

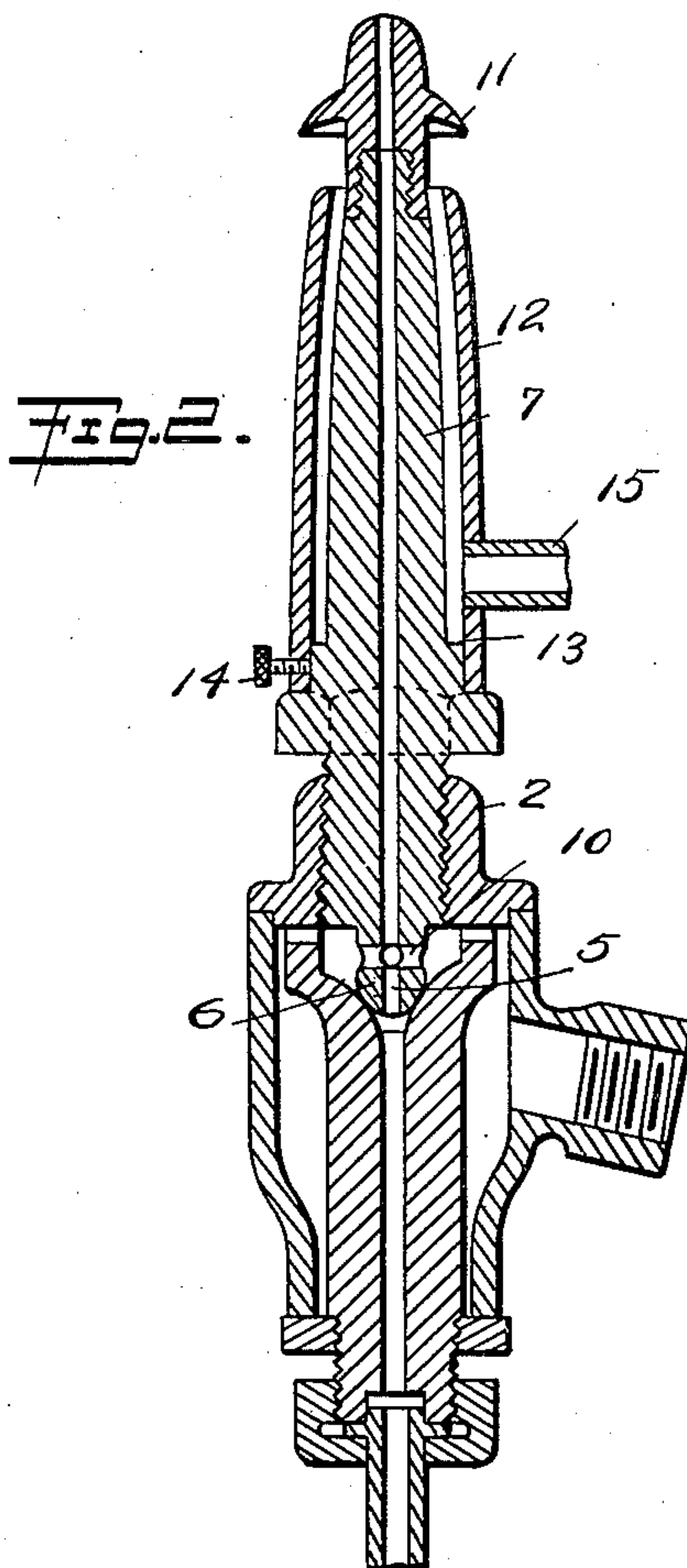
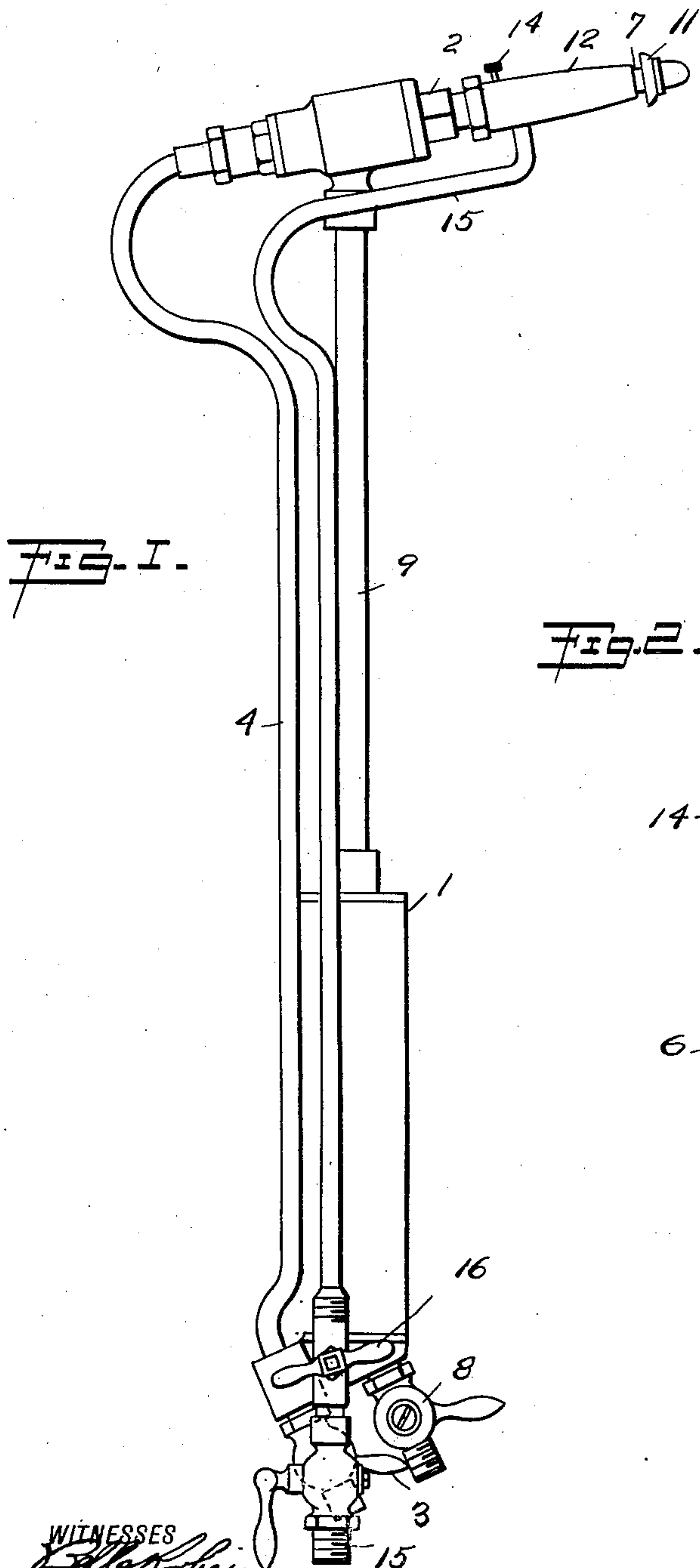
G. PETERSON & E. M. BOURNONVILLE.

GASEOUS FUEL BURNING WELDING TORCH.

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935,684.

Patented Oct. 5, 1909.



WITNESSES
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GILMAN PETERSON, OF ORFORDVILLE, WISCONSIN, AND EUGENE M. BOURNONVILLE, OF JERSEY CITY, NEW JERSEY, ASSIGNORS TO DAVIS-BOURNONVILLE ACETYLENE DEVELOPMENT COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF SOUTH DAKOTA.

GASEOUS-FUEL-BURNING WELDING-TORCH.

935,684.

Specification of Letters Patent.

Patented Oct. 5, 1909.

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To all whom it may concern:

Be it known that we, GILMAN PETERSON and EUGENE M. BOURNONVILLE, citizens of the United States, residing, respectively, in Orfordville, county of Rock, State of Wisconsin, and Jersey City, county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Gaseous-Fuel-Burning Welding-Torches, of which the following is a specification.

This invention relates to blowpipes or torches and blowpipe or torch burners such as illustrated, for example in Patent Number 880,099, to Rodrigues-Ely and Gauthier, dated Feb. 25, 1908. Such blowpipes or torches use gases under greater or less pressure, for example acetylene and oxygen, for producing a flame of great heat intensity, suitable for welding and other purposes requiring great, localized heat. In the ordinary use of such torches the expansion of the gases at the burner mouth is sufficient to maintain the burner at a low enough temperature to avoid injury; but when the welding operation requires the burner to be advanced into a hole or recess in the metal, the flame streaming backward from the hole over the burner tends to heat the latter to such an extent that the acetylene flashes back in the torch, and, of course, the great heat is bad for the burner structure itself.

It is the object of this invention to protect and cool the burner under such circumstances in a simple and efficient manner. The invention may be said to comprise a shield mounted on the burner adjacent the end thereof and means for directing a current of gas for cooling against the rear of the shield; so that the shield serves both to deflect the backward-streaming flame away from the burner and to reflect the flow of cooling gas back along the same, and the cooling gas impinging against the shield serves to reduce the temperature both of the shield and of the extreme tip of the burner.

Viewed in another light, the invention comprises means for directing a current of gas for cooling longitudinally of the exterior of the burner, and a deflector adjacent the end of the latter against which the gas impinges and is reflected backward over the burner.

An important feature of the invention is

the disposition of the conduit for delivering the cooling gas against the shield annularly about the burner, as by means of a sleeve spaced therefrom, so that the burner is surrounded in effect by a gaseous envelop, which is reflected backward over the burner.

Other phases and details of the invention will be found set forth in the claims.

In the accompanying drawings illustrating one of the possible embodiments and applications of the invention, Figure 1 is an elevation of an oxy-acetylene torch embodying the principle of our invention, and Figure 2 is a longitudinal section through the head and burner portion of the torch.

It is immaterial, of course, what is the particular form of the torch to which the invention is applied. The numeral 1 indicates a form of oxy-acetylene torch now in commercial use, of which the numeral 2 may designate the burner as a whole. The oxygen enters the torch past the cock 3, traverses the pipe 4, and flows through the central passage 5 of the injector 6 in the burner, to and through the burner tip 7. The acetylene enters the torch past the cock 8, traverses the pipe 9, and is entrained through the lateral passages 10 of the injector by the oxygen.

This illustration and description is merely for the purpose of showing the invention in connection with an operative torch of this general character; and it is to be understood that the novel constructions and arrangements now to be pointed out depend in no way upon the special features of torch construction proper just outlined.

The numeral 11 indicates the shield mounted on the burner toward the end thereof. Preferably, the shield is cupped, with its concave side rearward. If desired, the shield may be mounted removably on the burner, which may be effected by forming the shield integral with the extreme end of the burner which may itself be unscrewed. In rear of the shield 11 is a sleeve 12, spaced from the burner so as to afford an annular gas conduit open at its front to discharge the flow of cooling gas against the rear of the shield. This sleeve 12 may be mounted on the burner by means of an annular shoulder 13 on the latter, upon which the rear end of the sleeve is seated. If desired, a set

screw 14 passing through the rear of the sleeve and bearing against the shoulder 13 may be utilized to secure the sleeve to the shoulder at any desired adjustment.

- 5 Gas for cooling, preferably air under pressure, is admitted within the sleeve 12, toward the rear thereof, by any suitable means, as a pipe 15. The flow of air may be controlled by any suitable device, for example
10 a valve 16. The pipe 15 may be supplied from a tank of compressed air or from any other source of gas under pressure.

What we claim as new is:—

- 15 1. A blowpipe or torch of the character described having a shield adjacent its burner end and means for directing a current of gas for cooling against the rear of said shield.

- 20 2. A blowpipe or torch burner of the character described having a shield adjacent its end and means for directing a current of gas for cooling longitudinally of the exterior of the burner against the rear of the shield.

- 25 3. A blowpipe or torch of the character described having a cupped shield adjacent its burner end and means for directing a current of gas for cooling against the rear of said shield.

- 30 4. A blowpipe or torch burner of the character described having a cupped shield adjacent its end and means for directing a current of gas for cooling longitudinally of the exterior of the burner against the rear of the shield.

- 35 5. A blowpipe or torch burner of the character described having means for directing a current of gas for cooling longitudinally of the exterior of the burner and a deflector adjacent its end against which the gas impinges and is reflected backward over the
40 burner.

6. A blowpipe or torch burner of the char-

acter described having a shield adjacent its end and an annular gas conduit encircling the burner for directing a flow of gas for cooling against the rear of said shield. 45

7. A blowpipe or torch burner of the character described having a shield adjacent its end, an encircling sleeve in rear of the shield spaced from the burner to afford an annular conduit open toward the shield, and means 50 for admitting gas under pressure for cooling to the rear of said chamber.

8. A blowpipe or torch burner of the character described having a shield adjacent its end, an external annular shoulder in rear of 55 said shield, a sleeve seated at its rear end upon said shoulder and affording between the sleeve and the burner an annular gas conduit open toward the shield, and means for admitting gas for cooling under pressure 60 to said conduit.

9. A blowpipe or torch burner of the character described having a shield mounted removably thereon adjacent its end and means 65 for directing a current of gas for cooling against the rear of the shield.

10. A blowpipe or torch burner of the character described having a removable and adjustable sleeve mounted thereon but spaced therefrom so as to afford an annular gas 70 conduit, means for admitting gas under pressure to said conduit, and a shield mounted on the burner toward the end thereof to be impinged by the gas.

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