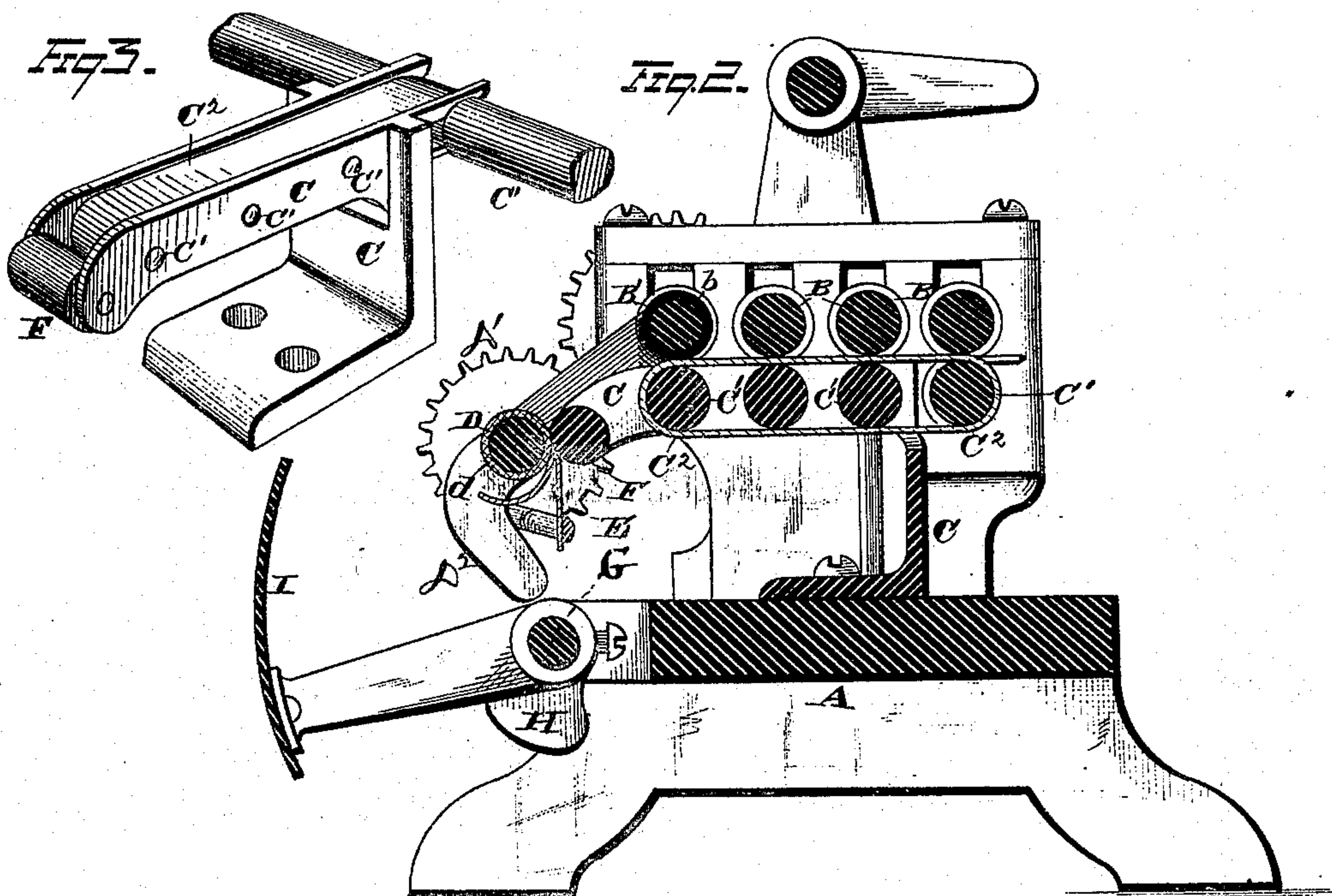
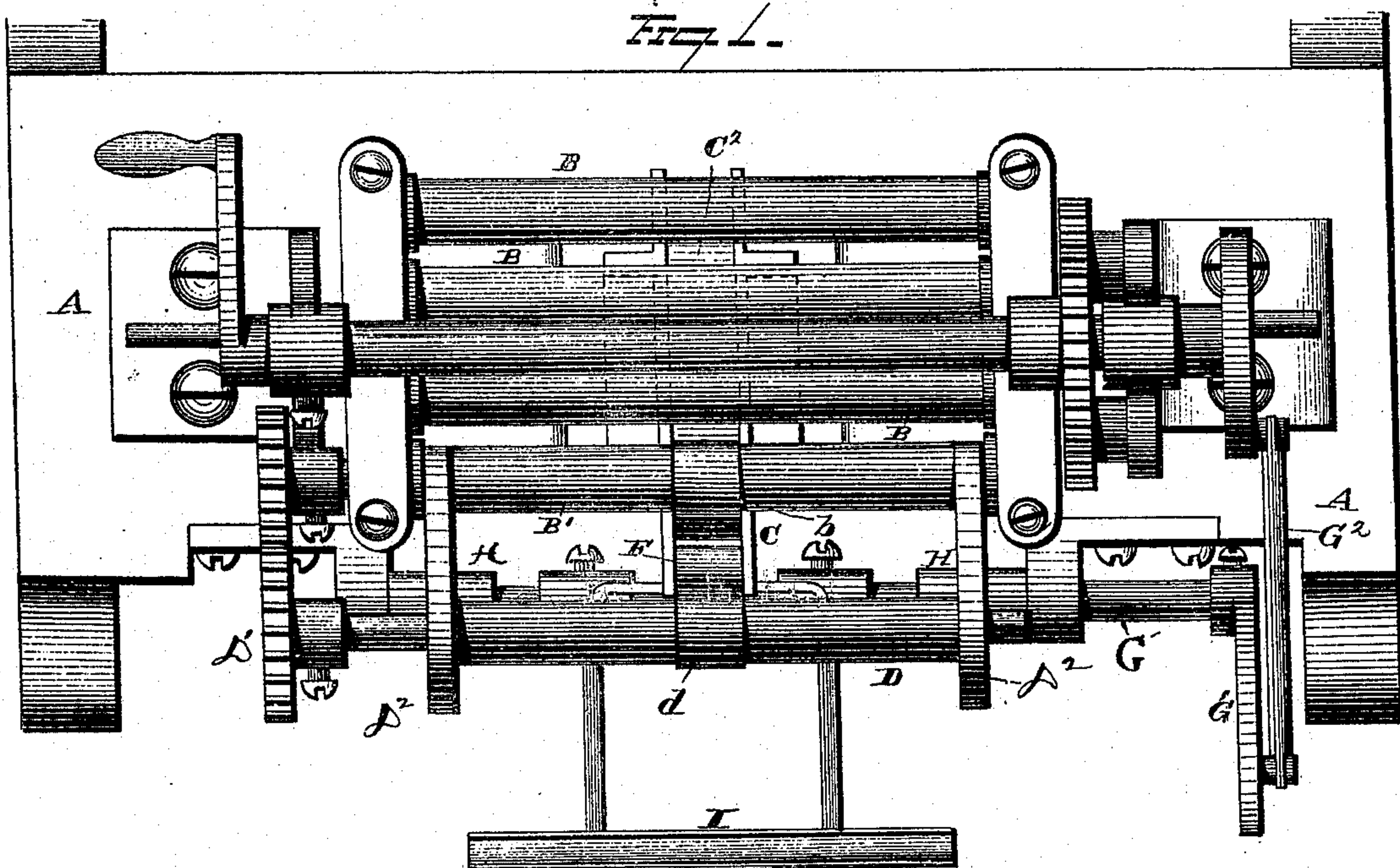


S. E. PETTEE.
Machinery for Making First Folds of Satchel-Bottom
Paper-Bags.

No. 225,163.

Patented Mar. 2, 1880.



WITNESSES
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UNITED STATES PATENT OFFICE.

SIMON E. PETTEE, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF OF HIS
RIGHT TO N. W. TAYLOR, OF SAME PLACE.

MACHINERY FOR MAKING FIRST FOLDS OF SACHEL-BOTTOM PAPER BAGS.

SPECIFICATION forming part of Letters Patent No. 225,163, dated March 2, 1880.

Application filed June 30, 1879.

To all whom it may concern:

Be it known that I, SIMON E. PETTEE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Machines for Making First or Diamond Folds in Satchel-Bottom 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 an improvement in machinery for making paper bags, and more particularly to that mechanism for the manufacture of satchel-bottom paper bags which makes the first or diamond fold.

In the drawings, Figure 1 is a plan view, and Fig 2 a longitudinal central section, of a machine embodying my invention, representing parts in elevation. Fig. 3 is a separate view of the underneath series of rollers and their supporting-frame, which assist in grasping the upper edge of the tube.

In illustrating my invention I have shown only so much of a paper-bag machine as is necessary for accomplishing the purpose of making the diamond fold. The other portions of the machine and the mechanism for making the other folds, not being material to this invention, are not shown. They may be any well-known appliances for the purpose.

In the said drawings, A is a suitable frame-work for supporting the apparatus. B and B' represent a series of rolls, all geared to turn in the same direction and with the same speed. Beneath these rolls is a frame, C, corresponding in width with the distance between the edges after the paper has been opened out into the diamond form. This frame C is provided with rollers C'.

C² is a suitable rubber or other band which assists in feeding the paper forward. This band may or may not be employed; but I employ the same in order to insure more perfect action in feeding the paper forward.

On the roll B' may be employed the band b', though such band is not essential, and may be entirely dispensed with.

D is a roll gearing at D' with the power, said roll being of the same size and turning with the same speed as the rollers B B'. This roller D is housed in a frame, D², which frame swings upon the shaft of the roller B', or it may be upon some contiguous part.

E is a guide attached to the same frame, so as to rest close to, but not against, the roller D. The roller D is so located that when in operation its central portion shall be in frictional contact with a small roller, F, in the end of the frame C. The central portion, d, is covered with rubber or other similar substance, so as to more certainly grasp and feed forward the paper.

G is a shaft, caused to rock by means of a crank, G', and pitman G², or other similar mechanism. Upon this shaft G are adjustable cams H, which, as the shaft G rocks, operate to lift and drop the swinging frame D², and with it the roller D. Upon the shaft G is also located a tucker-knife, I, whose range of motion extends from beneath the tube upward and forward nearly to the lower edge of the roll B'.

The operation of this mechanism is briefly as follows: The paper having been formed into a tube of the character from which the bag-lengths are usually cut, the end of this tube or bag-length is fed forward until the edges are above the roller D. Immediately after passing the upper portion of this roller any suitable device—such as a finger or tongue—may cause the edges to separate, directing the lower edge at its middle point downward between the rollers D and F. At this instant the rollers D and F are in contact and the tucker-blade rests at its lowest point beneath the tube. At the same instant the upper edge of the tube is caught between the roll B' and the first roll, C'.

It will be observed that neither edge is detained in the slightest degree. Both are fed onward at the same speed, the upper edge being drawn forward by the rolls B' C' while the lower edge is being drawn downward by the rolls D F. The cams H are so adjusted, however, that when the rolls D F shall have drawn the lower edge downward sufficiently far to form the diamond these cams rise, lift the

frame D², and thereby disengage the rollers D and F, so that the rollers B' and C' will draw the whole bag directly forward between them and flatten down the bend, while the frame C will keep the edges of the paper the proper distance apart. Just as the lower edge is released from between the rolls D and F the tucker-blade I is brought up between the lower surface of the bag and the back point of the diamond fold, thus defining accurately the fold across the bag, and this blade remains in this position, moving forward with the bag, until the said cross-fold is just ready to enter between the rolls B' and C'.

It will thus be seen that neither edge of the paper is detained in any degree, but both are moved onward by a positive motion until the diamond fold is shaped; then one of the edges is released, permitting the bag to follow along as it is drawn by the other edge. In this way the strain which usually accompanies the processes which detain one edge is entirely avoided, and the machine may be run at any speed without danger of tearing the paper.

When the lower edge has passed between the rollers D and F the guide E directs it backward, so that afterward, when the roller D rises, the lower edge will lie almost in a line back of the forward or upper edge.

The flexible material *d* at the center of the roll D may be flush with the surface of the roll; but I prefer that it shall stand out a little from the surface of the roll, in order to slightly increase the diameter of the latter. In this way any looseness or sagging of the paper constituting the lower surface of the bag will be taken up and the operation be rendered more positive.

It will be observed that only the last of the rolls C' is made to extend across the machine, and this roll, with the roll B above it, serves to flatten out the bends.

It is apparent that this apparatus is designed to form the diamond fold beneath the paper tube; but this is not essential, as a suitable reversing of the mechanism would cause the diamond fold to be formed upon the upper surface of the tube. In this case all that will be necessary will be for the frame C, and the rolls D and F, or their equivalent, to be located above the tube and the rolls B and B' below the tube. Such a change is obvious to any person skilled in the art.

What I claim is—

1. The combination, with rolls B C', swinging frame D², and rolls B' D F, of guide E, shaft G, provided with cams H, and means for operating said shaft, substantially as set forth.

2. The combination, with rolls B C', swinging frame D², and rolls B' D F, of guide E, shaft G, provided with cams H and blade I, and means for operating said shaft, substantially as set forth.

3. The combination, with rolls B C', swinging frame D², and rolls B' D F, of guide E, shaft G, provided with adjustable cams H and blade I, together with gearing D', crank G', and pitman G², substantially as set forth.

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

SIMON E. PETTEE.

Witnesses:

JNO. CROWELL, Jr.,
W. E. DONNELLY.