

(No Model.)

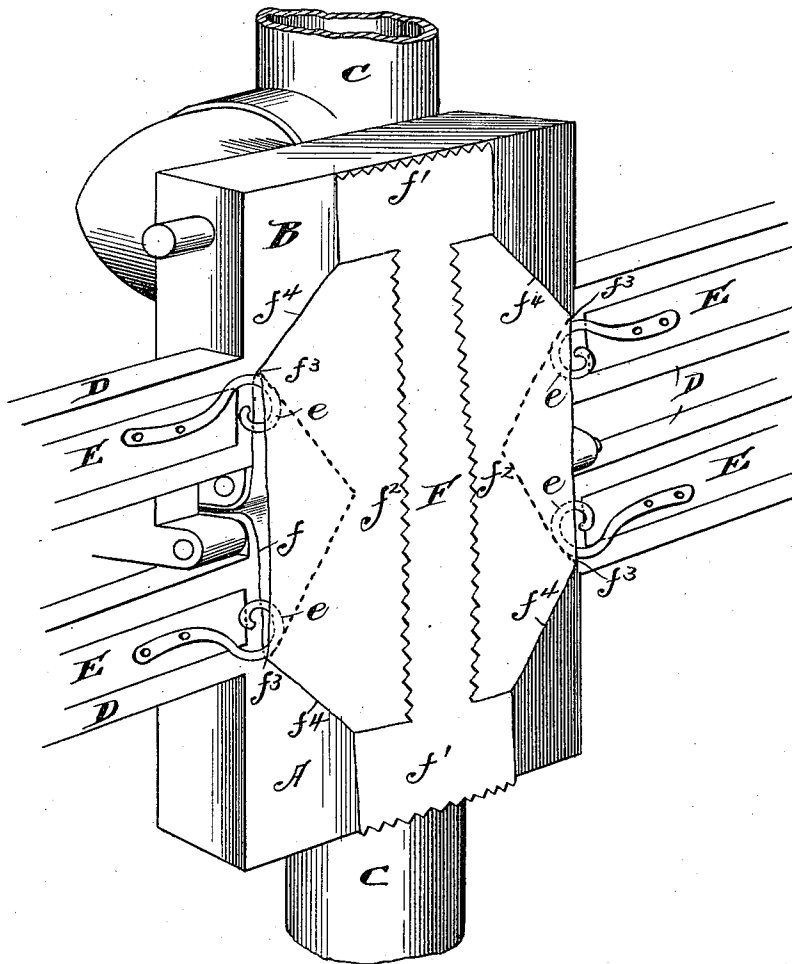
2 Sheets—Sheet 1.

S. T. MURCHIE.
PAPER BAG MACHINE.

No. 579,765.

Patented Mar. 30, 1897.

Fig. 1.



Witnesses,

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

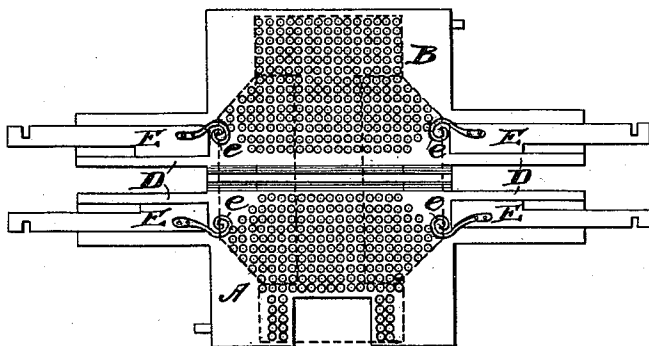


Fig. 3.

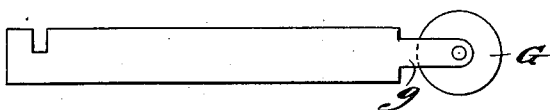


Fig. 4.

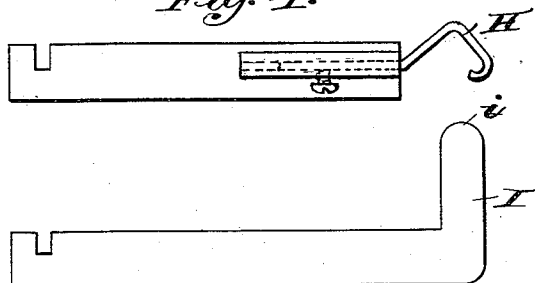


Fig. 5.

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UNITED STATES PATENT OFFICE.

SYLVANUS T. MURCHIE, OF BATAVIA, ILLINOIS, ASSIGNOR TO THE WESTERN
PAPER BAG COMPANY, OF SAME PLACE.

PAPER-BAG MACHINE.

SPECIFICATION forming part of Letters Patent No. 579,765, dated March 30, 1897.

Application filed July 13, 1895. Serial No. 555,838. (No model.)

To all whom it may concern:

Be it known that I, SYLVANUS T. MURCHIE, a citizen of the United States, residing in Batavia, county of Kane, and State of Illinois, have invented certain new and useful Improvements in Paper-Bag Machines, of which the following is a specification.

My invention relates to that class of paper-bag machines in which movable suction-boxes are employed for opening the leading ends of flat tubular blanks having tucked-in sides and for drawing in the side folds thereof. In machines of this class, a practical type of which is shown in my Patent No. 540,556, issued June 4, 1895, the only mechanical action in the formation of the folds is the holding of the edges of the blank at opposite points, so as to set and define the corners of the bottom. In my patent above mentioned there is employed, in connection with hinged suction-boxes, transversely-moving blades, which enter the bellows fold in the sides of the tube and which blades serve to define and set the corners. This is due to the fact that the suction-boxes in opening the leading end of the blank turn in the sides and thereby stretch the paper at one point of the opening movement, thus defining a fold parallel to the edges of the blank and creasing the paper in two lines meeting at the bottom of the tucked-in side or bellows fold.

My present invention has for its object to provide means for setting and defining the corners which will not be liable to tear the paper and which do not enter the bellows folds except to such a depth as to provide points over which the paper is tightly stretched. These devices are distinguished from all prior devices having the same general purpose by the fact that instead of entering the bellows fold of the tubular blank to a considerable depth they merely enter the mouth or opening of said fold. For this reason the paper is not so likely to be injured, and these parts may enter and be withdrawn with a shorter range of movement, and they present no angular surfaces to come in contact with the paper.

In the accompanying drawings I have shown several forms of my invention, all of which

have the same general feature of presenting a rounded or blunt-ended stretcher over which the paper is drawn and which enters it only a short distance.

In the drawings, Figure 1 is a perspective view showing a pair of hinged suction-boxes with the suction-pipes attached thereto and with laterally-movable stretchers composed of small wires or rods having curved ends to enter the bellows folds of the tube and attached to sliding shanks. Fig. 2 is a front elevation of the same; and Figs. 3, 4, 5, and 6 are views showing modified forms of construction.

In the drawings let A B represent suction boxes or formers of the general character described in my patent above mentioned. These formers are hollow, with their faces perforated, as shown in Fig. 2, and are provided with suction-pipes C, whereby their interiors are exhausted. They are provided with lateral extensions or supports D, on which are fitted to slide plates E, carrying stretchers *e*. Said stretchers are wires having their extremities curved and adapted to enter the bellows fold *f* of the tubular blank F. The latter is advanced by suitable feed-rolls between the faces of the suction-boxes while the latter stand in horizontal planes. By suitable mechanism these suction-boxes are then caused to swing on their hinges by a single continuous movement and by means of which the flaps *f'* and the surfaces of the paper lying over the perforations are caused to adhere to the faces of the suction-boxes. The opening movement of the latter causes the side flaps *f*² to be drawn in, thus defining the internal triangular fold (indicated by the dotted lines in Fig. 1) and the external triangular lines *f*⁴.

In order to insure the inturning of the flaps *f*², the stretchers *e* are caused to enter the bellows fold either simultaneously with the opening movement of the suction-box or at any subsequent convenient period. These stretchers, being carried with the suction-boxes, are separated as the latter open, and when the boxes are open to their widest extent the stretchers engage the corners *f*³ of the blank, and the paper is stretched tightly,

thus more sharply defining not only the in-turned triangular fold, but also the fold-lines *f*⁴.

I have not shown any mechanism for feeding the blanks or for operating the suction-boxes and stretchers, but it may be such as shown in my aforesaid patent or of any other suitable or desired form.

The forms of stretcher shown in Figs. 3, 4, and 5 are all different from that just described and from each other, but they have several characteristics in common. Thus the stretcher of Fig. 3 is in the form of a rotary disk *G*, journaled on a stem *g*, extending from sliding plate *E*. In the construction shown in Fig. 4 a bent arm *H*, which may be a small rod or round wire, serves as the stretcher. In the construction shown in Fig. 5 the stretcher and shank are constructed integrally, as in my former patent, but instead of employing a pointed blade to enter the bellows fold one end of the shank is up-turned, as at *I*, and its upper end is rounded, as at *i*. These several forms of stretchers all operate in substantially the same way; that is to say, they are caused to enter the bellows fold only to a slight distance and serve merely as points over which the paper is stretched. They are all rounded, so that they do not cut or otherwise injure the paper, and they do not mechanically break or fold the paper. While I have described these stretchers in connection with the suction-boxes of my prior

patent, they may be employed in other types of machines, and I do not therefore limit my invention to the combination of said stretchers with this exact type of machine.

Without limiting myself to the precise details of construction, I claim—

1. In a paper-bag machine of the class described, in combination with a suction-former for opening the leading end of a bellows-sided tube, of mechanical stretchers having rounded ends and adapted to be thrust into the bellows folds and to serve as points over which the paper is stretched during the formation of the bag-bottom, substantially as described.

2. In a machine of the class described, the combination with hinged suction-formers, of mechanical stretchers mounted upon and adapted to reciprocate parallel to the faces of said formers, said stretchers having rounded ends and adapted to enter the bellows fold and to set and define the corners of the bag by the stretching of the paper thereover, substantially as described.

3. In a paper-bag machine, the combination with hinged suction-formers, of stretchers consisting of wires having curved ends and sliding shanks, substantially as described.

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Witnesses:

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