Oct. 2, 1962 F. A. LYON ETAL 3,056,246

BOTTLE WRAPPING MEANS

Filed March 14, 1961 7 Sheets-Sheet 1

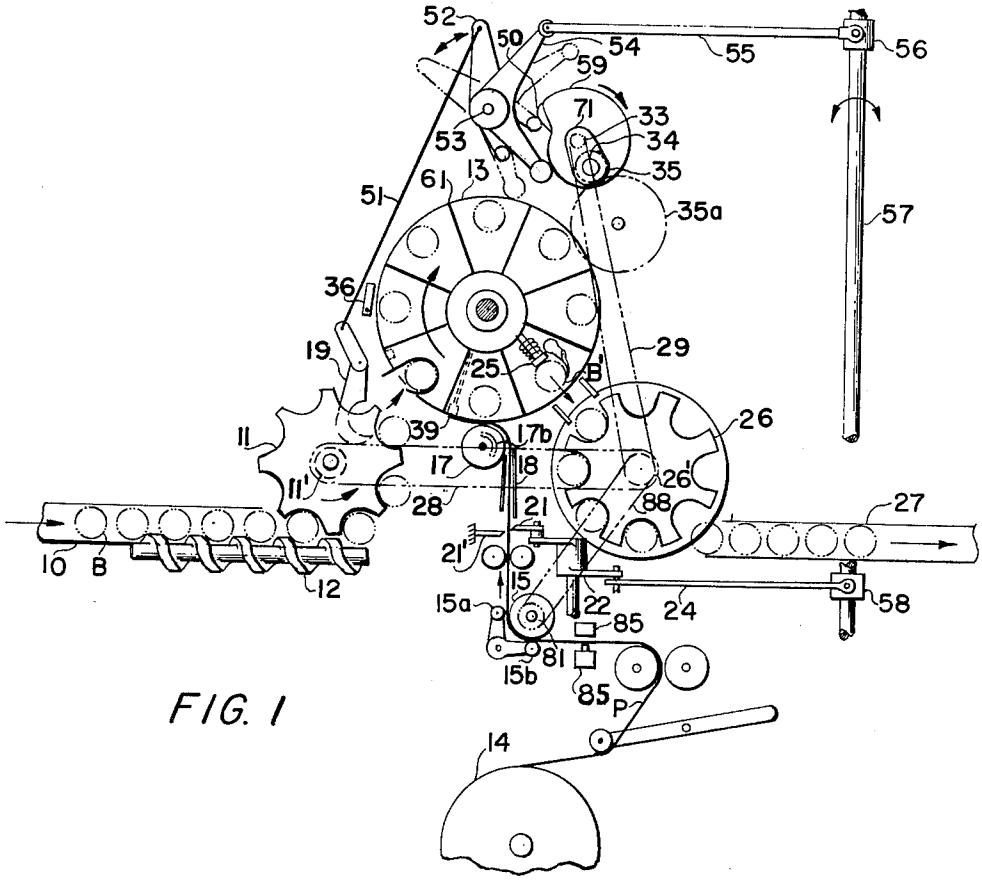


FIG. 1

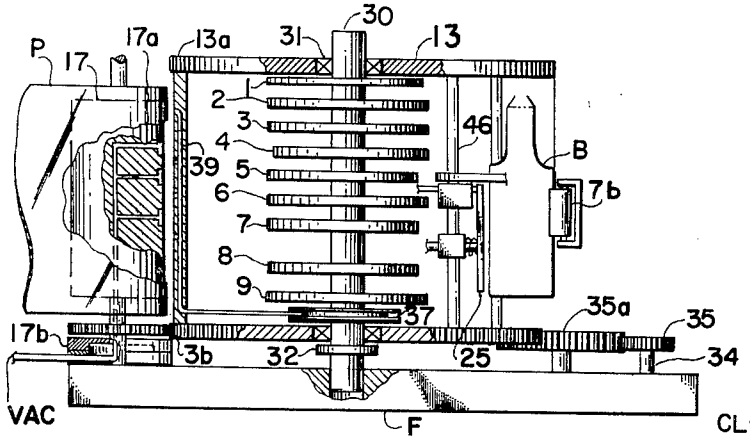


FIG. 2

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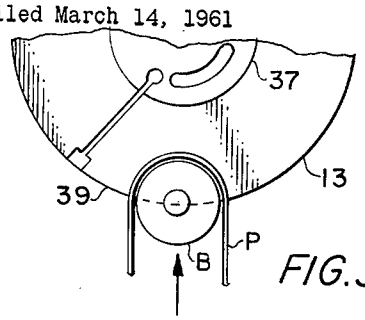


FIG. 3

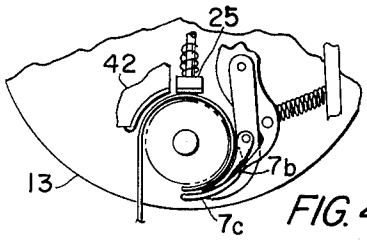


FIG. 4

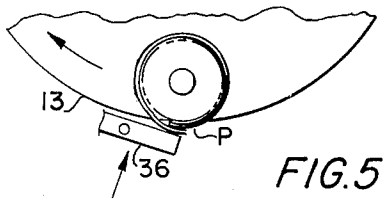


FIG. 5

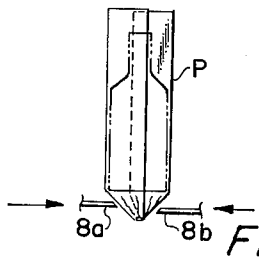


FIG. 6

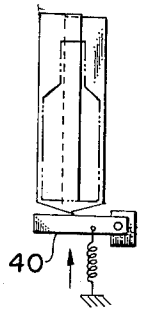


FIG. 7

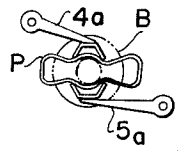


FIG. 8A

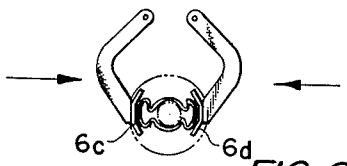


FIG. 8B

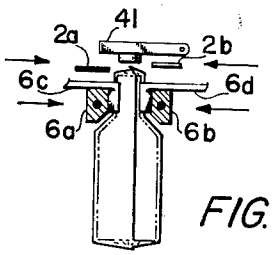


FIG. 9

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BOTTLE WRAPPING MEANS

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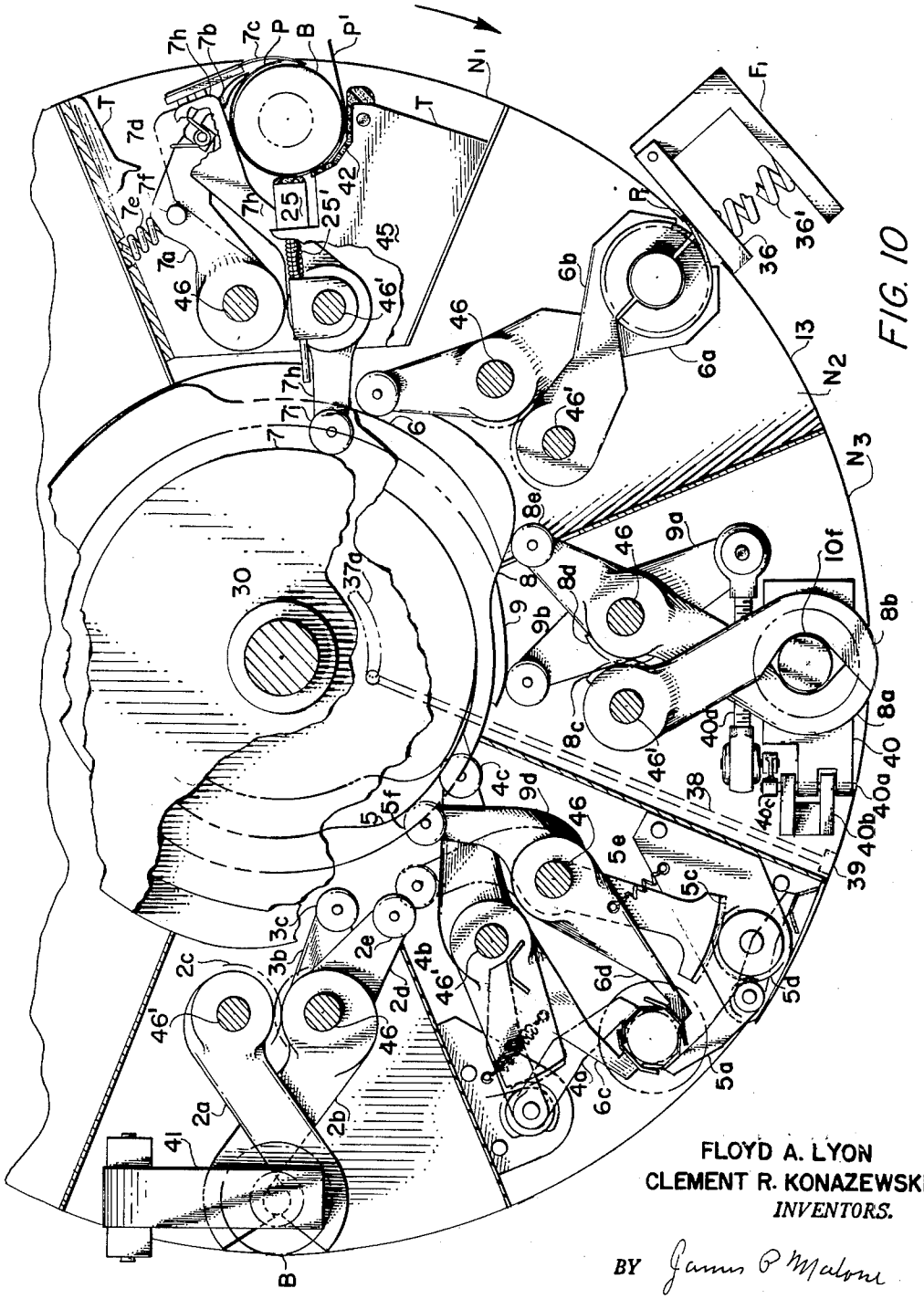


FIG. 10

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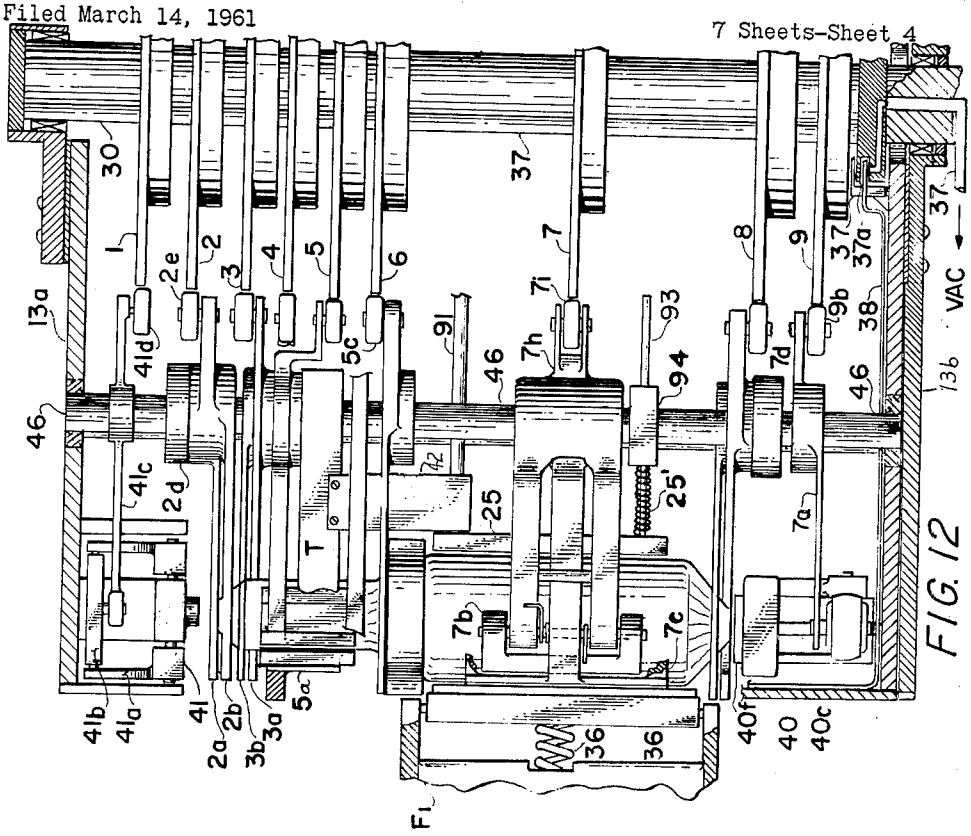


FIG. 12

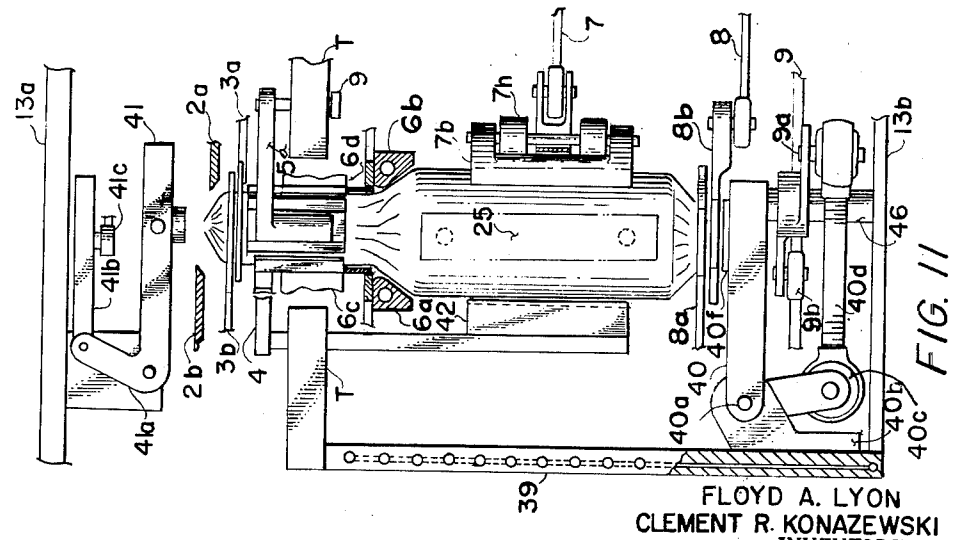


FIG. 11

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BOTTLE WRAPPING MEANS

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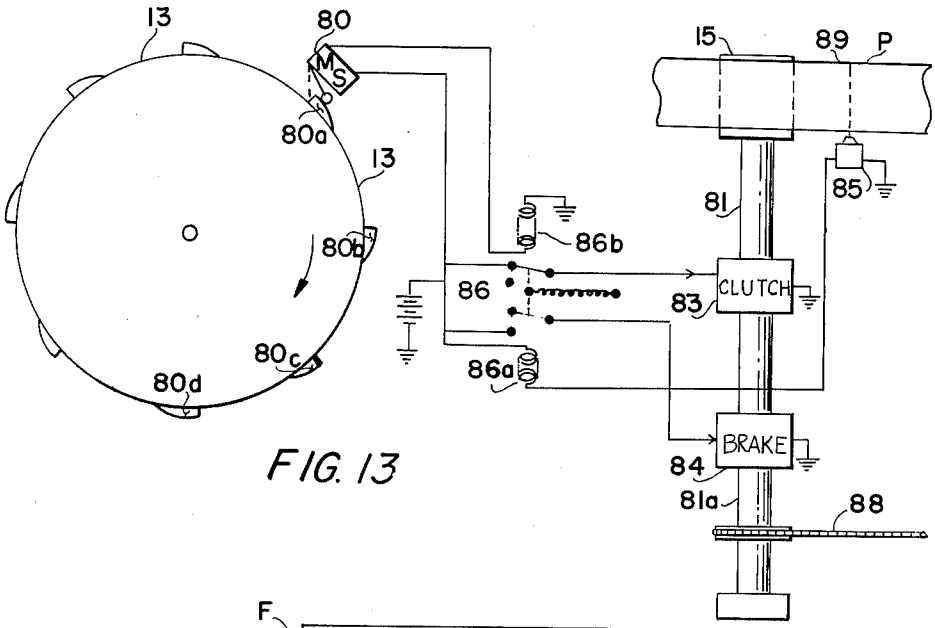


FIG. 13

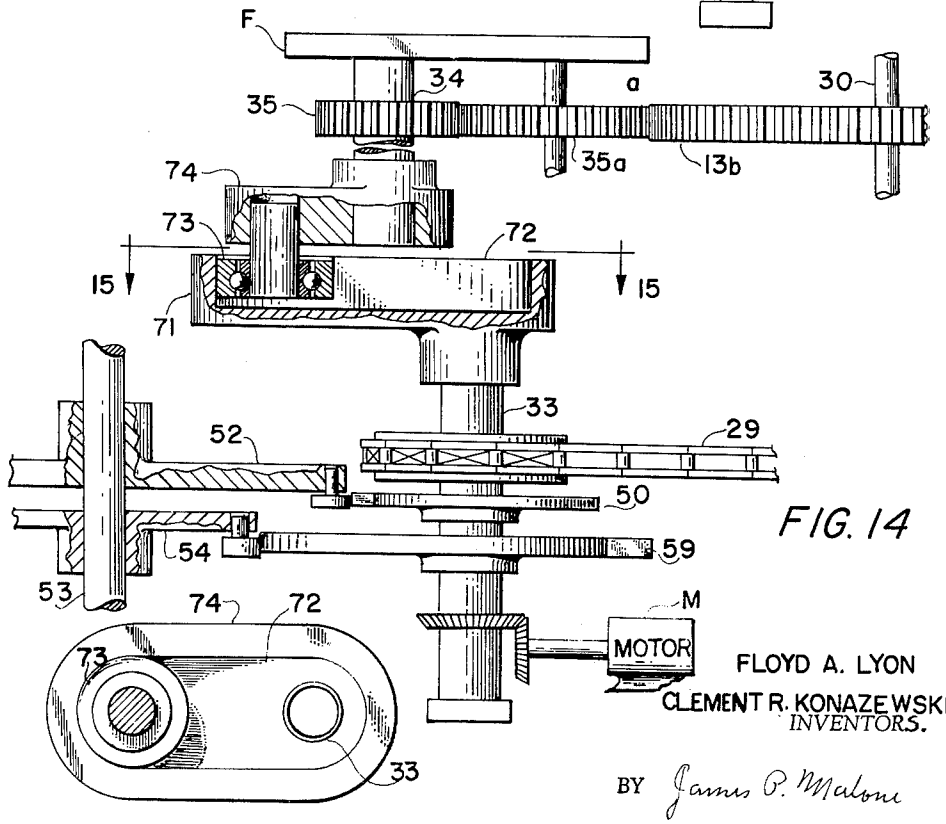


FIG. 14

FIG. 15

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BOTTLE WRAPPING MEANS

Filed March 14, 1961 7 Sheets-Sheet 6

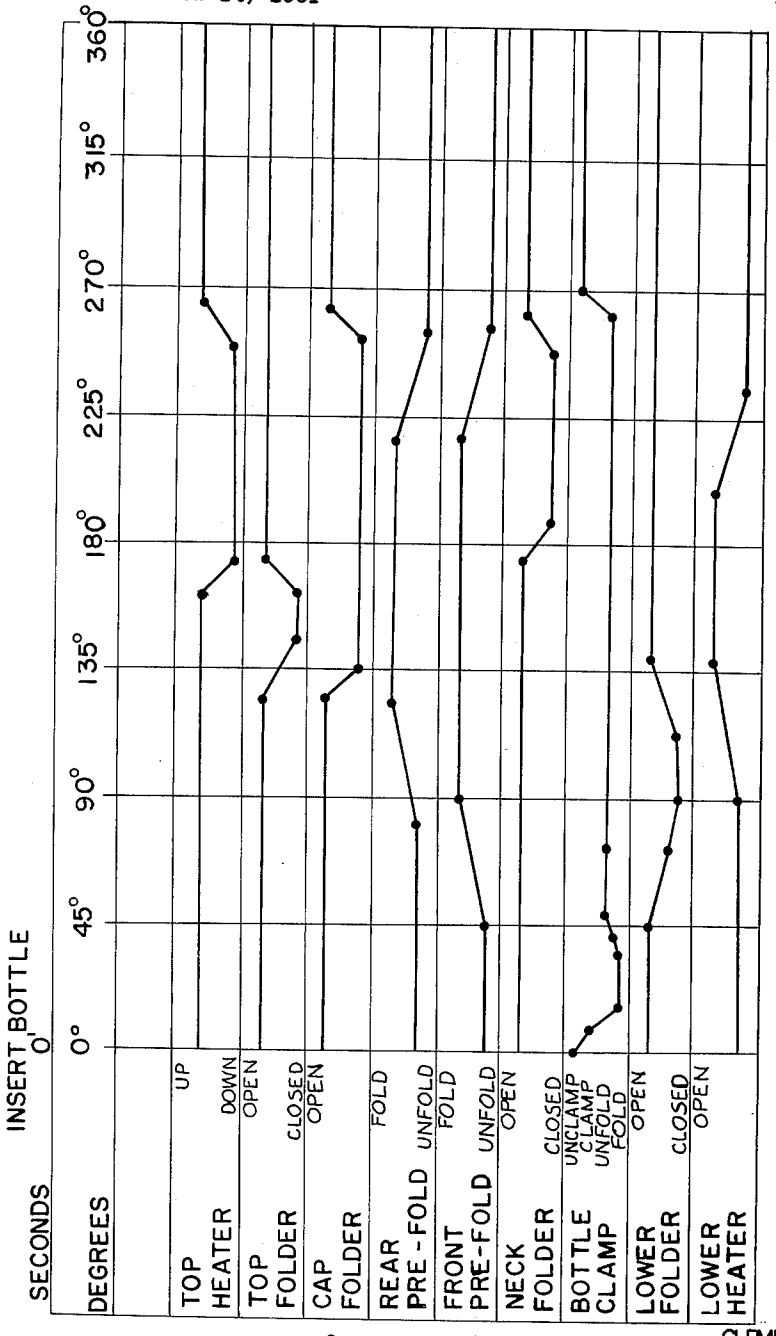


FIG. 16

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BOTTLE WRAPPING MEANS

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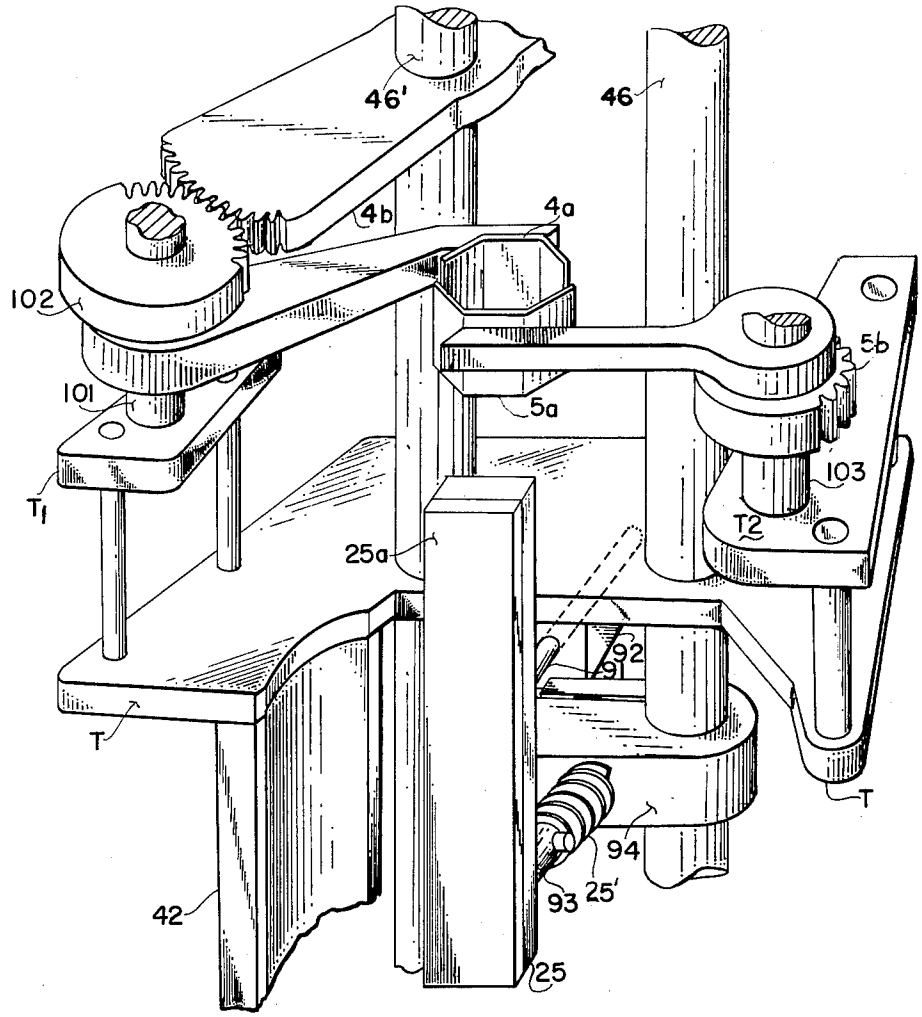


FIG. 17

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United States Patent Office 3,056,246
Patented Oct. 2, 1962

3,056,246

BOTTLE WRAPPING MEANS

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Filed Mar. 14, 1961, Ser. No. 95,643
10 Claims. (Cl. 53—49)

This invention relates to bottle wrapping means and more particularly to means for automatically applying a paper wrapper over the entire surface of a bottle.

More particularly the invention pertains to means for feeding bottles to a work location, means for feeding paper to a work location, and automatically cutting, applying and sealing the paper completely around the bottle, including the top and bottom thereof.

The present invention generally comprises a rotating turret having a plurality of bottle holding nests. The bottles are fed into position on the turret, the paper is likewise fed to the turret prior to the bottle being inserted in the nest. As the turret rotates various operations are performed to form the paper completely around the bottle and seal it at the top, bottom, and neck portions thereof. The paper is preferably of the type which may be sealed by the application of heat. The various arms and mechanisms which actuate the different forming and sealing operations are actuated by a series of stationary cams mounted on a stationary post in the center of the revolving turret. The cams are arranged so that the operations are performed in a predetermined sequence as the turret is rotated around. After the paper has been wrapped and sealed around the bottles, the bottles are ejected from the turret.

Accordingly, a principal object of the invention is to provide new and improved bottle wrapping means.

Another object of the invention is to provide new and improved bottle wrapping means utilizing heat sealing.

Another object of the invention is to provide new and improved bottle wrapping means comprising a rotatable turret adapted to receive bottles, means to feed the wrapping paper to the turrent and means to form, wrap and seal the paper around the bottle at the sides, neck, top and bottom thereof.

Another object of the invention is to provide new and improved bottle wrapping means which are high speed and automatic.

Another object of the invention is to provide new and improved bottle wrapping and sealing means comprising a rotating turret having a plurality of bottle holding means, means to feed bottles to said turret, means to feed paper blanks to said turret, folding arm means adapted to form and wrap said paper blank around said bottle, heat sealing means adapted to seal said paper around said bottle.

Another object of the invention is to provide new and improved bottle wrapping and sealing means comprising a rotatable turret, means to feed bottles and paper blanks to said turret, means to form, wrap and seal said paper around said bottles and means to actuate said forming means in a predetermined sequence comprising a series of stationary cams mounted on a stationary post at the center of said turret whereby the said turret rotates, the various forming, wrapping and sealing operations are actuated in predetermined sequence by said cams.

These and other objects of the invention will be apparent from the following specification and drawings, of which

FIG. 1 is a plan schematic view of an embodiment of the invention.

FIG. 2 is a partial side schematic view of the embodiment of FIG. 1.

FIGS. 3 through 9 are schematic diagrams illustrating the operation and sequence of the invention.

FIG. 10 is a detail view partially broken away to show the detail of the turret construction.

FIGS. 11 and 12 are front and side detail views of a nest mounted on said turret.

FIG. 13 is a schematic diagram illustrating the paper feeding means.

FIGS. 14 and 15 are detail views of the variable speed turret drive.

FIG. 16 is a graph illustrating time and cam layout.

FIG. 17 is a perspective detail view.

Referring to FIG. 1, bottles B are fed in along the guide **10** and are placed in engagement with the star wheel **11** by means of the conventional screw type actuator **12**. The bottles are fed from the star wheel **11**, which may be conventional, to the turret **13** which has a plurality of nests adapted to receive the bottles. The turret **13** rotates in a clockwise direction and as it rotates, various forming, wrapping and sealing operations are performed by suitable means, as will be discussed hereafter.

The wrapping paper blanks are fed from a rotatably mounted roll **14** of paper P by driven roller **15** against idlers **15***a*, **15***b* and suitable guide means to vacuum roller **17** having vacuum port **17***a* and into engagement with the surface of the turret **13** so that the leading edge of the paper web is gripped by a vacuum port **39** in the turret. Roller **17** is geared to the turret, FIG. 2, and connected to a source of vacuum through valve **17***b*. The paper blanks are cut to the proper length by means of the knife **21** which is actuated by a linkage **22** which is cam actuated. The linkage **22** actuates the knife **21** by means of a member **24** as will be explained, so that the knife **21** shears the paper against the stationary edge **21'**.

When the turret **13** rotates around to the position shown by the bottle B' the wrapped bottle is ejected by means of the spring loaded plunger **25** or other conventional means, into the exit star wheel **26**, which may be conventional and which conveys the bottles to the exit guide **27**. The star wheels **11** and **26** are conventional and are connected together by chain **28** and to drive shaft **33** by chain **29**. Alternatively, the bottles may be fed into and out of the turret manually.

More particularly referring to FIGS. 1 and 14, the rotatably mounted injector arm **19** is operated by cam **50** on shaft **33** through the linkage including the member **51** connected to the arm **19**. The other end of the arm **51** is connected to a crank arm **52** having a cam follower which rides on the cam **50**, the arm **52** being mounted on the shaft **53**. The crank arm **54** mounted on shaft **53** is operated by the cam **59**. The other end of the crank arm **54** is connected to the member **55**, the other end of which is pinned to a collar **56** fixed on shaft **57**, whereby as the cam **50** rotates an oscillating motion is imparted to the shaft **57**. The other end of the shaft **57** is connected to operate the cutting knife **21** through the linkage comprising the member **24** and crank arm **22**, the member **24** being pinned to a collar **58** fixedly mounted on shaft **57**. The input and output star wheels **11** and **26** are connected together with a drive chain **28** and they are both driven by means of the chain **29** connected to the shaft **33**.

Referring to FIGS. 1, 14 and 15, the turret has a variable speed motion which decelerates once each cycle to permit insertion and ejection of the bottles, at slow speed. This motion is provided by means of the motor driven shaft **33** which is driven at constant speed by motor M. The shaft **33** is connected to the shaft **34** which drives the turret, through the variable speed mechanism comprising the slotted arm **71** having a slot **72** which accommodates the roller **73** connected to the arm **74** which is fixedly connected to the shaft **34**. The center of shaft **34** is eccentric to that of shaft **33** so that as shaft **33** drives shaft

34, the speed of shaft 34 and the turret alternately increases and decreases. The bottles are inserted and ejected from the turret at the minimum speed point by synchronizing cams. The minimum peripheral speed is equal to the peripheral speed of the input and output star wheels.

Also referring to FIGS. 1, 13 and 14, shaft 34 drives the turret gear 13*b* through idler gear 35*a*. The turret gear 13*b* drives paper roller 17. Shaft 33 drives star wheel shaft 26' at constant speed through chain 29, and drives shaft 81*a* through chain 88. The slow speed of the turret equals the constant speed of star wheels.

Referring to FIGS. 1 and 13 the paper is moved intermittently as follows:

The paper P is driven by the roller 15 which is mounted on the shaft 81, 81*a*, which is driven by chain 88 connected to star wheel 26 and input shaft 33, through the clutch 83 which may be a magnetic clutch means. There is also a brake 84 on the shaft 81 which may be a magnetic brake means. The shaft 81*a* operates continuously and is connected to the paper drive roller 15 through the clutch 83 in response to a signal from the microswitch 80 which is actuated by eight equally spaced contacts 90*a*, 90*b*, etc. mounted on the turret 13. The microswitch 80 also releases magnetic brake 84. Photocell 85 operates in response to printed marks 89 on the paper to disconnect clutch 83 and apply brake 84.

More specifically, the microswitch 80 operates snap action double pole switch 86 to "up" position with solenoid 86*b*, and photocell 85 operates switch 86 to the "down" position with solenoid 86*a*. Each signal is momentary. The paper drive therefore stops and starts very quickly. Other equivalent paper drive means may be used. The magnetic clutch and brake are conventional.

The operation of the paper feeding is as follows:

The motor shaft operates continuously. When the turret is in position to receive a new paper blank the microswitch 80 operates the clutch 83 to turn the paper feeding roller 15. The paper feeding is stopped by means of the photocell 85 which is actuated by printed marks on the paper. The operation of the knife 21 to cut the paper, is synchronized with the turret movement through cam 59 on shaft 53.

FIG. 2 shows a side schematic view of the turret 13 which comprises a series of nests each connected to an upper member 13*a* and a lower geared member 13*b* which are rotatably mounted on a stationary shaft 30 by means of bearings 31 and 32. A series of stationary cams 1–9 are fixedly mounted on the stationary shaft 30. The cams are adapted to actuate the various folding, wrapping and sealing means by linkages which are mounted on the turret 13 as will be described. A stationary vacuum valve 37 is also mounted on shaft 30. The turret 13 is adapted to be rotated at variable speed by means of the driven shafts 33 and 34 and gears 35 and 35*a* connected to the gear teeth on the lower turret member 13*b*, explained in connection with FIG. 14. The bottle B is clamped by clamp 7*b* against spring loaded ejector 25. Vacuum roller 17 is geared to the turret and supplied with vacuum through valve 17*b*.

FIGS. 3 through 9 are schematic diagrams illustrating the sequence of operations.

FIG. 3 shows the bottle B being placed in the turret 13 in one of the nests thereof. The paper blank P has already been applied and held to the turret by means of the vacuum port 39 and vacuum roller 17. At the time shown in FIG. 3, the vacuum has been released by valve 37.

Immediately thereafter, as shown in FIG. 4, the clamping arm 7*b* clamps the bottle into position on the turret by means of side pressure against member 42 and immediately thereafter the extending finger on the arm 7*c* wraps one edge of the paper blank around the side of the bottle.

FIG. 5 shows the turret 13 then rotating past a spring loaded, pivotally mounted heating iron 36 which applies the other edge of the paper over the first edge as arm 7*c* is retracted and seals them together along the side of the bottle by the application of heat. The paper is of the type pre-treated with heat sealing adhesive.

The paper now has a cylindrical form around the bottle as illustrated in FIG. 6. The next operation shown in FIG. 6 is performed by the bottom folding arms 8*a* and 8*b* which form the paper around the bottom of the bottle.

FIG. 7 shows the next operation which is the heat sealing of the bottom which is performed by the pivotally mounted heater 40 which is mounted on the turret and which is actuated by its associated cam and linkage as will be described.

FIGS. 8A and 8B show the double pre-folding operation along two different axes of the paper around the neck of the bottle. Since the neck is smaller than the bottom portion of the bottle the paper P is first folded along a first axis by means of front and rear pre-folding arms 5*a* and 4*a* mounted on the turret. The paper then is folded along an axis perpendicular said first axis by means of the arms 6*c*, 6*d*, which are operated by the heater arms 6*a* and 6*b*.

FIG. 9 shows the next operations showing the paper being sealed around the neck of the bottle by means of the heating irons 6*a* and 6*b* which also operate the side pre-folding arms 6*c* and 6*d*. The top fold is then made by the arms 2*a* and 2*b* and the top is sealed by means of the pivotally mounted heater 41. The time sequence and developed cam shapes are shown in FIG. 16.

FIGS. 10, 11, 12 and 17 show details of the various folding and sealing arms. FIG. 10 shows plan cut away views of a portion of the turret 13 which comprises plurality of identical nests N1, N2 etc. Each nest has a series of arms which are mounted to be actuated by the stationary cams 1 to 9 which are mounted on the stationary post 30. FIGS. 11 and 12 show front and side detail views of one of the identical nests. FIG. 10 shows a plurality of nests, each cut away at a different level to show details of the various arms and controls.

In the upper righthand of FIG. 10 is shown a bottle holder 42, mounted on platform T in nest N1, against which the bottle is held with side pressure by the clamping arm 7*b*. The bottle is also held against ejector plunger 25 which is spring loaded by spring 25'. The member 42 and ejector 25 preferably have a rubber facing to provide a friction grip. The clamping arm 7*b* is pivotally mounted on the arm 7*a* which is pivotally mounted on the shaft 46 which is fixedly mounted between the turret members 13*a* and 13*b* at its top and bottom. Clamp 7*b* is spring loaded by spring 7*d* and arm 7*a* is spring loaded by spring 7*e*. Arm 7*a* has a post 7*f* which is contacted by arm 7*h* to retract arm 7*a*. The arm 7*h* has a cam follower 7*i* which bears against the stationary cam 7 mounted on the stationary post 30. The cam 7 is shaped and positioned on the shaft 30 so that the arm 7*b* clamps the bottle into the nest member 42 at the same time that the bottle is inserted in the turret by means of the inserting arm 19. The arm 7*h* has an extending portion 7*c* which forms one edge of the paper blank P around the side of the bottle B. The clamp 7*b* remains in clamping position throughout the entire sequence of operations as the bottle is held in the turret by side pressure only. There are no bottom supports since the paper must be wrapped and sealed around the bottom of the bottle.

As the turret 13 rotates clockwise in FIG. 10, the bottle passes the pivotally mounted heater iron 36 which is mounted on the external bracket F1, and which is spring loaded against the side of the turret by means of the spring 36'. Therefore, as the bottle B passes the heater 36 the leading extending edge P1 of the paper is folded back in overlapping relation to the other edge of the paper blank and these edges are heat sealed together.

The finger 7c is retracted so that it will not interfere substantially with the sealing of the paper along the full side of the bottle, below the neck.

At the bottom of FIG. 10 is shown a detail of the bottom folding arms 8a and 8b which are pivotally mounted on the shafts 46, 46' which are fixedly mounted to the turret members. The arms 8a and 8b are geared together by the gears 8c, 8d and the arm 8a extends and mounts the cam follower 8e which bears against the stationary cam 8. The arms 8a and 8b are shown in the closed position which folds the bottom of the paper as illustrated in FIG. 6.

The bottom center portion of FIG. 10 also shows the bottom heater 40 which is pivotally mounted on the turret by means of the pin 40a and bracket 40b. The heater 40 is connected to a crank arm 40c pivoted on the pin 40a. The other end of the crank arm, as shown in FIG. 11, is pivotally connected to a link member 40d which is pivotally connected at its other end to an arm 9a which is pivotally mounted on the shaft 46. The other end of the arm 9a mounts a cam follower 9b which bears against the stationary cam 9. When the cam actuates the arm 9a in counterclockwise motion around the shaft 46 the arm 40d is pulled to the right in FIG. 10 and the heater is rotated up in counterclockwise motion in FIG. 11, as arms 8a and 8b are retracted, to seal the bottom edges of the paper against the bottom of the bottle.

The top folding arms 2a, 2b and cap folding arms 3a and 3b are similar and are constructed and operate in the same manner as the bottom folding arms 8a, 8b. The top folding arms 2a and 2b are geared together by the gears 2c and 2d and the arm 2b has a cam follower 2e which rides on the cam 2 so that the arm 2b is actuated in a counterclockwise motion around the shaft 46. At the same time the arm 2a will be actuated in a clockwise motion having a scissor type relation to 2b to form and fold the top of the paper over the top of the bottle.

The cap folding arms 3a and 3b are pivotally mounted on the shafts 46 and 46' and geared together. The arm 3b mounts a cam follower 3c which bears against the cam 3.

The top heater 41 is actuated by a linkage similar to that for bottom heater 40 comprising the crank arm 41a, FIGS. 11 and 12, link member 41b, and arm 41c which is pivotally mounted on the shaft 46. The other end of the arm 41c contains a cam follower 41d which is operated by the stationary cam 1 on the stationary post 30. Alternatively, external top and bottom rail cams may be used to actuate the top and bottom heaters.

The neck folding also illustrated in FIGS. 8a, 8b and 17 is performed by the arms 4a, 5a, 6c and 6d. Arms 6c and 6d, mounted on the shafts 46, 46', are spring loaded outwardly and are operated by arms 6a and 6b. The arms 4a and 5a may be called prefolding arms since they form the paper in the general shape illustrated in FIG. 8A. However, since the diameter of the paper cylinder at the neck portion of the bottle is so much greater than the diameter of the neck there is a surplus of paper in the neck portion which is then folded along a perpendicular axis as illustrated in FIG. 8b by means of the arms 6c, 6d which may be termed the side prefolders. After the neck folding the paper is sealed by heaters on the arms 6a and 6b which are pivotally mounted on the shafts 46 and 46' and geared together similarly to the other arms so mounted. They are operated by cam 6.

The vacuum supply to the ports 39 mounted in each nest is supplied through a tube 38 which is connected to the valve 37 which is fixedly mounted on the shaft 30. The valve 37 has a slot 37a to apply the vacuum at the proper time. The vacuum is supplied to the valve 37 by means of the tube or pipe 37b which extends down the center of the stationary shaft 30 to a source of vacuum, FIG. 12.

Referring to FIG. 17 the ejector 25 has a rubber facing 25a and is slidably mounted on the rod 91 mounted on the shaftway bracket 92 connected to the center platform T and also on arm 93 which is mounted through the shaftway on split bracket 94 which is fixedly mounted on shaft 46. The platform T is mounted on shafts 46 and 46'. The ejector 25 is spring loaded by means of the spring 25' on the mounting rod 93.

FIG. 17 also shows a perspective view of the front and rear prefolder arms 5a and 4a. These arms are mounted on bracket extensions T_1 and T_2 mounted on platform T which is clamped onto the vertical shafts 46 and 46'. These arms are also shown in FIG. 10. The rear prefolder 4a is mounted on the post 101 and has a gear 102 which engages a sector gear on the end of arm 4b which is pivotally mounted on the shaft 46'. The arm 4b terminates in the cam follower 4c, FIG. 10, which is actuated by the cam 4.

The front prefolder arm 5a is mounted on the bracket T_2 on post 103. The arm 5a is fixedly connected to the gear 5b which is connected to sector gear 5c by means of the idler gear 5d, FIG. 10, which engages the sector gear mounted on the end of the arm 5e which is pivotally mounted on the shaft 46 and which terminates in the cam follower 5f which contacts the cam 5.

FIG. 16 shows a time sequence diagram illustrating the operation and developed shape of the various cams 1 through 9. As shown in the figure the first operation is the clamping actuated by the cam 7, then the lower folding starting at about 45° and the lower heater sealing starting at about 90°. The front prefolding operation starts about 45° and the rear prefolding at about 80°. The top folding and cap folding starts at about 125° and the top heater operation starts at about 155°.

All of these operations are accomplished within 270° of travel to permit the remaining 90° of travel to be utilized for the injecting and ejecting of the bottles and the feeding of the paper. The graph representations of the cam operations may be used to cut the various cams. The sequence is not critical as more than one operation may be performed simultaneously. The bottle will be ejected at 270° when the clamp 7 is moved to the unclamped position allowing the spring loaded ejector to eject the bottle into the receiving take-away star wheel 26.

Many modifications may be made by those who desire to practice the invention without departing from the scope thereof which is defined by the following claims.

We claim:

1. Bottle wrapping and sealing means comprising a rotating turret having a plurality of bottle holding nests, means connected to said turret to feed paper to said turret, bottle clamping means in each of said nests, side folding arm means mounted on each of said nests adapted to wrap said paper around a bottle held in each of said nests, heat iron means to seal the overlapping edges of said paper, a plurality of scissor arms mounted in each of said nests and adapted to form said paper around a bottle in said nest, and heater means movably mounted to the top and bottom of each of said nests, said heater means being adapted to seal said paper at the top and bottom of said bottle.

2. Apparatus as in claim 1 wherein said paper feeding means comprises means to feed a web of paper, vacuum means on said turret adapted to grip the leading edge of said web and means to cut said paper, including a photoelectric cell mounted adjacent said web and responsive to marks on said web to stop said paper pulling means.

3. In a bottle wrapping machine, a rotatable cylindrical turret having a plurality of bottle holding nests equally spaced around the periphery of said turret, each of said nests including a vacuum port mounted adjacent the leading edge of said nest, bottle clamping means mounted on said nest and adapted to hold said bottle in said nest, means to wrap paper around said bottle, means to seal said paper along the side of said bottle, means to form and seal said paper around the neck of said bottle and means to form and seal said paper around the bottom and top of said

bottle, said forming means comprising scissor type arms and said sealing means comprising heating iron means.

4. Article wrapping and sealing means comprising a continuously rotating turret having a plurality of article holding nests, means connected to said turret to feed paper to said turret, bottle clamping means at each of said nests, side folding arm means mounted on each of said nests adapted to wrap said paper around an article held in said nest, heat iron means to seal the overlapping edges of said paper, a plurality of scissor arms mounted in each of said nests and adapted to form said paper around an article in said nest, a heater movably mounted to the bottom of each of said nests, said heater being adapted to seal said paper at the bottom of said article, said paper feeding means comprising means to hold a roll of paper, means on said turret adapted to grip the leading edge of said roll and means to cut said paper.

5. In a bottle wrapping machine a rotatable cylindrical turret having a plurality of bottle holding nests equally spaced around the periphery of said turret, each of said nests including paper grip means mounted adjacent the leading edge of said nest, bottle clamping means mounted in each of said nests and adapted to hold said bottle in said nest, means to wrap said paper around said bottle, means to heat seal said paper along the side of said bottle, means to form and seal said paper around the neck of said bottle, means to form and seal said paper around the bottom and top of said bottle, said forming means comprising scissor type arms and said sealing means comprising heating iron means mounted in each of said nests, said clamping means, said paper forming and folding means and said top and bottom heat sealing means being operated in predetermined sequence by means including a stationary center post in the center of said turret and a plurality of stationary cams mounted on said center post, said cams being connected to said scissor arms and said heating irons to actuate them in predetermined sequence.

6. Bottle wrapping and sealing means comprising a continuously rotating turret having a plurality of bottle holding nests, means connected to said turret to feed paper to said turret, bottle clamping means at each of said nests, side folding arm means mounted on each of said nests adapted to wrap said paper around a bottle held in said nest, heat iron means to seal the overlapping edges of said paper, scissor arms mounted in each of said nests and adapted to form said paper around a bottle in each of said nests, including two pairs of arms to fold paper about the neck of said bottle about two perpendicular axes, means to heat seal said paper around said neck, a heater pivotally mounted to the bottom of each of said nests, said heater being adapted to seal said paper at the bottom of said bottle, said paper feeding means comprising means to hold a roll of paper, vacuum means on said turret adapted to grip the leading edge of said roll, means to valve said vacuum and means to cut said paper, and a photoelectric cell mounted adjacent said web and responsive to marks on said web to stop said paper feeding means.

7. In an article wrapping machine a rotatable cylindrical turret having a plurality of article holding nests equal-spaced around the periphery of said turret, each of said nests having article clamping means mounted therein adapted to hold said article in said nest, means to wrap said paper around said article, means to heat seal said paper along the side of said article, means to form and seal said paper around the bottom and top of said article, said forming means comprising scissor type arms and said sealing means comprising heating iron means mounted in each of said nests, said clamping means and said paper forming and folding means and said top and bottom heat sealing means being operated in predetermined sequence by means including a stationary center post in the center of said turret and a plurality of stationary cams mounted on said center post, said cams being connected to said scissor arms and said heating irons to actuate them in predetermined sequence.

8. In an article wrapping machine a rotatable cylindrical turret having a plurality of article holding nests equally spaced around the periphery of said turret, each of said nests having article clamping means mounted therein adapted to hold said article in said nest, means to wrap said paper around said article, means to heat seal said paper along the side of said article, means to form and seal said paper around the bottom and top of said article, said forming means comprising scissor type arms and said sealing means comprising heating iron means mounted in each of said nests, said clamping means and said paper forming and folding means and said top and bottom heat sealing means being operated in predetermined sequence by means including a stationary center post in the center of said turret and a plurality of stationary cams mounted on said center post, said cams being connected to said scissor arms and said heating irons to actuate them in predetermined sequence, and input and output star wheel means connected to said turret to feed bottles into and out of said turret.

9. Apparatus as in claim 8 having means to periodically decelerate said turret to a slow peripheral speed equal to the peripheral speed of said star wheels.

10. Bottle wrapping and sealing means comprising a continuously rotating turret having a plurality of bottle holding nests, means connected to said turret to feed paper to said turret, bottle clamping means at each of said nests, side folding arm means mounted on each of said nests adapted to wrap said paper around a bottle held in said nest, heat iron means to seal the overlapping edges of said paper, scissor arms mounted in each of said nests and adapted to form said paper around a bottle in each of said nests, including two pairs of arms to fold paper about the neck of said bottle about two perpendicular axes, means to heat seal said paper around said neck, heater means movably mounted to the top and bottom of each of said nests, said heater means being adapted to seal said paper at the top and bottom of said bottle, said paper feeding means comprising means to hold a roll of paper, clamp means on said turret adapted to grip the leading edge of said roll, and means to cut said paper including a photoelectric cell mounted adjacent said web and responsive to marks on said web to stop said paper feeding means.

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