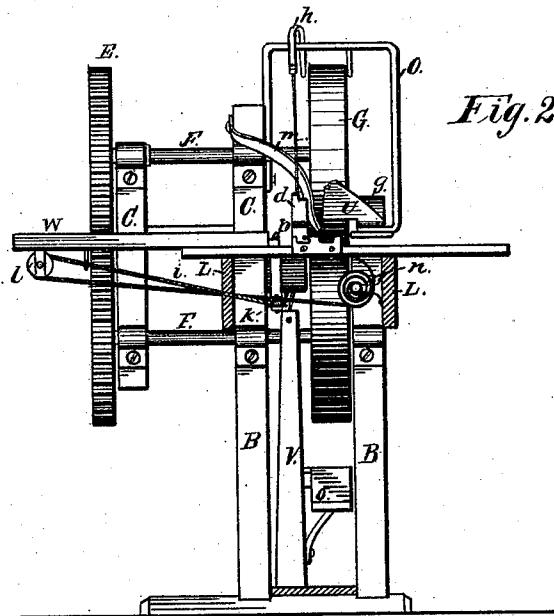
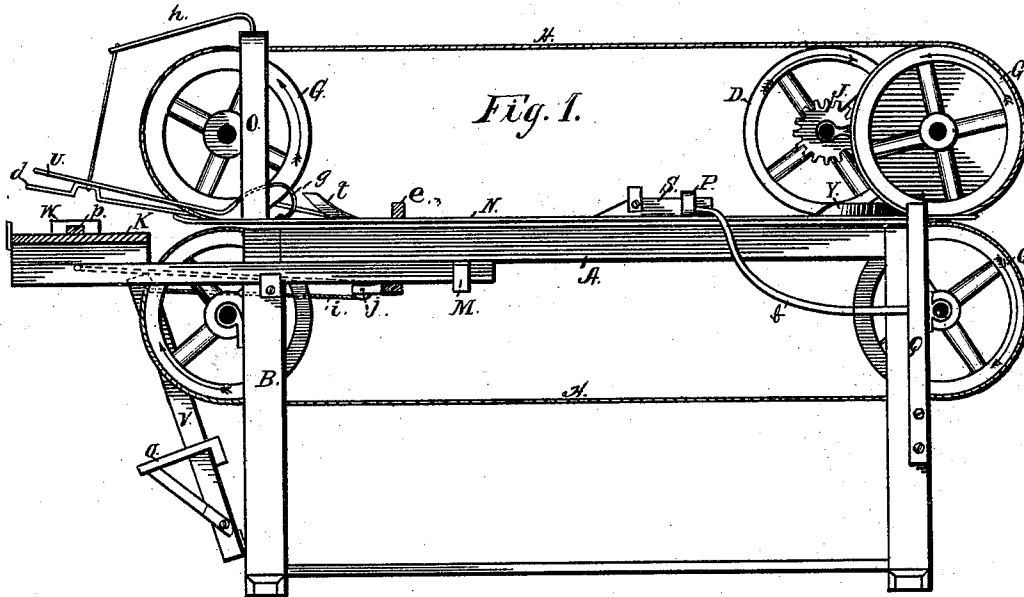


J. H. BALSLEY.
PAPER-BAG MACHINE.

No. 177,787.

Patented May 23, 1876.



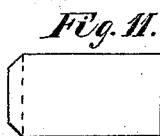
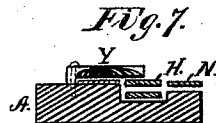
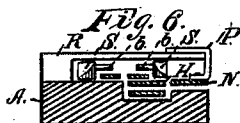
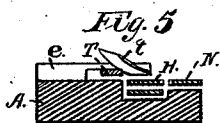
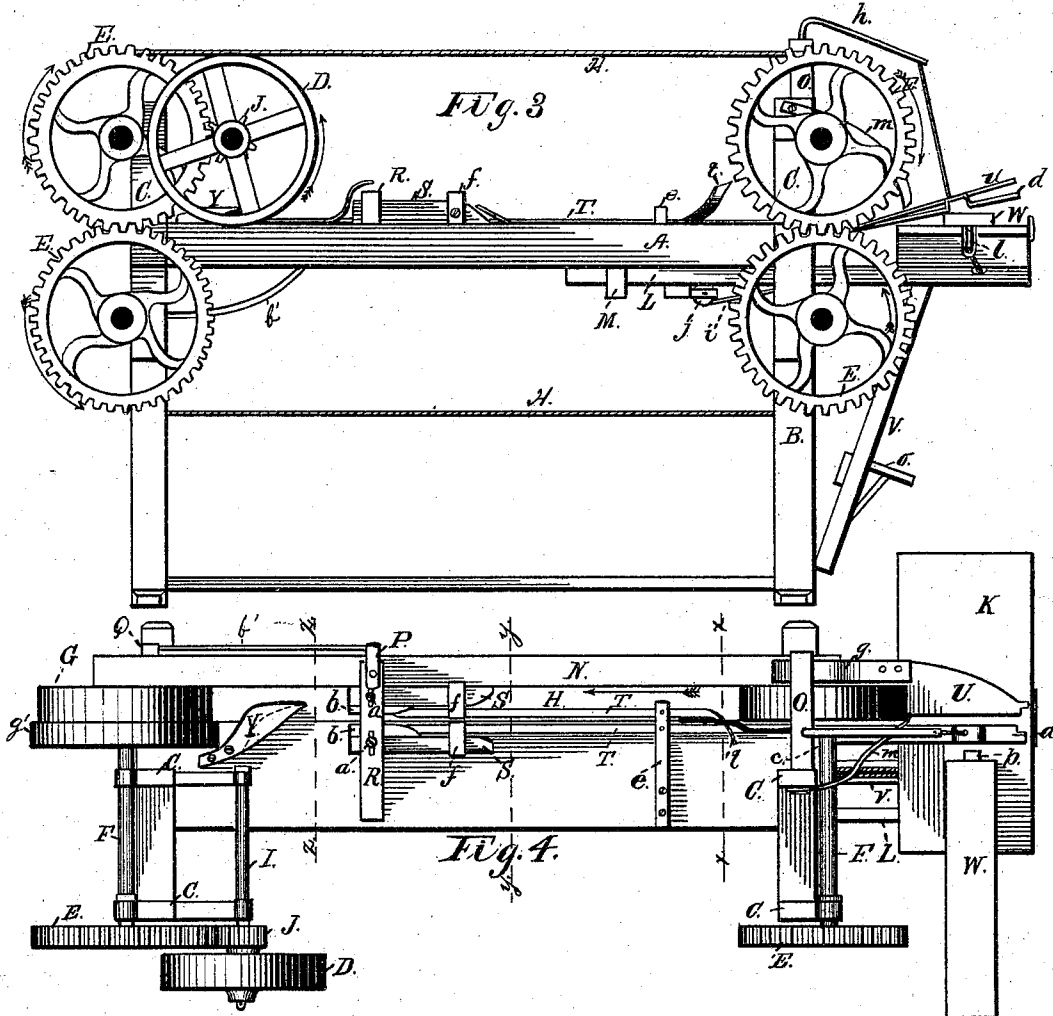
Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN H. BALSLEY, OF DAYTON, OHIO, ASSIGNOR TO ELIJA KUHNS AND ALLEN J. KUHNS, OF SAME PLACE.

IMPROVEMENT IN PAPER-BAG MACHINES.

Specification forming part of Letters Patent No. 177,787, dated May 23, 1876; application filed January 29, 1876.

To all whom it may concern:

Be it known that I, JOHN H. BALSLEY, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Machines for Forming the Bottoms of Paper Bags; and I do hereby declare the following to be a full, clear, and exact description of the same.

The following invention relates to that class of machines in which what is known as a satchel-bottomed bag is automatically formed from a flattened tube of paper cut to the requisite lengths.

The object of the invention is to fold and press the bottom of the bag while passing continuously through the machine; and my improvements consist in the arrangement, upon a durable frame-work and table, of two feeding and carrying belts, actuated by pulleys journaled one pair directly above the other, and receiving motion from a driving-pulley and connecting-gearing; also, in the combination, with the belts and table, of sets of turners and formers, by which the bottom is given the requisite folds and shape; also, in the feeding mechanism by which the first fold is made just previous to submitting the bag to the carrying-belts, all as will be herein described, and the invention distinctly pointed out in the claims.

To enable others skilled in the art to which this invention appertains to make and use the same, its construction and operation may be described as follows:

Reference throughout is had to the accompanying drawings, in which Figure 1, Sheet 1, is a side elevation of the invention. Fig. 2, Sheet 1, is a front-end elevation of the same. Fig. 3, Sheet 2, is a side elevation, opposite that represented in Fig. 1. Fig. 4 is a plan view of the same. Figs. 5, 6, and 7 are sectional views of the table and operating devices taken through the lines *xx*, *yy*, and *zz*, respectively. Figs. 8, 9, 10, and 11 represent the manner in which the folds are made in the bottom of the bag.

Corresponding letters of reference indicate like parts in all the figures.

A is a table, mounted upon any suitable and durable frame-work, B, which also gives sup-

port to the laterally-extending beams C that serve as bearings for the shafts F, of which there are four, two at each end of the table, directly over each other. Keyed to the inner ends of these shafts are four pulleys, G, connected by two belts, H, which, as the pulleys revolve, lie in a slot or groove that extends the entire length of the table upon its upper surface, and near one edge, as represented in the cross-section of the table, Fig. 5. Upon the outer ends of the shafts F are keyed the gear-wheels E that engage each other, as represented in Fig. 3. D is the driving-pulley keyed upon the shaft I that is journaled in bearings secured to the beams C, and from which motion is imparted to the machine by means of the pinion J, which engages one of the gear-wheels E. At the front end of the machine is the feeding-table K, supported upon the beams L that slide in mortises in a cross-beam, M, secured to the under side of the table A. Running the length of the table upon its upper side, and at the edge, is a metal strip, N, raised just above the surface of the table and supported by the metallic brace O, Figs. 1 and 2; P, Figs. 1, 4, and 6; and the end piece Q, Fig. 1 and 4. The inner edges of the upper belt H, and of this strip are coincident, as seen in Figs. 4 and 5. R represents a wooden brace or support, secured upon the table A, about one-third the distance from its rear end. This brace extends above the table transversely, as seen in Fig. 6. To the under side of it two wooden pieces, S, (seen in plan view in Fig. 4 and in sectional view, Fig. 6,) are clamped by screws *a* in slots in the piece R, so arranged that the pieces S can be adjusted to suit the size of the desired fold. T T are two narrow ribbon-like strips of metal that, proceeding from the pieces *b*, lie one on the belt, the other on the table A side by side, and extend to the front of the machine, where the one on the belt is bent up and sidewise, as seen in Figs. 1, 3, and 4, while the other continues in a straight line to the front edge of the table, where it is bent up under the bearing *c*, Fig. 2, to which the spring clamping-holder *d* is hinged. These strips are secured to the cross-piece *e*, screwed upon the table, and to the bent metal pieces *f*, that are

ached to the folders S. U is a thin sheet metal situated over the table K, in front of the pulley G, Fig. 4, and riveted to the spring that is secured to the strip N, Fig. 1.

The clamp *d* is connected by a wire to a ring, *h*, secured in the top of the piece O. *h* is a lever, hinged to the bottom part of the frame-work, under the table K. To its upper end is attached a cord, *i*, that, extending under the table A, passes over a pulley, *j*, returns, and passes over a pulley, *k*, Fig. 2, thence laterally through an opening in the frame L over a third pulley, *l*, Figs. 2 and 3, turning again through the same orifice, and attached to a pulley, *m*, Fig. 2, that is held by a volute spring, *n*. The lever V has a treadle, *o*, secured to it. W represents the laterally-extending bearing, secured upon the table K, in a groove on the under side of which the folder *p* works. This folder is a straight slip of wood with a pendent stud, to which the cord *i* is secured, as represented in Fig. 3, so that, by pressing upon the treadle *o*, this folder *p* is thrust forward upon the table, to make the first fold. This is done by the attendant placing the flattened tube of paper, to the requisite length, upon the table K, with the center of one of its cut edges touching the folder *p*. The shield U is then pressed down upon the paper, and the treadle *o* pressed down, causing the folder *p* to advance between the lips of the paper tube. As it advances it comes upon the upper side of the tube, raising and pressing it over the edge of the shield which serves as a gage to indicate where the central fold is to be made, and, as it passes, the fold represented in Fig. 8 is made. The attendant then removes his foot from the treadle *o*. The folder, being withdrawn by the spring *n*, presses down the holder *d* upon the treadle, at the same time releasing the gage U and sliding the feeding-table up to the table A. As the gage U is raised by means of its spring *g* that part of the fold that lies upon the table is turned up, and as the tube is given to the motion of the first pair of pulleys, G, it is caught by the guard *m*, and passes along the side of the upper pulley in a line at right angles to the line of the rest of the tube, which passes between the belts and under the strip N. Having passed from under the pulleys, the upright portion of the fold is caught by the raised and flanged portion *t* of the strip T, which turns it over and flattens it upon the belt H. The belts continue to carry the tube in the position indicated by the arrows, Fig. 4, until the folders S are reached, which raise the upper portion of the fold in the manner indicated in Fig. 9. The next fold is made by the pieces

b, which turn down the last fold, one overlapping the other, as represented by the dotted lines, Fig. 9. The final fold is made by the piece *y*, which, as the tube travels, raises the right-hand fold to the position indicated by the dotted lines, Fig. 10, and turns it over and down upon the other fold, as shown in Fig. 10. Leaving this folder the tube passes under the pulleys G, the upper one of which has a flanged portion, *g'*, that revolves upon the table, and presses the folds made in the tube. That portion of the tube extending beyond the strip N is turned down by a guard-rod, *b'*, fastened at one end to the piece P, and at the other to the piece Q, which, at its upper end, is at a sufficient distance from the frame to allow the passage between them of the tube, which is delivered into any suitable receptacle, and having the appearance indicated in Fig. 11.

Having thus fully described this invention, it is desired to claim as new, and to secure by Letters Patent, what follows:

1. In combination with the folding-table A, the feeding-table K, arranged to slide in and out at its front end, substantially as described, the folder *p*, and the actuating-treadle lever V, as and for the purpose specified.

2. The folder *p*, arranged in the bearing W upon the table K, and actuated by means of the treadle-lever V, to which it is connected by the cord *i* passing over the pulleys *j*, *k*, and *l*, and held in position by the spring *n*, substantially as described.

3. The combination of the gage U, holder *d*, table K, folder *p*, and a pair of belts, H, arranged upon the pulleys G, in the manner and for the purpose specified.

4. In combination with the table A, provided with a longitudinal slot throughout its entire length, the horizontal belts H, arranged with reference to it, substantially as described, and the strip N, supported by the bracket O in such manner that its inner edge shall be contiguous to the edge of the upper belt, in the manner and for the purpose specified.

5. The combination, with the horizontal belts H and strip N, of the flattening-folder T, the overlapping-folders *b* and S, the turning-over folder Y, and the compressing flanged pulley G *g'*, when constructed and arranged upon the table A, in the manner and for the purpose specified.

Witness my hand this 25th day of January, A. D. 1876.

JOHN H. BALSLEY.

Witnesses:

CHAS. M. PECK,
WM. RITCHIE.