

July 19, 1955

H. R. CRANK
CORN-POPPING MACHINE

2,713,302

Filed Feb. 24, 1953

3 Sheets-Sheet 1

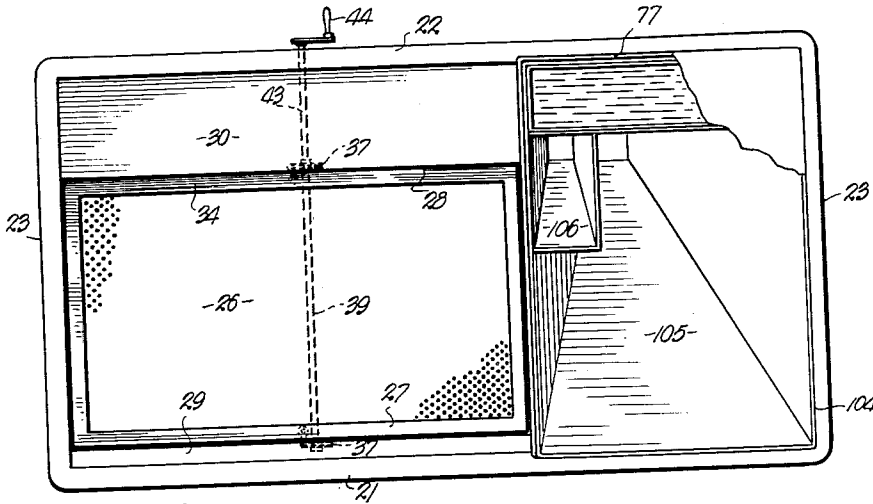


Fig. 1.

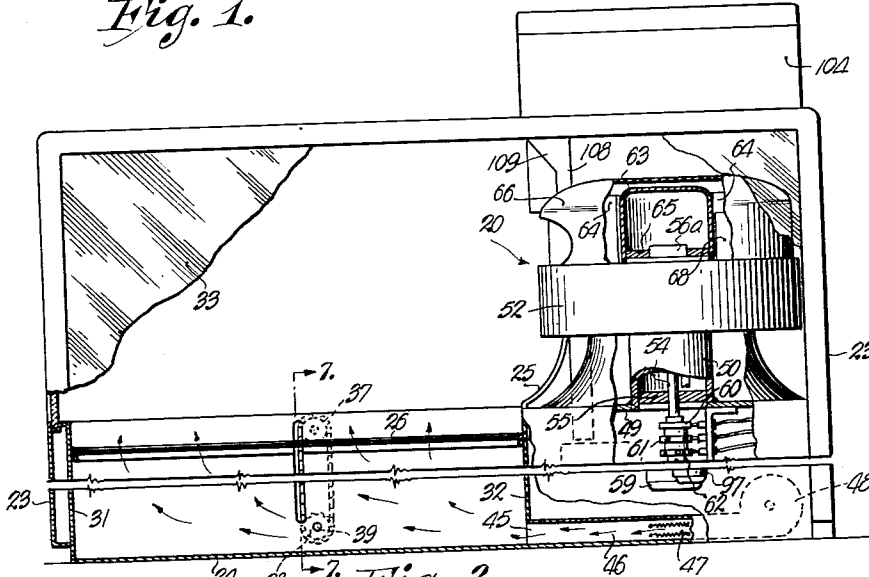


Fig. 2.

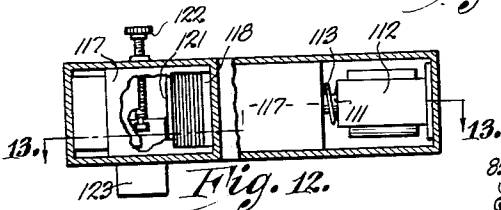


Fig. 12.

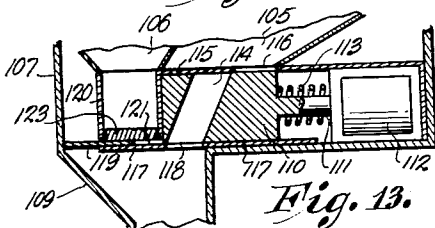


Fig. 13.

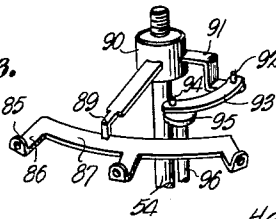


Fig. 11.

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3 Sheets-Sheet 2

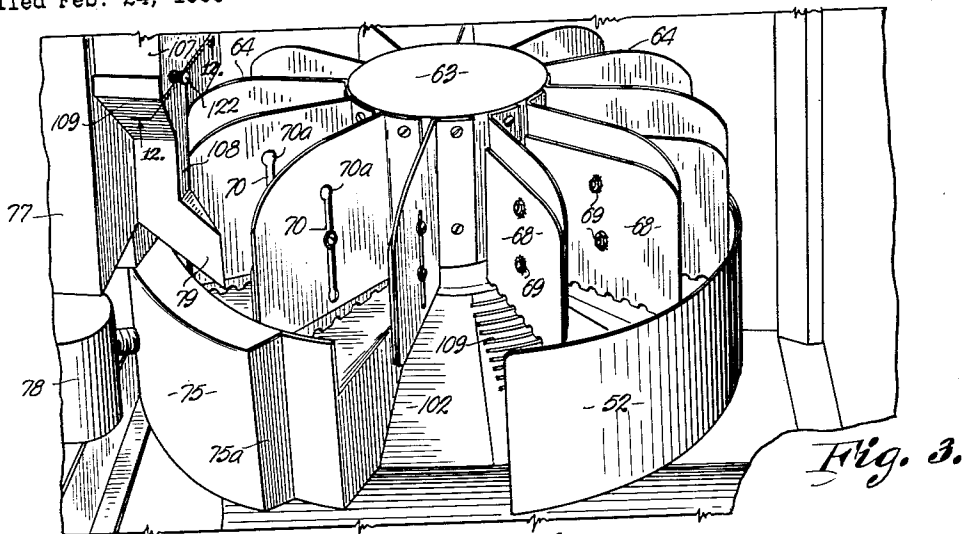


Fig. 3.

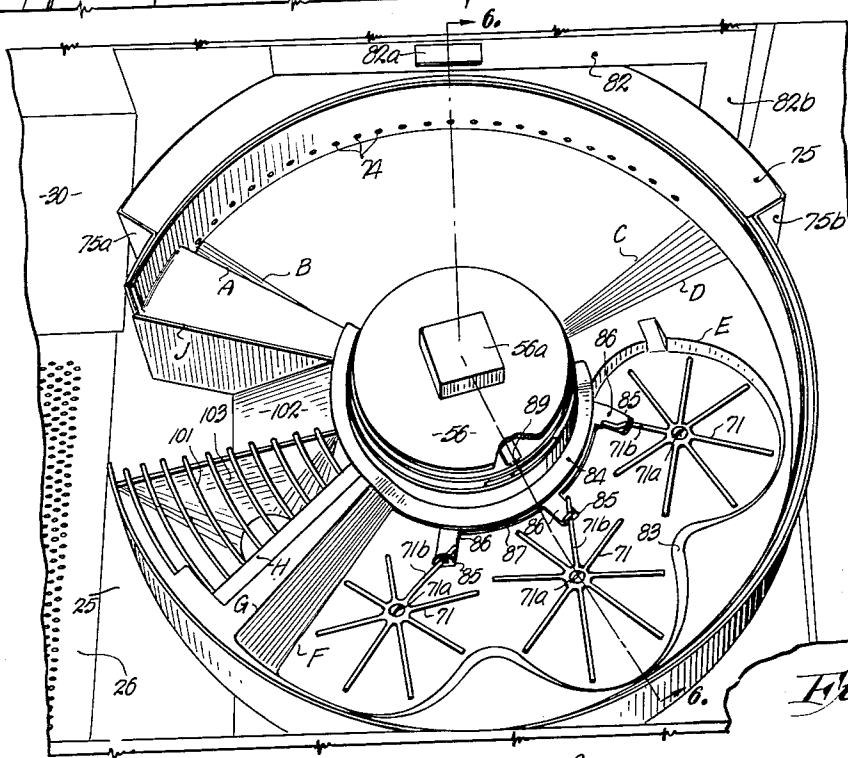


Fig. 4.

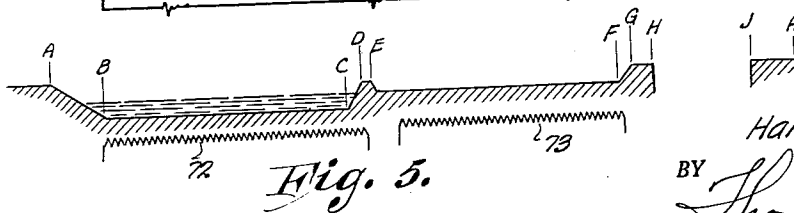


Fig. 5.

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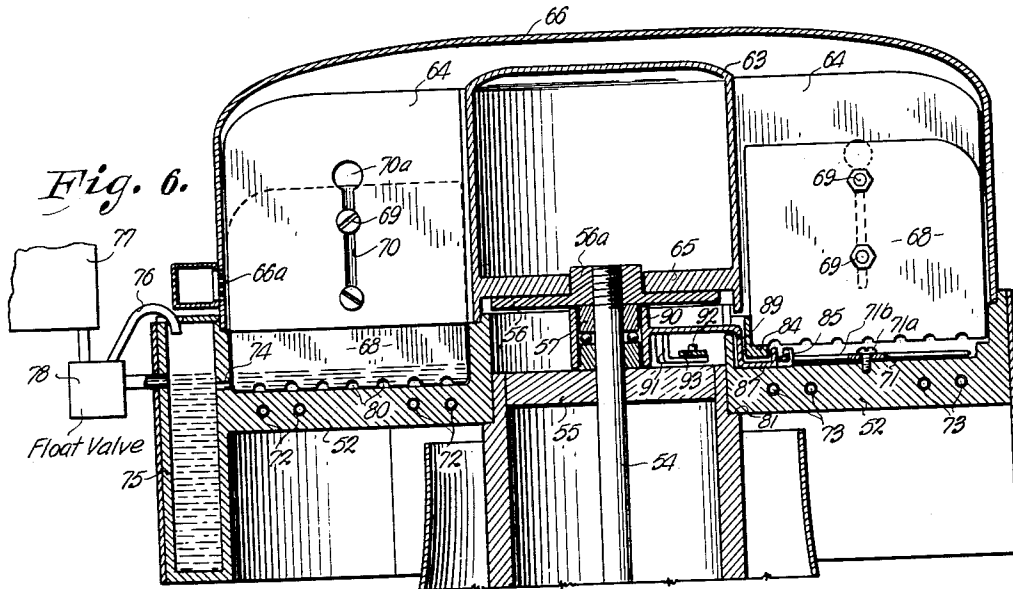
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2,713,302

CORN-POPPING MACHINE

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Application February 24, 1953, Serial No. 338,489

10 Claims. (Cl. 99—238.5)

This invention relates to automatic corn poppers, and more particularly to an improved corn popper of the type disclosed in my Patent No. 2,607,283, issued August 19, 1952.

A primary object of this invention is to provide improved apparatus of the general character disclosed in the above patent, in which means are provided for agitating the corn to aid in popping. In this connection, it is a further object to provide means for removing unpopped kernels or "old maids" prior to the point of discharge.

Another object of this invention is to provide improved mechanism for varying the output of the machine over a wide range without disturbing the uniformity of popping.

Still another object is to provide an adjustable storage space for receiving the popped corn as it is discharged from the popper, and through which heat is circulated to keep the popped corn in a fresh and delectable condition.

Other and further objects together with the feature of novelty appurtenant thereto, will appear in the course of the following description.

In the accompanying drawings, which form a part of the specification and are to be read in conjunction therewith, and in which like reference numerals are used to indicate like parts in the various views:

Fig. 1 is a top plan view of a machine constructed in accordance with my invention, the top of the salt and corn bin being partially broken away for purposes of illustration;

Fig. 2 is a side elevation of the machine, part in section and part broken away for purposes of illustration;

Fig. 3 is a perspective view of the corn-popping mechanism with the cover removed;

Fig. 4 is a perspective view of the corn-popping trough with the rotatable partitions seen in Fig. 3 removed, and at 90° counterclockwise of the view shown in Fig. 3;

Fig. 5 is a developed view schematically illustrating the profile of the bottom of the corn-popping trough;

Fig. 6 is a cross-sectional view taken along line 6—6 of Fig. 5 in the direction of the arrows;

Fig. 7 is a partial transverse vertical section through the cabinet showing the details of the vertically adjustable bottom in the storage bin for popped corn;

Fig. 8 is a plan view of a modified form of agitator;

Fig. 9 is a plan view of a further modification of the agitator;

Fig. 10 is a schematic diagram illustrating the electrical circuit through which the corn charging mechanism is actuated;

Fig. 11 is an enlarged perspective view of the details of the eccentric actuated agitator mechanism;

Fig. 12 is a sectional view taken along the line 12—12 of Fig. 3 in the direction of the arrows and showing the bottom of the mechanism for charging the popper with raw corn and salt, part being broken away for purposes of illustration, and

Fig. 13 is a sectional view taken along the line 13—13 of Fig. 12 in the direction of the arrows.

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Referring to the drawings, and more particularly to Figs. 1 and 2, the corn-popping mechanism, generally indicated at 20, of the present invention is mounted in a rectangular display cabinet having a front side 21, rear side 22, and ends 23. The bottom 24 of the cabinet is adapted to rest on the floor, and the corn-popping mechanism 20 is carried within and at one end of the upper portion of the cabinet as seen in Fig. 2. While the details of the corn-popping mechanism will be more fully described hereinafter, the discharge of popped corn therefrom is directed over an arcuate plate 25 (see Fig. 2) extending transversely of the cabinet adjacent the popping mechanism 20 into a storage space or well having a bed 26. The side walls of the storage well, indicated respectively at 27 and 28, are spaced inwardly of the side walls 21 and 22 of the cabinet and join at their upper ends horizontal plates 29 and 30 which form platforms or level surfaces on either side of the well. One end wall of the well is formed by the inner plate 31 of the double wall construction at the end 23 of the cabinet opposite the corn-popping mechanism, and the other end wall of the well is formed by a vertically disposed partition plate 32 running transversely through the cabinet below the arcuate discharge plate 25.

That portion of the cabinet located above the storage well described above is preferably provided on the front 21 and ends 23 with glass walls as at 33, the rear side 22 preferably being left open for access to the storage well and the popping mechanism.

As is probably best shown in Figs. 1, 2 and 7, the bed 26 for the storage well comprises a perforated plate which is carried in a rectangular frame 34 which forms the borders of the bed. A vertical flange 35 is secured to the underside of the bed on each side thereof approximately at the mid-point, and each flange is provided with sections 35a extending through similarly located vertical slots 27a and 28a in the side walls 27 and 28 of the well. The outer ends of the flanges 35 are attached to and carried by chains 36 located on opposite sides of the well. Each chain 36 passes around two sprockets 37 and 38 vertically disposed with respect to one another and located respectively near the top and bottom of the well. The lower sprockets 38 on opposite sides of the well are mounted on and keyed to a cross-shaft 39 (see Figs. 1 and 2) extending across the bottom of the well and the upper sprockets 37 are axially aligned and mounted on short shafts 40 secured to and projecting outwardly from the walls 27 and 28 of the well. Attached to the upper sprocket 38 located on the rear side of the well is a pinion gear 41 which can be driven in either direction by a meshing pinion 42 mounted on the end of a crankshaft 43 extending through the rear side 22 of the cabinet. A handle 44 is affixed to the outer end of the crankshaft 43 for turning same to raise and lower the bed 26.

To insure that the popped corn in the storage well will remain in fresh condition, means are also provided for circulating heated air therethrough. Referring particularly to Fig. 2, running horizontally along the bottom of the cabinet and discharging into the storage well through an aperture 45 in partition plate 32 is a conduit 46 in which are positioned electrical heating elements 47. The other end of the conduit connects with a standard blower 48, which forces air through the conduit 46 where it is heated by elements 47, and thence into the well below bed 26. By virtue of the blower pressure and the heat, the air rises upwardly through the perforations of the bed 26 (as shown by the arrows) to circulate through the popped corn.

Turning now to the description of the popping mechanism 20 and its associated parts, the entire unit is carried by and supported on a horizontal base plate or table 49 (see Fig. 2) whose edges are attached to the cabinet

in any suitable fashion. A vertical hollow cylindrical support 50 rests upon and is affixed to base plate 49, and mounted upon the upper end of support 50 by means of a sleeve-and-shoulder connection 51 is a circular member 52 forming with its upper surface an annular trough or pan, the details of which are best seen in Figs. 3, 4, 5 and 6. A vertical shaft 54 extends centrally through the support 50, being journaled therein at opposite ends in bearing plates 55 secured to the inside of the support; as shown in Fig. 6, shaft 54 is suspended from a circular plate 56 threaded to the top thereof, which rests upon a bearing 57 supported at its opposite end on the upper bearing plate 55. The lower end of shaft 54 connects with a suitable electric motor 59, and mounted on the shaft 54 are three disc-like elements 60, 61 and 62, respectively, which, as will be described hereinafter, serve as actuators for the mechanism by which charges of raw corn and salt are selectively introduced into the popper.

Mounted on top of shaft 54 and adapted to rotate therewith is a dome-like cylindrical member 63 having secured thereto a plurality of outwardly extending angularly spaced vanes 64 which serve as partitions dividing the trough into a plurality of separate compartments of substantially uniform size. Member 63 is provided with a closure plug 65 at its lower end which rests upon plate 56. Formed centrally on plate 56 is a rectangular boss 56a which is received in a rectangular aperture in the plug 65 so that member 63 is keyed to shaft 54 to rotate therewith. A cover 66, whose vertical wall is aligned with and seats upon a rabbeted shoulder 67 formed in the rim of the outer wall of the trough forms a closed annular passageway with the trough in which the vanes 64 are free to travel.

While the lower edges of the vanes 64 are spaced above the floor or bottom of the trough, each is provided with an extension member 68 which forms a continuation of the vane. The extension members 68 are connected with the vanes 64 to be freely slidable up and down, the preferred form of connection being shown in Figs. 3 and 6 and consisting of bolts 69 secured to the extension members 68 and slidably received in vertical slots 70 formed in the vanes. The slots 70 are enlarged at their upper ends 70a to provide means whereby the respective members can be assembled and disassembled with ease.

As is true in the apparatus disclosed in my patent (referred to earlier herein), the vanes 64 and their extensions 68 serve to sweep the kernels of popcorn along the bottom of the trough in a clockwise direction. As may be best understood from Figs. 4 and 5, as the vanes travel around the trough they pass successively a series of stations identified respectively at A, B, C etc. It will be noted that the bottom of the trough slopes downwardly from A to B and then is substantially level from B to C; from C to D it slopes upwardly; and following a short flat interval D to E, a somewhat shallower depression E to F is provided. The bottom again slopes upwardly from F to G, and from G remains substantially level back to A, although an aperture is provided from H to J.

From the foregoing it will be evident that the trough bottom is thus divided substantially into two depressed regions A to D and E to G which are separated by a ridge DE. The depression E to G is above the level of that from A to D, and as shown in Fig. 4, mounted therein are a series of spider-like agitators 71 which lie flat against the bottom. The purpose and mode of operation of agitators 71 will be discussed in detail hereinafter.

The depressed region through which the vanes 64 travel in moving from A to D forms a shallow basin or well in which the kernels are seasoned and heated before being passed to the agitator section. This region, and also the agitator section, is heated by electrical resistance elements 72 and 73 cast into the bottom of the trough 52.

Oil or other suitable liquid seasoning is introduced into the well through a series of spaced apertures or ports 74

which communicates with a reservoir 75 provided on the outside of the trough 52. As best seen in Figs. 3, 4 and 6 the reservoir is curved to conform to the curvature of the popper and its ends 75a and 75b are located substantially at stations A and D which define the ends of the seasoning well. Referring particularly to Fig. 6, the seasoning is supplied to the reservoir 75 through a pipe 76 which leads from the bottom of a storage container 77. A float valve 78 controls flow through line 76 from container 77 to reservoir 75 to maintain the liquid at a predetermined level in the reservoir. This keeps the bottom of the seasoning well from B to C covered with liquid to a predetermined depth at all times.

Raw popcorn is introduced into the pan or popping chamber at 79 as will be explained presently, and is swept or pushed slowly ahead by the vanes 64 and their extensions 68. The kernels, by virtue of their contact with the heated bottom of the well and their submersion in the hot seasoning, are rather quickly brought to popping temperature, and by the time they reach station D, some popping has already taken place.

In connection with the travel of the kernels through the seasoning well, it will be noted that the lower edge of each of the extension plates 68 is provided with a plurality of spaced notches 80; these notches are staggered in location on succeeding plates, and serve to prevent piling up of the liquid seasoning as the vanes travel through the well while yet insuring that the kernels will be carried through. Those kernels which pass through the notches 80 in one extension plate, will be picked up by the unperforated portions of the next plate following in the same path.

While as illustrated in Fig. 5, a ridge from D to E separates the seasoning well from the slightly higher agitator section, it will be noted from Fig. 4 that a sloped channel 81 is cut through the ridge to allow any seasoning that may be carried into the agitator section by the vanes 64 and extensions 68 to flow back into the well.

To carry away the smoke and fumes from inside the trough 53, a horizontal conduit 82 having an aperture 82a (see Fig. 4) is provided running tangential to the cover 66. Aperture 81a registers with a perforated area 66a of similar size provided in the cover, and the fumes pass therethrough into conduit 82 and are carried by a vertical continuation 82b downwardly into the lower region of the cabinet where they are exhausted to the atmosphere.

Turning now to a description of the agitators 71 and the means by which they are activated, as is evident from Fig. 4 each agitator preferably takes the form of an element rotatably mounted on the floor of the pan by means of a screw 71a and provided with radially extending spoke-like arms. The agitators 71 are spaced sufficiently far from one another to insure that as they are rotated or oscillated, their arms will be free from interference, and the recess in the pan floor is curved as at 83 to partially surround each one. The reason for curving the wall of the recess is of course to insure that the kernels will be confined to the area of the agitators 71 so that the maximum benefit of their action will be obtained.

As has been previously noted, during the time of travel of each vane 64 through the seasoning well, i. e., from A to D, the extension plates 68 ride on the bottom of the pan. However, once they have ridden up the slope leaving the seasoning well (from C to D), the plates 68 no longer ride of the bottom of the pan but are carried on a narrow track 84 adjacent the inside wall of the trough. The surface of track 84 is slightly above the level of the agitators 71, and continues from D to A, thereby supporting the extensions 68 as the vanes pass over the discharge area H to J.

The means for driving the agitators 71 in an oscillating rotary motion about their centers 71a is best understood from Figs. 2, 4, 6 and 11. Referring first to Fig. 4, it will be noted that one inwardly extending spoke 71b

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of each agitator 71 is slidably received in an aperture provided in an upstanding flange 85 at the outer end of an arm 86. The inner ends of arms 86 merge with a generally C-shaped member 87 (see Fig. 11) which, as is best shown in Fig. 6, lies adjacent the track 84.

To oscillate the C-shaped member 87, and thereby the agitators 71, I have developed the following arrangement. Referring particularly to Figs. 6 and 11, it will be noted that the inside wall of the trough is provided with an L-shaped passageway through which extends a generally L-shaped arm member 89. The vertical leg of arm 89 is connected with the C-shaped member 87 and the horizontal leg is carried by a sleeve 90 which rotatably encircles the bearing 57 and fits loosely between the upper bearing plate 55 and the circular plate 56 at the top of shaft 54. A second arm 91 is angularly spaced from arm 89 and extends outwardly from the sleeve 90 to pivotally connect by means of a pin 92 with a link-like member 93. The other end of link 93 is pinned as at 94 at an eccentric location on a disk 95 carried at the upper end of a vertical shaft 96. Shaft 96 extends downwardly parallel and spaced laterally from shaft 54 to connect at its lower end with a small electric motor 97 near the bottom of the housing (see Fig. 2). From the foregoing, it will be obvious that through the rotation of the small motor-driven shaft 96, the C-shaped member 87 and the agitators 71 are given a continuous oscillatory movement.

Instead of the spoked agitators illustrated in Fig. 4, it is contemplated that arrangements such as those shown respectively in Figs. 8 and 9 may be used. The unit shown in Fig. 8 comprises a plate-like member 98 which is curved to conform with the curvature of the trough and is provided with a plurality of non-radial slots 98a arranged in a herringbone pattern over its entire surface. Unlike the agitators 71, however, plate 98 is stationary in the bottom of the trough, and the agitating mechanism previously described may be dispensed with. In this connection, it will be understood that the curved portion 83 of the recess in the pan floor is eliminated, the inner and outer edges of member 98 being disposed closely adjacent the inner and outer side walls of the trough. The diagonal slots 98a, coupled with the advancing vanes 104, cause the kernels of corn to be impelled transversely of the trough and effectively agitate same.

The unit shown in Fig. 9 is intended for direct connection with arm 89, and as is shown, comprises an arcuate hub 99 from which projects a plurality of angularly spaced legs or spokes 100 bent intermediate their ends to provide a non-radial portion which serves to draw the kernels inwardly during the clockwise phase of the oscillation, and thus insure of fairly even distribution of the kernels over the width of the pan bottom. As is true in the case of the modification shown in Fig. 8, the curved portions 83 of the pan recess are omitted, the spokes 100 extending substantially from the inner wall of the trough to the outer and being of equal length.

To catch any imperfectly popped kernels or, as they are frequently denoted, "old maids," a sector of the pan bottom is provided clockwise of the agitator section with an aperture covered with a grill-like top 101. The individual rods making up the grill 101 are spaced from one another a distance sufficient to let the "old maids" drop through while still supporting the popped corn which is pushed by the vanes 64 into the discharge chute 102 from whence it flows into the storage well previously described. A funnel 103 is provided under the grill 101 to direct the "old maids" into any suitable receptacle for collection and disposal.

The apparatus by which raw corn and salt are charged into the popping mechanism may be best understood by referring initially to Figs. 1 and 2. Mounted on the cabinet of the machine above the popping mechanism is a generally rectangular box-like structure 104 which is divided into three compartments; a storage hopper 105 for the raw corn; a smaller hopper 106 within and at

one end of hopper 105, which is for the salt; and the relatively narrow container 77 providing a reservoir for the liquid seasoning, as has already been described. Both hoppers 105 and 106 are provided with downwardly converging side walls on three sides and terminate at an equal level below which is mounted a shuttle-valve assembly which is detailed in Figs. 12 and 13. The shuttle-valve assembly is housed in a rectangular box-like structure 107 secured to the bottom of the hopper assembly (see left side of Fig. 3) and leading therefrom downwardly to the popping mechanism is a chute 108 having a flared upper end 109, through which the increments of raw corn and salt are delivered to the inside of the trough at 79.

The slide of the shuttle valve is shown at 110, and comprises a block-like unit having extending from one end a stem 111 which connects with the moving portion of a solenoid 112. A coiled spring 113 encircles stem 111 to urge the slide 110 toward its outermost position. As is particularly shown in Fig. 13, cut through slide 110 is an inclined vertical slot 114 which, as will be described presently, serves as a pocket to receive the raw corn from the hopper when the solenoid is actuated and delivers same to the discharge chute 108 upon return of the slide to its normal position. The bottom plate 115 of the corn hopper is provided with an aperture 116 normally closed by the slide, and below the slide is a second plate 117 also having an aperture 118 with which the lower end of slot 114 registers as shown. It will be evident that upon shifting of the slide 110 to the right, the upper end of slot 114 is brought into position under aperture 116, and corn flows by gravity from the corn hopper 105 into the pocket formed thereby. Then, upon the return of the slide to its normal position the corn in the pocket is released through the aperture 118 into the discharge chute 108 and to the popper.

Operating simultaneously with the delivery of raw corn to the popper is the salt dispenser which is integral with the slide 110. As is seen in Fig. 13, extending from the lower left-hand corner of the slide 110 is a horizontal plate 119 which rides upon bottom plate 117 and projects through a suitable slot beyond a chute 120 extending vertically below the salt hopper 106. An aperture 121 is provided in extension plate 119 adjacent the slide 110. It will be evident that the aperture 121 is filled with salt, and as the slide 110 is shifted to the right, the salt contained therein will be pushed into the discharge aperture 118 and fall through chute 120 into the hopper. Upon return of the slide 110, the aperture 121 will again be filled for the next sequence of operation.

The amount of salt which is pushed out can be regulated by adjusting screw 122 which shifts a cover plate 123 laterally within the salt chute. Cover plate 123 extends through a suitable slot in the side of the salt chute 120.

The electrical circuit through which operation of the solenoid 112 is controlled is shown diagrammatically in Fig. 10. At the left of the figure are shown the three disc-like elements or cams 60, 61 and 62, which, as pointed out earlier herein, are mounted in coaxial arrangement at the lower end of shaft 54 (see Fig. 2) and adapted to turn therewith. Each disc is provided in its rim with a series of depressions 124 in which are adapted to be received detents mounted on the ends of tension micro-switches 125, one switch being provided for each disc. Manual switches 60a, 61a and 62a are also provided for closing the circuits to each micro switch selectively, and energizing the circuit from electrical lines 126. It will be obvious to those skilled in the art that with the manual switches closed, the solenoid 112 will be actuated at intervals commensurate with the angular spacing of the depressions 124, since each time a detent on a micro switch falls into a depression, the circuit is closed.

Preferably there are as many total depressions 124 on the discs as there are vanes or partitions 64 inside the

trough, the depressions being so disposed in relation to one another and to the partitions as to cause a charge of raw corn and salt to be delivered between each pair of partitions passing the charging point 79. Thus, with all manual switches 60a, 61a and 62a closed, the full capacity of the machine will be obtained. However, with any one of the manual switches open, the solenoid 112 will be under the control only of the remaining discs, and thus the rate of charging may be varied according to the amount of popped corn desired while still maintaining the rate of rotation of the vanes 64 at a fixed value.

As shown in the drawing, disc 60 is provided with two depressions 124, which for convenience can be described as being located at 0° and 180°. With manual switch 60a closed, and switches 61a and 62a open, it will be obvious that for every revolution of the shaft 54 (and thus the disc) there will be two charges of corn delivered into the popping trough, i. e., the slide 110 will be actuated twice. By closing manual switch 61a, the effect of disc 61 and its associated micro switch 125 is added to that of disc 60, and a total of six charges is obtained at 60° intervals since the depressions on disc 61 are located at 60°, 120°, 240° and 300°. The last disc, 62, is provided with six more depressions located respectively at 30°, 90°, 150°, 210°, 270°, and 330°. By closing manual switch 62a, the effect of these depressions is added to that of the preceding discs to provide a total of twelve equally spaced charges for every complete revolution of the shaft 54 and vanes 64. Inasmuch as I have illustrated a machine having twelve vanes (and thus twelve compartments), this represents the full capacity of the machine.

By selective closing of the manual switches, the solenoid actuated valve assembly can be caused to deliver anywhere from two to twelve charges of raw corn to the machine per revolution; and whether the machine is used at full capacity or at only part capacity, the corn delivered will be popped in a predetermined uniform manner since the rate of travel of the corn through the popping trough never varies. The proper amount of salt is always added with the corn, and the proper amount of oil or liquid seasoning always is maintained in the seasoning well by means of supply line 76 and float valve 78.

From the foregoing it will be seen that this invention is one well adapted to attain all of the ends and objects hereinabove set forth together with other advantages which are obvious and which are inherent to the structure.

It will be understood that certain features and sub-combinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

As many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. In a continuous corn-popping mechanism, a trough, agitator means located on the bottom of the trough through a portion of its length, means for introducing raw corn into said trough at a point remote from said agitator means, a vertical partition transversely disposed in said trough with its lower edge spaced above the bottom of the trough, carriage means for supporting said partition and advancing same in a fixed horizontal path along the trough, an extension partition mounted on said first partition and having its lower edge so disposed as to ride on the bottom of the trough as said first partition advances, said extension partition being so mounted as to permit the lower edge thereof to move up and down freely, track means elevated above the level of the bottom of the trough throughout said agitator portion in the path of said extension partition to lift same above said agitator means during the travel of said partition there-

through, and a discharge aperture in said trough succeeding said agitator portion through which popped corn is delivered.

2. In a continuous corn-popping mechanism, a trough, a series of vertical partitions subdividing the trough along its length, the lower edge of each partition being spaced above the bottom of the trough, carriage means for supporting the partitions and advancing them in a fixed horizontal path along the trough, each said partition having slidably mounted thereon for vertical movement an extension partition whose lower edge travels along the bottom of the trough as said carriage means advances the partitions, dispensing means actuated responsive to the movement of said carriage means to selectively introduce a charge of raw corn between certain pairs of said partitions, agitator means located on the bottom of the trough through a portion of its length, and means lifting said extension partitions above said agitator means during the travel of the partitions past said portion.

3. In a continuous corn-popping machine, a housing forming an elongated passageway enclosed on all sides, said passageway having an inlet for raw corn, conveyor means in said passageway including a plurality of transverse partitions positioned at longitudinally spaced intervals along the passageway and dividing same along its length into a series of compartments, mechanism driving said conveyor means to advance said compartments past said inlet and along said passageway in continuous succession, a plurality of cam elements connected with said driving mechanism and driven thereby, electrical switches disposed adjacent each cam and adapted to open and close at predetermined intervals responsive to movement of its respective cam element, and means actuated responsive to said switches to introduce a charge of corn into said passageway through said inlet.

4. A machine as in claim 3 including means for selectively controlling the number of switches in operative relationship with said last named means.

5. In a continuous corn-popping machine, a housing forming an elongated passageway enclosed on all sides, said passageway having an inlet for raw corn, conveyor means in said passageway including a plurality of transverse partitions positioned at longitudinally spaced intervals along the passageway and dividing same along its length into a series of compartments, mechanism driving said conveyor means to advance said compartments past said inlet and along said passageway in continuous succession, a plurality of cam elements connected with said driving mechanism and driven thereby, an energized electrical circuit associated with each cam element, a switch in each said circuit arranged to open and close at selected intervals responsive to movement of the respective cam element, means actuated by said circuits to introduce a charge of raw corn into said passageway through said inlet at predetermined intervals, and means for selectively controlling the number of circuits in operative relationship with said last named means.

6. A machine as in claim 5 including means actuated by said circuits to synchronously introduce a measured charge of salt into said passageway with each charge of raw corn.

7. In a continuous corn-popping machine, a generally horizontal annular trough having a bottom and concentric inner and outer side walls, a rotor concentric with said side walls, a power driven shaft connected with said rotor for turning same, a plurality of circumferentially spaced upright partitions in said trough subdividing same into a series of compartments of substantially uniform size, said partitions being carried by said rotor whereby they advance in a circular path along said trough, a sleeve rotatably mounted on said shaft, an arm extending from said sleeve through an elongated slot in the inner wall of said trough, agitator members disposed on the bottom of said trough through a portion of its length, said members being connected with said arm, and means

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for oscillating said arm through a limited radial displacement to cause movement of said agitator members.

8. A machine as in claim 7 wherein said last named means includes a second power driven shaft disposed parallel to and spaced laterally from said first shaft, and means connecting said second shaft with said sleeve to cause one complete oscillation of said sleeve for each full turn of said second shaft.

9. In a continuous corn-popping mechanism, a trough, the bottom of the trough having one portion thereof formed as a well for liquid seasoning and a succeeding portion disposed above the level of the well, agitator means located on the succeeding portion of said trough bottom, means for introducing raw corn into said well, sweep means for advancing said corn through said well and over said agitator means, said sweep means including a partition member disposed transversely in said trough with its lower edge so disposed as to ride on the bottom of the trough, said partition member being so connected with said sweep means as to permit the lower edge thereof to move up and down freely, thereby to follow the contour of said trough as said sweep means advances, and means cooperating with said sweep means for maintaining the lower edge of said partition member above said agitator means during the advance of said partition member through said agitator portion of the trough.

10. In a corn-popping machine, a circular pan having

a bottom and upright marginal sidewalls, a central rotor in the pan having an upright sweep vane extending outwardly therefrom, said vane being disposed with its lower edge closely adjacent the bottom of the pan, means for rotating said rotor to sweep corn along the bottom of said pan around said rotor, a depressed area in the bottom of the pan located in the path of said vane, the bottom of said depressed area being spaced below the lower edge of said vane as the latter passes thereover, means in said depressed area between the bottom thereof and the lower edge of said vane for engaging said corn as it is advanced into said area and impelling the corn in direction transverse to the normal path of advance caused by said vane, and means for applying heat to said corn in said depressed area.

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2,607,283	Crank -----	Aug. 19, 1952
2,649,992	Bockins -----	Aug. 25, 1953