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### (54) Disengagement linkage mechanism of extinction device for burner

Mechanismus zum Auslegen einer Brennerlöscheinrichtung

Mécanisme de dégagement d'un dispositif d'extinction de brûleur

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**EP 1 236 955 B1**

## Description

### BACKGROUND OF THE INVENTION

**[0001]** The present invention relates to an extinguishing device for burners like oil burners, and more particularly to a disengagement linkage mechanism for disengaging an engagement state of an engagement structure in an extinction device using a shape memory coiled spring which has a characteristic to expand when the circumference temperature exceeds over a predetermined level or temperature.

**[0002]** In Figs. 2 and 3 of USP 5,413,479 (corresponding to Japanese Laid-Open Patent Application Publication No. 241449/1994) is shown an example of an extinguishing device for an oil burner having an extinguishing device activated by a vibration sensing device. Figs. 1 - 3 of the USP 5,413,479 are used as Figs. 4 - 6 in the present application. This conventional extinguishing device is attached to a frame 45 having a vertical frame portion and a horizontal frame portion. The vibration sensing device 54 is provided with a vibration sensing weight 64 which is supported above the horizontal frame portion in a manner to be tilted when vibration is sensed. Furthermore this extinguishing device is provided with an extinction activating arm 30, 38 an energizing spring 62 for energizing the extinction activating arm 30, 38 and a mechanical combustion control mechanism 56, 69 attached to the frame. The extinction activating arm has two ends, one and the other end. The one end of the extinction activating arm is rotatably mounted on the vertical frame portion and the extinction activating arm moves or swings along the vertical frame portion. The extinction activating arm is provided at positions thereof which are apart from the one end toward the other end with an engaged portion 52 and a holding portion at which a part of vibration sensing weight 64 is held. When vibration is sensed and the vibration sensing weight 64 is tilted, the extinction activating arm is turned upward with the one end of the arm as the center of the rotation. The energizing spring 62 gives a force to the extinction activating arm to rotate downward with the one end as the center of the rotation. The mechanical combustion control mechanism has a rotation plate 46 having an engaging portion 56 which engages with the engaged portion 52 of the extinction actuating arm. When an operational force is applied from outside and the engaging portion 56 of the rotational plate 46 engages with the engaged portion 52, the combustion portion of the oil burner is kept in a condition in which combustion can be carried out (the wick 26 is kept at a position at which the combustion of the wick is possible). And when the vibration sensing weight 64 of the vibration sensing device is tilted and the extinction activating arm rotates upward with the one end as the center of rotation and the engaging portion 56 and the engaged portion 52 are disengaged, the rotation plate 46 turns to put the combustion portion in a condition that the combustion is not possible (the wick 26 is lowered to

the position at which combustion is not possible).

**[0003]** In the mechanism shown in the above mentioned USP 5,413,479 (corresponding to Japanese Patent Application Laid-Open Publication No. 241449/1994), unless a vibration is given from outside to the oil burner, the extinction device is not activated. Therefore, disengaging the engagement portions of the extinction device is carried out to activate the extinction device to thereby stop combustion of the oil burner, based on the presupposed relation between the temperature and oxygen in a room, in which relation the oxygen in the room is considered to have decreased when the room temperature reaches a predetermined level or temperature. In the Japanese Patent Application Laid-Open Publication No. 329345/2000 (P2000-329345A), a technique to activate the above mentioned extinction device when the room temperature has reached a predetermined level is disclosed. In this conventional technique also, an extinction device using a vibration sensor is used just as the extinction device in the above mentioned USP 5,413,479. Fig. 1 of the Japanese Patent Application Laid - Open Publication No. 329345/2000 is used as Fig. 7 in the present application. In this prior art, a shape memory coiled spring 11 is used as the temperature sensor. A disengagement linkage mechanism for disengaging the engagement portions used in the extinction device in the art comprises a swinging linkage 9 held free to swing around the rotation center 9a, a shape memory coiled spring 11 arranged between the swinging linkage 9 and the frame for generating a spring force to swing the swinging linkage 9 in one direction around the rotation center 9a and a bias spring 10 arranged between the swinging linkage 9 and the frame for generating a spring force to swing the swinging linkage 9 in the other direction around the rotation center 9a. The shape memory coiled spring 11 in the art contracts when the circumference temperature exceeds a predetermined level or temperature, and generates a torque which is larger than a torque generated by the spring force of bias spring 10 which is given to the swinging linkage 9. Also this prior mechanism is provided with a disengagement linkage mechanism 8, 12. In the disengagement linkage mechanism, a swinging linkage 9 stays in a position to permit the extinction activating arm 6 to move freely before the circumference temperature exceeds a predetermined level. The swinging linkage 9, on the other hand, engages with the extinction activating arm 6 and swings up to such a position that the extinction activating arm 6 may be turned upward around at one end 6a thereof to disengage the engagement between the engaging portion and the engaged portion, when the circumference temperature exceeds the predetermined level. Conventionally the shape memory coiled spring which is used as the temperature sensor has hooks at both ends thereof.

**[0004]** The precision in the extinction operation of the conventional extinction device depends on the precision of the operation of the shape memory coiled spring. In the conventional structure, however, the variance in the

starting temperature for the extinction operation has been considerable and the precision of the extinction operation could not have been enhanced.

**[0005]** Further, JP05248611A shows an automatic temperature adjusting mechanism for adjusting automatically adjusting firepower of an oil burner so that the room temperature should be maintained at a constant level. In this mechanism, an ordinary spring and a shape memory alloy spring are juxtaposedly arranged between a driving plate and a connecting plate. The shape memory alloy spring contracts, demonstrating stronger contracting force than the spring force of the ordinary spring when the room temperature exceeds a specified value. As a result, the firepower is adjusted to be minimized when the room temperature becomes high. This prior art, however, does not disclose that a shape memory alloy spring is used with an extinguisher.

**[0006]** Finally, JP60050313A shows a construction comprising a first shape memory alloy spring which is used for shifting an extinguishing lever when extinguishing the fire and a second shape memory alloy spring which is used for restoring the lever. A circuit for supplying current is provided for each of these shape memory alloy springs. The first and the second shape memory alloy springs are heated when current is supplied, and then they change in shape. The first shape memory alloy spring also changes in shape when the temperature increases in case of abnormal combustion. In order to extinguish the fire, current is supplied to the first shape memory alloy spring which accordingly changes in shape. Then, the extinguishing lever is driven to start fire extinguishing. When the second shape memory alloy spring used for restoring the lever changes in shape, the extinguishing lever is restored to the original position. The construction disclosed in this prior art essentially comprises two shape memory alloy springs, two circuits for supplying current to the springs respectively, and the extinguishing lever. Thus, the construction according to this prior art is complicated and the number of elements of the construction is large, which leads to an increased price of the burner.

### SUMMARY OF THE INVENTION

**[0007]** The present invention has been made in view of the foregoing disadvantage of the prior art. Accordingly, it is an object of the present invention to provide a disengagement linkage mechanism of an extinction device for a burner in which the precision of the extinction device can be heightened or enhanced even when a shape memory coiled spring is used as the temperature sensor.

**[0008]** It is another object of the present invention to provide a disengagement linkage mechanism of an extinction device for a burner which assures the activation of the extinction device even when a deformation amount of a shape memory coiled spring is small.

**[0009]** It is still another object of the present invention

to provide a disengagement linkage mechanism of an extinction device for a burner in which the adjustment of the spring force of a bias spring is easily carried out.

**[0010]** It is a further object of the present invention to provide an extinction device for a burner or an oil burner in which the variance in the precision of the operation of a shape memory coiled spring can be made the minimum.

**[0011]** It is a still further object to provide an extinction device for a burner or an oil burner in which the precision of the extinction can be heightened by making a shape memory coiled spring contract or expand smoothly.

**[0012]** It is another object of the present invention to provide an extinction device for a burner or an oil burner in which a start temperature of operation of a shape memory coiled spring is not changed even when a pillar of a plunger is arranged in the hollow space of the shape memory coiled spring.

**[0013]** It is yet another object of the present invention to provide an extinction device for an oil burner in which a shape memory coiled spring can be surely compressed at the time of the ignition.

**[0014]** It is a further object of the present invention to provide an extinction device for an oil burner in which a shape memory coiled spring can be precisely arranged in relation to a plunger when attached thereto, and is, thereby, made contract or expand smoothly.

**[0015]** The present invention relates to an improvement of the disengagement linkage mechanism of an extinction device for a burner which activates the extinction operation by disengaging the engagement state of the engagement structure in the extinction device, when the temperature of a surrounding place exceeds a predetermined level or temperature. The disengagement linkage mechanism comprises a swinging link plate or a swinging linkage which is rotatably held and swings around the center when disengaging the engagement state of the engagement structure, a shape memory coiled spring arranged, in a compressed condition, between the swinging linkage and a first fixed portion to generate a spring force to swing, in one direction, the swinging linkage around the rotation center, and a bias spring arranged, in an expanded condition, between the swinging linkage and a second fixed portion to generate a spring force to swing, in the other direction, the swinging linkage around the rotation center. In the present invention, the shape memory coiled spring has a characteristic or capacity to generate, by expanding itself, and give, to the swinging linkage, a torque larger than a torque given by a spring force of the bias spring, when the circumference temperature exceeds a predetermined level. The shape memory coiled spring with a characteristic to expand when the circumference temperature exceeds a predetermined level, has a smaller hysteresis in comparison with a shape memory coiled spring with a characteristic to contract when the circumference temperature exceeds a predetermined level. In addition, the former shape memory coiled spring has a characteristic that the variance in the temperature at which the expansion starts is small.

Therefore the extinction device using the present invention can attain a stable and precise operation as the variance in the temperature for starting the extinction operation is small.

**[0016]** Advantageous embodiments according to the invention result from dependent claims 2 - 15. More particularly, the direct distance L1 between the point of application of a spring force of the shape memory coiled spring to the swinging linkage and the rotation center is preferably made longer than the direct distance L2 between the point of application of the spring force of the bias spring to the swinging linkage and the rotation center. In such an arrangement, the expansion amount of the bias spring can be smaller than the expansion amount of the shape memory coiled spring. This makes the change of the spring pressure of the bias spring small and thus the variance in the operation of the shape memory coiled spring can be small.

**[0017]** The attachment structure for attaching the shape memory coiled spring between the swinging linkage and the first fixed portion can be arbitrary. For example, the attachment structure may comprise a first base provided on the swinging linkage, a second base provided on the first fixed portion to be opposite to the first base, and a plunger having a pillar which passes through a hollow space of the shape memory coiled spring and being attached to the first and second bases in a manner to permit the shape memory coiled spring to contract or expand between the first and second bases along the pillar. This kind of plunger can do away with hooks at both ends of the shape memory coiled spring for attaching the shape memory coiled spring to a predetermined position. When the hooks are provided at both ends of the shape memory coiled spring, the presence of the hooks themselves is a cause of the error in sensing the starting temperature for starting the extinction operation (the temperature at which the shape memory coiled spring starts expansion). However, when the plunger as described above is used, it is not necessary to provide hooks at both ends of the shape memory coiled spring, and the error in sensing the starting temperature can be small and the precision of extinction operation can be heightened.

**[0018]** It is preferable to use the plunger having a first flange and a second flange at both ends of the pillar. One of the first and the second bases is formed with a through hole through which the pillar passes, and a first flange is provided at one end of the pillar which passes through the through hole formed either on the first base or the second base. A second flange is provided at the other end of the pillar which is positioned between the first and the second bases. The second flange is engaged with the other of the first and the second bases. The shape memory coiled spring is arranged between one of the first and the second bases and the second flange in a compressed condition and with the pillar of the plunger disposed in the hollow space thereof. In such an arrangement it is possible to arrange a shape memory coiled

spring without hooks in an assuredly operational condition. In addition, it is possible to enable the shape memory coiled spring to contract and expand in a stable and smooth manner.

**[0019]** One end of the pillar may have a plurality of legs which are arranged in the peripheral direction with some interval therebetween. The plural legs may be integrally formed with a plurality of hooks respectively so that the first flange may be constituted by such plurality of hooks at the edge of the legs. In such an arrangement it is easy to pass the first flange through the above described through hole, and yet it is possible to place the first flange outside the through hole in a correct position.

**[0020]** Also the second flange may be integrally provided with a projection at the central part of the outside surface thereof and the other of the first and the second bases is formed with a receiving hole for receiving the projection. By fitting the projection in the receiving hole the second flange is engaged with the other of the first and the second bases. With such an arrangement attaching the second flange is easy.

**[0021]** The center of the pillar is defined with a passage which is open toward one end of the pillar, and the circumferential wall of the pillar is formed with more than one through holes which communicate the passage and the hollow space inside the shape memory coiled spring. The passage and the through holes make the difference between the temperature in the space between the pillar and the shape memory coiled spring and the temperature of the space outside the coiled spring small. As a result the variance in the sensing of the predetermined temperature for starting the operation by the shape memory coiled spring is small. Therefore, the variance in the precision of the extinction operation becomes small.

**[0022]** In addition, the disengagement linkage mechanism in the present invention may be used for various kinds of burners. Especially, when the present invention is used for an oil burner, it will contribute to improving the capacity of the extinction device of the oil burner and to decreasing the costs.

**[0023]** Moreover, the second flange may be integrally formed with a fitted portion in which one end of the shape memory coiled spring fits. The external dimension of the portion of the pillar at which the pillar passes through the through hole and the external dimension of another portion of the pillar extending further therefrom are made slightly smaller than the dimension of the diameter of the through hole. Besides such an arrangement the internal dimension of the shape memory coiled spring is made slightly larger than the dimension of the diameter of the through hole. In this instance the shape memory coiled spring can contract and expand in a stable manner without deformation.

**[0024]** When a generally available bias spring with hooks at both ends thereof is used, it is preferable that the bias spring is attached in the following manner. A hook at one end of the bias spring is engaged by inserting a part of the hook into an engagement hole formed on

the swinging linkage. The hook at the other end of the bias spring is engaged by inserting a part of the hook into an engagement hole formed on the second fixed portion. Moreover at least one of the swinging linkage and the frame is formed with a plurality of engagement holes with some interval therebetween. With such an arrangement, just selecting one engagement hole out of the plural engagement holes will enable to adjust the bias force of the bias spring. This arrangement will also contribute to heightening the precision of the extinction device by making the variance smaller, because the difference in the spring force of the shape memory coiled spring according to the production lot can be dealt with changing the spring force of the bias spring.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0025]** These and other objects and many of the attendant advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

Fig. 1 is a front elevation view of an embodiment of the present invention applied to an extinction device of an oil burner;

Fig. 2 is a right side elevation view of the extinction device in the Fig. 1;

Fig. 3 is a sectional view showing an attaching structure for a shape memory coiled spring;

Fig. 4 is a view of a conventional device shown as Fig. 1 in USP 5,413,479;

Fig. 5 is a view of a conventional device shown as Fig. 2 in USP 5,413,479;

Fig. 6 is a view of a conventional device shown as Fig. 3 in USP 5,413,479;

Fig. 7 is a view of a conventional device shown as Fig. 1 in the Japanese Patent Application Laid-Open Publication No. 329345/2000.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

**[0026]** The extinction device for oil burner of the present invention will be described in detail hereinafter referring to the drawings of an embodiment of the present invention. Fig. 1 is a front elevation view of an embodiment of the present invention in which the present invention is applied to an extinction device of an oil burner. Fig. 2 is the right side elevation view of the extinction device shown in Fig. 1. However, a vibration sensing weight, which will be described later, is omitted from Fig. 2. This extinction device is used for such oil burners as shown in USP5, 413,479.

**[0027]** In Figs. 1 and 2, the frame 101 consists of a vertical frame portion 103 which extends in the vertical direction and a horizontal frame portion 105 which ex-

tends in the horizontal direction from the upper end of the vertical frame portion 103. The frame 101 is formed by press forming. A vibration sensing means 107 has a vibration sensing weight 109 which is placed above the horizontal frame portion 105. The vibration sensing means 107 comprises a connecting pole 111 having an upper end and a lower end which loosely passes through the horizontal frame portion 105, a coming-off preventing portion 113 fixed at the lower end of the connecting pole 111, and the vibration sensing weight 109 fixed at the upper end of the connecting pole 111 and supported above the horizontal frame portion 105. The connecting pole 111 of the vibration sensing means 107 is engaged with an extinction activating arm 115. The extinction activating arm 115 has an end and the other end, and the one end is rotatably fixed to a shaft 117 which is provided on the vertical frame portion 103. The extinction activating arm 115 moves along the vertical frame portion 103. The extinction activating arm 115 is formed, at a position apart from the one end toward the other end thereof, with a pin 119 constituting an engaged portion, and further toward the other end, is also formed with a through hole 121 which permits the connecting pole 111 of the vibration sensing weight 109 to pass therethrough loosely but prevents the coming-off preventing portion 113 from passing therethrough. An energizing spring 123 is arranged between the extinction activating arm 115 and the horizontal frame portion 105. The energizing spring 123 gives a force to the extinction activating arm 115 to move downward around the shaft 117. In this embodiment, the extinction activating arm 115 is made of synthetic resin and is formed with the energizing spring 123 which constitutes a part of the extinction activating arm 115.

**[0028]** In Fig. 1 it is shown that a mechanical combustion control mechanism 125 is attached behind the vertical frame portion 103. The combustion control mechanism 125 comprises a rotation plate 129 having a recess 127 which constitutes an engaging portion for engaging with the above described engaged portion constituted by the pin 119. This rotation plate 129 rotates around the rotation center 131. A revolving lever (shown at reference numeral 130) revolves around the revolution center to raise the combustion cylinder (not shown) at the ignition and returns to the original place after the ignition is carried out. A first operation knob 132 is fixed at one end of the revolving lever 130. When a force applied to the first operation knob is released, the revolving lever 130 returns to the original condition due to the spring force of a return spring 128. The first operation knob 132 and a second operation knob 134 which will be described later are respectively mounted on a sliding garter 104 formed at the vertical frame portion 103. The operation knobs 132 and 134 move upwardly and downwardly along the sliding garter 104.

**[0029]** An operating lever 133 is rotatably attached to the vertical frame portion 103 in a manner to move around the rotation center 131. By the rotation of the operating

lever 133, a wick operating shaft (not shown) for moving the wick upward and downward is rotated and the wick for combustion is raised or pulled down. When the wick is kept in an upper position, the combustion of the oil burner is possible and when the wick is kept in the lowest position, the oil burner is in the extinction condition. The engagement relation between the operating lever 133 and the rotation plate 129 is already known and is described in USP 5,413,479. The function of a return spring 135 attached to the rotation plate 129 is also already known and is described in detail in USP 5,413,479 and the Japanese Patent Application Laid-Open Publication No. 329345/2000. Therefore, only a brief description of the above engagement and the function will be given herein. When the operating lever 133 is pushed downwardly clockwise by a force applied from the second operation knob 134 which comes down together with the first operation knob 132, the wick operating shaft 131 will turn in a direction to raise the wick. When the operating lever 133 turns, the operating lever 133 and the rotation plate 129 get engaged at the engagement portion (engaging and engaged portions) and the rotation plate 129 rotates together with the operating lever 133. The rotation plate 129 expands the return spring 135 as the rotation plate 129 rotates. When the recess 127 of the rotation plate 129 is engaged with the pin 119, an energized condition of the return spring 135 is held reserved. When the engagement state or condition between the recess 127 and the pin 119 is disengaged, and the rotation plate 129 rotates in the reverse direction due to the force of the return spring 135, the operating lever 133 rotates counterclockwise together with the rotation plate 129. As a result the wick operating shaft (not shown) rotates in the reverse direction and the wick is pulled down and the extinction is carried out thereby. In this embodiment the mechanical combustion control mechanism 125 keeps the wick of the oil burner at a position which permits the combustion is possible, when the engaging portion (recess) 127 is engaged with the engaged portion (pin) 119 after an operation force is applied to the operating lever 133 from the operating knob 134. On the contrary, when the extinction activating arm 115 is moved upwardly around the one end thereof and the engagement state between the engaging portion (recess) 127 and the engaged portion (pin) 119 is disengaged, the wick is moved to a position at which the combustion of the wick is not possible. When the engaging portion (recess) 127 is engaged with the engaged portion (pin) 119, the operating knob 134 is held in a position as shown in Fig. 1. In this stage the operating knob 132 is pushed back to the position as shown in Fig. 1 by the revolving lever 130 revolved by a spring force of the return spring 128.

**[0030]** The front side of the vertical frame portion 103 (the opposite side against the side where the combustion control mechanism 125 is attached) is provided with a disengagement linkage mechanism 137. The disengagement linkage mechanism disengages the engagement state between the engaging portion (recess) 127 and the

engaged portion (pin) 119 to carry out the extinction when the circumference temperature reaches a predetermined level. The content of the present invention lies in the configuration of this disengagement linkage mechanism 137. The disengagement linkage mechanism 137 permits the extinction activating arm 115 to move freely when the circumference temperature is below a predetermined level. But the disengagement linkage mechanism 137 moves the extinction activating arm 115 upward around the revolving shaft 117 to disengage the engagement state between the recess (engaging portion) 127 and the pin (engaged portion) 119 when the circumference temperature reaches the predetermined temperature. The predetermined temperature is determined so that incomplete combustion may be avoided based on the presupposed relation between the temperature and the concentration of oxygen or carbon dioxide in the air.

**[0031]** The disengagement link mechanism 137 comprises a swinging linkage 139, a shape memory coiled spring 141 and a bias spring 143. The swinging linkage 139 having a lifting portion 140 for lifting the extinction activating arm 115 upward is arranged to move around the rotation center 145. The centerline of the rotation center 145 extends perpendicularly to the plate of the vertical frame portion 103. The swinging linkage 139 is also provided with an abutting portion 149. The abutting portion 149 abuts a revolving lever 147 which is moved clockwise by the operating knob 134 when the operating lever 133 is pushed downward. The abutting portion 149 then moves the swinging linkage 139 around the rotation center 145 counterclockwise. When the operating lever 133 and the operating knob 134 are pushed downward and the revolving lever 147 is revolved and the swinging linkage 139 is moved counterclockwise, the shape memory coiled spring is compressed and reaches a condition in which the spring action is possible (the spring condition returns to the original point of the hysteresis curve). The revolving lever 147 is arranged to be able to revolve freely around another revolving center 148 which is provided on the vertical frame portion 103. The revolving lever 147 and the abutting portion 149 constitute a pressure applying link mechanism. The pressure applying link mechanism is driven by an operational force applied from the outside of the combustion control mechanism 125 in order to swing the swinging linkage 139 in a direction to compress the shape memory coiled spring 141. The swinging linkage is not prevented from moving freely after the operational force is discharged or removed.

**[0032]** The shape memory coiled spring 141 is arranged between the swinging linkage 139 and the frame 101. The shape memory coiled spring 141 generates a spring force, by expanding when the circumference temperature exceeds a predetermined level, to rotate the swinging linkage 139 in a direction in which the lifting portion thereof approaches the extinction activating arm 115. The bias spring 143 is arranged between the swinging linkage 139 and the frame 101 and generates a spring force to rotate the swinging linkage 139 in a direction in

which the lifting portion thereof moves away from the extinction activating arm 115. The shape memory coiled spring has a characteristic to expand, when the circumference temperature exceeds a predetermined level, and to give, to the swinging linkage 139, a torque larger than a torque given by a spring force of the bias spring 143.

**[0033]** The attachment structure of the shape memory coiled spring 141 comprises a first base 145a formed on the swinging linkage 139, a second base 145b (the first fixed portion) which is disposed at the lower end of the vertical frame portion 103 to be opposite to the first base 145a, and a plunger 150. In Fig. 3 the enlarged view of the attachment structure is shown. The plunger 150 has a structure comprising a pillar 151 and a first flange 153 and a second flange 155 fixed at both ends of the pillar 151. The second base 145b is formed with a through hole 145c through which the pillar 151 passes. The first flange 153 is fixed at one end of the pillar 151 which passes through the through hole 145c and projects to the outside of the second base 145b. Also the second flange 155 is fixed at the other end of the pillar 151 which is disposed between the first base 145a and the second base 145b and is connected with the first base 145a. The shape memory coiled spring 141 is arranged between the second base 145 and the second flange 155 in a compressed manner with the pillar 151 disposed in the hollow space thereof.

**[0034]** As shown in Fig. 3, a part of the pillar 151 at one end comprises a plurality of legs formed in the peripheral direction with some interval therebetween defined with slits 157. The slits 157 are open toward the central space 142. In this instance the pillar 151 is formed with a through hole 152 which communicates the inner passage defined inside the pillar 151 and the hollow space inside the coiled spring. The plural legs are integrally provided respectively at the edge thereof with hooks which constitute the first flange 153.

**[0035]** As shown in the Fig. 3 the second flange 155 is provided with a projection 156 at the center of the outside surface thereof. The first base 145a is formed with a hole into which the projection 156 is fitted. In addition the second flange 155 is integrally formed with a fitted portion at which one end of the shape memory coiled spring fits. The external dimension of the part of the pillar 151 at which the pillar passes through the through hole 148 and the external dimension of the part of the pillar further extending therefrom are slightly smaller than the dimension of the through hole 148, and the internal dimension of the shape memory coiled spring 141 is slightly larger the dimension of the diameter of the through hole 148. This kind of structure keeps the shape memory coiled spring 141 to be expanded and compressed precisely and smoothly without being deformed.

**[0036]** The bias spring 143 is provided at both ends thereof with hooks 142a and 142b. The hook 142b at one end of the bias spring 143 is engaged with the swinging linkage by inserting a part of the hook 142b into the hole (not shown) provided on the swinging linkage 139. Also

the hook 142a at the other end of the bias spring 143 is engaged with the second fixed portion by inserting a part of the hook 142a into another engagement hole H2 provided on the second fixed portion. The second fixed portion 144 has three engagement holes H1-H3 arranged in the vertical direction with certain interval therebetween. When this kind of structure is adopted, just by selecting a hole from a plurality of holes with which the hook 142a is engaged, the bias force of the bias spring 143 can be easily controlled. Plural engagement holes may, of course, be formed on the swinging linkage 139 to which the hook 142b is engaged.

**[0037]** In the above embodiment, the through hole 148 is formed on the side of the second base 145b. However a through hole 148 may, of course, be formed on the side of the first base 145a in which case the plunger 149 is set upside down.

**[0038]** In the above embodiment, the direct distance L1 between the point of application of the spring force of the shape memory coiled spring 141 to the swinging linkage 139 and the rotation center 145 is longer than the direct distance L2 between the point of application of the bias spring 143 to the swinging linkage 139 and the rotation center 145, therefore the stretch length of the bias spring 143 can be shorter than the stretch length of the shape memory coiled spring. This permits the change of the spring force of the bias spring 143 to be small. As a result the variance in the operation of the shape memory coiled spring can be made smaller.

#### Effects of the Invention

**[0039]** According to the present invention, stable and precise operation can be maintained in the extinction operation as the variance in the temperature for starting the extinction operation (precision in the extinction operation) is small because such a spring is used for the shape memory coiled spring as one having a capacity to generate, by expanding itself, and give, to the swinging linkage, a larger torque than a torque given by a spring force of the bias spring, when the circumference temperature exceeds a predetermined level.

**[0040]** Especially when the direct distance L1 between the point of application of the spring force of the shape memory coiled spring to the swinging linkage and the rotation center is longer than the direct distance L2 between the point of application of the bias spring to the swinging linkage and the rotation center, the stretch length of the bias spring can be made shorter in comparison with the stretch length of the shape memory coiled spring. As a result the variance in the operation of the shape memory coiled spring can be made smaller.

**[0041]** Moreover when the shape memory coiled spring is attached using a plunger, it is unnecessary to form hooks at both ends of the shape memory coiled spring for attaching it to a predetermined position. This contributes to making the variance in the temperature for starting the extinction operation smaller, thus heighten-

ing the precision of the extinction operation.

[0042] While a preferred embodiment of the invention has been described with a certain degree of particularity with reference to the drawings, obvious modifications and variations are possible in light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

## Claims

1. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner when the circumference temperature exceeds a predetermined level said disengagement linkage mechanism comprising,
  - a swinging linkage (139) which is rotatably held in respect to the rotation center (131) and swings around the rotation center (131) when disengaging the engagement state is carried out;
  - a shape memory coiled spring (141) arranged, in an compressed condition, between said swinging linkage (139) and a first fixed portion to generate a spring force to swing said swinging linkage (139) in one direction around the rotation center (131); and
  - a bias spring (143) which is arranged, in an expanded condition, between said swinging linkage (139) and a second fixed portion to generate a spring force to swing said swinging linkage (139) in the other direction around the rotation center (131);
  - wherein said shape memory coiled spring (141) has a characteristic to expand when the circumference temperature exceeds the predetermined level and to generate and give, to the swinging linkage (139), a torque larger than a torque given by the spring force of said bias spring (143).
2. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claim 1 **characterized in that** the distance (L1) between the point of application of the spring force of said shape memory coiled spring (141) at said swinging linkage (139) and said rotation center (131) is longer than the distance (L2) between the point of application of the spring force of said bias spring (143) at said swinging linkage (139) and said rotation center (131).
3. A disengagement linkage mechanism for disengaging an engagement state of an engagement structure in an extinction device of a burner as defined in Claim 2 **characterized in that** an attachment structure for arranging said shape memory coiled spring (141) between said swinging linkage (139) and said first fixed portion comprises:

a first base (145a) provided on said swinging linkage (139);  
 a second base (145b) provided on said first fixed portion to be opposite to said first base (145a); and  
 a plunger (150) arranged between said first base (145a) and said second base (145b);

wherein said plunger has a pillar (151) which passes through a hollow space (142) inside said shape memory coiled spring; and  
 said plunger permits said shape memory coiled spring (141) to contract or expand along said pillar (151).

4. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claim 3 **characterized in that** said plunger (150) has a structure having a first and a second flanges (153, 155) at both ends of said pillar (151); one of said first base (145a) and said second base (145b) is formed with a through hole through which said pillar (151) passes;  
 said first flange (153) is provided at one end of said pillar (151) which passes through said through hole and extends outside of said one of said first base (145a) and said second base (145b);  
 said second flange (155) is provided at the other end of said pillar (151) which is disposed between said first base (145a) and said second base (145b), and is engaged with the other of said first base (145a) and said second base (145b); and  
 said shape memory coiled spring (141) is arranged, in an compressed condition, between said one of said first base (145) and said second base (145b) and said second flange (155) with said pillar (151) disposed inside the hollow space (142) of said shape memory coiled spring (141).
5. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claims 1, 2, 3 or 4 **characterized in that** said bias spring (143) is provided with hooks (142a, 142b) at both ends thereof;  
 said hook at one end of said bias spring (143) is engaged by inserting a part thereof into an engagement hole provided on said swinging linkage (139);  
 said hook at the other end of said bias spring (143) is engaged by inserting a part thereof into another engagement hole provided on said second fixed portion; and  
 at least one of said swinging linkage (139) or said frame (101) is formed with a plurality of said engagement holes with some interval therebetween.
6. A disengagement linkage mechanism (137) for dis-

- engaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claim 4 **characterized in that** said one end of said pillar (151) has a plurality of legs (159) formed in the peripheral direction with some interval there-between; 5  
said legs are provided with hooks respectively; and said hooks constitute said first flange (153).
7. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claim 4 **characterized in that** said second flange (155) is integrally provided with a projection (156) at the central part of the outside surface thereof; 10  
said other of said first base (145a) and said second base (145b) is formed with a receiving hole (146) for said projection (156); and  
said second flange (155) is engaged with said other of said first base (145a) and said second base (145b) by fitting said projection (156) into said receiving hole (146). 15
8. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claim 4 **characterized in that** a passage which is open toward said one end of said pillar (151) is defined in the central part of said pillar (151); 25  
said pillar (151) has a circumferential wall with one or more through holes (152) which communicate said passage and said hollow space (142) inside said shape memory coiled spring (141). 30
9. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claim 4 **characterized in that** said second flange (155) is integrally provided with a fitted portion in which one end of said shape memory coiled spring (141) fits; 35  
both a dimension of a part of said pillar (151) at which the pillar (151) passes through said through hole and a dimension of another part of the pillar (151) extending from the part of the pillar are slightly smaller than a dimension of the diameter of said through hole (145c); and 40  
a dimension of said shape memory coiled spring (141) is slightly larger than said dimension of the diameter of said through hole (145c). 45
10. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for burner as defined in Claim 4 50  
**characterized in that** the extinction device for an oil burner comprises: 55

a frame (101) having a vertical frame portion (103) which extends in the vertical direction, and a horizontal frame portion (105) which extends in the horizontal direction from the upper end of said vertical frame portion (103);  
a vibration sensing means (107) having a vibration sensing weight (109) which is supported above said horizontal frame portion (105) and is permitted to tilt when sensing vibration;  
an extinction activating arm (115) having one end and the other end, said one end being rotatably fixed at the frame (101) so as to permit said extinction activating arm to swing along said vertical frame portion (103); said extinction activating arm (115) having, at positions apart from said one end toward said other end, an engaged portion (119) and a holding portion at which a part of said vibration sensing weight (109) is held;  
said extinction activating arm (115) being rotated upward around said one end when said vibration sensing weight (109) is tilted;  
an energizing spring (123) for giving a force to said extinction activating arm (115) to rotate downward around said one end;  
a combustion control mechanism (125) being provided with an engaging portion (127) for engaging with said engaged portion (119) and being attached to said frame (101);  
said combustion control mechanism (125) keeping the combustion portion of the oil burner in a condition that combustion is possible, when said engaging portion (127) is engaged with said engaged portion (119) as a result of an operation force being given from outside; and  
said combustion control mechanism (125), on the other hand, keeping the combustion portion in a condition that combustion is not possible, when said extinction activating arm (115) rotates upward around said one end to make said engaging portion (127) and said engaged portion (119) disengaged

wherein said swinging linkage (139) stays in a position to permit said extinction activating arm (115) to move freely before the circumference temperature exceeds a predetermined level; and  
wherein said swinging linkage (139) rotates up to a position at which said swinging linkage (139) engages with said extinction activating arm (115) to rotate it upward around said one end to disengage an engagement between said engaging portion (127) and said engaged portion (119), when said circumference temperature exceeds a predetermined level; **characterized in that** further comprises an attachment structure for attaching said shape memory coiled spring (141) between said swinging linkage (139) and said first fixed portion.

11. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claim 4 **characterized in that** the extinction device for an oil burner comprises:

a frame (101) having a vertical frame portion (103) which extends in the vertical direction, and a horizontal frame portion (105) which extends in the horizontal direction from the upper end of the vertical frame portion (103);

a vibration sensing means (107) having a connecting pole (111) with an upper end and the lower end which loosely passes through said horizontal frame portion (105), a coming-off preventing portion (113) fixed at said lower end of said connecting pole (111), and a vibration sensing weight (109) fixed at said upper end of said connecting pole (111) and supported above said horizontal frame portion (105);

an extinction activating arm (115) having one end and the other end, said one end being rotatably fixed to said frame (101) to permit said extinction activating arm to rotate along said vertical frame portion (103);

said extinction activating arm (115) having at a position apart from said one end toward said other end, an engaged portion (119) and a through hole which permits said connecting pole (111) of said vibration sensing weight (109) to pass therethrough but does not permit said coming-off prevention portion to pass therethrough;

a energizing spring (123) for giving a force to said extinction activating arm (115) to rotate it downward around said one end;

a combustion control mechanism (125) being provided with an engaging portion (127) for engaging with said engaged portion (119) and being attached to one side of said vertical frame portion (103);

said combustion control mechanism (125) keeping a wick of an up-and-down wick operation-type oil burner in a position at which combustion is possible, when said engaging portion (127) is engaged with said engaged portion (119) as a result of an operation force being given from outside; and

said combustion control mechanism (125) moving the wick of an up-and-down wick operation-type oil burner to a position at which combustion is not possible, when said extinction activating arm (115) rotates upward around said one end to make said engaging portion (127) and said engaged portion (119) disengaged;

and that the disengagement linkage mechanism (137) is attached to a side of said vertical frame portion (103) opposite to said side on which said combustion control mechanism (125) is at-

tached;

wherein said disengagement linkage mechanism (137) permits said extinction activating arm (115) to move freely before the circumference temperature exceeds a predetermined level;

wherein said disengagement linkage mechanism (137) makes said extinction activating arm (115) rotate upward around said one end to disengage said engaging portion (127) and said engaged portion (119), when said circumference temperature exceeds the predetermined level;

wherein the swinging linkage (139) has a lifting portion (140) to lift said extinction activating arm (115) and rotates around rotation center (131) of which a center line extends perpendicular to said vertical frame portion (103);

wherein the shape memory coiled spring (141) is arranged between said swinging linkage (139) and said frame (101) to generate a spring force by expanding to rotate said swinging linkage (139) in one direction in which said lifting portion (140) approaches said extinction activating arm (115) when the circumference temperature exceeds the predetermined level; and

wherein the bias spring (143) is arranged between said swinging linkage (139) and said frame (101) to generate a spring force to rotate said swinging linkage (139) in the other direction in which said lifting portion (140) moves away from said extinction activating arm (115).

12. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claim 11 **characterized in that** said disengagement linkage mechanism is constructed to compress said shape memory coiled spring (141) by being energized by an operational force, when said operational force is applied from outside to said combustion control mechanism.

13. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claim 11 **characterized in that** said disengagement linkage mechanism is also equipped with a compressing linkage mechanism in which said swinging linkage (139) is rotated, by being energized by an operational force, in a direction to compress said shape memory coiled spring (141) to give it a compressing force when such an operational force is applied from outside, and said swinging linkage (139) is not prevented from moving freely after said operational force applied from outside is removed.

14. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement

structure in an extinction device for a burner as defined in Claim 11 **characterized in that** a portion at said one end of said pillar (151) is constituted by a plurality of legs arranged in the peripheral direction with some interval defined by slits (157) therebetween; 5  
 said slits (157) are open toward said central space of said pillar (151);  
 said legs are integrally formed with hooks respectively; and 10  
 said hooks constitute said first flange (153).

15. A disengagement linkage mechanism (137) for disengaging an engagement state of an engagement structure in an extinction device for a burner as defined in Claim 11 **characterized in that** said second flange (155) is integrally provided with a projection (156) at the center of the outside surface thereof; 15  
 said other of said first and said second bases (145, 147) is formed with a receiving hole (146) for receiving said projection (156); and 20  
 said second flange (155) is engaged with said other of said first and second bases (145a, 145b) by fitting said projection (156) into said receiving hole. 25

#### Patentansprüche

1. Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastaufbaus in einer Brennerlöscheinrichtung, wenn die Umgebungstemperatur ein vorbestimmtes Niveau überschreitet, wobei der Ausklinkmechanismus aufweist: 30
- eine schwenkbare Verbindungseinrichtung (139), die drehbar in Bezug auf ein Drehzentrum (131) gehalten ist und beim Ausklinken des Eingriffzustandes um das Drehzentrum (131) herum schwengt, 35
  - eine formspeichernde Schraubenfeder (141), die im zusammengedrückten Zustand zwischen der schwenkbaren Verbindungseinrichtung (139) und einem ersten feststehenden Teil zur Erzeugung einer Federkraft zum Schwenken der schwingenden Verbindungseinrichtung (139) in einer Richtung um das Drehzentrum (131) herum angeordnet ist, 40
  - eine Vorspannfeder (143), die in einem gestreckten Zustand zwischen der schwenkbaren Verbindungseinrichtung (139) und einem zweiten feststehenden Teil zur Erzeugung einer Federkraft zum Schwenken der schwenkbaren Verbindungseinrichtung (139) in die andere Richtung um das Drehzentrum (131) herum angeordnet ist, 45
  - wobei die formspeichernde Schraubenfeder (141) eine Charakteristik aufweist, sich zu strecken, wenn die Umgebungstemperatur das vor-

gegebene Niveau übersteigt, und ein Drehmoment zu erzeugen und dieses auf die schwenkbare Verbindungseinrichtung (139) auszuüben, das größer als das von der Federkraft der Vorspannungsfeder (143) ausgeübte Drehmoment ist.

2. Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastaufbaus in einer Brennerlöscheinrichtung gemäß Anspruch 1, **dadurch gekennzeichnet, daß** die Entfernung (L1) zwischen dem Angriffspunkt der Federkraft der formspeichernden Schraubenfeder (141) an der schwenkbaren Verbindungseinrichtung (139) und dem Drehzentrum (131) länger ist als die Entfernung (L2) zwischen dem Angriffspunkt der Federkraft der Vorspannungsfeder (143) an der schwenkbaren Verbindungseinrichtung (139) und dem Drehzentrum (131).

3. Ausklinkmechanismus zum Entkuppeln eines Eingriffzustandes eines Einrastaufbaus in einer Brennerlöscheinrichtung gemäß Anspruch 2, **dadurch gekennzeichnet, daß** ein Befestigungsaufbau zum Anordnen der formspeichernden Schraubenfeder (141) zwischen der schwenkbaren Verbindungseinrichtung (139) und dem ersten feststehenden Teil aufweist:

- einen ersten Träger (145a), der an der schwenkbaren Verbindungseinrichtung (139) vorgesehen ist,
- einen zweiten Träger (145b), der an der schwenkbaren Verbindungseinrichtung (139) entgegengesetzt zu dem ersten Träger (145a) vorgesehen ist, und
- einen Riegelbolzen (150), der zwischen dem ersten Träger (145a) und dem zweiten Träger (145b) angeordnet ist,

wobei der Riegelbolzen (150) einen Stiel (151) aufweist, der durch einen Hohlraum (142) innerhalb der formspeichernden Schraubenfeder läuft und der formspeichernden Schraubenfeder (141) ermöglicht, sich entlang des Stiels (151) zusammenzuziehen oder auszudehnen.

4. Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastaufbaus einer Brennerlöscheinrichtung gemäß Anspruch 3, **dadurch gekennzeichnet, daß**

- der Riegelbolzen (150) einen Aufbau aufweist mit einem ersten und einem zweiten Flansch (153 bzw. 155) jeweils an einem Ende des Stiels (151),
- der erste Träger (145a) und der zweite Träger (145b) mit einem Durchgangsloch ausgebildet

- sind, durch das der Stiel (151) hindurch läuft,  
 - der erste Flansch (153) an einem Ende des Stiels (151) vorgesehen ist, der durch das Durchgangsloch läuft und sich nach außen von einem von dem ersten Träger (145a) und dem zweiten Träger (145b) erstreckt,  
 - der zweite Flansch (153) an dem anderen Ende des Stiels (151) vorgesehen ist, das zwischen dem ersten Träger (145a) und dem zweiten Träger (145b) angeordnet ist und mit dem anderen von dem ersten Träger (145a) und dem zweiten Träger (145b) in Eingriff steht, und daß  
 - die formspeichernde Schraubenfeder (141) im zuusammengedrückten Zustand zwischen einem von dem ersten Träger (145a) und dem zweiten Träger (145b) und dem zweiten Flansch (155) angeordnet ist, wobei der Stiel (151) innerhalb des Hohlraums (142) der formspeichernden Schraubenfeder (141) angeordnet ist.
5. Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastaufbaus einer Brennerlöscheinrichtung gemäß Anspruch 1, 2, 3 oder 4, **dadurch gekennzeichnet, daß**
- die Vorspannfeder (143) an beiden Enden mit einem Haken (142a bzw. 142b) versehen ist,
  - der Haken an dem einen Ende der Vorspannfeder (143) in Eingriff steht durch Einrasten eines Teils davon in ein an der schwenkbaren Verbindungseinrichtung (139) vorgesehenes Einrastloch,
  - der Haken an dem anderen Ende der Vorspannfeder (143) in Eingriff steht durch Einrasten eines Teils davon in ein anderes, an dem zweiten feststehenden Teil vorgesehenes Einrastloch und
  - zumindest die schwenkbare Verbindungseinrichtung (139) oder ein Rahmen (101) mit einer Vielzahl Einrastlöcher mit einem bestimmten Abstand zwischen diesen ausgebildet ist.
6. Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastaufbaus einer Brennerlöscheinrichtung gemäß Anspruch 4, **dadurch gekennzeichnet, daß**
- ein Ende des Stiels (151) eine Vielzahl Schenkel (159) aufweist, die in Umfangsrichtung mit bestimmten Abstand zueinander ausgebildet sind,
  - die Schenkel mit Haken entsprechend ausgebildet sind und
  - die Haken den ersten Flansch (153) bilden.
7. Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastaufbaus einer Brennerlöscheinrichtung gemäß Anspruch 4,

**dadurch gekennzeichnet, daß**

- einstückig mit dem zweiten Flansch (155) an dem mittigen Teil dessen Außenoberfläche ein Vorsprung (156) ausgebildet ist,
  - der andere von dem ersten Träger (145a) und dem zweiten Träger (145b) mit einem Eingriffsloch (146) für den Vorsprung (146) ausgebildet ist und
  - der zweite Flansch (155) mit diesem anderen von dem ersten Träger (145a) und dem zweiten Träger (145b) in Eingriff steht, indem der Vorsprung (156) in das Eingriffsloch (146) eingepaßt ist.
8. Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastaufbaus in einer Brennerlöscheinrichtung gemäß Anspruch 4, **dadurch gekennzeichnet, daß**
- ein Durchlaß, der zu einem Ende des Stiels (151) hin offen ist, in dem zentrischen Teil des Stiels (151) gebildet ist, und
  - der Stiel (151) eine Umfangswand mit einem oder mehreren Durchgangslöchern hat, die mit dem Durchlaß und dem Hohlraum (142) innerhalb der formspeichernden Schraubenfeder kommunizieren.
9. Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastaufbaus einer Brennerlöscheinrichtung gemäß Anspruch 4, **dadurch gekennzeichnet, daß**
- der zweite Flansch (155) einstückig mit einem Paßteil ausgebildet ist, in das ein Ende der formspeichernden Schraubenfeder (141) eingepaßt ist,
  - sowohl eine Abmessung eines Teils des Stiels (151), an dem der Stiel (151) durch das Durchgangsloch läuft, als auch ein anderer Teil des Stiels (151), der sich von dem Teil des Stiels weg erstreckt, geringfügig kleiner als eine Größe des Durchmessers des Durchgangslochs (14c) ist und
  - eine Abmessung der formspeichernden Schraubenfeder (141) geringfügig kleiner als die Größe des Durchmessers des Durchgangslochs (145c) ist.
10. Ausklinkmechanismus (137) zum Entkuppeln des Eingriffzustandes eines Einrastaufbaus einer Brennerlöscheinrichtung nach Anspruch 4, **dadurch gekennzeichnet, daß** die Löscheinrichtung für einen Ölbrenner aufweist:
- einen Rahmen (101) mit einem vertikalen Rahmenteil (103), der sich in senkrechter Richtung

erstreckt, und mit einem horizontalen Rahmenteil (105), der sich in waagerechter Richtung von dem oberen Ende des vertikalen Rahmenteils (103) erstreckt,

- eine eine Erschütterung erfassende Einrichtung (107) mit einem eine Erschütterung erfassenden Gewicht (109), das oberhalb des horizontalen Rahmenteils (105) gelagert ist und sich beim Erfassen einer Erschütterung schrägstellen kann, 5
- ein die Löschung aktivierender Arm (115) mit einem ersten Ende und einem zweiten Ende, 10

wobei das erste Ende drehbar an dem Rahmen (101) derart befestigt ist, daß der die Löschung aktivierende Arm längs des vertikalen Rahmenteils (103) schwingen kann, der die Löschung aktivierende Arm an Positionen, die von seinem ersten Ende beabstandet und in Richtung des zweiten Endes angeordnet sind, einen eingerasteten Teil (119) und einen Halteteil aufweist, an dem ein Teil des eine Erschütterung erfassenden Gewichtes (109) gehalten ist, und 15

wobei der die Löschung aktivierende Arm (115) aufwärts um das erste Ende gedreht wird, wenn das eine Erschütterung erfassende Gewicht (109) sich schrägstellt, 25

- eine Verstärkungsfeder (123) zum Beaufschlagen des die Löschung aktivierenden Arms (115) mit einer Kraft zu dessen Abwärtsdrehung um das erste Ende, 30
- einen Mechanismus zur Steuerung der Verbrennung (125), der mit einem Eingriffsteil (127) zum in Eingriff bringen mit einem eingerasteten Teil (119) ausgebildet und an dem Rahmen (101) befestigt ist, 35

wobei der Mechanismus zur Steuerung der Verbrennung (125) den Verbrennungsteil des Ölbrenners in einem Zustand hält, daß eine Verbrennung möglich ist, wenn der Eingriffsteil (127) mit dem eingerasteten Teil (119) infolge einer von außen aufgebrachten Arbeitskraft in Eingriff gebracht ist, und 40

- wobei der Mechanismus zur Steuerung der Verbrennung (125) andererseits den Verbrennungsteil in einem Zustand hält, in dem keine Verbrennung möglich ist, wenn der die Löschung aktivierende Arm (115) aufwärts um das erste Ende herum dreht, um den Eingriffsteil (127) und den eingerasteten Teil (119) zu entkuppeln, 45
- wobei die schwenkbare Verbindungseinrichtung (139) in einer Stellung steht, die eine freie Bewegung des die Löschung aktivierenden Arms (115) zuläßt, bevor die Umgebungstemperatur ein vorbestimmtes Niveau überschreitet, 50

tet, und

- wobei die schwenkbare Verbindungseinrichtung (139) nach oben in eine Stellung dreht, in der sie mit dem die Löschung aktivierenden Arm (115) in Eingriff kommt, um diesen aufwärts um das erste Ende herum zum Entkuppeln des Eingriffs des Eingriffsteils (127) und des eingerasteten Teils (119) zu verschwenken, wenn die Umgebungstemperatur ein vorbestimmtes Niveau überschreitet, 55

und daß ferner eine Befestigungskonstruktion zum Anbringen der formspeichernden Schraubenfeder (141) zwischen der schwenkbaren Verbindungseinrichtung (139) und dem ersten feststehenden Teil vorgesehen ist.

11. Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastaufbaus in einer Brennerlöscheinrichtung gemäß Anspruch 4, **dadurch gekennzeichnet, daß** die Löscheinrichtung für einen Ölbrenner aufweist:

- einen Rahmen (101) mit einem vertikalen Rahmenteil (103), der sich in senkrechter Richtung erstreckt, und mit einem horizontalen Rahmenteil (105), der sich von dem oberen Ende des vertikalen Rahmenteils (103) in waagerechter Richtung erstreckt,
- eine eine Erschütterung erfassende Einrichtung (107) mit einer Verbindungsstange (11) mit einem oberen Ende und einem unteren Ende, die mit Spiel durch den horizontalen Rahmenteil (105) läuft, mit einem ein Auslaufen verhindernden Teil (113), das am unteren Ende der Verbindungsstange (111) befestigt ist, und mit einem eine Erschütterung erfassenden Gewicht (109), das am oberen Ende der Verbindungsstange (111) befestigt und oberhalb des horizontalen Rahmenteils (105) getragen ist,
- ein die Löschung aktivierender Arm (115) mit einem ersten Ende und einem zweiten Ende, 50

wobei das erste Ende drehbar (115) an dem Rahmen (101) befestigt ist, um ein Drehen des die Löschung aktivierenden Arms (115) längs des vertikalen Rahmenteils (103) zu gewährleisten,

wobei der die Löschung aktivierende Arm (115) an einer vom ersten Ende entfernten und zum zweiten Ende gewandten Stelle ein eingerastetes Teil (119) und ein Durchgangsloch aufweist, das ein Durchlaufen der Verbindungsstange (111) des eine Erschütterung erfassenden Gewichtes (109) zuläßt, jedoch einen Durchtritt des ein Auslaufen verhindernden Teils blockiert,

- eine Verstärkungsfeder (123) zum Beaufschlagen des die Löschung aktivierenden Arms (115) 55

mit einer Kraft, um diesen um das erste Ende nach unten zu drehen,

- einen Mechanismus zur Steuerung der Verbrennung (125), der mit einem Eingriffsteil (127) für einen Eingriff mit dem eingerasteten Teil versehen und an einer Seite des vertikalen Rahmentails (103) angebracht ist,

wobei der Mechanismus zur Steuerung der Verbrennung (125) einen Docht eines Ölbrenners mit aufwärts und abwärts betätigbarem Docht in eine Stellung bewegt, in der eine Verbrennung nicht möglich ist, wenn der die Löschung aktivierende Arm aufwärts um das erste Ende zum Entkuppeln des Eingriffsteils (127) und des eingerasteten Teils (119), und daß der Ausklinkmechanismus (137) an einer Seite des vertikalen Rahmentails (103) entgegengesetzt zu der Seite angebracht ist, an der der Mechanismus zum Steuern der Verbrennung (125) befestigt ist,

- wobei der Ausklinkmechanismus (137) eine freie Bewegung des die Löschung aktivierenden Arms (115) zuläßt, bevor die Umgebungstemperatur ein vorbestimmtes Niveau überschreitet, und für eine Drehung des die Löschung aktivierenden Arms (115) aufwärts um das erste Ende herum zum Entkuppeln des Eingriffsteils (127) und des eingerasteten Teils (119) sorgt, wenn die Umgebungstemperatur das vorbestimmte Niveau überschreitet,

- wobei die schwenkbare Verbindungseinrichtung (139) einen Hebelteil (140) zum Anheben des die Löschung aktivierenden Arms (115) aufweist und sich um eine Drehzentrum (131) dreht, dessen Mittelachse sich rechtwinklig zu dem vertikalen Rahmenteil (103) erstreckt,

- wobei die formspeichernde Schraubenfeder (141) zwischen der schwenkbaren Verbindungseinrichtung (139) und dem Rahmen (101) angeordnet ist, um bei Außendeckung eine Federkraft zum Drehen der schwenkbaren Verbindungseinrichtung (139) in einer Richtung zu erzeugen, in der der Hebelteil (140) an den die Löschung aktivierenden Arm (115) herangeführt ist, wenn die Umgebungstemperatur das vorbestimmte Niveau überschreitet, und

- wobei die Vorspannungsfeder (143) zwischen der schwenkbaren Verbindungseinrichtung (139) und dem Rahmen (101) zur Erzeugung einer Federkraft angeordnet ist, um die schwenkbare Verbindungseinrichtung (139) in die andere Richtung zu drehen, in der der Hebelteil sich von dem die Löschung aktivierenden Arm (115) weg bewegt.

**12.** Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Enrastaufbaus in einer

Brennerlöscheinrichtung gemäß Anspruch 11,

**dadurch gekennzeichnet, daß**

der Ausklinkmechanismus ausgelegt ist zum Zusammenpressen der formerhaltenen Schraubenfeder (141) durch Energiezuführung mittels einer Bedienungskraft, wenn diese Bedienungskraft von außerhalb an den Mechanismus zur Steuerung der Verbrennung angelegt wird.

**13.** Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastbaus in einer Brennerlöscheinrichtung gemäß Anspruch 11, **dadurch gekennzeichnet, daß**

der Ausklinkmechanismus mit einem Druck ausübenden Verbindungsmechanismus ausgerüstet ist, in dem die schwenkbare Verbindungseinrichtung (139) durch Anregung mittels einer Betriebskraft in eine Richtung gedreht wird, um der formspeichernde Schraubenfeder (141) eine Kompressionskraft beim Einbringen einer derartigen Betriebskraft von außerhalb zu verleihen, und daß die schwenkbare Verbindungseinrichtung (139) nicht an einer freien Bewegung nach Entfernen der von außerhalb eingebrachten Betriebskraft gehindert ist.

**14.** Ausklinkmechanismus (137) zum Entkuppeln des Eingriffzustandes eines Einrastbaus einer Brennerlöscheinrichtung gemäß Anspruch 11,

**dadurch gekennzeichnet,**

**daß** ein Teil an dem einen Ende des Stiels (151) von einer Vielzahl Schenkel gebildet ist, die in der Umfangsrichtung mit einem bestimmten Abstand zueinander durch Bildung von Schlitten zwischen ihnen angeordnet sind,

- die Schlitten (157) sich zum mittigen Raum des Stiels (151) hin öffnen,

- die Schenkel einstückig mit den Haken entsprechend ausgebildet sind und

- die Haken den ersten Flansch (153) bilden.

**15.** Ausklinkmechanismus (137) zum Entkuppeln eines Eingriffzustandes eines Einrastbaus in einer Brennerlöscheinrichtung gemäß Anspruch 11,

**dadurch gekennzeichnet, daß**

- der zweite Flansch (155) an seiner mittigen Außenfläche einstückig mit einem Vorsprung (156) ausgebildet ist,

- der andere von dem ersten und dem zweiten Träger (145a, 145b) mit einem Aufnahmeloch (146) zur Aufnahme des Vorsprungs (156) ausgebildet ist und

- der zweite Flansch (155) mit dem anderen von dem ersten und dem zweiten Träger (145a, 145b) in Eingriff steht, indem der Vorsprung (156) in das Aufnahmeloch eingepaßt ist.

## Revendications

1. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur lorsque la température de circonférence dépasse un niveau prédéterminé, ledit mécanisme de dégagement comprenant :
  - une liaison de balancement (139) qui est maintenue de manière rotative par rapport au centre de rotation (131) et qui se balance autour du centre de rotation (131) lorsque le dégagement de l'état d'engagement est effectué ;
  - un ressort à bobine de mémoire de forme (141) agencé, dans une condition compressée, entre ladite liaison de balancement (139) et une première portion fixe pour générer une force de ressort pour faire balancer ladite liaison de balancement (139) dans une direction autour du centre de rotation (131) ; et
  - un ressort de polarisation (143) qui est agencé, dans une condition étendue, entre ladite liaison de balancement (139) et une deuxième portion fixe pour générer une force de ressort pour faire balancer ladite liaison de balancement (139) dans l'autre direction autour du centre de rotation (131) ;

dans lequel ledit ressort à bobine de mémoire de forme (141) a une caractéristique pour s'étendre lorsque la température de circonférence dépasse le niveau prédéterminé et pour générer et donner, à la liaison de balancement (139), un couple supérieur à un couple donné par la force de ressort dudit ressort de polarisation (143).
2. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 1, **caractérisé en ce que** la distance (L1) entre le point d'application de la force de ressort dudit ressort à bobine de mémoire de forme (141) à ladite liaison de balancement (139) et ledit centre de rotation (131) est supérieure à la distance (L2) entre le point d'application de la force de ressort dudit ressort de polarisation (143) à ladite liaison de balancement (139) et ledit centre de rotation (131).
3. Mécanisme de dégagement pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 2, **caractérisé en ce qu'une** structure d'attachement pour agencer ledit ressort à bobine de mémoire de forme (141) entre ladite liaison de balancement (139) et ladite première portion fixe comprend :
  - une première base (145a) fournie sur ladite liaison de balancement (139) ;
  - une deuxième base (145b) fournie sur ladite première portion fixe à l'opposé de ladite première base (145a) ; et
  - un plongeur (150) agencé entre ladite première base (145a) et ladite deuxième base (145b) ;

dans lequel ledit plongeur a un pilier (151) qui passe à travers un espace creux (142) à l'intérieur dudit ressort à bobine de mémoire de forme ; et ledit plongeur permet au dit ressort à bobine de mémoire de forme (141) de se contracter ou de s'étendre le long dudit pilier (151).
4. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 3, **caractérisé en ce que** ledit plongeur (150) a une structure ayant une première bride (153) et une deuxième bride (155) aux deux extrémités dudit pilier (151) ; l'une de ladite première base (145a) et de ladite deuxième base (145b) est formée avec un trou traversant à travers lequel passe ledit pilier (151) ; ladite première bride (153) est fournie à une extrémité dudit pilier (151) qui passe à travers ledit trou traversant et s'étend à l'extérieur de ladite une de ladite première base (145a) et de ladite deuxième base (145b) ; ladite deuxième bride (155) est fournie à l'autre extrémité dudit pilier (151) qui est disposé entre ladite première base (145a) et ladite deuxième base (145b), et est engagé avec l'autre de ladite première base (145a) et de ladite deuxième base (145b) ; et ledit ressort à bobine de mémoire de forme (141) est agencé, dans une condition compressée, entre ladite une de ladite première base (145a) et de ladite deuxième base (145b) et ladite deuxième bride (155) avec ledit pilier (151) disposé à l'intérieur de l'espace creux (142) dudit ressort à bobine de mémoire de forme (141).
5. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 1, 2, 3 ou 4, **caractérisé en ce que** ledit ressort de polarisation (143) est fourni avec des crochets (142a, 142b) aux deux extrémités de celui-ci ; ledit crochet à une extrémité dudit ressort de polarisation (143) est engagé en insérant une partie de celui-ci dans un trou d'engagement fourni sur ladite liaison de balancement (139) ; ledit crochet à l'autre extrémité dudit ressort de polarisation (143) est engagé en insérant une partie de celui-ci dans un autre trou d'engagement fourni sur ladite deuxième portion fixe ; et

au moins l'un de ladite liaison de balancement (139) et dudit châssis (101) est formé avec une pluralité desdits trous d'engagement avec un certain intervalle entre eux.

6. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 4, **caractérisé en ce que** ladite extrémité dudit pilier (151) a une pluralité de jambes (159) formées dans la direction périphérique avec un certain intervalle entre elles ;  
lesdites jambes sont fournies avec des crochets respectivement ; et  
lesdits crochets constituent ladite première bride (153). 10
7. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 4, **caractérisé en ce que** ladite deuxième bride (155) est fournie de manière intégrale avec une projection (156) au niveau de la partie centrale de la surface extérieure de celle-ci ;  
ladite autre de ladite première base (145a) et de ladite deuxième base (145b) est formée avec un trou de réception (146) pour ladite projection (156) ; et  
ladite deuxième bride (155) est engagée avec ladite autre de ladite première base (145a) et de ladite deuxième base (145b) en faisant rentrer ladite projection (156) dans ledit trou de réception (146). 20 25 30
8. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 4, **caractérisé en ce qu'un** passage qui est ouvert vers ladite une extrémité dudit pilier (151) est défini dans la partie centrale dudit pilier (151) ;  
ledit pilier (151) a une paroi circonférentielle avec un ou plusieurs trous traversants (152) qui font communiquer ledit passage et ledit espace creux (142) à l'intérieur dudit ressort à bobine de mémoire de forme (141). 35 40 45
9. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 4, **caractérisé en ce que** ladite deuxième bride (155) est fournie de manière intégrale avec une portion montée dans laquelle rentre une extrémité dudit ressort à bobine de mémoire de forme (141) ;  
une dimension d'une partie dudit pilier (151) à laquelle le pilier (151) traverse ledit trou traversant et une dimension d'une autre partie du pilier (151) s'étendant à partir de la partie du pilier sont légèrement inférieures à une dimension du diamètre dudit 50 55

trou traversant (145c) ; et  
une dimension dudit ressort à bobine de mémoire de forme (141) est légèrement supérieure à ladite dimension du diamètre dudit trou traversant (145c).

10. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 4, **caractérisé en ce que** le dispositif d'extinction d'un brûleur d'huile comprend :

un châssis (101) ayant une portion de châssis verticale (103) qui s'étend dans la direction verticale, et une portion de châssis horizontale (105) qui s'étend dans la direction horizontale à partir de l'extrémité supérieure de ladite portion de châssis verticale (103) ;  
un moyen de détection de vibration (107) ayant un poids de détection de vibration (109) qui est supporté au-dessus de ladite portion de châssis horizontale (105) et est autorisé à s'incliner à la détection d'une vibration ;  
un bras d'activation d'extinction (115) ayant une extrémité et l'autre extrémité, ladite une extrémité étant fixée de manière rotative au niveau du châssis (101) de manière à permettre au dit bras d'activation d'extinction de se balancer le long de ladite portion de châssis verticale (10) ;  
ledit bras d'activation d'extinction (115) ayant, à des positions à l'écart de ladite une extrémité et vers ladite autre extrémité, une portion engagée (119) et une portion de maintien à laquelle une partie dudit poids de détection de vibration (109) est maintenue ;  
ledit bras d'activation d'extinction (115) étant tourné vers le haut autour de ladite une extrémité lorsque ledit bras de détection de vibration (109) est incliné ;  
un ressort énergisant (123) pour donner une force au dit bras d'activation d'extinction (115) pour tourner vers le bas autour de ladite une extrémité ;  
un mécanisme de contrôle de combustion (125) étant fourni avec une portion d'engagement (127) pour s'engager avec ladite portion engagée (119) et étant attaché au dit châssis (101) ;  
ledit mécanisme de contrôle de combustion (125) maintenant la portion de combustion du brûleur d'huile dans une condition dans laquelle la combustion est possible, lorsque ladite portion d'engagement (127) est engagée avec ladite portion engagée (119) sous l'effet d'une force d'opération qui est donnée de l'extérieur ; et  
ledit mécanisme de contrôle de combustion (125), par ailleurs, maintenant la portion de combustion dans une condition dans laquelle la combustion n'est pas possible, lorsque ledit bras d'activation d'extinction (115) tourne vers le haut

autour de ladite une extrémité pour faire en sorte que ladite portion d'engagement (127) et ladite portion engagée (119) soient dégagées,

dans lequel ladite liaison de balancement (139) reste 5  
dans une position pour permettre au dit bras d'activation d'extinction (115) de se déplacer librement avant que la température de circonférence ne dépasse un niveau prédéterminé ; et  
dans lequel ladite liaison de balancement (139) tourne 10  
vers le haut jusqu'à une position à laquelle ladite liaison de balancement (139) s'engage avec ledit bras d'activation d'extinction (115) pour le faire tourner vers le haut autour de ladite une extrémité pour dégager un engagement entre ladite portion d'engagement (127) et ladite portion engagée (119), lorsque ladite température de circonférence dépasse un 15  
niveau prédéterminé ; **caractérisé en ce qu'il** comprend en outre une structure d'attachement pour attacher ledit ressort à bobine de mémoire de forme (141) entre ladite liaison de balancement (139) et ladite première portion fixe. 20

11. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 4, **caractérisé en ce que** le dispositif d'extinction d'un brûleur d'huile comprend : 25

un châssis (101) ayant une portion de châssis verticale (103) qui s'étend dans la direction verticale, et une portion de châssis horizontale (105) qui s'étend dans la direction horizontale à partir de l'extrémité supérieure de la portion de châssis verticale (103) ; 30  
un moyen de détection de vibration (107) ayant un pôle de connexion (111) avec une extrémité supérieure et l'extrémité inférieure qui passe avec du jeu à travers ladite portion de châssis horizontale (105), une portion de prévention de sortie (113) fixée à ladite extrémité inférieure dudit pôle de connexion (111) et un poids de détection de vibration (109) fixé à ladite extrémité supérieure dudit pôle de connexion (111) et supporté au-dessus de ladite portion de châssis horizontale (105) ; 35  
un bras d'activation d'extinction (115) ayant une extrémité et l'autre extrémité, ladite une extrémité étant fixée de manière rotative au dit châssis (101) pour permettre au dit bras d'activation d'extinction de tourner le long de ladite portion, de châssis verticale (103) ; 40  
ledit bras d'activation d'extinction (115) ayant à une position à l'écart de ladite une extrémité et vers ladite autre extrémité, une portion engagée (119) et un trou traversant qui permet au dit pôle de connexion (111) dudit poids de détection de vibration (109) de passer à travers celui-ci mais 45  
50  
55

ne permet pas à ladite portion de prévention de sortie de passer à travers celui-ci ;  
un ressort énergisant (123) pour donner une force au dit bras d'activation d'extinction (115) pour le faire tourner vers le bas autour de ladite une extrémité ;  
un mécanisme de contrôle de combustion (125) étant fourni avec une portion d'engagement (127) pour s'engager avec ladite portion engagée (119) et étant attaché à un côté de ladite portion de châssis verticale (103) ;  
ledit mécanisme de contrôle de combustion (125) maintenant une mèche d'un brûleur d'huile de type à fonctionnement de mèche vers le haut et vers le bas dans une position à laquelle la combustion est possible, lorsque ladite portion d'engagement (127) est engagée avec ladite portion engagée (119) sous l'effet d'une force d'opération donnée de l'extérieur ; et  
ledit mécanisme de contrôle de combustion (125) déplaçant la mèche d'un brûleur d'huile de type à fonctionnement de mèche vers le haut et vers le bas à une position à laquelle la combustion n'est pas possible, lorsque ledit bras d'activation d'extinction (115) tourne vers le haut autour de ladite une extrémité pour dégager ladite portion d'engagement (127) et ladite portion engagée (119) ;  
et le mécanisme de dégagement (137) est attaché à un côté de ladite portion de châssis verticale (103) à l'opposé dudit côté sur lequel ledit mécanisme de contrôle de combustion (125) est attaché ;

dans lequel ledit mécanisme de dégagement (137) permet au dit bras d'activation d'extinction (115) de se déplacer librement avant que la température de circonférence ne dépasse un niveau prédéterminé ;  
dans lequel ledit mécanisme de dégagement (137) fait en sorte que ledit bras d'activation d'extinction (115) tourne vers le haut autour de ladite une extrémité pour dégager ladite portion d'engagement (127) et ladite portion engagée (119), lorsque ladite température de circonférence dépasse le niveau prédéterminé ;  
dans lequel la liaison de balancement (139) a une portion de levage (140) pour lever ledit bras d'activation d'extinction (115) et tourne autour du centre de rotation (131) duquel une ligne centrale s'étend perpendiculairement à ladite portion de châssis verticale (103) ;  
dans lequel le ressort à bobine de mémoire de forme (141) est agencé entre ladite liaison de balancement (139) et ledit châssis (101) pour générer une force de ressort en s'étendant pour faire tourner ladite liaison de balancement (139) dans une direction dans laquelle ladite portion de levage (140) s'approche dudit bras d'activation d'extinction (115) lorsque

la température de circonférence dépasse le niveau prédéterminé ; et  
 dans lequel le ressort de polarisation (143) est agencé entre ladite liaison de balancement (139) et ledit châssis (101) pour générer une force de ressort pour faire tourner ladite liaison de balancement (139) dans l'autre direction dans laquelle ladite portion de levage (140) s'écarte dudit bras d'activation d'extinction (115).

12. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 11, **caractérisé en ce que** ledit mécanisme de dégagement est construit pour compresser ledit ressort à bobine de mémoire de forme (141) en étant énergisé par une force opérationnelle, lorsque ladite force opérationnelle est appliquée de l'extérieur sur ledit mécanisme de contrôle de combustion.
13. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 11, **caractérisé en ce que** ledit mécanisme de dégagement est également équipé d'un mécanisme de liaison de compression dans lequel ladite liaison de balancement (139) est mise en rotation en étant énergisée par une force opérationnelle, dans une direction pour compresser ledit ressort à bobine de mémoire de forme (141) pour lui donner une force de compression lorsqu'une telle force opérationnelle est appliquée de l'extérieur, et ladite liaison de balancement (139) n'est pas empêchée de se déplacer librement après que ladite force opérationnelle appliquée de l'extérieur est supprimée.
14. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 11, **caractérisé en ce qu'**une portion à ladite une extrémité dudit pilier (151) est constituée d'une pluralité de jambes agencées dans la direction périphérique avec un certain intervalle défini par des fentes (157) entre elles ;  
 lesdites fentes (157) sont ouvertes vers ledit espace central dudit pilier (151) ;  
 lesdites jambes sont formées de manière intégrale avec des crochets respectivement ;  
 lesdits crochets constituent ladite première bride (153).
15. Mécanisme de dégagement (137) pour dégager un état d'engagement d'une structure d'engagement dans un dispositif d'extinction d'un brûleur selon la revendication 11, **caractérisé en ce que** la deuxième bride (155) est fournie de manière intégrale avec

une projection (156) au centre de la surface extérieure de celle-ci ;  
 ladite autre de ladite première base (145) et de ladite deuxième base (147) est formée avec un trou de réception (146) pour recevoir ladite projection (156) ;  
 et  
 ladite deuxième bride (155) est engagée avec ladite autre de ladite première base (145a) et de ladite deuxième base (145b) en faisant rentrer ladite projection (156) dans ledit trou de réception.

FIG. 1

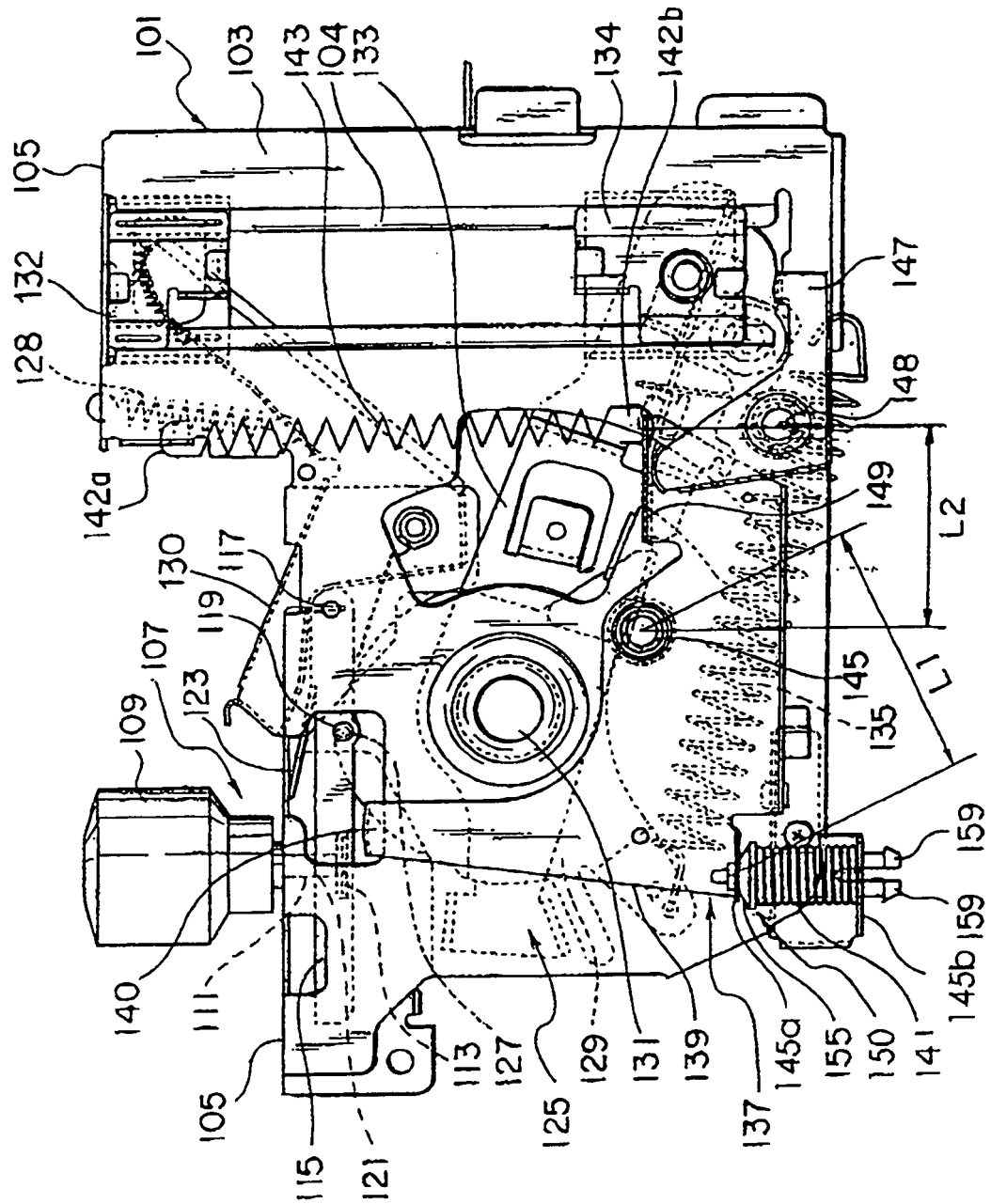


FIG. 2

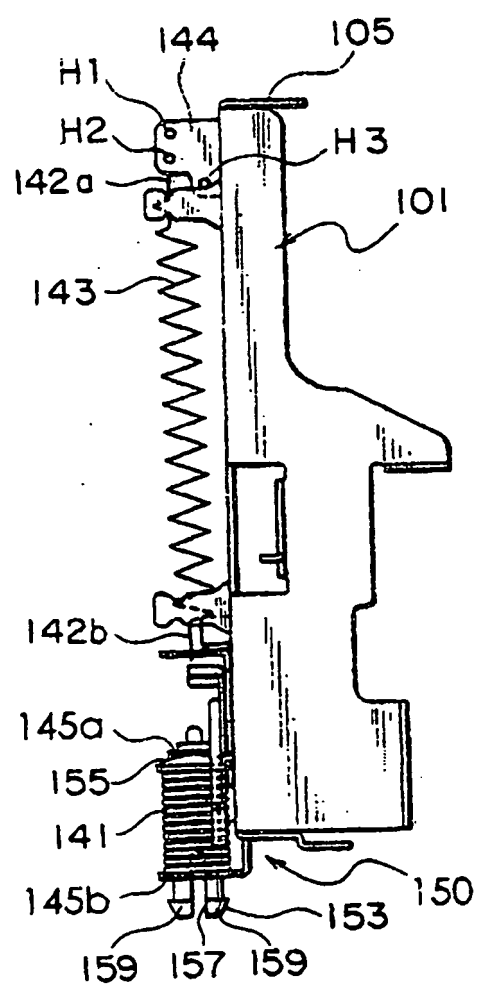


FIG. 3

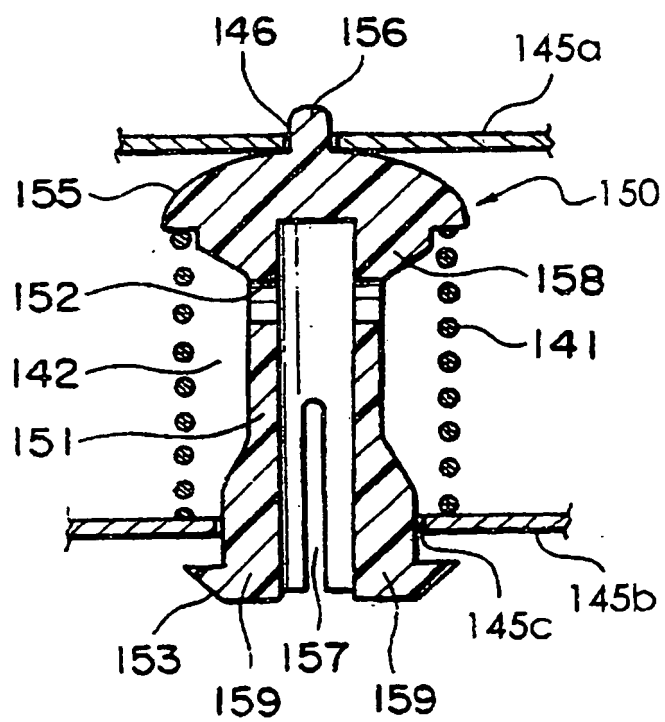


FIG.4

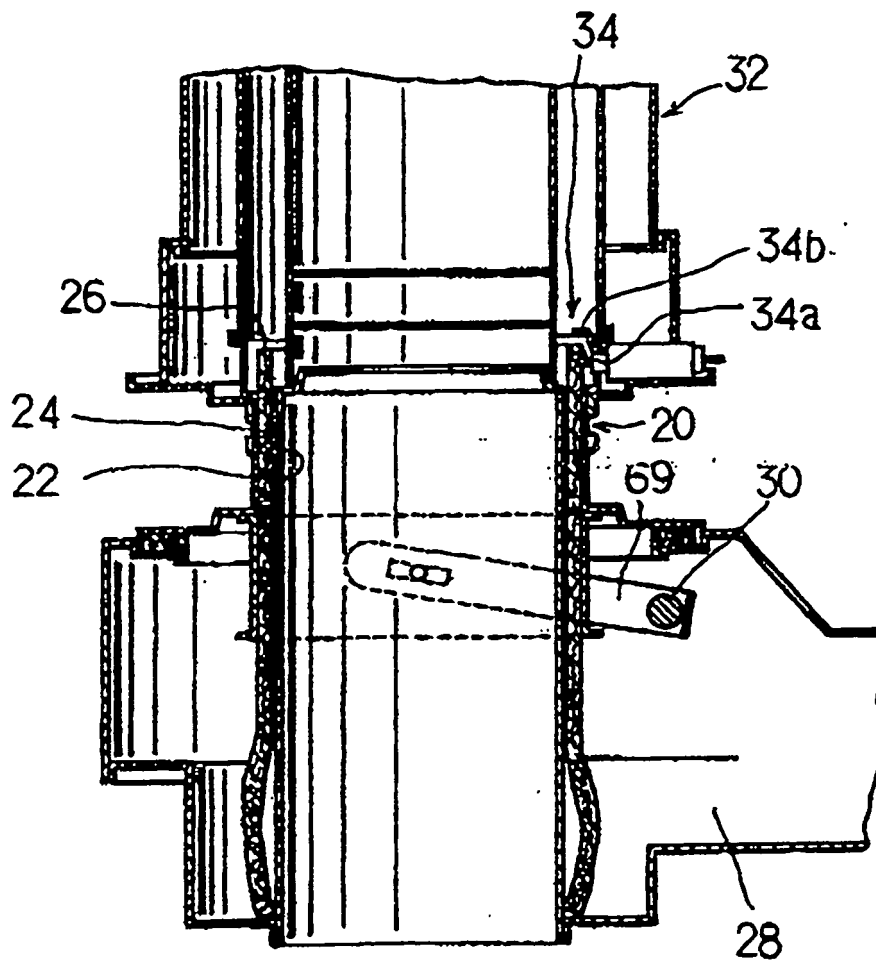


FIG.5

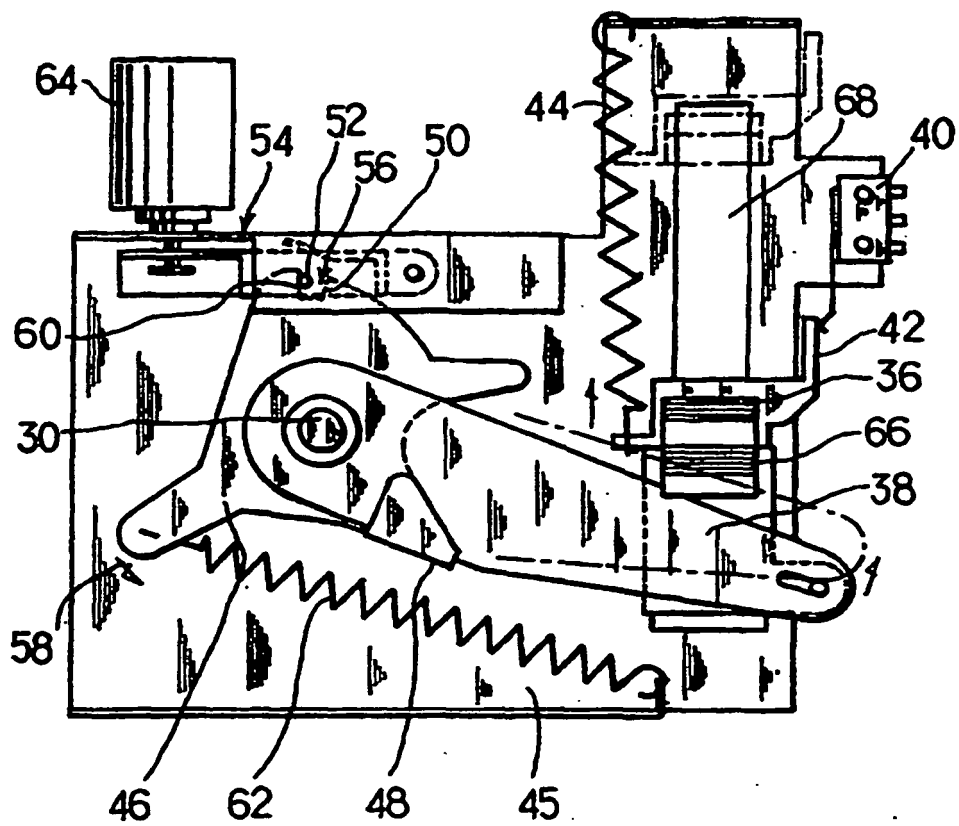


FIG.6

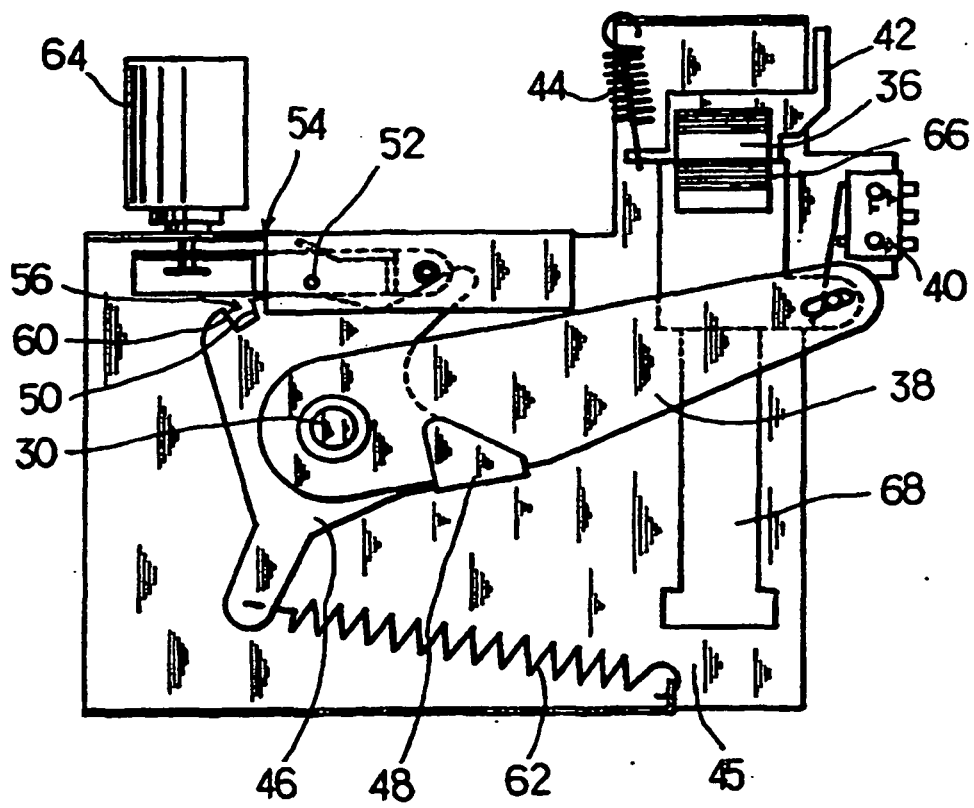


FIG.7

