June 17, 1941. A. C. EVERETT 2,245,659

LABELING MACHINE

Filed April 4, 1940 6 Sheets-Sheet 1

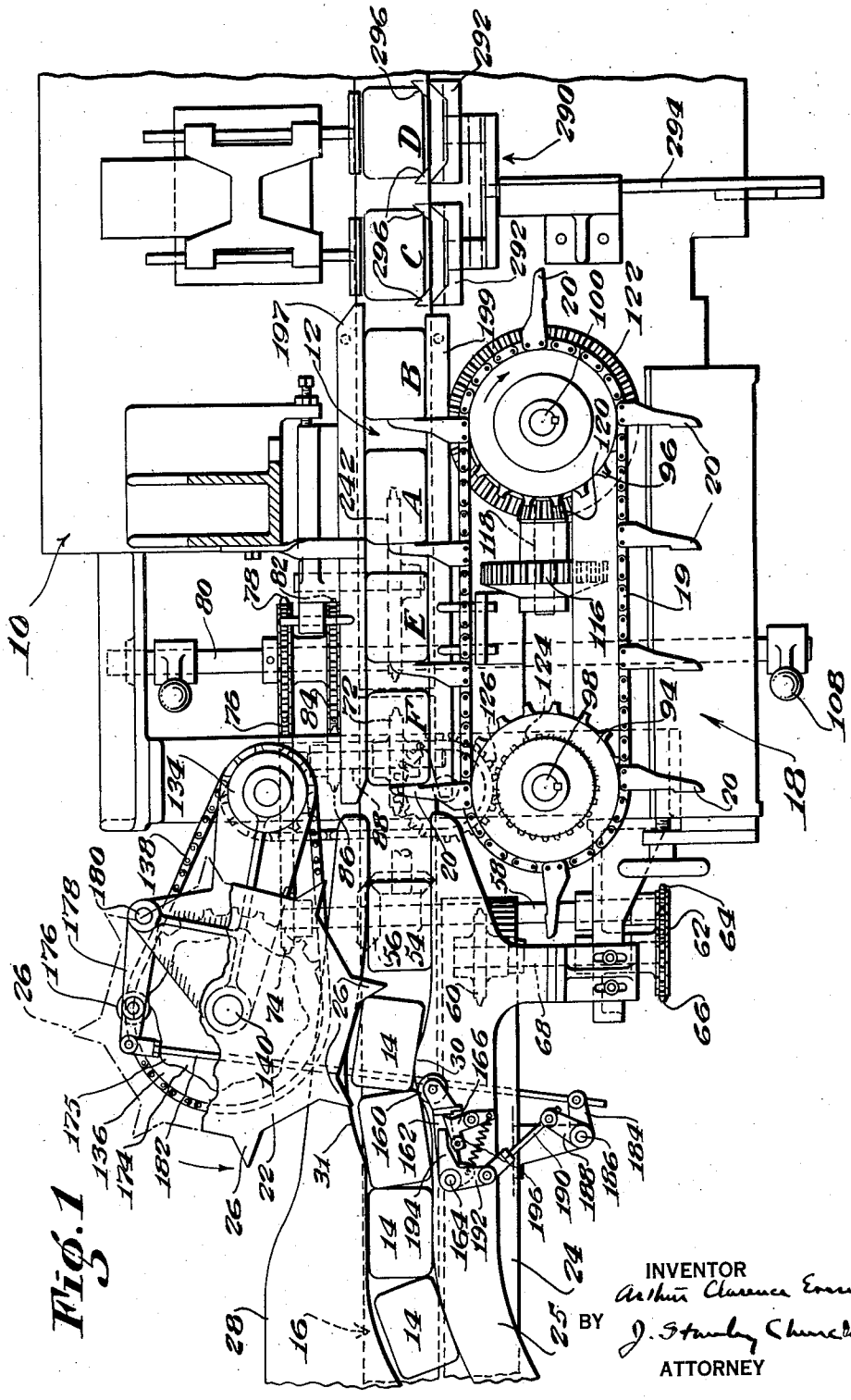

Fig. 1

INVENTOR
Arthur Clarence Everett
BY J. Stanley Churchill
ATTORNEY

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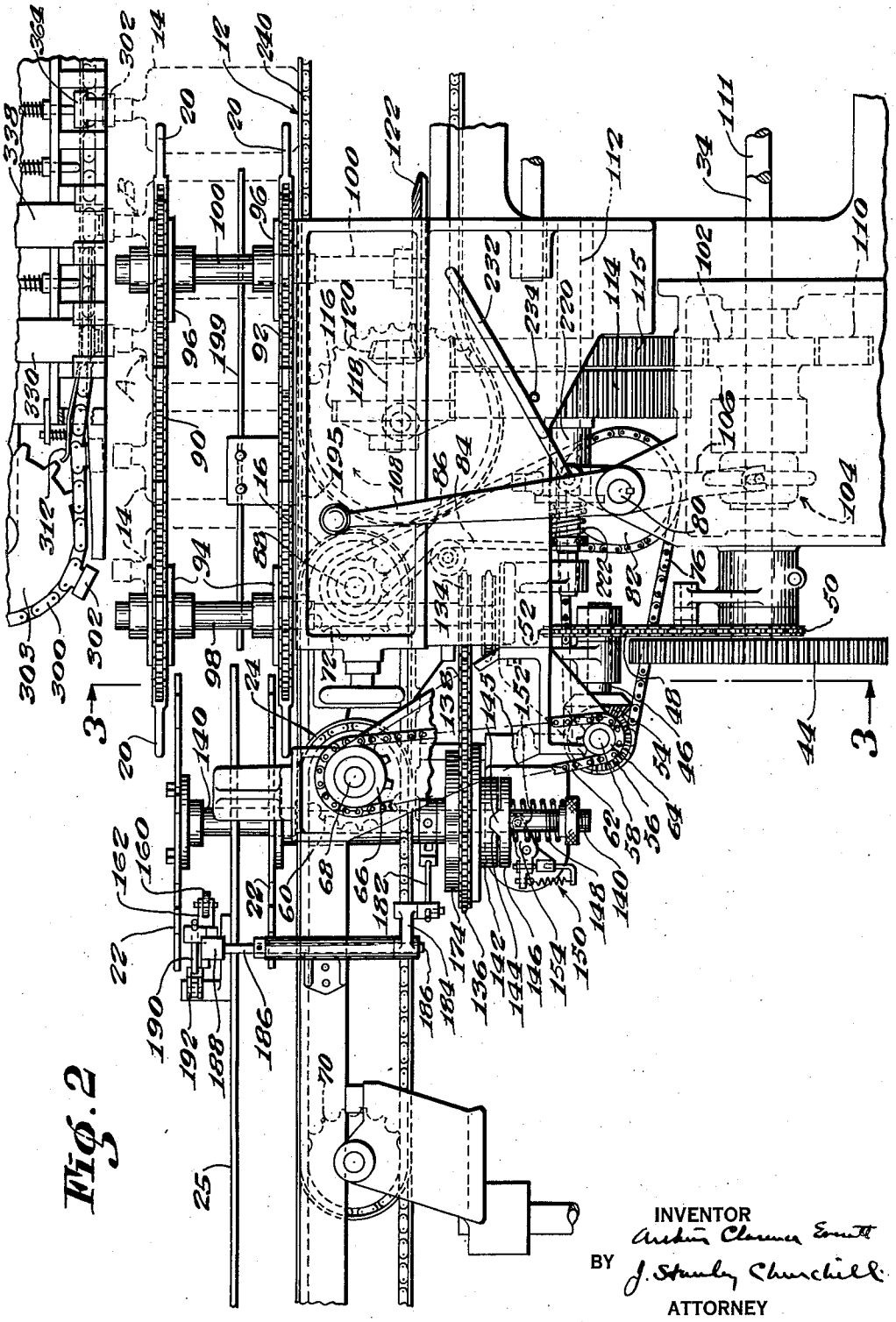

Fig. 2

INVENTOR
Arthur Clarence Everett
BY J. Stanley Churchill
ATTORNEY

June 17, 1941. A. C. EVERETT 2,245,659

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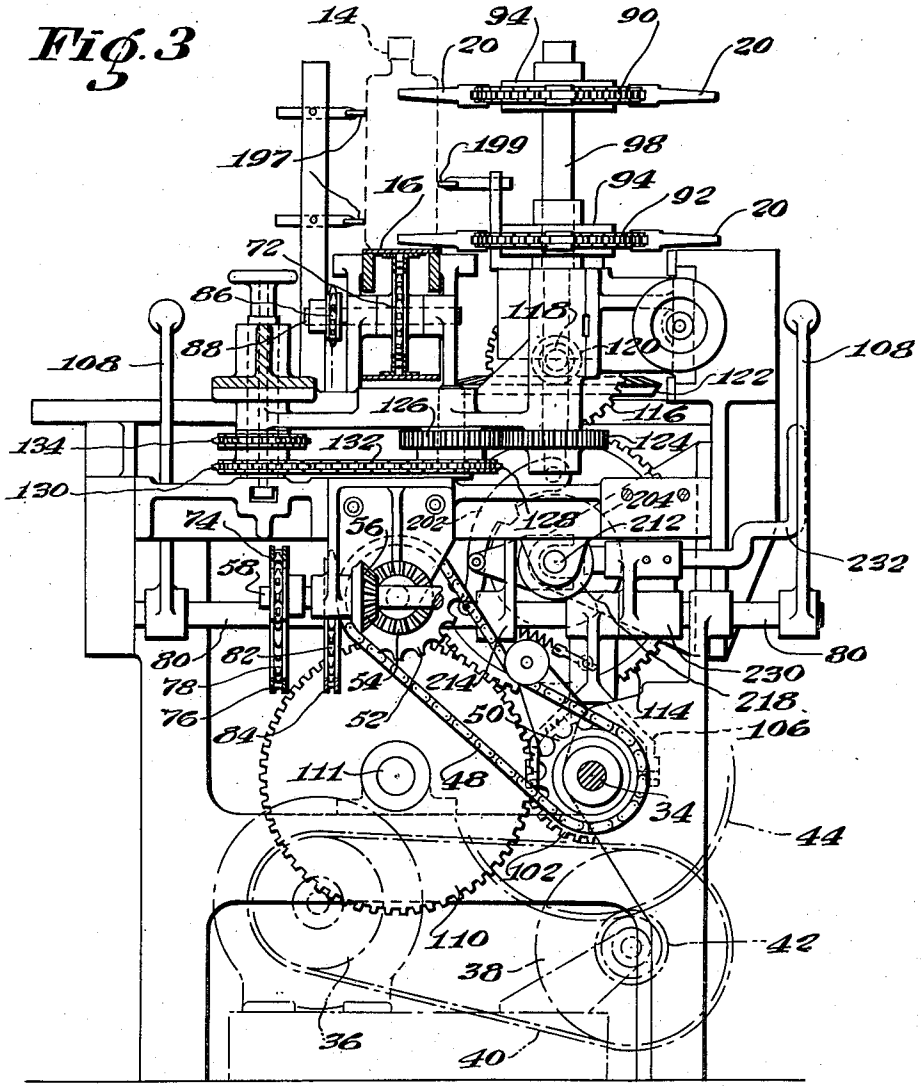
Fig. 3



INVENTOR
Arthur Clarence Everett
BY J. Stanley Churchill
ATTORNEY

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Fig. 4

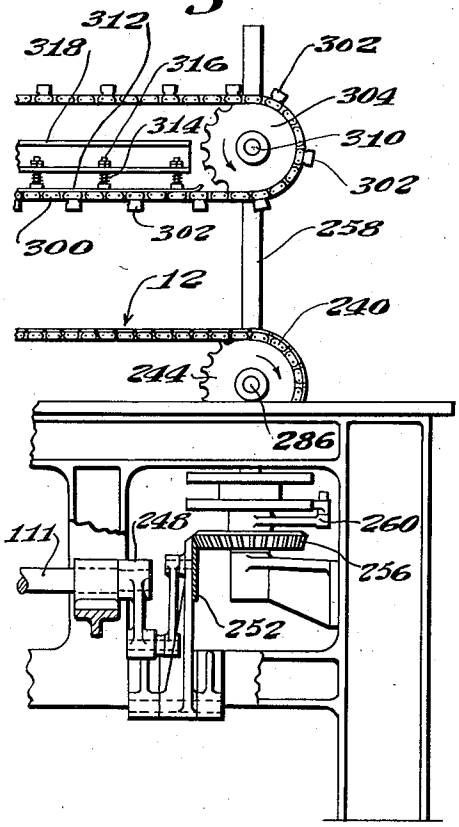


Fig. 5

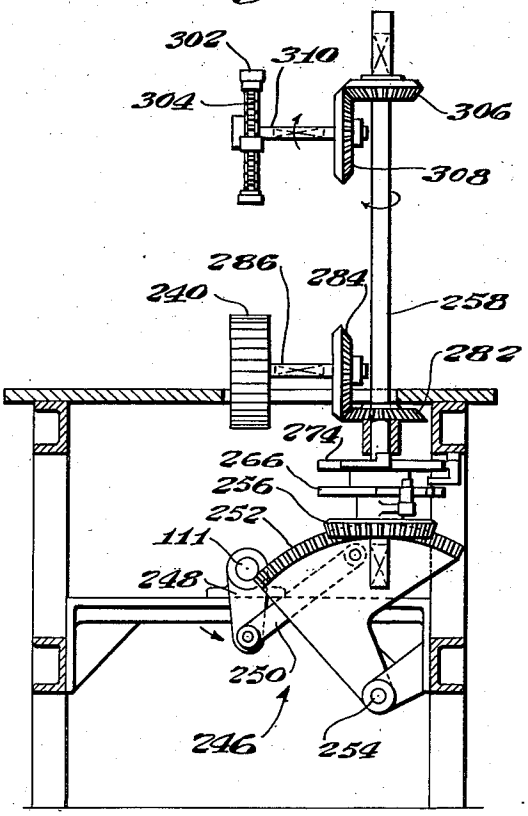
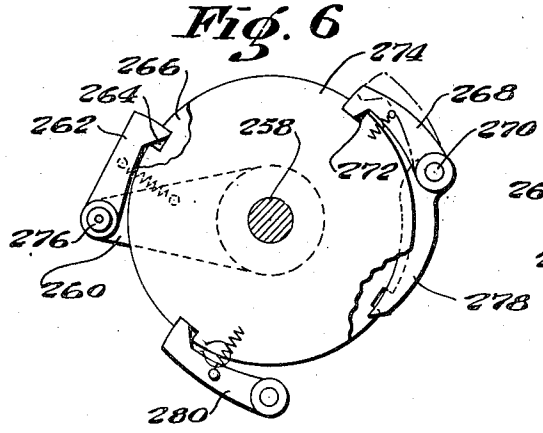


Fig. 6



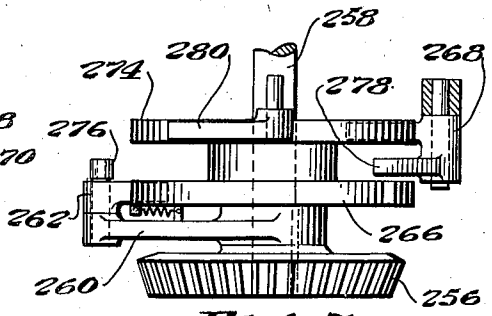


Fig. 7

INVENTOR

Arthur Clarence Everett

BY J. Stanley Churchill

ATTORNEY

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Fig. 8

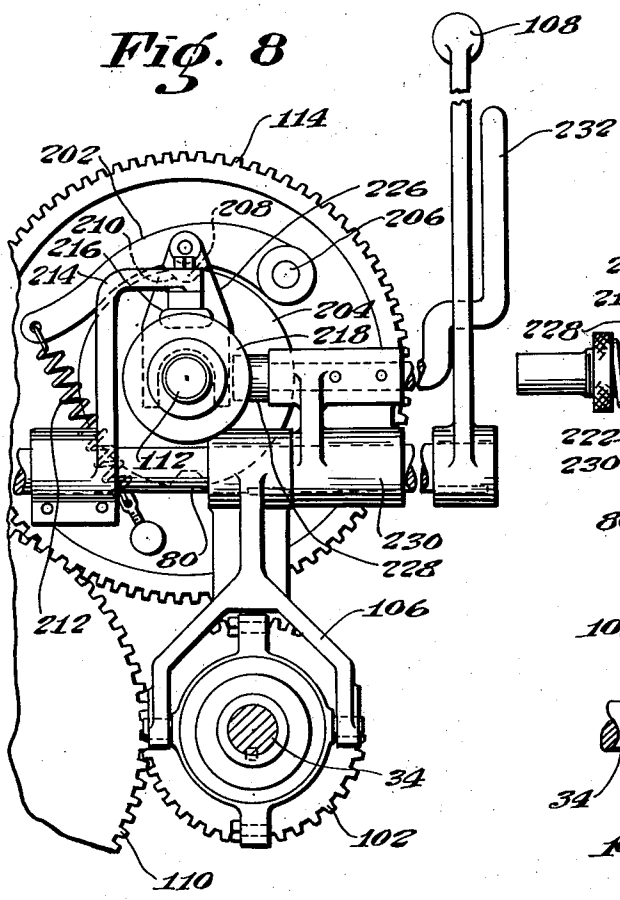


Fig. 9

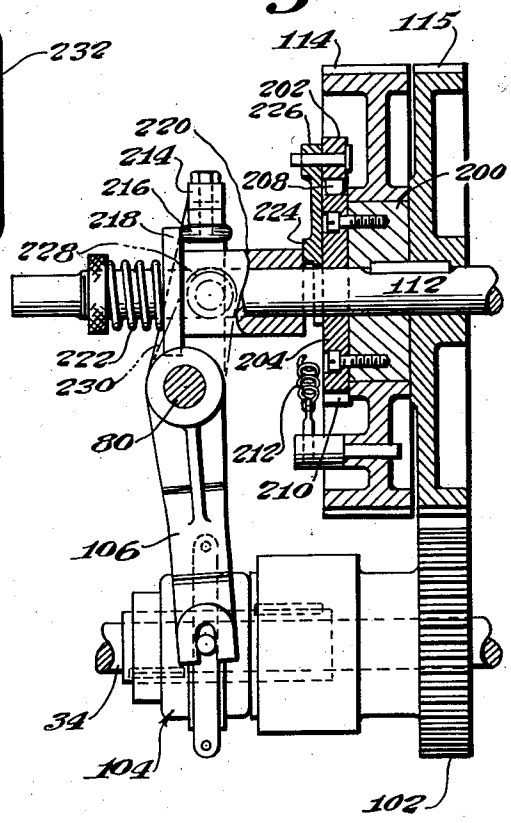
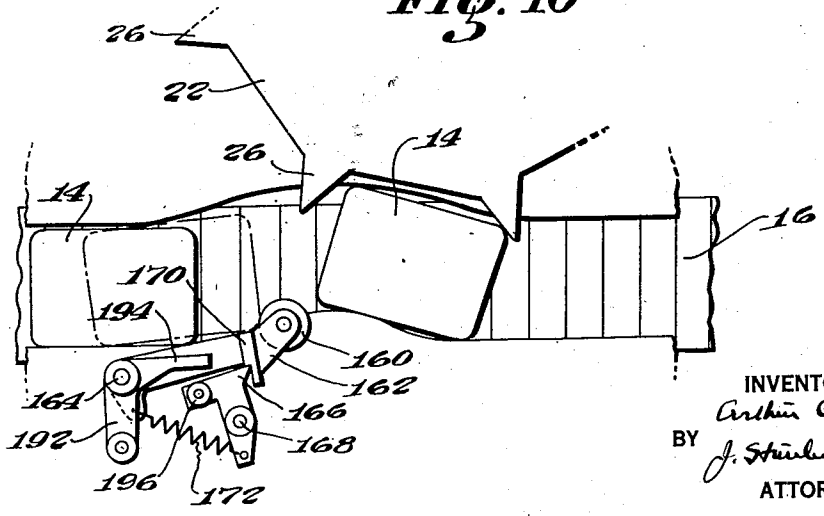


Fig. 10



INVENTOR
Arthur Clarence Everett
BY J. Stanley Churchill
ATTORNEY

June 17, 1941. A. C. EVERETT 2,245,659

LABELING MACHINE

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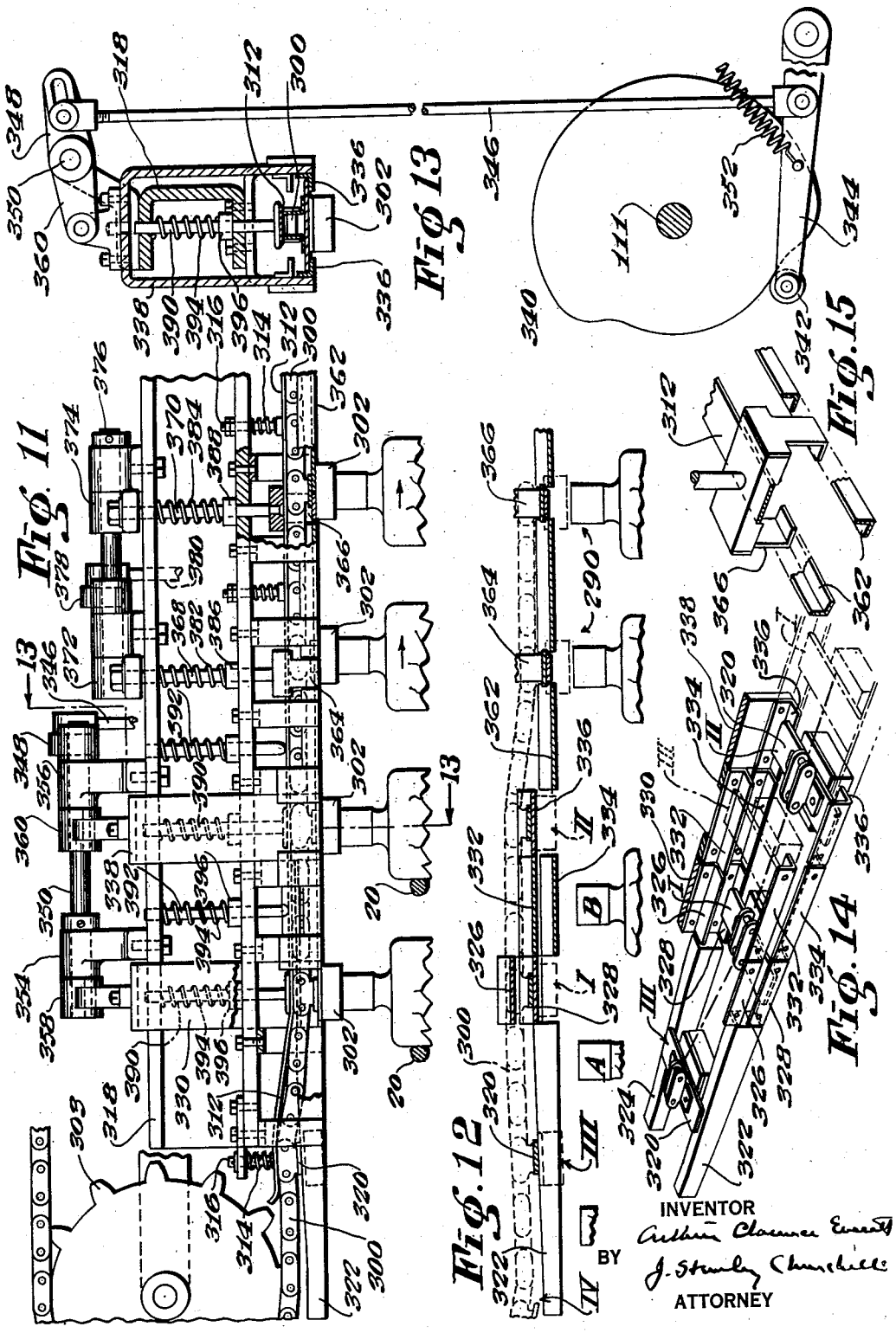

Fig. 11

Fig. 12

Fig. 13

Fig. 14

Fig. 15

INVENTOR
Arthur Clarence Everett
BY J. Stanley Churchill
ATTORNEY

Patented June 17, 1941 2,245,659

UNITED STATES PATENT OFFICE

2,245,659

LABELING MACHINE

Arthur Clarence Everett, Boston, Mass., assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass., a corporation of Massachusetts

Application April 4, 1940, Serial No. 327,750

10 Claims. (Cl. 216—57)

This invention relates to a labeling machine.

One object of the invention is to provide a novel and improved labeling machine adapted to effect the simultaneous application of a plurality of labels to a plurality of containers and in which provision is made for conveying the containers to be labeled in a novel, economical and efficient manner into operative and accurately registered relation to the label applying mechanism.

Another object of the invention is to provide a novel and superior labeling machine of the character above specified, in which provision is made for transferring the containers from a supply conveyer to the labeling machine conveyer in definite spaced relation and at higher speeds than has heretofore been possible, in a manner such as to reduce to a minimum breakage of the containers, and undue strain upon the operating members.

With these objects in view and such others as may hereinafter appear, the invention consists in the labeling machine and in the various structures, arrangements and combinations of parts hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention, Fig. 1 is a plan view of a labeling machine embodying the present invention; Fig. 2 is a front elevation of the machine shown in Fig. 1; Fig. 3 is an end view of the machine, partly in cross-section as viewed from the line 3—3 of Fig. 2; Figs. 4 and 5 are front and side elevational views, respectively, of the labeling machine illustrating an intermittent driving mechanism to be referred to; Figs. 6 and 7 are detail views in plan and side elevation respectively of a portion of the intermittent driving mechanism shown in Figs. 4 and 5; Figs. 8 and 9 are detail views in front and side elevation respectively, of a clutch for controlling the operation of the labeling machine, Fig. 9 being shown in cross-section; Fig. 10 is a detail plan view of a container registering device, to be referred to; Fig. 11 is a front elevation of a portion of a conveyer for supporting the top of the containers to be referred to; Fig. 12 is a detail view in cross-section of a portion of the mechanism shown in Fig. 11; Fig. 13 is a view in cross-section taken on the line 13—13 of Fig. 11, and Figs. 14 and 15 are detail perspective views of portions of the mechanism shown in Fig. 11.

Referring now to the drawings, in general, the present invention is illustrated as embodied in a labeling machine of the type adapted for the simultaneous application of a plurality of labels to a plurality of containers and includes an intermittently operated conveyer adapted to convey the containers to and from intermittently operated label applying devices forming a part of the labeling machine.

One feature of the present invention contemplates a novel and improved container feeding mechanism adapted to transfer the containers from a supply conveyer to the intermittently operated conveyer in definite spaced relation for subsequent operations to be performed and to provide a continuous flow of containers in such spaced relation onto said intermittently operated conveyer. In the preferred embodiment of the invention, the spaced containers are transferred onto the intermittently operated conveyer at a reduced rate of speed while the latter is at rest and are kept in motion thereon by the present feeding mechanism until such intermittently operated conveyer is started, and until the latter attains the speed of the containers being delivered by the feeding mechanism, whereupon the intermittently operated conveyer will operate to convey the containers at an increased rate of speed so that at no time during the transferring operation does the container come to rest. In this manner, the sudden shock or jar incident to transferring the containers from a dead stop as heretofore practiced is eliminated and a smooth and uninterrupted flow of the containers is assured. This feature is of particular advantage when embodied in a labeling machine adapted for high speed operation and capable of simultaneous operation upon a plurality of containers, since, the usual method heretofore employed in transferring the containers from a dead stop on the supply conveyer onto the intermittent conveyer during the idle or rest period necessitated a relatively rapid movement for the transfer, and, as a result, containers were frequently jammed or broken, and the operating parts were subjected to undue strain and wear requiring frequent replacement. The present container feeding device is capable of smooth and continuous operation at relatively high speeds, and in practice, speeds up to 140 containers per minute have been attained, without undue strain upon the operating parts.

In the illustrated embodiment of the invention, the container feeding mechanism is operated in timed relation to the intermittent operation of the labeling machine conveyer and the latter is preferably arranged to be moved at a

speed equal to a multiple of greater than the speed of movement of the container feeding mechanism, so that in the operation of the machine, while the containers are fed at a continuous and relatively slower rate by the feeding mechanism during the entire cycle of operation of the intermittently operated conveyer, the latter is arranged to move the containers at a faster rate of speed during the container moving portion of its cycle of operation. For example, in the illustrated embodiment of the invention, the intermittently operated conveyer is designed to be moved during one-half cycle of operation and to be idle or at rest during the remaining half of its cycle of operation, and the spaced containers are arranged to be fed into the machine continuously during the entire cycle of the machine. The spaced containers are arranged to be moved a predetermined distance, for example, ten inches, during each cycle of operation, and while the intermittently operated conveyer travels at a speed such as to move the containers ten inches during one half cycle of operation, the continuously operated container feeding apparatus may deliver the containers the same distance, ten inches, at one half the speed of the intermittently operated conveyer. Likewise, while the continuously operated container feeding apparatus moves the containers a distance of, for example, five inches over the top of the intermittently operated conveyer during one half cycle of operation, the latter when it picks up the movement of the containers fed thereon, will move the latter a distance, for example, of ten inches during its half cycle of operation. In the operation of the apparatus, during each cycle of operation, a container, or group of containers, is fed onto the intermittently operated conveyer by the continuously operated container feeding apparatus and when a new cycle of operation is initiated to start the intermittently operated conveyer in motion, the timing of the mechanism is so coordinated that when the containers arrive at a predetermined position upon the intermittently operated conveyer (while the latter is in motion), corresponding to the instant when the speed of the intermittently operated conveyer equals the speed of the containers being fed, the intermittently operated conveyer will pick up the motion of the containers and will thereafter operate to convey the latter away from the continuously operated feeding apparatus at an increased rate of speed. In practice, and in the preferred embodiment of the invention, two containers are fed onto the intermittently moving conveyer during each cycle of operation of the latter to supply a container to each of two labeling stations. If more than two containers are to be labeled at a time, a corresponding number of containers will be moved onto the intermittent conveyer and the timing of the mechanism and the speeds of the conveyers related accordingly. In this manner the containers, being in motion when they are received upon the labeling machine conveyer, and this motion being merely increased when the latter conveyer starts its intermittent movement, are not subject to the sudden shock which would be experienced incident to transferring the containers from a position of rest.

Another feature of the present invention contemplates the provision of a novel and improved presser conveyer adapted to travel along with and support the tops of the containers during their travel through the machine. The presser conveyer is intermittently driven in timed relation to and in cooperation with the intermittently operated conveyer upon which the containers are fed and is provided with a plurality of equally spaced individual presser members arranged in alignment with and adapted to engage with the top of the containers as they are fed into the machine. In the illustrated embodiment of the invention, provision is made for simultaneously releasing a plurality, and as herein shown, two presser members into engagement with their respective containers at the time when the speed of the presser conveyer equals the speed of the containers being fed or just as the intermittently operated conveyer picks up the motion of the containers fed onto the latter, as will be described.

Referring now to the drawings, the present invention is embodied in a labeling machine indicated generally at **10** which may and preferably will be provided with multiple labeling units of any usual or preferred construction, not shown. The illustrated labeling machine includes an intermittently operated conveyer **12** upon which the containers **14** are arranged to be transferred from a supply conveyer **16** by novel and improved feeding mechanism indicated generally at **18**, and which includes a continuously moving chain conveyer or indexing device **19** provided with container engaging arms **20** equally spaced along the conveyer and which is adapted to move the containers onto the intermittent labeling machine conveyer in definite spaced relation for registration with the multiple labeling units of the labeling machine. Provision is also preferably made for separating the containers as they are delivered in contiguous relation by the supply conveyer **16** by mechanism including a star wheel **22** which is adapted to release the containers **14** successively in timed relation to the movement of the container engaging arms **20**, as will be described.

Referring now to Figs. 1 and 2, the containers are delivered to the machine upon an elongated conveyer belt **24**, the delivery end only being shown herein. The containers are then transferred diagonally between guides **25**, **28** to the relatively short supply conveyer **16** arranged to deliver the containers in timed relation to be received by the star wheel **22**. As herein shown, the star wheel **22** is provided with equally spaced teeth **26** adapted to enter between successive containers as they are delivered, and in order to provide a break or space between the contiguously arranged containers, the guides **25**, **28** are curved, as at **30**, **31** so that as the containers are conveyed around this curved portion, they will be separated sufficiently to permit one of the teeth **26** to enter, as clearly shown in Fig. 1.

The conveyers **16** and **24** are arranged to be driven continuously from the main driving mechanism of the labeling machine, indicated generally at **32**, which is arranged to drive a clutch shaft **34** through connections including pulleys **36**, **38**, belt **40** and pinion **42** which meshes with a gear **44** fast on the shaft **34**. The shaft **34** is connected to a short shaft **46** by a chain **48** running over sprockets **50**, **52**. The short shaft **46** is provided with a bevel gear **54** which cooperates with a bevel gear **56** fast upon a cross-shaft **58**. The conveyer belt **24** which runs over a conveyer sprocket **60**, at one end, is driven from the cross-shaft **58** by a chain **62** which runs over sprockets **64**, **66**, the latter being fast upon the conveyer sprocket shaft **68**. The con-

veyer belt 16, which runs over conveyer sprockets 70, 72 is arranged to be driven from the crossshaft 58 through connections including a sprocket 74 connected by a chain 76 to a sprocket 78 loosely mounted upon a rocker shaft 80. A second sprocket 82, formed integrally with the sprocket 78, is connected by a chain 84 to a sprocket 86, the latter being fast upon the conveyer sprocket shaft 88. Thus, the supply conveyers 16 and 24 are continuously driven during the operation of the machine to deliver the containers past the star wheel 22 and into the path of the container engaging arms 20 of the container feeding mechanism. Provision is made for driving the star wheel 22 continuously and in timed relation to the movement of the container feeding mechanism, as will be described.

In the illustrated embodiment of the invention, the container feeding mechanism 18 comprises a duplicate set of chains 90, 92, one disposed above the other, upon which the arms 20 are mounted, and which are arranged to run over similar sprockets 94, 96 fast upon vertical shafts 98, 100 respectively. The chains 90, 92 are arranged to be driven continuously through connections from the clutch shaft 34 including a pinion 102 loosely mounted upon the shaft 34 and adapted to be engaged by the usual clutch mechanism 104 including a shifter 106 fast on the rocker shaft 30 and which is operable by the handle 108. The pinion 102 cooperates with a gear 110 fast upon the main cam shaft 111 of the machine which in turn meshes with a gear 115 fast upon an intermediate shaft 112. The intermediate shaft 112 is also provided with a second gear 114 normally in operative engagement with the gear 115 and which forms part of an automatic clutch throwout mechanism, see Fig. 9, as will be hereinafter more fully described. The second gear 114, as shown herein, meshes with a gear 116 fast upon a short shaft 118 suitably journaled in the machine frame. The short shaft 118 is also provided with a bevel pinion 120 which cooperates with a bevel gear 122 fast upon the lower end of the vertical shaft 100.

The star wheel 22 is arranged to be driven continuously and in timed relation to the conveyer chains 90, 92 through connections from the lower end of the vertical shaft 98 and as herein illustrated, see Figs. 1, 2 and 3, these connections include cooperating spur gears 124, 126, sprockets 128, 130 connected by a chain 132 and sprockets 134, 136 connected by a chain 138. The driven sprocket 136 which is loosely mounted upon the star wheel shaft 140 forms part of separable driving mechanism normally engaged but which is adapted to slip out of operative engagement in the event that the star wheel 22 should encounter abnormal resistance, such as would occur if one of the teeth 26 should engage the side of a container. As herein shown, see Fig. 2, the sprocket 136 is provided with a flanged portion 142 having a notch 144 which is adapted to be engaged by a raised portion 145 provided on a disk 146 rotatable with but vertically slidable upon the shaft 140. A coil spring 148 normally holds the disk 146 in operative engagement, to drive the sprocket 136 but if a jam occurs between the teeth of the star wheel and a container, the raised portion 145 will slip out of the notch 144 and lower the disk against the resistance of the spring 148. In addition, suitable mechanism may be provided for stopping the machine when the disk 146 is thus lowered and such mechanism may include a switch indicated at 150 adapted to be operated to break a circuit to the driving motor by the engagement of the underside of the disk with a roller 152 carried by the switch arm 154.

Provision is made in the preferred embodiment of the invention for registering successive containers, being delivered by the supply conveyer 16, between the teeth 26 of the star wheel 22, so that in the event a container arrives at the star wheel out of time with the latter, such container will be held back and not permitted to enter until the star wheel has rotated a sufficient distance to allow the container to register between adjacent teeth 26. As herein shown, a roller 160 carried by an arm 162, pivotally mounted upon a stud 164, is arranged to engage one side of the containers as the latter pass by. Normally, while the containers are delivered continuously and in timed relation, the roller 160 is held out in the position shown in Fig. 1 to permit successive containers to pass by. However, if the containers are not fed regularly or if there should be a space betweeen successive containers, the roller 160 is arranged to be rocked into the path of the oncoming container and to be locked in this position until the star wheel is in position to receive the container, such locked position being illustrated in Fig. 10. As herein illustrated, the locking device comprises a latch member 166 which is pivotally mounted upon a stud 168 and which is arranged to engage a latch member 170 carried by the arm 162 when the latter is rocked forwardly in the absence of a container. A spring 172 extended between extensions from the arm 162 and the latch member 166 serves to urge the latter into engagement with the arm 162 and also to urge the arm 162 into the path of the oncoming containers.

The latch member 166 is arranged to be withdrawn from engagement with the latch member 170 in timed relation to the movement of the star wheel 22 in order to release a container at the proper time to be received between the teeth 26. As herein shown, the withdrawal of the latch member 166 is accomplished through connections from a cam 174 fast upon the star wheel shaft 140. The cam 174 cooperates with a cam roller 176 carried by an arm 178 pivotally mounted at 180. The arm 178 is connected by a link 182 to an arm 184 fast on the lower end of a vertical rocker shaft 186. The upper end of the shaft 186 is provided with a second arm 188 which is connected by a link 190 to one arm 192 of a bell crank pivotally mounted upon the stud 164. The second arm 194 of the bell crank is arranged to engage a roller 196 carried by the latch member 166. It will be observed that the cam 174 is provided with a plurality of raised portions 175, equal in number to the teeth 26 of the star wheel and the relation of the parts is such that the latch member 166 is rocked each time a tooth 26 arrives in position to receive a container. It will be understood that during normal operating conditions, as when the containers are being continuously delivered in timed relation to be received by the star wheel, the arm 162 is held back by the engagement of the roller 160 with the containers so that the latch 166 will not engage the latch member 170 during such time. Although the member 166 is rocked by the cam 174 each time a container is due to arrive, such rocking is effective to release the containers in timed relation only when a container is late in arriving or is received out of

time with the rotation of the star wheel. Thus, a container is prevented from being advanced into a position such that a tooth 26 might jam against the side of a container. However, should this condition occur such as in case the timing mechanism is not properly adjusted, the separable driving connections 142, 145, as hereinbefore described, will be disconnected so as to prevent breakage of the containers or undue strain upon the operating parts.

In the preferred embodiment of the invention, provision is made for releasing the driving mechanism for the container feeding device in the event of a jam in the feeding of the containers and for this purpose a clutch throwout mechanism is provided as illustrated in Figs. 2, 8 and 9. As therein shown, the clutch throwout mechanism includes the gear 114, hereinbefore referred to, and which is loosely mounted upon a hub 200 extending from the driving gear 115 fixed upon the intermediate shaft 112. During the normal operation of the machine, the gear 114 is held fast upon the hub 200 through the engagement of a spring actuated lever 202 with a disk 204 secured to the end of the hub 200. The lever 202 is pivotally mounted upon a stud 206 fixed in the gear 114, and is provided with a tooth 208 adapted to normally engage a notch 210 cut in the disk 204, under the influence of a spring 212. Should there be any obstruction in the path of the carrier arms 20 such as to stop the movement thereof, the gear 114 will come to rest and the disk 204, being fast on the hub 200 will continue its rotation and cause the tooth 208 to become disengaged from the notch 210. When this occurs the lever 202 will be rocked upwardly and, provision is made for automatically disengaging the main driving clutch 104 at this time. As herein shown, the rocker shaft 80 upon which the shifter 106 is fixed, is provided with an arm 214 fast thereon. The arm 214 is provided with a roller 216 which is arranged to engage a flange 218 forming part of a collar 220 slidingly mounted upon the intermediate shaft 112. The collar 220 is normally urged, by a spring 222, in a direction such as to disengage the clutch mechanism 104, that is, to rock the shifter 106 clockwise viewing Fig. 9. However, during the normal operation of the machine, when the clutch is engaged, the collar 220 is held back against the resistance of the spring 222 by engagement with a raised portion 224 provided on a bifurcated member 226 pivotally mounted upon the lever 202. When the lever 202 is rocked, as above described, the member 226 will be raised thereby permitting the collar 220 to slide to the right, see Fig. 9, and cause the clutch 104 to be disengaged. As herein shown, an auxiliary mechanism is provided to assist in pulling the collar 220 back to its normal position when it is desired to again engage the clutch, such mechanism including a roller 228 carried by an arm 230 loosely mounted upon the rocker shaft 80, and a handle 232 fixed in the arm 230 which is arranged normally to rest against a stop member 234, see Fig. 2. Thus, when the clutch is thrown in, should the collar 220 bind upon the shaft 112, the handle 232 may be raised to rock the arm 230 and to force the roller 228 in a direction to slide the collar 220 to the left as viewed in Figs. 2 and 9.

From the description thus far it will be observed that the containers are delivered into the machine in timed relation to be received by successive carrier arms 20 of the continuously moving chains 90, 92, and that the carrier arms move the containers along in the proper spaced relation to be received by the intermittently operated conveyor 12. It will be observed that the containers are supported upon a bridge plate 195 and between guide rails 197, 199 as they are advanced from the supply conveyer 16 to the intermittently operated conveyer 12.

Referring now to Figs. 2, 3, 4 and 5, the intermittently operated conveyer 12 comprises a chain belt 240 arranged to run over an idler sprocket 242 and a driven sprocket 244, the latter being driven through intermittently operating mechanism of known construction indicated generally at 246, and illustrated in detail in Figs. 6 and 7. The intermittent driving mechanism is arranged to be driven through connections from the main cam shaft 111 of the machine, and as herein shown, a crank arm 248 fast on the end of the cam shaft, is connected by a link 250 to a segmental gear 252 pivotally mounted on a stud 254. The segmental gear 252 meshes with a bevel pinion 256 loosely mounted upon a vertical shaft 258. A driver arm 260, formed integrally with the pinion 256, carries a spring actuated pawl 262 which is arranged to cooperate with notches 264 formed in a disk 266. The disk 266 is mounted fast upon the vertical shaft 258, so that in operation, when the segmental gear 252 is rocked in a clockwise direction viewing Fig. 5, the pawl 262 engages one of the notches 264 and rotates the shaft 258 one-half revolution. As herein shown, provision is made for locking the driven disk 266 in place during the return stroke of the driver arm 260, such as the spring actuated pawl 268 pivotally mounted at 270 adapted to engage one of the notches 272 provided in a second disk 274 formed integrally with the disk 266. The pawl 268 is adapted to be removed from its notch 272 at the end of the return stroke of the driver arm 260 by engagement of a roller 276, carried by the latter, with a cam surface 278 formed on an extension from the pawl 268. A third spring actuated pawl 280 is also provided to prevent displacement counterclockwise, as clearly shown in Fig. 6. The intermittently rotated vertical shaft 258 is connected by cooperating bevel gears 282, 284 to the conveyer shaft 286 upon which the driven sprocket 244 is fixed.

From the description thus far it will be observed that the containers are delivered continuously in spaced relation upon the intermittently driven conveyer 12, and as hereinbefore stated, the driving mechanism is so designed that while the containers are being delivered continuously yet they travel only one-half the speed at which they are taken away by the intermittently operated conveyer. Since the intermittently operated conveyer 12 must start from rest, the latter conveyer will not advance the containers until it attains a speed equal to or greater than the rate of speed at which the containers are being fed whereupon, as the speed of the intermittently operated conveyer 12 is accelerated, the containers will be carried away from the feeding device at an increased rate of speed. Referring now to Fig. 1, the containers marked A, B, arrive in such position shortly after the intermittent conveyer 12 has started and at the instant the latter has attained the speed of the containers being fed and during the half cycle in the operation of the machine while the conveyer is moving, these containers A, B, will be moved a distance, for example, of ten inches, and will come to rest in the position of the containers

marked C, D, in Fig. 1. During this time, the container marked E, being advanced by one of the arms 20, will have been moved a distance for example of five inches, into the position formerly occupied by container A. The container F will likewise be advanced five inches. Now, during the idle half cycle of the machine, that is, while the intermittent conveyer 12 is idle, the continuously moving containers will be advanced another five inches so that container E will occupy the position formerly occupied by container B, whereupon the intermittently operated conveyer will again pick up the movement of the containers to bring them into position for another cycle of operation. Thus, it will be seen that the containers do not come to rest at any time during the feeding operation. As illustrated in Fig. 1, provision may be made for correcting any slight inaccuracies in the spacing of the containers by mechanism indicated generally at 290, which may comprise a pair of aligning pads 292 mounted upon a reciprocable slide bar 294. During the operation of the machine, when the containers come to rest at C, D, the pads 292 are moved forward to align the containers between the beveled edges 296 of the pads. The containers are supported in back by yieldingly mounted pads 298 during this operation.

Referring now to Figs. 11 to 15, inclusive, provision is made in the preferred embodiment of the invention, for applying pressure to the tops of the containers to support the same in their properly spaced relation as they travel through the machine and during the labeling operations. In general, the presser mechanism comprises an intermittently driven chain 300 provided with individual presser pads 302, which are arranged to register with the top of individual containers and to follow along therewith during their intermittent travel through the machine. The chain 300 is arranged to run over sprockets 303, 304 and is driven in timed relation to the conveyer 12 through connections from the intermittently driven vertical shaft 258, including bevel gears 306, 308 the latter being fast upon the driven sprocket shaft 310, see Fig. 5. As herein shown, the lower run of the chain is urged downwardly to present the presser pads 302 in yielding engagement with the tops of the containers by an elongated rail 312. The rail 312 is urged downwardly by springs 314 which are coiled about studs 316 slidingly retained in an elongated frame member 318, as clearly shown in Figs. 4 and 11.

In accordance with the present invention, provision is made for simultaneously releasing two presser pads 302 upon the two containers brought into alignment therewith by the container engaging arms 20. As illustrated in Figs. 11 and 12, each presser pad connection includes a cross bar 320 which is arranged to run along guide rails 322, 324, as the chain starts on its lower run as shown at the extreme left in Fig. 12. The guide rails 322, 324 are designed to raise the individual presser members 302 above the level of the tops of the containers and provision is made for retaining the pads in their raised position until, at the proper time in the operation of the machine, two pads are released simultaneously to engage with the top of their respective containers brought into alignment therewith.

In order to effect the release of two presser pads simultaneously, a series of rails is provided, arranged at different levels, some of which are adapted to be raised or lowered at the proper time in the operation of the machine, to provide in effect an escapement mechanism.

As herein shown, the escapement mechanism includes a set of vertically movable rails 326, 328 carried by a U-shaped bracket 330, a set of stationary rails 332, 334 supported by the frame member 318, and a pair of vertically movable rails 336 carried by a U-shaped bracket 338. The vertically movable rails are arranged to be raised and lowered through connections from a cam 340 mounted upon the main cam shaft 111, which connections include a cooperating cam roller 342 carried by a cam lever 344 which is connected by a link 346 to an arm 348 fast upon a rocker shaft 350. The cam roller 342 is held against its cam 340 by a spring 352. The rocker shaft 350 is journaled in bearing members 354, 356 supported by the frame member 318. The brackets 330, 338 are carried upon the ends of similar levers 358, 360, so that in the operation of the machine the vertically movable rails are raised and lowered simultaneously.

In the operation of the above described escapement mechanism when the presser members 302 come to rest at the end of one cycle of operation, they are suspended above the level of the tops of the containers slightly in advance of the position shown at I, II, in Fig. 12, and are held in this position until the containers A, B, being advanced by the arms 20, as hereinbefore described, arrive in alignment therewith, at which time the chain 300 and the conveyer 12 have started their movement and the containers have been picked up by the conveyer 12 so that the containers and the presser members are traveling at the same speed, whereupon the brackets 330, 338 are lowered through connections from the cam 340 to engage the presser members with their respective containers. The brackets 330, 338 are shown in their lowered position in Figs. 11 and 14 wherein the rails 328 and 336 are presented on a level with the stationary rail 334, see Fig. 14. The rails remain in this lowered position during the cycle of movement of the presser pads until both presser pads I and II have passed beyond the rail 336 with their respective containers A and B and onto a longitudinal fixed guide rail 362, the presser pad connection I being shown in such position in dotted lines in Fig. 14. At this time, a succeeding presser pad connection III will have passed over the upper rail 326 and onto the stationary rail 332 as indicated in dotted lines in Fig. 14, whereupon the cam 340 operates to raise the movable rails so that they will again assume the position shown in Fig. 12. As the cycle of movement continues, presser pad connection III will ride onto the raised rail 336 and a succeeding presser pad connection IV will ride off the rails 322, 324 and onto the raised rail 328 whereupon the conveyers will come to rest, leaving the presser pads suspended in the position previously occupied by I and II, ready to start a succeeding cycle of operation. From the above description it will be observed that during one cycle of movement of the conveyer the pads I and II are moved off the lowered rails 328, 336 and a succeeding set of pads III and IV are moved onto the rails 328, 336 while the latter are in their raised position.

Provision is also made in the preferred embodiment of the invention for releasing the containers from the pressure of the pads 302 when the containers arrive at the aligning station 290 as hereinbefore described. As herein shown, see

Figs. 11 and 15, the longitudinal guide rail 362 is provided with two vertically movable sections 364, 366 upon which the presser members rest when they arrive at the aligning station 290. The movable sections 364, 366 are supported upon the ends of vertical rods 368, 370 which are slidably mounted in the frame member 318. The vertical rods are loosely connected to arms 372, 374 fast upon a rocker shaft 376 which latter may be rocked to raise the movable sections 364, 366 by a cam, not shown, connected to an arm 378 by link 380. In operation, the sections 364, 366 are raised only temporarily while the aligning mechanism 290 is in operation, whereupon the pressure members 302 are again lowered into register with the containers. As herein shown, the sections 364, 366 are normally retained in their lowered position by coil springs 382, 384 which bear against collars 386, 388 fast upon the rods 368, 370 respectively. The collars 386, 388 normally bear against a portion of the frame member 318 and may be adjusted on the rods to suspend their individual sections 364, 366 in alignment with the longitudinal guide rail 362. As herein shown, the movable sections are also arranged to receive the longitudinal presser rail 312 to hold the latter down in yielding engagement with the top of the lower run of the chain 300 in the operation of the machine.

In order to permit the longitudinal presser rail 312 to be raised with presser members 302 at a point adjacent to the vertically movable sections 330, 338, extra long yieldingly mounted rods 390, 392 are provided at this section of the conveyer. As herein shown, each rod is slidingly mounted in the frame member 318 and is yieldingly urged into engagement with the rail 312 by a coil spring 394, which bears against a collar 396 fast upon each rod. The collars 396 normally rest against a portion of the frame member 318. In operation, the end of each rod bears against the top of the rail 312 so that when the chain 300 is raised by the vertically movable sections 330, 338, the rods 390, 392 will slide upwardly in the frame member 318 against the resistance of the springs 394. The rail 312 may and preferably will be made of a thin spring steel material, sufficiently flexible so that it will readily bend from the raised position to the lowered position, as described.

Briefly, the operation of the machine is as follows: The containers 14, entering the machine upon the conveyer 16 are separated by the star wheel 22 in spaced relation, to be received by the arms 20 of the continuously moving carrier chain 19. The continuously moving conveyer 19 is arranged to move the containers in definite spaced relation for subsequent labeling operations and at a rate of speed equal to one-half the speed of the conveyer 12 and the speeds of travel of the conveyers are so coordinated that two containers A and B, in Fig. 1, arrive in such position just as the conveyer 12 starts to pick up the movement, whereupon the containers are conveyed at an increased rate of speed. The succeeding containers, E and F, being moved continuously during both the moving period and rest period in the preceding cycle of operation of the conveyer 12, are likewise picked up by the latter conveyer when they arrive at the position indicated at A and B. Thus the containers are in motion continuously during the feeding operation, merely being advanced at an increased rate when they arrive at positions A and B on the conveyer 12. When the containers arrive at positions A and B, the presser pads 302 are simultaneously released upon these two containers and continue along with the latter to serve as a support for the top of the containers during the application of the labels to the sides of the containers. The completely labeled containers are then discharged from the machine upon any suitable receiving table or conveyer, not shown.

From the above description of the preferred embodiment of the invention, it will be observed that the present transferring device is adapted to feed the containers continuously to the intermittently operated labeling mechanism and in accurately spaced relation to the label applying mechanism in a smooth and efficient manner and at higher speeds than has heretofore been possible, the present transferring device being particularly adapted for feeding a plurality of containers simultaneously in such spaced relation.

While the preferred embodiment of the invention has been herein illustrated and described, it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:

1. In a labeling machine of the type adapted for the simultaneous application of a plurality of labels to a plurality of containers at a plurality of labeling stations, in combination, conveying mechanism for conveying a plurality of containers into accurately registered position with relation to said labeling stations including a continuously driven supply conveyer adapted to support and convey a line of the containers, an intermittently driven conveyer for supporting and delivering containers transferred thereon from said supply conveyer into operative position with respect to said labeling stations, and a continuously operating indexing device having container engaging arms arranged in predetermined spaced relation and movable over said intermittently operated conveyer, whereby to engage and move containers along said intermittent conveyer in the intervals between successive movements of the conveyer whereby to space said containers upon said intermittent conveyer a predetermined distance from one another, said intermittently movable conveyer being arranged to be moved at a speed a multiple of the speed of movement of said container engaging members whereby to pick up the movement of the containers while the latter are being moved by said container engaging members to thereby transfer a plurality of said containers to said labeling stations in accurately positioned relation.

2. In a label applying machine of the type wherein a plurality of labels are simultaneously applied to a plurality of containers at a plurality of labeling stations, in combination, conveying means for conveying the containers through the machine comprising a chain movable over the top of the containers, a conveyor upon which the containers are supported, means for pressing said chain against the top of the containers including a plurality of yieldingly mounted presser members disposed at spaced intervals along the length of the chain, and means for controlling the operation of a plurality of the presser members corresponding to the number of containers being simultaneously labeled to permit a plurality of the containers to pass beneath the same prior to the movement of said plurality of presser members into operative position.

3. In a labeling machine having, in combina-

tion, an intermittently operated conveyer upon which the containers are supported and advanced to and from the labeling stations, and container feeding mechanism for supplying containers to said intermittently operated conveyer in predetermined spaced relation for registration with said labeling stations including a supply conveyer, a continuously operating indexing device having container engaging arms arranged to extend in predetermined spaced relation over said intermittently operated conveyer, said container engaging arms being arranged to engage successive containers being delivered by said supply conveyor and to move them onto said intermittently operated conveyer, said intermittently operated conveyer being arranged to pick up the movement of successive containers while the latter are being moved by said container engaging arms.

4. In a labeling machine having, in combination, an intermittently operated conveyer upon which the containers are supported and advanced to and from the labeling stations, and container feeding mechanism for supplying containers to said intermittently operated conveyer in predetermined spaced relation for registration with said labeling stations, including a supply conveyer, a continuously operating indexing device having container engaging arms arranged in predetermined spaced relation, said container engaging arms being arranged to engage successive containers being delivered by said supply conveyor and to move them onto said intermittently operated conveyer, means for separating and releasing successive containers on the supply conveyer in timed relation to the movement of said container engaging arms, said intermittently operated conveyer being arranged to pick up the movement of successive containers while the latter are being moved by said container engaging arms.

5. In a labeling machine of the character described having a plurality of spaced stations for performing successive labeling operations, conveying mechanism for conveying a plurality of containers into accurately registered position with relation to said labeling stations, including an intermittently operated conveyer for supporting and delivering containers transferred thereon into operative position with respect to said labeling stations and a continuously operated conveyer adapted to deliver containers to said intermittently operated conveyer in predetermined spaced relation and in timed relation to the intermittent movement of said latter conveyer.

6. In a labeling machine of the character described, having a plurality of spaced stations for performing successive labeling operations, conveying mechanism for conveying a plurality of containers into accurately registered position with relation to said labeling stations including an intermittently operated conveyer for supporting and delivering containers transferred thereon into operative position with respect to said labeling stations and a continuously operated conveyer having container engaging arms arranged in predetermined spaced relation and movable over said intermittently operated conveyer and adapted to engage and move containers along said latter conveyer a predetermined distance from one another, said intermittently operated conveyer being arranged to pick up the movement of the containers in such spaced relation during the moving period in the cycle of operation of said intermittently operated conveyer.

7. In a labeling machine of the type adapted for the simultaneous application of a plurality of labels to a plurality of containers at a plurality of labeling stations, conveying mechanism for conveying a plurality of containers into accurately registered position with relation to said labeling stations including an intermittently operated conveyer for supporting and delivering containers transferred thereon into operative position with respect to said labeling stations and a continuously operated conveyer adapted to deliver containers to said intermittently operated conveyer in predetermined spaced relation and in timed relation to the intermittent movement of said latter conveyer.

8. In a labeling machine of the character described, having a plurality of spaced stations for performing successive labeling operations, conveying mechanism for conveying a plurality of containers into accurately registered position with relation to said labeling stations including an intermittently operated conveyer for supporting and delivering containers transferred thereon into operative position with respect to said labeling stations and a continuously operated conveyer having container engaging arms arranged in predetermined spaced relation and movable over said intermittently operated conveyer and adapted to engage and move containers along said latter conveyer a predetermined distance from one another, said intermittently operated conveyer being arranged to pick up the movement of the containers in such spaced relation during the moving period in the cycle of operation of said intermittently operated conveyer, and means for releasing successive containers from a line thereof in timed relation to the movement of said container engaging arms.

9. In a labeling machine of the type adapted for the simultaneous application of a plurality of labels to a plurality of containers at a plurality of labeling stations, conveying mechanism for conveying a plurality of containers into accurately registered position with relation to said labeling stations including an intermittently operated conveyer for supporting and delivering containers transferred thereon into operative position with respect to said labeling stations and a continuously operated conveyer adapted to deliver containers to said intermittently operated conveyer in predetermined spaced relation and in timed relation to the intermittent movement of said latter conveyer whereby said intermittently operated conveyer may pick up the movement of the containers and convey them to said labeling stations in accurately spaced relation.

10. In a labeling machine of the type adapted for the simultaneous application of a plurality of labels to a plurality of containers at a plurality of labeling stations, conveying mechanism for conveying a plurality of containers into accurately registered position with relation to said labeling stations including an intermittently operated conveyer for supporting and delivering containers transferred thereon into operative position with respect to said labeling stations and a continuously operated conveyer adapted to deliver containers to said intermittently operated conveyer in predetermined spaced relation and in timed relation to the intermittent movement of said latter conveyer, and means for supporting the top of said containers during their travel to and from said labeling stations comprising an intermittently operated chain, a plurality of presser members disposed at spaced in-

tervals along the length of the chain adapted to engage and move along with the top of the containers, means for retaining a plurality of the presser members in a raised position above the top of the containers while the latter are being fed into position, and means for simultaneously releasing a plurality of said presser members into engagement with a plurality of containers, said releasing means being operative during the moving period in the cycle of operation of said intermittently operated conveyer.

ARTHUR CLARENCE EVERETT.