

No. 665,387.

Patented Jan. 1, 1901.

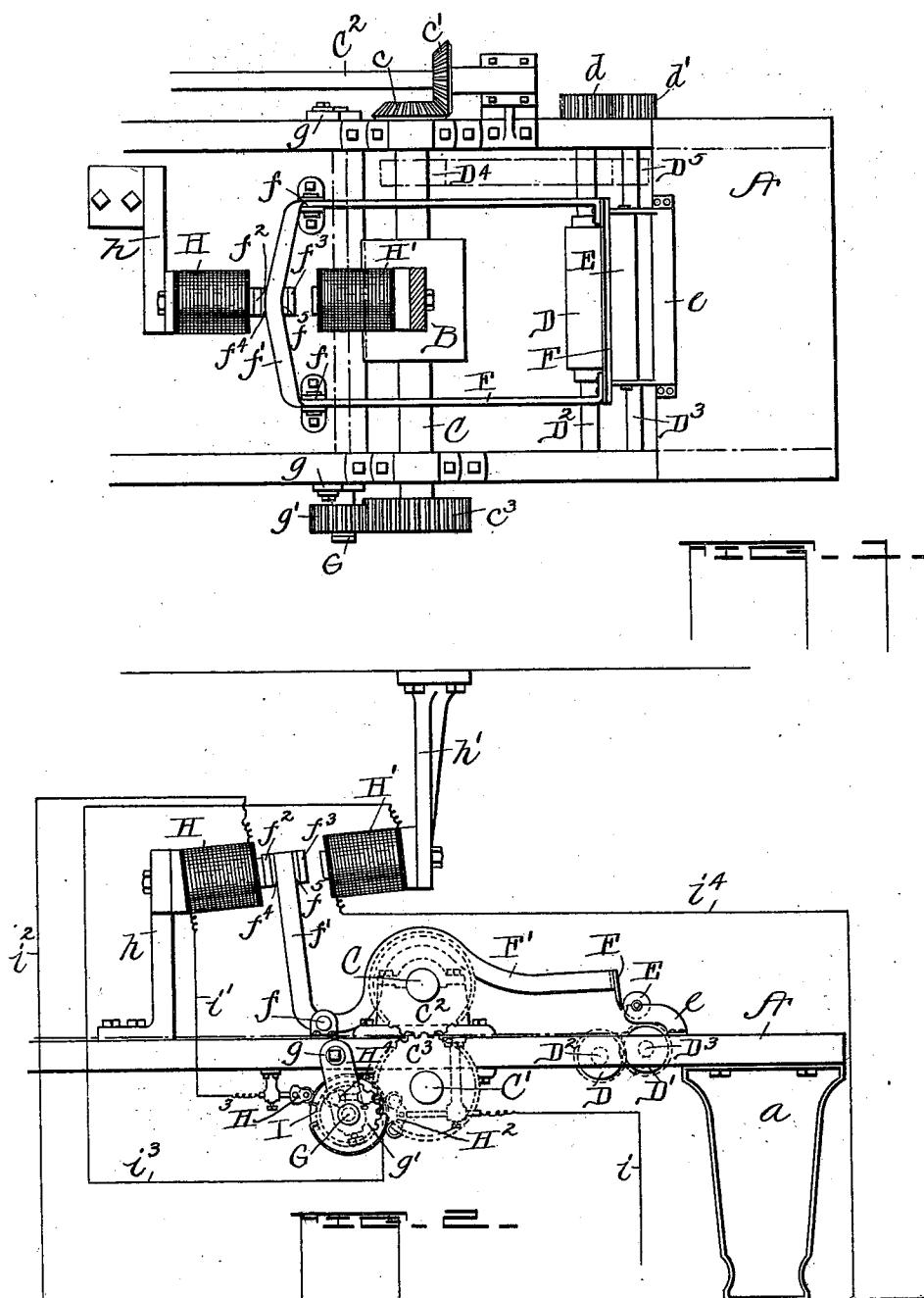
L. D. BENNER.

BAG MACHINE.

(Application filed July 20, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnessed:

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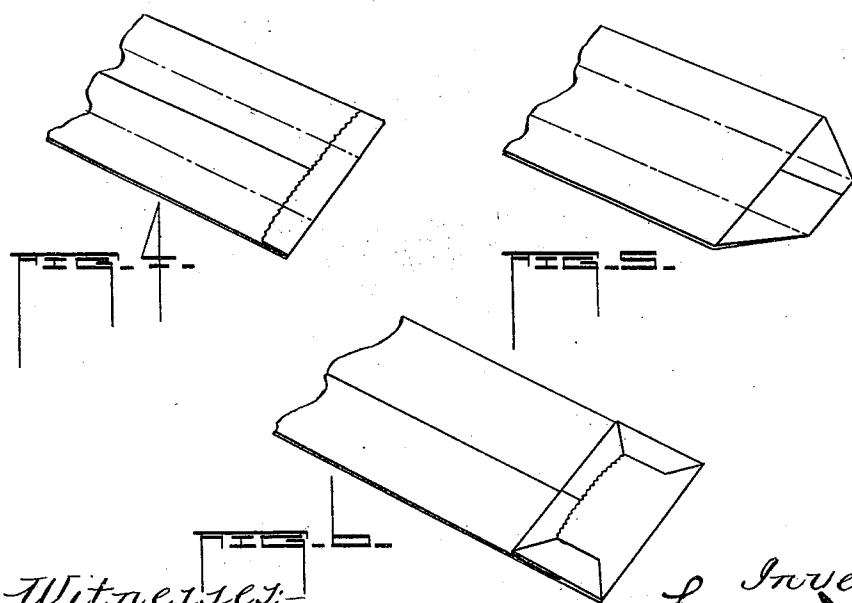
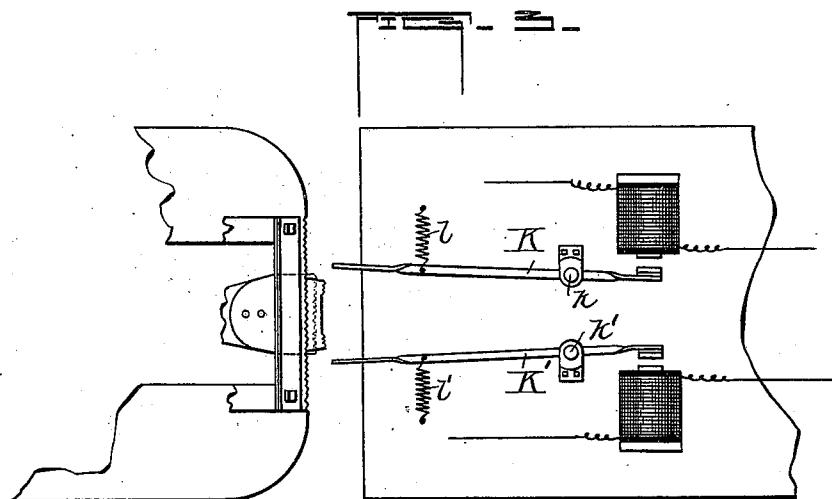
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

LORENZO D. BENNER, OF PEORIA, ILLINOIS, ASSIGNOR TO LUCIUS G. FISHER, OF CHICAGO, ILLINOIS.

BAG-MACHINE.

SPECIFICATION forming part of Letters Patent No. 665,387, dated January 1, 1901.

Application filed July 20, 1899. Serial No. 724,508. (No model.)

To all whom it may concern:

Be it known that I, LORENZO D. BENNER, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Bag-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the construction of machines for making paper bags, and more particularly to the devices for forming the tuck or folds at the bottom of the bag-blanks to close it and form a bag; and one object which I have in view is the simplicity in construction of this particular part of the machine, doing away with all cam and crank motions, which are more or less generally used and which are very cumbersome; and a further object is the rapid and perfect formation of the final folds of the bag.

My invention consists, essentially, in the provision of the ordinary feed and folding rolls and the means of pasting, which form a part of every bag-machine, and in the provision of a creasing-blade or folder coacting with the folding-rolls, the same being suitably carried to swing on said machine and intermittently or continuously actuated by electricity or by suitable electromechanical mechanism, and of details hereinafter more fully described.

That my invention may be more fully understood reference is had to the accompanying drawings, forming a part of this application, in which—

Figure 1 is a plan view of a portion of a bag-machine, showing the feed and folding rolls and component parts and my improvements added thereto. Fig. 2 is an elevation thereof. Fig. 3 is a plan view of one form of modification, wherein the folding-blade instead of reciprocating vertically reciprocates horizontally; and Figs. 4, 5, and 6 are views in perspective of three forms of well-known paper bags that may have their ends folded by the vertically or horizontally movable folders herein shown.

In the description of the device which I have made a part of the ordinary bag-ma-

chine it will be only necessary to describe briefly the parts which coact therewith, as the device which I claim as new with a few slight modifications is applicable to all of the various types of bag-machines.

In the drawings, A represents the rear portion of the main frame of a bag-machine supported on the standards a.

B represents the feed-rolls, located one above the other in the manner shown, and are rotatable with the shafts C C', which are journaled in suitable boxings on the frame. They are purposed to be driven through the bevel-gearing c c', the bevel-wheel c, carried on the shaft C, and the bevel-wheel c', on the longitudinal shaft C², which extends forwardly, where it receives motion and in turn transmits the same to the shaft C, which in turn actuates the shaft C' through the intermeshing gears c² c³, carried on the shafts C and C'. The shaft C² is supported in suitable bearings on the main frame of the machine.

D D' are folding-rolls carried on the shafts D² D³, located transversely in the main frame, as shown, and have the intermeshing gears d d'. The means for driving these rolls may be by the means herein shown in dotted lines, consisting of the pulley-wheel D⁴ on the shaft C and the pulley-wheel D⁵ on the shaft D³ and suitably driven by means of a belt, or other equally as good means for transmitting motion may be provided.

E represents the pasting-rolls, journaled in the frame e, which is supported by the main frame.

F represents a creasing-blade or folder, the same being of substantially the style for folding over the end of the bag substantially as is shown in Fig. 4 of the drawings, which is carried transversely across the machine and just above the folding-rolls and in its movement is caused to contact with the pasting-roll E.

F' is a suitable frame supporting the creasing-blade or folder and is adapted to be pivoted at f to suitable brackets secured to the main frame, as shown. The rear or vertical extensions f' of the frame F carry the short lugs or bar extensions f² f³, which serve as armatures for a purpose to be described, a suitable non-conductor, as at f⁴ f⁵, being suit-

ably interposed between the frame portion f' and the armatures $f^2 f^3$.

H H' are electromagnets, which are here shown supported by the frames $h h'$, but may be supported by any suitable means, the cores of which are located in the swinging plane of the armatures $f^2 f^3$, the purpose of which is to attract the armatures intermittently or at suitable regulated intervals in such a manner as to cause the creasing-blade or folder to reciprocate, the movement of which will cause the same to engage with the tube, crease it, and force it between the rolls, where the bottom is completed.

15 To regulate and control the direction of the current passing from the dynamo through the field in which the magnets are located and the speed at which the folding-rolls are to be rotated, I provide a combination of elements

20 substantially the same as are described and claimed in an application somewhat similar to the present one, which said devices are suitably supported on the main frame and consist of the shaft G, journaled in the swing-

25 ing brackets $g g$ and carries the gear-wheel g' , intermeshing with the gear-wheel c' on the feed-roller shaft C'. It is purposed to provide differential gearing for the shaft G, enabling the operator to compensate for the

30 length of bag passing through the machine.

35 I is a suitable commutator carried on the shaft G, a series of adjustable contacting-points $H^2 H^3 H^4$ being provided, supported in suitable brackets suspended from the main frame. The arrangement of the commutator and contacting-points being such that as the current passes from the dynamo through the wire i the same will pass through the commutator to the contact H^3 and from thence to

40 the magnet H, through the conductor i' , the circuit being completed through the conductor i^2 , leading from the magnet H, the armature f^2 will be attracted to the same and held in such a position until such a time when in

45 the rotation of the commutator the current will be switched by suitable automatic means to the contact H^4 , when the magnet H' will be brought into the circuit through the wire i^3 , the circuit being completed through the wire

50 i^4 , leading from the magnet. Thus it will be seen that the magnet H being dead the armature f^3 will be attracted to the magnet H',

which movement will cause the folder to contact with the tube and force the same between the folding-rolls.

55 In Fig. 3 a modified form of creasing device or folder is illustrated, wherein two creasing-blades or folders K K' are used, which are suitably pivoted at $k k'$ to have a lateral swinging movement on said frame, the forward ends of which are held in their normal positions by means of the springs $l l'$, the action of the current passing through the electromagnets attracting the rear ends of the same, which carry suitable armatures which 60 will cause the creasing or folding ends to contact with and fold the ends of the bag, and from thence the bag will pass to suitable folding-rolls described. The object I have in view in illustrating this modified folding 65 means is to show that the device need not be confined to one form of creasing or folding blade, as by applying the same in the manner just described the device is applicable to various types of machines and may be constructed to fold any style of bottom.

70 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a paper-bag machine, the combination 80 with the feeding and folding rolls, and the creasing-blade or folder coacting with the folding-rolls, of the electromagnetic means for actuating the creasing-blade, mechanism for controlling the circuit through the magnet, 85 and means operated by the feeding devices for actuating such mechanism, substantially as described.

2. In a paper-bag machine, the combination 90 with the rotary feeding and folding devices, and the creasing-blade or folder, of electromagnetic means for actuating the creasing-blade, a commutator to control such electromagnetic means, and means operating in a predetermined synchronism relative to the 95 feeding devices and folding-rolls for actuating the commutator, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

LORENZO D. BENNER.

Witnesses:

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