

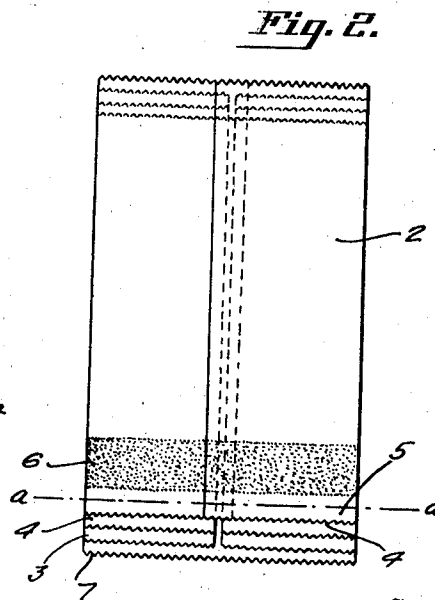
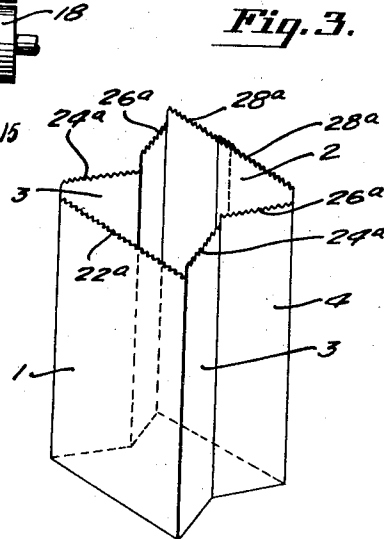
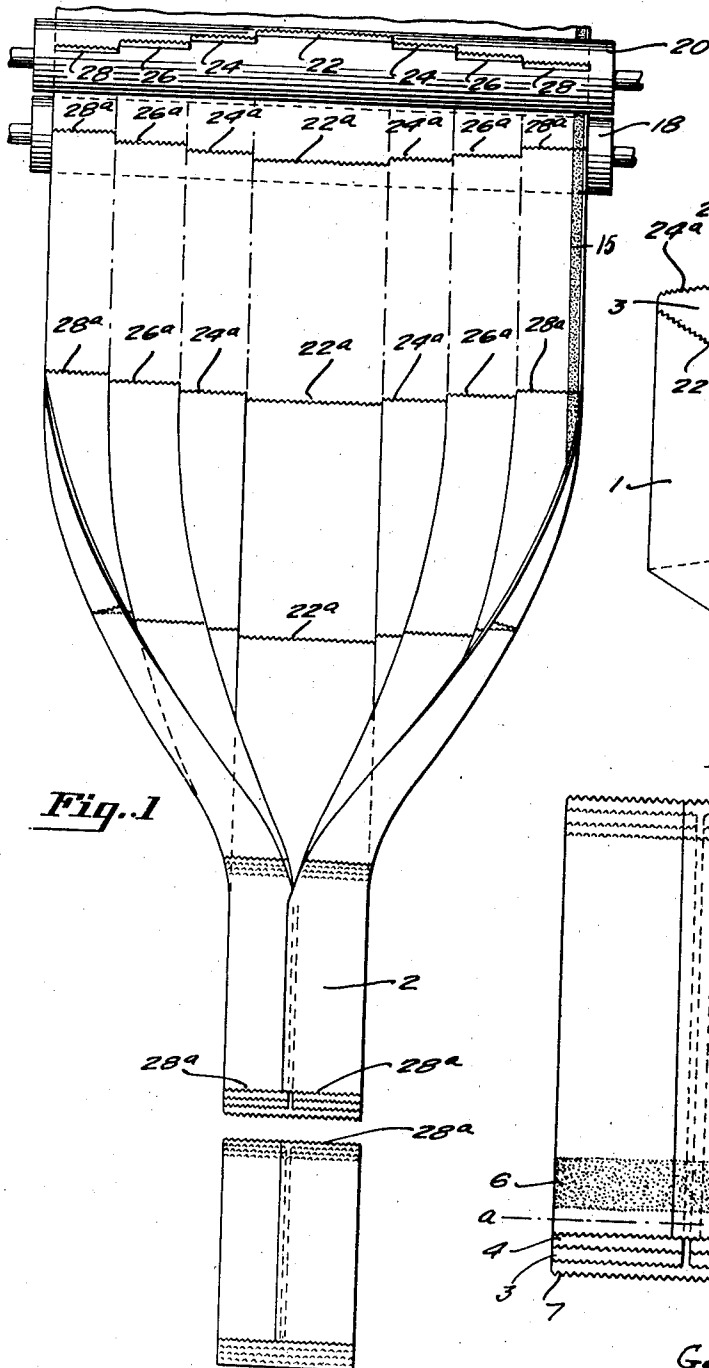
July 30, 1940.

G. W. POPPE

2,209,901

METHOD OF MAKING SIFTPROOF BAGS

Original Filed Sept. 15, 1937 2 Sheets-Sheet 1



Inventor

George W. Poppe.

by Geo. M. Dowe.
Attorney

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G. W. POPPE

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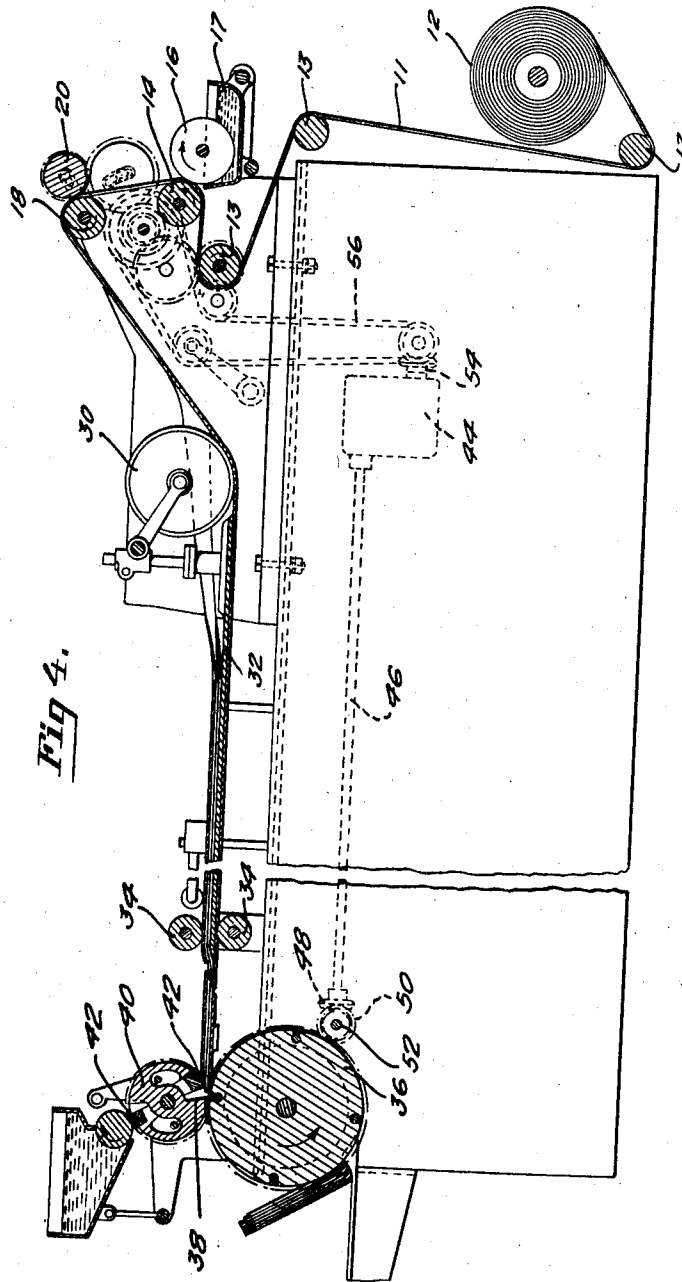


Fig 4.

Inventor

George W. Poppe
by Geo. M. Dove,
Attorney

UNITED STATES PATENT OFFICE

2,209,901

METHOD OF MAKING SIFTPROOF BAGS

George W. Poppe, Brooklyn, N. Y.

Original application September 15, 1937, Serial
No. 165,693; Divided and this application
April 7, 1939, Serial No. 266,478

3 Claims. (Cl. 93—35)

This invention relates to a method of producing a siftproof bag of the character known in the art as a gusset, bellows fold, or square bottom bag and is a division of my application, Serial Number 165,693, filed September 15, 1937.

A primary object of the invention is the production of a siftproof bag of the character above set forth by a method which enables it to be made at a high rate of speed by known bag machinery.

Since the method in commercial production is practiced on a bag machine, it will best be understood when described in connection with such machine.

In the accompanying drawings,

Figure 1 is a top plan view of portions of a bag machine of known construction, and showing how a web of paper is cut and folded into a tube, from which bag sections are successively formed;

Figure 2 is a bag section, after severance from the tube, but prior to folding over of the bag bottom;

Figure 3 is a perspective view showing the bag in partly opened condition to more clearly indicate its general construction; and

Figure 4 is a side elevation, partly broken away, of so much of a machine of known construction as will sufficiently illustrate how my method is practiced and the bag produced at the high speed necessitated by commercial requirements.

In order that the description may accord with that of the parent case, I have used the same reference characters to designate the same parts in the present divisional application as in the parent case.

Referring to Figures 1 and 4, a web of paper 11 carried by a roll 12 passes from said roll over suitable guiding rollers 13, and about a roller 14 where the edge of the web receives a line of paste indicated at 15, Figure 1 and supplied by a disc 16, Figure 4 which dips into a paste pot 17. From the roller 14 the web passes over another roller 18 made of rubber or similar material and as it passes over said roller the web is perforated by a serrated edge knife carried by a cylinder 20. For convenience, in manufacture and assembly, the knife is preferably made in sections and each section may be independently adjustable in the cylinder 20, although, of course, a knife might be constructed in one piece and shaped as shown.

Assuming a sectional construction, the center section 22, Figure 1 makes a series of perforations in the web which determine the top and bottom edges of the plain wall of a bag portion prior to folding the bottom. Sections 24, adjacent the section 22 form the top and bottom edges of one ply of

the bellows fold. The sections 24 are in alignment with each other but are stepped from the section 22. The sections 26 are likewise in alignment with each other but are stepped from the sections 24, these sections 26 forming the top and bottom edges of the other ply of the bellows fold. Sections 28 are in alignment with each other but each stepped from the adjacent section 26 and form the bottom and top edges of the seam wall of the bag when the web is folded into a tube. The lines of perforations 22a, 24a, 26a and 28a, Figure 1 show the condition of the web after the knife sections correspondingly numbered, have acted upon it as the web passes over the roller 18.

After the web is perforated as above described, it passes under a roller 30, Figure 4 and under a former 32 about which it is folded by the usual mechanism to produce bellows folds between the bottom plain wall 1, Figure 3, and the upper seam wall 2. The seam wall is produced by folding the pasted portion 15 over onto the opposite longitudinal edge of the web as indicated in the lower portion of Figure 1.

The folded tube and web are fed through the machine by means of the usual feed rollers 34, Figure 4, from which rollers the tube passes over the clamp cylinder 36 having the usual clamps for receiving the bottom folded portion of the tube, such fold being produced by the usual tucker blade 38 carried by a roller 40. This roller also carries one or more paste bars 42 which supply the paste to the seam wall of the bag just after the action of the tucker blade to tuck the end of the tube into the clamp. The cylinder 36 is rotated in such a manner that the peripheral speed is greater than the peripheral speed of the feed rollers 34 and therefore when the tucker blade tucks the end of the bag tube into the clamp a bag tube section is severed from the main tube. A severed section is indicated at the lower portion of Figure 1 which also shows the bottom of the section folded over and pasted, thereby forming the completed article. Figure 2 shows a section somewhat enlarged from that shown in Figure 1 and prior to the pasting of the bottom. The line of fold, however, is shown along the line a—a and the paste area is indicated by the reference character 8.

In the completed bag therefore the lower edge of each ply of the bellows fold indicated at 4, Figures 2 and 3 is off-set from the lower edge of each ply of the fold 3 and may therefore be pasted down onto the seam wall 2 of the bag. The end of the plain bag wall indicated at 7 is

likewise offset from the edges of the bellows fold 3 and is pasted down on the seam wall. The lower edge of the seam wall is folded over on itself and this edge is offset from the edges 4.

5 It will be noted that the paste area 6, extends from a position below the edge of the turned-over portion 5 and almost to the end of the turned-over portion 7, and that the ends of both bellows folds as well as the fold 5 are pasted onto the seam wall. With this construction a thoroughly sift-
10 proof bag of the bellows type is produced.

The machine may be driven by a motor indicated diagrammatically at 44 having a transmitting shaft 46 on the end of which is a bevel gear 48 meshing with a smaller bevel gear 50 on
15 a shaft 52 which carries suitable gears for driving the clamp cylinder 36 at the proper speed.

A stub shaft 54 also projects from the motor casing and through suitable gears drives a chain
20 56 whereby the cylinder 20 carrying the knives is driven once for each bag to be produced.

The machine being well known has not been described in detail but its general operation only is set forth in order that a practical manner of
25 practicing my method may be sufficiently disclosed.

It is to be understood, however, that variations may be resorted to in the method and machinery used provided such variations are within the
30 scope of the invention and without departing from the spirit thereof.

What I claim is:

1. The method of making a bellows fold sift-proof bag which consists in perforating a continuously advancing web of paper, along transverse lines, said lines defining the ends of a section that is to constitute a bag, the transverse perforations defining the ends of each adjacent plies of bellows fold being off-set from each other and also off-set from the perforations defining the walls of a bag section to which each is adjacent, folding the web into a bellows tube, severing a section from the tube along said perforated lines, and closing the bottom of the section to complete the bag. 10

2. That step in the process of forming a bellows fold siftproof bag which consists in making perforations in a continuously advancing web of paper, along transverse lines which lines define one end of the plies of the bellows fold, the lines defining the end of one ply of each fold being off-set from the end of the other ply of the fold. 20

3. Those steps in the process of making a bellows fold siftproof bag which consists in making perforations in a web of paper along transverse lines which lines define one end of a bag wall and one end of the plies of the bellows fold, the lines defining the end of one ply of the bellows fold being offset from the other ply of the fold, the ends of both plies being off-set from said line defining the end of the bag wall. 30

GEORGE W. POPPE.

CERTIFICATE OF CORRECTION.

Patent No. 2,209,901.

July 30, 1940.

GEORGE W. POPPE.

It is hereby certified that the above numbered patent was erroneously issued to the inventor, said "POPPE" whereas said patent should have been issued to --Equitable Paper Bag Co. Inc., of Brooklyn, New York, a corporation of New York--, as assignee of the entire interest therein, as shown by the record of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 8th day of October, A. D. 1940.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.