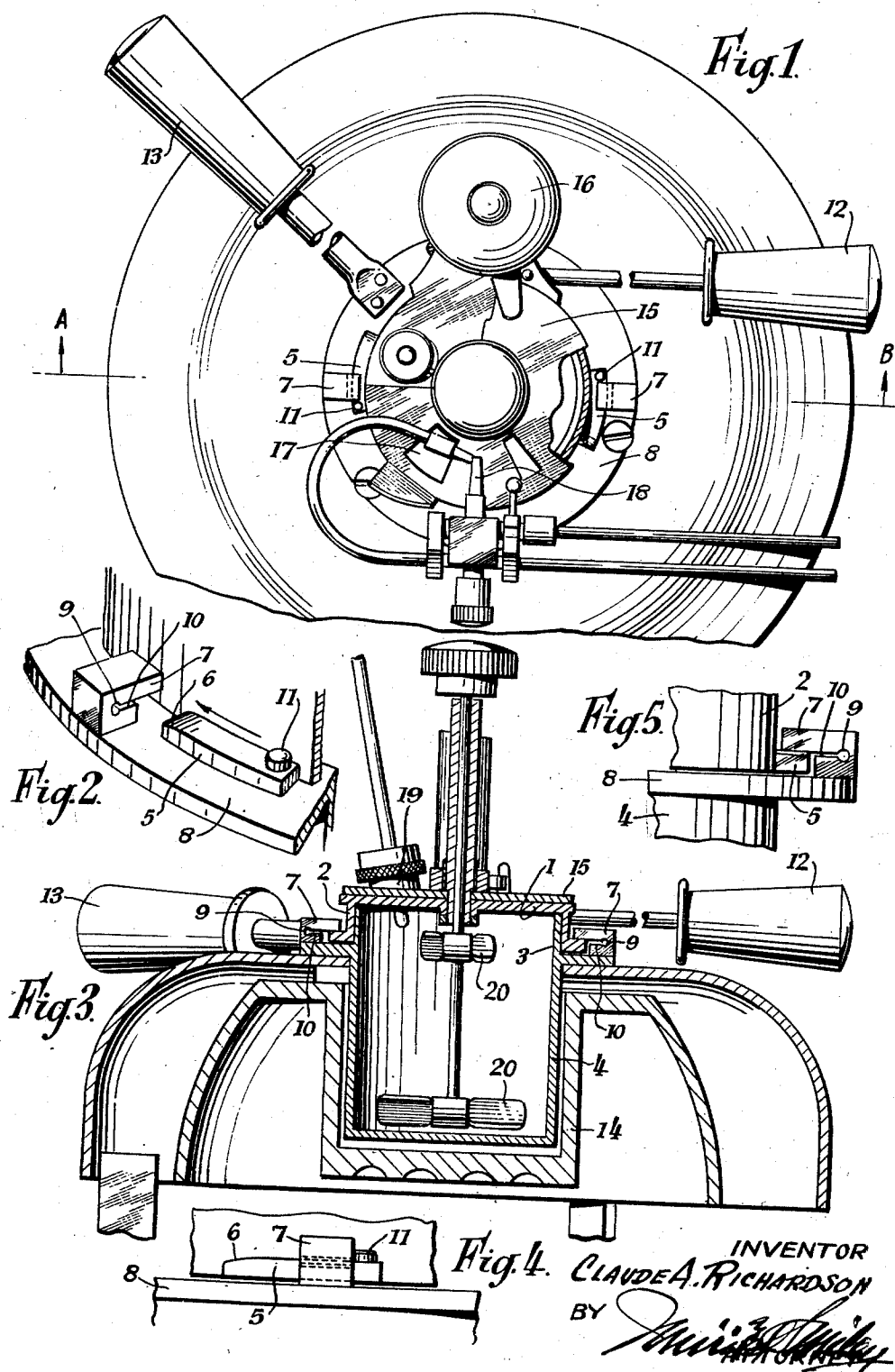


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 APPARATUS FOR DETERMINING THE FLASH
 POINT OF PETROLEUM PRODUCTS
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APPARATUS FOR DETERMINING THE FLASH POINT OF PETROLEUM PRODUCTS

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1 Claim. (Cl. 220—40)

This invention relates to apparatus for determining the flash point of petroleum products, the invention being concerned with apparatus of known kind comprising broadly an oil cup in which the product to be tested is placed and heated by immersing the cup in a heating vessel, the cup being closed by a cover having an opening or slot which is opened and closed at will by means of a manually operated shutter, opening movement of the shutter causing a gas or oil test jet to be directed through the opening into the interior of the cup so as to ignite the gases given off by the product, the flash point of which is to be determined, the cover carrying a thermometer so that the flash point can be easily read. Such an apparatus is generally known as the Pensky-Martens closed tester and is used for determining the flash point of petroleum products having a flash point above 120° F.

The present invention is concerned with providing a good connection and seal between the cup and its associated cover the invention consisting broadly in providing the cover with a number, for example, two, cam surfaces which co-operate with lugs on a flange immediately surrounding the cup, the arrangement being such that on the cover being placed in position on the cup and rotated a few degrees the cam surfaces will engage the lugs and so draw the cover into good sealing engagement with the cup, the cam surfaces by virtue of their engagement with the lugs preventing accidental displacement of the cover from the cup.

Referring to the drawings:

Figure 1 is a plan view of the apparatus incorporating locking means in accordance with the invention;

Figure 2 is a fragmentary perspective view;

Figure 3 is a vertical section on the line A—B in Figure 1;

Figure 4 illustrates the locking means in side elevation;

Figure 5 is a front elevation.

In a preferred embodiment of the invention the cover 1 is formed with a depending peripheral rim 2 which is adapted to fit around an upstanding neck 3 on the cup 4, the rim 2 being formed with or carrying a pair of diametrically positioned cams 5, the upper surfaces of which are inclined as at 6, the cams 5 as a result of part rotational movement of the cover in the direction of the arrow in Figure 2 being moved beneath two lugs 7 on a flange 8 on the cup so that the inclined faces 6 engage therewith and by their engagement draw the cover 1 downwardly into firm sealing engagement with its associated cup 4. The lugs 7 on the cup flange 8 are preferably drilled horizontally as at 9 into which drillings are run sawcuts 10 which give the lugs a certain amount of inherent resilience and thereby frictionally engage the inclined faces or cam surfaces and provide a frictional lock. The cams 5 are provided with upstanding projections 11 which form stops to limit angular engagement of the parts.

To enable the cover to be quickly and easily removed and replaced it is provided with a short radially projecting handle 12, the cup being also provided with a radially projecting handle 13 of greater length by means of which handle the cup and its associated cover can be lifted out of the heating vessel 14 and replaced. It is preferred that the cover shall be moved into its sealing or locked position by divergent movement of the small handle relative to the larger handle.

It will be appreciated that with the invention the cover

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will be held firmly in good sealing engagement with its associated cup and by virtue of the interengagement between the cam surfaces and the fixed lugs on the cup accidental displacement of the cover from the cup will be prevented. The cover carries the usual spring actuated shutter 15 which when operated by the manual control knob 16 uncovers a slot or opening in the cover by bringing a slot 17 in the part 15 in register with the slot in the cover, and at the same time moves a gas burner or igniting jet 18 into a position in which the gases coming from the petroleum product under test can be ignited, the spring serving to return both igniting device and shutter to their inoperative position after each test. The cover is provided with an upstanding neck 19 for the entry of a thermometer, whilst the cover is also provided with a bearing for a finger actuated or mechanical stirrer or agitator 20.

It will be appreciated that by virtue of the fact that the cover is drawn firmly down into good sealing engagement with the cup, it will no longer be necessary to work to close tolerances in the manufacture of the apparatus with a consequent reduction in the cost of manufacture and at the same time obviates the inconveniences associated with such apparatus as previously manufactured as regards quick and easy removal of the cover from the cup.

I claim:

In an apparatus for determining the flash point of petroleum products including an oil cup for receiving the product to be tested and having an outturned annular flange intermediate the top and bottom thereof for supporting the same within a vessel, and a cover closing the top of said cup; the improvement comprising cooperating means on said flange and said cover for sealing the cover to the cup, said means including a depending skirt on said cover and surrounding the upper portion of said cup, a plurality of lugs mounted on said flange at circumferentially spaced intervals therearound, said lugs having upstanding block-like bodies and integral legs projecting respectively beyond the lug body toward the side wall of said cup and being spaced above said flange, said means further including a plurality of circumferentially spaced cam elements carried by said cover skirt and extending outwardly from the bottom edge thereof, said cam elements extending in a circumferential direction around said skirt and seating under said legs and clamping said lid onto said flange as the cover is rotated in one direction, said cam elements having cam portions on the leading ends thereof with respect to said one direction of rotation and stops on the trailing ends thereof for abutment with the respective lug to limit the camming movement thereof in sealing direction, and means joining said legs to said lugs for limited resilience relative thereto said joining means comprising said lugs each having a horizontal slot in its inner portion facing said cup wall and separating the inner portion of said lug body from its associated leg, said lug also having an enlarged transverse bore at the inner end of said slot, whereby a resilient clamping pressure is maintained in said cam elements by said legs.

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