March 1, 1932. W. B. RITCHIE 1,848,028

TOY STEAM ENGINE BOILER

Filed Oct. 24, 1929

Fig. 1.

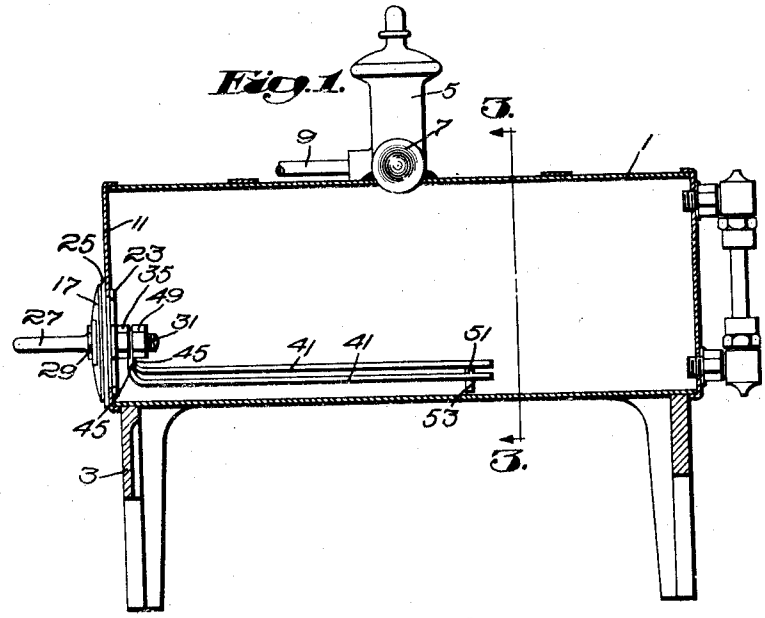


Fig. 2.

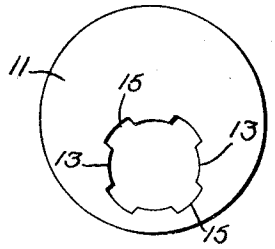


Fig. 6.

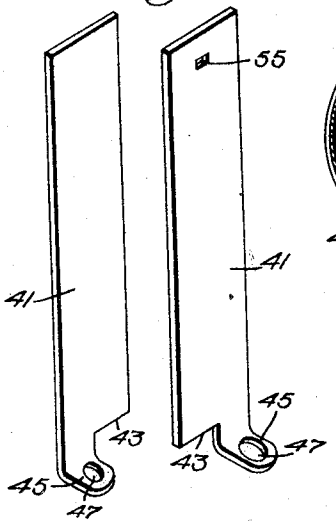


Fig. 3.

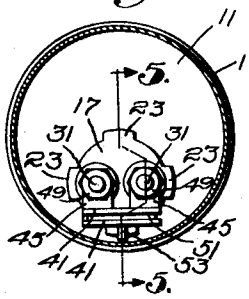


Fig. 7.

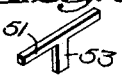


Fig. 4.

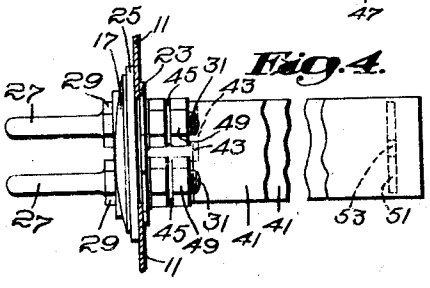
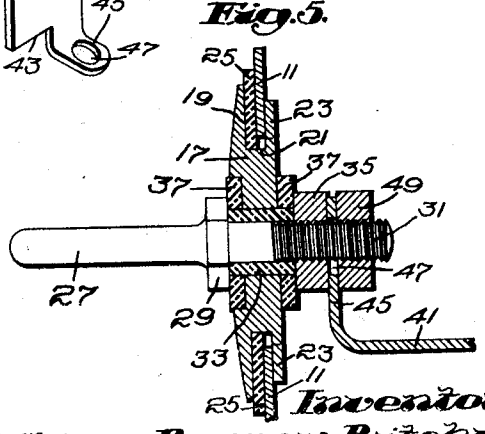


Fig. 5.



Inventor:
William Barney Ritchie
by Emery Booth Varney & Townsend Attys

Patented Mar. 1, 1932 1,848,028

UNITED STATES PATENT OFFICE

WILLIAM BARNEY RITCHIE, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNOR TO WEEDEN MANUFACTURING CORPORATION, OF NEW BEDFORD, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

TOY STEAM ENGINE BOILER

Application filed October 24, 1929. Serial No. 402,256.

My invention relates to liquid heaters and vaporizers, and particularly, but not exclusively, to a boiler for a toy steam engine having an electric heating element for supplying the heat for generating steam.

The invention will be best understood from the following description when read in the light of the accompanying drawings showing an illustrative embodiment of the invention, the scope of the latter being more particularly pointed out in the appended claims.

In the drawings:—

Fig. 1 is a vertical longitudinal section of a boiler for a toy steam engine, with parts in elevation;

Fig. 2 is an end view of the boiler shell with the heating element removed, as viewed from the left in Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 1, with parts omitted;

Fig. 4 is a plan of the heating element;

Fig. 5 is a section on the line 5—5 of Fig. 3;

Fig. 6 is a perspective view of the two electrodes or resistances; and

Fig. 7 is a perspective of the insulator associated with the heating element.

In the illustrative embodiment of the invention shown by the drawings, the boiler 1 is of the horizontal type, and is supported on a frame 3, which frame may carry the engine supplied with steam from the boiler as disclosed in allowed application of William Ritchie, Serial No. 74,142, filed December 8, 1925 now Patent No. 1,735,057. Herein, the boiler is provided with the usual steam dome 5, throttle valve 7, and steam pipe 9 leading to the engine.

As illustrated, the boiler head 11 is provided with a filling orifice 13 (Fig. 2) which herein is circular and is provided with the four notched out circumferential portions 15. Herein, the closure for the filling orifice takes the form of a disk like member 17 having the large diameter portion 19 and the reduced diameter portion 21, the latter for entering the filling orifice 13 of the boiler shell. At its inner end the reduced diameter portion is provided with lugs 23 corresponding in shape, number and spacing to the notches 15 of the filling orifice, this construction permitting the reduced diameter portion 21 of the closure to be inserted into the orifice 13 by presenting the closure to the orifice with the lugs 23 in registry with the notches 15, and then by rotating the closure to place the lugs between the notches to lock the closure to the boiler shell.

Herein, the closure carries an annular packing gasket 25, which fits over the reduced diameter portion 21 of the closure, and is held thereon by the large diameter portion 19 and the lugs 23. When the closure is locked to the boiler shell this gasket is under compression, and effectively prevents leakage and acts to restrain the closure against rotation.

As shown, the closure carries a pair of metal prongs 27 for insertion into a cooperating socket attached to an electric light cord. Intermediate their length the prongs are provided with collars 29, and, as shown at 31, the end portions of the prongs opposite those which are inserted into the socket are screw threaded. The screw threaded portions of the prongs extend through insulating bushings 33 carried in perforations in the closure, nuts 35 screw threaded on the portions 31 of the prongs holding the latter in assembled relation with the closure, while washers 37 on each end of the bushings 33 effectively insulate the collars 29 and nuts 35 from the closure.

Herein, the prongs 27 are in electrical communication with a heating element, which herein takes the form of a pair of flat plate electrodes 41, each of which at one end is cut away at 43 and bent to form a foot 45 at right angles to the body of the plate. As illustrated, the feet 45 are provided with perforations 47 which receive the ends 31 of the prongs, and are secured to said prongs by nuts 49. As shown, the foot 45 for one of the plates is longer than the foot for the other plate, so that the plates may be held in spaced relation as indicated in Fig. 1. Conveniently the perforations 47 may be elongated, or may be of larger diameter than the portions of the prongs inserted in said perforations, so that the distances between the plates may be adjusted to vary the heating effect and to compensate for different voltages of house

lighting circuits, and permit the plates to be placed different distances apart for direct or alternating current to prevent arcing. The plates may be of any suitable resistance material such as sheet iron, bronze, zinc, molded carbon, and the like, commonly employed in similar situations.

As shown, the end of the resistance heating element carries a T-shaped insulator formed of fiber, or the like, having a head 51 which is placed between the two plates, and a shank 53 which extends through a perforation 55 downwardly toward the bottom of the boiler shell. The head 51 of the insulator acts to prevent the two plates 41 from accidentally contacting, which might happen if the plates are bent, or if the nuts 49 are not securely tightened after adjusting the distances between the plates. The shank 53 prevents the resistance heating element from accidentally contacting with the boiler shell.

It will be understood that the invention is not limited to the particular embodiment thereof herein described, but that within the spirit of the invention wide deviations may be made from this embodiment.

Claims:

1. A device of the character described having, in combination, a boiler having an opening, a removable closure for said opening, a pair of prongs carried by said closure for insertion into an electric socket said closure carrying a pair of cooperating electrodes having terminals in electrical communication with said prongs, said electrodes projecting into said boiler in spaced relation to the bottom of the boiler shell when said closure is in position, said closure and said shell formed with cooperating portions for locking and unlocking one to the other by rotating said closure relative to said shell, an annuular packing gasket surrounding said prongs, said gasket carried by said closure and adapted to be compressed between said closure and said boiler shell.

2. A device of the character described having, in combination, a boiler having an opening, a removable closure for said opening, a pair of prongs carried by said closure for insertion into an electric socket said closure carrying a pair of cooperating electrodes having terminals in electrical communication with said prongs, said electrodes projecting into said boiler in spaced relation to the bottom of the boiler shell when said closure is in position, said closure and said shell formed with cooperating portions forming a bayonet-type joint for locking and unlocking one to the other by rotating said closure relative to said shell.

3. A device of the character described having, in combination, a boiler having an opening, a removable closure for said opening, a pair of prongs carried by said closure for insertion into an electric socket, said closure carrying a pair of electrodes having terminals in electrical communication with said prongs, said heating element projecting into said boiler in spaced relation to the bottom of the boiler shell when said closure is in position, said closure and said shell formed with cooperating portions forming a bayonet-type joint for locking and unlocking one to the other by rotating said closure relative to said shell, an annular packing gasket surrounding said prongs, said gasket carried by said closure and adapted to be compressed between said closure and said boiler shell.

4. A device of the character described having, in combination, a boiler having an opening, a removable closure for said opening, a pair of prongs carried by said closure for insertion into an electric socket, each prong at the inner side of said closure having a terminal portion, flat metal plates carried by said terminal portions of said prongs, said plates being parallel to each other and extending into said boiler in spaced relation to each other and to the bottom of the boiler shell, and a T-shaped insulator having its head between said plates at the end portions thereof and having its shank extending through and projecting from one of said plates.

5. A device of the character described having, in combination, a boiler having an opening, a removable closure for said opening, a pair of prongs carried by said closure for insertion into an electric socket, each prong at the inner side of said closure having a terminal portion, flat metal plates carried by said terminal portions of said prongs, said plates being parallel to each other and extending into said boiler in spaced relation to each other and to the bottom of the boiler shell, a T-shaped insulator having its head between said plates at the end portions thereof and having its shank extending through and projecting from one of said plates, means for detachably locking said closure to the boiler shell, and an annular gasket carried by said closure surrounding said prongs, said gasket adapted to be compressed between said closure and said boiler shell.

In testimony whereof, I have signed my name to this specification.

WILLIAM BARNEY RITCHIE.