

June 2, 1931.

F. D. CHAPMAN

1,808,017

VALVE FOR COOKERS

Filed March 1, 1930

2 Sheets-Sheet 1

Fig. 1.

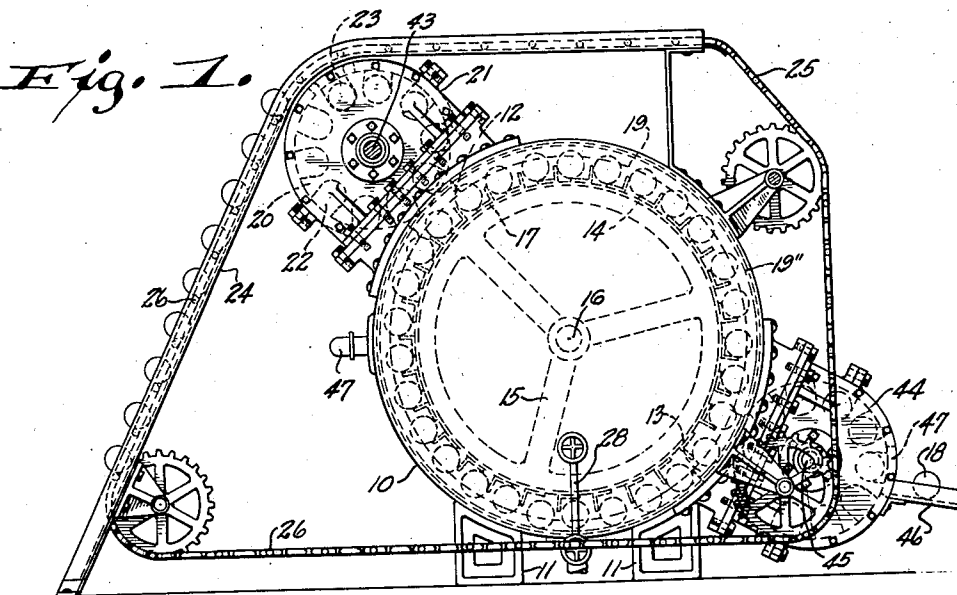
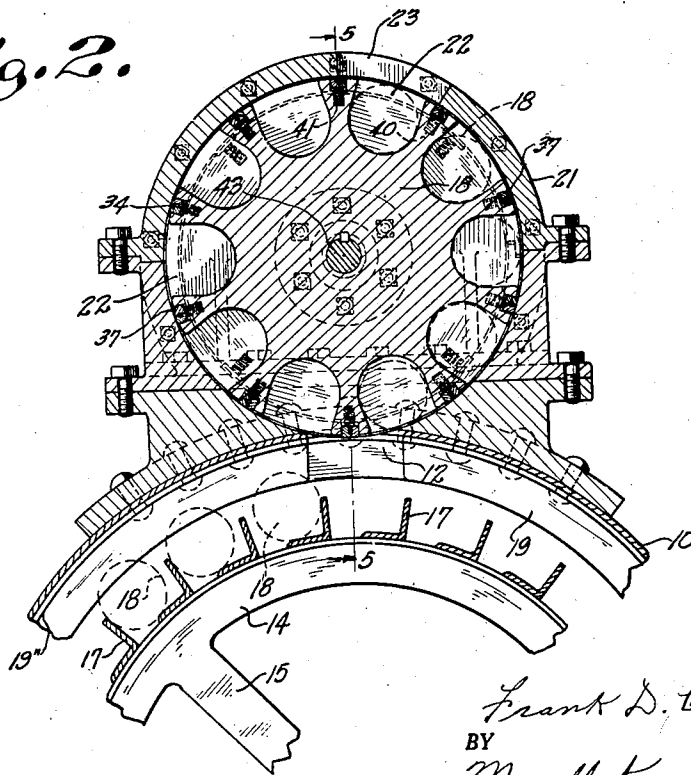


Fig. 2.



INVENTOR.

Frank D. Chapman

BY

Morsell, Kelsey & Morsell
ATTORNEYS.

June 2, 1931.

F. D. CHAPMAN

1,808,017

VALVE FOR COOKERS

Filed March 1, 1930

2 Sheets-Sheet 2

Fig. 3.

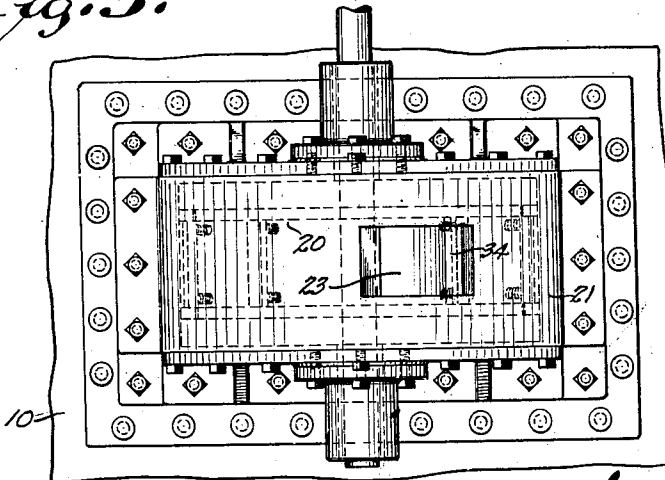


Fig. 4.

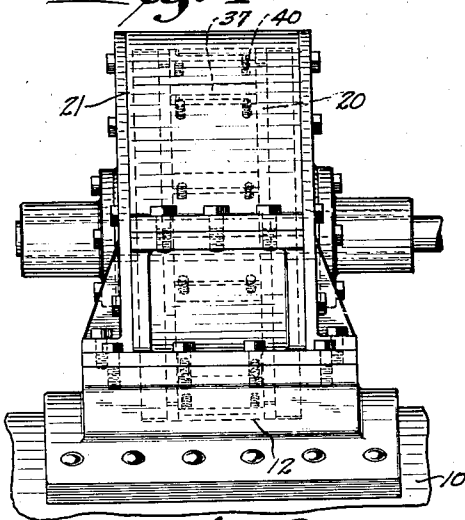


Fig. 5.

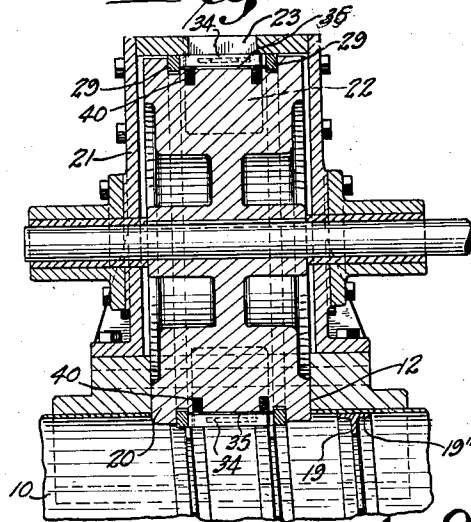


Fig. 6.

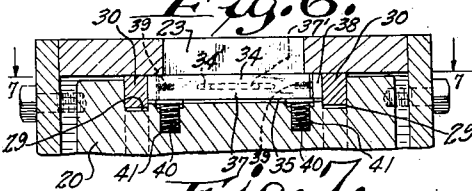


Fig. 8.

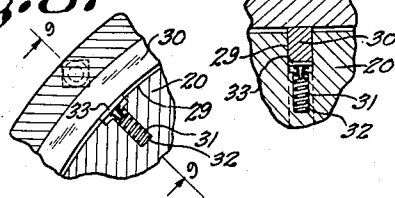
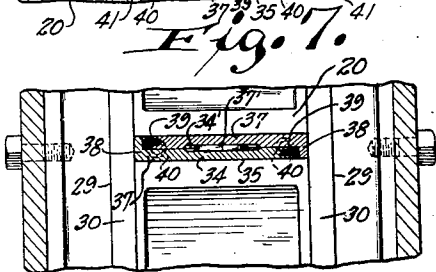


Fig. 9.



INVENTOR.

Frank D. Chapman.
BY
Morsell, Kemy & Morsell
ATTORNEYS.

UNITED STATES PATENT OFFICE

FRANK D. CHAPMAN, OF BERLIN, WISCONSIN

VALVE FOR COOKERS

Application filed March 1, 1930. Serial No. 432,403.

This invention relates to improvements in valve for cookers.

It is one of the objects of the present invention to provide a continuous cooker 5 having inlet and discharge valves for charging cans into the cooker and discharging the cans therefrom after the cooking operation.

A further object of the invention is to provide a valve for cookers in which means 10 are provided for sealing the valve between the can pockets to prevent the loss of heat during the charging or discharging operation.

A further object of the invention is to provide a valve for cookers in which the sealing means is maintained in position while passing the inlet and outlet openings in a very simple manner.

A further object of the invention is to provide a valve for cookers which is of simple construction, is efficient in use and is well adapted for the purposes described.

With the above and other objects in view the invention consists of the improved valve 25 for cookers and its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawings in which the same reference characters indicate the 30 same parts in all of the views:

Fig. 1 is an end view of a continuous cooker provided with the improved valves;

Fig. 2 is a vertical sectional view on a larger scale of the valve and a portion of the 35 cooker upon which the valve is mounted;

Fig. 3 is a top view of the parts shown in Fig. 2;

Fig. 4 is an edge view of the valve;

Fig. 5 is a vertical sectional view taken 40 on line 5—5 of Fig. 2;

Fig. 6 is a sectional detail view on a larger scale of the upper portion of the valve;

Fig. 7 is a sectional detail view taken on line 7—7 of Fig. 6;

Fig. 8 is a sectional detail view of one of the sealing members; and

Fig. 9 is a sectional detail view taken on line 9—9 of Fig. 8.

Referring to the drawings, the numeral 50 10 indicates a horizontally extending cylin-

dricul cooker receptacle or drum 10 which is mounted on supports 11 and has an inlet opening 12 at its upper portion adjacent one end, and an outlet opening 13 at the lower end portion of the drum, adjacent its other end. 55 Said openings are above the water level maintained in said drum. The drum is provided with a rotary carrier 14 formed of spoked spiders 15 mounted on a shaft 16, and longitudinally extending angle bars 17 which are 60 connected to the spaced spiders and each bar has one of its angled portions extending radially and the other circumferentially. Said bars extend in parallel relation to the shaft of the carrier and their circumferential 65 flanges are of less distance apart than the diameter of the cans of food containers 18, so that said cans cannot pass therebetween. The bars co-act with a spirally trending guide track member 19 which is positioned within 70 the drum and surrounds the carrier and is connected to the inner periphery of the drum. The said guiding member is formed of metal of T-shape in cross-section with the stem portion 19' extending radially inwardly to 75 form a continuous end guide for the cans, while the outer cross-section portions 19'' form guides for the side edge portions of the cans. The convolutions of the spiral member are spaced apart a sufficient distance to 80 permit a can to roll on the cross-section portion and between the stems while being moved by the carrier and advanced by the spiral member.

The charging or inlet opening 12 is provided with a rotary valve 20 enclosed in a 85 cylindrical valve casing 21 mounted on the drum. The valve is also of cylindrical form in cross-section and closely fits the casing and is formed with radial opening can pockets 22 90 for receiving cans of material to be processed. The upper portion of the valve casing is formed with an inlet opening 23 for receiving the cans.

An inclined trough 24 extends from a point 95 of supply upwardly to the valve casing and over the drum in a horizontal plane to form a support for the cans 18 which are fed to the valve by an endless chain 25. Said chain extends in a vertical plane around the drum and 100

is formed with transverse bars 26 which directly engage the cans to move them upwardly and drop them into the valve pockets. Steam is supplied to the drum through a pipe 27 and water by a pipe 28.

To prevent the escape of steam or heat through the inlet opening and between the valve and the valve casing, the valve is of greater length axially than the width of the inlet opening 23 and is formed with circumferential grooves 29 to receive split sealing rings 30 which are held yieldingly against the inner periphery of the valve casing on opposite sides of the opening 23 by coiled springs 31 positioned in pockets 32. Said pockets are circumferentially spaced around the peripheral portion of the valve. Spring guides 33 are interposed between the ends of the springs and the rings to hold the springs in position and to present a comparatively wide bearing surface to the sealing or packing rings. The valve is also provided with elongated sealing strips 34 which are located in grooves 35 formed between the can pockets 22. Said grooves 35 extend from one circumferential groove 29 to the other and each sealing strip 34 positioned therein is formed of two like L-shaped parts 37 which overlap each other sidewise and endwise to permit relative longitudinal movement of the two parts without permitting the escape of the heating fluid therebetween. The overlapped end portions 38 of the strips 34 engage the inner peripheral portion of the valve casing and the sealing rings 30 so that in all positions a fluid tight joint is formed. Coiled springs 39 interposed in pockets between the overlapped end portions 38 of the strips hold the said portions yieldingly against the split rings 30, while coiled springs 40 positioned in radial pockets 41 between the sealing strips and the valve adjacent the overlapped end portions of the strips 34 hold the strips yieldingly against the inner periphery of the casing. Bearing plates 42 interposed between the strips 34 and the coiled springs 40 yieldingly hold both members of each pair of strips against the inner periphery of the casing and seal the joint therebetween. The valve is rotated by a shaft 43. The adjacent faces of the two portions of each strip 34 are grooved as indicated by the numeral 34' to receive a key pin 37' for holding the parts in alinement while permitting their free endwise movement.

As the discharge opening 13 is provided with a similar valve 44 rotated by a shaft 45, it is unnecessary to repeat the explanation further than to state that the parts are exactly the same and operate in the same manner. A discharge chute 46 connected to the casing of the discharge valve 44 adjacent the discharge opening 47 thereof permits the cans to roll away as they are discharged from said valve.

In use the cans of food are carried upwardly by the endless chain conveyor and in passing over the valve inlet opening each can will in turn drop into the registering valve pocket which will carry it around to the drum opening 12 through which it will pass and enter the registering pocket formed by the spirally trending member of the drum and the longitudinally extending angle bars of the rotary carrier. The said carrier will move the cans through the drum in a spiral path while being processed and when they reach the drum discharge opening they will drop through said opening into the discharge valve pockets and said valve will deliver them to the chute for further disposition.

From the foregoing description it will be seen that the valve for cookers is very efficient in operation and is well adapted for the purpose described.

What I claim as my invention is:

1. A valve for a cooker, comprising a casing for attachment to a cooker drum and having an inlet opening and an outlet opening, a rotary valve member within the casing and having can receiving pockets which register with the openings when the valve member is rotated, yielding packing rings extending around the valve member between the pockets and the ends of the valve, and yieldingly elongatable packing strips positioned between the pockets and extending to the rings, said rings and strips preventing the passage of heat fluid through the valve casing.
2. A valve for a cooker, comprising a circular casing having an inlet and an outlet opening, a rotary valve member within the casing and having can receiving pockets which register with the openings when the valve member is rotated, yielding packing rings extending around the valve member between the pockets and the ends of the valve, and two part yieldingly elongatable packing strips positioned between the pockets and extending to the rings, said rings and strips yieldingly engaging the inner surface of the casing to prevent the passage of heat fluid through the valve casing.
3. A valve for a cooker, comprising a circular casing having an upper inlet opening and a lower outlet opening in its peripheral portion, a rotary valve member within the casing and having peripheral longitudinally extending can receiving pockets, the rotary valve member also having circumferential grooves between the ends of the pockets and the ends of the valve and longitudinal grooves between the pockets and the circumferential grooves, split packing rings positioned in the circumferential grooves and yieldingly bearing against the inner periphery of the casing, and two-part yieldingly elongatable bearing strips positioned in the longitudinal grooves and yieldingly bearing against the inner periphery of the casing.

4. A valve for a cooker, comprising a circular casing having an upper inlet opening and a lower outlet opening in its peripheral portion, a rotary valve member within the casing and having peripheral longitudinally extending can receiving pockets, the rotary valve member also having circumferential grooves between the ends of the pockets and the ends of the valve and longitudinal grooves between the pockets and the circumferential grooves, split packing rings positioned in the circumferential grooves and yieldingly bearing against the inner periphery of the casing, and two-part yieldingly elongatable bearing strips positioned in the longitudinal grooves and yieldingly bearing against the inner periphery of the casing and against the split bearing springs.

5. A valve for a cooker, comprising a drum having an inlet opening, a valve casing covering said opening and having an inlet opening and a discharge opening in register with the drum inlet opening, a rotary valve member within the casing and having can receiving pockets which move into register with the casing openings, packing rings extending around the valve member between the pockets and the ends of the valves, and yieldingly elongatable packing strips positioned between the pockets and extending to the rings, said rings and strips preventing the escape of heat fluid from the drum opening while the valve member is turning.

6. A valve for a cooker, comprising a drum having an upper inlet opening and a lower discharge opening, valve casings having openings and mounted on the drum around the drum openings, rotary valve members within the casing and having longitudinally extending can receiving pockets which move into register with the openings, packing rings extending around the valve members between the pockets and the ends of the valve members, yieldingly elongatable packing strips positioned between the pockets and the ends of the valve members, said rings and strips preventing the escape of heat fluid from the drum openings while the valve members are turning, and means for turning the valves.

7. A valve for a cooker, comprising a circular casing having an inlet and an outlet opening in its peripheral portion, a rotary member within the casing and having peripheral longitudinally extending can receiving pockets, said rotary member also having circumferential grooves between the ends of the pockets and the ends of the valve member and longitudinal grooves between the pockets and the circumferential grooves, split packing rings positioned in the circumferential grooves, springs for yieldingly holding the ring against the inner periphery of the casing, two-part overlapping packing strips positioned in the longitudinal grooves, springs

for yieldingly holding the strips against the inner periphery of the casing, other springs for yieldingly holding the ends of the strips against the inner side portions of the packing rings, and means for rotating the valve member.

8. A valve for a cooker, comprising a circular casing having an inlet and an outlet opening in its peripheral portion, a rotary member within the casing and having peripheral longitudinally extending can receiving pockets, said rotary member also having circumferential grooves between the ends of the pockets and the ends of the valve member and longitudinal grooves between the pockets and the circumferential grooves, split packing rings positioned in the circumferential grooves, springs for yieldingly holding the ring against the inner periphery of the casing, two-part overlapping packing strips positioned in the longitudinal grooves, springs for yieldingly holding the strips against the inner periphery of the casing, other springs for yieldingly holding the ends of the strips against the inner side portions of the packing rings, means for preventing relative lateral movement of the two portions of the bearing strips, and means for rotating the valve member.

9. A valve for a cooker, comprising a circular casing having an inlet and an outlet opening in its peripheral portion, a rotary member within the casing and having peripheral longitudinally extending can receiving pockets, said rotary member also having circumferential grooves between the ends of the pockets and the ends of the valve member and longitudinal grooves between the pockets and the circumferential grooves, split packing rings positioned in the circumferential grooves, springs for yieldingly holding the ring against the inner periphery of the casing, two-part overlapping packing strips positioned in the longitudinal grooves, springs for yieldingly holding the strips against the inner periphery of the casing, other springs for yieldingly holding the ends of the strips against the inner side portions of the packing rings, the adjacent inner side parts of the two-part strips having registering grooves, a key pin within the grooves for holding the parts in alinement while permitting their free endwise movement, and means for rotating the valve member.

10. A valve for a cooker, comprising a circular casing having an inlet and an outlet opening in its peripheral portion, a rotary member within the casing and having peripheral longitudinally extending can receiving pockets, said rotary member also having circumferential grooves between the ends of the pockets and the ends of the valve member and longitudinal grooves between the pockets and the circumferential grooves, split packing rings positioned in the circumferential

- grooves, springs for yieldingly holding the ring against the inner periphery of the casing, two-part packing strips positioned in the longitudinal grooves, said strip parts being of L-shape and overlapping each other side-wise and endwise and each part engaging the inner periphery of the casing on opposite sides of the can opening, springs for yieldingly holding the strips against the inner periphery of the casing, other springs for yieldingly holding the ends of the strips against the inner side portions of the packing rings, means for preventing relative lateral movement of the parts of the two-part strips, and means for rotating the valve member.
11. A valve for a continuous cooker comprising a casing for attachment to a cooker drum and having an inlet opening and an outlet opening, a rotary valve member within the casing and having can receiving pockets which register with the openings when the valve is rotated, packing extending around the valve members between the pockets and the end of the valve, and yieldingly elongatable packing strips positioned between the pockets and coacting with a side of the other packing.
12. A valve for a cooker, comprising a casing having inlet and outlet openings, a valve rotatable within said casing and having conveying pockets registerable with said openings during rotation of said valve, said valve also having a peripheral groove intermediate its end and said pockets, a packing within said groove and cooperating with said casing, and yieldingly elongatable packing strips disposed between the successive pockets and yieldingly engaging both said casing and said packing.
13. A valve for a cooker, comprising a bored casing having inlet and outlet openings communicating with the bore thereof, an annular valve rotatable within said casing and having conveying pockets registerable with said openings during rotation of said valve, said valve also having a peripheral groove intermediate its end and said pockets, a ring packing within said groove and yieldingly engaging said casing bore, and yieldingly elongatable packing strips disposed between the successive pockets and yieldingly engaging both said casing and a side of said packing.
14. A valve for a cooker, comprising a bored casing having inlet and outlet openings communicating with the bore thereof, an annular valve rotatable within said casing and having conveying pockets registerable with said openings during rotation of said valve, said valve also having a peripheral groove intermediate each of its ends and said pockets, a resilient ring packing within each of said grooves yieldingly engaging the bore of said casing, and yieldingly elongatable packing strips disposed between the successive pockets and yieldingly engaging both said casing and the adjacent sides of said packings.
- In testimony whereof I affix my signature.
- FRANK D. CHAPMAN.

70

75

80

85

90

95

100

105

110

115

120

125

130