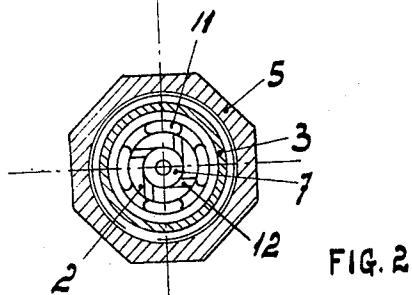
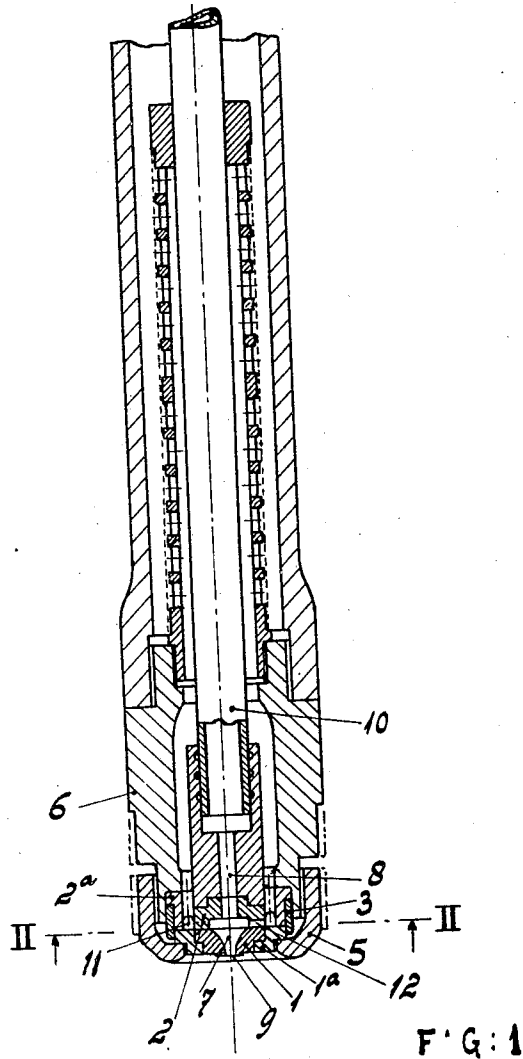


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A. BARGEBOER
ATOMIZER FOR HYDROCARBONS
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2,120,388



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UNITED STATES PATENT OFFICE

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ATOMIZER FOR HYDROCARBONS

Adolf Bargeboer, The Hague, Netherlands

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In the Netherlands August 8, 1936

1 Claim. (Cl. 299—120)

The invention relates to atomizers for hydrocarbons, such as fuel oil, asphalt and the like and more particularly to whirl atomizers such as are applied to burners and other devices where these hydrocarbons have to be atomized at rather high temperatures.

In such atomizers the places where high velocities exist are often locally highly corroded and the corrosion is accompanied with local carbon absorption by the material. Owing to the carbon absorption the steel becomes locally very brittle and corrosion starts after a short time.

In U. S. Patent No. 2,009,932 is described an oil burner with a whirl atomizer, in which the wall of the whirl chamber consists of sapphire, ruby, diamond, corundum or artificial jewels or the like which can resist corrosion.

However, the results obtained with whirling chambers consisting of such material are extremely poor with respect to the atomizing effects for reasons which had not been discovered heretofore.

I have found that the poor results obtained with whirling chambers of the above mentioned hard and chemically inactive materials are due to the fact that all these materials are excellent electric insulators. The hydrocarbon particles which rub against the electrically insulating walls of such whirling chambers become highly electrically charged whereby they are inclined to precipitate against metal parts of the burner as soon as they are discharged from the whirling chamber. Consequently, a satisfactory atomizing effect could not be obtained with whirling chambers of the usual hard and chemically inactive materials.

According to the present invention satisfactory results are obtained if the walls of the whirling chamber consist at least partly of metal carbide or a mixture containing metal carbide. Metal

carbides do not react with the carbon in the hydrocarbons because the metal carbides can be considered to be saturated with carbon. On the other hand, metal carbides are electrical conductors and do not cause the hydrocarbon particles in the whirling chamber to become charged with static electricity. Thus, metal carbides combine the advantages of steel with those of carborundum or the like material, while the disadvantages of either one of the known whirling chamber constructions are completely avoided.

One embodiment of the invention is illustrated in the accompanying drawing in which Fig. 1 is a vertical section through an atomizer in accordance with the invention, and Fig. 2 a section on the line II—II of Fig. 1.

Referring to the drawing, the plates 1 and/or 2 of a mixture that contains tungsten carbide are soldered to the steel parts 1a and 2a and are centered by the ring 3. The whole is pressed together in the holder 6 by the nut 5.

The liquid entering the annular space 11 under pressure is forced through the tangential slots 12 into the whirling chamber 7 and emerges in known manner from the atomizer-opening 9, while part of the liquid, also in known manner, (viz. U. S. Patent No. 2,079,430) is led back through the bore 8, or lead 10.

As the velocities in the whirling chamber are very high, the parts 1 and/or 2 according to the invention are made of a mixture which contains a high percentage of tungsten and/or cobalt carbide.

What I claim is:—

In a whirl atomizer for hydrocarbons such as fuel oil or asphalt, a whirling chamber comprising a wall portion containing a metal carbide.

ADOLF BARGEBOER.