No. 833,738. PATENTED OCT. 23, 1906.

J. S. FREY.

WICK STOP.

APPLICATION FILED SEPT. 20, 1905.

Fig. 1

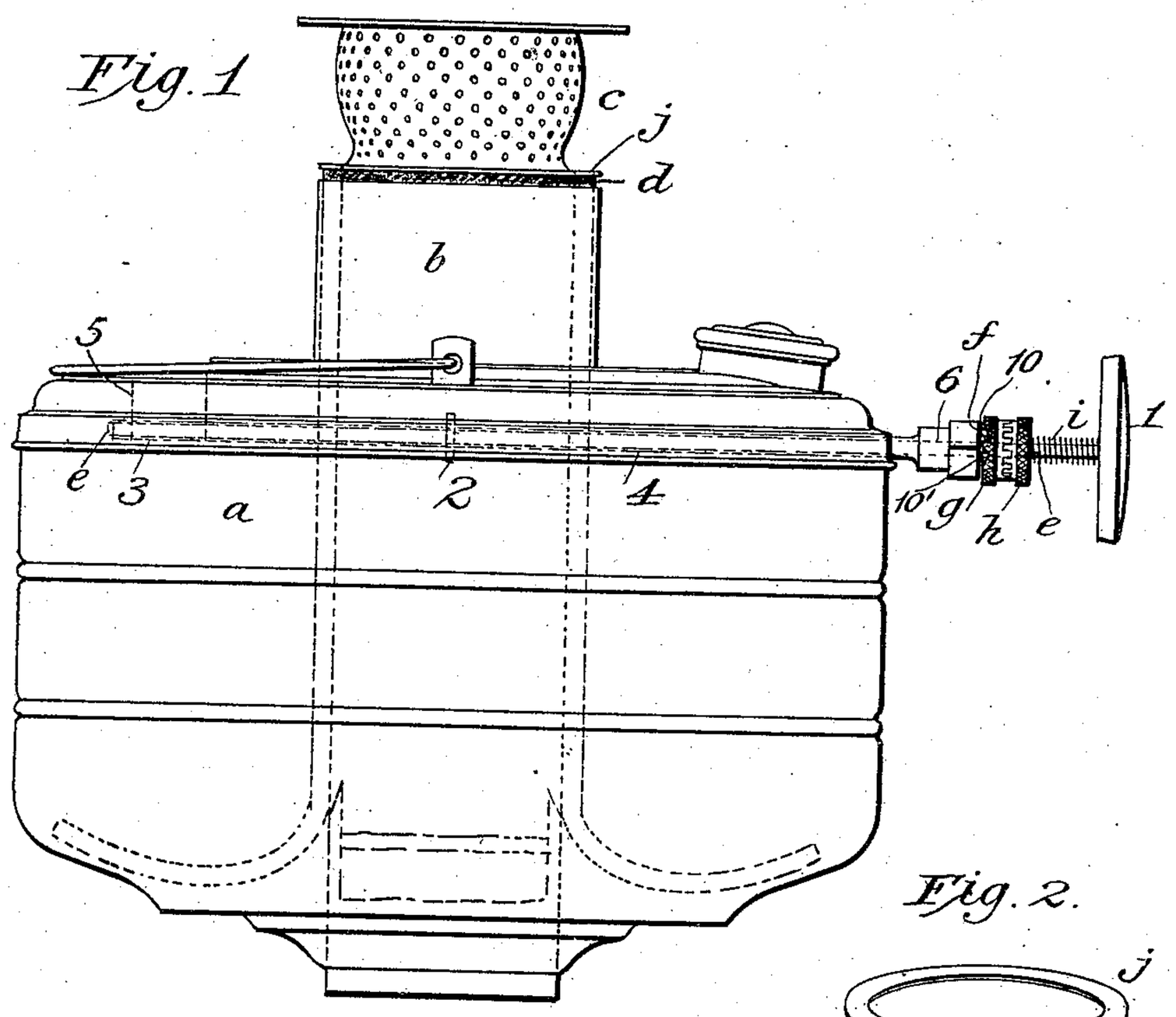


Fig. 2.

Fig. 3.

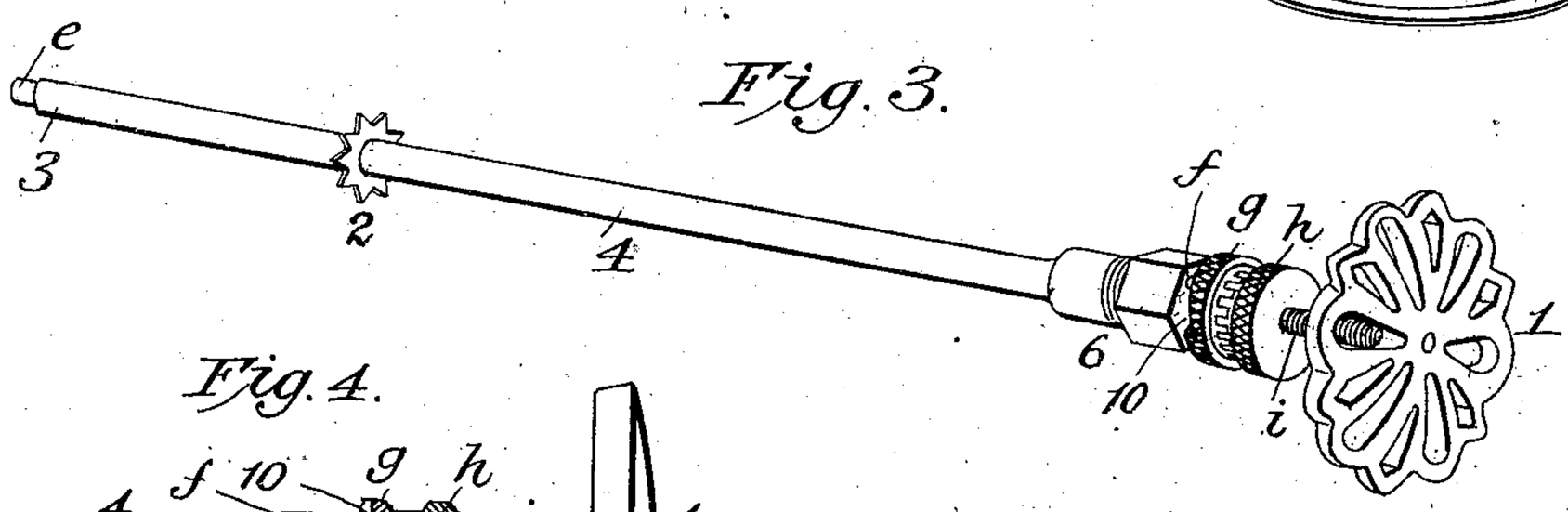


Fig. 4.

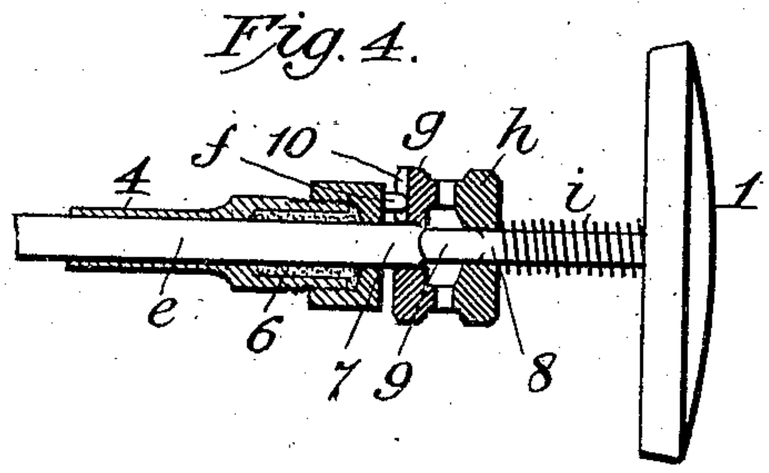


Fig. 5.

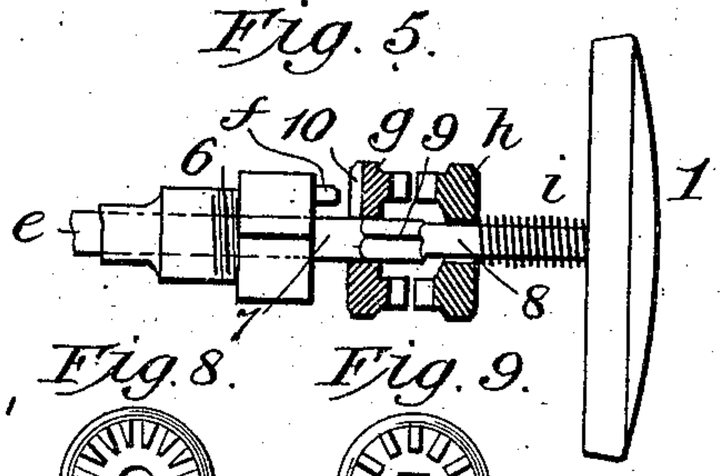


Fig. 6

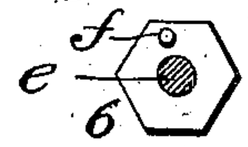


Fig. 7.

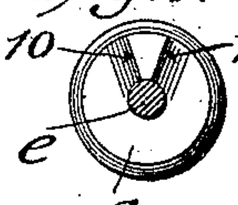


Fig. 8.

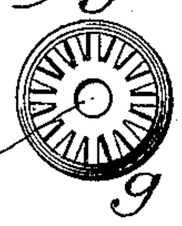


Fig. 9.

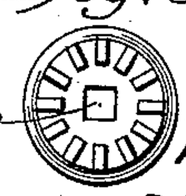
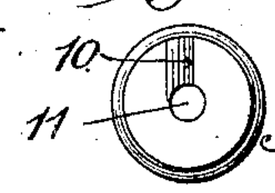


Fig. 10.



Witnesses

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WICK-STOP.

No. 833,738. Specification of Letters Patent. Patented Oct. 23, 1906.

Application filed September 20, 1905. Serial No. 279,293.

To all whom it may concern:

Be it known that I, JOHN S. FREY, a citizen of the United States of America, and a resident of the borough of Brooklyn, New York city, in the State of New York, have invented a new and useful Improvement in Wick-Stops, of which the following is a specification.

This invention relates to means for regulating the flames of lamps, especially lamp-stoves having movable wicks, and incidentally to means for quickly and automatically extinguishing the flame when such wicks are lowered.

The present invention consists in certain novel combinations of parts hereinafter set forth and claimed; and its distinctive objects are to facilitate adjusting the wick with great nicety, so as to insure a smokeless flame of maximum intensity, and to prevent the wick from being turned down too far as well as from being turned up too high.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 is an elevation of the tank and burner of a lamp-stove provided with the improved wick-stop in connection with an extinguisher. Fig. 2 is a perspective view of the extinguishing-ring detached. Fig. 3 is a perspective view of the wick-stop and its immediate appurtenances detached. Figs. 4 and 5 are fragmentary sectional elevations showing the respective parts of the wick-stop in effective relation and the same parts separated. Figs. 6 to 9, inclusive, are detail cross-sections through the wick-raising spindle, showing the several faces of the wick-stop parts; and Fig. 10 is a face view of one of the wick-stop parts, illustrating a modification.

Like reference characters indicate like parts in all the figures.

The oil-tank *a*, wick-tube *b*, and flame-spreader *c* (shown in Fig. 1) may, for the purposes of the present invention, be of any known or improved construction. Within the wick-tube *b* a movable wick *d*, of any approved kind, is adapted to be raised and lowered to regulate the flame and to extinguish it.

The means for raising and lowering the wick include a rotatable spindle *e*, supported partly within the tank *a* and provided with a knob 1, fixedly attached to the outer end of the spindle by which to turn it and with a star-wheel 2, fast thereon to interact with the customary wick-embracing sleeve of perforated sheet metal or its equivalent. The spindle *e* is supported within the tank *a* by a pair of inclosing tubes 3 and 4, abutting against the respective sides of the star-wheel 2. The inner tube 3 is attached to a hanger 5 within the tank. The outer tube 4 protrudes through the wall of the tank to which it is attached and terminates in a stuffing-box 6 to prevent the leakage of oil around the spindle.

The rotation of the spindle *e*, so as to raise or lower the wick *d*, is controlled by the improved wick-stop as follows: The cap of said stuffing-box 6 is provided with a stop-lug *f*, and beyond the same the spindle *e* is constructed with two cylindrical portions 7 and 8, having a squared portion 9 between them. A pair of milled collars *g* and *h*, or *g'* and *h*, having crown-teeth and adapted to intermesh with each other, are mounted loosely on this protruding part of the spindle, together with a helical spring *i*, abutting against the inner surface of said knob 1 and reacting against the outermost of said collars *g* and *h* and *g'* and *h*, whereby said collars *g* and *h* or *g'* and *h* are rendered normally intermeshed with each other and pressed against said stop-lug *f*, as in Fig. 4. The surface of the innermost collar *g* or *g'* is opposed to said stop-lug *f*, and in the species illustrated by Figs. 1 to 9, inclusive, the collar *g* is constructed with two ratchet-notches 10 and 10' reversed with reference to each other, the square shoulders of which contact with said stop-lug *f* at the end of the wick-raising operation and of the wick-lowering operation, respectively. By separating the collars *g* and *h* from each other and from said stop-lug *f* against the resistance of said spring *i*, as in Fig. 5, the innermost collar *g* may be turned relatively to the outermost collar *h*, so as to increase or lessen the angular distance said innermost collar *g* will have to turn before the stop-shoulder of its ratchet-notch 10 comes in contact with said stop-lug *f*. Said innermost collar *g* has a round bore 11, Figs. 7 and 8, adapting it to turn on said round portion 7 or said square portion 9 of the spindle *e*. The outermost collar *h* has a square bore 12, Fig. 9, fitted to said square portion 9 of the spindle and interacting therewith to connect said outermost collar *h* with the spindle *e* in the effective position of the parts, Fig. 4, so that the collars *g* and *h* being interlocked with each other by their intermeshed teeth both collars must turn with the spindle

in said effective position of the parts and serve to limit the rotation of the spindle by the contact of the stop-shoulder of said ratchet-notch 10 with said stop-lug *f* in raising the wick. The inclined back of said ratchet-notch 10 rides over the stop-lug *f* and permits the spindle *e* to be turned freely, so as to lower the wick *d* until the square shoulder of the notch 10′ comes in contact with said stop-lug *f* to prevent lowering the wick too far. If turned too low, it could not be raised again by the knob 1 and wheel 2.

To insure quickly extinguishing the flame when the wick *d* is lowered, so as to prevent the escape of smoke or fumes, a flat ring *j* of any suitable incombustible material (shown detached by Fig. 2) is loosely superposed upon the upper end of the wick *d*, as in Fig. 1, the inner diameter of the ring being sufficiently large to adapt it to move freely with the wick.

The upper ends of new wicks are invariably frayed more or less, and the ring-shaped extinguisher *j*, resting directly upon the wick, as above, assists materially in rendering the wick smokeless by leveling or suppressing any loose strands that might otherwise project upward and render the flame irregular. The extinguishing device, however, forms no part of the present invention, and for the purposes of this invention the extinguisher may be of any known or improved construction.

In the species illustrated by Fig. 10 the stop-notch 10′ is omitted. Otherwise the device, including the wick-stop collar *g′*, is or may be constructed as above described. Said notch 10′ may be thus omitted in oil-heater fonts where the perforated wick-carrier is made long enough to engage the bottom of the tank before the wick-stop device has completed a turn.

The construction of the spindle-supports 3 4 5 and of the stuffing-box 6 forms no part of the present invention and may be varied to any desired extent, the wick-stop collars *g* and *h* may be increased in diameter to strengthen them to any desired extent, the stop-lug *f* and ratchet-notches 10 and 10′ may be transposed, and other like modifications will suggest themselves to those skilled in the art.

The term "squared" is intended to include "splined" and the like, whereby a part movable lengthwise of a spindle is compelled to rotate therewith.

Having thus described said improvement, I claim as my invention and desire to patent under this specification—

1. The combination, in a lamp or lamp-stove having a vertically-movable wick, of means for raising and lowering said wick including a rotatable spindle having its outer end constructed with squared and cylindrical portions, a pair of loose collars on said spindle both of them constructed with crown-teeth adapted to intermesh with each other, one of them having a squared bore fitted to said squared portion of the spindle, and the innermost collar having a stop-shoulder, a stop supported by a relatively fixed part and arranged to interlock with said stop-shoulder when the wick is raised to a given height, and a spring tending to keep the teeth of said collars intermeshed and the shouldered surface of said innermost collar in contact with said stop.

2. The combination, in a smokeless lamp or lamp-stove having a vertically-movable wick, of means for raising and lowering said wick including a rotatable spindle having its outer end constructed with squared and cylindrical portions, a pair of milled collars mounted loosely on said spindle and constructed with crown-teeth adapted to intermesh with each other, one of them having a squared bore fitted to said squared portion of the spindle and the innermost collar having a ratchet-notch forming a stop-shoulder, a stop-lug supported by a relatively fixed part and arranged to interlock with said stop-shoulder, and a helical spring surrounding said spindle, interacting with the outermost collar and tending to keep the teeth of said collars intermeshed and the notched surface of said innermost collar in contact with said stop-lug.

3. The combination, in a lamp or lamp-stove having a vertically-movable wick, of means for raising and lowering said wick including a rotatable spindle having its outer end constructed with squared and cylindrical portions, a pair of loose collars on said spindle both of them constructed with crown-teeth adapted to intermesh with each other, one of them having a squared bore fitted to said squared portion of the spindle, and the innermost collar having a pair of ratchet-notches reversed with reference to each other and forming a pair of stop shoulders, a stop supported by a relatively fixed part and arranged to interlock with one of said shoulders when the wick is raised to a given height and with the other shoulder when the wick is lowered to the desired extent, and a helical spring tending to keep the teeth of said collars intermeshed and the shouldered surface of said innermost collar in contact with said stop, substantially as hereinbefore described.

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Witnesses:
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