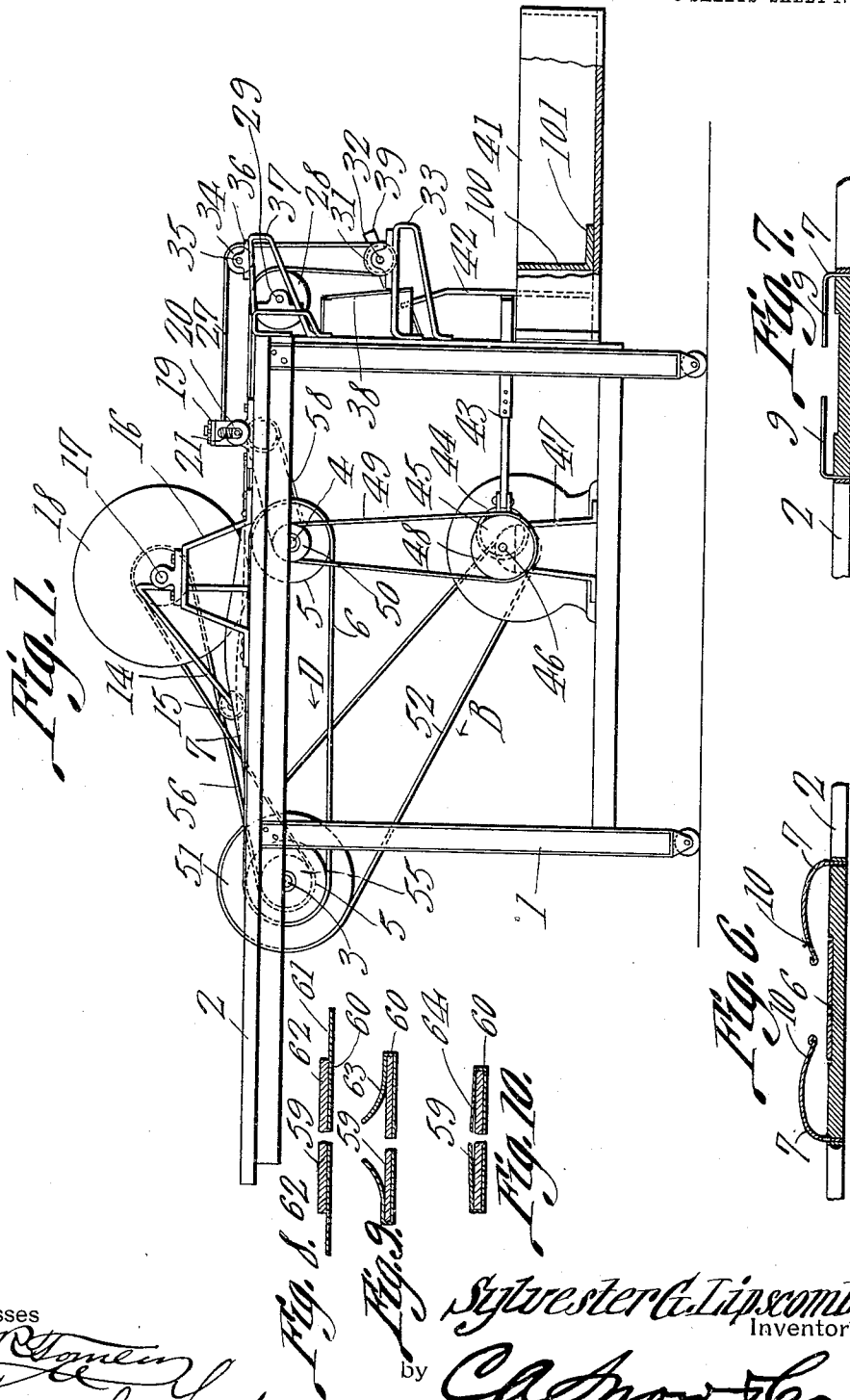


S. G. LIPSCOMB.
WRAPPER FOLDING MACHINE.
APPLICATION FILED MAY 23, 1911.

1,042,577.

Patented Oct. 29, 1912.

3 SHEETS-SHEET 1.



Witnesses

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by

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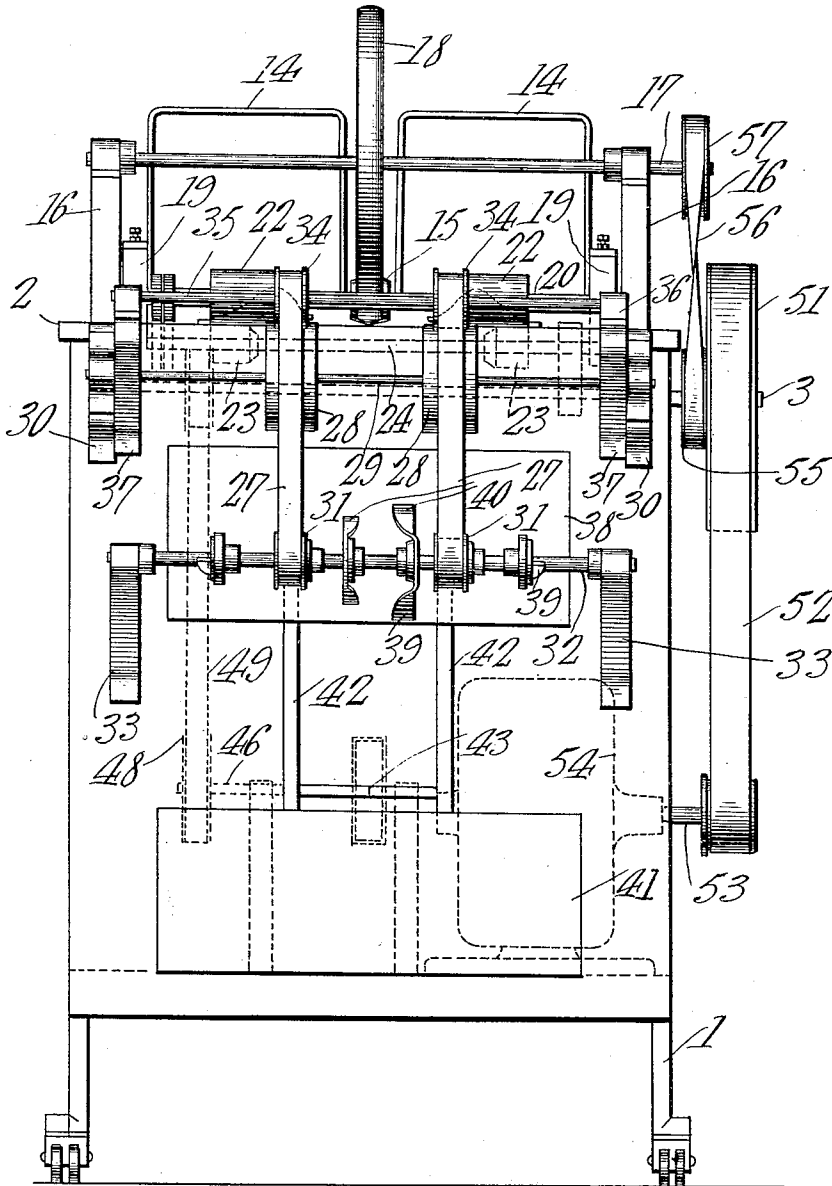


Fig. 2.

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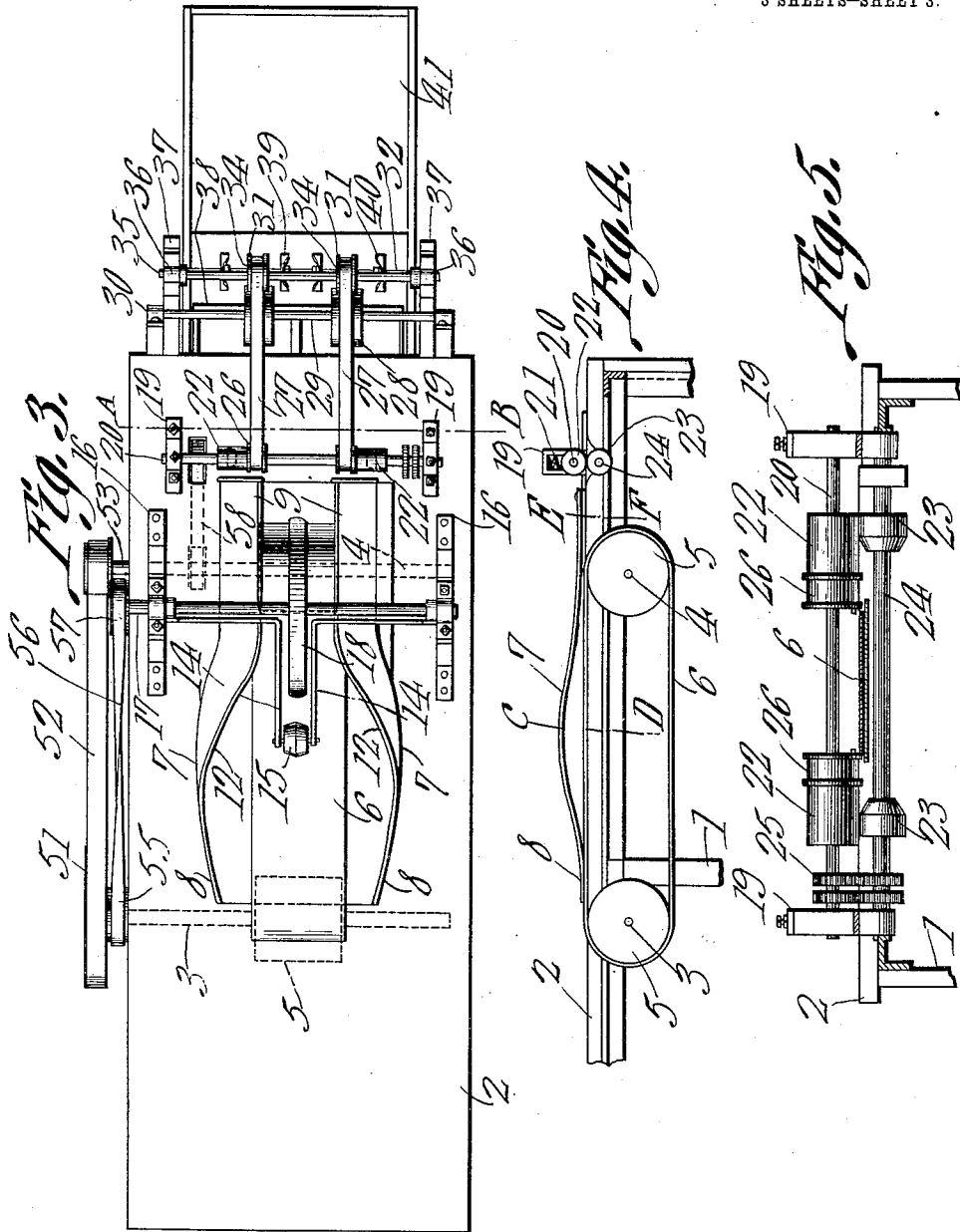
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

SYLVESTER GRANT LIPSCOMB, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO JACOB M. JONES, OF ELIZABETHTOWN, KENTUCKY.

WRAPPER-FOLDING MACHINE.

1,042,577.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed May 23, 1911. Serial No. 628,980.

To all whom it may concern:

Be it known that I, SYLVESTER G. LIPSCOMB, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Wrapper-Folding Machine, of which the following is a specification.

It is the object of this invention to provide mechanism whereby a strip of flexible material may be folded around the ends of a flexible board, the free ends of the strip being creased down upon the board and secured thereto, to protrude in opposite directions, whereby the board may be wrapped around a bottle, the protruding ends constituting a means for inclosing the bottle terminally.

Another object of the invention is to provide means for folding the ends of the strip of material upon the board, to provide means for creasing down the ends of the strip, to provide means for advancing the board and the strip into a suitable hopper or receptacle, and to provide means for compacting the contents of the hopper or receptacle.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings,—Figure 1 shows the invention in side elevation; Fig. 2 is an end elevation; Fig. 3 is a top plan; Fig. 4 is a fragmental longitudinal section; Fig. 5 is a transverse section upon the line A—B of Fig. 3; Fig. 6 is a transverse section upon the line C—D of Fig. 4 parts being omitted; Fig. 7 is a transverse section upon the line E—F of Fig. 4 parts being omitted; Fig. 8 is a fragmental transverse section of the strip and the board, in the positions which they will assume when entering the machine; Fig. 9 is a transverse section of the strip and the board, showing the parts in the positions which they will assume while the material is passing through the folders; and Fig. 10 is a fragmental transverse section showing the strip and the board in the positions which they will assume prior to

the application of these elements to the bottle.

In carrying out the invention, there is provided a frame 1, supporting a table 2. Supported for rotation upon the frame 1, are spaced shafts 3 and 4, extended transversely of the table, each shaft being provided with a drum 5, the conveyer 6 being passed about the drums.

Supported by the table 2, and disposed upon either side of the conveyer belt 6, are folders 7, the forward ends 8 of which upstand from the table. To the rear of the portions 8, the folders are carried toward each other so as to overhang the table, as denoted by the numeral 10 in Fig. 6. The rear portions 9 of the folders are disposed relatively close to the table, as compared with the intermediate portions, as a comparison of Figs. 6 and 7 will show. Referring particularly to Fig. 3, it will be seen that the edges of the folders converge as they extend rearwardly, as denoted by the numeral 12.

Brackets 14 are supported upon the table 2, these brackets projecting forwardly, and supporting an idle roller 15, disposed in close relation to the conveyer belt 6. Bearing brackets 16 are mounted upon the table 2 to the rear of the idle roller 15, the brackets 16 carrying for rotation, a shaft 17, equipped with a roller 18, disposed to the rear of the idle roller 15 and positioned in close relation to the conveyer belt 6, adjacent the longitudinal center of the belt. To the rear of the bearing brackets 16, other bearings 19 are disposed upon the table 2, the bearings 19 carrying for rotation, a secondary shaft 20, which, as shown to best advantage in Fig. 4, may be spring pressed, as at 21, toward the table 2. The shaft 20 carries spaced rollers 22, coöperating with the rollers 23 (Fig. 5) secured to a secondary shaft 24, mounted for rotation upon the table 2, below the shaft 20. The secondary shafts 20 and 24 may be operatively connected at one end, by means of step pinions 25. The rollers 22 are formed, upon their adjacent ends, with pulleys 26, about which belts 27 are passed, the belts 27 being carried downwardly over idle secondary pulleys 28, carried by a shaft 29, rotatable in frame-supported bearings 30. The belts 27 are passed over pulleys 31, carried by a primary shaft 32, supported for rotation upon

frame-carried brackets 33, the belts 27 being carried upwardly from the pulleys 31, over primary pulleys 34, mounted upon a shaft 35, supported for rotation in bearings 36, supported by frame-carried brackets 37. The belts 27 consist, each, of a horizontally disposed segment, and a vertically disposed segment, as will be understood readily from the foregoing description.

A face plate 38, uprightly disposed and acting as a guide for the folded material, is secured to the frame 1, below the pulleys 31.

Secured to the shaft 32, for rotation therewith, are spacer wheels 39, the arms 40 of which are disposed out of alinement with each other, longitudinally of the shaft 32.

Supported by the frame 1, below the face plate 38, and, if desired, adjustably held upon the frame 1, is a hopper 41, projecting rearwardly from the frame. Disposed within the hopper 41, is a presser foot 42, to which is secured a longitudinally adjustable, forwardly extended arm 43, united with a strap 44, surrounding an eccentric 45, carried by a shaft 46, held for rotation in frame-supported bearing brackets 47. Disposed in the hopper 41 and slidable therein, is an upright-head block 100, (see Fig. 1), provided with a lateral foot 101 for its support.

Secured to the shaft 46, is a pulley 48, about which is passed a belt 49, the belt being carried upwardly about a pulley 50 secured to the shaft 4. The shaft 3 is equipped at one end, with a pulley 51, about which is passed a belt 52, operatively connected with the armature shaft 53 of the electric motor 54, supported upon the frame 1, or disposed in close relation thereto. The shaft 3 likewise carries a pulley 55, about which is passed a belt 56, engaging a pulley 57 upon the shaft 17. The shaft 4 is operatively connected with the shaft 24, by means of a belt 58.

Before describing specifically, the operation of the machine, it will be pointed out what manner of material the device is adapted peculiarly to handle. With this end in view, Figs. 8, 9, 10 may be examined profitably.

In wrapping bottles and the like, a board 59 ordinarily fashioned from corrugated flexible material, has applied to one face thereof, a strip of paper 60, the ends 61 of which protrude beyond the ends of the board 59, as indicated in Fig. 8. Glue is applied to the lower face of the board 59, adjacent one end thereof, whereupon the lateral edges 61 of the strip 60 are folded over the lateral edges 62 of the board 59 as indicated at 63 in Fig. 9. The lateral edges of the strip 60 are finally flattened down upon the upper face of the board, as shown at 64 in Fig. 10. The board 59 and the strip 60 are then wound transversely around the bottle to

form a tube. The board 59 and the strip 60 being properly glued, manually or otherwise, the board and the strip are laid upon the table 2 and advanced upon the conveyer belt 6, the parts of the material being substantially in the positions shown in Fig. 8. The conveyer belt 6 will advance the material until the ends 61, passing along the converging edges 12 of the folders 7, are disposed substantially as shown at 63 in Fig. 9, rear portions 9 of the folders finally folding over the lateral edges of the strip into the positions indicated by the numeral 64. The material, passing beneath the idle pulley 15, will be engaged by the roller 18, the roller 18 coöperating with the belt conveyer 6 in advancing the material from the forward end of the machine toward the rear end thereof. The conveyer belt 6 will feed the material between the rollers 22 and 23, the folding of the ends of the strip 60 being thus consummated. The material, with the ends of the strip 60 folded upon the board 59, as in Fig. 10, will pass beneath the belts 27, the belts carrying the material over the idle rollers 28, and passing the material downwardly along the outer face of the plate 38, into the hopper 41, whereupon the presser foot 42 will advance the material toward the head block 100 which will recede as the material accumulates in the hopper. The rotary spacers 39 strike the upper edge of each wrapper after it has been deposited in the hopper 41 and flip the upper edge of the wrapper rearwardly, out of the way of the next wrapper descending along the plate 38 into the hopper 41.

The operation of the device, so far as the drives are concerned, is as follows:—When the motor 54 is in operation, the armature shaft 53 thereof, through the instrumentality of the belt 52, will rotate the shaft 3, causing the conveyer belt 6 to advance the material beneath the folders 7. The shaft 3, by means of the belt 56, will rotate the shaft 17, causing the roller 18 to coöperate with the conveyer belt 6 in advancing the material. The shaft 4, rotating under the action of the belt conveyer 6, will, through the instrumentality of the belt 58, cause a rotation of the shaft 24, the shaft 24 through the step pinions 25 causing a rotation of the shaft 20, the rollers 22 and 23 thus coöperating to crease the strip 60 down upon the board 59. The shaft 20 in its rotation will actuate the belts 27, whereby the material is carried downwardly into the hopper 41. The shaft 4, actuating the belt 49, will impart rotation to the shaft 46, actuating the eccentric 45 and causing a reciprocation of the arm 43, whereby the presser foot 42 will be advanced and retracted in the hopper 41. After the glue has been applied to the board 59 and the strip 60, these elements, being fed through the machine, will emerge

therefrom in position to be wrapped about the bottle, the ends of the strip 60 being automatically folded over and around the ends of the board 59.

5 In fashioning manually, wrappings of the character hereinbefore described, the major portion of the time of the operator has been consumed in bringing the ends of the strip 60 around the ends of the board 10 59, and in pressing the ends of the strip upon the board.

The machine herein disclosed requires merely that the glue be applied to the elements of the wrapping, and that these elements be properly positioned with respect 15 to each other, before the wrapping, in glued, but unfolded condition, is placed upon the table 2 for advancement by the conveyer belt 6.

20 Having thus described the invention, what is claimed is:—

1. In a device of the class described, a table; superposed shafts supported for rotation adjacent the upper face of the table; 25 means for connecting the shafts; coöperating rollers upon the shafts; a conveyer belt operable by one shaft and carried anti-frictionally over the edge of the table, part of the lower run of the belt lying above the 30 table; folding mechanism; and means for passing the material through the folding mechanism and for delivering the material between the rollers and between the lower run of the belt and the table.

35 2. In a device of the class described, a table; a hopper located at one end of the table; a primary shaft journaled for rotation below the table and above the hopper; superposed secondary shafts journaled for rotation adjacent the top of the table; co- 40 operating rollers upon the secondary shafts; primary and secondary pulleys journaled adjacent the edge of the table; a belt engaged with the primary shaft and with one 45 of the secondary shafts, the belt having its upper and lower runs carried over the primary and secondary pulleys, respectively; an upright guide located below the secondary pulley; radial spacers upon the pri- 50 mary shaft, located in the vicinity of the guide and above the hopper; folding mechanism; and means for advancing the material to the folding mechanism, and for delivering the material between the rollers,

and between the lower run of the belt and 55 the upper face of the table, whereby the material will be advanced by the belt, over the secondary pulley and along the guide, into the hopper, the spacers constituting means for moving the material in the hop- 60 per, out of the way of material traversing the guide.

3. In a device of the class described, a table; superposed shafts supported for rotation adjacent the upper face of the table; 65 intermeshing pinions upon the shafts; rollers upon the shafts; a conveyer belt operable by the roller of one of said shafts, the conveyer belt being carried anti-frictionally over one edge of the table; spaced shafts 70 journaled for rotation adjacent the table; a second belt conveyer operable by the said shafts; means for operatively connecting one of the last mentioned shafts with one of the first mentioned shafts; folding means 75 through which the second conveyer advances the material, to deliver the same between the rollers and beneath the first mentioned belt conveyer; a shaft supported for rotation below the table and receiving that portion of 80 the first mentioned belt conveyer which is extended below the table; and means operable by the last mentioned shaft for moving the material after the same has passed from the first mentioned belt conveyer. 85

4. In a device of the class described, a table; folding mechanism thereon; means for advancing the material through the folding mechanism; a belt consisting of a horizontally disposed segment adapted to 90 receive the material after it is folded, and a vertically disposed segment; an upright member disposed adjacent the vertical segment of the belt, and constituting a guide for the material; a hopper at the base of 95 the guide member; a shaft disposed adjacent the guide member and constituting a support for one end of the belt; and radial spacers rotatable with said shaft, and operating in close proximity to the hopper. 100

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

SYLVESTER GRANT LIPSCOMB.

Witnesses:

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DUDLEY C. JONES.