

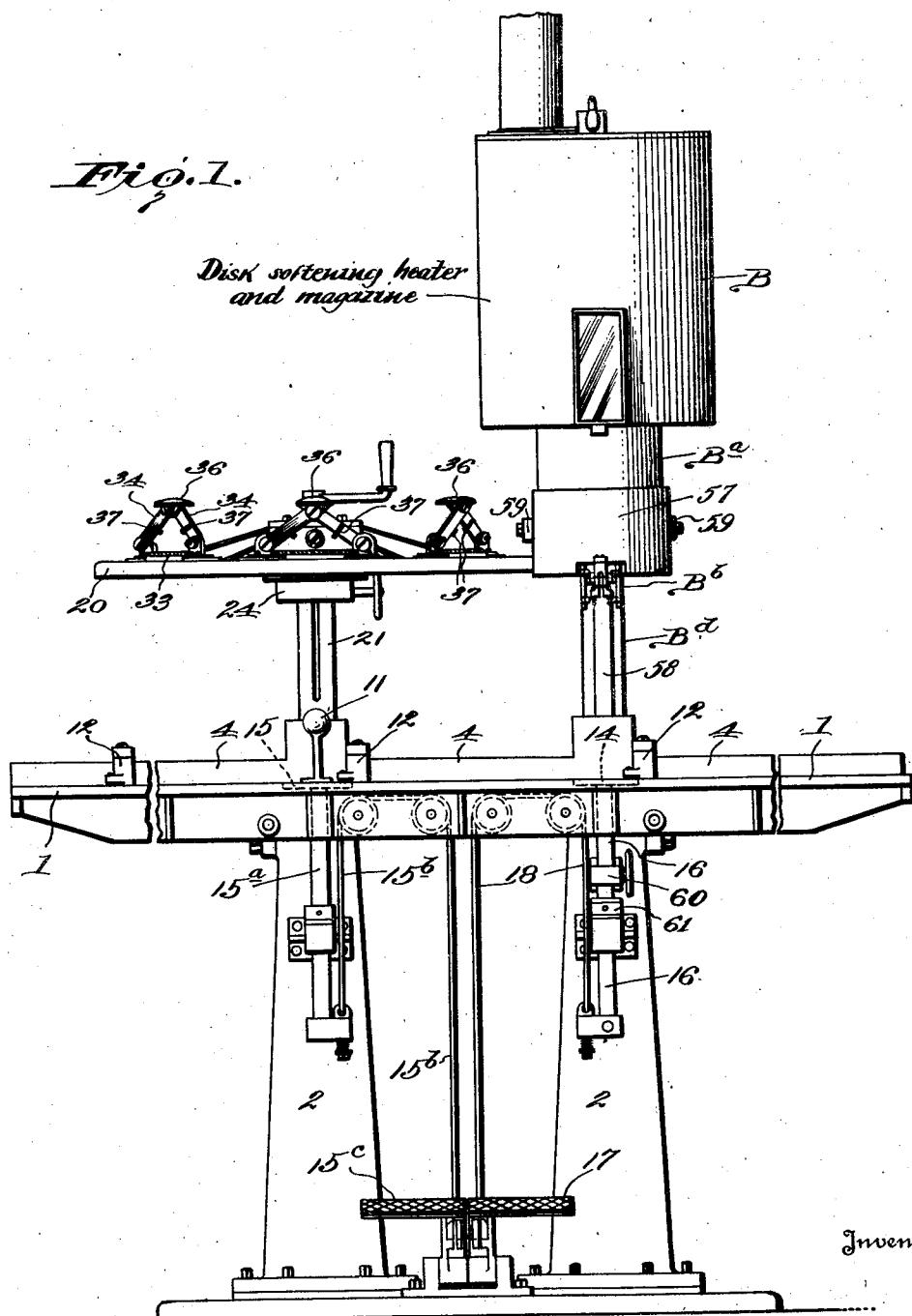
May 3, 1932.

W. L. WRIGHT ET AL

1,857,073

HOOD CAPPING CONTAINER

Original Filed Sept. 26, 1925 6 Sheets-Sheet 1



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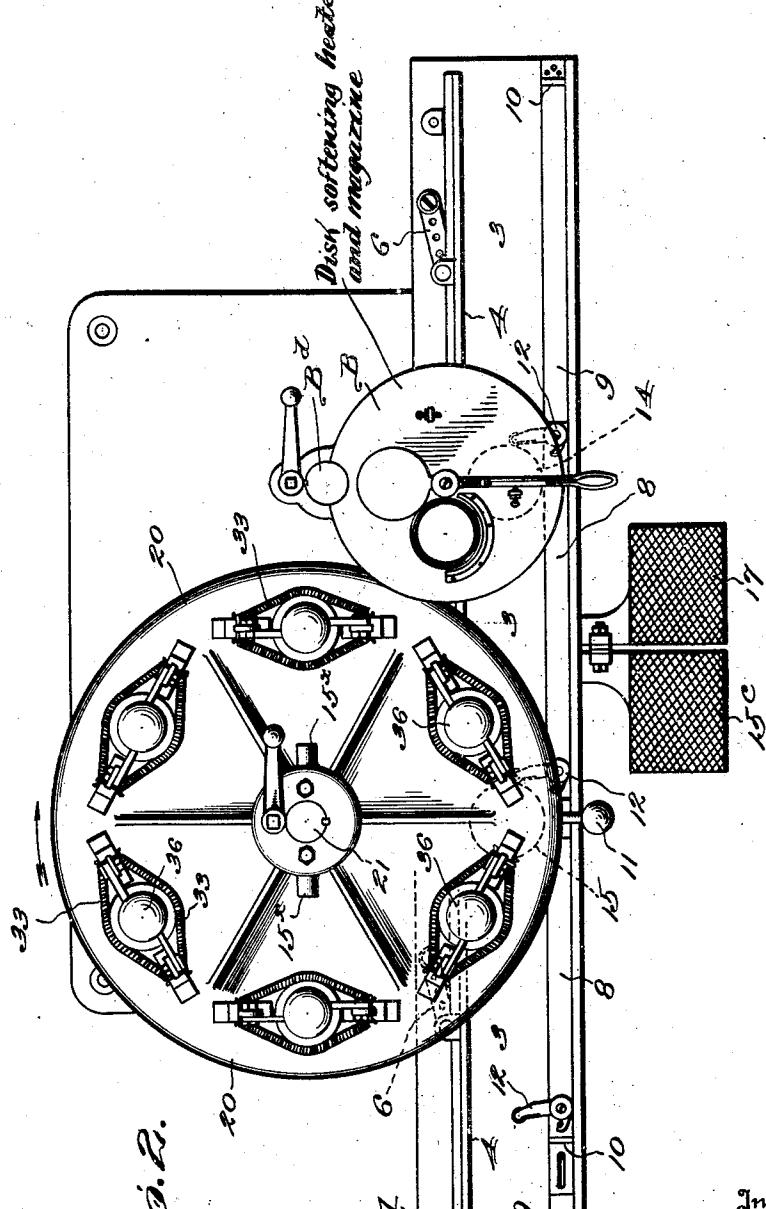
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HOOD CAPPING CONTAINER

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HOOD CAPPING CONTAINER

Original Filed Sept. 26, 1925 6 Sheets-Sheet 3

Fig. 3.

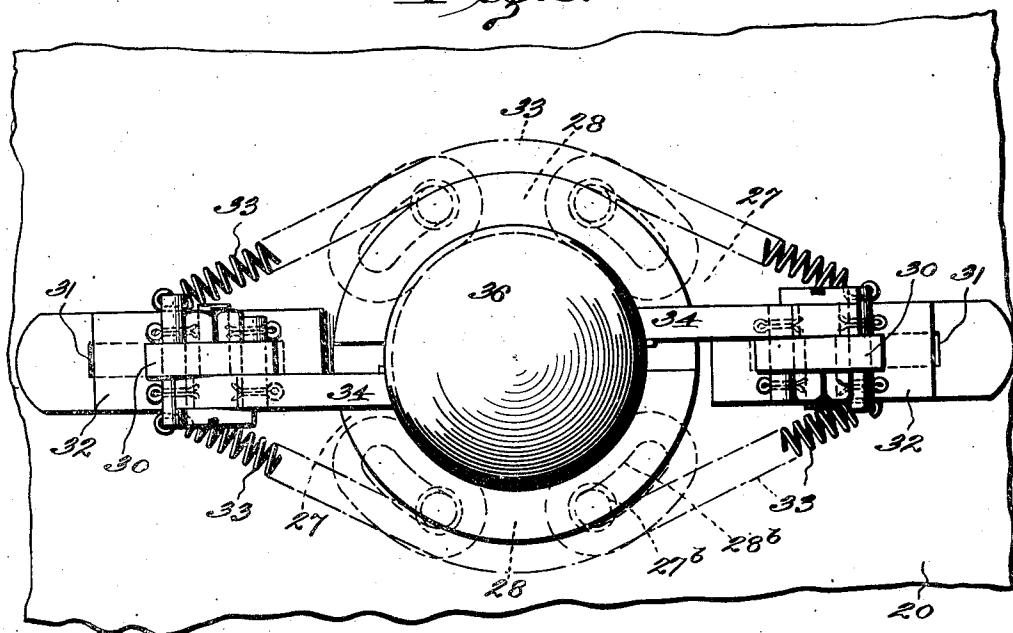
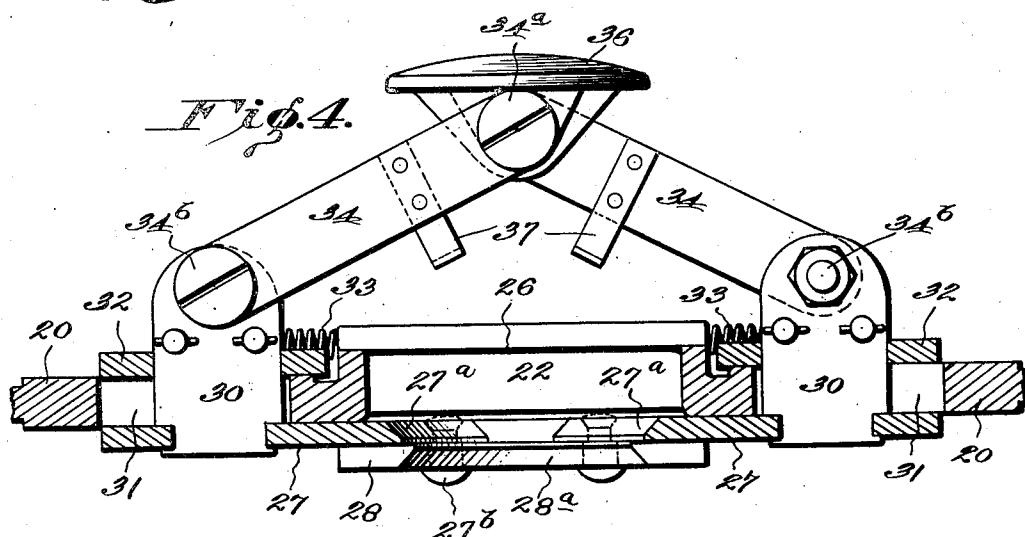


Fig. 4.



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HOOD CAPPING CONTAINER

Original Filed Sept. 26, 1925 6 Sheets-Sheet 4

Fig. 5.

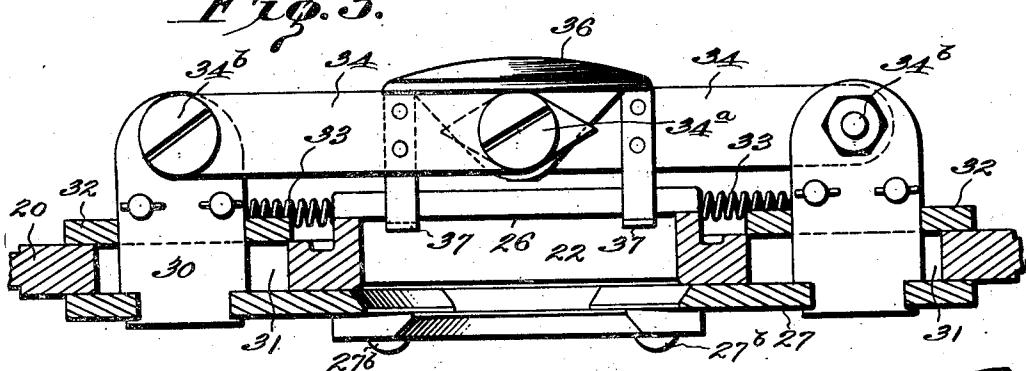


Fig. 6.

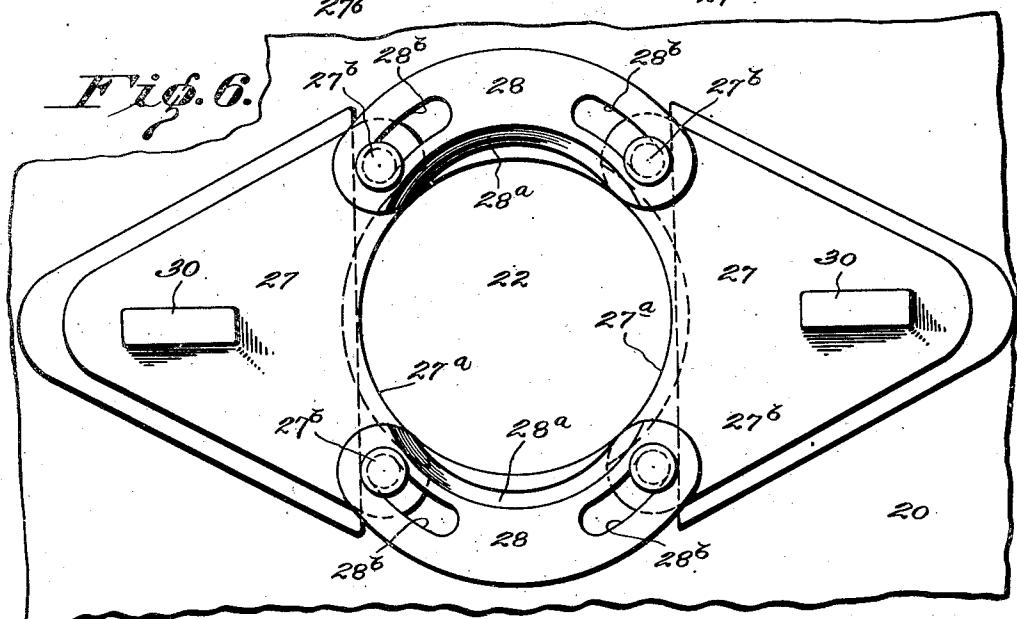
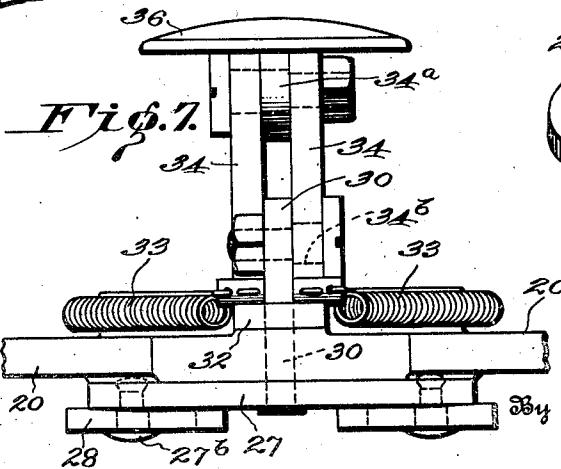


Fig. 7.



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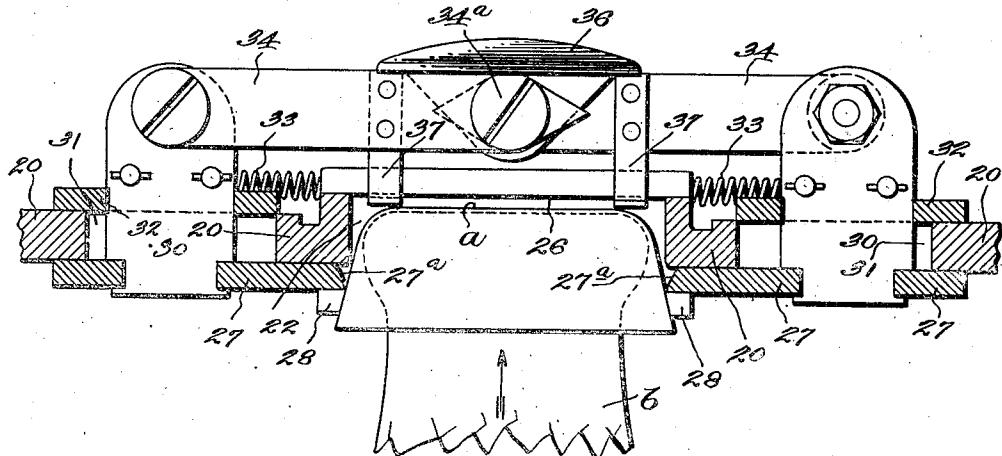
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Fig. 9.



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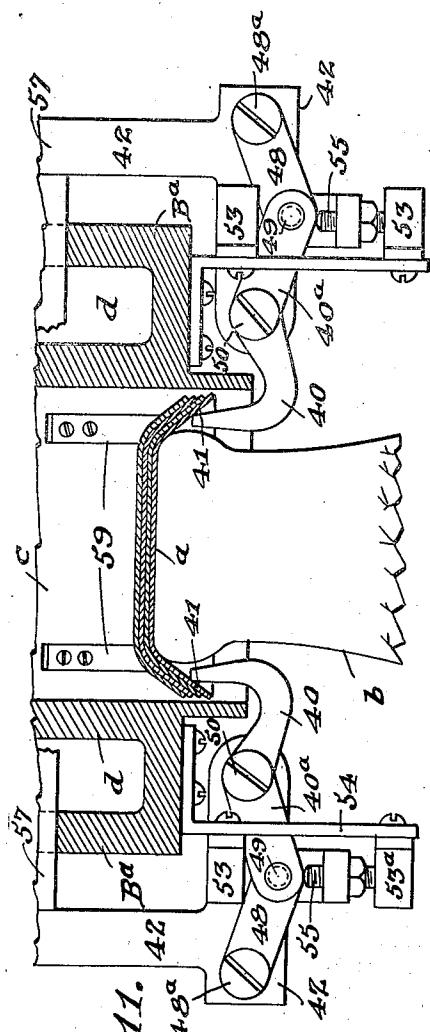


Fig. 11.

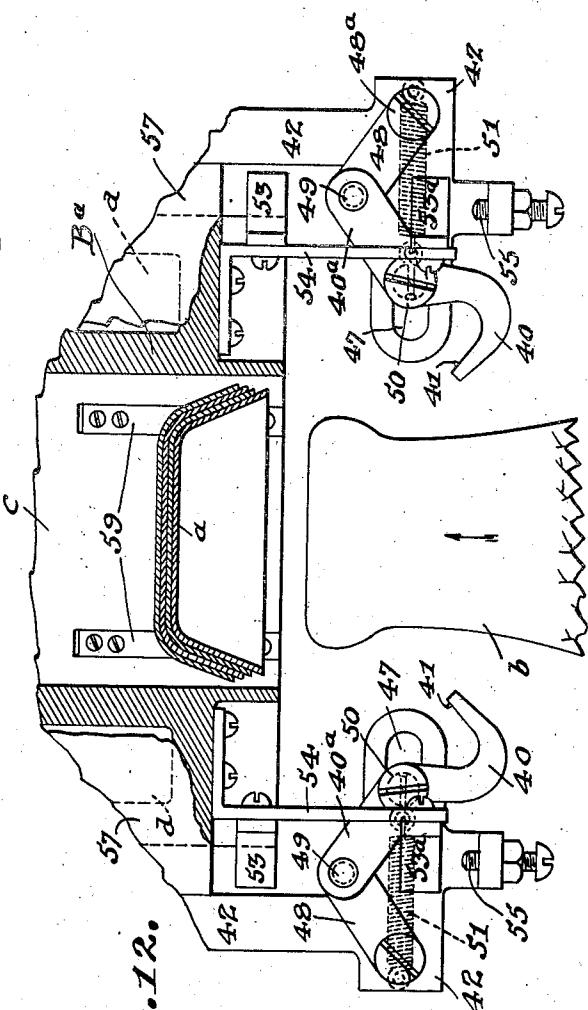


Fig. 12.

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HOOD CAPPING CONTAINER

Application filed September 26, 1925, Serial No. 58,780. Renewed March 10, 1931.

This invention relates to the art of applying and securing hood cap disks of paper or substantially equivalent material to containers to cover and enclose the mouth portions thereof; and the objects and nature of our invention will be readily understood by those skilled in the art in the light of the following explanations of the accompanying drawings that illustrate what we now believe to be the 10 preferred mechanical expression or embodiment of our invention from among other forms, constructions and arrangements within the spirit and scope thereof.

An object of the invention is to speed up 15 the operation of applying sheet fibrous material hood caps having flexible flaring skirts to and securing them on the heads of upright containers such as bottle heads having exterior rims under which the flexible skirts are 20 contracted and pressed for securing.

A further object of the invention is to provide improved apparatus for hood capping containers with temporarily moldable hood cap disks and for holding the annular portions of said disks drawn downwardly and contracted inwardly on the bottle heads, in 25 contracted secured form until set.

With these and other objects in view, the invention consists in certain novel features 30 of construction, and in arrangements and combinations as more fully and particularly set forth and specified hereinafter.

Referring to the accompanying drawings forming a part hereof:

Fig. 1 is a front elevation partially broken away, showing apparatus embodying our invention.

Fig. 2 is a top plan.

Fig. 3 is a detail top plan of a portion of 40 the rotary table showing one of the hood cap skirt contracting and molding heads in top plan, portions being indicated by dotted lines.

Fig. 4 is a detail vertical section showing one of said heads in closed hood cap skirt 45 molding adjustment or position.

Fig. 5 is a detail vertical section of one of said heads showing the same in opened position.

Fig. 6 is a detail bottom plan of one of 50 said heads when in opened position.

Fig. 7 is a detail end elevation of one of said heads.

Fig. 8 is a detail detached view of one of the molding jaws of one of said heads.

Fig. 9 is a detail section of one of the cap skirt molding devices or heads carried by the table, in open bottle mouth and cap receiving position, the head or mouth portion of a bottle with a hot moldable flaring hood cap thereon being shown in elevation moving 55 up into said molding device and approximately in position to trip the toggle and then continue up to strike the top wall of the device. 60

Fig. 10 is a view corresponding to the 65 showing of Fig. 9, but illustrating the toggle broken upwardly, the molding blades in final cap skirt gripping and molding positions, the bottle at its limit of upward movement 70 to which it moved after the initial gripping and molding contact of the blades with the cap skirt, and the hood cap tightened down on the bottle mouth with the cap skirt in final molded secured form.

Fig. 11 is a detail sectional elevation showing 75 a form of mechanism for successively dispensing binder-carrying hood cap disks while in a temporarily moldable condition, downwardly from the procession or supply of temporarily moldable disks in the elongated heating magazine wherein said supply or procession of moldable disks advance 80 downwardly, and ultimately releasing such disks on the heads of successive bottles, the elongated disk heating and softening magazine being partially shown in vertical section with several of the supply of moldable disks shown in cross section, a bottle being partially shown elevated with its head in the bottom disk in the magazine, the disk dispensing or transfer mechanism being shown in side elevation at its limit of upward movement and with its fingers in operative disk grasping position. 85

Fig. 12 is a sectional elevation showing the 90 disclosure of Fig. 11, with the disk dispensing or transfer mechanism at its approximate limit of downward movement and its fingers in withdrawn or inoperative position, the bottle being shown on its upward movement 95 100.

to receive a temporarily moldable binder-carrying hood cap disk.

The apparatus of our invention is peculiarly adapted and designed to apply hood cap disks to bottle and other container mouths and secure the same thereon by contracting and molding the cap skirts tightly to the bottle necks under the bottle rims, particularly where such skirts are rendered self securing 10 by the presence therein or thereon or both of a suitable binder rendering the paper material or the like that embodies the binder, normally stiff or hard at climatic or normal temperatures and plastic soft or moldable at 15 comparatively high temperatures, say at 200° F., more or less within wide limits or bounds.

The particular apparatus illustrated as an example for purposes of explanation, provides a horizontally elongated track or slide-way along which filled bottles can be successively advanced, say from the discharge 20 platform of a bottle filling and disk capping machine, to a hood cap receiving station, and from the cap receiving station to the hood cap 25 securing station.

At the hood cap receiving station, the bottle receives a hot hood cap having a flaring plastic or moldable skirt, from a hood cap heating and dispensing mechanism, and the 30 bottle is advanced from said station with its mouth covered by the hot hood cap with its flaring plastic skirt. The bottle is thus received at the cap skirt securing station where a suitable head or contracting and gripping 35 device takes hold of the bottle by its neck and in so doing molds and grips the moldable portion of the skirt tightly against the bottle neck and thus holds the same during the binder setting and hardening operation after 40 which the hood cap is firmly secured to the bottle by the set hardened portion of the skirt annularly and radially contracted under the bottle rim and tightly hugging the bottle neck.

45 For instance, we show an elevated horizontal platform 1, supported by any suitable means, such as one or more pedestals 2, and at the front this platform provides an elongated horizontal bottle guide or slideway 3, extending from right to left with reference to Figs. 1 and 2. This bottle feed or slideway is bounded at the rear by longitudinal vertical guide wall 4 which is adjustable forwardly. The wall 4, forms the inner or rear 50 longitudinal edge wall of the bottle feed way 3, and, in this example, is L shape in cross section with its base slidably resting on the floor of way 3, and said wall is confined and normally held in position by horizontal- 55 ly swingable parallel links 6, arranged to the rear of wall 4, and pivotally joined thereto and to the platform, to provide a parallel ruler arrangement, so that the wall 4 can be pushed back by hand or can be pulled 60 forwardly, while the parallel swinging links 65

70 maintain the wall 4 parallel with the longitudinal axis of the bottle way 3. This back wall 4, is to maintain the alinement of the bottles being advanced along the feedway with respect to other mechanisms, and the parallel ruler adjustment, is to permit setting of the back wall to accommodate runs of bottles of different diameters at their bases, such as quarts, pints, and half pints, and 75 maintain the alinement of such bottles with cap applying and securing devices.

75 The longitudinal front stop wall or boundary of the bottle feedway is formed by a longitudinal bottle feed slide 8, confined in slide-way 9 in which it can be reciprocated back and forth longitudinally of the bottle feed way to the extent permitted by end stops 10. The feed slide 8, can be reciprocated in any suitable manner or by any suitable means on its bottle feeding and return strokes, although the drawings provide for manual operation of this slide through the medium of front handle 11.

80 The bottle feed slide is provided with and carries a longitudinal series of preferably uniformly spaced bottle propelling fingers 12 that project laterally from the slide 8 over and transversely of the bottle feed way. Each finger 12 is horizontally swingable, and 85 embodies a vertical hub mounted to rotate on a fixed pin rising from slide 8, a spring constantly acting on the finger to swing the same to its limit of movement toward the right (Fig. 2) and a stop limiting the swing 90 of the finger in that direction so that the normal position of the finger is at approximate right angles to the bottle feedway and extending transversely thereof. The fingers are 95 free to swing toward the left (Fig. 2) against the tension of their springs, so as to slip past bottles on the feedway when the slide is making its return stroke toward the right (Fig. 2) but are rigid with the slide against swing 100 toward the right beyond their normal operative positions (Fig. 2) so as to push the bottles forward toward the left when the slide is making its operative bottle advancing stroke toward the left (Fig. 2).

105 In the particular example illustrated for purposes of explanation, the slide is equipped with three fingers 12, one at the front (right hand) end thereof, one at the rear (left hand) end thereof, and one midway between the end fingers, and these fingers are spaced apart a distance approximately equal to the distance between the bottle cap receiving station and the bottle cap securing station. However, we do not wish to so limit our invention.

110 In the particular example illustrated, the bottles to be hood capped are received at the right hand end of the bottle feedway and the hood capped bottles are delivered at the left hand end of said way. The slide is arranged 115 to move on its return stroke toward the re-

ceiving end of said way until the right hand end finger has slipped past a bottle at said receiving end and sprung out to operative position behind the same, and the middle finger 5 has slipped past and swung out behind a bottle, if any, at the hood cap receiving station with a hot flaring skirt cap on its mouth, and the left hand finger has slipped past and swung out behind a bottle, if any, having a 10 hood cap secured thereon and located adjacent the hood cap securing position. Then when the slide is moved to the left on its operative stroke, the bottle feeding fingers, will push the bottles in front thereof forwardly 15 along the bottle feedway, delivering the bottle having the secured cap at the delivery end of the way, and the bottle having the flared cap from the receiving station to the delivery station, and the bottle at the receiving 20 end to the cap receiving station. Then on the return and forward strokes of the slide, the operation will be repeated and the bottles on the way will be advanced another step.

25 At the hood cap receiving station, the floor of the bottle feed way 3, is formed with a vertical opening normally occupied by a bottle elevating support or plate 14, at its top surface flush with said floor so that bottles can 30 slide onto and from said plate, and the same is true of the bottle feed way at the hood cap securing station where a bottle elevating support or plate 15 is located.

The bottle elevator 14 is provided with a 35 depending shank 16, coupled to treadle 17, by cord 18, or otherwise, in such manner that depression of the treadle will cause elevation of the elevator or plate 14 and the bottle thereon.

40 The bottle elevator 15 has a depending shank 15a, connected by suitable means, such as cord 15b, to treadle 15c, to lift the elevator 15 and control the descent thereof.

Any suitable hood cap heating and dispensing apparatus, for instance such as the hood cap disk heating and dispensing apparatus disclosed by our pending application Serial No. 58,613 filed Sept. 25, 1925, is arranged above the bottle feed way overhanging the bottle elevator 14 and the bottle thereon.

In the example shown, this hood cap dispensing apparatus embodies a cap heating 45 container B having a depending heated cap nozzle or vertical bottom mouth Ba, (Fig. 1), and cap dispensing device Bb, such as disclosed by our above mentioned companion application. The bottom mouth 50 of nozzle Ba, overhangs the bottle elevator 14, and is located such a distance above the same as to be above and out of the way of bottles advancing along the way 3 and over the depressed elevator 14. Said 55 bottom mouth of nozzle Ba, is vertically

aligned with elevator 14 and a bottle thereon, and is so arranged that the mouth or top of a bottle on and elevated by elevator 14 will enter the vertical mouth of said discharge nozzle and fit up into a hot flaring skirt hood held in position in the nozzle to receive the bottle mouth. When the treadle is released, the bottle having the hood cap properly located on its mouth with the flaring skirt in moldable position, descends with the elevator. During the descent of the bottle, the flaring skirt cap is held on the bottle mouth by any suitable dispensing devices.

70 The cap heating and dispensing container B, is, in the example shown, carried by a rigid post Bd, rising from the supporting frame or table 1. The container B, and its associated parts are vertically adjustable on the post Bd, with respect to the bottle feed way 3, and normally fixedly held in the desired adjustment, so that the machine can be set or adjusted to apply hood caps to runs of bottles of different vertical lengths, such as quarts, pints, etc.

75 The magazine B, Ba, of our above mentioned copending application, provides a vertically elongated bore or container c, for a downwardly advancing or feeding multiplicity of binder-carrying paper or fibrous material hood cap disks a, aligned in the form

80 of a stack or pile or if preformed with flaring annular skirts, as shown, said disks are in this example, aligned and nested and arranged right side up with their flaring skirts depending. This magazine is provided with 85 heating means to maintain a sufficiently high temperature in said bore to soften or approximately fuse the binder in said disks and thereby render the disks temporarily moldable for hood capping purposes. In the 90 example shown, the hood cap disk magazine is formed or provided with surrounding steam jackets or spaces d, for maintaining the multiplicity of disks therein under the high temperature required to render such 95 disks moldable. The supply of hood cap disks in the magazine, is replenished by introducing relatively cool disks through the normally closed upper end of said highly heated bore, while temporarily moldable disks are 100 successively dispensed from the bottom or discharge end Ba, of said bore c.

105 The long highly heated magazine bore is designed to receive a multiplicity of hood cap disks and simultaneously expose all of 110 such disks to the high temperature to maintain in said bore a supply of such disks in a moldable condition feeding or advancing toward the moldable disk discharge, as moldable disks are dispensed therefrom. This 115 method of building up and maintaining a supply of disks in a moldable condition enables us to dispense moldable disks at a rapid rate of speed not dependent on the relatively long length of time it takes to condition each 120 125 130

disk from the relatively cold state to the temporarily moldable state wherein the disk is in the proper condition for hood capping according to our invention.

5 Said mechanism of our said application, here disclosed as an example of moldable hood cap disk dispensing means that can be employed for removing moldable hood cap disks from the supply of such disks and re-
 10 leasing the same on the bottle heads, embodies a pair of spaced vertically swingable pricker fingers 40, here shown with outwardly projecting points 41, at their upstanding free ends. These fingers are, in this example
 15 controlled by toggles 40a, 48, one set for each finger, with each finger forming a rigid inward extension of its toggle link or lever 40a, the two links or levers 40a, 48, of a toggle being joined at their meeting ends by later-
 20 ally projecting pivot pin 49. The toggles and fingers are carried by and move vertically with an exterior annular slide 57, (Fig. 1) vertically movable on the heated lower or discharge portion of the hood cap disk magazine, raised by and permitted to drop with
 25 the slide 16, of bottle elevating stool 14, through the medium of a rear vertical slide post 58, at its upper end operatively coupled to slide 57, as by fork 59, and at its lower end having normally fixed and vertically adjustable sleeve 60, through which slide 16, is vertically movable; a stop 61, normally fixed to slide 16, being arranged to strike and lift sleeve 60, when slide 16, has advanced a
 30 certain distance upwardly on its bottle elevating stroke, and thereby lift slide post 58, and slide 57, and permit said parts 57, 58, 60, to drop when slide 16, descends. The hood cap disk grasping and releasing fingers
 35 40, and their operating toggles, are carried by brackets 42, fixed to and depending from slide 57, exteriorly of and to a level below the horizontal plane of the discharge mouth or lower open end of the long magazine bore.
 40 These brackets are approximately of inverted T form, each at its inner end longitudinally slotted to provide horizontal guide 47, for the laterally projecting axis or fulcrum pin 50, of the toggle carried by such bracket,
 45 the opposite end of the toggle being pivoted to the bracket by pivot pin 48a. The laterally projecting ends of the two pins 48a, 50, of each toggle being preferably connected by retractile coiled spring 51 (Fig. 12) con-
 50 stantly exerting its tension to break the toggle either upwardly or downwardly and withdraw the pin 50, to its limit of outward movement in closed-end slot or guideway 47. Each bracket 42, is also here shown provided with a vertically adjustable stop 55, to limit the downwardly breaking movement of its toggle.

Brackets 54, are fixed to the lower end of the magazine and depend therefrom, one for each finger 40, and its toggle. Each bracket

carries a vertically adjustable normally fixed upper stop or abutment 53, and a corresponding vertically adjustable normally-fixed lower stop or abutment 53a. These two sets of stops 53, 53a, are arranged in the vertical paths of movement of the toggle knuckles or laterally projecting pins 49, to break the toggles and control the fingers 40.

The arrangement is such that during the latter part of the upward stroke of the bottle b, on its travel from the level of bottle guideway 3, to the bottom moldable hood cap a, supported with the stack of moldable caps in the magazine bore c, by suitable means, such as retractable spring fingers 59, the exterior slide 57, will start on its upward stroke thereby carrying the fingers 40, and their toggles upwardly with the bottle, the bottle being arranged between the fingers, which are spaced a distance apart to accommodate the bottle and being diametrically oppositely arranged with respect to the bottle. During this upward movement of the fingers 40, with the rising bottle, said fingers are in downwardly and outwardly retracted or inoperative position (Fig. 12) with the toggles in upwardly buckled or broken position.

As the head of the ascending bottle enters the bottom moldable cap a, in magazine bore c, the projecting center pivot pins 49, of the ascending upwardly-broken toggles engage, the top fixed stops 53, and said toggles are straightened out, thereby rocking levers 40a, on pins 50, to swing fingers 40, upwardly to positions with their free ends upstanding on opposite sides of the bottle head, to pass up within the depending skirt of the bottom hood cap that the bottle head is then entering. As the head of the ascending bottle continues upwardly and seats within and against the top of the bottom hood cap a, the stops 53, resist upward movement of the toggle pins 49, and said toggle pins are depressed downwardly beyond the toggle dead center lines, whereupon the springs 51, cause said toggles to break downwardly against stops 55, (Fig. 11) thereby swinging the upstanding fingers 40, within the cap skirt outwardly against said skirt to take hold of or grasp the same, whereupon the bottle and fingers come to rest having reached their limits of upward movement.

The bottle and slide 57, are thereupon released to descend to their limits of downward movement. As the bottle descends, the hood cap centered on the bottle head descends therewith and is stripped from the spring fingers 59, and the cap stack in the magazine, by the downward pull of the descending fingers 40, that grip the cap by its skirt. The fingers thus grip the cap by its skirt and carry the cap down with the bottle, until the projecting pivot pins 49, of the downwardly broken toggles are limited in their down-

ward movement by engagement with the fixed lower stops 53a, as the toggles and bottle continue down the distance necessary to straighten out the toggles and press the pins 49, upwardly beyond the dead center lines, whereupon the fingers 40, are swung downwardly and outwardly from and releasing the cap on the bottle head, and the toggles and fingers come to rest in the positions shown by Fig. 12. The bottle with the moldable hood cap resting on and depending around its head, continues on its downward movement until the stool 14, comes to rest at the level of guideway floor 3.

15 We do not wish to limit all features of our container hood capping invention claimed herein to the hereby disclosed particular method of and mechanisms for conditioning and maintaining a supply or procession of 20 temporarily moldable binder-carrying hood cap disks and for successively dispensing the same to bottle heads for hood capping, and such method and mechanisms are not specifically or per se claimed herein but are so 25 claimed in our said copending application filed September 25, 1925, Serial No. 58,613.

The bottle b, having the flexible paper material hood cap a, centered on its bottle mouth with the hot moldable flaring cap skirt (Fig. 30 9) depending at the exterior thereof and surrounding its rim, is then advanced by the slide 8, by hand, or otherwise, to the cap securing station, at which it is left standing on the bottle elevator 15.

35 When a bottle is elevated to receive a moldable hood cap, a bottle on elevator 15, is, preferably, also elevated to be received by the cap securing mechanism.

In the example illustrated, the cap securing mechanism, embodies an elevated horizontal carrier formed by a plate, table or disk 20, of enlarged diameter rotatable on a vertical axis 21, and arranged a distance above with its front edge portion overhanging the bottle feedway 3 and the bottle elevator 15, and provided with a circumferential or annular series of vertical downwardly opening bottle neck receiving mouths 22, and bottle holding and hood cap skirt 50 clamping or compressing heads or devices.

The disk 20, is carried in elevated position by any suitable means, at such elevation that the bottles sliding along the feedway and over the depressed elevator 15, will pass below low and clear the disk, and that the bottle elevated by the elevator 15, will project its head carrying the flared hood cap into the mouth 22 above and alined with the bottle, and into operative position with respect to 60 the bottle grasping and cap securing means arranged at said mouth. Hence, as bottles of different capacities vary in vertical length, means are provided for adjusting the disk 20, and holding the same at the desired elevation.

65 For instance, I show the disk 20 carried by a

vertical post or spindle 21, rising from the frame or platform 1 and normally fixed and located a distance in rear of the bottle feedway 3, and alined with the axis of rotation of the disk. The disk has a central vertical hub 70 rotatable and vertically slidable on said spindle, and its disk can be upheld and supported by any suitable means, such as collar 24, vertically adjustable on and normally held in fixed position.

75 The arrangement of the disk axis 21, with respect to the bottle elevator 15, is such that the bottom mouths 22 of the disk will be successively brought into vertical alinement with elevator 15 and a bottle thereon as the disk is rotated.

80 The disk can be rotated by any suitable means, although in the example illustrated, we provide for rotation of the disk by hand step by step to successively bring the mouths 22 to the front and over the elevator 15, with the disk remaining at rest during the elevation and depression of the treadle 15c. Suitable snap or detent means 15x, of a well known structure and operation, can be provided to yieldingly hold the disk with a mouth 22 alined with elevator 15.

85 Each bottle head receiving mouth 22, of the disk 20, is formed by a vertical recess open at the bottom of greater diameter than the capped bottle head or mouth to be vertically received thereby, with the bottom recess or vertical bottle mouth receiving opening 22, provided at the top with a fixed top 26, the 90 under side of which forms a seat or stop against which the flat central top of the hood cap on the bottle fits and against which it is compressed by the annular top edge of the bottle mouth. In other words, the seat 26, 95 limits the upward movement of the bottle in the mouth 22 of the disk 20.

100 Each mouth 22 of the disk has associated therewith suitable bottle holding or gripping and hood cap skirt compressing and securing means.

105 For instance, in the particular example illustrated, we arrange a series of movable bottle holding and cap skirt gripping blades at the under side of the disk 20, whereby the entrance to the mouth 22, can be annularly or circumferentially enlarged to permit free entrance of the capped bottle head or mouth portion into the mouth 22, and whereby said entrance can be contracted to a diameter less than the overall diameter of the exterior rim portion of the capped bottle head in the mouth to cause the blades to grip and hold the bottle at its contracted portion below said rim and to radially and annularly mold and compress the depending binder carrying portion of the hot cap to and tightly against the contracted bottle head or neck portion below the bottle mouth rim, and to thus hold the same until set to hard secured condition.

110 In the particular example illustrated, the 115

blades consist of a pair of diametrically opposite aligned plates 27, arranged at the under side of disk 20 at opposite sides of the mouth 22 and slidably radially thereof in opposite directions toward and from each other and the vertical axis of the mouth 22, and a pair of aligned plates 28 overlapping and joining the two plates 27 and arranged diametrically opposite each other with respect to mouth 22 and slidably radially thereof in opposite directions toward and from each other and the vertical axis of said mouth simultaneously with the corresponding movements of plates 27.

15 The opposing inner or operative ends of the blades 27, are correspondingly transversely concaved, and bevelled at their side faces, to form a pair of usually similar segmental cap skirt molding and compressing 20 blade edges 27a, that in radius correspond approximately to each other and to the radius of the bottle neck to be grasped thereby and that will extend from opposite sides partially around said neck, and the operative edge 25 portions of the plates 28, are approximately similar to each other and correspondingly concaved and bevelled to form compressing and molding vertically narrow blade edges 28a, to bridge the gaps between the opposite 30 ends of the segmental blade edges 27a, and to complete the circle of blade edges around the bottle neck.

35 In this particular example, there are four operative blade edges 27a, 28a, each occupying approximately ninety degrees of the circle of blades around the entrance to the mouth 22, and movable radially of said circle along radii approximately ninety degrees apart.

40 In this example, the plates or blades 28, are segmental in form, parallel with, overlapping and carried by the two plates 27, to complete the circle of blade edges around the mouth. We show the blades 28, connecting the corresponding inner corners of the plates 27 and arranged below the same and hung 45 therefrom by headed pins or rivets 27b rigid with and depending from plates 27, and extending loosely through vertical segmental cam slots 28b, in the opposite end portions 50 of blades 28, and arranged longitudinally thereof.

55 The arrangement is such that when the two blades are moved in opposite directions so that their blade edges 27a, approach each other, the pins 27b, supporting blades 28 from plates 27, will move toward the inner ends of the curved cam slots 28, and will force the two blades 28 inwardly in opposite directions toward each other so that the operative 60 inward radial movement of the blade edges 28a, will take place approximately simultaneously with the inward radial movement of the blade edges 27a, and approximately to the same extent or distance, to form a complete circle of compressing gripping blade

edges that close in around the moldable skirt of the hood cap and compress and mold the same against the bottle neck completely around the circle thereof. When the plates 27 move in the opposite directions, i. e. away 70 from each other, the blades 28, are correspondingly moved outwardly, to open the throat or entrance to mouth 22, by the action of pins 27b and cam slots 28b.

75 Various means can be employed to provide an annular series of segmental blade edges to form a complete circle of blade edges to close in around the moldable cap skirt and clamp and compress the same and to open to release the same and various operating means 80 can be employed to cause such blade edges to move to opened and closed positions, and we do not wish to limit ourselves to the exact connected blade arrangement shown.

85 In the particular example illustrated, the plates 27 move in a common plane, and the blades 28 also move in a common plane that is parallel with the plane in which plates 27 move, and as close thereto as possible, and in this example, the blade operating force is 90 applied through plates 27. The two plates 27, are provided with up-standing lugs or posts 30, rigid therewith and projecting upwardly through elongated slots 31 through disk 20, and radially arranged with respect 95 to mouth 22. These posts 30 carry the blades 27, 28, and are upheld by plates 32, slidably on the top face of the disk 20.

100 Suitable spring mechanism is constantly exerting its tension and power to force the blades 27, 28, to their limits of inward movement, i. e. to bottle gripping and hood cap skirt compressing position. For instance, we show a pair of powerful coiled retractive 105 springs 33 extending between, connecting and at their ends secured to the posts 30, and distended to exert their tension to pull the posts 30 toward each other and consequently operate to move the blades to their limits of inward movement.

110 Suitable means is provided by which the posts can be forced apart against the tension of said springs to open the blades 27, 28, and by which the parts can be held in such positions.

115 For instance, we show the two posts 30 connected by a toggle lever arrangement accessible at the top side of the disk 20, and above the elevated stop wall 26 that forms the top of the mouth or recess 22. This toggle device consists of two levers 34 joined at their overlapping inner ends by transverse pivot 34a, one lever at its outer end joined to one post 30 by transverse pivot 34b, and the other lever at its outer end joined to the other post 30, by another transverse pivot 34b. The arrangement of the toggle is such that the tension of springs 33, is constantly acting 120 to break the toggle and permit the posts 30 to approach each other. A suitable stop, 125

such as element 36, is provided to act as a limit against downward swing or breaking of the toggle, and hence when the toggle is distended by being forced down to a position abutting said stop the toggle will be locked at, or down beyond the dead center, in position holding the posts 30 at their limits of outward position and the blades 27, 28, in completely opened positions. The toggle under the tension of the springs, will thus hold the parts in opened positions, with the mouth unobstructed by blades 27, 28, and in readiness to receive a bottle head with a flaring moldable skirt hood cap thereon. The toggle will thus hold the parts, until the toggle is tripped by moving the joint or center thereof upwardly past the dead center to start the upward buckling or breaking of the toggle under the action of the springs. The instant the toggle joint passes up beyond the dead center, the springs will break the toggle upwardly with a snap and force the blades quickly inwardly to perform their bottle gripping and cap skirt molding operation. The toggle can be thus tripped by hand or any suitable mechanism can be provided for this purpose.

Any suitable mechanism or means can be provided for depressing the toggles to locked opened position at or below the dead center, although in the drawings we provide for thus depressing the toggles by hand through the medium of a hand or depressing plate 36 located above the toggle joint and having a depending lip through which the pivot pin 34a, loosely passes.

The stops limiting the downward breaking of the toggles beyond locked position, can be formed by walls 26, or by depressing hand plates 36, or both, depending on the looseness of the joints between the pivots 34a, the toggle levers, and the lips depending from plates 36.

If so desired, means can be provided whereby the entrance of a bottle head into a mouth 22, of the disk 20, will cause automatic upward breaking of the toggle of said mouth 22 and consequent closing in operative movement of the blades 27, 28 against the cap skirt of the upwardly moving bottle head in the mouth.

For instance, for this purpose we show, the mouth top wall 26, vertically slotted for the passage of pins or fingers 37, carried by the two levers or links 34, of the toggle, and depending therefrom.

In this arrangement, each lever 34 of a toggle is provided with one of these toggle tripping fingers, and these fingers are of such formation and length that when the toggle is straightened out in locked position, the pins will depend with their lower ends located in the mouth 22, a distance below the stop wall 26, and arranged to abut the top of the hood cap, on a bottle head entering the mouth,

immediately over the top edge of the bottle wall surrounding the bottle mouth. The bottle head, before it has reached its limit of upward movement in mouth 22, strikes the lower ends of pins or fingers 37 and forces said fingers upwardly and thereby lifts the levers 34 beyond the dead center, thereby breaking the toggle joint, so that the springs 33, will snap the blades 27, 28, inwardly to strike the hood cap skirt, below the maximum exterior diameter of the exterior rim of the bottle mouth, just before the bottle has completed its upward movement.

By thus causing the blades to close in on the bottle skirt, just before the bottle completes its upward movement, the blades act to pull the cap tightly down on the bottle mouth and tighten and flatten out the skirt molding the same tightly to and against the bottle neck, see a, Fig. 10.

Advantages are also gained by employing a cap skirt molding head that embodies a circle of vertically narrow blade edges that press radially inward completely around the circle of the cap skirt to tightly compress the skirt against the bottle neck on an annular line completely surrounding the neck. Furthermore this molding compressing blade action is under yielding spring pressure which avoids bottle breakage and allows for unevenness and irregularity in cap skirts and bottle necks, and also maintains the desired tight grip of the blade edges on the cap skirt during the time that the blades remain in gripping position on the cap and bottle neck while the cap skirt is cooling and setting.

To provide for this period of cooling and setting, we provide the rotary disk 20 with a plurality of mouths 22 and associated gripping and molding devices, and elevate this disk so that it can carry a multiplicity of bottles suspended therefrom and traveling therewith elevated above the table and feed-way guides etc.

When a bottle is elevated from the feed-way with the bottle head projected into a mouth 22, of the disk 20, the gripping and molding blades immediately close in pressing the flaring hood cap in under the bottle rim and tightly gripping the same against the contracted portion of the bottle, while the blades thus grip and hold the bottle and the cap skirt, the disk 20 is rotated a stop forward carrying the bottle with it, and bringing another mouth 22 over the bottle cap securing station to receive a bottle. The disk is thus rotated forward step by step, and during each stop at the cap securing station should grasp and hold a bottle and carry the same forward from said station. The disk will thus carry forward a number of bottles held suspended therefrom by the gripping blades fitting the bottle necks under the bottle rims or heads. The cap skirt of each bottle will be thus held in molded se-

cured condition while the disk approximately makes a complete revolution, during which time the securing or binder carrying portion of the skirt has more than ample time 5 to set in its permanent stiff securing condition. When each bottle having been carried around by the disk and having a set secured cap, reaches the desired position over the 10 table back of the bottle feedway or over the delivery or left hand end portion of the bottle feedway, the controlling toggle of the blades holding and supporting the bottle, can be depressed as by pressing down on hand plate 36, to straighten out the toggle to locked 15 position thereby opening the plates, and permitting the bottle to drop at the point desired. The bottles after being carried around by the disk, are successively discharged from the disk at the point desired, for off-taking from 20 the apparatus for delivery.

By our method of and mechanism for hood capping containers, broadly considered, we gain speed and advantages, by advancing the containers to the hood capped container 25 discharge while the temporarily moldable disks are being molded and held thereon until set, specifically where a procession of advancing molding or contracting and holding heads are operating on the temporarily moldable disks on a procession of advancing containers to mold the same to hood cap form and hold the same until set thereon, particularly where the temporarily-moldable binder-carrying hood cap disks are dispensed to the 30 container heads from a procession or supply of such disks maintained in a moldable condition, so that such moldable disks can be dispensed from said supply at a rate of speed that does not depend on the length of time required to heat each disk separately from the cool state to the required moldable condition. Speed and advantages are thereby gained over the old proposal to heat the disks one by one from the cool state to the moldable 35 condition and to mold the moldable disks on the bottle heads one by one by a single stationary capping head wherein each molded disk was held on its bottle head until set, whereby the hood capping operation waited 40 for the heating of each separate disk and for the molding and setting of each disk on its bottle.

We do not wish to limit all features of our 45 invention to the use of sheet fibrous material hood cap disks that have at least their skirt portions provided with a binder, and it is also to be understood that the disclosure hereof is for explanation and illustrative purpose and not for purposes of limitation except where required by the prior art, and that the following claims are intended to cover all 50 the generic and specific features of the invention herein described, and all statements of 55 the scope of the invention which, as a matter

of language, might be said to fall therebetween.

What we claim is:

1. Apparatus for hood capping containers comprising means for delivering onto a bottle mouth, a paper material hood cap having a flaring skirt embodying a binder in a moldable condition, hood cap skirt molding mechanism, associated with said means, for compressing and molding said skirt against and 70 completely around the bottle neck, and means for advancing said mechanism with the bottle while continuing to hold the moldable cap skirt compressed until set to permanent secured condition. 75

2. Apparatus for applying and securing paper material hood caps, that have their skirts rendered self-securing by a binder, to and enclosing a bottle mouth, comprising means for rendering the skirts of said caps 80 temporarily soft and moldable and for applying the moldable-skirt cap to the head of a bottle located at a cap receiving station, a cap skirt molding and compressing device for radially compressing such moldable skirt 85 against and completely around the bottle neck while the bottle is located at a cap molding station, and for thus holding the same until set to stiff bottle cap securing form, and means for advancing the bottle from the cap 90 receiving station to the cap molding station. 95

3. Apparatus for applying paper material hood caps carrying a binder, to and securing the same on bottle heads, comprising an elongated bottle feedway, means for advancing bottles along said way to a cap receiving station and therefrom to a cap securing station, bottle elevators at said stations, hood cap skirt softening and hood cap dispensing mechanism overhanging the bottle elevator at said cap receiving station, and hood cap skirt molding and holding means overhanging the bottle elevator at said cap securing station for contracting the moldable cap skirt on the bottle head and thus holding 100 the same until set. 105

4. Apparatus for applying paper material hood caps, the skirts of which carry a binder rendering the caps self-securing, to and securing the same on bottle mouths; comprising an elongated bottle feedway, a hood cap receiving station along said way, means at 110 said station for applying hood caps to the bottle mouths at said station with the flaring cap skirts in moldable condition, a hood cap securing station along said way, and means at said last mentioned station for molding the hood cap skirt to the bottle mouth and tightly and annularly compressing the same thereto under the bottle rim and thus gripping said skirt until set in stiff securing form. 115

5. Apparatus for molding the skirts of hood caps under the rims of bottle mouths covered by hood caps having skirts embody- 120

ing a binder in temporary moldable condition; said apparatus comprising a ring of blades having segmental cap skirt molding and compressing edges, and means for expanding and contracting said ring of blades, including a spring pressed toggle for holding said ring expanded and whereby said blades can be released for contracting said ring.

6. Apparatus for molding the skirts of 10 hood caps under the rims of bottle mouths covered by hood caps having skirts embodying a binder in temporary moldable condition; said apparatus comprising a ring of blades having cap skirt pressing edges, and 15 means for expanding and contracting said ring of blades, including means for holding said ring expanded, and means to be actuated by the bottle head entering said ring for tripping said means to permit automatic 20 traction of said ring.

7. In combination, means for treating a paper material hood cap having an annular skirt carrying a binder to render said skirt temporarily moldable; cap applying means 25 for depositing said moldable skirt cap onto a bottle head; mechanism for contracting the moldable skirt to cap securing position around the bottle head and thus holding the same until set; and means whereby said mechanism and the bottle move forward together 30 while the cap skirt is thus being held.

8. In apparatus for hood capping bottles, movable pressure means for pressing the moldable depending skirt of a paper material 35 hood cap on a bottle head to securing position under the exterior rim of the bottle head, spring means constantly acting on said pressure means to move the same to operative position, and means for moving said pressure 40 means to and holding the same in inoperative position against the power of said spring means including a bottle actuated trip to release said pressure means.

9. In apparatus for hood capping bottles, 45 a member having movable spring pressed jaws to press and hold the moldable skirt of a paper material hood cap on a bottle head to cap securing position around said head, and a toggle to move said jaws to inoperative 50 position and to assume locked position holding said jaws in inoperative position, bottle operated means being provided to break the toggle from locked position to release said jaws.

55 10. Apparatus for rendering sheet fibrous material binder-carrying hood cap disks moldable by heat and hood capping bottles therewith; including means for rendering a supply consisting of a multiplicity of such 60 disks temporarily moldable by heat; means for successively bringing together moldable disks from said supply and the heads of bottles supported in upright position; a succession of mechanisms for gathering the skirt 65 portions of the hot moldable disks on suc-

cessive bottle heads and contracting the same circumferentially inwardly and radially under the bottle head rims and thus holding the same in secured hood cap form until set by cooling; and means for advancing the hood capped bottles in upright position with said mechanisms contracting the caps on the heads thereof while said hood caps are setting to stiff securing condition.

70 11. Apparatus for heating sheet fibrous material binder-carrying hood cap disks to render them moldable and hood capping bottles with the moldable disks, said apparatus including means for supporting and advancing bottles in upright position; means for rendering said disks moldable by heat; means for vertically bringing together the head of an upright bottle and a hot moldable disk; mechanism for gathering the moldable skirt portion of the disk on the bottle head downwardly and inwardly and contracting the same in under the bottle head to hood cap securing position and thus maintaining the skirt until set to stiff securing condition; and means for moving the bottle and mechanism together forwardly to the hood capped bottle discharge while the hood cap is setting.

75 12. Apparatus for heating sheet fibrous material binder-carrying hood cap disks to render them moldable and hood capping bottles with the moldable disks, said apparatus including means for supporting and advancing bottles in upright position; means for rendering said disks moldable by heat; means for vertically bringing together the head of an upright bottle and a hot moldable disk; mechanism for gathering the moldable skirt portion of the disk on the bottle head downwardly and inwardly and contracting the same in under the bottle head to hood cap securing position and thus maintaining the skirt until set to stiff securing condition; and means for moving the bottle and mechanism together forwardly to the hood capped bottle discharge while the hood cap is setting, means being provided for relative vertical separating movement between said mechanism and the upright hood capped bottle at said hood-capped bottle discharge.

80 13. Apparatus for heating sheet fibrous material binder-carrying hood cap disks to render them moldable and hood capping bottles with the moldable disks, said apparatus including means for supporting and advancing bottles in upright position; means for rendering said disks moldable by heat; means for vertically bringing together the head of an upright bottle and a hot moldable disk; mechanism for gathering the moldable skirt portion of the disk on the bottle head downwardly and inwardly and contracting the same in under the bottle head to hood cap securing position and thus maintaining the skirt until set to stiff securing condition; and means for moving the bottle and mechanism 85 together forwardly to the hood capped bottle discharge while the hood cap is setting, 90 100 105 110 115 120 125 130

together forwardly to the hood capped bottle discharge while the hood cap is setting, means being provided whereby the hood-capped upright bottle is released from said mechanism, 5 when at the bottle discharge.

14. Apparatus for heating sheet fibrous material binder-carrying hood cap disks to render them moldable and hood capping bottles with the moldable disks, said apparatus 10 including means for supporting and advancing bottles in upright position; means for rendering said disks moldable by heat; means for vertically bringing together the head of an upright bottle and a hot moldable disk; 15 expandable and contractile mechanism for gathering the moldable skirt portion of the disk on the bottle head downwardly and inwardly and contracting the same in under the bottle head to hood cap securing position and 20 thus maintaining the skirt until set to stiff securing condition; and means for moving the bottle and mechanism together forwardly to the hood capped bottle discharge while the hood cap is setting, means being provided 25 whereby the hood-capped upright bottle is released from said mechanism, when at the bottle discharge, said mechanism embodying means for positively expanding the same to free the capped bottle head and for thus holding 30 said mechanism temporarily expanded to vertically receive another bottle head bearing a moldable hood cap disk preparatory to contracting the same thereon.

15. Apparatus for rendering sheet fibrous material binder-carrying hood cap disks moldable by heat and hood capping bottles therewith; including means for rendering such disks temporarily moldable by heat; means for successively bringing together 35 moldable disks and the heads of bottles supported in upright position; a succession of mechanisms for gathering the skirt portions of the hot moldable disks on successive bottle heads and contracting the same circumferentially inwardly and radially under the bottle head rims and thus holding the same in 40 secured hood cap form until set by cooling; and means for advancing the hood capped bottles in upright position with said mechanisms contracting the caps on the heads thereof while said hood caps are setting to stiff 45 securing condition.

16. Apparatus for rendering sheet fibrous material binder-carrying hood cap disks moldable and then hood capping bottles therewith, said apparatus including means 50 for supporting and advancing a series of bottles in upright position; means for successively and vertically bringing together the heads of said bottles and hot moldable fibrous material binder-carrying hood cap disks; and a series of mechanisms to successively receive 55 and overhanging the heads of said upright bottles and gather and radially contract the moldable disks and exert longitudinal down-

ward pull thereon, said mechanisms advancing with the bottles while holding the cap skirts contracted to securing form under the bottle rims until set to stiff securing condition, each mechanism embodying a top abutment between which and the top edge of the bottle head the center of the disk is clamped, an expandible ring independent of said abutment to gather the disk skirt portion downwardly and inwardly and tightly contract and hold the same and exert longitudinal downward pull thereon, means to contract said ring to a diameter less than the maximum diameter of the bottle rim, and means to expand said ring to a diameter in excess of the bottle head external diameter and thus hold the same. 70

17. Apparatus for rendering sheet fibrous material binder-carrying hood cap disks moldable and then hood capping bottles therewith, said apparatus including means for supporting and advancing a series of bottles in upright position; means for successively and vertically bringing together the heads of said bottles and hot moldable fibrous material binder-carrying hood cap disks; and a series of mechanisms to successively receive and overhanging the heads of said upright bottles and gather and radially contract the moldable disks and exert longitudinal downward pull thereon, said mechanisms advancing with the bottles while holding the cap skirts contracted to securing form under the bottle rims until set to stiff securing condition. 80

18. Apparatus for rendering binder-carrying hood cap disks moldable and for hood capping bottles with said moldable disks; including bottle supporting means for elevating upright bottles to carry the heads thereof into overhanging hood cap disk molding means movable forwardly with the bottles during the hood cap molding and setting operations; and overhanging hood cap disk molding means embodying a horizontally rotating carrier provided with and advancing a series of hood cap disk molding and contracting mechanisms to successively receive the heads of bottles elevated thereto and to move forward with the bottles during the operations of molding and contracting the disks and holding the same thereto until set thereon. 100

19. In apparatus for hood capping bottles by molding and contracting moldable binder-carrying hood cap disks on the bottle heads; a support for bottles in upright position; and a moldable hood cap disk contracting head embodying an expandible and contracting ring for longitudinally and vertically receiving a bottle head carrying a moldable disk to gather downwardly the skirt portion of the disk and then contract around the bottle head to tightly draw and contract and hold the skirt to the bottle under the bottle 110

rim until set in contracted condition, and bottle controlled means controlling the contraction of the ring.

20. In apparatus for hood capping bottles by molding and contracting hot moldable sheet fibrous material binder-carrying hood cap disks on the bottle heads; a horizontally advancing carrier for supporting and advancing a series of bottles while suspended 5 by their heads from said carrier; said carrier provided with a series of expandible and contracting rings to vertically receive bottle heads carrying said disks in hot moldable condition and gather and contract the skirt 10 portions of said disks to and under the bottle head rims and to thus hold the same until set while advancing with the bottles, said rings constituting the means whereby the bottles are grasped and suspended from the carrier 15 by the bottle heads; and means for supporting bottles in upright position for vertical delivery to and reception from said carrier 20 and the rings thereof.

21. In combination, means for rendering sheet fibrous material binder-carrying hood cap disks temporarily moldable for molding and contracting to secured form on bottle heads; an elevator for a bottle in upright position the head of which carries a temporarily moldable hood cap disk; and a horizontally advancing conveyer overhanging said elevator and provided with a series of downwardly opening mouths moved in a circuit by said conveyer and brought successively over said elevator to vertically receive the disk carrying heads of upright bottles elevated thereby, each mouth having a head to clamp the disk down on the top edge of the bottle pressed up by the elevator, and an independently operating expandible and contracting ring provided with controlling means to horizontally contract and press the skirt portion of the disk under the bottle head rim and thus hold the same until set to 30 secured condition, whereby a plurality of bottles can advance while the hood caps on the heads thereby are held pressed by said rings for successive release of bottles when said caps have set to securing condition.

50. 22. In apparatus for hood capping bottles with sheet fibrous material binder-carrying hood cap disks, in combination; means for heating such disks to render them moldable; a series of contracting and holding mechanisms for operating to contract said hot moldable hood cap disks to hood cap form and condition on the heads of bottles supported in upright position and to thus hold the hood caps in contracted condition on the heads of 55 a multiplicity of bottles while such hood caps are setting and while said bottles are moving forward with said mechanisms; means for conveying said mechanisms in an endless circuit including an extended path of movement 60 during which a multiplicity of said mechanisms operate to hold caps contracted while setting on the heads of a multiplicity of upright bottles; means whereby hood cap disks in hot moldable condition are brought into operative relation with bottle heads for operation by said mechanisms, respectively; means for supporting bottles in upright position for action by and after release from said mechanisms; and means for causing relative vertical movements between upright bottles 65 and said mechanisms.

23. Apparatus for hood capping bottles that includes means for maintaining a multiplicity of sheet fibrous material hood caps having flaring flexible skirts in an advancing procession, to provide a supply of said caps for quick successive delivery, means for successively dispensing said flexible skirted caps for deposit on the heads of successive upright bottles with the cap skirts depending around the bottle heads, and means movable forward 70 with the bottles for annularly contracting the depending flexible skirts of the hood caps resting on the heads of successive bottles under the bottle head rims for securing.

24. Apparatus for hood capping bottles including, in combination; means for advancing upright bottles in succession from a hood cap receiving station past a hood cap skirt contracting station and to a secured hood capped bottle discharge station; means for maintaining a multiplicity of sheet fibrous material hood caps having flexible flaring skirts arranged in succession to provide a hood cap supply for quick successive delivery 80 and causing said supply of hood caps to advance as caps are delivered therefrom; means for holding successive caps with their open bottoms positioned to receive successive bottle heads for deposit thereon with their skirts depending around the bottle heads; and several hood cap skirt contracting mechanisms movable forward in succession with the bottles from said skirt contracting station to 85 said bottle discharge station, and each receiving a bottle head loosely carrying a flaring skirted hood cap at said skirt contracting station for contracting the flexible skirt for securing under the bottle head rim and adapted to discharge the bottle carrying a secured hood cap at said discharge station.

25. Apparatus for hood capping bottles; means for advancing a succession of upright bottles in succession from a hood cap receiving station to and past a hood cap contracting 90 station and therefrom to a hood capped bottle discharge; a hood cap supply for maintaining and advancing a procession of sheet fibrous material hood caps having annular flaring flexible skirts in succession; dispensing means for successively delivering said hood caps at said receiving station for delivery on successive bottle heads with their flexible skirts depending around the bottle heads; and a succession of hood cap contracting means 95

movable in an endless circuit to receive successive bottle heads at said contracting station and to advance with said advancing means.

5. 26. Apparatus for hood capping bottles, including means for maintaining and advancing a procession of sheet fibrous material hood caps having flaring flexible skirts in succession; means whereby successive hood caps and the heads of successive upright bottles are brought together at a hood cap receiving station with the cap loosely seated on the bottle head and the cap skirt depending therearound; means for advancing successive upright bottles having the hood caps loosely mounted on their heads to a hood cap contracting station; and hood cap clamping means for annularly and radially contracting said flexible depending skirts against and around the bottle neck for retention in securing form.

10. 27. Apparatus for hood capping bottles, including a succession of hood cap skirt contracting and compressing annular clamps, each adapted when expanded to receive the head of an upright bottle carrying a sheet fibrous material hood cap having its flexible skirt depending around said head, and adapted to contract in diameter around said skirt 30 and forcibly drive the same to secured form under the bottle head rim and against the bottle surface; spring means constantly acting on said clamp to forcibly contract the same; holding means to maintain said clamp 35 expanded against the tension of said spring means; means whereby said holding means is adapted to suddenly release said spring means to forcibly contract said clamp to gather and contract the cap skirt and compress the same against the bottle surface 40 with a hammering blow completely around the circle of the skirt.

45. 28. Apparatus for hood capping bottles, including means to provide upright successive bottles with sheet material hood caps having flexible flaring skirts loosely centered on the heads thereof with their skirts depending around said heads; a succession of hood cap skirt gathering and compressing 50 annular expanding and contracting clamps each when expanded adapted to receive the head of a bottle carrying a flaring skirt hood cap and adapted to contract annularly and radially around said skirt and contract and 55 drive the same against the bottle surface under the rim of the bottle head; means for contracting said clamps; means for expanding said clamps to release the hood capped bottles and to receive upright bottles carrying hood caps for contraction to securing form; and means for advancing said clamps in a procession in an endless circuit.

60. 29. Apparatus for hood capping bottles, including an annular contracting and expanding clamp, adapted when expanded to

receive the head of a bottle carrying a sheet material hood cap having a flaring skirt depending around the bottle head, and to annularly and radially gather and contract said skirt inward against the bottle surface completely around the circle of the skirt; said clamp including a carrier providing a mouth open at the bottom to receive a bottle head carrying a skirted hood cap and a top stop to engage the cap top, a circle of jaws supported by said carrier and surrounding said mouth and each having a concaved inner cap skirt contacting edge, said jaws being all 70 slidable radially inwardly and outwardly to contract and expand the clamp, means whereby all of said jaws move together on their inward and outward radial strokes, means including a spring for actuating said jaws on their inward clamp contracting movements; and means for actuating said jaws 75 on their outward clamp expanding movements.

30. 30. Apparatus for hood capping containers, comprising means for providing the head of a container having a rim with a fibrous material hood cap the binder carrying flaring skirt of which is in a temporarily moldable condition; hood cap skirt molding mechanism for pressing and molding said temporarily moldable skirt to and under said 90 bottle head rim, and means for advancing said mechanism and said bottle with said mechanism holding the cap skirt molded under said skirt while setting to securing condition.

35. 31. In apparatus for hood capping bottles with sheet fibrous material hood caps having depending flexible skirts; in combination; means for holding a supply of said flexible skirt hood caps and causing them to advance 105 in a procession; hood cap dispensing means for causing deposit of successive hood caps from said supply on the heads of successive bottles of a procession; a procession of successive hood cap skirt contracting mechanisms to successively contract the depending skirts of the hood caps on said bottles to securing form under the rims of the bottle heads; and means for advancing said procession of contracting mechanisms with the bottles having their heads held therein.

40. 32. Apparatus for applying flexible sheet paper material hood caps having flaring skirts to upright bottles the heads of which have exterior rims with the flaring cap skirts 110 depending around said heads for contraction and pressing to secured position under said rims; said apparatus comprising means for advancing a procession of upright bottles; an elevated supply for a multiplicity of 115 said hood caps; means for successively dispensing said hood caps from said supply onto the heads of successive bottles of said procession with the flexible cap skirts depending around the bottle heads; and means for 120

contracting and pressing the depending skirts on the heads of successive bottles of said procession to secured form under the head rims.

33. Apparatus for hood capping bottles
 5 with flexible sheet material hood caps having flaring flexible annular skirts, comprising mechanism for supporting and advancing a procession of successive upright bottles along an elongated path and for successively
 10 elevating such upright bottles; and means for maintaining and advancing a multiplicity or supply of said flaring skirt hood caps; means for successively dispensing said hood caps from said supply on the heads of successive upright bottles of said procession with the cap skirts depending around and centered on the bottle heads; said mechanism including a procession of successive means for contracting and pressing said depending cap
 15 skirts of the caps on the heads of successive bottles to secured position on the bottle heads, said procession of successive means advancing in an endless circuit past a bottle receiving station and a bottle discharge station.

25 34. In the art of hood capping containers by molding on the heads thereof hood cap disks while in a temporarily moldable state and capable of setting thereon in the final molded secured form, those steps which include providing a multiplicity of such hood cap disks in a procession and subjecting such procession to conditions whereby such disks are reduced to and maintained in said temporarily moldable state and thereby providing
 30 a supply of such moldable disks for quick successive delivery for hood capping; advancing such supply of moldable disks to present successive moldable disks for delivery; bringing together successive moldable disks from
 35 said supply and the heads of successive containers of a procession; successively molding such disks to securing form on the heads of such containers; and advancing such containers in procession along an extended path
 40 to a hood capped container discharge while holding the molded caps in secured form until set.

45 35. In the art of hood capping containers, those steps which include maintaining a multiplicity of hood cap disks in a temporarily moldable condition by heat to provide a constant supply of such disks, causing said disks to advance in procession; bringing together the heads of successive containers and successive moldable disks from said supply for securing on the respective heads; molding the still moldable hood cap disks on the contained heads; and advancing a succession of said hood capped containers to a discharge station and holding the caps on said succession of containers while setting in molded form.

Signed at Fulton, Oswego County, New York, this 5th day of September, 1925.

WILBUR L. WRIGHT.
 LEE D. PIERCE.