

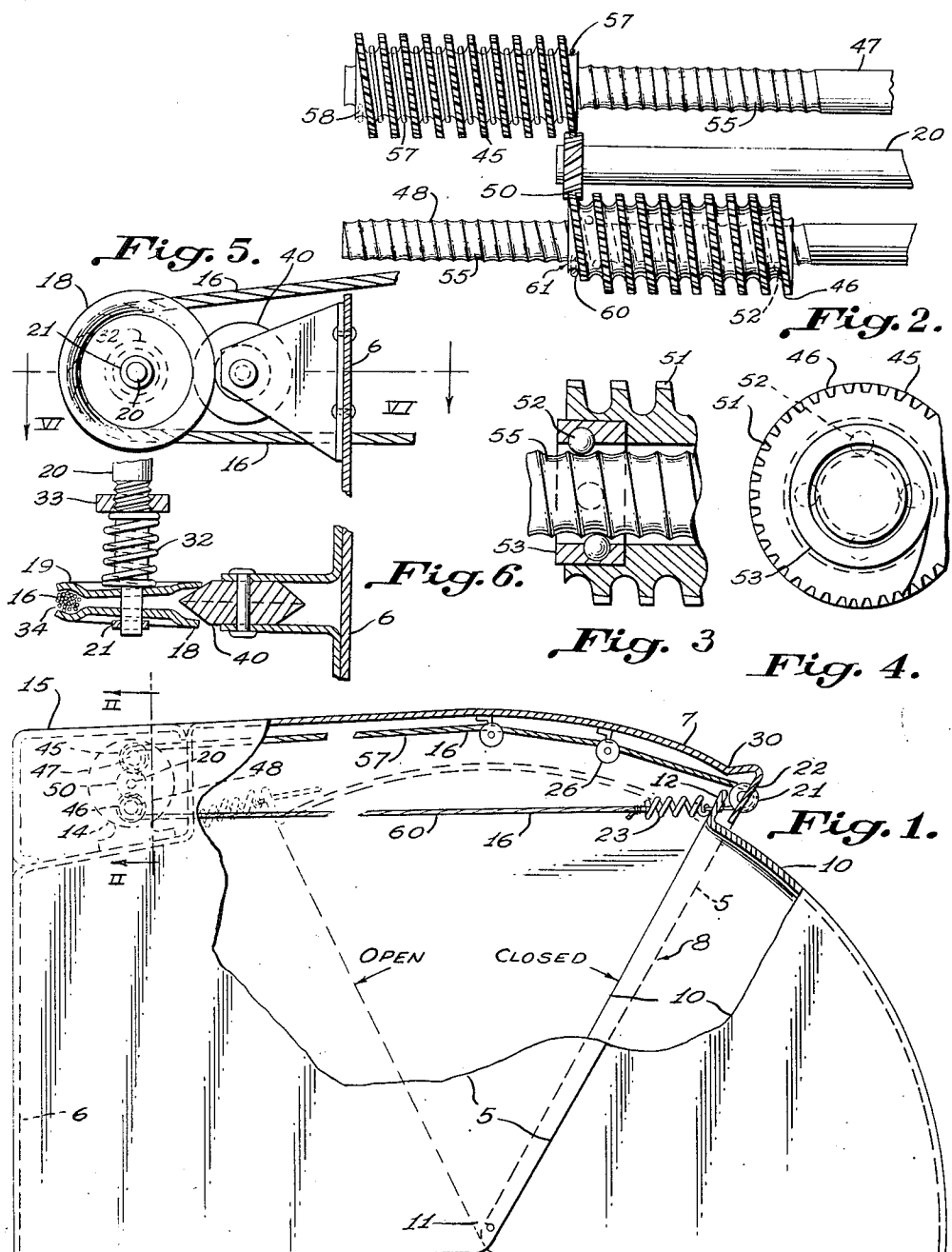
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ROLL COVER AND AUTOMATIC CLOSURE MEANS

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ROLL COVER AND AUTOMATIC CLOSURE MEANS

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This invention relates to roll covers and roll closures and particularly to roll covers used on steam tables to keep food and meat hot and ready to prepare. By the term "roll cover" in the following specification and claims it is meant to refer to the complete utensil, that is both the main housing or structure and the roll closure or door.

An object of this invention is to provide a roll cover of the type referred to with novel means adaptable to roll open and roll closed the roll closure, this means consisting of two tubular cylinders mounted slidably and rotatably simultaneously in opposite directions on parallel, stable shafts; these cylinders having the outer surface helically grooved, as wide coiling threads, to be adaptable to respectively wind and unwind alternately on the helical groove of each cylinder portions of two lengths of a flexible element or cord; said cylinders further having gear teeth along the outer surface of the threads, that is exteriorly of the helical groove, adaptable to mesh with a pinion gear mounted between the cylinders or cylindric, grooved coil gears on a rotatable shaft of a reversible electric motor; said stable shafts further having a helical groove or track upon which a number of ball bearings carried by the tubular coil gears, at the interior of each end thereof, may roll in order to effect said simultaneous shifting or sliding of the coil gears.

Another object is to provide a roll cover of the type referred to with other means adaptable to roll open and to roll closed the roll closure, this means consisting of an endless assemblage of a flexible element or wire cord and of an extendable element or spring operable by power means comprising a small reversible electric motor adaptable in one form to rotate a pair of disks mounted on a shaft and adaptable to grip and pull or turn to either direction the flexible element or cord, which is connected to the roll closure, in order to cause activation of the latter.

Another object is to provide a roll cover of the type referred to with a roll closure which is one-third smaller, or nearly so, than the ninety degree type generally in use and which, when open or rolled up, leaves clear a space for a larger chunk of meat in the upper back portion of the roll cover, the frame of the aperture of the main housing being oblique to conform to said closure.

A related object is to provide a roll closure that eliminates excessive weight and causes less wear, specially because it is rolled open and closed mechanically and with a maximum of stability and care, and therefore the utensil will not become a battered equipment after a year of service, since the roll closure will not have to be lifted up and shut down carelessly and on account of saving from getting one's hand heat or steam blistered.

Another object is to provide the roll cover, having a pitched top or ceiling, with a V-shaped depressed surface adjacent the front edge over the aperture, said edge ending turned downwardly, and to provide a turned up edge on the rear end of the curved portion of the closure in order that, when the latter is in closed position, said turned up edge will be positioned below said V-shaped depressed surface. Therefore, when the roll cover is in use over a steam table, the vapor liquid that runs forward on the ceiling (that is on the inner surface of the top) and drips from said depressed surface, will be caught by said turned up edge and thence will run down evidently along the inner surface of the curved front of

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the closure; provided said turned up edge will be positioned suitably, this being easily attainable. With this arrangement the vapor liquid, which is usually unsanitary, will not drip onto the food being steam heated on a pan covered by this improved roll cover and therefore spoil its flavor. Moreover, said vapor liquid may not be allowed to drip onto and run over the outer curved surface of the closure, as the contrary is the case in the ones in use, and render it greasy and stained.

Further objects will appear from the following description and from the drawings, which are intended for the purpose of illustration only and in which:

Fig. 1 is the side elevation of the utensil or roll cover, the back of which is at the left and the front is at the right, as viewed on the drawing;

Fig. 2 shows an enlarged front view taken from line II—II in Fig. 1 of the two cylindric, grooved coil gears and relative pinion gear and relative assemblage;

Fig. 3 shows in detail an enlarged center section view of either shaft surrounded by one of the grooved coil gears;

Fig. 4 shows in detail the plan of either end view of the grooved coil gears.

Fig. 5 is a view of the gripping disks and relative assemblage as seen if assembled in place of the cylindric gears in Fig. 1; and

Fig. 6 is a view taken from line VI—VI in Fig. 5.

Referring to the numbers of the drawings, a main housing of the roll cover is formed by two parallel upright side walls 5 square to an upright back wall 6 and by a top or ceiling 7 which is pitched down toward the back wall 6 and toward the front aperture 8. The frame of the aperture 8 is formed by the front edges of the side walls and of the top and leans or slants outwardly 30°, or approximately 30°, from vertical. A roll closure 10, which is pivoted on bottom of the walls 5 at 11 to close and to open said aperture, is formed as shown by two 60° sector shaped sides and a curved top or front. The roll closure is further provided with a turned up lip or edge 12 at the inner top end thereof. A small electric motor 14, Fig. 1, reversible and automatically set off and re-set to govern the opening and closing of the roll closure by the aid of the assemblage of flexible element and supporting members, is carried within and by a small housing 15 comprised within the roll cover at the upper back portion thereof. When used in connection with the gripping disks said flexible element is a whole length of preferably a small wire cord 16 that is made to ride over the back portion of the gripping groove formed by a pair of disks 18 and 19 of cord gripping and pulling device, shown in Figs. 5 and 6, carried by a shaft 20 of the motor 14. The upper end of the cord 16 is secured to the lip 12 of the roll closure 10; a sheave 21 is carried by the front edge or turned down lip 22 of the top 7 over the front aperture 8 and serves as supporting means for the upper portion of the cord 16 which is made to ride over the groove of the sheave 21. The lower end of the cord 16 is secured to an extension coil spring 23 which is also secured to the lip 12 of the closure adjacent the upper end of the cord. Since the length of the lower portion of the cord 16, when the closure 10 is rolled down closed, is slightly shorter than the length of the upper portion of the cord, I place the spring 23 to make up for that difference and need during the rolling up and down of the closure. Said difference and need will further be explained later. Suitable additional sheaves 26 are carried by the ceiling 7 and serve to support the cord. 30 indicates a V-shaped depressed surface of the ceiling wherefrom the vapor liquid or condensed moisture from the front portion of the ceiling will drip onto the inner surface of the lip 12 of the closure 10, whenever the utensil is in use over a steam table, the inner surface of the edge 12 being vertically aligned with the bottom of the depressed surface. The apertures required for the cord on the vertical wall of the electric motor housing 15 may be made leak-proof by properly providing resilient seals therefor. In Fig. 5 there are shown the pulley-like disks 18 and 19 which have a square hole on its axes whereby the power driven shaft 20, having a removable head 21, carries and rotates them. A compression coil spring 32 held in place by a nut 33

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presses the disk 19 against the disk 18 and this pressure causes the gripping up of the cord 16 by the groove 34 formed by the rims of the disks. For better performance another spring may be placed to abut the disk 18. A small disk 40 having the edge V-shaped is rotatably carried by the vertical wall of the housing 15 and is adaptable to keep the front, top and bottom portions of the groove 34 of the gripping disks more open to make them free of friction for the wire cord.

Thus it is readily seen that by applying the power to rotate the gripping disks to either direction, the roll closure is caused to either open or close the roll cover, or the housing of the latter. And, since the electric motor is automatically set-off and re-set, the roll closure is adaptable to stop rolling as predetermined and will be ready to be rolled oppositely.

Fig. 2 shows 45 and 46 that are the slidable, grooved coil gears and are carried by two parallel shafts 47 and 48, these being suitably fixed on a base or frame of the electric motor or on the small housing 15; a pinion gear 50 is adaptable to mesh with the teeth 51 of the toothed outer surface of the wide threads of the cylindrical coil gears. As shown in Figs. 3 and 4 the tubular coil gears are provided at each end with any convenient number of ball bearings 52 that are preferably carried by casings or rings 53 which are permanently pressed into an enlargement at the interior of each end of the tubular coil gears. The stable shafts 47 and 48 also are each provided with a coiling groove or track 55 upon which the bearings 52 are adaptable to roll and by which said bearings, being rotated together with the coil gears, cause the latter to shift or slide laterally. Fig. 2 shows the coil gears and the pinion as if assembled within the small housing 15 and as viewed from the front roll closure, the latter being in closed position. The previously mentioned two lengths of flexible element or wire cord actually consist of an upper length 57, secured by one end at one end 58 of the coil gear 45 and, as shown, is wrapped up or wound over the entire length of the helical groove of the coil gear because the roll closure 10 is shown rolled down or closed. Further, the upper length 57 extends from the end of the coil gear 45 adjacent the pinion to the inner end or turned up lip of the closed roll closure. The lower length 60 is secured by one end at one end 61 of the coil gear 46 and, as shown, is not wrapped up over the groove of the coil gear 46, however it is stretched therefrom to the lip of the closed roll closure.

To further make it clear, I may say that as the roll closure is in closed position the upper coil gear remains to the left of the pinion and has the back portion of the upper length of the cord wrapped up or coiled over the entire helical groove formed in between each and along its toothed threads. The roll closure being in closed position yet, the lower coil gear remains to the right of the pinion. Both the upper and lower lengths of the cord extend from the grooves of the coil gears, one right above and the other right below the pinion, to the turned up lip of the roll closure in the same manner as previously described for the cord 16 of Fig. 1; however, although the spring 23 may be used in this other arrangement, it may be omitted, as it will be explained later. As the pinion is made to mesh with and it rotates simultaneously and oppositely the grooved coil gears to open the roll closure, the upper gear 45 slides or shifts to the right, as viewed in Fig. 2, and at the same time uncoils the cord and provides more length thereof which is needed to roll up the roll closure, as readily seen by looking at the Fig. 1. And at the same time the lower gear 46 slides to the left and coils up over its helical groove a portion of the lower length of cord approximately equal to the portion uncoiled by the upper gear.

A roll closure of the type referred to requires two different length measures of cord, each to open and to close the utensil; the travel of the cord is irregular during the opening and the closing of the roll closure, and the motion of a portion of said cord is un-uniform or irregular due to the curved travel of the ends of the cord attached to the lip of the roll closure. To overcome the obstacle, if one wants to omit the spring 23, it is preferred that a portion of the helical groove of the lower coil gear be cut deeper, as shown approximately in Fig. 2, in order that, although both coil gears rotate and slide alike, the lower one will wind and unwind, as required, a variable

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and different length of cord than the one engaged by the upper coil gear. While I have herein shown my roll cover and automatic closure means as embodied in several forms of construction, by way of example, it will be apparent that further alterations or modifications or adaptations might be made in the construction without departing from the spirit of the invention. Consequently, without limiting myself in this respect,

I claim as my invention:

1. In a device of the type referred to: a main housing comprising two parallel, upright side walls, a back wall and a top pitched downwardly from a summit thereof, said walls and top providing an oblique frame slant 30° outwardly to form a front aperture of said housing; a turned down edge provided on the front end of the top; a roll closure for said aperture comprising a front or top and two 60° sector shaped side walls parallel to and pivotally fixed on said side walls of the housing; a turned up edge provided on the rear end of said front of the closure and positioned inwardly of and adjacent said turned down edge when the closure is in closed position; and a V-shaped depressed surface provided on said top of the housing adjacent said turned down edge and parallel thereto, the inner surface of the turned up edge of the closure being vertically aligned with the bottom of said depressed surface when the closure is in closed position, said depressed surface being located at a level below a summit of the top of the housing, and therefore adaptable to cause the vapor liquid that may run along the inside surface of the top to drip onto the turned up edge of the closure and thence run down along the inside surface of the front of the closure in order that said liquid may not drip onto the food being steam heated in a pan under the roll cover and spoil its flavor and in order that it may not drip onto and run over the outer surface of said front of the closure to render it greasy and stained, the front of the 60° closure further providing a suitable pitch to its turned up edge whereby said vapor liquid may not drip onto said food.

2. In a device of the type referred to: a main housing comprising two parallel, upright side walls, a back wall and a pitched top, said walls and top providing an oblique frame slant 30° outwardly to form a front aperture of said housing; a turned down edge provided on the front end of the top; a roll closure for said aperture comprising a front or top and two 60° sector shaped side walls parallel to and pivotally fixed on said side walls of the housing; sheave means carried by said turned down edge of the top, an upper length of a flexible member or wire cord supported by means of the top and having one end connected engageably by an upper tubular, grooved, coil gear disposed within a housing for power means comprised within the main housing at the upper back portion thereof and having the other end connected to the rear end of said top of the closure and engageably by said sheave means of the turned down edge; a lower length of said flexible member or cord having one end connected engageably by a lower tubular, grooved, coil gear disposed parallel to said upper coil gear; said upper and lower tubular grooved, coil gears each carried simultaneously rotatable and slidable and oppositely to one another by stable shafts thereof disposed parallel within said housing for power means, pinion gear means disposed in between said coil gears; and rotatable by a shaft of a power means to mesh with said coil gears to simultaneously rotate and slide them oppositely to wind and unwind portions of said upper and lower cords over the respective helical grooves, at a right angle thereto, to operate the roll closure, the ends of the cords being attached each to the respective coil gears at one end thereof of the same side; and an extendable element or spring secured by one end to said rear end of the top of the closure, said lower length of the cord having the other end attached to the other end of said spring in order to overcome length differences and travel irregularities in between the curved travel and ununiform motion of the lower cord and of the uniform and motionless travel of the upper cord during each mechanical operation of the roll closure to open and to close the same.

3. A device as defined in claim 2 in which said upper and lower stable shafts of the coil gears include: helical tracks provided on the shafts; and bearing means carried innerly by the coil gears at each end thereof to roll over said helical tracks of the shafts to laterally shift said

coil gears oppositely to one another when they are rotated by said pinion gear disposed in between them.

4. In a device of the type referred to: a main housing having a front aperture provided with a frame inclined 30°, or approximately 30°, outwardly, the housing including two parallel side walls, a back wall and a pitched top; a roll closure for said aperture pivoted on said side walls and including two 60° sector shaped side walls and a top thereof; sheave means carried by a turned down edge provided on the front end of the top of the housing; a shaft having a square or non-round end and rotatable by a power means disposed in a housing for power means comprised within the main housing at the upper back portion thereof; a bisected circular groove formed by the rims of a pair of disks axially carried by said end of the shaft; a head removably provided on said end of the shaft and means thereof to press said disks to one another; a relatively thick disk with a beveled rim rotatably assembled on a wall of said housing for power means and having said rim into said bisected groove at a point in line with said sheave means of the turned down edge to narrow said groove at the opposite point or back portion thereof; a length of a flexible member or wire cord assembled as an endless belt on said bisected groove of the disks and on said sheave means of the turned down edge of the top; and an extendable or spring means secured by one end at the rear end of the top of the closure, the end of the lower portion of said core being attached to said spring and the end of the upper portion of the cord being attached to the rear end of the top of the closure by way of said sheave means, said spring means being adaptable to overcome length differences and travel irregularities in between the curved travel and irregular motion of the lower cord and the uniform travel of the upper cord during each mechanical operation of the roll closure to open and to close the same.

5. In a device of the type referred to: a main housing comprising two parallel, upright side walls, a back wall and a pitched top, said walls and top providing an oblique frame slant 30° outwardly to form a front aperture of said housing, a roll closure for said aperture comprising a front or top and two 60° sector shaped side walls parallel to and pivotally fixed on said side walls of the housing; sheave means carried by a turned down edge of the front end of the pitched top; an upper length of a flexible member or wire cord supported by means of the top and having one end connected engageably by an upper tubular, grooved coil gear disposed within a housing for power means comprised within the main housing at the upper back portion thereof, and having the other end connected to the rear end of said top of the closure and engageably by said sheave means of the turned down edge; a lower length of said flexible member or cord having one end connected engageably by a lower tubular, grooved coil gear disposed parallel to said upper coil gear; said upper and lower tubular grooved, coil gears each carried simultaneously rotatable and slidable and oppositely to one another by stable shafts thereof disposed parallel within said housing for power means; a pinion gear means dis-

posed in between said coil gears and rotatable by a shaft of a power means to mesh with said coil gears to simultaneously rotate and slide them oppositely to wind and unwind portions of said upper and lower cords over the respective helical grooves, at a right angle thereto, to operate the roll closure, the ends of the cords being attached each to the respective coil gears at one end thereof of the same side; and a deeper (cut) portion of the helical groove of the lower coil gear whereby it may wind and unwind a variable and different length of cord than the one engaged by the upper coil gear in order to overcome length differences and travel irregularities in between the curved travel and irregular motion of the lower cord and of the uniform travel of the upper cord during each mechanical operation of the roll closure to open and to close the same.

6. In a device of the type referred to: a main housing having a front aperture provided with a frame inclined 30°, or approximately 30° outwardly, the housing including two parallel side walls, a back wall and a pitched top; a roll closure for said aperture pivoted on said side walls and including two 60° sector shaped side walls and a top thereof; sheave means carried by a turned down edge provided on the front end of the top of the housing; a pulley means rotatable by a shaft of an electric motor disposed in a housing for power means at the upper back portion of the main housing; a length of a flexible member or wire cord assembled as an endless belt on said pulley means and sheave means; and an extendable or spring means secured by one end at the rear end of the top of the closure, the end of the lower portion of said cord being attached to said spring means and the end of the upper portion of the cord being attached to the rear end of the top of the closure by way of said sheave means, said spring means being adaptable to hold rigidly stretched the wire cord and to overcome length differences and travel irregularities in between the curved travel and irregular motion of the lower portion of the cord and the uniform travel of the upper portion of the cord during each mechanical operation of the roll closure to open and to close the same.

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