

[54] **DEVICE FOR ADJUSTING THE BURNING TIME AND LUMINOSITY OF THE FLAME OF A WICK-TYPE LIGHTING DEVICE SUCH AS A CANDLE**

[76] **Inventor:** Paul Marcel Edmond DeCroix, 2 rue Collin, 92, Puteaux, France

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[58] **Field of Search** ..... 431/288, 289, 290, 291, 431/315

[56] **References Cited**

**UNITED STATES PATENTS**

|           |        |                     |         |
|-----------|--------|---------------------|---------|
| 199,109   | 1/1878 | Scott.....          | 431/315 |
| 1,309,545 | 7/1919 | Reicher.....        | 431/291 |
| 2,713,256 | 7/1955 | Oesterle et al..... | 431/291 |
| 3,121,316 | 2/1964 | Wilson et al.....   | 431/290 |

**FOREIGN PATENTS OR APPLICATIONS**

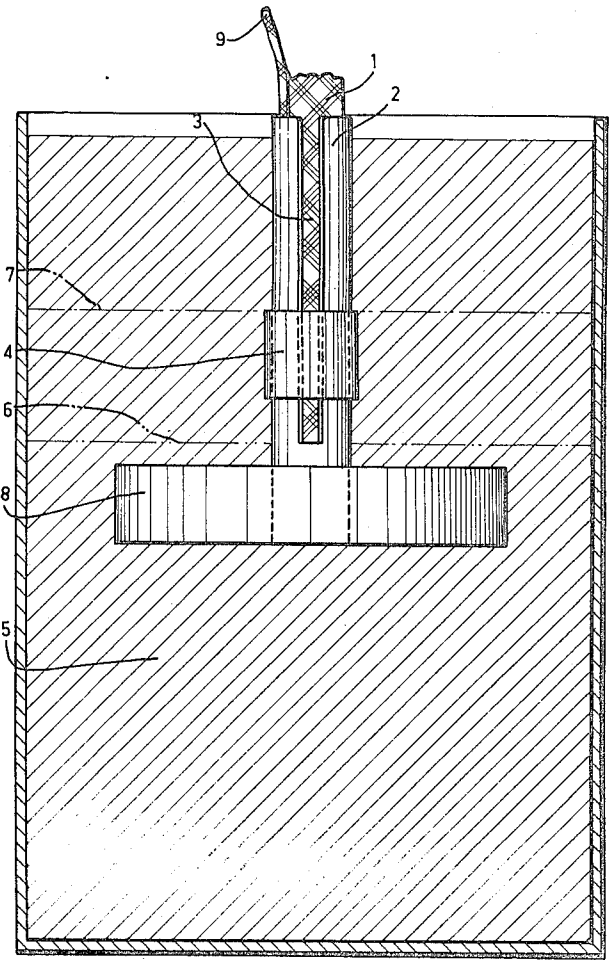
312,931 6/1919 Germany ..... 431/291

*Primary Examiner*—Carroll B. Dority, Jr.  
*Attorney, Agent, or Firm*—Baldwin, Wight & Brown

[57] **ABSTRACT**

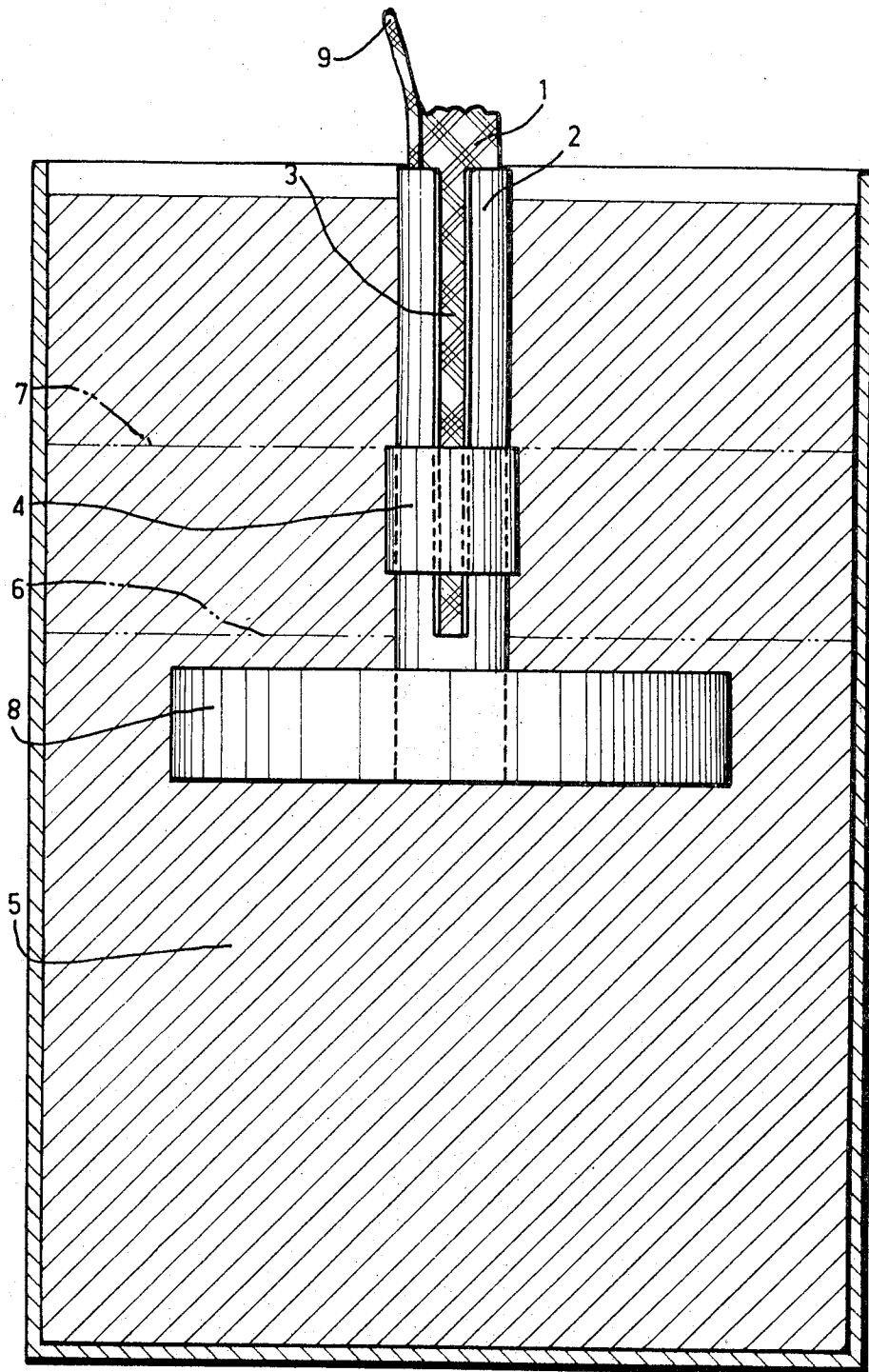
A device for adjusting both the burning time and brightness of the flame of a candle or other wick-type lighting devices. The device is arranged in the midst of a mass of a combustible such as wax and comprises a tube of refractory material, e.g. aluminum, two wicks in the tube, a starting wick and a more resistant wick for lighting per se. The tube has a longitudinal slot running along the major portion of its length from the top of the tube downwards. A ring is slidable on the tube for adjusting the brightness or luminosity of the flame when in position at the top of the tube or for adjusting the burning time of the candle or the like by automatically extinguishing the flame when the flame burns down to the ring located, in this case, below the top of the tube.

**6 Claims, 1 Drawing Figure**



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# **DEVICE FOR ADJUSTING THE BURNING TIME AND LUMINOSITY OF THE FLAME OF A WICK-TYPE LIGHTING DEVICE SUCH AS A CANDLE**

The present invention relates wick-type lighting devices such as candles, globed candles, oil lamps, flare torches, and more particularly a device therefor enabling the adjustment of the burning time and brightness or luminosity of the flame.

Generally speaking wick-type lighting devices comprise one or more cotton wicks arranged in the midst of a combustible mass. Such wick-type lighting devices, e.g. candles, create a great risk of fire when the user forgets to snuff or blow them out.

Such wick-type lighting devices, e.g. candles, also have other drawbacks. While they are burning the wick bends thereby off-centering the flame which, heating a portion of the periphery of the candle to a greater extent than the rest of the periphery, causes dripping or running of molten wax which reduces the service life of the candle and may dirty or cause damage to furniture or table linens, etc. Further, once the wick becomes too long it smokes.

An aim of the present invention is a wick-type lighting device enabling the adjustment of the burning time and luminosity or brightness of the flame so as to avoid the above-described drawbacks while wholly satisfying all safety, operational and aesthetic desiderata.

Indeed, the device according to the invention enables the burning time of the wick-type lighting device to be limited and the flame to be put out automatically, and prevents the wick from smoking and the wick-type lighting device from dripping or running.

The device according to the invention comprises a resistant wick assisted by an auxiliary starting wick, said wicks being contained in a refractory tube having a longitudinal slot the length of which being less than the axial length of the tube, the slotted tube being provided with a sliding ring and being embedded in a locating hole formed in the noncombustible base of the device.

The device may be placed in a container filled with a combustible mass. This container may receive odorless or scented refills when the lighting device is burning or extinguished.

An embodiment of the device adapted to a wick-type lighting device such as a candle, will now be described with reference to the sole FIGURE of the accompanying drawing which schematically illustrates the device in a container.

The device comprises a cylindrical tube of rigid non-melting material, preferably metal, for example aluminium which is heat conducting material, as is known. The tube 2 has a slot 3 extending longitudinally from the top end of the tube 2 along a prelimited distance less than the axial length of the tube towards the bottom. A sliding ring 4 surrounds the slotted tube 2 and may possibly be provided with a slot along only a part of its axial height having the same width as the slot 3 in the tube 2. The tube 2 contains a wick 1 which is rather resistant so as to withstand a great amount of burning. The wick 1 is preferably made of asbestos fibre saturated with a combustible substance, wax for example. The upper end of the tube 2 contains a small removable auxiliary wick 9 adjacent to the wick 1. The wick 1 protrudes only a few millimetres beyond the top end of the tube 2, while the auxiliary wick 9 extends

several additional millimetres (about 3 mm) beyond the tube 2.

The lower end of the tube 2 may be embedded in a base 8 of non-melting material such as asbestos or plaster, the base being formed with a locating hole for receiving the tube.

The operation of the device operatively positioned in the container filled with a combustible mass 5, such as wax will now be described. The device is lit by the auxiliary wick 9, the principal wick 1 is difficult to light because its upper end extends too little beyond the top of the slotted tube 2 and because the main wick is saturated with wax. Thus the auxiliary wick 9 is lit. The flame from the auxiliary wick 9 heats the tube 2 which causes the saturated wax in the wick 1 to melt and especially the wax 5 around the outside of the tube 2. The molten wax 5 enters the slot 3 in the tube 2 continuing to impregnate the relatively slowly consumable wick 1 which can then be consumed.

The height of the flame is constant irrespective of the level of wax because the wick 1 is continuously fed owing to the molten wax 5 passing into the slot 3 in the tube 2. The height of the wick 1 extending above the tube 2 is adjustable so that the flame is not too large and does not smoke. The device according to the invention enables the adjustment of the brightness or luminosity of the flame, i.e., by sliding the ring 4 upwards along the length of the tube 2 so that the upper edge of the ring 4 extends slight above the upper edge of the tube 2, the flame is diminished. If the ring 4 is brought even higher, the free end of the wick 1 is reduced and therefore the device's brightness or luminosity will be further reduced.

The present device also enables the adjustment of the burning time. If one desires a long burning time, the sliding ring 4 may be removed or slid to its lowermost position so that the slot 3 is continuous along the maximum length from the upper edge of the tube 2. Once the level of the combustible, wax in the present embodiment, reaches the level 6 of the slot 3, the wick 1 is no longer fed and the flame goes out.

The shorter the desired burning time of the device, i.e. the sooner the flame is to go out automatically, the further the ring is slid upwards. Thus, when the level of the molten wax 5 reaches the upper edge of the ring 4 along the dotted line 7, the wick 1 is no longer fed and the flame goes out.

The device according to the invention may be used in all cases in which a wick associated with a solid or liquid mass constitutes a lighting device, e.g. candles, buoy lights, night lights.

What is claimed is:

1. A wick-type device for burning a combustible material and for adjusting both the brightness and the burning time of the flame, comprising a tube of heat conducting material having a slot extending longitudinally of said tube from a slot end adjacent one end of the tube and being of less length than the axial length of the tube; a relatively slowly consumable main wick impregnable with combustible material and being exposed to said slot for receiving additional combustible material from outside said tube through said slot and having one of its ends exposed for burning adjacent said one end of said tube; an auxiliary wick within said tube and projecting beyond said one end of said tube and said one end of said main wick for being accessible to being lit and for, in turn, lighting said main wick at

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its said one end thereof; and ring means slidably mounted on said tube and being longitudinally adjustable therealong selectively in two zones, the first zone being adjacent said one end of said tube wherein said ring means is adapted to limit the brightness of the flame, and the second zone extending from said first zone along a major portion of the tube, said ring means, when in said second zone being adapted to determine the burning time and to extinguish the flame when said main wick burns down to the position of said ring means in said second zone.

2. A device according to claim 1, further comprising a base formed of non combustible material, the other end of said tube being received in a locating hole in said base with said one end of said tube at the top.

3. A device according to claim 1, in combination with

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a container filled with a mass of combustible material, said device being arranged upright in said container with said one end of said tube at the top, said tube being surrounded by the combustible mass.

5 4. A device according to claim 2, wherein the longitudinal slot extends from said one end of the tube to a position slightly above the base.

5. A combination according to claim 3, wherein the boundary between said first zone and said second zone is located in the vicinity of the top edge of the tube.

6. A device according to claim 1, wherein the main wick extends only very slightly beyond said one end of the tube, and the auxiliary wick extends considerably further beyond said one end of the tube than the main wick.

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