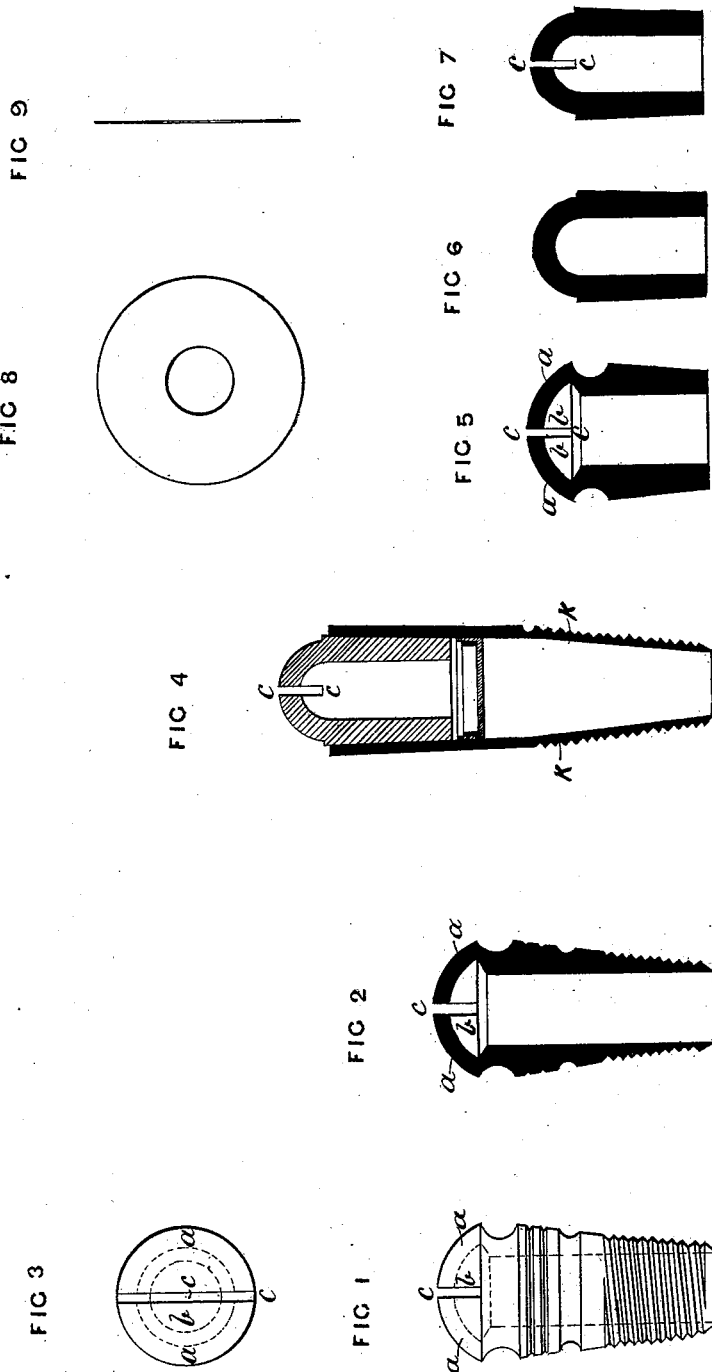


G. BRAY.  
Method of Making Gas-Burners.

No. 204,709.

Patented June 11, 1878.



WITNESSES  
*J. M. ...*  
*Wm. Fairbank Cook*

INVENTOR *George B. Gray*

# UNITED STATES PATENT OFFICE.

GEORGE BRAY, OF LEEDS, ENGLAND.

## IMPROVEMENT IN METHODS OF MAKING GAS-BURNERS.

Specification forming part of Letters Patent No. 204,709, dated June 11, 1878; application filed May 24, 1878.

*To all whom it may concern:*

Be it known that I, GEORGE BRAY, of Leeds, in the county of York, England, have invented new and useful Improvements in Method of Making Gas-Burners, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

My invention relates to gas-burners which are wholly or partly composed of one or more of the various kinds of clay or earth and minerals used in the potter's ware.

The burners to which my invention relates are those having a slit across the head for gas to pass through and issue from. These are chiefly of two kinds: first, those which are commonly known as the "bat-wing" burners; and, secondly, those having the same kind of slit, and also a peculiar hollowed-out formation in the interior of the head, such burner being known as the "slit union jet" burner, and producing a flame similar in shape to that of the "union jet" burner.

The "slit union jet" burner has for many years been manufactured from brass, and recently of steatite, in its rock or unground state.

Figures 1, 2, and 3 are, respectively, a side elevation, section, and plan of one shape of burner constructed according to my invention. Figs. 4, 5, 6, and 7 show different shapes of burners constructed according to my invention in various stages of manufacture. Figs. 8 and 9 are, respectively, a side elevation and section of cutter.

All the views except those of the cutter are enlarged, for the purpose of more clearly showing the construction.

The head *a* is hollowed out, as shown at *b*, such burner being molded from one or more of the various kinds of clay or earths and minerals reduced to the form of clay. This burner, after being slit at *c*, assumes the form known as the "slit union jet burner." The clay for these burners may be of any suitable kind, and prepared or molded in a more or less plastic state.

The slit is cut by means of a circular cutter. (Shown at Figs. 8 and 9.) Previous to

cutting the slit *c* I soft burn or bake the burner. This operation may be performed in a furnace of a suitable construction, and the same as is used for completely burning or baking the burners.

The burners may be of clay, as hereinbefore mentioned, having no hollow *b* in the head, as shown at Figs. 4, 6, and 7. The operation for slitting these is precisely the same as that described for those with hollow heads.

I hollow out the burner at *b* by an ordinary hollowing-out tool. This operation may be performed when the material forming the burner is in a semi-dry, dry, or soft burnt or baked state. Fig. 6 shows this burner previous to being slit.

The cutter shown in Figs. 8 and 9 is composed of diamond, corundum, flint, or other suitable mineral substance, in a more or less pulverized state, and mixed with any suitable adhesive substance, such as shellac or glue, to cause adhesion of the parts forming the cutter.

The ingredients are well mixed together to a suitable dough or putty-like consistence, after which it is filled in molds of the desired form, and therein compressed, after which they (the molds containing the compressed material) are placed in a hot oven and baked for a few hours. When cool the cutter is ready for use.

I would here remark that the form of the burner may be varied and modified both internally and externally; also, that of the cutters (although, by preference, made circular, in which case an ordinary rotary motion is imparted by ordinary means.)

I in some cases make a straight cutter of the hereinbefore-mentioned materials, to which, for cutting purposes, I impart a reciprocating motion, such motion being obtained by ordinary means, the burner in each case being fixed or placed in a suitable vise or holder preparatory to being cut.

I would further remark that burners have been molded of clay or earths and minerals used in the potter's ware; but the slit in such burners has been formed in the molds. This

has proved a very unsatisfactory manner of forming the same.

I claim as my invention—

The method herein specified of manufacturing mineral gas-burners, consisting in molding the same of clay, partially burning, then slotting and finishing the shape of the burner,

and then completing the burning operation to harden the material, substantially as set forth.

GEORGE BRAY.

Witnesses:

J. W. HARDING,

WM. FAIRBURN HART.