

(No Model.)

W. B. PURVIS.
PAPER BAG MACHINE.

No. 420,099.

Patented Jan. 28, 1890.

FIG. 1.

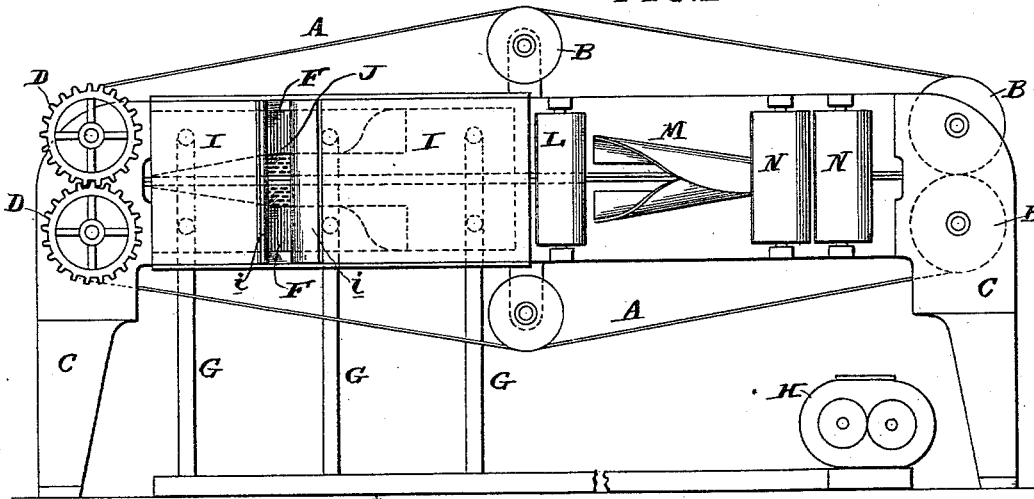


FIG. 2.

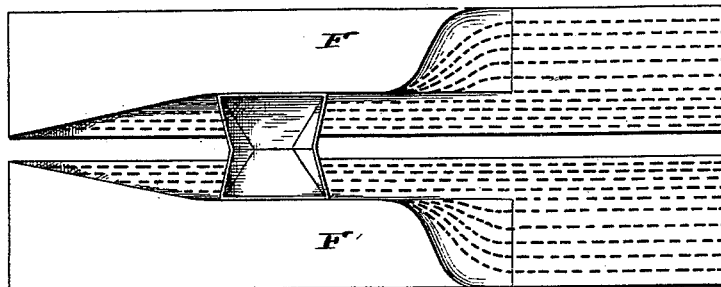


FIG. 3.

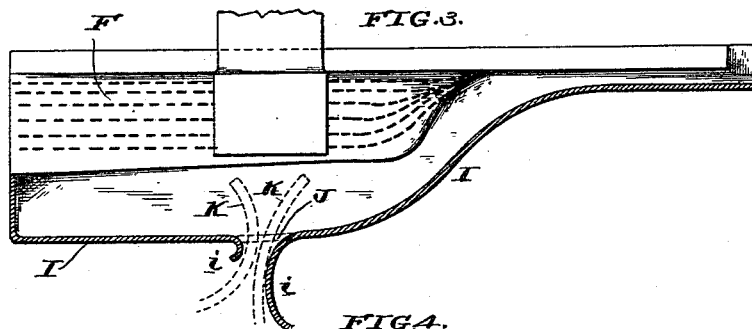
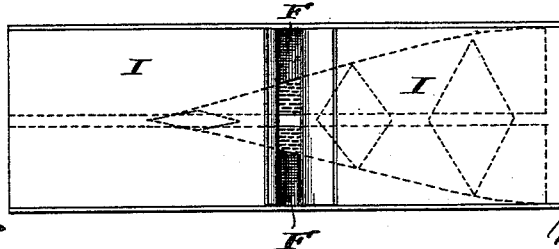


FIG. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM B. PURVIS, OF PHILADELPHIA, PENNSYLVANIA.

PAPER-BAG MACHINE.

SPECIFICATION forming part of Letters Patent No. 420,099, dated January 28, 1890.

Application filed July 15, 1889. Serial No. 317,602. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. PURVIS, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Paper-Bag Machines, of which the following is a specification.

My invention relates to paper-bag machines; and it consists of certain improvements, which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

More particularly my invention is concerned with that class of machines in which the bottom of the bag is formed upon the paper tube by means of suction devices, and relates to the means employed for guiding or directing the air-currents to these suction devices for the purpose of folding the bag into the proper shape to form the bottom.

In carrying out my invention I employ an enveloping cover or hood, which is placed over the suction devices, and is provided with an opening or openings in its face and preferably at about the center of its length, through which the air-currents are admitted to the suction devices and are divided and guided in opposite directions to assist the action of the suction devices in forming the bottom of the bag.

The particular construction of the machine employed is immaterial to the principles of my invention, which is adapted to any machine employing suction-formers to shape the bottom of the bag. The opening in the hood is preferably a transverse slit formed slightly above the center of its length, though the particular location and shape may be varied, if desired. Jets of air may also be introduced by means of tubes or pipes, which may be curved to give the proper direction to the currents.

In the drawings, Figure 1 is a side elevation of a paper-bag machine having my improved hood applied thereto. Fig. 2 is a side elevation of the detached suction-formers—such as are employed for forming a square bottom upon a bellows side-fold tube—with the hood removed. Fig. 3 is a plan view of one of the formers with the hood in section; and Fig. 4 is a side elevation of the suction-formers—such as are set out in my Letters

Patent No. 293,353—with my hood applied thereto.

A A are the endless aprons or carriers for carrying the paper tubes through the machine, guided by suitable guide wheels or rollers B B, which are supported in the main frame C and are operated by gear-wheel D D, which may be driven in any suitable manner.

F F are the suction-formers, consisting of two similar and oppositely-arranged box-shaped parts provided with perforations or holes upon their faces, through which the air is sucked through tubes or pipes G, opening into the formers F F and connecting with a fan or suction device H. The ends of the paper tubes are carried between the perforated faces of the formers F F and are drawn into the desired shape. In Figs. 1, 2, and 3 these formers are shown as constructed for forming a satchel-bottom upon a bellows side-fold tube, consisting of two similar and oppositely-arranged box-shaped portions provided with holes or perforations and having longitudinal grooves in their faces to break or form the bottom of the tube into the desired shape.

I is a hood or enveloping covering placed over the formers and preferably extending entirely over them, having an opening J formed in its length, through which the air is admitted under the hood or cover to the suction devices. This opening J, I prefer to construct in the form of a transverse slit slightly above the center of the length of the hood, and I prefer, also, to bend up or curve out the edges *i* of the hood at the opening (see Fig. 3) to assist in guiding the air. If desired, pipes or tubes K K may be employed, entering through the opening J, to introduce jets of air, as shown in dotted lines in Fig. 3. It is apparent that the size and shape of the opening J are immaterial, and, if desired, when the pipes or tubes K K are employed the hood may be formed without the slit J, and the air may be allowed to enter only through the pipes K K.

L is a pasting-roller. M is a folder, and N N are flattening-rollers for finishing the ends of the tubes after they are delivered from the formers F F.

The operation of my apparatus will now be

readily understood. The end of the paper tube is fed by the carriers A A between the formers F F, and its faces are sucked or drawn up against the perforated surfaces of the formers. This action tends to open the end of the tube, and to assist the suction-formers in accomplishing this the air, rushing through the opening or slit J, strikes upon the interior of the tube, forcing the paper open. It will be seen that while the action of the suction devices upon the upper and lower portions of the end of the tube is very powerful by reason of those portions of the paper being in contact with the perforated faces of the formers, the action upon the side portions of the paper tube is not so strong and the direct force of the air from the opening J upon the interior of these side portions is a great assistance to the suction devices in opening the end of the tube, particularly in the case of the bellows side-fold tube. It will be apparent, therefore, that to accomplish this object most effectively the opening J should be located in such a position in the hood I that it will be immediately over that portion of the formers F F where the end of the tube is to be fully opened. The sucking action exerted from the opposite ends of the formers F F will create two drafts of the air in opposite directions—that is, one current will be drawn to the upper end of the formers and another current to the lower end—and these two currents will act upon the interior of the side portions of the end of the tube, the one current upon one side portion and the other current upon the other side portion, and thus fully open the end of the tube. When the pipes K K are used, the air acts in a similar manner, the jet from one pipe K acting upon one side portion of the tube and the jet from the other pipe upon the other side portion.

The details of construction which are here shown are preferred, but they are not necessary limitations to my invention, as it is apparent that they may be varied in many ways without departing from the spirit of it, my

invention comprehending, broadly, the combination of the suction devices of a paper-bag machine with an enveloping hood or covering having an opening within its surface and at a distance from its ends for the purpose of admitting air.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a paper-bag machine, the combination, with suction-formers for forming the bottom of the bag from a paper tube, of an enveloping hood or cover extending over said suction devices and provided with an inlet for the air located at a distance from either end.

2. In a paper-bag machine, the combination, with suction-formers for forming the bottom of the bag from a paper tube, of an enveloping hood or cover extending over said suction devices and formed with a transverse slit or opening in its surface to admit currents of air to the interior, for the purpose specified.

3. In a paper-bag machine, the combination, with suction-formers for forming the bottom of the bag from a paper tube, of an enveloping hood or cover extending over said suction devices and provided with an inlet for the air, located at a distance from either end, and tubes extending through said inlet to admit jets of air to the interior, substantially as and for the purpose specified.

4. In a paper-bag machine, the combination, with suction-formers for forming the bottom of the bag from a paper tube, of an enveloping hood or cover extending over said suction devices, formed with a transverse slit or opening in its surface to admit currents of air to the interior and having its edges at said slit curved or bent outward, for the purpose specified.

In testimony of which invention I have hereunto set my hand.

WILLIAM B. PURVIS.

Witnesses:

ERNEST HOWARD HUNTER,
S. T. YERKES.