C. H. Morgan.

Paper Bag Mach.

No 37,726. Patented Feb 17. 1863.

Fig 1.

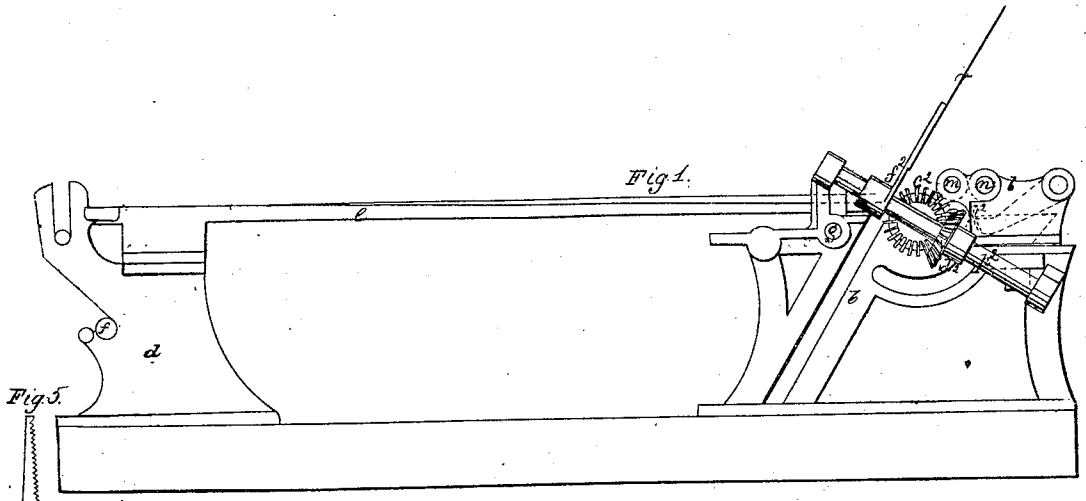


Fig 5.

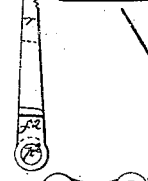


Fig 4.

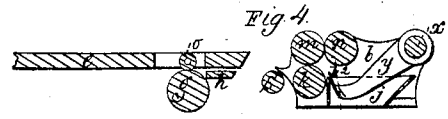


Fig 2.

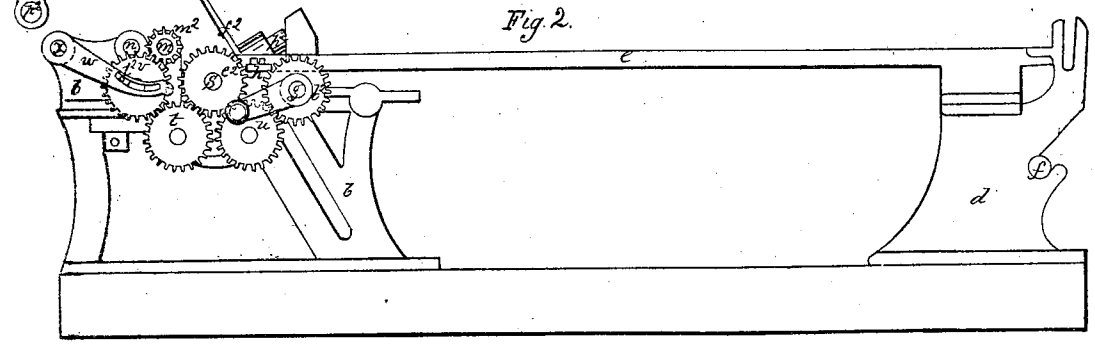
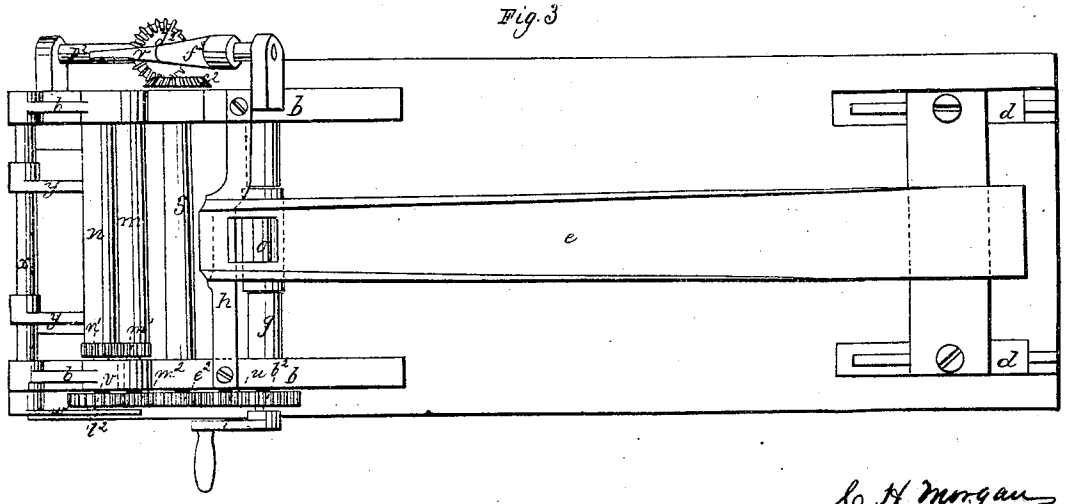


Fig 3



Witnesses

J. W. Coombs

Washington

C. H. Morgan

per Munn & Co

Attorneys

UNITED STATES PATENT OFFICE.

CHARLES H. MORGAN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN PAPER-BAG MACHINES.

Specification forming part of Letters Patent No. **37,726**, dated February 17, 1863.

To all whom it may concern:

Be it known that I, CHARLES H. MORGAN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, (formerly of Clinton, in the county of Worcester and State of Massachusetts,) have invented certain new and useful Improvements in Paper-Bag Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figures 1 and 2 are opposite side elevations of a machine with my improvements. Fig. 3 is a plan of the same. Fig. 4 is a central longitudinal vertical section of part of the machine. Fig. 5 is a face view of the knife for cutting the bags from the roll of paper, and an end view of its shaft.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to that class of paper-bag machines which form the paper from a roll or continuous sheet into a flattened tube before cutting it in proper lengths to form the bags, such machines constituting the subject-matter of Letters Patent granted to B. F. Rice, April 28, 1857, and reissued March 6, 1860.

The improvements consist in so organizing the severing or cutting-off blade and its operating mechanism, in connection with the feed-rolls and tube-supporting bar, as to admit of a constant instead of an intermittent or variable movement of the feed-rolls; also, in improved mechanism for pasting and folding the bottom of the bag, part of which mechanism also serves to hold the tube while being severed, such improvements simplifying the machine and greatly facilitating the manufacture of bags.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

d d are the standards which support the tube-supporting bar *e*, and contain bearings for the shaft *f*.

o g are the feed-rolls, of which *o* has its bearings in the bar *e*, and derives motion from *g*, the latter having its bearings in two standards, *b b*, and constituting also the main shaft of the machine. The roll of paper is placed on the shaft *f*, and is progressively bent or folded around the bar *e* by means of guides as it is drawn forward by the feed-rolls *o g*, and the paper, on reaching the feed-rolls, has been folded and had its edges pasted together, making a complete tube flattened nearly together.

The tube-making mechanism which I have thus far described is the same as is fully described in the specification of the aforesaid Letters Patent of B. F. Rice, except that the feed-rollers *o g* have a constant motion. In Rice's machine the feed-rolls have an intermittent or variable motion given them by a complex combination of cog-wheels, links, and a crank, whereby the paper is caused to stop or nearly stop, not only while the severance or cutting off of the portion of the tube to form the bag is performed, but while the cutting-off blade is retreating, whereas in this machine the blade does not retreat, but revolves with a constant motion, and is so arranged as to describe so slight an angle of its revolution while cutting off the tube that the tube is not sensibly impeded in its progress, but allowed to be fed forward constantly by the feed-rolls. I will now proceed to describe these parts of the machine in detail.

b^2 is a spur-gear on the shaft *g*, gearing through a stud-gear, *u*, attached to one of the standards *b b*, with a spur-gear, e^2, on a shaft, *s*, arranged parallel with *g* in bearings in the standards *b b*, and thereby driving the said shaft *s*, at the opposite end of which is a miter-gear, c^2, engaging with a miter-gear, d^2, on the cutter-shaft p^2, and thereby imparting to the latter a constant rotary motion. The said shaft p^2 has secured to it an arm, f^2, carrying the cutting-blade *r*, and it is arranged in fixed bearings at one side of the machine, with its axis in a plane perpendicular to the axes of the feed-rolls, but at such an inclination that the plane of revolution of the blade shall be at such an angle with the tube-supporting bar as to sever the tube of paper, with overlapping ends of sufficient length for the bottom of the bag. The end of the bar *e* forms a fixed blade, against which the upper half of the tube is severed, and below it is the fixed blade *h*, against which the lower half is severed. Just before the tube is cut it is seized by a pair of rolls, *m k*, which hold it while it is being cut. These rolls are arranged one above the other parallel with the feed-rolls, and are geared together, and with a third roll, *n*, arranged par-

allel with them in front of the roll m, by gears m' n', and all have their bearings fixed, except so far as it may be necessary for k and n to move toward and from m to enable them to adapt themselves to different thicknesses of paper. The said rolls derive a constant rotary motion from the gear e^2 on the shaft s, through two stud gears, t and v, of similar size to e^2, attached to the framing, the latter gearing with a spur gear, m^2, on the roller m. The pair of rolls m k project the severed portion of the tube over the edge of a blade, k^2, a sufficient distance to form the bottom lap, when the said blade simultaneously pastes and folds the lap by pressing it between the rolls m n, which seize the bag, press the lap together, and discharge the bag from the machine. The said blade takes the paste from a stationary box, j, arranged under the roll n, and is operated to perform the folding of one bag and take a fresh supply of paste for the succeeding one by being attached to the arms y y of a rock-shaft, x, which is arranged in fixed bearings and derives the necessary motion from a crank-pin, l^2, attached to the gear v, such crank-pin working in a slotted arm, w, secured to the said shaft. It may be observed that the above-described mechanism for folding and pasting the bottom of the bag operates without any such oscillating movement of the folding-rolls as is given in Rice's machine.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The machine, as a whole, composed of elements combined, arranged, and operating substantially as herein set forth.

2. The use of constantly-moving feed-rolls, acting in combination with a tube-supporting bar, substantially as set forth.

3. The use of a revolving blade acting in combination with a tube-supporting bar to sever portions of tube with overlapping ends, substantially as herein set forth.

4. The use of rolls to hold the tube while being cut off, and to act in combination with a pasting and folding blade in forming the bottom of the bag, substantially as set forth.

CHAS. H. MORGAN.

Witnesses:

M. M. LIVINGSTON,

LEWIS A. TUCKER.