(Model.)

D. APPEL.

Tube-Machine.

No. 228,162. Patented June 1, 1880.

Fig. 1.

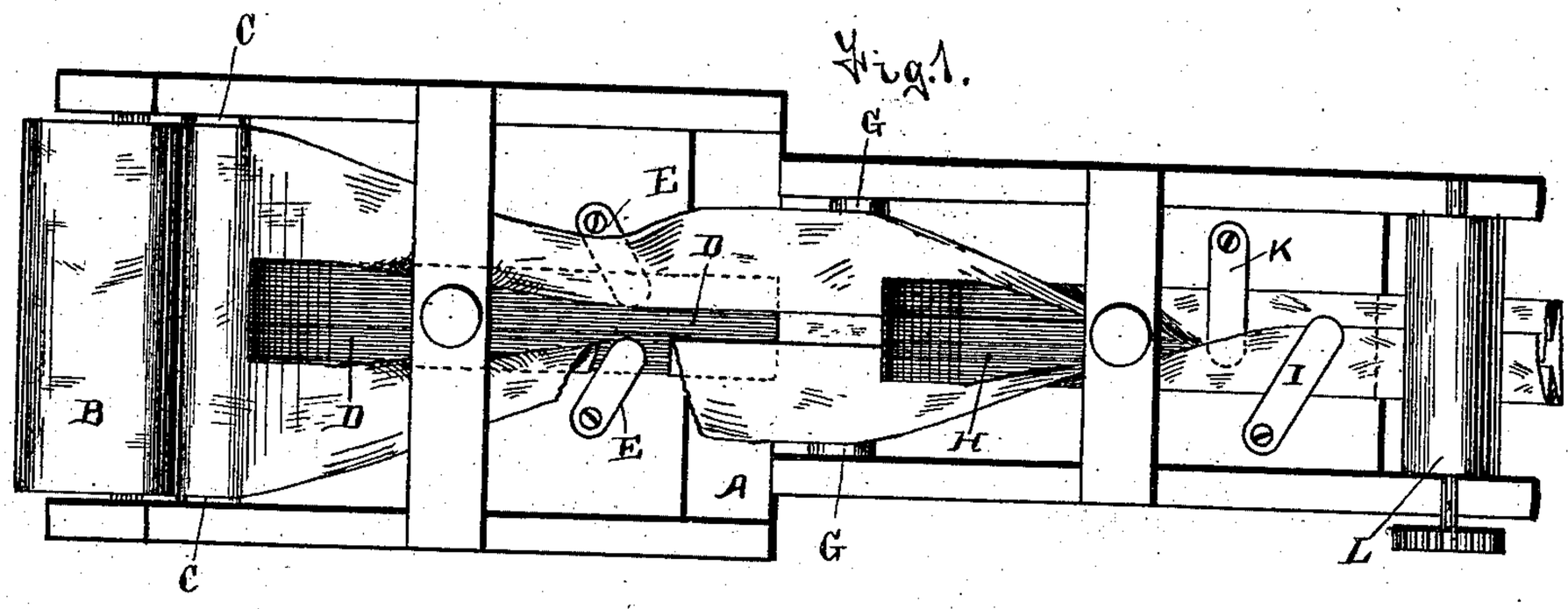


Fig. 2.

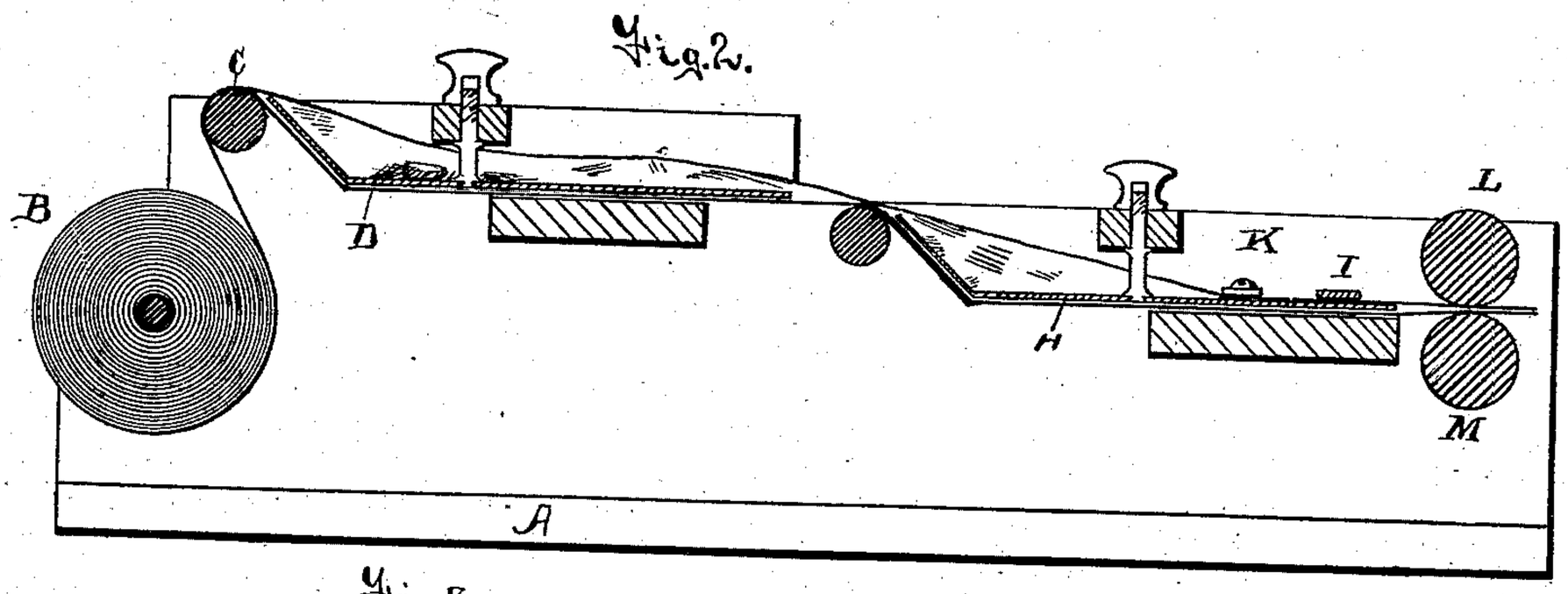


Fig. 3.

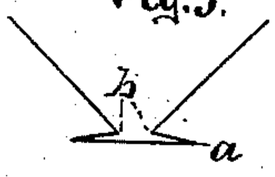
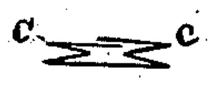


Fig. 4.



WITNESSES

Frank M. Fabor.

Willard Fracker.

INVENTOR

Daniel Appel.

By Dodgett & Dodgett ATTORNEY

UNITED STATES PATENT OFFICE.

DANIEL APPEL, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO NEWTON W. TAYLOR, OF SAME PLACE.

TUBE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 228,162, dated June 1, 1880.

Application filed March 23, 1880. (Model.)

To all whom it may concern:

Be it known that I, DANIEL APPEL, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Devices for Making Plicated Tubes for Paper Bags; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to paper-bag machinery, and more particularly to that portion of said machinery devoted to the formation of the tube from which the bag is subsequently formed; and it consists in forming a plicated tube by means of passing the same over two separate formers, during which operation the paper is held to the edge of the formers by means of guides.

In the drawings, Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a longitudinal vertical sectional view of the same. Fig. 3 is a sectional view of the tube after it has passed the first former. Fig. 4 is the same view of the tube after it has passed the second former and is completed with the exception of being united by paste.

In the said drawings, A represents a frame adapted to contain the operative parts of my device. B represents a roll of paper. C represents a guide-roll, situated above the roll of paper and near the terminus of the first former.

D represents the first former. This former consists of a plain surface adapted to rest upon the body of the machine, and of a width corresponding to that of the width of the tube required, and of sufficient length to complete the formation of the first fold of the tube. It is constructed in two parts, the first lying parallel and resting upon the body of the machine, upon the top of the paper, its second part consisting of an angular portion that terminates at or near the guide-roll C. The whole may be held in position in any suitable manner. As shown in the drawings, I connect it to the cross-piece of the machine, from which it is suspended.

E and F represent guides that hold the paper upon the outer edges of the former, and also make the center fold of the plication.

G is a second guide-roll, situated beyond the terminus of the first former, and over which the paper passes before it reaches the second former, H. This second former, H, is constructed substantially in the same manner as the first former, D. It also has its guides I and K, that hold the paper upon the former H, by means of which the last fold is marked or creased.

L and M are feed-rolls, between which the tube, after being formed, passes, and by means of which the paper is drawn from the roll B over the formers and through the guides.

The operation of my device is as follows: A roll of paper of any suitable length and of a width required to form the sized bag desired is placed in position, as shown in Fig. 2 at B. The end of the paper is drawn over the guide-roll C, passed under the former D, the guides E and F are turned in place, which causes the fold *a* in Fig. 3 to be made, and at the same time there is made, by the pressure of the ends of the former upon the advancing web of paper, the fold *b*, which is the central fold of the plication. Being thus formed, the paper is carried over the second guide-roll, G, under the second former, H, where it passes under the former having its first or lower folds completed. The last fold, *c*, as shown in Fig. 4, is made by the guides I and K pressing the paper upon the edge of the former. From thence it passes between the feed-rolls L and M, from whence it is taken to the mechanism by which the bottom folds of the bag are made and the bag severed from the tube following.

Paste may be applied at any step in the process, either as the paper is taken from the roll B, or at any other convenient point before it reaches the feed-rolls L and M. I prefer to apply it at or near the guide-roll C.

I have found by experiment that it is immaterial the position my formers D and H occupy—that is, whether the longer portion of the formers rests upon the bed of the machine or whether the formers, as shown in the draw-

ings, are inverted with the angle portion upward, the result will be substantially the same.

What I claim is—

1. In a tube-machine, the combination, with one former and guides, which form the first and second side folds in a bellows-sided tube, of a second former, located in a different plane from the first former and made independent thereof, and lateral guides which form the third side folds, substantially as set forth.

2. In a tube-machine, the combination, with one former and guides, which form the first and second side folds in a bellows-sided tube, of a second former made independent of the first former and located in a different plane therefrom, guides which form the third side folds, and a supporting device located between the two formers, and on which the web has lateral bearing as it passes from the first to the second former, substantially as set forth.

3. In a tube-machine, the combination, with one former and guides, which form the first and second side folds in a bellows-sided tube, of a second former made independent of the first former and located in a plane below the same, guides which form the third side folds, and a roller located between the two formers, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL APPEL.

Witnesses:

JNO. CROWELL, Jr.,

WILLARD FRAACKER.