

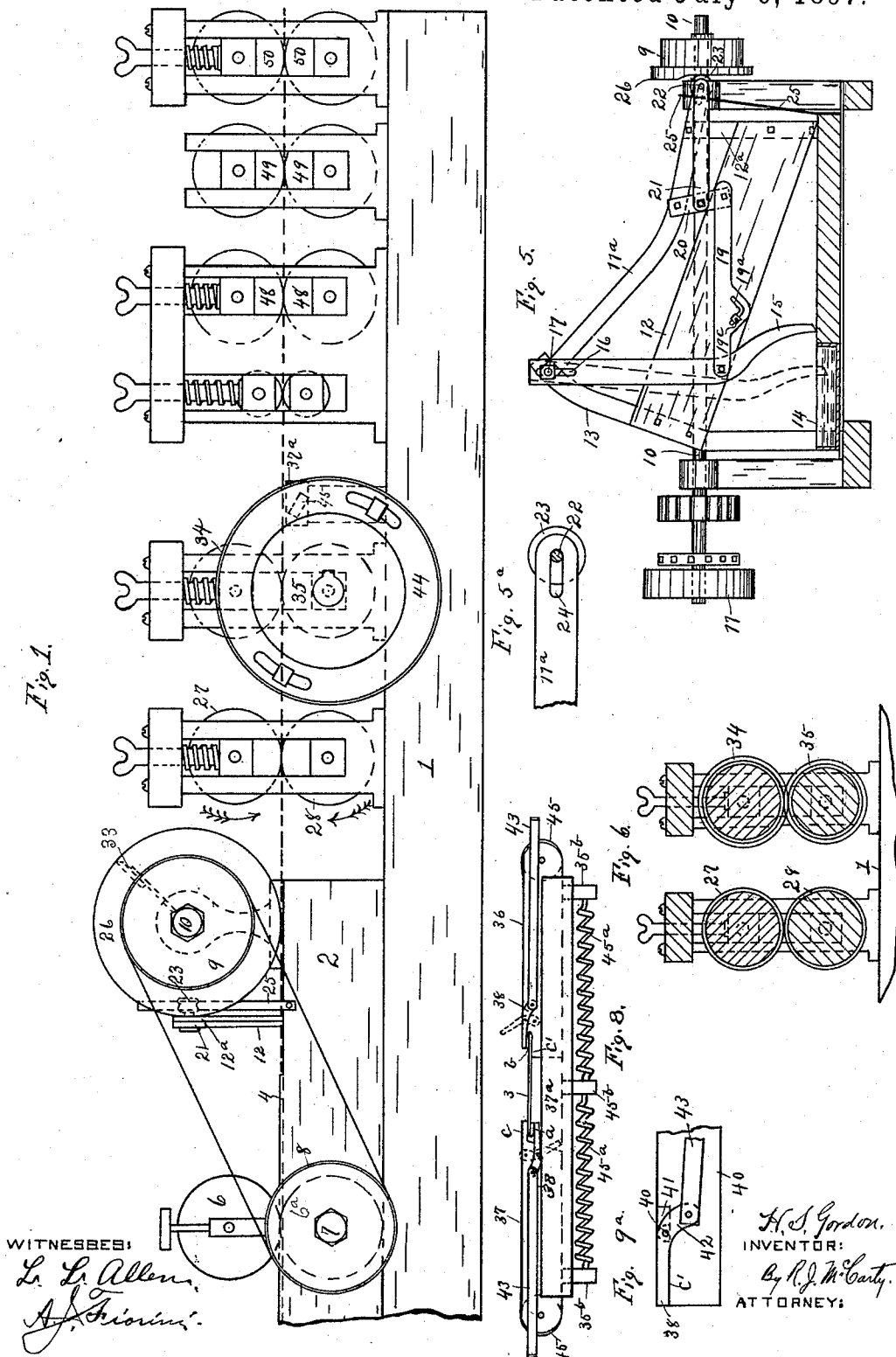
(No Model.)

5 Sheets—Sheet 1.

H. S. GORDON.
BOTTLE WRAPPER MACHINE.

No. 585,748.

Patented July 6, 1897.



WITNESSES:
L. L. Allen,
A. Priorini.

H. S. Gordon,
INVENTOR:
By R. J. McCarty,
ATTORNEY:

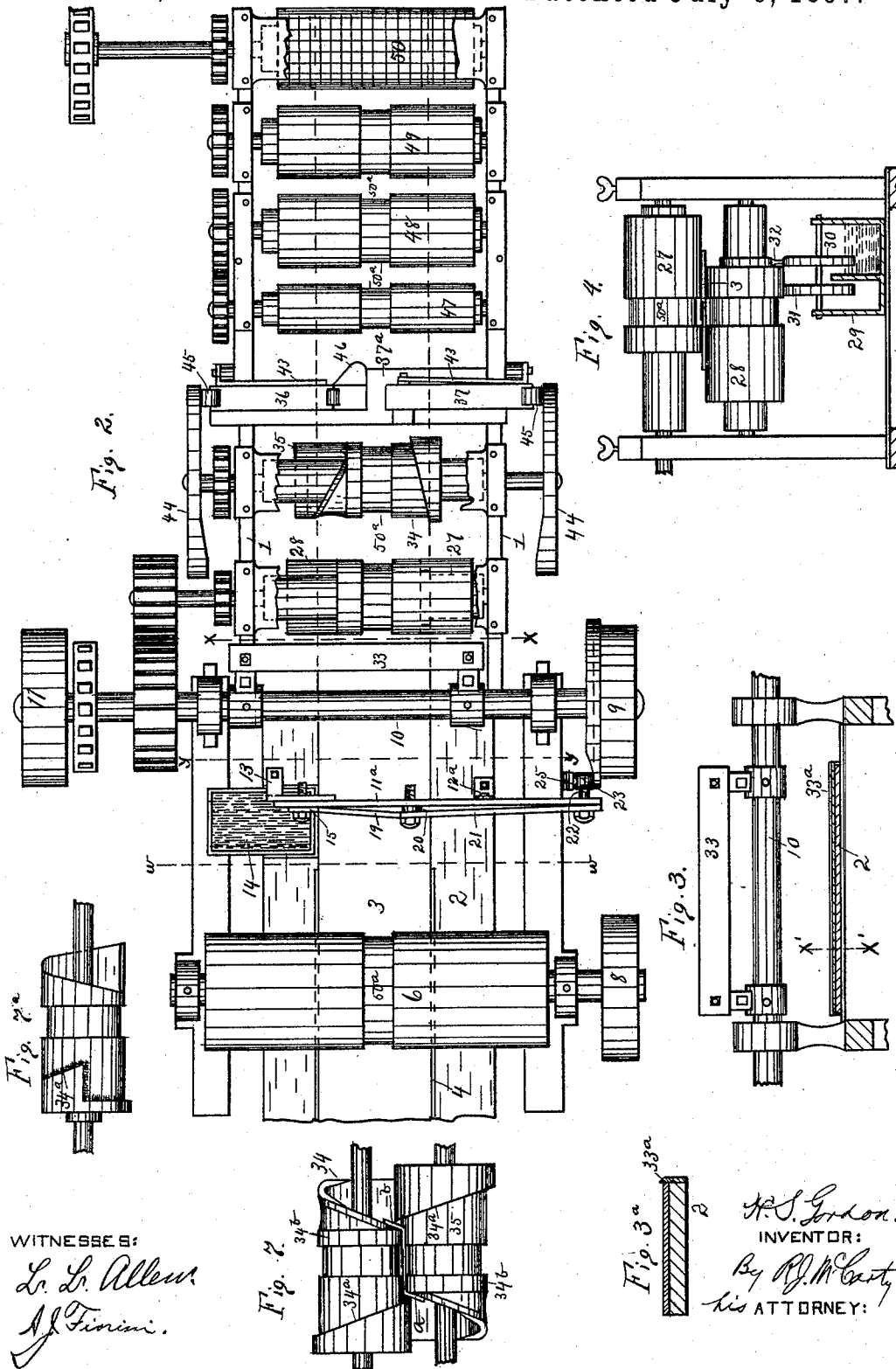
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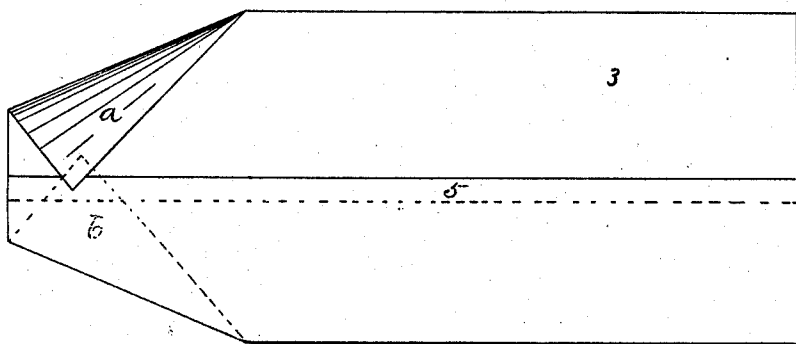
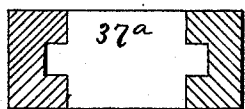
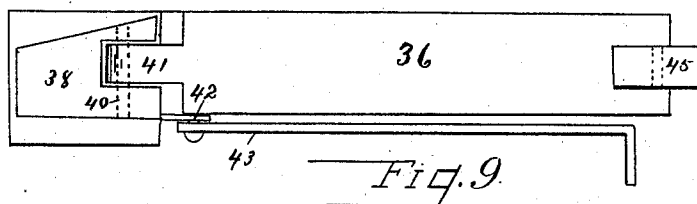
(No Model.)

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WITNESSES:
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(No Model.)

5 Sheets—Sheet 4.

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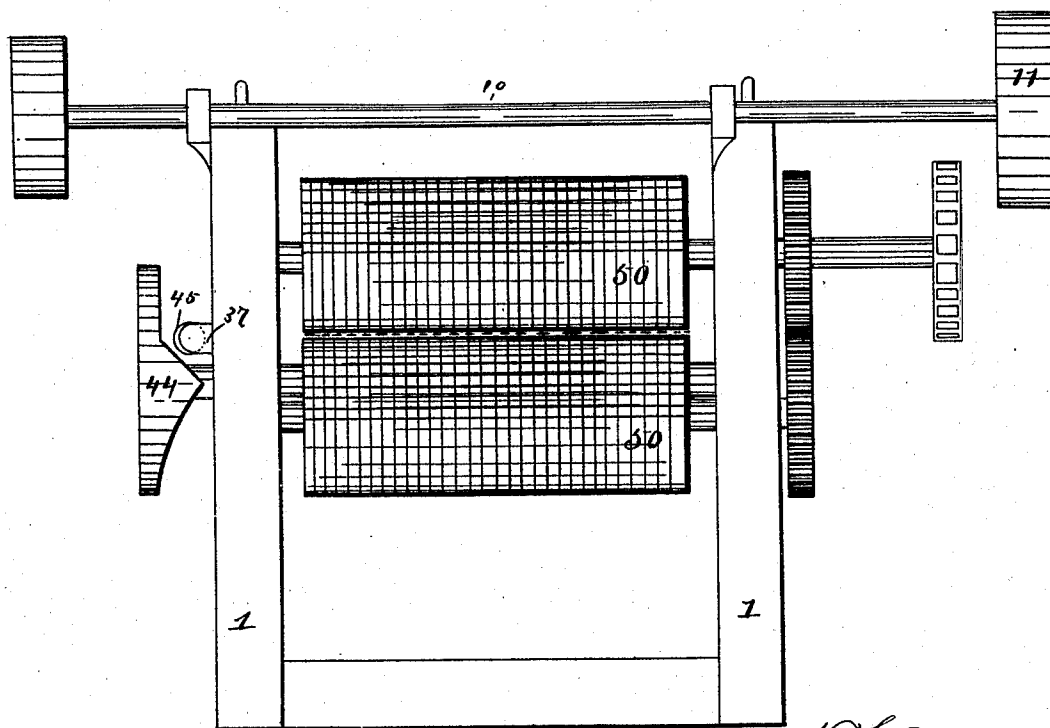


FIG. 12.

WITNESSES

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(No Model.)

5 Sheets—Sheet 5.

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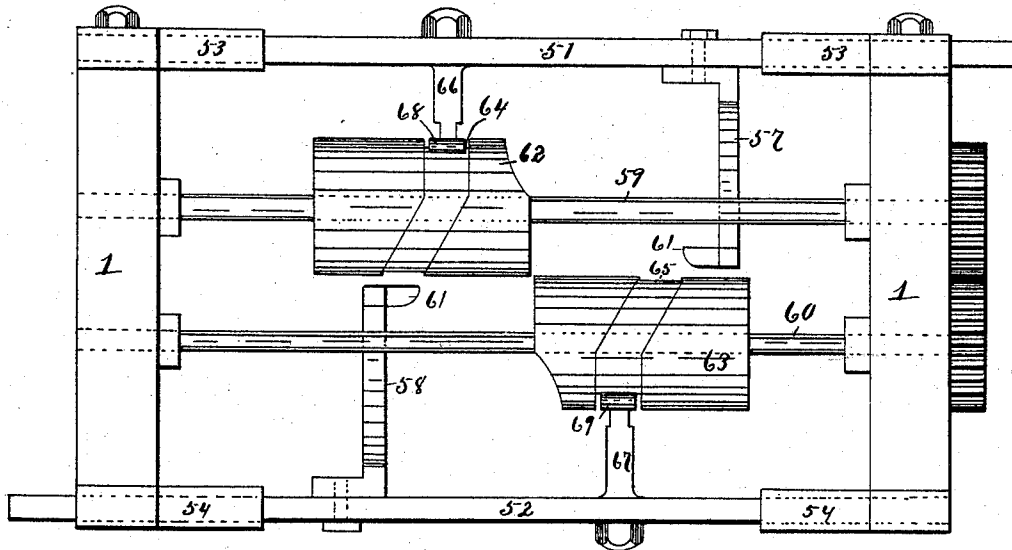


FIG. 13.

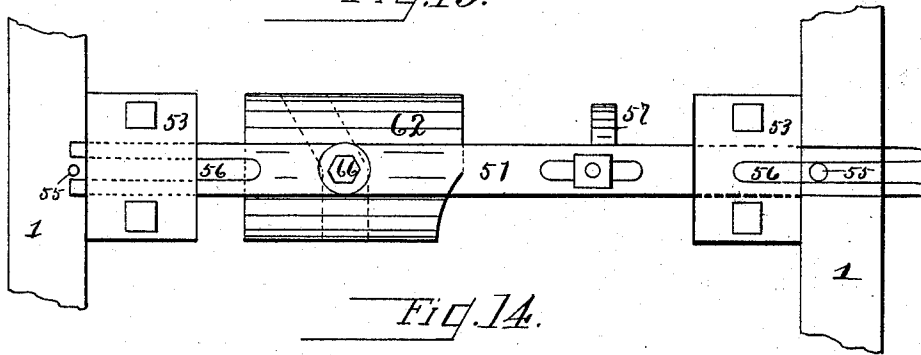


FIG. 14.

WITNESSES.

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UNITED STATES PATENT OFFICE.

HORACE S. GORDON, OF DAYTON, OHIO.

BOTTLE-WRAPPER MACHINE.

SPECIFICATION forming part of Letters Patent No. 585,748, dated July 6, 1897.

Application filed May 18, 1896. Serial No. 592,093. (No model.)

To all whom it may concern:

Be it known that I, HORACE S. GORDON, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Bottle-Wrapper Machines; and I do 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 letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in wrapper-making machines and has specific reference to a machine adapted to make bottle-wrappers.

The object of the invention is to provide a mechanism for folding the corners of the wrappers in opposite directions, so that the greatest thickness of the wrapper will not be all on one side.

A further object is to provide means for gluing the turned-over corners of the wrapper to the body of said wrapper, thus avoiding the use of separate attaching devices to be applied after the wrapper has been turned out of the machine.

To these ends the invention consists of parts, their construction and arrangement, as will hereinafter appear in the description in connection with the accompanying drawings, of which—

Figure 1 is a side elevation of the machine. Fig. 2 is a top plan view; Fig. 3, a section on the line *yy*, Fig. 2, showing the upper cutting-blade. Fig. 3^a is a section on the line *x'x'*, Fig. 3. Fig. 4 is a section on the line *xx*, Fig. 2, showing the mechanism for applying glue to the lower side of the wrapper. Fig. 5 is a section on the line *ww* of Fig. 2, showing the mechanism for applying glue to the upper side of the wrapper. Fig. 5^a is a detail view of a portion of the mechanism for applying glue to the upper side of the wrapper. Fig. 6 is a cross-sectional view of the bending-rollers and the two adjacent feed-rollers; Fig. 7, an elevation of the bending-rollers, as shown in Fig. 2, coacting with each other upon a wrapper to bend the corners thereof. Fig. 7^a is an elevation of one of the

bending-rollers, showing the termination of the bending-shoulder at the point of its greatest diameter. Fig. 8 is an elevation of the creasers which crease the corners against the sides of the wrapper. Fig. 9 is an enlarged top view of one of the creasers. Fig. 9^a is a side elevation of the inner end portion of one of the creasers. Fig. 10 is an enlarged cross-section of the guide in which the creasers slide; Fig. 11, a view of the wrapper completed; Fig. 12, a front end elevation of the machine, showing the corrugated rollers which emboss the wrapper as it passes from the machine; Fig. 13, an elevation of a modified form of mechanism for creasing the corners of the wrappers; Fig. 14, a top plan view of the same, the lower roller being removed.

Similar reference-characters indicate corresponding parts throughout the specification.

1 designates the frame upon which the mechanism is supported.

2 is the bed of the machine, upon which the paper 3 is directed in a guideway 4. As shown in Figs. 1 and 2, this guideway 4 terminates just in advance of the gluing mechanism shown in Fig. 5 and the bed of the machine terminates just on the right of the shaft 10. The paper is fed from a continuous roll (not shown) at an end of the frame, is folded longitudinally, and glued at 5, Fig. 11, as it leaves the roll, so that as the paper enters between the first feed-rollers 6 and 6^a it is folded longitudinally. The roller 6 is turned by friction from roller 6^a on shaft 7, upon which the driving-pulley 8 is mounted. The said pulley 8 is belted to a pulley 9 on the main driving-shaft 10, which has a primary driving-pulley 11 thereon.

The mechanism for applying glue to the upper surface of the wrapper for adhering the upper fold is located across the machine, between the feed-rollers 6 and 6^a and the main shaft 10, and consists of bars 11^a, 12, 12^a, and 13, which are rigidly connected. The two former bars are rigidly connected to the two latter bars, and the two latter bars are rigidly attached to the frame of the machine, as shown in Figs. 2 and 5.

15 designates a reciprocating finger that dips in and out of a glue-box 14, which is located adjacent thereto. This finger 15 ap-

plies glue to the upper side of the wrapper adjacent to the bend as said wrapper passes over the machine. The necessary movement is imparted to said finger, which movement is indicated by the dotted lines, Fig. 5, by the following devices: The upper end of the said finger is provided with an oblong slot 16, through which a pin 17 projects and forms a vertical guide for the up-and-down movement of the finger. The pin 17 projects from the upper connected ends of the bars 11^a and 13. The oscillating movement, or the movement in and out of the glue-box 14, is imparted to the finger by a reciprocating bar 19, one end of which is pivoted to the finger 15 and the other end of which is pivoted to an oscillating piece 20, that has a pivotal connection with the rigid supporting-bar 11^a. The necessary movement is imparted to the pivotal piece 20 by means of a horizontally-reciprocating bar 21, which is pivoted to the center of the bar 20. This bar 21 has a shaft 22 on its outer end, upon which is mounted an anti-friction-roller 23. (Shown clearly in Fig. 2.) The shaft 22 moves inwardly in an oblong slot 24 in the bar 11^a when the highest part of the cam 26 is brought in contact with the roller 23. The said cam 26 is mounted on the main shaft 10, and its movement is timed to actuate the gluing mechanism at the proper time. When said cam ceases to act upon the roller 23, the bar 21 is moved to its outer position by a spring 25, that is secured to any convenient part of the machine and presses outward against the roller 23. The necessary movement is imparted to the bar 19 by providing it with a V-shaped slot 19^a, into which a rigid pin 19^c projects. The said pin projects from the bar 12. The paper is fed past the upper gluing mechanism to the lower gluing mechanism, which is located below the feed-rollers 27 and 28, that are geared to the main driving-shaft.

29, Fig. 4, designates a glue-box, located as described, in which is mounted a gluing-roller 30, that is rotated by friction from roller 31 on the same shaft. This latter roller is driven by friction from the lower feed-roller 28.

32 is a pasting-finger mounted on the shaft of roller 28 and adapted to carry glue from roller 30 to the under side of the wrapper, as shown in Fig. 4, for securing the fold *b*. 33 designates a cutting-blade mounted on the driving-shaft 10. This blade coöperates with a stationary blade 33^a, secured to the bed of the machine, to cut the wrapper from the continuous roll as it passes through the bending-rollers 34 and 35. (See Figs. 3 and 3^a.) The bending-rollers turn the corners *a* and *b* on opposite sides.

Fig. 7 shows the bending-rollers in the act of bending the corners of a wrapper. Each roller has a peripheral shoulder 34^a, that commences near an end, extends around said roller, and terminates near the middle thereof. Fig. 7^a shows the portion of the shoulder that lies nearest the middle and also the por-

tion that lies nearest the end of said roller or the beginning and end of said shoulder. When the rollers are placed together, as in Fig. 7, the position of one is the reverse of that of the other, so that one roller will enter the other and cause the wrapper to bend in opposite directions at the shoulders, as shown. These rollers are so mounted that the portions of the shoulders lying nearest the ends will occupy the inner positions in the rotation of the rollers as the wrapper enters the rollers. The continued rotation of said rollers will bring the shoulders in contact with the rear end of the wrapper and cause it to bend. As the said wrapper passes from between the rollers the portion of the shoulders lying nearest the middle of the rollers will occupy the inner positions, as shown in Fig. 7. Upon leaving these rollers the wrapper enters the creasers, which are shown in Figs. 2, 8, and 9, and consist of horizontal transverse slides 36 and 37, which move in a way 37^a, secured to the frame. The inner ends of these slides are provided with platen-surfaces *c* and *c'*, which lie in the same plane.

38 designates clamps rigid on shafts 40, that penetrate and are loosely journaled in a projection 41 on the inner end of each of said slides, as shown in Figs. 9 and 9^a. Each of the clamps 38 has an outwardly-projecting arm 42, that has a pivotal connection with a bar or rod 43, the outer end of which is fixed to the frame. It will be seen that the connection of the clamps with their respective bars 43 is off the center of the pivotal point of said clamps with the slides, forming a toggle-joint, so that the movement of the slides in and out will have the effect of opening and closing the clamps against the bent corners of the wrappers, as shown in Fig. 8, thereby pressing the said corners down into contact with the glued portion of the wrapper. The horizontal sliding movement is imparted to the slides 36 and 37 by means of two cams 44, that are mounted on the shaft of the bending-roller 35 and rotate in contact with anti-friction-rollers 45 on the outer ends of said slides.

45^a designates two compression-springs, the inner ends of which are connected to a stationary projection 45^b, and the outer ends of which are connected to projections 35^b, that extend downwardly from the creaser-slides 36 and 37. When the cams 44 release said slides, the springs 45^a return them to their outer positions. As the folds *a* and *b* are creased and adhered to the sides of the wrapper by the creasers, the said wrapper is passed over a support 46, projecting from the guide 37^a and through a series of pairs of feed-rollers 47, 48, and 49.

The entire system of rollers may be geared in the most convenient way. Therefore it is thought that a detailed description of the gearing would be unnecessary prolixity.

In the front end of the machine are located the final rollers 50, that emboss the wrapper as the latter passes off the machine. These

rollers are provided with a series of annular grooves intersected by longitudinal grooves which impart to the wrappers an embossed surface that adds to the protection of the bottles around which the wrappers are placed. As appears in the entire system of rollers, there is a central annular groove or recess 50^a, which allows the longitudinal overlapping edges of the wrappers to pass free from pressure.

In Figs. 13 and 14 I have shown different mechanism for creasing the bent ends *a b* of the wrappers, which consists of the following mechanism that may be used in connection with the mechanism shown in Fig. 2: 51 and 52 designate two oppositely-sliding bars that move in ways 53 54 on the machine and are guided by bolts or pins 55, that project vertically into slots 56 in the ends of said bars. These bars carry inwardly-projecting arms 57 58, that curve around the shafts 59 60. The inner ends of said arms are provided with enlarged flat portions 61, that crease the folds of the wrapper as it passes between said parts 61 and the cams 62 63. The latter cams are mounted on the shafts 59 60, and through them motion is imparted to the bars 51 52 to move said bars simultaneously in opposite directions. 64 65 designate annular grooves in said cams. 66 67 designate bolts that are carried on the bars and which have on their ends antifriction-rollers 68 69, that project into the cam-grooves and through which motion is imparted to said bars.

It will be observed that some changes might be made in the above-described mechanism for folding and creasing the corners of the wrappers in opposite directions and for applying the glue to the folds without departing from the spirit of the present invention, the broad idea of which lies in folding the corners of the wrappers in opposite directions and adhering the folds to the body of the wrapper.

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

1. In a bottle-wrapper machine, the combination with primary feed-rollers, of bending-rollers adapted to bend corners of a wrapper in opposite directions as the said wrapper passes through said rollers.

2. In a bottle-wrapper machine, the combination with feed-rollers, of bending-rollers adapted to turn corners of a wrapper in opposite directions as said wrapper passes through them, and mechanism for applying adhesive substance to the portions of the wrapper adjacent to the turned corners.

3. In a bottle-wrapper machine, the combination with feeding-rollers, and a main driving-shaft, of bending-rollers adapted to bend or turn corners of a wrapper in opposite direction, mechanism for applying adhesive substance to the upper and lower sides of said wrapper adjacent to the parts where the bends are made, and a cutting-blade carried on the main shaft for cutting said wrapper.

4. In a bottle-wrapper machine, the combination with feeding-rollers, of bending-rollers adapted to bend corners of a wrapper from above and below, sliding creasers adjacent to said rollers and adapted to seize said bent corners and crease them firmly against the body of the wrapper.

5. In a bottle-wrapper machine, the combination with feed-rollers, of bending-rollers adapted to bend corners of a wrapper in opposite directions, mechanism adapted to apply adhesive substance to the wrapper adjacent to said corners and before the corners are turned by the bending-rollers, and sliding creasers for firmly pressing said corners in contact with the body of the wrapper.

6. In a bottle-wrapper machine, the combination with primary feeding-rollers, and bending-rollers adapted to bend corners of a wrapper in opposite directions, of mechanism located between the primary feeding-rollers and the bending-rollers for applying adhesive substance to both sides of the wrapper, and sliding creasers adapted to crease the bent corners of said wrapper in contact with the body of the wrapper.

7. In a bottle-wrapper machine, the combination with feeding-rollers, of bending-rollers adapted to bend corners of a wrapper in opposite directions, sliding creasers carrying hinged clamps adapted to open and close in opposite directions to crease said bent corners firmly against the body of the wrapper, and cams for simultaneously operating said sliding creasers.

8. In a bottle-wrapper machine, the combination of rollers having peripheral shoulders adapted to bend corners of a wrapper in opposite directions, and horizontally-sliding bars provided with clamps adapted to increase said bent corners against the body of the wrapper, and means for operating said rollers and bars.

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

HORACE S. GORDON.

Witnesses:

R. J. MCCARTY,
W. HIMES.