

A. M. BATES.
PROCESS OF MAKING AND FILLING BAGS.
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1,143,801.

Patented June 22, 1915.

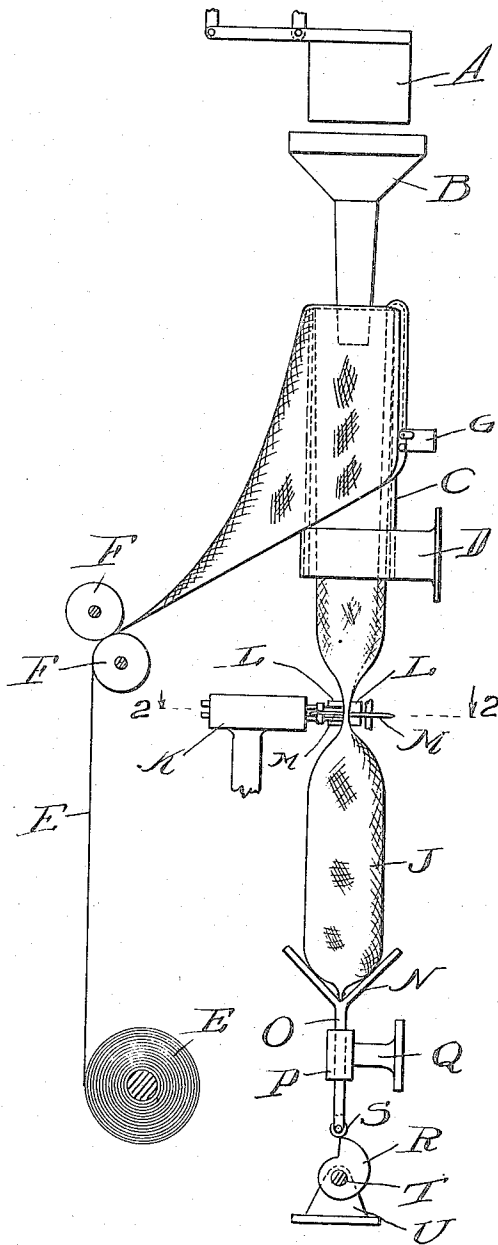


Fig. 1.

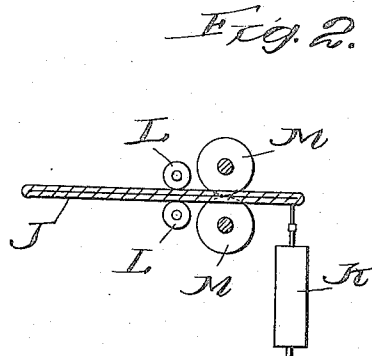


Fig. 2.

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UNITED STATES PATENT OFFICE.

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PROCESS OF MAKING AND FILLING BAGS.

1,143,801.

Specification of Letters Patent.

Patented June 22, 1915.

Application filed December 1, 1913. Serial No. 803,923.

To all whom it may concern:

Be it known that I, ADELMER MARCUS BATES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Processes of Making and Filling Bags, of which the following is a specification.

My invention relates to a process for making and filling bags.

The process is illustrated diagrammatically in the accompanying drawings, wherein—

Figure 1 is a side elevation of a complete apparatus which might be employed to carry out my process, and Fig. 2 is a detail on the line 2—2 of Fig. 1.

Like parts are indicated by the same letter in all the figures.

I have illustrated a complete set of apparatuses but all of them diagrammatically intended to support the description of my process hereinafter set forth, but not intended in any manner to limit the process to any particular set of mechanisms.

In the drawing A is a material supply device, which, of course, should contain suitable weighing and feeding mechanisms so that the desired charge of material can be automatically from time to time discharged from such material supply device into the filling bag B. It will be understood, of course, that this filling tube may be of any desired size, shape or proportions, but as here illustrated it is only a funnel preferably enlarged at one end to receive the charge and contracted at the other to deliver the charge into the bag, or rather into the bag of material which leads to the bag.

C is a bag forming tube of any desired shape and size and cross-section but suitably supported, for example by the support D. At its lower end E is a roll of cloth, paper or other material from which the bag is to be formed, F a printing press or device whereby the roll of material as it passes along may be printed if desired.

G is a side sewing machine placed intermediate the ends of the forming tube and near the same and adapted to receive the edges of the roll of bag material as they are drawn together about the outside of the forming tube and there to form a seam so as to make the bag material into a bag tube. The upper end of such bag tube so formed

is properly closed, whereupon the bag tube is reversed and drawn downwardly through the forming tube.

J is the filled bag tube section, K a diagrammatic representation of a sewing machine and L and M rollers adapted to compress the portions of the bag tube sections together at the points where the closures are to be made. The rollers L also act as gumming rollers, being fed with gum or paste from a suitable receptacle not here illustrated, such gum or paste being pressed into the bag by the rollers N so as to hold the threads of the bag together while the sewing action takes place and also to prevent unraveling of the threads forming the bag itself.

Referring in the first instance to the parts which support and jig the bag, N is a jig in which the bag rests and it may be supported slidably by means of the stem O passing through the keeper P supported on the lateral standard Q.

R is a rotating jiggling device which is cam-shaped and adapted to engage the roller S at the lower end of the standard.

T is a shaft on which the jig is mounted and U the base for the bearing. This, like all the other parts, is shown diagrammatically.

It will be understood, of course, that the several parts are properly supported upon a frame and means must be employed to draw the tube down and to supply a certain proper charge of material from the material supply to the proper part of the bag tube. This material will drop through the filling tube, through the forming tube and through the upper part of the bag tube until it passes the closure apparatus where its lower end will rest upon suitable jiggling mechanism if that is required, or it may be manipulated by hand so as to compact the material, if desired, in the lower end of the tube. The tube portion immediately above the charge is now brought together and its walls secured so as to effect a closure of the upper portion of the filled part of the tube and the lower portion of the empty tube. The two are now separated so that the filled and closed bag is discharged from the lower end, whereupon the operation is resumed to form and discharge additional bags.

It is obvious that the forming tube must be held from outside so as to permit the

filling tube to pass downwardly through such forming tube and it is also evident that it must be held from its lower end so as to permit the sewing operation to proceed at the upper end of such forming tube. The tube material may have its edges united in any desired manner according to the materials employed and the desires of the operator, but in the case of cotton bagging, its edges should be united by a seam preferably applied by a sewing machine. The charge of material is preferably predetermined and dropped in a mass through the filling tube, but obviously it could be supplied in any other manner and filled into the tube by a slow stream or by a forced stream or *en masse*.

I have described a particular method of closing, but it is plain that the bag could be closed in any other manner, as for instance by tying the tube at two slightly separated points by means of wire or other ties placed in position in any desired manner, the filled bag being then severed from the tube. The preferred method consists in bringing the edges of the two sides of the tube together by compressing rolls, sewing by two transverse seams, gumming the parts together to prevent raveling of the edge to be cut or the unraveling of the thread by which the fabric is sewed together and then severing the tube between the two seams. The gumming may be done before or after the sewing or before or after the cutting, but what seems to me to be the preferred method perhaps is first to sew, then cut and then glue while the parts are still held in position. All of the operations beginning at one end with the material out of which the bags are made, and at the other with the material whereby they are to be filled, are carried on simultaneously and automatically and are inter-related, the steps of the filling process and the steps of the bag making process being intermingled. As previously suggested, several of these steps could be dispensed with without departing from the spirit of my invention.

When the tube is reversed as explained, it is doubled upon itself, that is so as to form a kind of double bag. This has the advantage of permitting a free and easy supply of the material to the bag through the inner portion of the double tube. The end of the tube in the first instance can, of course, be closed either before or after the tube is thus doubled upon itself and in any desired manner, but after the operation is started the closure will always take place at the lower end of the tube and adjacent to the severed bag.

The closure or seam for forming the tube may be made by a continuous process, the tube being intermittently drawn down for the purpose of extending it far enough be-

yond the bag making closure to form such bag. The tube is a continuous tube and formed from a continuous roll of material or from one or more rolls if that should be desired and the tube forming closure is preferably made by a continuous process. The charges are preferably intermittently supplied, though of course they could be formed by a continuous stream of material, cut off or interrupted as to any given bag forming portion of the tube at the desired moment.

I claim:

1. The method of producing and filling bag-like packages of powdery or granular substance from a continuous blank roll of fabric which consists in forming from said roll a single bag tube section with a closed end, filling the same through the open end, closing the top of such section and the bottom of the next, then forming another single bag tube section from the continuous blank roll and proceeding thus to successively form and fill single bag tube sections.

2. The method of producing and filling bag-like packages of powdery or granular substance from a continuous blank roll of fabric which consists in forming from said roll a single bag tube section with a closed end, folding back a portion of the formed tube on another portion thereof, filling the single bag tube section with the closed end through such folded tube sections, closing the top of the last section and the bottom of the next, then forming another single bag tube section from the continuous blank roll and proceeding thus to successively form and fill bag tube sections.

3. The method of producing and filling bag-like packages of powdery or granular substance from a continuous blank roll of fabric which consists in forming from said roll a single bag tube section with a closed end, forming a tubular section above the bag tube section, filling the single bag tube section through its open end and through the tubular section, closing the top of such bag tube section and the bottom of the next section, filling the next single bag tube section, then forming a tubular section above the same from the continuous blank roll and proceeding thus to successively form and fill bag tube sections.

4. The method of producing and filling bag-like packages of powdery or granular substance from a continuous blank roll of fabric which consists in forming from said roll a single bag tube section with a closed end, forming a tubular section above the bag tube section, folding back the tubular section thereon, filling the single bag tube section through its open end and through the folded tube sections, closing the top of such bag tube section and the bottom of the next section, filling the next single bag tube

section, then forming a tubular section above the same from the continuous blank roll and proceeding thus to successively form and fill bag tube sections.

5 5. The method of producing and filling bag-like packages of powdery or granular substance from a continuous blank roll of fabric which consists in forming from said roll a single bag tube section with a closed
10 end, filling the same through the open end, closing the top of such section and the bottom of the next, then forming another single bag tube section from the continuous blank roll and proceeding thus to successively form
15 and fill bag tube sections, said closures being effected by sewing the parts together and filling the fabric near the sewed portions with adhesive material.

20 6. The method of producing and filling bag-like packages of powdery or granular substance from a continuous blank roll of fabric which consists in forming from said roll a single bag tube section with a closed end, folding back a portion of the formed
25 tube on another portion thereof, filling the single bag tube section with the closed end through such folded tube sections, closing the top of the last section and the bottom of the next, then forming another single bag
30 tube section from the continuous blank roll and proceeding thus to successively form and fill bag tube sections, said closures being effected by sewing the parts together and filling the fabric near the sewed portions
35 with adhesive material.

7. The method of producing and filling bag-like packages of powdery or granular substance from a continuous blank roll of fabric which consists in forming from said
40 roll a single bag tube section with a closed

end, forming a tubular section above the bag tube section, filling the single bag tube section through its open end and through the tubular section, closing the top of such bag tube section and the bottom of the next section, filling the next single bag tube section, then forming a tubular section above the same from the continuous blank roll and proceeding thus to successively form and fill bag tube sections, said closure being effected
45 by sewing the parts together and filling the fabric near the sewed portions with adhesive material.

8. The method of producing and filling bag-like packages of powdery or granular
55 substance from a continuous blank roll of fabric which consists in forming from said roll a single bag tube section with a closed end, forming a tubular section above the bag tube section, folding back the tubular
60 section thereon, filling the single bag tube section through its open end and through the folded tube sections, closing the top of such bag tube section and the bottom of the next section, filling the next single bag tube
65 section, then forming a tubular section above the same from the continuous blank roll and proceeding thus to successively form and fill bag tube sections, said closures being effected by sewing the parts together and
70 filling the fabric near the sewed portions with adhesive material.

In testimony whereof, I affix my signature in the presence of two witnesses this 26th day of November 1913.

ADELMER M. BATES.

Witnesses:

GENEVA HERTH,
MINNIE M. LINDENAN.