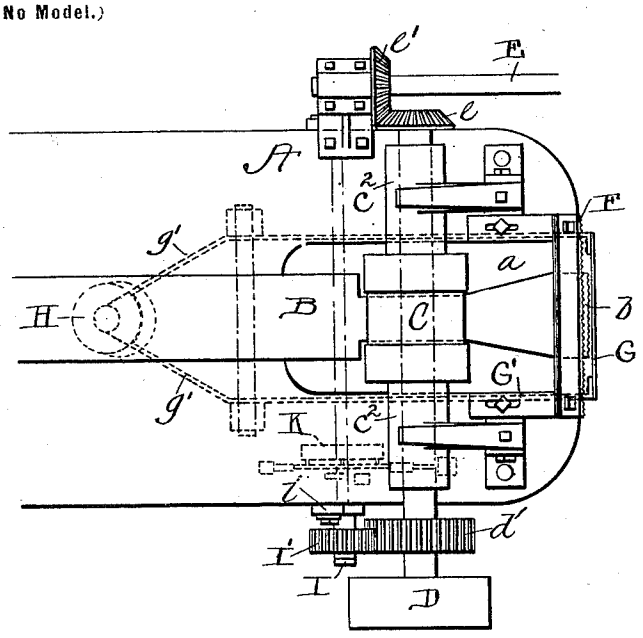
No. 699,611. Patented May 6, 1902.

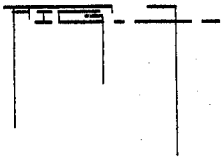
L. D. BENNER.

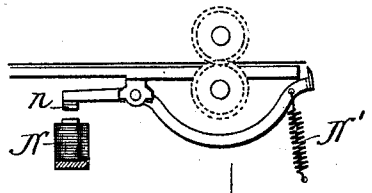
BAG MACHINE.

(Application filed Aug. 2, 1899.)

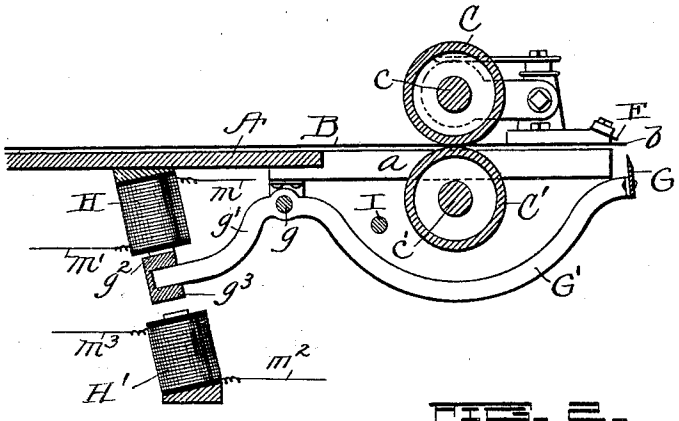
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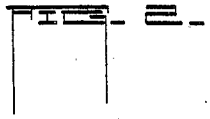












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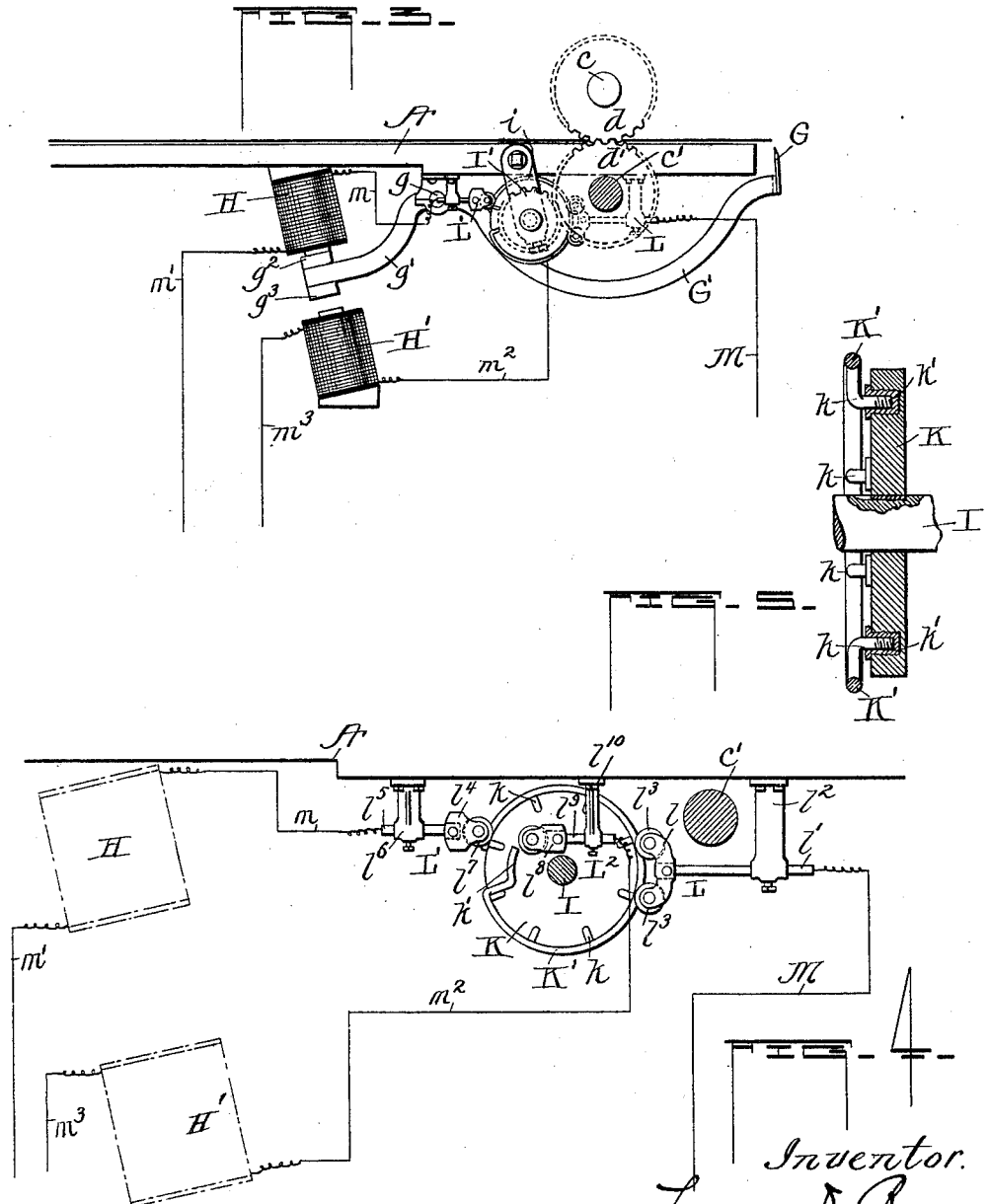
No. 699,611. Patented May 6, 1902.

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BAG MACHINE.

(Application filed Aug. 2, 1899.)

(No Model.) 2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

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BAG-MACHINE.

SPECIFICATION forming part of Letters Patent No. 699,611, dated May 6, 1902.

Application filed August 2, 1899. Serial No. 725,889. (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 certain new and useful improvements in the construction of paper-bag machines wherein certain novel features are provided which are well adapted for the purpose designed.

More particularly, my invention relates to the device for cutting a continuous tube into bag lengths; and the object which I have in view is the simplicity of construction to this particular part of bag-machines and the rapid and perfect operation of the same.

My invention consists, essentially, in the provision of the ordinary feed-rolls, knife edge or edges of a bag-machine, and in the provision of a severing device, cutter, or striker coacting therewith to sever the tube, as described, the same to be suitably carried on said machine and actuated by electricity or by suitable electromechanical mechanism, and of details hereinafter more particularly 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-rolls, knife edge or edges, and my improvements added thereto. Fig. 2 is a longitudinal section showing the severing device more in detail and the electromagnets for actuating the same. Fig. 3 is an elevation of substantially the same devices as are shown in plan in Fig. 1. Fig. 4 is an enlarged elevation in detail of the means of regulating and communicating the current to the magnets. Fig. 5 is a vertical cross-section showing in detail the commutator, and Fig. 6 is an elevation of a modified severing device wherein only one magnet is used to actuate the severing device.

It will be only necessary to give a brief description of the main operating devices of a bag-machine and its component parts, as the device which I claim as new is applicable with a few slight modifications to any of the well-known bag-machines.

In the drawings, A represents a portion of the main frame of a bag-machine having the centrally-disposed open slotted way *a*.

B is a former located in the same longitudinal plane as the frame A and centrally disposed above the same, having the serrated edge or knife *b*.

C C′ are feed-rolls carried above and below the former and upon shafts *c c′*. The shaft *c* is carried in boxings c^2, held under spring compression, and the shaft *c′* is suitably carried in boxings hung beneath the frame. The means of operating the shafts *c c′* are through the pulley-wheel D, carried on the shaft *c*, and the intermeshing gears *d d′* on the shafts *c c′*. On the opposite end of the shaft *c* is shown a bevel gear-wheel *e*, intermeshing with a bevel gear-wheel *e′*, carried on a transverse shaft E, which is supported in bearings carried on the main frame and purposed to extend rearwardly and carry a bevel-gear adapted to transmit motion to the folding-rolls.

F is a knife-edge carried adjacent to the cutting edge of the former and above the same, it being adjustably secured to the frame on which it is carried.

The manner of delivering the tube to the former is well known, as well as the function of the knife-edges which are described in connection with the severing device herewith.

G represents the severing device or blade which I have in mind carried at right angles to the length of the machine and just beneath the forward edge of the former B, and G′ is a suitable frame supporting the blade and is adapted to be pivoted at *g* beneath the frame, as shown. At the rear the side frame-pieces *g′*, constituting the frame G′, converge and meet at a suitable point and are adapted to have the lugs or short bars g^2 g^3 secured thereto, which serve as armatures for a purpose to be described.

H H′ represent electromagnets, which may be supported by any suitable means carried either by the frame or an auxiliary support, the cores of the magnets being located in the

swinging plane of the armatures g^2 g^3, as is clearly shown in Figs. 2 and 3 of the drawings, the purpose of which is to attract the armatures g^2 g^3 intermittingly or at suitable regulated intervals in such a manner as to cause the severing-blade G to move upwardly and contact with the tube as to sever the same in the manner and for the purpose described.

To regulate the current passing from the dynamo through the field in which the armatures are located, I provide what may be termed an "electromechanical" mechanism suitably supported in connection with the main frame of the machine.

I is a shaft journaled beneath the frame in suitable swinging boxings *i i*, which are hung from the sides of the frame, and I' is a spur-gear carried on the shaft I and adapted to intermesh with the spur-wheel *d'*, through which it is actuated. The purpose of a swinging shaft or one where it is possible to change the position of the center of the same is to regulate the time between each stroke of the severing device, the effect of such changing compensating for the different lengths of bag to be passed through the machine.

On the shaft I, I purpose to carry a commutator, which is in the form of a disk K, as shown, provided with the laterally-disposed pins *k*, having vertical extensions arranged in a circumferential line at intervals around the face of the disk, to which a suitable wire K' is attached in the manner shown. These pins are suitably secured to a non-conducting socket *k'*, which is in turn screwed into the disk K. An offset is provided in the wire K', and the same is brought in toward the center of the disk a short distance and made to bear in a curved line in the same plane with the main length of the wire K', but only sufficient to take up the space of the offset, as shown.

Adjustable contact-points with the commutator are provided, enabling the operator to change the position of the same when changing the size of gearing on the shaft carrying the commutator to at all times have the same in contact with the commutator.

I will first describe the manner of attracting the severing-frame to the electromagnet H, which retains the severing-blade in position until at such a time it is desired to sever the tube.

L is a contact-point in the form of a trolley formed of the casting *l*, pivotally secured to the tube *l'*, which in turn is adjustably secured in the bracket l^2, supported on the frame, and l^3 shows rollers carried in the casting *l* and purposed to ride on the wire K' at all times.

L' is a contact similar to the one described as L, provided with the casting l^4, pivotally secured to the tube l^5, which in turn is adjustably secured to the bracket l^6, and l^7 is a roller carried in the casting l^4 and purposed to ride on the wire. Thus it will be seen as the current passes through the wire M, leading to the contact L from a suitable dynamo, the same will pass around the wire K' of the commutator into the contact L' and from thence into the electromagnet through the wire *m*, the circuit being completed through the wire *m'*, leading from the magnet H. The armature g^2 will be attracted to the same, holding the severing device in its normal position until the commutator has revolved a sufficient distance, when the circuit will be broken by means of the wire K', passing beyond the contact L'. At this time the magnet H' will be brought into the circuit through the contact L^2, which is similar to each of the contacts L and L', formed of the casting carrying the roller l^8, the casting being pivotally secured to the tube l^9, which in turn is adjustably secured to the bracket l^{10}, secured to the frame, the continuous revolution of the commutator causing the contact L^2 to engage with the extension *k'* of the wire K' as the main line of the same is leaving the contact L', which will cause the current passing from the contact L into the commutator to change its course and be taken up by the contact L^2, and from thence pass into the electromagnet through the wire m^2, the circuit being completed through the wire m^3, leading from the magnet H'. Thus it will be seen that the magnet H being dead the armature g^3 will be attracted to the magnet H', which movement will force the forward end of the severing device against the tube, and the same will be cut by contacting with the knife-edges shown. As this cut must be made quickly, the length of the offset is very short, the same being varied by this movement and the distance between the strokes by the gearing on the commutator-shaft I, the revolution of this shaft causing the magnet to intermittingly actuate the severing device in the manner described.

In Fig. 6 a modified form of severing device is shown, the purpose of which is to use the same form of severing blade and frame, substantially the same commutator, but do away with one of the contact-points and provide one magnet, such as shown at N, and the armature *n*, the magnet being intermittingly thrown into and out of the circuit to attract the armature *n*, which will cause the severing device to be actuated. The means of retaining the severing device in its normal position is by means of a spring, such as is shown at N', suitably secured to the forward end of the severing-frame and to any suitable point on the supporting-frame.

I do not wish to limit myself to the exact style of paper-bag machine herein shown and described nor the style of movement of the severing device, as the device is applicable to any class of machine, and several forms of severing devices may be employed to accomplish the result which I wish to attain. The object I have in view, as has been stated, is to actuate a severing device on a paper-bag

machine by suitable electromagnets or by suitable electromechanical mechanism.

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, in combination with the feed-rolls and knife-edges thereof, an electrically-actuated severing device coacting with said knife-edge, of a commutator suitably carried on a swinging shaft which is actuated by suitable intermeshing gears from the roller-shafts, and of suitable adjustable contact-points, with said commutator purposed to regulate the action of said severing device, for the purpose described.

2. In a paper-bag machine, the combination with the feed-rolls and knife-edges thereof, a severing device coacting with said knife-edges, and actuated by a suitable electromagnetic device, a commutator substantially as described suitably carried on a swinging shaft adapted to carry differential gearing for regulating the speed of said shaft, a series of contacting points with the said commutator adjustably carried on the machine purposed to alternately throw into circuit suitable electromagnets which actuate the severing device, substantially in the manner described.

3. In a device of the character described comprising the feeding devices and severing device, the electromagnet for actuating the severing device, the circuit containing the magnet, devices for controlling the circuit through the magnet carried by an adjustable support and means operated by the paper-feeding devices for actuating the circuit-controlling devices, substantially as described.

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

LORENZO D. BENNER.

Witnesses:
W. H. OTIS,
J. M. WELLS.