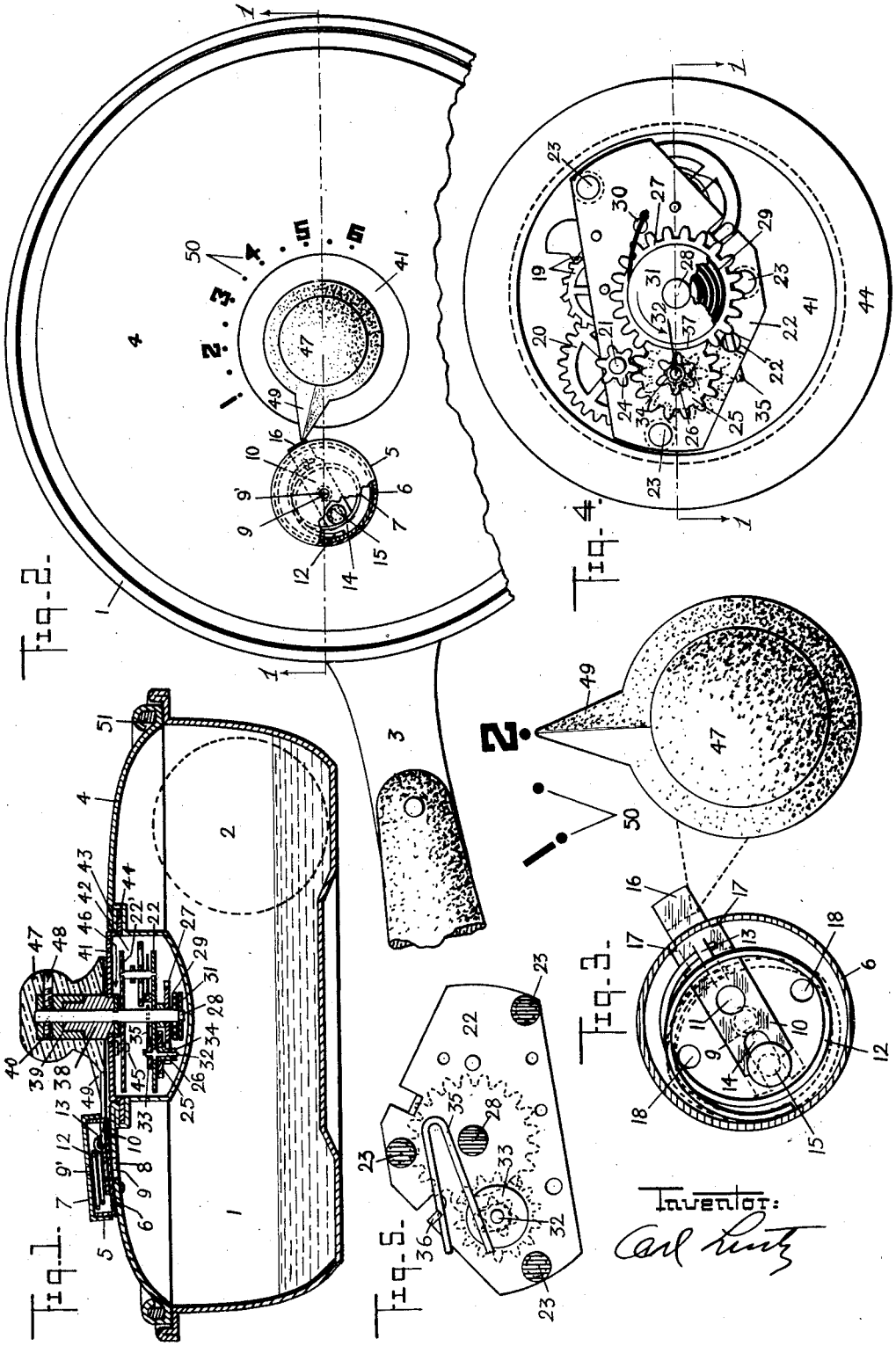
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TIME CONTROLLED COOKING DEVICE

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TIME CONTROLLED COOKING DEVICE

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This invention relates to improvements in automatic cooking devices and has as its primary object the combining of novel instrumentalities of a musical blow instrument and a timing mechanism to effect the signaling of the latter after a predetermined time in order to notify the operator of the lapse of the cooking period for which the device was set. Other objects reside in the novel construction of certain parts, in the juxtaposition of the separate mechanisms for signaling the expiration of the cooking period and in the simple and inexpensive construction of the apparatus in general.

Further objects and advantages will be found in the following description and the accompanying drawing illustrating one form of my invention and in which:

Fig. 1 is a vertical sectional view of the entire device, taken on line 1—1 of Figs. 2 and 4, showing it in a state as exists before or after expiration of the cooking time limit set. Fig. 2 is a top plan view of the apparatus indicating the mechanism in its normal position before setting the timer. Fig. 3 is an enlarged and combined diagrammatical and cross sectional view showing the interaction of the timing mechanism and the whistle. Fig. 4 is an enlarged horizontal view of the clock mechanism as seen from the bottom before assembly with the lid. Fig. 5 is a detail plan view of the timing mechanism exposing to view part of the mechanism for winding the spring.

Referring to the drawing, 1 represents a cooking vessel which may be of any convenient shape or size to hold one or more eggs 2 shown in dotted lines. This vessel is provided with a handle 3 and a removable lid 4.

To said lid is secured, by rivets or otherwise, a whistle 5, comprising in its essential parts a shell 6 with a cover 7. The whistling sound is effected by permitting the steam pressure from the vessel 1 to pass through the hole 8 in the wall of the lid 4 and through the alined holes 9, 9' made into the top and bottom walls of the whistle, respectively.

To render the signaling of the whistle time controllable a shiftable metal strip 10 is arranged on the inside and bottom of the shell 6. Audible signaling is produced when the hole 11 in the member 10 is brought in alinement with the hole 9 permitting passage of steam through the whistle; this is automatically accomplished by a timing mechanism which will be hereinafter described. During the cooking period the hole 9 is closed, to obstruct passage of steam, by the solid portion of said closure member 10 (see Fig. 3), the latter being forced into this position by the coil spring 12 fastened at point 13. This hole closing member 10 is limited and guided in a rectilinear movement by the outcut 14 made to one of its extremities, which engages the flat-headed pin 15 rigidly secured to the bottom of the shell 6, and the narrowed end portion 16, providing shoulders 17, and extending to the outside of the whistle through an aperture made into the wall thereof. 18 represents holes for rivets.

The timing mechanism (see Fig. 4) adapted to operate the whistle may be of a conventional type. One form of a simplified construction is here shown comprising in part an escapement mechanism 19 including a balance wheel and a gear 20 fast on its shaft 21; these parts are arranged between two parallel plates 22, 22' which are held together by the posts designated by the reference numerals 23. To the shaft 21 extending with one end through and above the plate 22 is rigidly mounted a pinion 24 meshing with a gear 25 which is provided with a pinion 26 the latter being engageable with the center gear 27 secured to its shaft 28 to which is fastened one end of the spring 29 having its other end held by the pin 30; a disc 31 is made fast to the extremity of shaft 28 to prevent the spring from buckling when wound. In order to permit independent turning of the center gear 27 in its spring energizing stroke a somewhat simpler mechanism has here been supplied instead of the usual ratchet mechanism ordinarily employed for such purpose. This end is here accomplished by the gear 25, which is contiguous with the plate 22 and forms a continuous link in the train of gears. The said gear 25 is rotatably mounted on a short shaft 32, the latter extending through the plate 22 and having at this end a washer 33 fastened thereto, a sleeve 34 being secured to the other end of the shaft 32, projecting above the pinion, thereby keeping the said gear 25 in its assembled place. An outcut or slot in the plate 22, shown in dotted lines in Fig. 5, accommodating the shaft 32 permits the gear 25 to be moved in a direction away from the pinion 24 (see Fig. 4) so as to disengage therewith when the gear 27 is turned in the direction of the arrow. Normally the gear 25 is prevented from disengaging with the pinion 24 by the bent wire spring 35 fastened with one end to the washer 33 and bearing with its other end against the projection 36 exerting in this way a pressure on the gear 25 in the direction toward the pinion 24. Winding of the spring 29 causes the gear 27 to engage with the pinion 26 of gear 25 which in turn is forced to disengage with the pinion 24 permitting the

former to revolve freely; reverse movement of the gear 27 actuated by the main spring 29 causes reengagement of the gear 25 with the pinion 24 and the rate of movement of the gear train is subsequently controlled by the escapement mechanism, and the time duration for the disengagement of the gear 27 with the pinion 26, when the former reaches its toothless section 37, is dependent upon the number of teeth of the said gear 27 having thus been engaged with the pinion 26.

As will be evident from the drawing, Fig. 1, the shaft 28 extends through the plates 22, 22' passing axially through the stem member 38 in which it is revoluble and is then fastened with its upper end to a second stem member 39 by the set screw 40. The last named stem member is freely turnable on the former and they engage one another by the reduced end portion of the one fitted into a large hole of the other (see Fig. 1) thereby relieving bending strain of the shaft 28 when handling the lid and also providing additional safeguard for moisture or dust to enter into the housing of the clock mechanism through the axial hole.

A disc 41 is riveted to the stem member 38 and the timing unit thus assembled therewith is accommodated in a casing 42 formed from the lid 4 and is then enclosed by bending the peripheral portion 43 of the casing over the peripheral and knee bent portion 44 of the disc, the latter resting on a flange of the said casing and is so held clampwise and firmly in place providing a dust and steamproof housing and protecting the clock mechanism from damage.

A pin 45 fastened to the disc 41 and engaging in a hole in the plate 22' prevents the timing unit from turning with the shaft 28 when the mechanism is operated. In a transverse groove of the shaft 28 adjoining the inside of the disc 41 is fixed a washer 46 which bears the strain when lifting the lid which otherwise would have to be borne by the gear 27 and the plate 22.

For setting the timing mechanism and for handling the lid 4 a knob 47, having a large axial hole to fit over the said stem members 38 and 39, is secured to the said top stem member by a screw 48 so that when turning the said knob all the other parts directly or indirectly secured thereto turn with it. Radially from the lowermost end of the knob 47 is formed an indicator 49, serving also as a whistle operating member, which may be brought opposite one of the marks or numerals 50, representing minutes and fractions thereof, and which are arranged adjacent the said knob in the path of the indicator. Thus the time may be predetermined and varied when setting the device according to the selection of the numeral to which the indicator is being moved; return movement of the manipulating knob 47, after having set the device to operate for a definite time period, is consequently governed by the clock mechanism until the gear 27 reaches its toothless section 37 at which moment the full power of the main spring is transmitted to the said knob 47 which with its indicator moves the closure member 10 thereby opening the hole of the whistle permitting it now to give an audible signal to indicate the expiration of the predetermined cooking time.

To maintain even pressure in the cooking vessel is of advantage in order to produce an even and nice whistling tone; a good result is effected by making a lid of specific weight which will permit the escape of excessive steam pressure by raising the said lid. Naturally the weight will have to correspond with the size of the cooking vessel and that of the whistle as a little more or less steam pressure will be required if either one of the two last named is varied in size. Should the lid be made of a very light metal such as aluminium it may be necessary to increase its weight; this may be conveniently added by enclosing in the rim a separate piece 51 made of baser metal. Lid-locking devices could also be employed for the purpose above related to but the objection to such an arrangement is that it would produce an inferior result and also would make the device more complicated to manufacture and to operate.

Operation of the device is as follows: The desired number of eggs are placed in the receptacle 2 and a small quantity of water is poured therein as steam will be sufficient to cook the eggs evenly. The lid 4 is then placed on the said vessel and the device may now be set by turning the knob 47 in a clockwise direction bringing the indicator 49 opposite one of the numerals 50 which marks the duration of the time controlled cooking period after lapse of which the whistle is automatically caused to signal. The vessel is now placed on the stove to boil the eggs and no further attention is necessary until the predetermined time has expired. Manual turning of the knob 47, to set the device for operation, effected the automatic closing of the hole 9 of the whistle by the member 10, caused partial winding of the main spring and caused the gear 27 to engage with the pinion 26. Reverse movement, actuated by the recoil of the main spring, is then controlled by the clock mechanism and when the gear 27 disengages with the pinion 26 the indicator 49 has reached the engaging point of member 10, extending to the outside of the whistle, shifting it inwardly, from the solid line to the dotted line position, shown in Fig. 3, so as to cause the member 10, with its hole 11, to open the hole 9 in the whistle which now produces a musical tone by the passage of steam therethrough from the cooking vessel. This is the signal to give warning to the attendant that the eggs are cooked and he may now take the vessel from the stove and remove the eggs therefrom.

It deserves consideration that a whistle is capable of emitting a prolonged sound as long as steam pressure is supplied for it and to accomplish such a result would be more difficult and more expensive with a bell or similar musical instruments. And a signal of only short duration has the disadvantage that it may easily be made inaudible by some noise nearby coincident with it.

The foregoing will now suffice to set forth my real invention but it should be understood that I do not wish to limit myself to the specific construction which is here illustrated since various modifications thereof will suggest themselves to those skilled in the art without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

What is claimed as new is:

1. A device of the character described, comprising a fluid receptacle for cooking, a cover therefor, a musical instrument signaling means comprising a valve, a timing mechanism for the operation of the latter and arranged in the center of said cover, indicia on the said cover to indicate the duration of a predetermined cooking time period, a manipulating member operable by said timing mechanism and an indicator provided on said manipulating member for in-

dicating the cooking period when turning the said manipulating member in a time setting direction and to operate the valve in said musical instrument when moving in a reverse direction after lapse of a predetermined time.

2. In combination a cooking apparatus, comprising a fluid receptacle, a cover therefor to permit development of gasiform pressure, a whistle arranged on said cover, a timing mechanism encased in the latter, a valve for opening and closing an aperture in said whistle, indicia adjacent said timing mechanism and a time setting manipulating member extending, above the cover, from said timing mechanism and being provided with a radially extending member for indicating the duration of the cooking time period and for operating the valve in the said whistle effecting its signaling after completion of operation of the timing mechanism.

3. In combination a fluid receptacle adapted for cooking an article, a closure therefor to permit development of gasiform pressure, a musical blow instrument secured to said closure, a timing mechanism, a manipulating indicator for setting the latter to operate after a predetermined time, a spring for actuating said timing mechanism and a valve for said musical blow instrument to prevent signaling during the cooking time period and to permit signaling after having been opened, by the said manipulating indicator indicative of the expiry of the cooking time period.

4. In combination a fluid receptacle for cooking, gasiform pressure means therefor, a musical blow instrument arranged on said fluid receptacle, a valve for opening and closing an aperture in said musical blow instrument to control the passage of pressure gas therethrough and a spring operated timing mechanism, arranged on said receptacle, having a manipulating member, comprising an indicator, for setting the device to operate for a predetermined time period when turning the said manipulating member in a spring energizing direction and for operating said valve when turning in a reverse direction by the recoil of the spring of the said timing mechanism.

5. A device of the character described, comprising a fluid receptacle, a cover for the latter to permit confinement of gasiform pressure in the said receptacle, a musical blow instrument signaling means on said cover, a timing mechanism also on said cover, indicia adjacent said timing mechanism for indicating the predetermined time period after which the device is to operate, a manipulating member for setting the timing mechanism to operate, an aperture closing and opening member provided for said musical blow instrument said manipulating member having an engageable portion for moving said aperture-closing and opening member to cause the signaling of said musical blow instrument after the expiration of a definite cooking time period for which the device was manually set.

6. A device of the class described, comprising a fluid receptacle for cooking, means for permitting the development of gasiform pressure in said receptacle, a musical blow instrument operably connected to the latter, a valve for the former having a member tending to keep the said valve in a closed position, a timing mechanism operatively connected with said fluid receptacle, a housing for the former, a manipulating member controlled by said timing mechanism, provided with a radially extending portion for opening the said valve after expiration of a predetermined time, indicia surrounding said manipulating member, a shaft connected to the latter and extending into the said housing, and a ratchet mechanism included in said timing mechanism adapted to permit the setting of the timing device for various intervals of time, according to the length of time after which it is desired to effect the operation of said musical blow instrument for signaling the expiration of the predetermined cooking period.

7. A device of the character described, comprising a cooking receptacle, a musical instrument signaling means therefor, a steam-proof housing combined with said cooking receptacle, a timing mechanism accommodated in said housing and a rotatable manipulating member interconnected with said timing mechanism, extending above the cover for said housing, and being provided with a radially arranged time indicator for engagement with the said musical signaling means to afford the operation of the latter for indicating the expiration of a predetermined time period.

8. A device of the character described comprising a cooking receptacle, a cover, a timing device on the cover, a steam-proof housing for the timing device, musical blow signal means on the cover, a control device shiftable for determining whether the signal means shall be operable or not, and an operating member forming part of the timing device for shifting the control device.

9. A device of the character described, comprising a fluid receptacle, a cover for the receptacle adapted to confine gas under pressure, a musical blow instrument signalling by such pressure, a variably settable timing device, a housing therefor, a shiftable device forming a valve for the blow instrument, a rotating member forming part of the timing device and adapted to shift the shiftable device at a time determined by the setting of the timing device to open the valve and allow any pressure in the device to blow the blow instrument, and means normally holding the shiftable device so that the valve is closed.

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