This invention relates to a device for burning hydro-carbon fuel, such as a stove, lamp, iron, etc., and while the invention is applicable to different structures, it is especially designed for use in connection with a stove.

Stoves burning hydro-carbon fuel commonly comprise a frame carrying the burners, a vaporizing tube supplying fuel to the burners, a tank for containing the fuel and a connection from said tank to said vaporizing tube.

It is an object of this invention to provide a simple and efficient structure of connection between the fuel tank and the vaporizing tube.

It is a further object of the invention to provide a simple and efficient structure comprising a connection from the fuel container to the vaporizing tube which permits ready removal of the vaporizing tube and which comprises a positioning means for the vaporizing tube so that the connection to the fuel tank can readily be made.

It is more specifically an object of the invention to provide a simple and efficient structure comprising a vaporizing tube, a bracket carried by the frame of the stove through which the tube passes and from which it is readily removable, said bracket and tube having inter-engaging means for positioning the tube, said tube having an opening therein and a conduit extending from the fuel tank to said bracket adapted to engage the tube and be connected thereto when the tube is so positioned, means also preferably being provided for holding the tube firmly in position.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings, in which like reference characters refer to similar parts throughout the several views, and in which:

Fig. 1 is a top plan view of a portion of a stove showing the invention applied thereto;

Fig. 2 is for the most part a horizontal section through the vaporizing tube and supporting bracket and connection to the fuel tank, a portion of the latter being shown in plan;

Fig. 3 is a vertical section taken on line 3-3 of Fig. 2, and

Fig. 4 is a vertical section taken on line 4-4 of Fig. 2, said sections being taken as indicated by the arrows.

Referring to the drawings, a portion of a stove adapted to burn hydro-carbon fuel is shown, comprising a substantially rectangular frame formed of vertically disposed sheets of metal 10, the same being shown as connected by suitable angles 11. A top plate 12 is provided, preferably having a downwardly turned flange at its edge and the same having openings 12a therethrough, said top plate being secured to the frame by screws 13. A burner 14 is shown as disposed centrally beneath the opening 12a and a portion of a mixing chamber 15 is shown which communicates with and supplies a combustible mixture to burner 14. A fuel tank 16 is disposed at one end of the frame 10 and is secured thereto by suitable strips 17 extending about said tank and being secured to the outer end of frame 10 by any suitable means. A vaporizing tube 18 is provided having at its inner end a slightly reduced portion 18a which is received in an opening in the end of mixing chamber 15, a shoulder 18b on said vaporizing tube engaging the end of said mixing chamber. Said tube has a bore 18c adjacent one end having internal threads engaged by the threaded end of a valve stem 19. The inner end of tube 18 is bored and threaded to receive a small plug 20 having a small central aperture therethrough into which projects the reduced end 18a of the valve stem 19. Tube 18 has a reduced bore 18d adjacent one end, one end of which bore is formed as a valve seat and engaged by the valve forming portion 19b of the valve stem 19. Stem 19 has an external longitudinal-extending slot 19c through the threaded portion thereof so that gas may pass through tube 18 and around said stem. The outer end of valve stem 19 has an annular member 21 secured thereto, the inner end of which is arranged to abut a shoulder on the inner wall of tube 18. A packing cap 22 is adapted to compress packing material 23 be-
tween the end thereof and the end of tube 18 about the member 21 thus packing said valve stem 19. Valve stem 19 at its extreme outer end has secured thereto an operating hand wheel 24 held in place by a nut 25 threaded on the end of said stem. Vaporizing tube 18 also has a tapered aperture 18e at one side thereof and the beveled or tapered end of a coupling plug 26 is adapted to engage in said aperture so as to tightly connect with said tube. The outer end of plug 26 has secured therein the end of a tube 27 which extends laterally and is connected at its other end by a coupling sleeve 28 to a conduit 29 which is communication with a fuel tank 16. Member 26 is threaded into one side of a bracket 30, said bracket having an inner cylindrical portion supported upon the spaced legs 30a having feet or lugs 30b with flat sides engaging the inner side of the end member of frame 10. Bracket 30 is secured to said end member by the headed and nutted bolts 31, the same being shown as provided with spring locking washers. A set screw 32 having a blunt inner end is threaded into the cylindrical portion of bracket 30 opposite the plug 26. Bracket 30 has an oblong aperture 30c extending centrally therethrough, tube 18 passing through said aperture. Said bracket also has formed on its inner side between legs 30a a recess 30d of general rectangular form. Tube 18 has secured thereto an angular lug 33 to one end of which projects laterally and is adapted to seat in the recess 30d as shown in Figs. 2 and 4.

In assembling the parts the bracket 30 is secured in position on the end of frame member 10, tube 18 is then passed through opening 30c in the bracket, the portion 18e entering the mixing chamber 15 and the tube can be turned by wheel 24 until lug 33 engages the recess 30d. When said lug is thus seated in the recess the opening 18c is in proper position to receive the end of plug 26. Screw 32 will be turned to engage tube 18 and plug 26 can then be tightly screwed against said tube and into the opening 18c thus efficiently connecting tube 27 to the tube 18. The parts are now in firm and secure position and the stove can be operated and fuel admitted to the burner by turning hand wheel 24. The present structure has resulted in quite a few advantages. A much simpler vaporizing tube is obtained and one which can be quickly removed by loosening screw 32. With the previous constructions it was necessary to have a coupling member connected to the outer end of tube 18 and between the tube and hand wheel 24. It is often desired to remove the vaporizing tube to clean the same. With the present structure it is only necessary to screw off the packing sleeve 22 after which the stem 19 can be removed and the tube and stem thoroughly cleaned. The tube is easily replaced and is quickly brought to proper position by the seating of lug 33 in the recess 30d. The structure is thus easily and quickly manipulated and can be properly assembled by anyone, whether they have any knowledge of mechanism or not. The device has been amply demonstrated in actual practice and found to be very successful and efficient.

It will, of course, be understood that various changes may be made in the form, details, proportions and arrangement of the parts, without departing from the scope of applicant's invention, which, generally stated, consists in a device capable of carrying out the objects above set forth, in the novel parts and combinations of parts disclosed and claimed in the appended claims.

What is claimed is:

1. A device for burning hydro-carbon fuel having in combination, a vaporizing tube having an opening for the attachment of a conduit, a bracket having a passage through which said tube extends, said bracket having a recess therein, a member on said tube seated in said recess and preventing rotation of said tube, a conduit mounted in said bracket and having an inner end projecting into said passage and aligned with said opening for attachment to said tube when said member is in said recess.

2. A device for burning hydro-carbon fuel having in combination, a vaporizing tube having a portion thereof constructed and arranged for the attachment of a conduit, a bracket having a passage through which said tube extends, said bracket having a recess therein, a member on said tube seated in said recess and preventing rotation of said tube, a conduit mounted in said bracket and having an inner end extending into said passage, said inner end of said conduit being aligned with said portion when said member is in said recess and means on said bracket engaging said tube and holding said portion tightly pressed against the inner end of said conduit.

3. A device for burning hydro-carbon fuel having in combination, a frame, a bracket having spaced legs secured to said frame and having a central portion with a passage therethrough, a vaporizing tube extending through said passage and freely movable therein, said bracket having a recess at its outer side, and a lug secured to said tube and adapted to enter said recess to locate said tube in a definite position and hold the same against rotation.

4. The structure set forth in claim 3, said tube having an opening in its side, a conduit mounted in said bracket and having an inner end projecting into said passage and entering said opening to connect with said tube when said lug is in said recess.

5. The combination of a tube having an opening in one side thereof, a bracket having a passage through which said tube loosely extends, a conduit mounted in said bracket and having an inner end aligned with said open-
ing and projecting into said passage and means mounted in said bracket opposite the inner end of said conduit and releasably engaging said tube to hold the tube against the inner end of said conduit.

6. The structure defined in claim 5, said means comprising a screw having screw threaded engagement with said bracket and bearing against said tube.

7. The structure defined in claim 5, said bracket and tube having cooperating engaging portions adapted to be engaged by relative sliding movement between said bracket and tube to align the inner end of said conduit with said opening and prevent relative rotation between said tube and bracket.

8. The combination of a tube having an opening in one side thereof, a bracket having an ellipse-shaped passage through which said tube extends, a conduit mounted in said bracket and having an inner end projecting into said passage, means for engaging said bracket with said tube by relative sliding movement between said bracket and tube to prevent rotation between said bracket and tube and to align the inner end of said conduit with said opening and means mounted in said bracket for engaging said tube to force the tube into engagement with the inner end of said conduit.

In testimony whereof I affix my signature.

HANS C. HANSON.