(No Model.)

C. R. NYBERG.

HYDROCARBON BURNER.

No. 596,084. Patented Dec. 28, 1897.

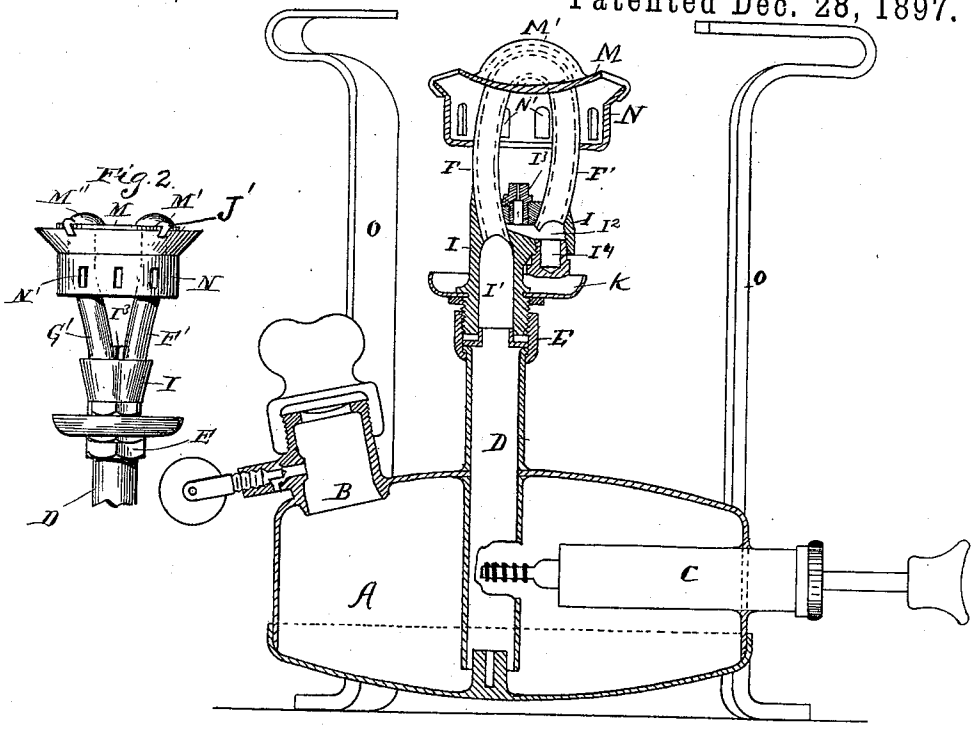

FIG 1

Fig. 2.

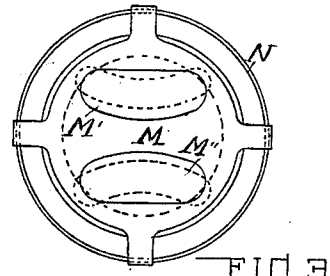

FIG 3

WITNESSES
W. J. Kinnes.
L. L. Allen

Carl R. Nyberg.
INVENTOR.
By R. J. McCarty.
ATTORNEY.

UNITED STATES PATENT OFFICE.

CARL RICHARD NYBERG, OF STOCKHOLM, SWEDEN, ASSIGNOR TO WILL I. OHMER, OF DAYTON, OHIO.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 596,084, dated December 28, 1897.

Application filed July 18, 1896. Serial No. 599,749. (No model.)

To all whom it may concern:

Be it known that I, CARL RICHARD NYBERG, a citizen of Sweden, residing at Stockholm, Sweden, have invented certain new and useful Improvements in Hydrocarbon-Burners; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in hydrocarbon-burners for soldering lamps, stoves, &c., and upon which application for Letters Patent is now pending in Great Britain.

The object of the invention is to provide means for obviating the inconvenience common to burners as heretofore constructed—viz., that the pipe or pipes surrounding the flame and in which the hydrocarbon is volatilized can only with great difficulty be cleaned inside—the result of which is that the burners are generally used as long as possible without being cleaned and are then replaced by new ones. This cleaning consists in removing the soot or black which is always deposited inside the pipe when it is highly heated, and hydrocarbon oil passes through it at the same time. By arranging a series of curved pipes in parallel positions independent of each other and disconnected save with the burner-head they may be readily detached for cleaning.

In a detailed description of the invention reference is made to the accompanying drawings.

Figure 1 is a vertical section of an oil-stove having my improvements thereon. Fig. 2 is an elevation of the burner, showing the pipes mounted in parallel positions. Fig. 3 is a plan view of the burner shown in Fig. 1.

A designates an oil tank or reservoir, which is provided with the usual opening B for filling it, an air-pump C, and safety-valve. From the tank there projects upwardly a pipe D, fixed to the same and extending almost down to its bottom. This pipe is provided at its upper end with a connecting-nut E, by means of which the burner-head I is connected to the pipe D.

The burner consists, preferably, of four pipes, only two of which, F and F′, are seen in Fig. 1, the other two being just behind F and F′ and of the same diameter and curvature.

The pipes F F′ and G G′ constitute two separate and continuous pipes with uniform curvatures in their upper extremities and which are inclosed in the channels M′ M^2 in a cap M. The said channels are rounded to conform to the rounded form of the pipes. The oblong broken lines shown in Fig. 3 represent the upper rounded ends of said pipes. The cap M has a series of projections J′, which clamp over the upper flaring edge of a flame-confiner or ring N, and the said cap is thus held rigidly in position, as shown in the drawings. This ring N incloses the upper portion of the pipes and has an inwardly-projecting lower edge, which extends in to the pipes and to which said pipes are soldered. The heat is directed downwardly along the pipes and is spread over a considerable length of said pipes, which prevents a superheating of the gas. It will be understood the pairs of pipes are not connected together, but each consists of a separate and distinct pipe bent to form two vertical parallel parts. The independent and disconnected features of the pipes are important, as thereby the efficiency of the burner may be regulated by the number of pipes that may be placed parallel to each other; and, further, any one or more of said pipes may be detached for cleaning without removing others. The pipes thus arranged constitute separate canals that enter the burner-head I. The said burner-head is connected to the feed-pipe D by a screw-threaded engagement. The burner-head is, moreover, provided with two separate chambers I′ I^2, of which the former, I′, communicates directly with the pipe D on one side, and F and its companion pipe F′ communicate with the upper ends of said chambers I′ I^2, and the two adjacent pipes G and G′ also communicate with the said chambers. Chamber I^2 also has communicating with it a nozzle I^3 of the burner. The chamber I^2 is provided with an aperture, which is normally closed by means of a plug I^4. The

nozzle I^3 is located centrally with relation to the four pipes and the ring N. Beneath the burner there is a bowl K, used for lighting.

It is evident that the number of the pipes may vary for burners of different size and length. Thus, for example, from chamber I' only one pipe or three or more pipes may project, under which arrangement a like number of pipes will connect with chamber I^2 and the connection between each pair of pipes at the outer ends is the same.

It will be observed that the construction of the burner-head I, as shown, is essential for the purpose of providing several independent channels between the two chambers.

When using the burner, the hydrocarbon oil will by the pressure in the tank be forced up through the pipe D and into chamber I', and thence part of it continues through pipe F and adjacent pipe and the other part through pipe F' and the pipe adjacent to it in order to enter the chamber I^2 and pass thence to the nozzle I^3, at which it is ignited. The flame from the nozzle passes through the ring N and receives the requisite supply of air, partly at the lower end of the ring N and partly through the openings N' in the ring. During its passage through the ring the said ring, as well as the pipes, is heated sufficiently to volatilize the hydrocarbon contained in said pipes. The standards O are adapted to support cooking utensils or the like.

Having fully described my invention, I claim—

In a hydrocarbon-burner, the combination with a tank, and a pipe D extending from said tank, of a burner-head I having two separate and non-communicating chambers I' and I^2, with the former of which the pipe D communicates, a series of pipes each one of which consists of a continuous tube having its upper end curved, and one arranged parallel with the other, and having separate and independent communication with the chambers I' and I^2, a cap M provided with a series of channels M' and M^2 that inclose the rounded ends of the pipes, and a flame-confining ring N surrounding the said pipes, and to which said cap M is attached, the said ring having its lower end projected inwardly and secured to the pipes; and a flame-jet I^3 communicating with the chamber I^2, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

CARL RICHARD NYBERG.

Witnesses:
CARL P. GERELL,
GEORG PANDE.