2 Sheets—Sheet 1.

J. P. RAYMOND.

PAPER BAG MACHINE.

No. 190,619. Patented May 8, 1877.

Fig. 2

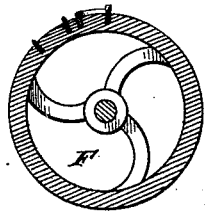
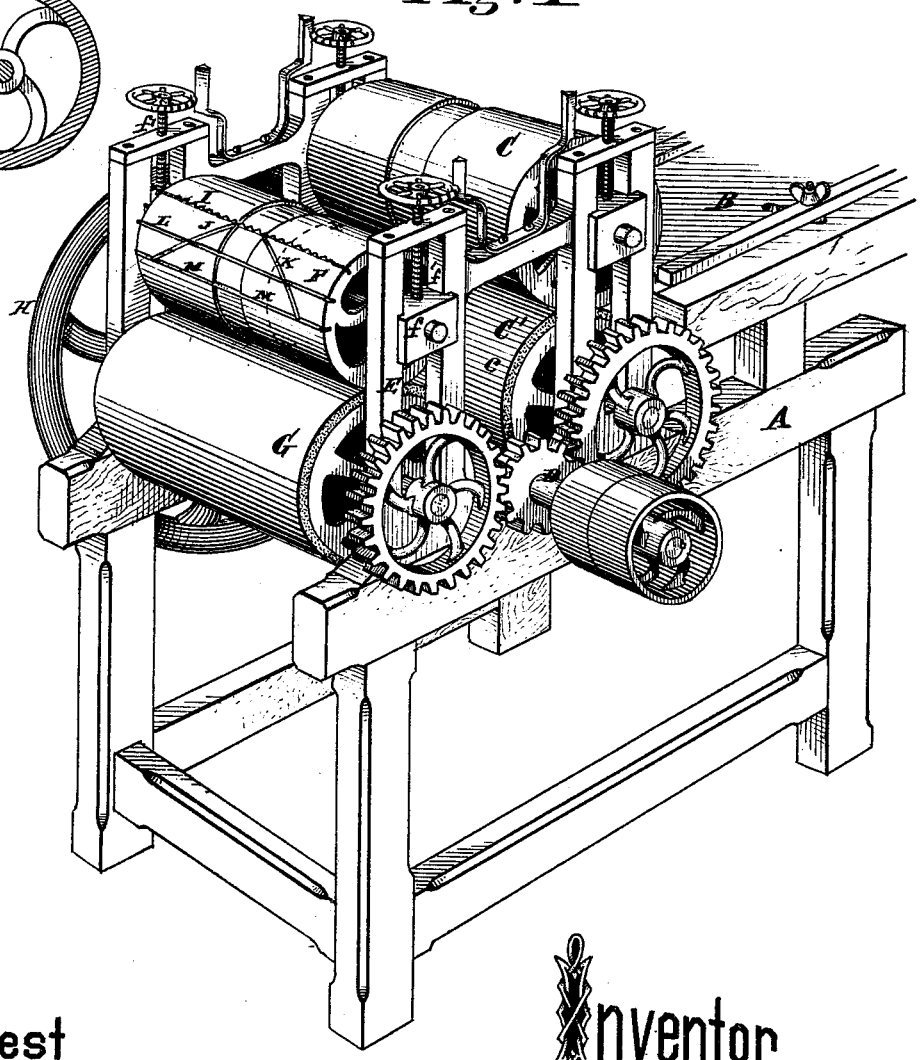


Fig. 1



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2 Sheets—Sheet 2.

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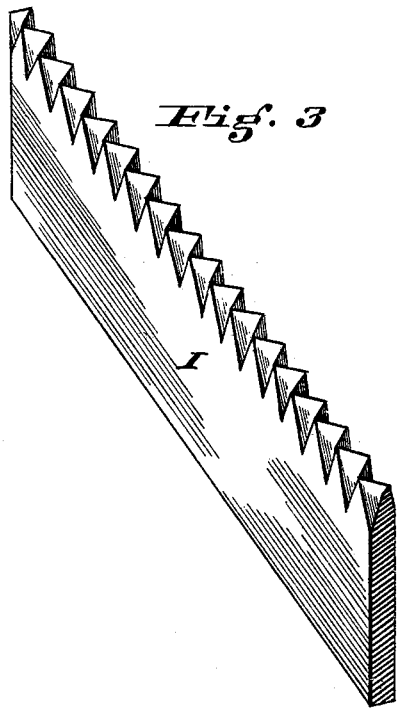
Fig. 3



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UNITED STATES PATENT OFFICE.

JAMES P. RAYMOND, OF CINCINNATI, OHIO.

IMPROVEMENT IN PAPER-BAG MACHINES.

Specification forming part of Letters Patent No. **190,619**, dated May 8, 1877; application filed May 11, 1875.

To all whom it may concern:

Be it known that I, JAMES P. RAYMOND, of Cincinnati, Hamilton county, State of Ohio, have invented an Improvement in Paper-Bag Machines, of which the following is a specification:

My invention consists, in the first part, of a combination of peculiarly-shaped knife and roller for cutting the sheet from a continuous roll of paper into lengths for bags; and the second part of my invention consists in the combination of a set of creasing-knives and a rubber-faced roller, by which a paper tube may be creased in the lines necessary for folding the bottom of the bag, the creasing-marks serving to uniformly guide and facilitate the act of folding the bottom.

Referring to the accompanying drawings, Figure 1 is a perspective view of a machine embracing my improvement. Fig. 2 is a cross-section of the roller carrying the creasing and cutting knives through line *x x*, Fig. 1. Fig. 3 is a perspective view of the knife.

A is the frame of the machine, and B the table upon which the paper is fed. C C′ represent two rollers, adjustably secured, as shown, in housings, and adapted to feed the sheet or tube from the table B, the lower roller being geared to the driving-shaft D.

The top roller may be grooved, as shown, to prevent it pressing the paste from a freshly-pasted central seam of a tube, and the lower roller may be faced with rubber *c*.

In the housings E two rollers, F G, are journaled, the upper one being journaled in adjustable boxes *f*, operated upon to secure adjustability by the set-screws *f′*, and the lower roller is geared to the driving-shaft D, so that it and the roller C′ are rotated by positive mechanism, and in the same direction.

A fly-wheel, H, may be secured to the driving-shaft D. The roller F may be similarly grooved to the roller C, to avoid pressing the pasted seam, and it has fitted to it, in the direction of its axis, a knife, I, having both its sides filed with V-shaped notches, so as to give its outer edge, originally thick and flat, a cutting-edge in a zigzag line, but in the same plane. This knife, therefore, operates not to tear the paper, as serrated knives do, but to effect a clear cut in a zigzag line by a shearing action, the points at the front edge of the knife first striking through the paper, after which the oblique cutting-edges gradually sever it. Besides making a clean cut, this knife has this advantage over the ordinary serrated knife, namely: that its action will not interrupt the continuous feeding of the paper by the roll carrying the knife and its rubber-faced counter-roll, because the severance is made gradually, so that the points of the serrated edge of the paper will be firmly held in the bite of the rolls by the time the cut is completed. The roller G, which it cuts upon, is thickly coated with rubber, into which the edge of the knife is embedded in the act of cutting, without injury to the rubber, the rubber serving to permit the knife to pass entirely through the paper.

The set-screws *f′* and sliding boxes *f* permit the knife to enter more or less into the rubber, as it is found to be more or less sharp.

The creasing-knives J K L M are secured to the roller F, as shown, and project to a less extent than the knife I. They are, however, adapted, as the roller revolves, to partly bury themselves in the rubber of roller G, for the purpose of definitely forming creases in the paper. They are disposed as shown, so as to crease the lines necessary for the formation of the bottom uniformly of a satchel or square bottom bag.

I am aware that a creasing-roller has heretofore been used in connection with a counter-roller provided with grooves corresponding to the creasers. In the practical application of these rolls it was found that the paper subjected to their action was injured at the lines of the creases; but the principal defect was, that for every size of bag a separate pair of rolls had to be provided.

By the use of a rubber-faced counter-roller I overcome both objections. The creasing does not injure the paper, and the rubber-faced counter may be used with all sizes of creaser-rolls.

I claim—

1. In combination with the rubber-faced roller G, the roller F, having a knife, I, whose

cutting-edge is in a single plane, and made zigzag by the formation of V-shaped notches in the sides of the knife.

2. In combination with the roller F and rubber-faced roller G, the creasing-knives J K L M, operating substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

JAMES P. RAYMOND.

Witnesses:
JOHN E. JONES,
EDGAR J. GROSS.