June 29, 1937. H. T. SCOTT 2,085,477

CONTAINER FABRICATING MACHINE

Filed Oct. 16, 1934 7 Sheets-Sheet 1

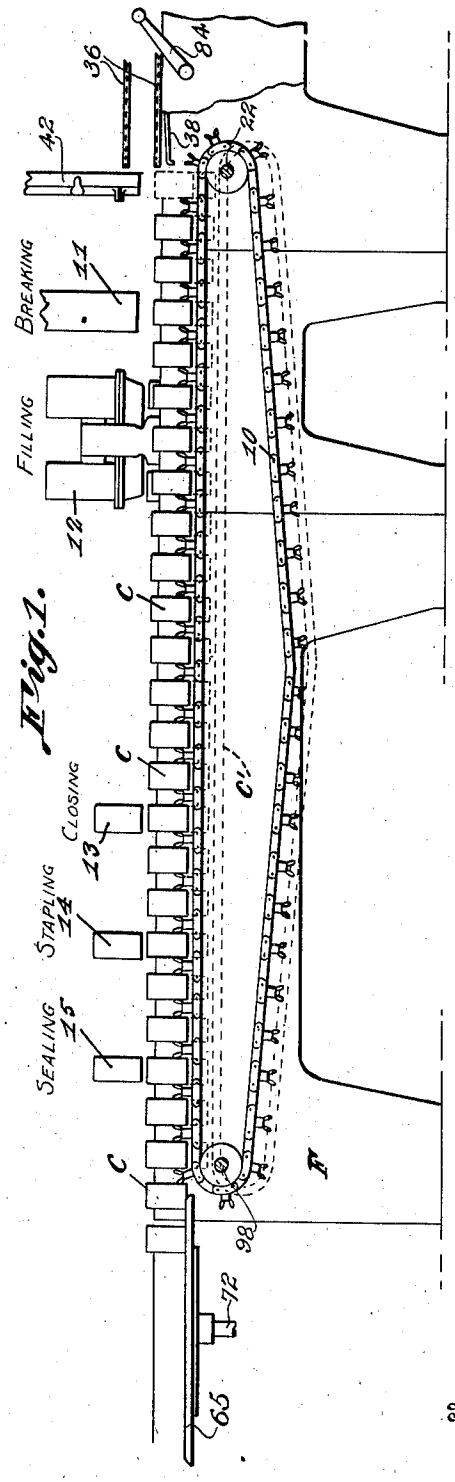


Fig. 1.

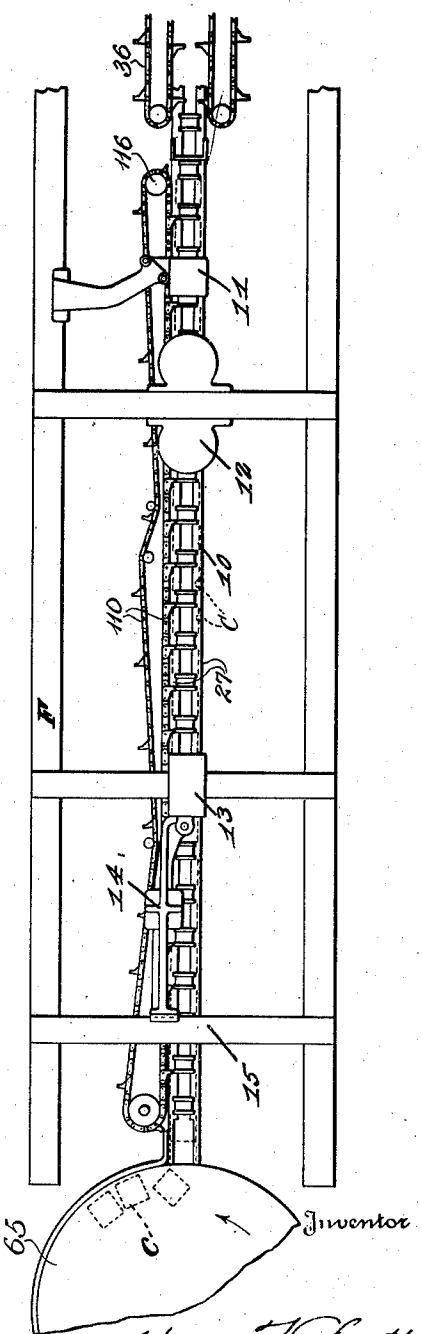


Fig. 2.

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CONTAINER FABRICATING MACHINE

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Fig. 3.

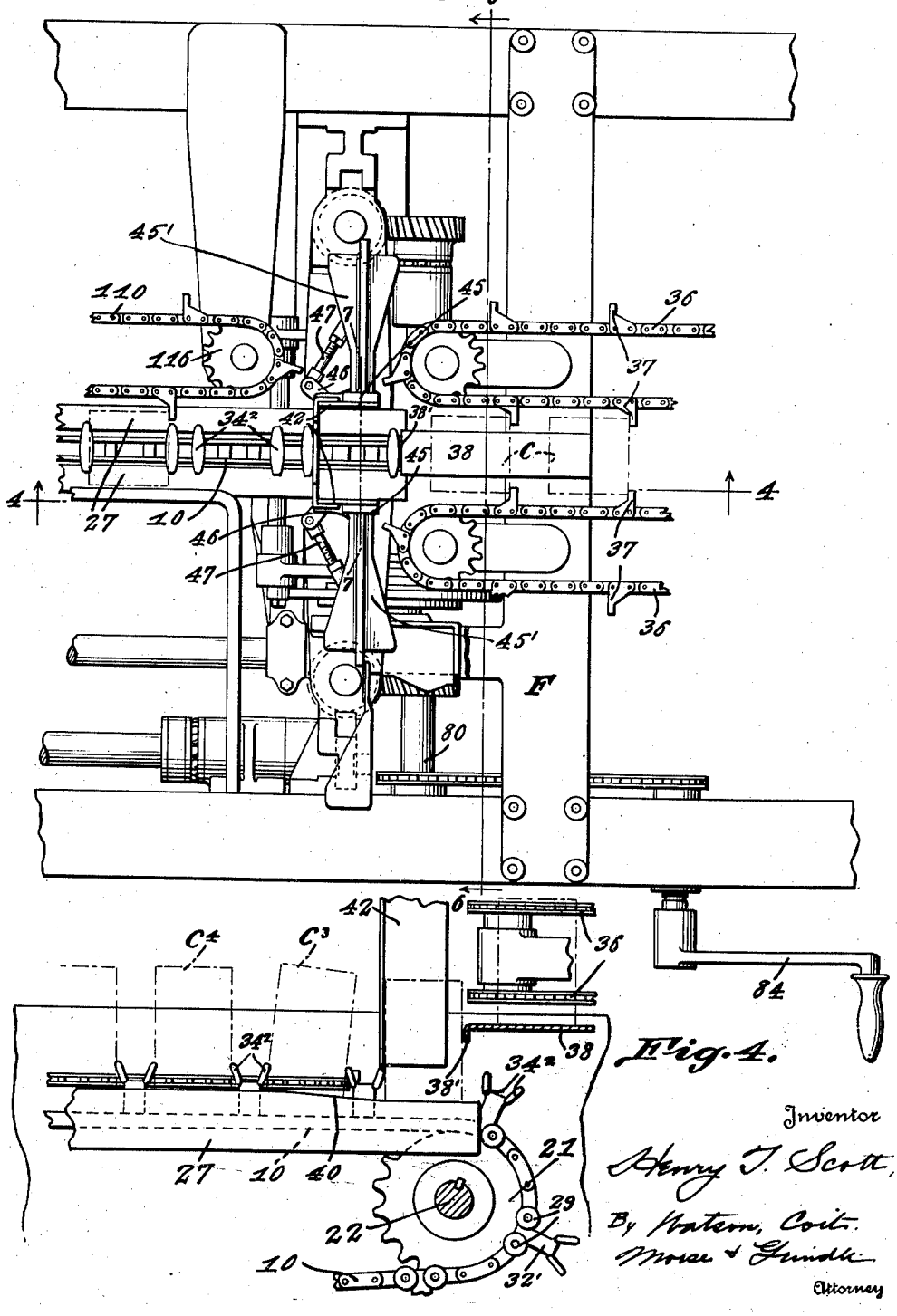


Fig. 4.

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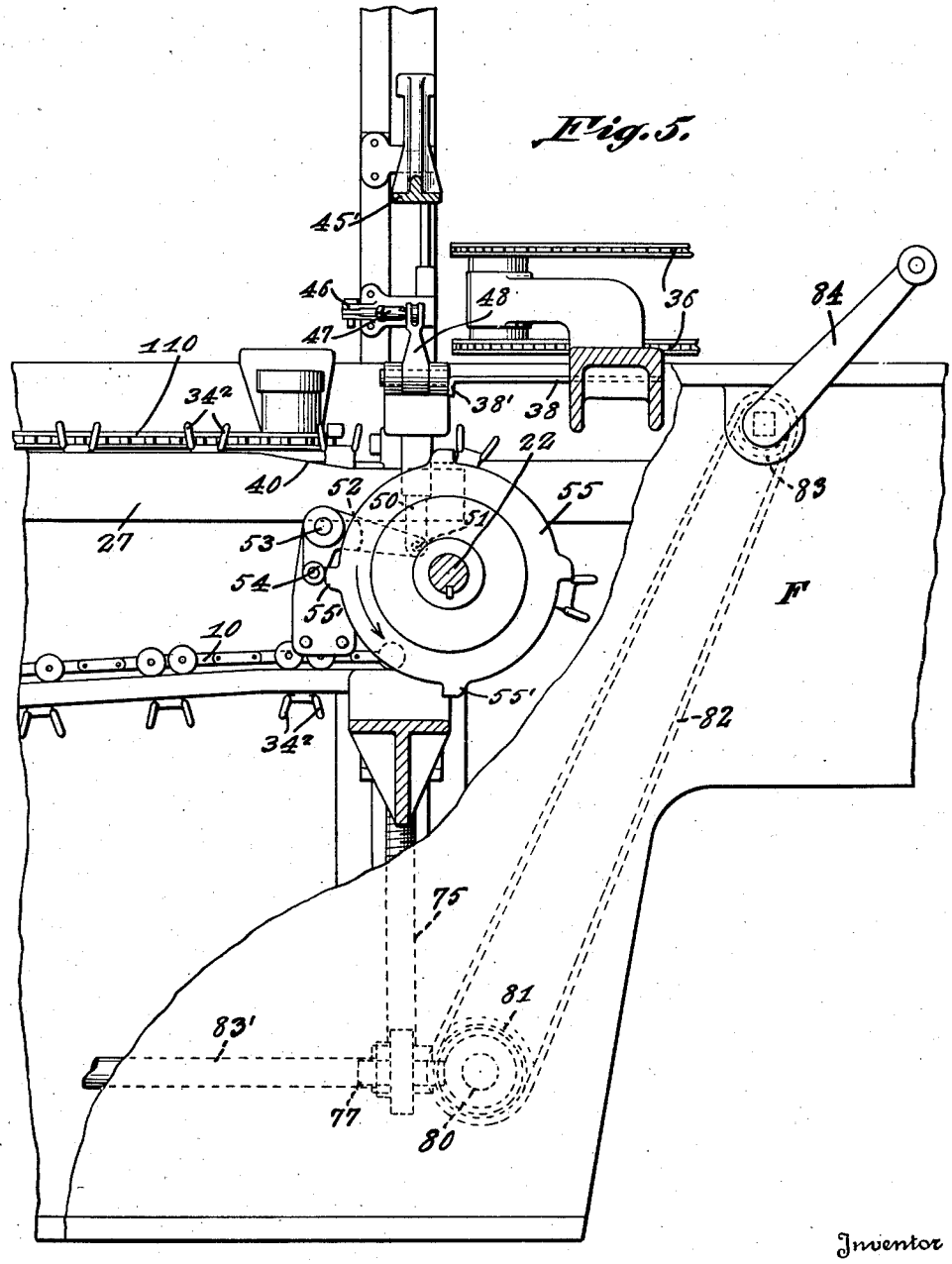
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CONTAINER FABRICATING MACHINE

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Fig. 5.



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CONTAINER FABRICATING MACHINE

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Fig. 6.

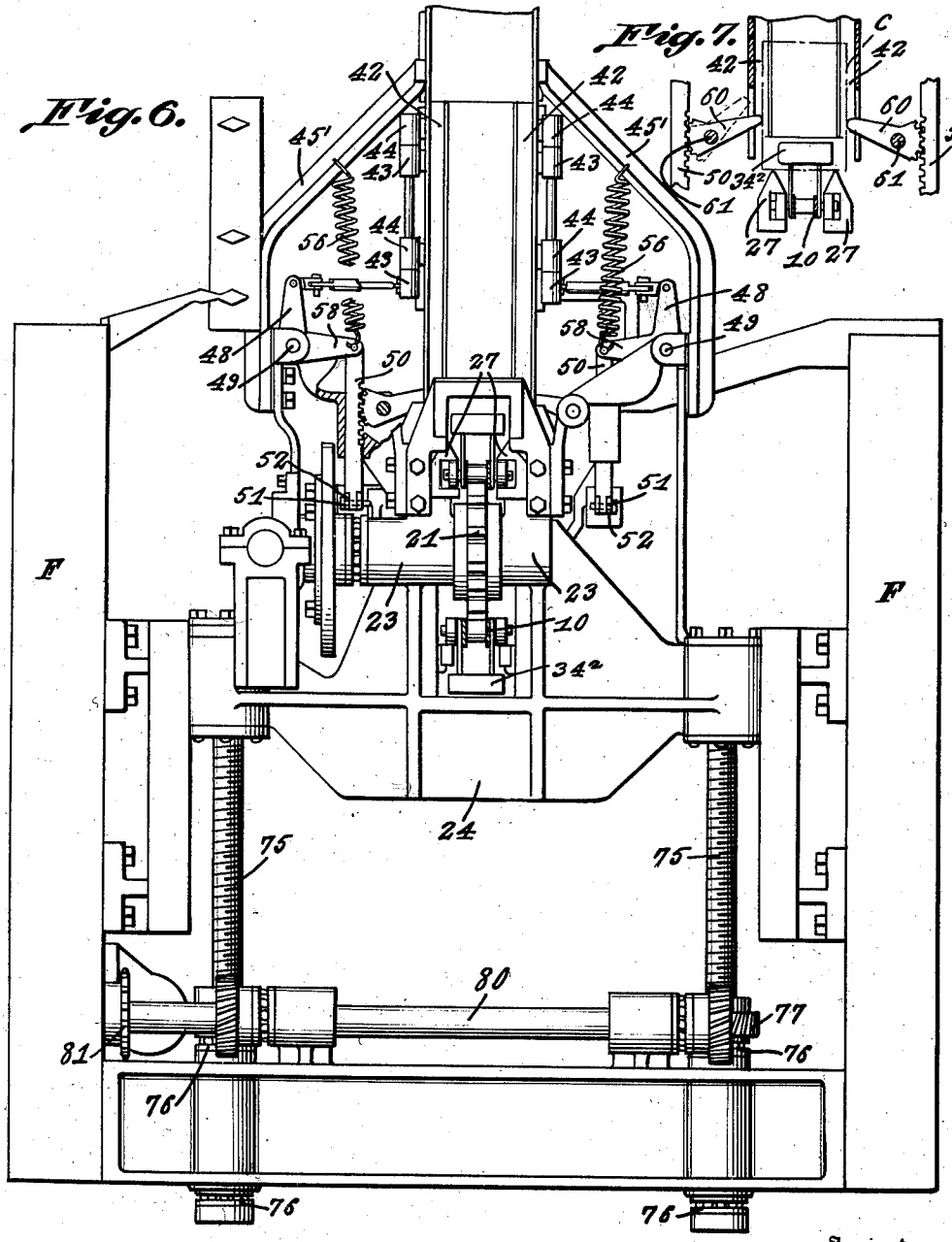


Fig. 7.

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CONTAINER FABRICATING MACHINE

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Fig. 8.

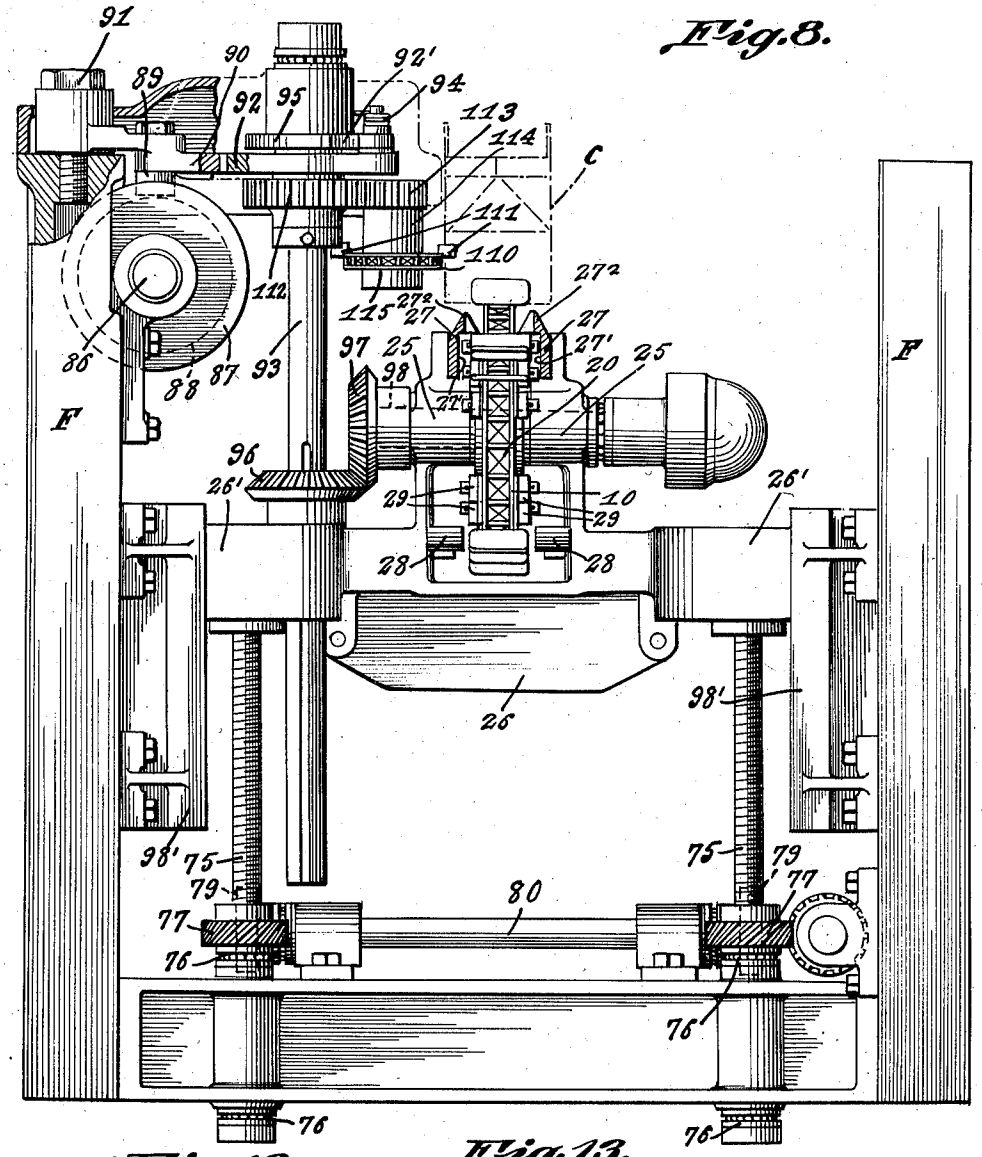


Fig. 12.

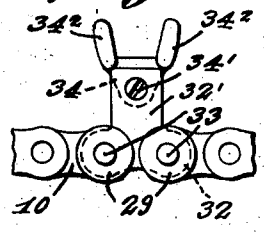
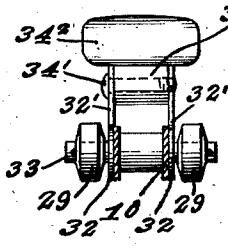


Fig. 13.



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CONTAINER FABRICATING MACHINE

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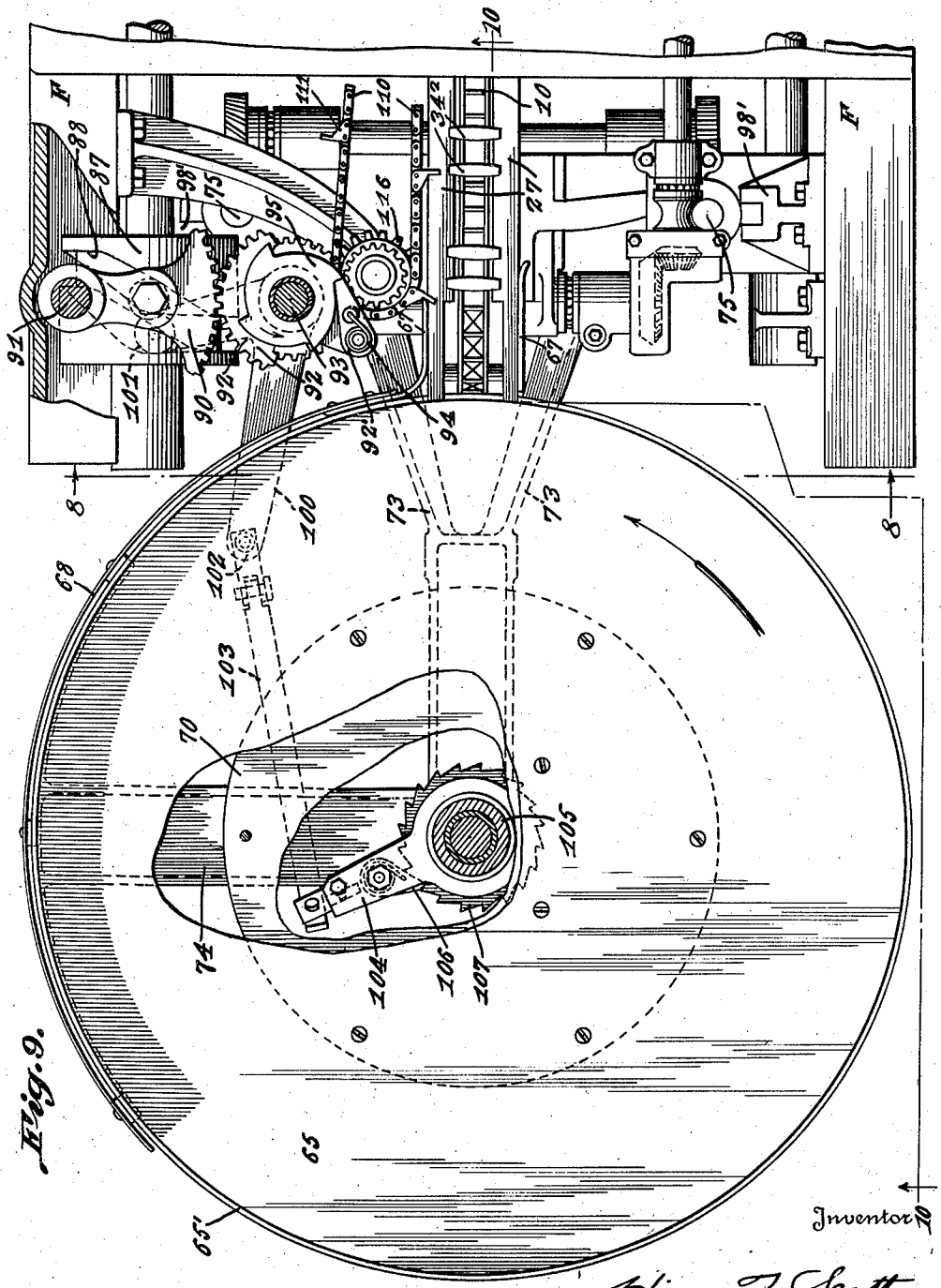


Fig. 9.

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CONTAINER FABRICATING MACHINE

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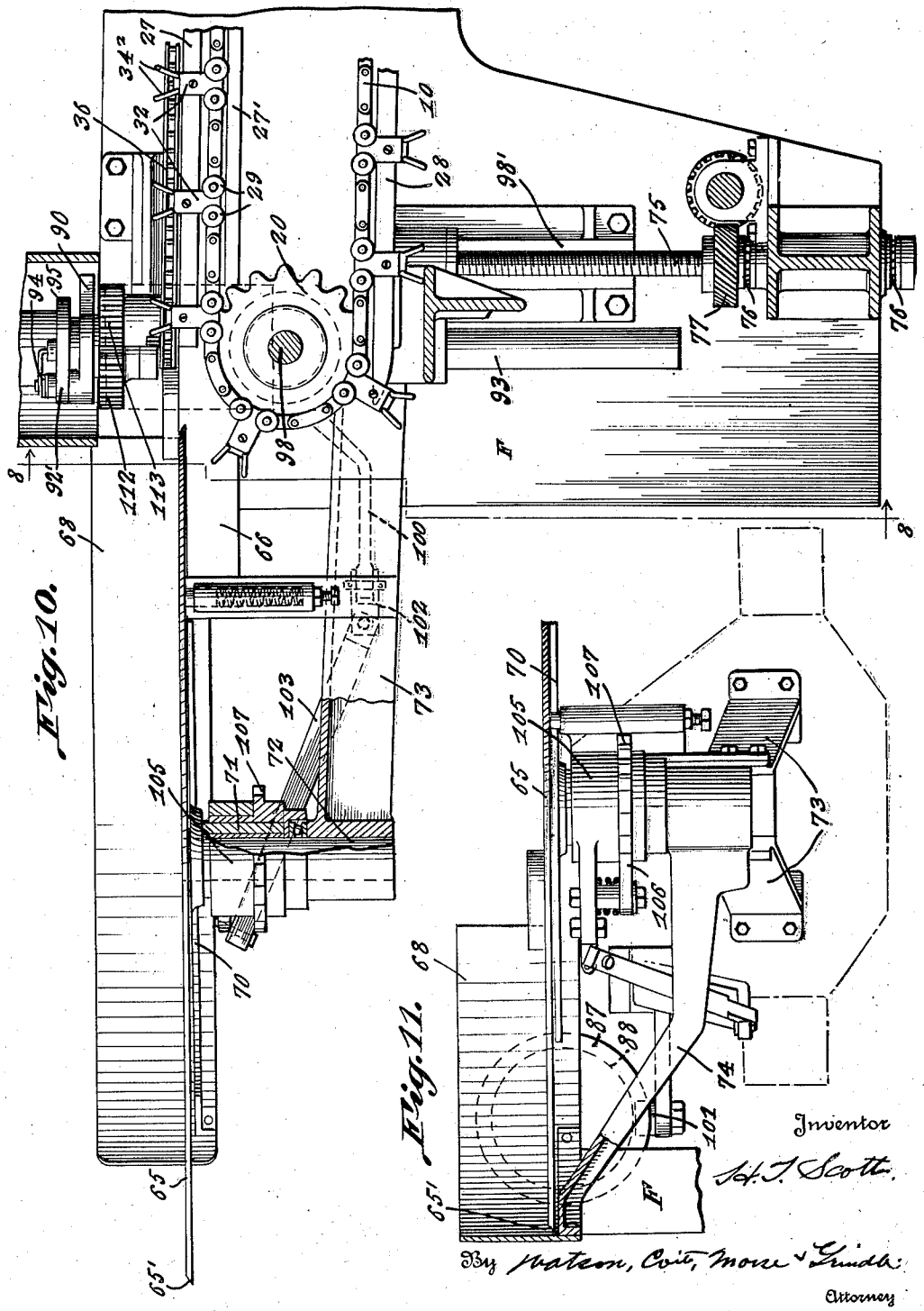


Fig. 10.

Fig. 11.

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Patented June 29, 1937 2,085,477

UNITED STATES PATENT OFFICE

2,085,477

CONTAINER FABRICATING MACHINE

Henry T. Scott, Toledo, Ohio, assignor to The American Paper Bottle Company, Toledo, Ohio, a corporation of Ohio

Application October 16, 1934, Serial No. 748,565

13 Claims. (Cl. 93—7)

The present invention relates to machines for filling, closing and sealing paper containers. It relates particularly to machines for receiving partially completed paper containers, that is, tubular containers the bottoms of which have been closed and which have been coated both interiorly and exteriorly with a leak proofing substance, for instance, paraffin, and filling, closing and sealing the same. In my copending application, Serial 603,861, filed April 7, 1932, of which the present application is a continuation-in-part, is disclosed an apparatus by means of which collapsed blanks may be detached singly from a pack of such blanks in rapid succession, each blank thus detached being first opened and rendered tubular in cross section, the bottom flaps secured together by an adhesive and the tube with bottom closed being then immersed in paraffin so that a liquid proof coating is established over both its interior surface and its exterior surface. After the paraffin has hardened each such partially completed container is ready for filling, closing and sealing and it is the function of the present invention to automatically perform these operations in a rapid and efficient manner and to deliver the charged and sealed containers to a platform from which they may be readily removed and packed or otherwise disposed of. The partially completed containers are delivered singly to the charging, closing and sealing mechanism but in rapid succession and it is essential that they be charged, closed, sealed and delivered with equal rapidity in order that the process of container manufacture may proceed uninterruptedly from start to finish. A container of the type which the present machine has been primarily designed to handle is described and claimed in my copending application, Serial 686,300, filed August 22, 1933 but it will be understood that, with minor changes in design and arrangement of its component elements the present invention may be adapted to handle containers which differ widely in form and shape.

Containers constructed in accordance with the teachings of the application just above referred to may have different capacities, for instance, they may be designed so as to have half pint capacities, pint capacities, or quart capacities. The half pint container differs from the quart container only in length, its cross sectional shape, bottom construction, and top construction being the same as that of the larger container. Not only is the means for closing the bottom so designed as to be able to perform its functions regardless of the container length, but also the means for filling, closing and sealing the containers are so designed that they may perform their functions regardless of the capacities of the containers which are presented to them, provided of course that these containers are presented in proper relationship to the several devices as they pass through the mechanism. The present invention therefore contemplates a machine having the capacity to fill, close, and seal containers of different capacities and varying lengths without substantial change to any of its operating parts, it being only necessary to effect a simple adjustment to change the machine from one adapted to act upon half pint containers to one adapted to act upon pint or quart containers. By means of one machine, therefore, the entire output of a dairy, for instance, may be properly allocated to pint, half pint and quart containers made of paper, a result heretofore not realized in the case of machines designed for such purposes.

The embodiment of the invention selected for disclosure by way of example is illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation of the machine, rather diagrammatic in character, as many parts have been omitted;

Figure 2 is a diagrammatic plan view of the same;

Figure 3 is a plan view of portion of the mechanism;

Figure 4 is a section on line 4—4 of Figure 3;

Figure 5 is a side elevation of portion of the machine, partially broken away to show interior construction;

Figure 6 is a section on line 6—6 of Figure 3;

Figure 7 is a section on line 7—7 of Figure 3;

Figure 8 is a section on line 8—8 of Figure 9;

Figure 9 is a plan view of portion of the machine, at the delivery end thereof;

Figure 10 is a section on line 10—10 of Figure 9;

Figure 11 is an end elevation of portion of the mechanism at the discharge end of the machine, partially broken away; and

Figures 12 and 13 are two views of one of the conveyor chain links.

The machine as an entirety is relatively long and in the drawings, its length is nowhere indicated except in Figures 1 and 2. The containers to be charged, filled and sealed are placed on the machine at the right hand end thereof and moved toward the left, the left hand end being the discharge end. The individual containers of a series of such containers are indicated by the

letters C in Figures 1 and 2 and each container in the series moves progressively from right to left. As it is received upon the machine at the right hand end it comprises a tube having its bottom end closed and its top open, a container in this partially completed condition being illustrated in greater detail in my copending application, Serial 686,300, filed August 22, 1933. In this progressive movement from right to left, the container is first placed upon and firmly gripped by a conveyor, the flexible element of which is indicated at 10 in Figures 1 and 2. The conveyor element or chain 10 is given a step by step movement and each container secured thereon is first presented to a mechanism diagrammatically indicated at 11 for partially folding its collapsible upper end portion. A machine for and method of partially folding the collapsible upper ends of the containers is fully disclosed in my copending application, Serial 748,561, filed October 16, 1934, and for that reason will not be herein described in detail.

After the upper end of the container is partially folded it is next moved beneath the discharge spout of a filling mechanism, diagrammatically indicated at 12 and by means of which a liquid or solid substance to be dispensed is inserted. A filling mechanism primarily intended for use in connection with the present machine is fully disclosed in copending application, Serial 574,296, filed November 11, 1931. The charged containers are next presented to a top closing mechanism diagrammatically indicated at 13, which is preferably of the type disclosed in my copending application, Serial 748,566, filed October 16, 1934, and the details of which need not be here described. Next the upper end of the charged and closed container is presented to a mechanism, diagrammatically indicated at 14 by means of which a mechanical securing device, such as a staple may be inserted. A suitable stapling means is disclosed in my copending application, Serial 748,564, filed October 16, 1934.

After the stapling operation has been performed, the container is presented to a final sealing mechanism, diagrammatically indicated at 15, by means of which a final sealing pressure is applied. A preferred type of sealing mechanism is fully disclosed in my copending application, Serial 741,330, filed August 24, 1934. Finally, the charged, closed and sealed container is moved on to a movable receiving table, shown at the left of the machine in Figures 1 and 2, from which table it may be manually removed by an operator. Preferably, heat is applied to the upper portion or foldable end of the container both during the stapling operation and during the final sealing operation, the temperature of the paraffin coating at the top of the container being raised to such a point that the paraffin becomes semi-fluid or plastic. This facilitates the fabrication of a container having a continuous leak proof seal at its upper end thus ensuring against the leakage of liquid from the container. The means for applying the heat to the container tops is fully disclosed in the two copending applications previously referred to, covering the stapling apparatus and the sealing apparatus respectively. It will be noted that in Figure 1 the flexible element 10 of the conveyor is shown in two positions, in full and dotted lines, the conveyor as an entirety being vertically adjustable. The containers C, shown in full lines, may be for instance half pint containers and hence, relatively short. By means of dotted lines C', a series of longer containers is indicated and to adjust the machine to enable it to handle containers of this size, the entire conveyor mechanism, including the flexible element 10, is lowered to the dotted line position shown. The partial folding mechanism 11, filler 12, closing mechanism 13, stapling mechanism 14 and sealing mechanism 15 are all preferably fixed upon the frame which supports the conveyor and the adjustment of the machine to accommodate containers of different sizes is brought about by raising and lowering the supporting conveyor. Nevertheless, the invention contemplates, in its broadest aspects, a stationary conveyor support and means for simultaneously raising or lowering the several instrumentalities for charging, closing and sealing the containers.

The details of the conveyor may be most clearly observed in Figures 3, 4, 5, 6, 8, and 9. It comprises essentially the flexible element 10, previously referred to, which may be an endless chain and certain stationary parts, and chain operating means, to be later described. The chain 10 is so disposed and supported as to have a horizontally extending upper reach, a generally parallel lower reach and curved end portions where the chain passes around supporting sprockets, the left hand or driving sprocket being indicated at 20 and the right hand or idler sprocket being indicated at 21. Both sprockets may be driven if desired. The cross shaft 22 upon which the right hand sprocket 21 is mounted has its ends rotatably mounted in bearings 23 formed integrally with a vertically adjustable conveyor frame member 24. The cross shaft upon which the left hand sprocket 20 is mounted has its ends rotatably supported in bearings 25 which preferably comprise integral portions of a second vertically adjustable conveyor frame member 26 positioned at the left hand end of the machine (Figure 1). Extending between members 24 and 26 are the horizontally disposed parallel chain supporting rails, there being two such upper rails 27 and two lower rails 28 slightly spaced apart. At equal intervals, the chain is provided with laterally extending rollers 29, the rollers 29 of the upper reach of the chain being located within recesses 27' formed in the mutually facing sides of the upper rails 27 and the rollers 29 of the lower reach of the chain rolling upon the upper surface of the lower rails 28. By means of the two end sprockets and the supporting rails just described, the conveyor chain is supported at all points and in such manner that movements of the chain in the direction of its length are opposed only by slight frictional forces. The chain supporting rails 27 are provided with upwardly extending portions 27^2, terminating in relatively narrow horizontally disposed upper edge surfaces, as may be seen in Figure 8. These surfaces underlie the bottoms of the containers C which are being transmitted by the conveyor, and comprise stationary supporting surfaces over which the containers slide as they move from one end of the machine to the other.

As shown in a number of figures of the drawings the conveyor chain comprises a continuous series of pivotally connected links. Certain of these links, spaced apart at equal intervals, are links of special construction, one of these links being clearly illustrated in Figures 12 and 13. This link comprises spaced parallel plates 32 having aligned apertures to receive pins 33 which carry upon their outer ends the rollers 29 and

central upstanding portions 32' to support the bridging element 34, a bolt 34' passing through this element and aligned apertures in portions 32' firmly securing these parts together. Element 34 carries two upstanding container engaging members 34^2, these members being similarly formed and having rounded surfaces as shown. Each member 34^2 is adapted to cooperate with the nearest adjacent similar member carried by the next adjacent similarly formed link in gripping and retaining a container. Two such cooperating members 34^2 engage the opposite side walls of a container positioned between them, centrally of such walls and just above the level of the bottom thereof. The members 34^2 are so positioned that the distance between them is slightly less than the distance between the outer surfaces of the walls of the container which they engage, thus causing the container to be tightly gripped therebetween, the engaged container walls being slightly disked or flexed inwardly by the pressures applied by the gripping members. As each such link is supported upon four rollers widely spaced apart all possibility of rocking or tilting movement is eliminated, the containers carried between the links being therefore maintained in correct upright positions as they move along the conveyor.

As has been before pointed out, the containers are received singly but in rather rapid succession from a mechanism (not illustrated), positioned to the right of the machine shown in Figures 1 and 2. They are brought forward horizontally but at a higher level than the upper reach of conveyor chain 10 by any suitable type of container advancing mechanism. In Figures 3 and 4 portion of this container advancing mechanism is illustrated and is seen to comprise parallel conveyor chains 36 having laterally extending lugs 37 adapted to engage the rear corners of a container C and to move the same forwardly, the container bottom resting upon a trackway, portion of which is indicated at 38. The advancing movement of a container C from the right (Figure 3) is continued under the influence of the lugs 37 until the rear bottom corner of the container reaches and passes over the forward edge 38' of the bottom supporting plate 38, whereupon the container is free to fall vertically downwardly toward the conveyor chain 10. The instant of fall is so regulated, by driving conveyor chains 10 and 36 in synchronism, that a container thus forced over the edge of supporting plate 38 and dropped downwardly will be deposited between two of the container gripping members 34^2, as most clearly shown in Figure 4, the bottom striking the upper surface of the conveyor chain supporting rails 27 and coming temporarily to rest in this position.

The gripping members are widely spaced apart to receive the falling container between them by reason of the fact that the sprocket 21 is so positioned with respect to plate 38 that the chain link upon which the rear gripping member is mounted is still passing over a curved surface, to which it is radially disposed and hence the gripping member carried thereby is spaced more widely than normally from the immediately preceding gripping member. During the next operation of the conveyor, however, the following link will move from sprocket 21 (which may be considered to be a curved guiding surface), onto the supporting rails 27, which form a straight guide and the following link will assume a position normal to the guiding surface, thus bringing the following gripping member 34^2 into engagement with the container wall and effecting the gripping engagement heretofore described. As will be seen from an inspection of Figure 4, the upper surfaces of the end portions of rails 27 upon which the falling container comes to rest are somewhat lower than are the upper edge surfaces of these rails at a slight distance forward of this point and these upper edge surfaces have relatively short inclined portions 40 intermediate the lower and upper portions thereof. As the container is moved forwardly therefore it is first tilted rearwardly as indicated at C^3 in Figure 4 and is then erected as indicated in C^4, the container during this operation being tightly held by the gripping members 34^2 although not so closely gripped by these members that it may not be moved slightly upwardly between the members without injury to the container. It is the function of the means just described to insure that the container bottoms contact with the supporting rails, even when, as may sometimes occur, the gripping members engage and grip a container too closely to the bottom thereof due to rebounding of the container after falling.

To ensure that each container delivered over the edge 38' of the supporting plate 38 falls vertically downwardly instead of tilting forwardly, guide means is provided, this guide means comprising essentially two spaced parallel and vertically extending guide elements 42 which lie immediately in front of the forward vertical corners of the falling container and therefore limit its tilting movement. Naturally these guide members 42 must be withdrawn from the path of the container, after it has fallen onto supporting rails 27, in order not to prevent forward movement of the container to position C^3, thence to C^4, etc. For that reason guide members 42 are hingedly supported so that they may be swung laterally and out of the path of the container which has just fallen to the lower conveyor during the time that this container is being advanced and the loading space cleared for the following container. Thus, members 42 are provided with hinge members 43 which cooperate with hinge members 44 fixed upon supporting frame members 45, which members are in turn mounted upon braces 45', in pivotally mounting the guide members 42 for swinging movements about the vertical axes of these members.

Each corner guide 42 is provided with mechanism for swinging the same to and from guiding position, which mechanism will now be described. Thus secured to each such member is a lug 46 and these lugs are connected respectively by adjustable links 47 with the upper ends of bell crank levers 48 pivotally mounted at 49 upon the conveyor frame. To the horizontally extending arms of bell cranks 48 are pivotally connected vertically extending racks 50 suitably guided in the frame and the bottoms of these racks are in turn pivotally connected at 51 to the horizontally extending arms of bell crank levers 52, which are mounted respectively upon a common rock shaft, indicated at 53 and which is rockably supported upon the conveyor frame. A downwardly extending arm of the bell crank 52 carries a roller 54 which lies in the plane of a cam member 55 fixed upon the sprocket wheel carrying shaft 21. Cam 55 has four cam teeth 55', spaced 90° apart, which teeth are adapted to successively engage cam roller 54 as the cam disk rotates in the direction of the arrow shown in Figure 5. The springs 56 shown in Figure 6 have their upper ends con-

nected to braces 45' and their lower ends connected to the outer ends of horizontal arms of bell cranks 58. These springs are normally in tension and tend to rock bell crank levers 48 in such directions respectively as to cause corner guide members 42 to swing to their outermost positions, or out of guiding position. In fact, this is the normal position for these guide members and it is only when a cam tooth 55' thrusts roller 54 outwardly and thereby rocks bell cranks 52 to lower racks 50 and actuate bell cranks 48 and links 47 that the guides are actually positioned in guiding relationship to a falling container. The mechanisms are so synchronized that immediately after the container has fallen and has come to rest upon rails 27, the roller 54 clears cam 55' and the springs 56 become active to swing the guides 42 clear of the container, this swinging movement of the guides occurring simultaneously with the starting of the chain.

For the purpose of accurately centering the container laterally of the conveyor immediately after it has fallen and is resting upon rails 27, two centering arms 60 are provided, these arms being pivotally mounted upon axes 61 positioned laterally of the conveyor and in the transverse plane of the vertically extending parallel rack members 50. The outer ends of these rocking arms 60 are formed as segments, the teeth of which segments mesh respectively with teeth formed upon the rack members 50. Normally the centering fingers 60 occupy the positions in which they are shown in full lines in Figure 7 but, simultaneously with the movements of the guides 42 to guiding positions respectively, the centering fingers 60 are moved outwardly. Thus the centering fingers move simultaneously with guides 42 and the inner ends of these fingers engage the sides of a container and move it to an exactly central position with respect to the conveyor and the gripping members as the guides 42 swing outwardly.

The conveyor chain is intermittently operated by means hereinafter to be described and each container placed upon its right hand end is, after being individually presented to the filling, top folding, closing and sealing mechanisms in the manner hereinafter indicated, eventually brought to the left hand end of the conveyor, where it is delivered to the receiving table indicated at 65. This receiving table comprises a circular disk mounted to rotate about a vertical axis positioned in the vertical plane of the conveyor chain 10, the bevelled outer edge 65' of the disk overlying the ends 66 of the conveyor chain supporting rails 27 and the upper surfaces of the table and rails lying in the same horizontal plane.

As the links which carry the gripping members approach table 65 they pass from the support of the supporting rails 27 on to the sprocket 28 and hence the gripping members 34^2 successively separate as they reach this point, as indicated in Figure 10. The containers are therefore successively released from gripping engagement by these members and are moved, one after the other, onto the upper surface of the receiving table 65, being laterally guided by the vertically disposed guide plates 67. By means hereinafter to be described, the receiving table 65 is rotated in the direction of the arrow shown in Figure 9 and the containers are carried in this direction until removed by an operator, as indicated in Figure 2. A guard 68 extending for a substantial distance around the periphery of the table 65 and projecting upwardly therefrom prevents accidental dislodgement of the containers.

Plate 65 is mounted upon a disk 70 which disk is in turn rigidly secured to the upper end of a sleeve 71 rotatably mounted upon a vertical arbor 72 mounted upon the outer end of a bracket 73 which forms portion of the conveyor frame upon which sprocket 20 is rotatably mounted. The guard 68 is supported upon an extension 74 of bracket 73. The conveyor frames 24 and 26, together with the horizontally extending conveyor chain supporting rails comprised together an elongated vertically adjustable frame, being supported from the main frame, which is generally indicated at F, by means which permits the vertical movement of the conveyor frame for the purpose heretofore specified. This adjusting means comprises essentially four vertically extending threaded shafts 75 two of which have threaded engagement with frame 24, and two of which have threaded engagement with frame 26, the lower ends of all of these vertical threaded shafts 75 being supported by thrust bearings 76 as it is these shafts which carry the weight of the entire conveyor mechanism, including the receiving table. Fixed upon the lower end of each shaft 75 is a spiral gear 77, these gears 77 meshing with mating spiral gears 79 fixed on cross shaft 80 rotatably supported in the main frame. Shaft 80 rotatably carries at one end a sprocket 81 which is connected by means of a chain 82 with a sprocket 83 adapted to be operated by means of a hand lever 84. By rotating the hand lever gears 77 may be rotated and shafts 75 likewise rotated, thus effecting the desired vertical adjustment of the entire conveyor mechanism with the end in view of adjusting the machine for the filling, closing and sealing of containers of different heights and capacities. The motion of the cross shaft 80 which is immediately connected to the hand lever by means of chain 82 is communicated to the corresponding shaft at the opposite end of the conveying mechanism by means of longitudinally extending shaft 83 and suitable spiral gears.

Notwithstanding that the conveyor, including the receiving table is vertically adjustable in the manner specified, it is at all times connected to a common driving mechanism located upon the main frame F and the various operating parts of the machine so far described are all operated in synchronism. The source from which power is taken to operate the conveyor, the receiving table, the guiding mechanism, including vertical guides 42, and also the conveyor chain 36, is a drive shaft 86 horizontally disposed and extending longitudinally of the machine, this shaft being driven by any suitable kind of motor, in this case an electric motor which is not illustrated. The shaft is fixed in bearings rigidly mounted upon the main frame F, as may be perceived from Figure 8.

The gearing for transmitting motion from shaft 86 to the driving sprocket 20 of the conveyor includes a cam 87 having a camway 88 into which a roller 89 projects, this roller being mounted upon the lower face of a segment 90, pivotally mounted at 91 upon the frame F, the teeth formed upon the inner end of the segment meshing with those formed upon a similar segment 92 mounted to freely oscillate about a vertical shaft 93. Segment 92 carries a pawl 92' which is normally urged by a spring 94 into engagement with a four tooth ratchet 95. As cam

87 rotates, therefore, the ratchet 95 is given an intermittent step by step advancing movement in a counter-clockwise direction (Figure 9). Ratchet 95 is fixed on shaft 93 and hence this shaft is given a similar movement.

Splined on shaft 93 and supported so as to be vertically movable with conveyor frame member 26 is a mitre gear 96 the teeth of which mesh with the teeth of mitre gear 97 fixed upon the end of the shaft, indicated at 98 in dotted lines (Figure 8), which carries the driving sprocket 20 of the conveyor chain. It is clear therefore that, by means of the mechanism just described, the conveyor chain will be given an intermittent step by step motion, the power being derived from the constantly rotating shaft 86, and that the driving connection will be maintained at all times despite vertical adjustment of the conveyor, the gear 96 sliding freely on shaft 93 although splined thereto. It may be said here that the frame 26 is provided with laterally projecting portions 26' the outer ends of which extend into suitable guide slots formed in brackets 98 firmly connected to the side members of the frame F. Similar means for vertically guiding the conveyor in its movements relatively to the main frame are utilized at the opposite end of the conveyor frame so that horizontal movement of the conveyor frame relatively to the main frame does not occur at any time.

Power for the rotation of the receiving table 65 is also taken from the main drive shaft 86. Thus, freely mounted upon the vertical shaft 93 is a bell crank lever 100, one arm of which carries at its end a roller 101 which projects within the camway formed in cam 87, the bell crank 100 however being located in a plane beneath the cam 87 so as not to interfere with the chain driving mechanism lying above the cam. The rollers 101 and 89 are thus positioned within the same camway in cam 87 but at points 180° apart. It therefore results that when the conveyor chain 10 is driven the table 65 remains stationary, and when the table rotates the chain is stationary. The opposite end of bell crank 100 is connected by means of a universal joint 102 to a link 103 which link has its opposite end in turn connected for universal movement to the outer end of an arm 104 integral with a sleeve or hub member 105 which encircles the rotatable platform supporting sleeve 71.

Arm 104 carries a pawl 106 normally spring pressed in such manner that its free end is in engagement with a ratchet 107 which is integral with sleeve 71. As the cam 87 rotates the bell crank 100 is oscillated and its oscillatory movements are communicated by means of a link 103 to arm 104 and hence the circular receiving platform 65 will be given a step by step angular movement through the intermediary pawl and ratchet mechanism just described. If the conveyor mechanism, including the receiving table, is lowered from the position in which it is shown in Figure 10 for instance, the driving connection with shaft 86 will not be broken but the link 103 will swing downwardly toward the horizontal, about its point of pivotal connection with bell crank 100.

For the purpose of supporting the container tops as they are moved forwardly along the machine with a step by step motion of the conveyor a chin 110 is provided, this chain carrying a plurality of equidistantly spaced laterally extending container supporting brackets 111. Each of these brackets engages the rear side wall of a container held by the two gripping members just below the same, toward the upper end of this side wall and adjacent the corner of the container. Chain 110 is driven in synchronism with the conveyor chain 10 and each container mounted upon the conveyor is thus supported at its rear corner during the entire time that it is passing through the machine.

The means for driving the chain 110 includes gear 112 fixed upon shaft 93, the teeth of this gear meshing with those of a pinion 113 fixed upon a shaft mounted in bearing 114, which shaft also carries the guide chain driving sprocket 115. The chain 110 also passes around idler sprocket 116 and is elsewhere supported upon suitable guides. By the use of guide chain 110 rearward tilting and lateral tilting (toward the chain) of the containers is prevented. These brackets 111 also cooperate with parts of the container closing mechanism diagrammatically shown at 13, and fully disclosed in my copending application Serial No. 748,566, filed October 16, 1934, in squaring or properly orienting the containers as they reach position to be closed, thus insuring that the container top is positioned properly with respect to the closing members.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a container fabricating machine, in combination, a plurality of fixed, horizontally spaced devices for successively acting upon a container to close and seal the same, a horizontally disposed conveyor positioned below said devices and vertically adjustable relatively thereto, and fixed means for placing containers upon said conveyor, at one end thereof, for all adjustments of the conveyor.

2. In a container fabricating machine, in combination, a plurality of fixed, horizontally spaced devices for successively acting upon a container to close and seal the same, a horizontally disposed conveyor positioned below said devices and vertically adjustable relatively thereto, fixed means at one end of the conveyor for placing containers thereon, for all positions of adjustment of the conveyor, and a movable receiving means at the delivery end of the conveyor for receiving finished containers from the conveyor, said receiving means being vertically adjustable with the conveyor.

3. The combination with a plurality of devices for acting upon the upper ends of paper containers to fill, close and seal the same, of means for moving a container from device to device to be acted upon by said devices successively, said means tightly embracing the container and being adjustable relatively to said devices to present containers of different heights accurately thereto, and fixed mechanism at one end of said means for successively delivering containers to said means for all positions of adjustment thereof.

4. The combination with a plurality of devices for successively acting upon the upper ends of tubular paper containers to fill, collapse and seal the same, of mechanism for successively presenting to such devices the collapsible end of a container, said mechanism being adjustable to permit the presentation to said devices of the ends of containers of differing heights, and fixed mechanism at one end of said means for successively delivering containers to said means for all positions of adjustment thereof.

5. In a container fabricating machine, in com-

bination, a horizontally movable conveyor element having a plurality of container receiving and holding devices thereon, and mechanism for placing containers in said devices as they successively reach a predetermined position, said mechanism including vertically extending relatively movable members comprising a guide for containers moving downwardly toward the conveyor, and means for displacing said members after placement of a container in one of said devices to permit horizontal movement of the container with the conveyor.

6. In a container fabricating machine, in combination, a horizontally movable conveyor having a plurality of container retaining devices connected thereto and movable therewith, means for successively guiding containers moving downwardly into retaining devices successively moved into container receiving position by the conveyor, and means for laterally centering each successive container after it has been received by a retaining device.

7. In a container fabricating machine, in combination, a horizontally movable conveyor having a plurality of container retaining devices connected thereto and movable therewith, means for successively guiding containers moving downwardly into retaining devices successively moved into container receiving position by the conveyor, and spaced, simultaneously operable members for simultaneously engaging opposite sides of a container received by one of said devices and laterally centering the same.

8. In a container fabricating machine, in combination, a conveyor comprising a flexible element and a series of pairs of container gripping members secured thereto, the members of each pair being separately attached to said element, means constraining the element to longitudinal movement, first along a curved path and then along a straight path whereby the members of each successive pair are caused to approach each other and to move into container gripping relationship at a predetermined point, means for positioning a container between each successive pair of gripping members at a point anterior to said container gripping point, and means for laterally centering each container so positioned prior to the movement of said members into container gripping relationship.

9. In a container fabricating machine, in combination, a conveyor comprising a flexible element and a series of pairs of container gripping members secured thereto, the members of each pair being separately attached to said element, means constraining the element to longitudinal movement, first along a curved path and then along a straight path whereby the members of each successive pair are caused to approach each other and to move into container gripping relationship at a predetermined point, means for positioning a container between each successive pair of gripping members at a point anterior to said container gripping point, and means for acting upon said containers successively, after they have been gripped by said gripping members, to bodily move the same relatively to the gripping members and bring them into desired relationship to the conveyor.

10. In a container fabricating machine, in combination, a conveyor comprising a flexible element and a series of pairs of container gripping members secured thereto, the members of each pair being separately attached to said element, means constraining the element to longitudinal movement, first along a curved path and then along a straight path whereby the members of each successive pair are caused to approach each other and to move into container gripping relationship at a predetermined point, means for positioning a container between each successive pair of gripping members at a point anterior to said container gripping point, and stationary container engaging means extending longitudinally of the conveyor for successively engaging the bottoms of containers gripped between pairs of gripping members, thrusting the containers axially, and rocking the containers while they are engaged by said gripping members respectively, whereby the containers are accurately positioned for the performance of further operations thereon.

11. In a container fabricating machine, in combination, a conveyor comprising a flexible element and a series of pairs of container gripping members secured thereto, the members of each pair being separately attached to said element, means constraining the element to longitudinal movement, first along a curved path and then along a straight path whereby the members of each successive pair of members are caused to approach each other and to move into container gripping relationship at a predetermined point, and means for guiding containers into position to be gripped between pairs of said gripping members, said means being displaceable after placement of a container to permit movement of such container with the conveyor.

12. In a container fabricating machine, in combination, a conveyor comprising a flexible element and a series of pairs of container gripping members secured thereto, the members of each pair being separately attached to said element, means constraining the element to longitudinal movement, first along a curved path and then along a straight path whereby the members of each successive pair of members are caused to approach each other and to move into container gripping relationship at a predetermined point, and means for guiding containers into position to be gripped between pairs of said gripping members, said means including two guides mounted for swinging movement into and out of container guiding position, said guides being displaceable after placement of a container to permit movement with the container of said conveyor.

13. In a container fabricating machine, mechanism for successively delivering containers to a predetermined point of discharge, a conveyor below said point of discharge for receiving containers discharged by said means and transporting said containers to positions to be further acted upon, means supporting said conveyor for vertical adjustment relatively to said mechanism, and means for receiving containers singly from said mechanism, guiding each successive container along a predetermined path downwardly onto the conveyor and thereafter releasing the container to permit its free movement with the conveyor, said means being operative for all positions of adjustment of said conveyor.

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