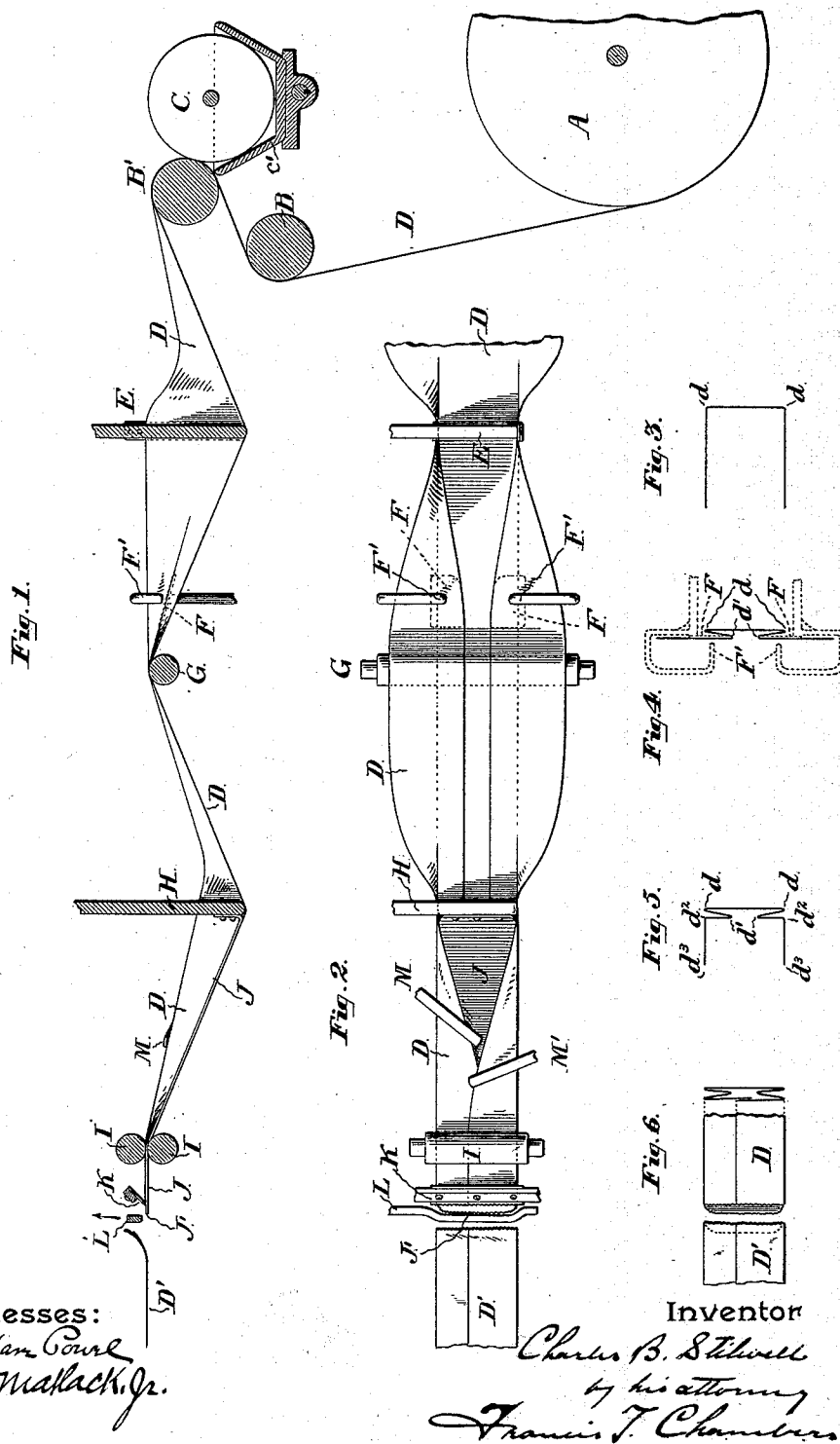


C. B. STILWELL.
PAPER BAG MACHINERY.

Patented Aug. 27 1889.



UNITED STATES PATENT OFFICE.

CHARLES B. STILWELL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
THE UNION PAPER BAG MACHINE COMPANY, OF SAME PLACE.

PAPER-BAG MACHINERY.

SPECIFICATION forming part of Letters Patent No. 410,122, dated August 27, 1889.

Application filed January 22, 1889. Serial No. 297,195. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. STILWELL, of the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Paper-Bag Machinery, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to the mechanism for forming bellows-folded bag-blanks; and my improvement consists of the combinations of devices hereinafter described, the novel features of which are clearly pointed out in the claims.

Reference is now had to the drawings which illustrate my invention, and in which—

Figure 1 shows in side elevation my improved device as adapted for forming the bellows-sided tube and severing it into blanks having a lip at one end. Fig. 2 is a plan view of the same; Fig. 3, an edge view of the paper after it has received its first foldings; Fig. 4, an end view of the devices for making the second folding, with an edge view of the paper passing through said devices; Fig. 5, an edge view of the paper after it has received the third folding, and Fig. 6 is a view showing the formation of the completed tube and the way it is severed to leave a lip at one end.

Any convenient frame-work may be used to support the operative devices shown, and the tube or blank may be delivered to any desired mechanism for completing the bag, and of course feed-rolls may be introduced at any convenient point or points to draw the paper along. Such devices, forming no essential part of my present invention, are not represented in the drawings.

A is a roll of paper; B B', guide-rolls; C, a paste-roll; C', the paste-trough; D, the web of paper.

E is a folding-bar placed in front of guide-roll B', and of a breadth equal to the breadth of the side of the tube to be formed. On this bar the creases or folds $d d$, which define the lower side of the tube, are formed as the paper is drawn under it.

F F are folding-plates, which form and define the folds or creases $d' d'$ of the tube. Preferably fingers F' F' are combined with

these plates, so as to spread out the edges of the paper, as shown.

G is a roller placed in front of the folder-plates F F, the function of which is to flatten out the folded web of paper and permanently define the creases $d d$ and $d' d'$, formed as aforesaid.

H is a folding-bar, on which the creases $d^2 d^2$ of the tube are formed as the web folded at d and d' passes under it.

M and M' are fingers for pressing down the edges $d^3 d^3$ of the web to bring the tube to final shape.

I I are pressure-rollers for pressing the pasted seam. They can also, of course, be employed to feed the tube forward.

J is a plate, which, as shown, is secured to the folder-plate H and over which the flaps or edges $d^3 d^3$ are folded. (It can of course be independently of plate H.) The purpose of this plate is to afford a cutting-edge J', on which the lower side and tucked-in portions of the tube can be severed independently of the upper side.

K is a knife on which the upper side of the tube is severed.

L is a striker, acting in connection with the cutting-edges or knives J' and K in the usual way.

D' represents a bag-blank severed from the web D. The web D is drawn from the roll A over one or more guide-rolls, and having been pasted along one edge passes beneath the folder-plate E and thence between the folders F. The combined action of these devices is to fold the web on the lines $d d$ and $d' d'$, as already explained. The paper thus folded should preferably be then drawn over a roll or bar G, in order to press out and clearly define the said folds. It next passes beneath the folder-plate H, in front of which are situated guiding devices to fold down the edges $d^3 d^3$ of the web. Fingers M M' and a pair of pressing-rolls I I are shown as familiar and well-known devices for this purpose. The action of the plate H is to fold the paper on the lines $d^2 d^2$ as it is drawn beneath it, and the edges $d^3 d^3$ are then pressed down, completing the tube, which is then severed into bag-blanks. Where the blanks are to be used for making the ordinary square bellows-folded bag now

in general use, it is necessary that one side should project over the others in a lip, and by the device of the plate J, with its knife-edge J', the knife K, and striker L, this is accomplished readily and efficiently.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a paper-bag machine, the device for forming a bellows-folded tube, which consists in a folder-plate E, for forming the folds which define the under side of the tube, in combination with folder-plates F F, for forming the bellows fold, a former-plate H, for forming the folds of the upper side of the tube, a plate J, arranged to enter the tube after it leaves former-plate H and having a knife-edge J', deflectors for turning down the edges of the paper to complete the formation of the tube, a knife K, arranged above and back of knife-edge J', and a striker L, all arranged substantially as and for the purpose specified.

2. In a paper-bag machine, the device for forming a bellows-folded tube, which consists in a folder-plate E, for forming the folds which define the under side of the tube, in

combination with folder-plates F F, for forming the bellows fold, fingers F' F', acting to turn out the edges of the paper web, a former-plate H, for forming the folds of the upper side of the tube, and deflectors for turning down the edges of the paper to complete the formation of the tube, all arranged substantially as and for the purpose specified.

3. In a paper-bag machine, the device for forming a bellows-folded tube, which consists in a folder-plate E, for forming the folds which define the under side of the tube, in combination with folder-plates F F, for forming the bellows fold, fingers F' F', acting to turn out the edges of the paper web, a roll G, for flattening the web as folded by the plates E and F F, a former-plate H, for forming the folds of the upper side of the tube, and deflectors for turning down the edges of the paper to complete the formation of the tube, all arranged substantially as and for the purpose specified.

CHAS. B. STILWELL.

Witnesses:

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