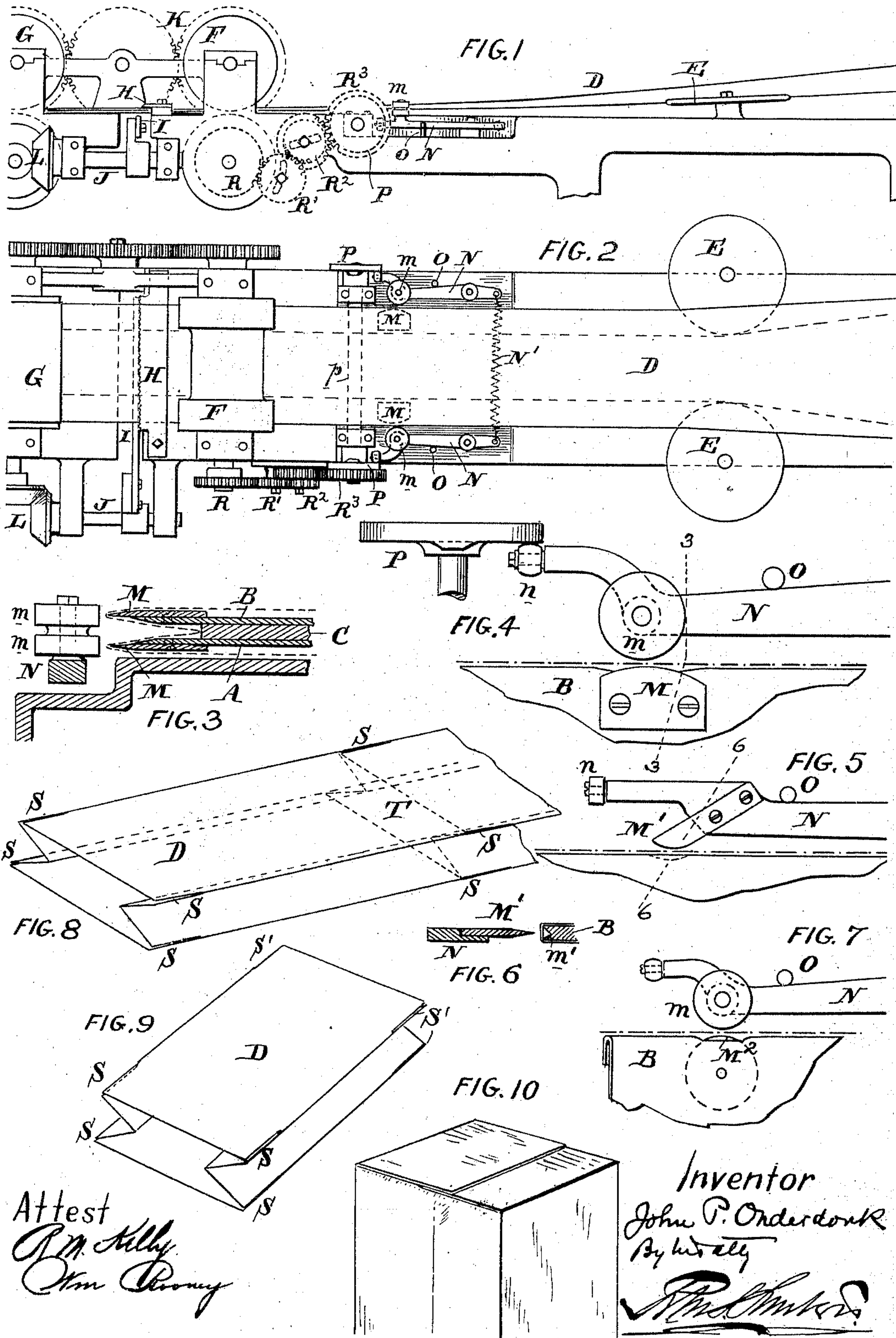


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PATENTED MAY 17, 1904.

J. P. ONDERDONK.  
PAPER BAG MACHINE.  
APPLICATION FILED DEC. 18, 1902.

NO MODEL.



Attest  
*R. M. Kelly*  
*John P. Onderdonk*

Inventor  
*John P. Onderdonk*  
By *W. H. Kelly*  
*W. H. Kelly*



# UNITED STATES PATENT OFFICE.

JOHN P. ONDERDONK, OF PHILADELPHIA, PENNSYLVANIA.

## PAPER-BAG MACHINE.

SPECIFICATION forming part of Letters Patent No. 760,013, dated May 17, 1904.

Application filed December 18, 1902. Serial No. 135,810. (No model.)

*To all whom it may concern:*

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

My invention has reference 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.

The object of my invention is to provide means in a paper-bag machine which shall cause the tube to be slit or cut longitudinally at intervals, so that when subsequently severed transversely into bag lengths one or both ends shall have four loose flaps or tongues, each extending from corner to corner. My invention is applicable equally well to bellows side fold tubes and plain tubes. When the parts or ends constituting the corners are slit or cut in this way, the paper may be folded to form a square end and perfectly seal the end of the tube, whether it be the bottom or mouth of the bag, or both, as desired.

In carrying out my invention in its preferred form I provide any suitable paper-bag machine with means for cutting or slitting the paper where it is bent over the side edges of the former, the said cutting or slitting means being adapted to operate intermittently, so that the cuts or slits shall extend only over the desired length of the tube to insure the said cuts or slits to come at one or both ends of the bag, as may be desired.

My invention also comprehends many details of construction which, together with the above features, will be better understood by reference to the drawings, in which—

Figure 1 is a side elevation of a portion of a paper-bag machine embodying my improvements. Fig. 2 is a plan view of the same. Fig. 3 is a cross-section of the former and cutters on line 3 3 of Fig. 4. Fig. 4 is a plan view of the cutting or slitting devices of the former. Fig. 5 is a similar view showing a modification. Fig. 6 is a cross-section of Fig. 5 on line 6 6. Fig. 7 is a plan view of a modified form of cutting or slitting device. Fig. 8 is a perspective view of a portion of the paper

tube. Fig. 9 is a perspective view of a bag length of paper tube slit as in accordance with my invention, and Fig. 10 is a perspective view of the bag when folded.

A is the lower portion or plate of the former, and B is the upper portion, and these are secured together by part C, of less width than the parts A and B, so as to leave a recess between the parts A A on each side, into which the bellows fold of the paper tube D is received. The paper tube D may be formed in any well-known manner and have the bellows folds formed by causing the paper to be drawn against the creasing-rolls E, interposed between the upper and lower plates A B of the former. F and G are feeding-rolls for the tube and are geared together, as at K. Intermediate of these feeding-rolls F and G is the transverse cutting-blade I for dividing the tube into bag lengths. This blade I is rotated by a shaft J and in rising under the paper presses the lower layer against a serrated edge of the former A and the upper layer against a serrated cutter H. The shaft J is geared to the feed-rollers F by gears L, so as to have its movements timed. All of these parts or their equivalents are found in bellows side fold paper-bag machines and also in machines making plain tubes, and hence are shown for illustration only and to more clearly indicate and define the nature of my improvements.

The former-plates A and B in advance of the feeding-rollers F are provided with knives or cutters M M, against which the paper is pressed by the pressure-rolls m. These pressure-rolls are journaled upon the end of pivoted arms N, whose outward movement is limited by stops O and caused by a spring N'. The arms N may be oscillated in any suitable manner so long as the oscillations are properly timed with the transverse cutter I for the tube. As shown, the arms N carry on their ends rollers n, which rest against cam-wheels P P, secured to a rotating shaft p. Each revolution of this shaft causes the arms N to be oscillated. The revolution of shaft p is produced by gears R R' R<sup>2</sup> R<sup>3</sup>, connecting said shaft with the shaft of the feed-rollers F. By changing the size of gears R<sup>2</sup> R<sup>3</sup> and adjusting gear R' the speed of shaft p



may be varied relatively to the speed of the feed-roller F, and consequently the distance apart of the successive cutting or slitting may be regulated to suit the requirements. By  
 5 the shape of the cam parts of the cam-wheels P the length of the cut or slit may be governed.

It will now be seen that as the paper tube is fed forward the lateral edges of the tube  
 10 are cut or split at intervals by the pressure of the rollers *m* upon the paper, and thereby the pressure of the paper upon the cutting-blades M. The tube D will then have the appearance of what is shown in Fig. 8, in which S  
 15 represents the cuts or slits. The dotted line T represents the transverse line of cutting or severance of the tube to constitute bag lengths. To insure the proper transverse cutting, there is of necessity a proper timing  
 20 of the cutting mechanism M *m* and the cutter I, and it is wholly immaterial to my invention what the special form of the devices are which secures such timing, that shown being by way of illustration only. It will be also seen  
 25 that by mere adjustment of the relative time of action of the cutter I or cutting mechanism M *m* the transverse line of severance may be made to come in the middle of the cuts or  
 30 slits S, in which case the two ends of the bag-section will have its corners cut or slit, as shown in Fig. 9. In Fig. 8 I have shown the line of transverse cutting to come at one end of the cuts or slits S, and such cuts or slits may be made to come on the bottom or mouth  
 35 of the finished bag, as desired, to accomplish which relative adjustment of the parts alone is necessary.

In place of arranging the cutting-blades inside the tubes and on the former they may  
 40 be arranged on the outside and secured to the arms N in place of the rollers *m*. This is shown in Figs. 5 and 6, in which M' is the cutter or knife and *m'* a depression or groove in the lateral edge of the former to receive  
 45 the cutting edge of the knife. In Fig. 7 I have shown the cutter in form of a disk M<sup>2</sup>, journaled in the edge of the former. Any other form of cutter for the purpose of cutting or slitting the tube at intervals in its  
 50 length may be employed in lieu of those shown.

My invention is equally applicable to those forms of tubes in which there is no bellows side folds, and it is immaterial to my inven-  
 55 tion, broadly considered, whether or not the four cuts or slits longitudinally of the body come at the edges of the former, as the essen-

tial feature is the means for cutting or slitting the tube lengthwise at intervals with transverse severing devices to cut the tube  
 60 transversely upon the longitudinal cuts or slits and in which the latter are so located in the tube as to come at the corners thereof in forming the bag to constitute overlapping  
 65 tongues adapted to form a seal at bottom or mouth, or both, as preferred, such a seal being shown in Fig. 10. I therefore do not confine myself to the details of construction shown, as they may be modified in various ways without departing from the spirit of my invention.  
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What I claim as new, and desire to secure by Letters Patent, is—

1. In a paper-bag machine, the combination of a former with a groove on each side over which the paper is fed and formed into a bel-  
 75 lows side fold tube and by which two lateral longitudinal side folds are produced, with means arranged adjacent to the lateral edges of the former and movable laterally to and from and in the plane of the former for cut-  
 80 ting the said longitudinal folds of the paper tube on the creases at intervals in the length and also in the direction of the length of the tube.

2. In a paper-bag machine, the combination  
 85 of a former over which the paper tube is fed, cutters arranged adjacent to and coacting with the opposite edges of the former, oppositely-acting pressure devices for pressing the folded edges of the paper tube against the cutters  
 90 during its travel to produce slits therein, and means for intermittently operating the pressure devices to cause the cutting of the paper at intervals.

3. In a paper-bag machine, the combination  
 95 of a former presenting four lateral edges in pairs over which the paper tube is fed with bellows side folds, fixed cutters arranged adjacent to and in line with the opposite edges of the former, oppositely horizontally acting  
 100 pressure devices consisting of rollers for pressing the folded edges of the paper tube against the cutters during its travel to produce slits therein, and means for intermittently operating the pressure devices consisting of oppo-  
 105 sitely-acting movable carriers for the rollers and cams to operate the carriers to cause the cutting of the paper at intervals.

In testimony of which invention I hereunto set my hand.

JNO. P. ONDERDONK.

Witnesses:

R. M. KELLY,  
 M. J. EYRE.