

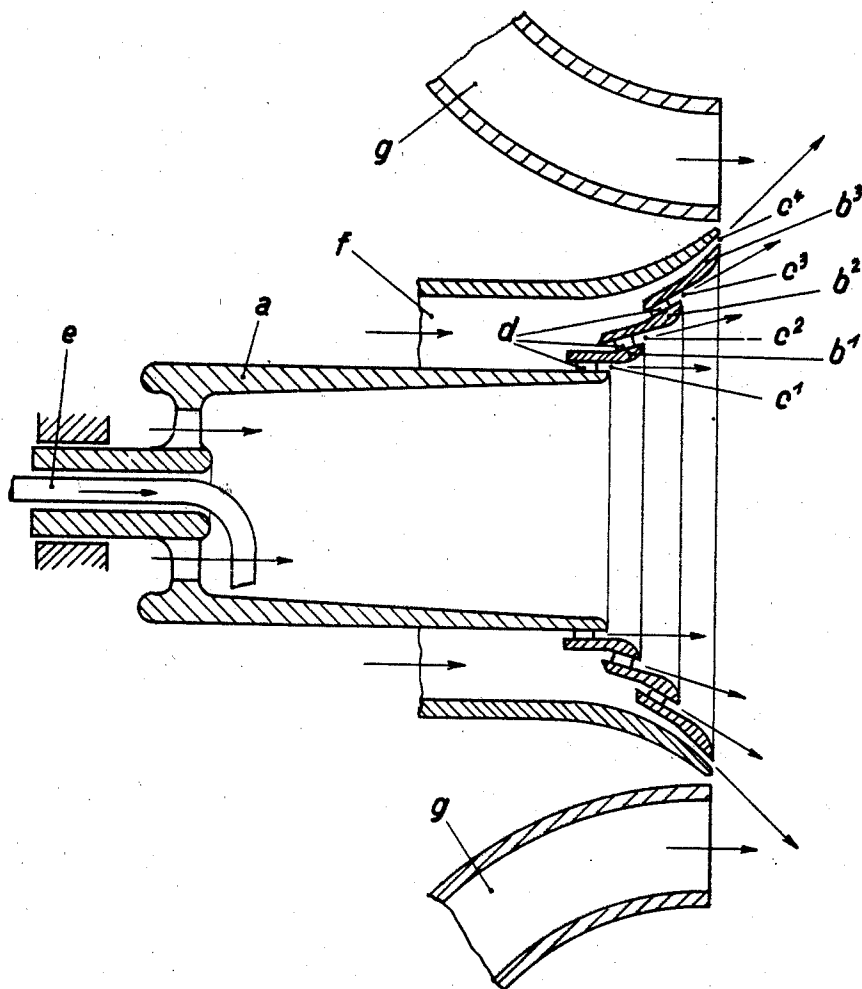
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ATOMIZER BURNER FOR LIQUID FUELS

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ATOMIZER BURNER FOR LIQUID FUELS

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2 Claims. (Cl. 158—77)

The present invention relates to atomizer burners for liquid fuels, with a rotatable atomizing cup, the mouth edge of which, acting as a centrifugal fuel thrower, is surrounded by two or more annular members, which project in an axial direction beyond this edge, and which are mounted in rising steps over it, thus forming slots or channels for the atomizing air.

According to the invention, the inner atomizing air passage slot or channel is parallel to the axis of the burner, and the outer atomizing air slot or channel is mounted at an angle to the said axis and directed outwardly. This arrangement ensures a good mixing of the fuel-air mixture issuing from the atomizing cup with the secondary air, and this being independent from the output required from the burner.

In order that the invention may be clearly understood and readily carried into effect reference is made to the accompanying drawing which shows diagrammatically and by way of example an atomizer burner in accordance with the present invention.

A rotating atomizing cup *a* is surrounded by three annular members *b*¹, *b*², *b*³ which are mounted in the form of rising steps upon it, and project beyond its throw-off edge in an axial direction. They form between themselves and the atomizing cup *a* and the outer wall of an atomizing air channel *f* passage slots or channels *c*¹, *c*², *c*³ and *c*⁴, for the atomizing air. The inner passage slot *c*¹ is parallel to the axis of the burner, whilst the other passage slots are arranged in a direction diverging outwardly from this axis, the outward angle of divergence progressively increasing, so that the passage slots are arranged in a fan-wise manner. The annular members are connected with each other and with the atomizing cup by means of webs *d*.

The oil, that is supplied to the atomizing cup *a* through a pipe *e*, spreads out on the interior surface of the atomizing cup *a* and flows to its outer or mouth edge, from which it is thrown onto the annular member *b*¹. From this annular member the oil is thrown onto the following annular members *b*², *b*³, that is to say that portion of the oil that has not already been carried along by the atomizing air flowing through the slots *c*¹, *c*², *c*³. The atomizing air is supplied through the channel *f* surrounding the atomizing cup *a* the said channel being in the zone of the annular members of a gradually increasing diameter, so that a further passage slot or channel *c*⁴ for the

atomizing air is formed between the ultimate annular member *b*³ and the mouth of the channel *f*.

The result achieved by this arrangement of the slots or passages for the atomizing air is that the oil-air mixture issuing from the atomizer cup *a* is of the shape of a hollow body which interiorly is approximately cylindrical, and conical exteriorly according to the direction of the outer slots or passages for the atomizing air. Secondary air which arrives through the channel *g* impinges on the outer conical surface of the said oil-air mixture jet, and thus ensures a thorough mixing of the secondary air therewith, issuing from the said atomizing cup. This mixture is independent of the load on the burner on which the secondary air quantity depends, as the conical outer limiting surface of the oil-air mixture is determined by the direction of the outer passage slot or channel, and consequently remains approximately constant at all loads on the burner, so that the secondary air impinges at any load on the burner at approximately the same angle upon the said oil-air mixture.

Moreover additional secondary air is introduced into the interior of the atomizing cup, which penetrates into the core of the flame.

What is claimed is:

1. In an atomizer burner for liquid fuels, a rotating atomizer cup having a throw-off edge; means supplying liquid fuel to the interior of said cup, a plurality of annular members surrounding said throw-off edge and projecting beyond said edge, said members being fitted stepwise one over the other to form at least one inner air channel and at least one outer air channel, said inner channel extending parallel to the axis of rotation of the cup and said outer channel extending outwardly and at an angle to said axis.

2. In an atomizer burner for liquid fuels, a rotating atomizer cup having a throw-off edge; means supplying liquid fuel to the interior of said cup, a plurality of annular members surrounding said throw-off edge and projecting beyond said edge, said members being fitted stepwise one over the other to form at least one inner air channel and a plurality of other air channels, said inner channel extending parallel to the axis of rotation of the cup and said other channels extending fanwise at angles diverging outwardly relatively to said axis.

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