

F. E. BEAM.
 MECHANISM FOR ATTACHING VALVE STRIPS TO BAGS.
 APPLICATION FILED JAN. 11, 1909.

948,439.

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.

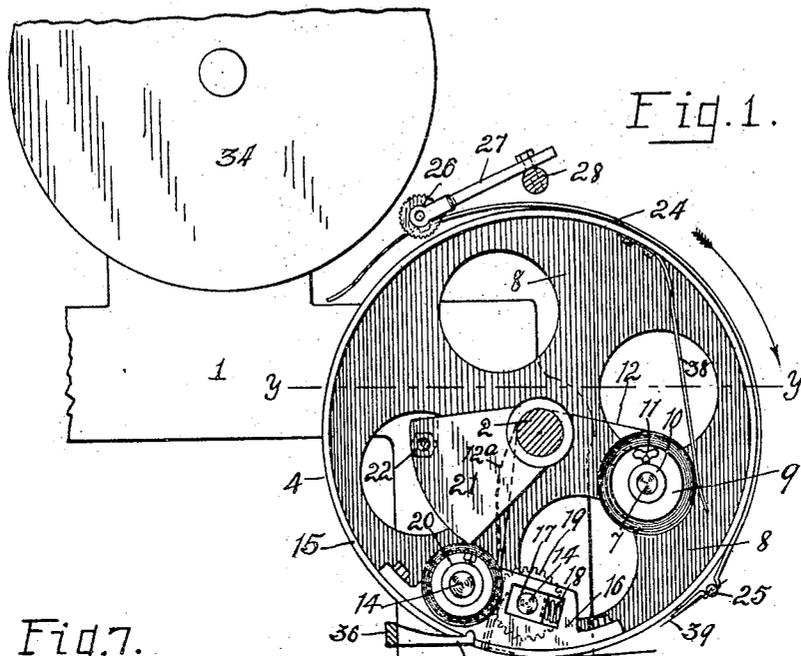


Fig. 1.

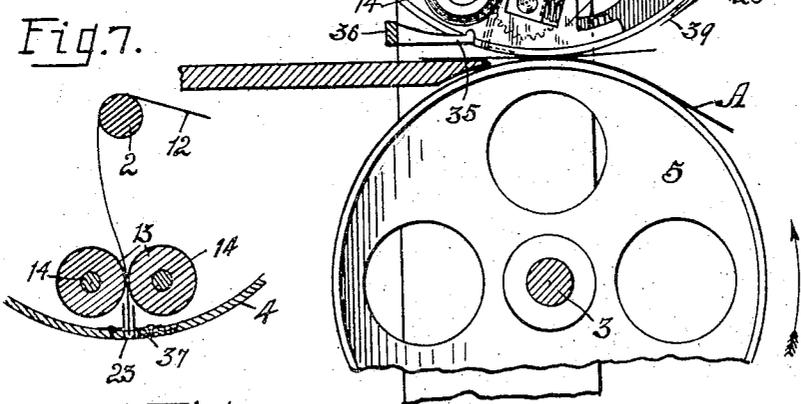


Fig. 2.

Fig. 3.

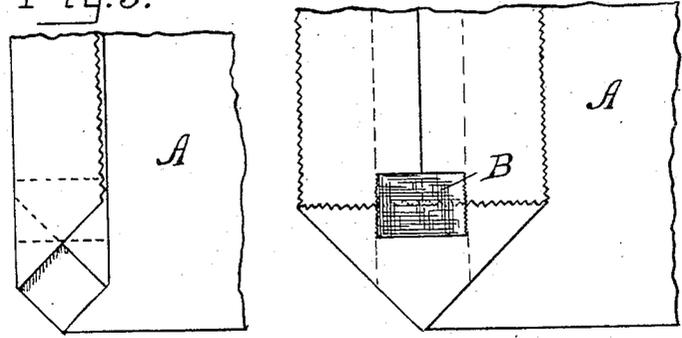


Fig. 3.

WITNESSES:
S. C. Walter
Hazel B. Mitt

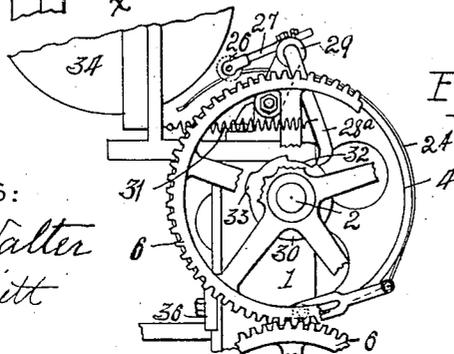
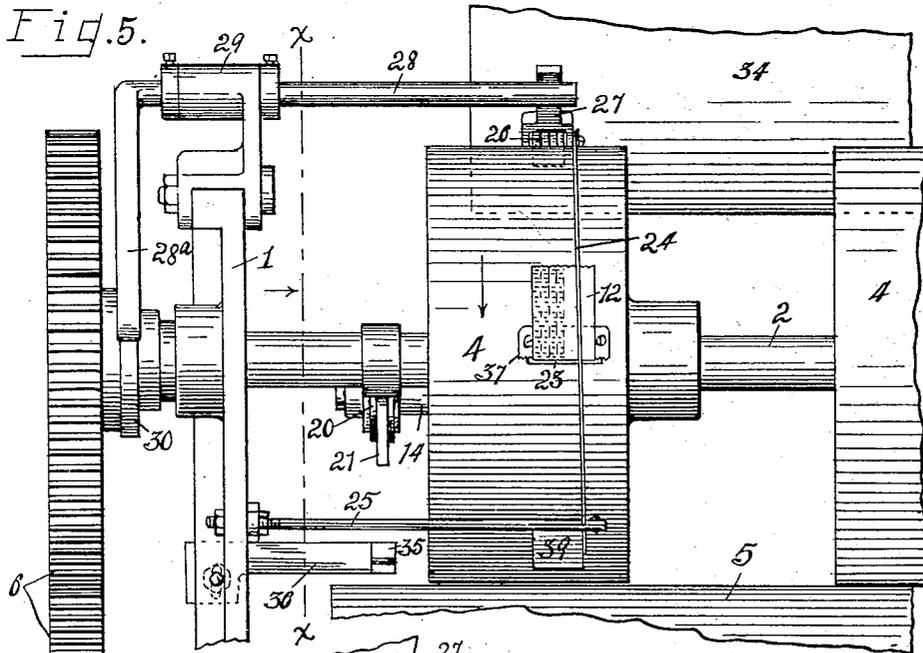
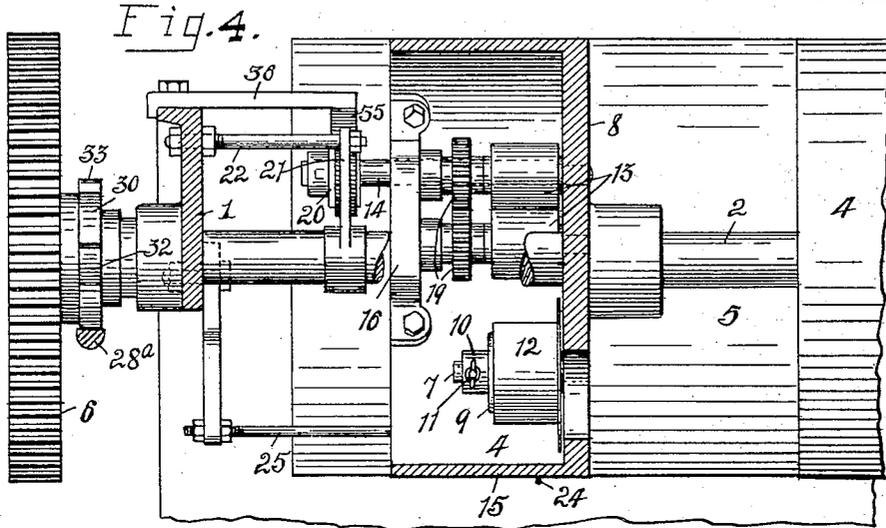
INVENTOR.
Frank E. Beam,
By Owen & Owen
his attys.

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2 SHEETS—SHEET 2.



WITNESSES:

D. C. Walter
 Hazel B. Nett

INVENTOR.

Frank E. Beam,
 By Owen & Owen,
 his attys.

UNITED STATES PATENT OFFICE.

FRANK E. BEAM, OF TOLEDO, OHIO.

MECHANISM FOR ATTACHING VALVE-STRIPS TO BAGS.

948,439.

Specification of Letters Patent.

Patented Feb. 8, 1910.

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To all whom it may concern:

Be it known that I, FRANK E. BEAM, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Mechanism for Attaching Valve-Strips to 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the figures and letters of reference marked thereon, which form a part of this specification.

My invention relates to the manufacture of valve-bags, and has particular reference to means for use in bag-making or bottoming machines for securing what may be termed "valve extension strips" to the bags during the manufacture thereof, said strips being of paper, cloth or other suitable material which is preferably of a lighter or more flexible nature than the material from which the bags are formed to make it sensitive to the action thereon of the closing agencies when the filling tube is withdrawn. In the manufacture of bags having these valve extension strips provided therein, it has heretofore been necessary to secure these extension-strips in the bags by hand and also to fold and paste by hand the ends or portions of the bags in which the strips are disposed, thus making the manufacture of this class of bags both slow and expensive.

The object of my invention is the provision in machines of the class described, of simple and efficient mechanism for automatically feeding, severing and securing a valve extension strip in proper position to each bag as it passes through the machine and at a predetermined stage in the folding of the portion thereof containing the valve, thus making the cost of the material used for the extension strips the only additional expense incident to the placing of such strips on the bags.

The invention is fully described in the following specification, and while in its broader aspect it may be embodied in different forms of machines and its parts differently arranged and constructed, a preferred form is shown in the accompanying drawings, in which,—

Figure 1 is a vertical section of the mechanism comprising my invention taken on the

line xx in Fig. 5, with portions broken away and the drums turned into position to paste a valve extension strip to a bag. Fig. 2 is a side view of a portion of a valve bag with an end partially folded and a valve extension strip secured thereto. Fig. 3 is similar view of a bag with the end folding completed. Fig. 4 is a plan view of the mechanism with a portion in horizontal section as on the line yy in Fig. 1. Fig. 5 is a front elevation of the mechanism with the drum partially turned to pasting position. Fig. 6 is a reduced elevation of the left end of the mechanism with portions of the gears broken away, and Fig. 7 is a transverse section of the tape feeding rolls and associated portion of the drum.

Referring to the drawings, 1 designates a side portion of the frame of a bag making machine, and 2 and 3 upper and lower horizontal shafts, respectively, which have their ends journaled in the frame sides of such machine. Drums 4 and 5 are carried by said upper and lower shafts, respectively, and may serve as one of the sets of drums or rolls for feeding the bags through the machine. The shafts 2, 3 have rotation communicated thereto in unison by meshing gears 6, 6, which are carried at the ends thereof and have power communicated thereto in any suitable manner.

The drum 4, or one of them if more than one is used, is of hollow or shell-like form and is internally provided with a spindle 7, which projects from the spider or disk portion 8 thereof at one side of its shaft and loosely carries a spool 9, which is removably retained on the spindle by a collar 10 and set-screw 11, or in any other suitable manner. A roll of tape 12 of paper, cloth or other suitable material from which the valve extension strips are severed is mounted on the spool 9 and has its outer end portion passing over the shaft 2 and thence radially, or substantially so, between a set of feed-rolls 13, 13 which are carried by shafts 14, 14. These shafts are disposed near the rim or circumferential portion 15 of the drum, and each has an end mounted in the spider 8 and an end mounted in a bearing-block 16, which is internally carried by the rim 15. A yielding tension-contact is provided between the rolls 13 due to one having its ends journaled in blocks 17, which are slidingly carried by the disk 8 and bearing-block 16 and acted on by compression-springs 18, as

shown in Fig. 1, for one end of the shaft. Meshing gears 19, 19 are carried by the shafts 14, 14 to cause them to have positive rotation in unison, and one shaft 14 has its outer end extended beyond the bearing-block 16 and carries a friction-wheel 20, which is preferably peripherally faced with rubber.

A segment 21 is loosely mounted on the shaft 2 in the plane of rotation of the friction-wheel 20 with the drum and is fixed against revolving with the shaft due to a rod 22 rigidly connecting it to the frame side 1, as shown in Fig. 4. At each revolution of the drum 4, the friction-wheel 20 travels a predetermined distance in peripheral contact with the segment 21, thus imparting rotation to the feed-rolls 13, 13 in the proper direction to feed a desired length of the material 12 through a registering feed-slot 23 in the rim of the drum.

It will be noted that the feeding of the tape 12 is designed to take place during the upward travel of the feed-rolls 13 with the drum so that the projecting portion of the tape will hang downwardly from the feed-slot 23 or lie on the opposite side of such slot to the direction of rotation of the drum, which position is maintained during the remainder of its revolution by a guard-rod 24, which partially encircles the drum and is attached at its lower end to a rod 25, which rigidly projects from the frame 1.

A small or idler paste-roll 26 is disposed above the drum 4 in the plane of movement of the projected end portion of the tape 12 and is carried by the forked end of an arm 27, which projects from a rock shaft 28 that is journaled in a bearing 29 at the top of the frame side 1, see Figs. 1, 5 and 6. The shaft 28 has an arm 28^a projecting therefrom which coacts at its free end with a cam 30 carried by the shaft 2 and is yieldingly held in contact therewith by a contraction-spring 31, see Fig. 6. The cam 30 is formed with a depression 32 and a raised portion 33, which successively act on the arm 28^a at predetermined points in a revolution of the drum 4 to effect first an elevation of the paste-roll 26 to have contact with the master paste-roll 34, whereby to receive a supply of paste, glue or the like, and then a lowering of the roll 26 to cause it to have contact with the projected portion of the tape 12 to apply paste in proper position thereto. The master paste-roll 34 which is carried by the frame adjacent the top of the drum 4, is slowly driven by suitable gearing or other means (not shown) and receives its paste supply in any suitable manner. The upper end portion of the guard-rod 24 is shown in Fig. 5 as being attached to the forked end of the roll-carrying arm 27.

When the drum 4 has been turned so that the feed-slot 23 therein stands at substan-

tially the center of bite of the cooperating drums 4 and 5 the friction-wheel 20 makes contact with a fixed finger 35 and has a slight backward turning movement imparted thereto by such finger, which movement is communicated to the feed-rolls 13, 13 and a consequent backing up or inward drawing of the end portion of the tape 12 effected. The finger 35 projects from an arm 36 which is adjustably carried by the frame side 1, see Figs. 4 and 5. As the gripping of the projected portion of the tape 12 between the drums 4 and 5 prevents an inward withdrawal thereof when the feed-rolls 13 are turned backward, such projected portion is severed from its strip and left affixed to a bag which is passing between the drums 4, 5 simultaneous therewith, due to its tearing off at its point of bend or engagement with the edge of the feed-slot 23, which tearing is facilitated by the provision of a serrated edged knife or plate 37, at such point, as shown in Fig. 5. The dotted line 12^a in Fig. 1 indicates the slackness occurring in the strip 12 when the same is drawn inwardly by the backing-up action of the feed-rolls 13.

The roll of tape 12 is shown in Fig. 1 as being prevented from freely turning on its spindle by a tension-spring 38, which is interiorly secured to the rim of the drum 4 and has its free end bearing against such roll.

30 designates a guard-plate which is carried by the rod 25 and assists the rod 24 in holding the free end of the projected portion of the material strip 12 to the face of the drum at such point.

In the operation of my invention, when used in connection with a bag-making machine, a bag A, with its valve end or portion partially folded as indicated in Fig. 2, is fed between the drums 4 and 5 either automatically or by hand and in proper position for a projected portion of the tape 12 to be secured at the desired point thereon, as indicated at B in Fig. 2. As the feed slot 23 in the drum 4 passes or is slightly beyond the center of bite of the drum 4, 5, the feed-rolls 13, 13 have a slight backward rotation imparted thereto by reason of the friction-wheel 20 making contact with the finger 35, thus drawing inwardly on the strip 12 and causing its projected end to be severed therefrom at its point of contact with the knife 37 to permit its pasted surface to adhere to the bag. The friction-wheel 20 after leaving the finger 35 travels for a portion of its revolution with the drum 4 in contact with the segment 21, thus imparting the necessary rotation to the feed-rolls 13 to feed a predetermined length of tape out through the feed-slot 23. At approximately the time of feeding out of the material 12 the free end of the arm 28^a drops into the

depression 32 in the cam 30 and effects a rocking of the shaft 28 and a consequent elevation of the paste-roll 26 to make contact with the master paste-roll 34. On the
 5 continued rotation of the cam 30 and drum 4 the arm 28^a again moves to the neutral zone of the cam, and when the feed-slot 23 of the drum is approximately in the arc of movement of the paste-roll relative to the
 10 shaft 28 such roll is lowered into contact with the projected portion of the tape 12 due to the elevation 33 of the cam moving into contact with and oscillating the arm 28^a, which contact is maintained until the
 15 paste-roll has traversed the length of such strip, thus applying paste thereon for its entire length. As it is desired to apply the paste to the projected portion of the strip only along or near one side edge thereof,
 20 the paste-roll carrying-arm 27 is suitably adjusted on the shaft 28 for such purpose. The pasted strip during the descending portion of its revolution is held to the face of the drum 4 by the guard rod 24, and as it
 25 passes between the drums is pressed in the desired position to a bag A, which has its feed to the drums 4, 5 properly timed for such purpose. The pasted piece is now torn from its strip 12 and left attached to the
 30 bag by the backing-up action of the feed-rolls 13 as above described. The bag after passing from the drums 4, 5 is operated on by suitable mechanism to complete the folding of the end thereof, as shown in Fig. 3.
 35 As this mechanism, however, as well as that employed for feeding and imparting the initial formation to the bag blank and the relative arrangement of my device with respect thereto form no part of my invention,
 40 the same are not shown or described.

I wish it to be understood that my invention is not limited to any specific arrangement or construction of the parts except in so far as such limitations are specified in the
 45 claims.

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

1. In an apparatus of the class described,
 50 the combination of a movable member, tape carrying means within such member, cutter means, and mechanism capable of movements to feed predetermined lengths of tape from such member and then to cooperate
 55 with the cutter means to sever the tape.

2. In an apparatus of the class described, a movable member, cutter means associated with such member, and mechanism operative by a movement of said member to feed
 60 lengths of material from such member and at a predetermined point in a movement of such member to reverse such feeding action whereby to cooperate with said cutter means to sever the material.

65 3. In combination, a movable member hav-

ing a cutting surface, a part cooperating therewith to grip an article fed therebetween, and mechanism operative by a movement of such member to feed lengths of material
 70 from such member and at a predetermined point in the movement of such member to reverse such feeding action, substantially as described.

4. The combination with a feed-drum of material feeding mechanism associated with
 75 the drum and operative by a turning thereof to intermittently feed material in one direction and then in another direction, and means cooperating with such mechanism to sever lengths of material being fed when
 80 moving in one direction.

5. The combination with a feed-drum, of material feeding mechanism which is operative by a turning of the drum to intermit-
 85 tently feed material first in one direction and then to reverse such direction of feed, and a knife cooperating with such mechanism to sever the feed lengths of material when such feeding is reversed.

6. The combination with a drum having
 90 an opening in the rim thereof, of material feeding mechanism carried within said drum and operative to feed a length of material through such opening during a portion of a
 95 revolution of the drum and to reverse such feeding action during another portion of a revolution of the drum and means cooperating with said mechanism to cause the fed
 100 length of material to be severed when the feeding action of the mechanism is reversed.

7. In an apparatus of the class described,
 105 the combination of cooperating feeding members, a mechanism associated with one of said members and operative during a revolution thereof to first effect an automatic
 110 feeding of a length of material from the drum and when such length is gripped between the cooperating members to then effect a reversal of such feed to sever the fed length of material.

8. In an apparatus of the class described,
 115 the combination of a rotatable member having a peripheral opening, tape feeding means carried by said member, means cooperating with said feeding means during a
 120 turning of such member to first effect a feeding of a predetermined length of tape through said feed opening and then to reverse the feeding action, and means for holding the fed lengths fixed relative to the
 125 member when the feeding action of said feeding means is reversed whereby to sever the material at its point of emergence from the member.

9. In an apparatus of the class described,
 130 the combination of a feed drum having a peripheral feed opening, mechanism for automatically feeding a length of tape from the drum through said opening at a predetermined point in its turning movement and

reversing such feed at a different predetermined point in such movement, means for applying a pasting substance to the projecting length of tape, and means cooperating
5 with the drum to hold the projected tape length fixed relative to the drum when the feeding action of said mechanism is reversed whereby such length is severed from the tape.

10 10. In an apparatus of the class described, the combination of a set of rotary feed members, mechanism associated with such member for feeding a length of tape exteriorly thereof through its rim at a predetermined point in its turning movement
15 and adapted to effect a reversal of the feed of the tape when the exteriorly projected portion passes between the feed members whereby to effect a severing of such projected portion, and means for applying a
20 pasting substance to such projected tape portion before it is severed.

11. In an apparatus of the class described, the combination of a rotatable drum having
25 an opening in its peripheral portion, a set of shafts journaled within said drum and revoluble therewith, one of said shafts being extended laterally of said drum, cooperating feed-rolls carried by said shafts
30 and capable of feeding tape through said opening, a member carried by the extended end of said shaft and parts fixed relative to the drum and adapted to coact with said member at different points in a revolution
35 of the drum to effect a movement of the feed-rolls to feed a predetermined length of tape through said opening and then to reverse the feeding-action of the rolls to draw inwardly on the tape, and means cooperating
40 with the drum to hold the projected end of the tape fixed relative to the drum when the tape is drawn inwardly whereby to sever the projected end thereof.

45 12. In an apparatus of the class described, the combination of a rotatable drum having

an opening in its periphery, which opening has a sharp outer edge, a set of shafts carried within the drum and revoluble therewith, feed-rolls carried by said shafts and adapted to cooperate to feed tape through
50 said opening, means fixed relative to the drum for imparting rotation to the feed-rolls at a predetermined point in a revolution of the drum to effect a feeding out of tape, means fixed relative to the drum for
55 imparting a backing-up action of the feed-rolls at a predetermined point in a revolution of the drum, means coacting with the drum to hold the projected end of the tape when the feed-rolls have such backing-up
60 action, whereby the projected portion of the tape is severed therefrom at its point of contact with the sharp edge of said opening, and means for applying paste to the projected end of the strip at a predetermined
65 point in a revolution of the drum and prior to the severance of said projected end from the tape.

13. In an apparatus of the class described, the combination of a set of feed-drums,
70 means associated with one of such drums for effecting a feeding of tape exteriorly of the drum at each revolution thereof, means for applying paste to the exteriorly projected portion of the tape, means for holding
75 the exteriorly projected portion of the tape to the drum surface during a portion of a revolution thereof, and means for effecting a backing-up action of the feed mechanism when the projected portion of
80 the tape is passing between the feed-rolls whereby to effect a severance of such projected portion from the tape.

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

FRANK E. BEAM.

Witnesses:

C. W. OWEN,
HAZEL B. HIETT.