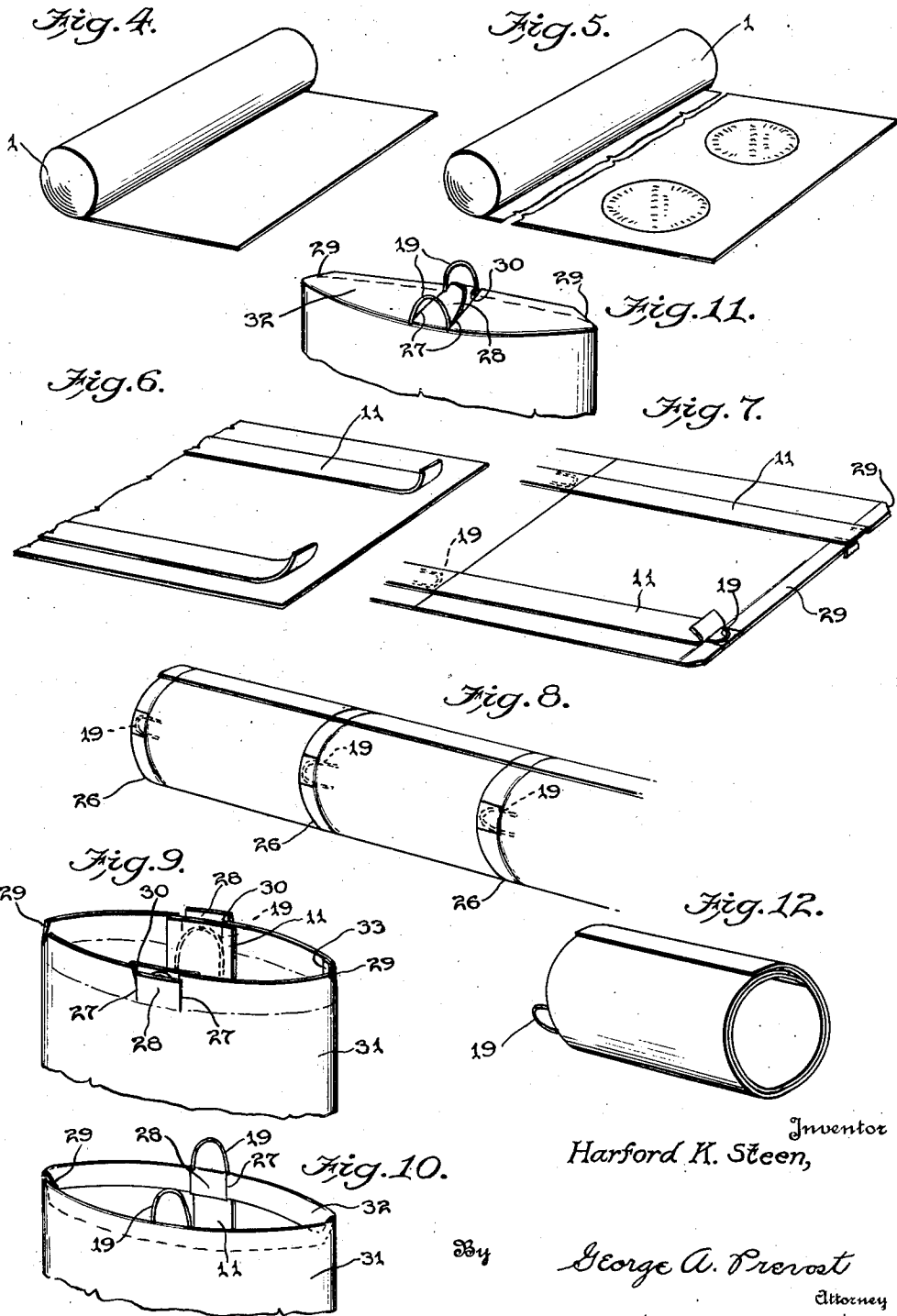
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METHOD OF MANUFACTURING SHOPPING BAGS

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My invention consists in new and useful improvements in shopping bags and the process of manufacturing the same and has for its object to provide a shopping bag which is reinforced interiorly in such a manner as to afford maximum strength in both the bag and the handle structure.

Another object of my invention is to provide a bag wherein the handles are secured between the reinforcing means and the body of the bag, the process of manufacture being such that said handles are applied simultaneously with the reinforcing means.

A further object of my invention is to provide a bag wherein the top fold may be employed as a closure for protecting the contents of the bag.

A still further object is to locate the seam of the bag along one edge rather than in one of the sides of the bag as heretofore, the advantage of such structure being to permit the application of the two handles to the web before the same is tubed, whereby when said web passes through the tubing mechanism said handles are automatically brought into position centrally of the side walls and opposite one another.

Another important object of my invention is to provide a process of manufacturing shopping bags wherein the bag is printed, reinforced, equipped with handles, pasted, tubed, the diagonal edges cut off of the mouth end of the bag to facilitate folding, and bottomed entirely by machinery.

With the above and other objects in view which will appear as the description proceeds, my invention consists in the novel features herein set forth, illustrated in the accompanying drawings and more particularly pointed out in the appended claims.

Referring to the drawings in which numerals of like character designate similar parts throughout the several views,

Figure 1 is a diagrammatic view showing the operation of my process from start to finish.

Figure 2 is a detail view of the pasting, slitting, and creasing roller.

Figure 3 is a detail view of the handle and reinforcement applying roller.

Figure 4 is a view showing the web as it leaves the roll.

Figure 5 shows the web after it has been printed.

Figure 6 shows the web with reinforcing strips applied.

Figure 7 is a similar view after the handles have been inserted and the folding creases applied.

Figure 8 shows the web after it has passed through the tubing machine where it is pasted and seamed along one edge.

Figure 9 is a view of the upper portion of a bag after it has been tubed and cut off, but before the upper edge is folded inwardly.

Figure 10 is a similar view with the upper edge of the bag folded inwardly.

Figure 11 shows the upper fold of the bag in use as a closure.

Figure 12 shows a modified form of reinforcement in the nature of a duplex bag, and

Figure 13 is a detail view of the handle former.

In the drawings, referring particularly to Figure 1, I start with the usual roll of suitable paper 1 from which the web 2 passes through the printing rolls 3, where said web is printed or decorated at predetermined points along both sides of its longitudinal center as shown in Figure 5. From the printing rolls 3 the web passes over a roller 4, adjacent one side of which is a pasting roller 5, fed from a paste pot 6.

The roller 5 as shown in Figure 2, comprises a plurality of raised paste applying surfaces 7 which are so constructed and located on the roller 5 as to apply paste longitudinally on one surface of the web 2 on both sides of its center, but adapted to leave certain predetermined portions of said web free from paste for the purpose hereinafter set forth. In addition to the pasting surfaces 7, the roller 5 carries four slitting knives 8 arranged circumferentially at predetermined points on the roller, for slitting the web at the desired points to accommodate the handles as later described. It will also be noted that a creasing knife 9 is applied longitudinally of said roller 5 adjacent the slitting knives 8, whereby the web is creased at the

desired points to facilitate the turning in of the mouth ends of the finished bag.

After the paste is applied and web is slit and creased, said web passes between the roller 4 and another roller 10, which latter roller applies the reinforcing strips 11 from the supply rolls 12. As will be seen from Figure 3, the roller 10 is provided with flat surfaces 13 whereby, when said surfaces are adjacent the roller 4, the loose ends of the handle loops may be inserted from the handle former 14.

As will be seen from Figure 13, each of the handle formers 14 comprises a hollow body portion open at one end 15 to receive the twine 16 fed from the roll or ball 17 and cut off in proper lengths to form handles. The formers 14 are provided with openings 18 adjacent the point of contact of the rollers 4 and 10, through which the handles 19 are ejected by the forming and delivering plunger 20, operable by a suitable cam 21.

As before stated the handles are inserted at the desired points between the web 2 and the reinforcing strips 11, the flat surfaces 13 permitting the insertion of the loop ends of said handles. As the rollers 4 and 10 continue to rotate, the free ends of the handles are secured between the pasted surfaces of the web and reinforcing strips and pressed in place by the soft rubber pads 22 on the roller 10.

The web is now in the form shown in Figure 7, printed along both sides of one surface and with reinforcing strips and handles applied to the other surface. The web then passes over a series of idler rollers to a pasting device 24 where it is pasted along one edge before entering the tubing machine 25. After leaving the tubing machine, the web is in the form shown in Figure 8 and it is then cut off in bag lengths at the points 26 just adjacent the handle loops 19, after which the bottoms are folded in the usual manner, the reinforcing strips being folded with the bottom and forming a part thereof, and the top edge, as the bag leaves the machine, is in the form shown in Figure 9.

The slits 27 in the web of the bag at its mouth end, are applied as before stated, by knives 8 on the pasting roller 5. When the upper end of the bag is folded inwardly by hand as shown in Figure 10, the slits 27 accommodate the handles 19, allowing the unpasted looped portions to project beyond the mouth of the bag, the central portions 28 of the flap, between the slits 27, being pushed through the handle loops.

In order to more readily adapt the upper fold or flap of the bag for use as a closure, as shown in Figure 11, the lateral ends of the flap are cut in substantially V-shaped notches 29, which, when said flaps are folded inwardly as closures, prevent the same from buckling at the ends. It will also be noted that the reinforcing strips 11 support and

form a part of the upper flaps of the bag, said strips being pasted to the web at all points with the exception of a small surface immediately adjacent and substantially conforming in shape, to the loops of the handles 19. Thus when the flaps are folded inwardly as before stated, the slitted portions 28 are practically integral with the remainder of the flaps.

If desired, the free edges of the reinforcing strips in the flap may be provided with short slits 30 immediately adjacent the ends of the slits 27, for engaging the upright portions of the opposite handle when said flaps are folded as closures, Figure 11.

Instead of the reinforcing strips 11, the bag may be constructed in the form of a duplex bag as shown in Figure 12, in which event the reinforcing element would be in the form of an inner bag. The method of manufacturing the duplex bag would be practically the same as that heretofore described, with the exception that the roller 12, instead of feeding a strip to the roller 10, would feed a second web.

A finished bag constructed in accordance with my invention comprises the usual body 31 provided with reinforcing strips 11, extending longitudinally of the bag on opposite sides of the inner surface thereof, the lower ends of which are folded with and sealed in the bottom of the bag. At the mouth of the bag the handles 19 are secured by pasting, between the upper ends of the reinforcing strips and the body of the bag, the upper portion of said body forming loose flaps 32 which may be either folded inwardly on the body as shown in Figure 10, or folded upon one another as closures, as shown in Figure 11. The seam 33 extends longitudinally of the body along one edge thereof as shown in Figure 9 thereby permitting the application of said handles and enabling said body to be printed on both outer surfaces before the bag is tubed, as before stated.

It will thus be seen that I have provided a process which by a series of mechanical operations, prints, pastes, slits, creases, reinforces, applies handles, tubes, cuts, and folds a completed shopping bag, and that such bags possess a maximum strength and can be manufactured at extremely low costs.

From the foregoing it is believed that my invention may be clearly understood by those skilled in the art without further description, it being borne in mind that numerous changes may be made in the details of construction without departing from the spirit of the invention as set forth in the following claims.

What I claim and desire to secure by Letters Patent is:—

1. A shopping bag comprising a body portion, a strip of suitable reinforcing material secured to the inner surface of said body and

extending longitudinally around its sides and bottom, handles interposed between said reinforcing strip and said body at its mouth end, the mouth end of said body being creased laterally and slit longitudinally at predetermined points whereby said mouth end may be folded inwardly to form flaps, exposing said handles.

2. A process for the manufacture of shopping bags which consists in applying reinforcement to the web and simultaneously securing handles in place at predetermined points on said web, then forming said web into a tube, cutting said tube in bag lengths and folding the bottoms to form bags.

3. A process for the manufacture of shopping bags which consists in applying paste to one side of the web, applying a reinforcing strip to the pasted side of said web, interposing handles at predetermined points between the pasted surfaces of said web and said reinforcing strip, pressing said reinforcing strip and web together over said handles and then forming said web into a tube, cutting it in lengths and forming bags.

4. A process for the manufacture of shopping bags which consists in applying paste to one side of the web, applying a reinforcing strip to the pasted side of said web, interposing handles at predetermined points between the pasted surfaces of said web and said reinforcing strip, pressing said reinforcing strip and web together over said handles and then forming said web into a tube, cutting it in lengths and forming bags, and folding the mouth ends of said bags inwardly with said handles projecting upwardly.

5. A process for the manufacture of shopping bags which consists in applying paste to portions of one surface of the web, leaving certain portions unpasted, creasing said web laterally and slitting it longitudinally at predetermined points, then bringing a reinforcing strip into contact with the pasted surface of said web, interposing handles between said web and reinforcing strip in such a manner that portions of said handles are pasted between the web and reinforcing strip and other portions remain unpasted, then forming said web into a tube, cutting the same in bag lengths, folding the bottoms to form bags and then folding the mouth ends of said bags inwardly on said creased portion, said slits accommodating said handles.

6. The method as claimed in claim 5 wherein said web is printed on both sides of its longitudinal center before it is formed into a tube.

7. The method as claimed in claim 5 wherein said web, during the tubing operation is seamed along one end, whereby said web may be printed and said handles applied on both sides of its longitudinal center before the web is formed into a tube.

8. The method as claimed in claim 5 which

includes forming loop handles from suitable material and interposing the same at predetermined points between said web and reinforcement, with the loop ends unpasted.

9. A shopping bag comprising a body portion, a reinforcing strip secured thereto and extending substantially the entire length of the body portion, handles interposed between said reinforcing strip and said body, one of said members being slit at predetermined points, whereby the mouth end of said bag and reinforcement may be folded inwardly to expose said handles.

10. A shopping bag as claimed in claim 9 wherein said mouth end is slit to form flaps, said flaps being adapted to serve as closures for the mouth of said bag.

11. A process for the manufacture of shopping bags which consists in applying paste to one side of the web, applying a reinforcing strip to the pasted side of said web, and simultaneously interposing handles at predetermined points between the pasted surfaces of said web and said reinforcing strip, pressing said reinforcing strip and web together over said handles and then forming said web into a tube, cutting it in lengths and forming bags.

12. A shopping bag comprising a body portion, a reinforcing strip secured thereto and extending substantially the entire length of the body portion, handles interposed between and secured in place by means of said reinforcing strip and said body, one of said members being slit at predetermined points, whereby the mouth end of said bag and reinforcement may be folded inwardly to expose said handles.

In testimony whereof I affix my signature.

HARFORD K. STEEN.