No. 896,454. PATENTED AUG. 18, 1908.

H. E. MARSDEN.

BRANDER.

APPLICATION FILED APR. 12, 1907.

2 SHEETS—SHEET 1.

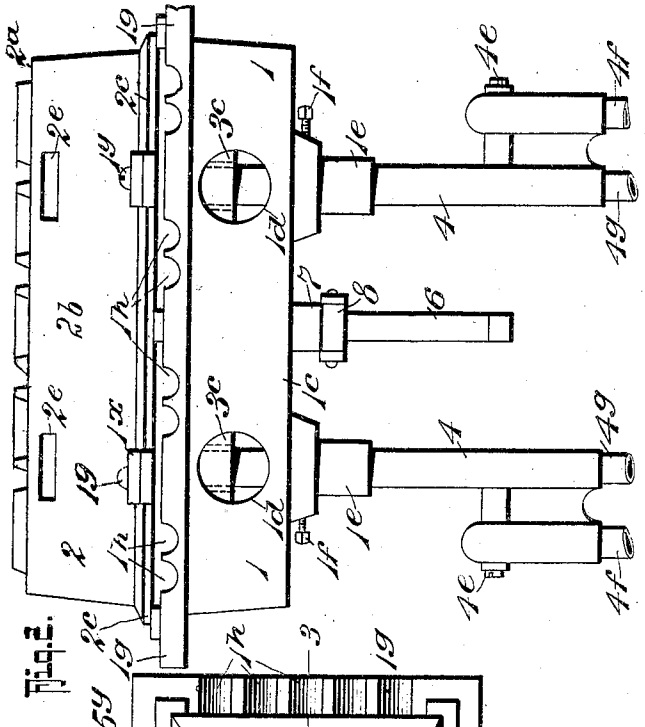


Fig. 2.

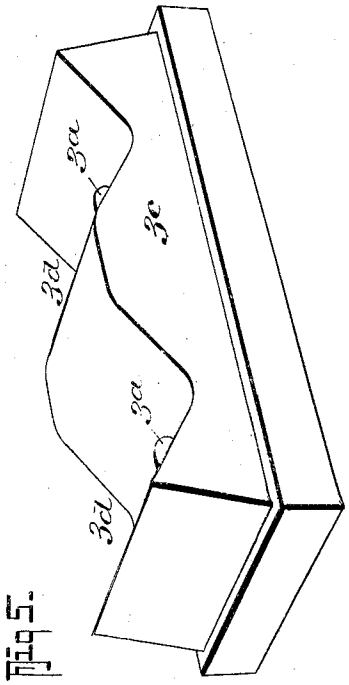


Fig. 5.

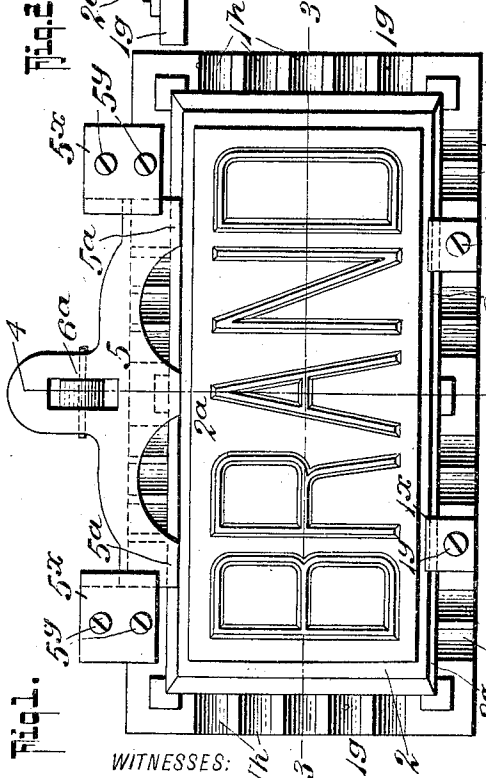


Fig. 1.

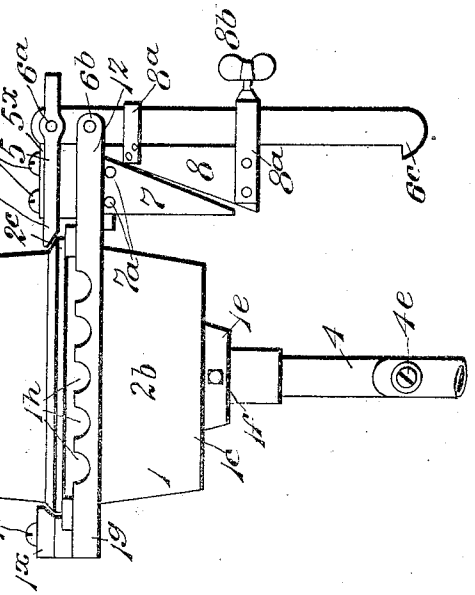


Fig. 6.

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2 SHEETS—SHEET 2.

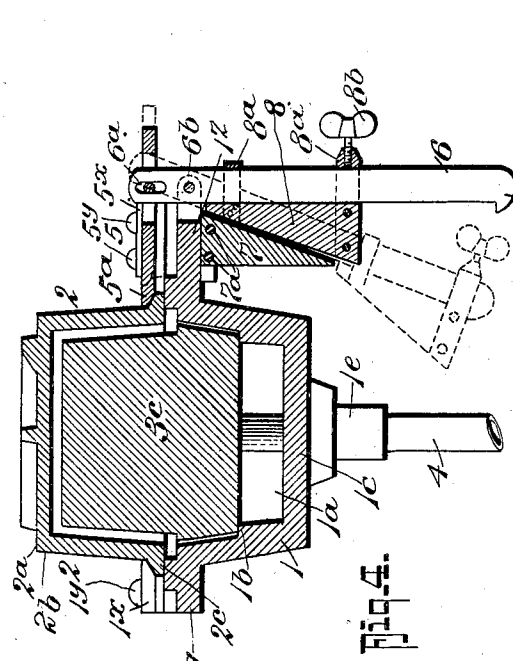


Fig. 4.

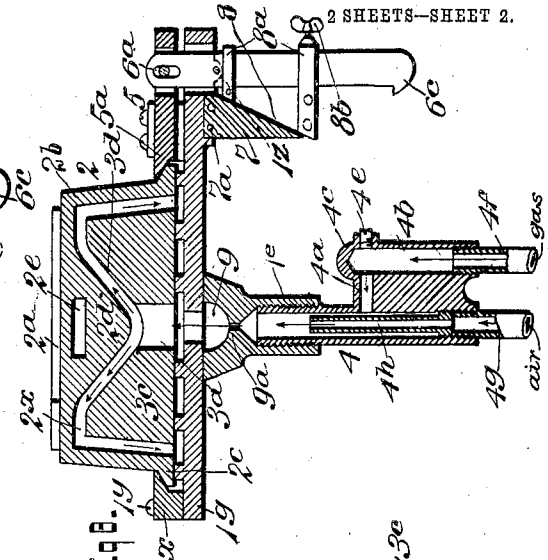


Fig. 8.

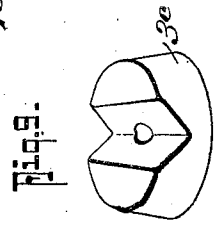


Fig. 9.

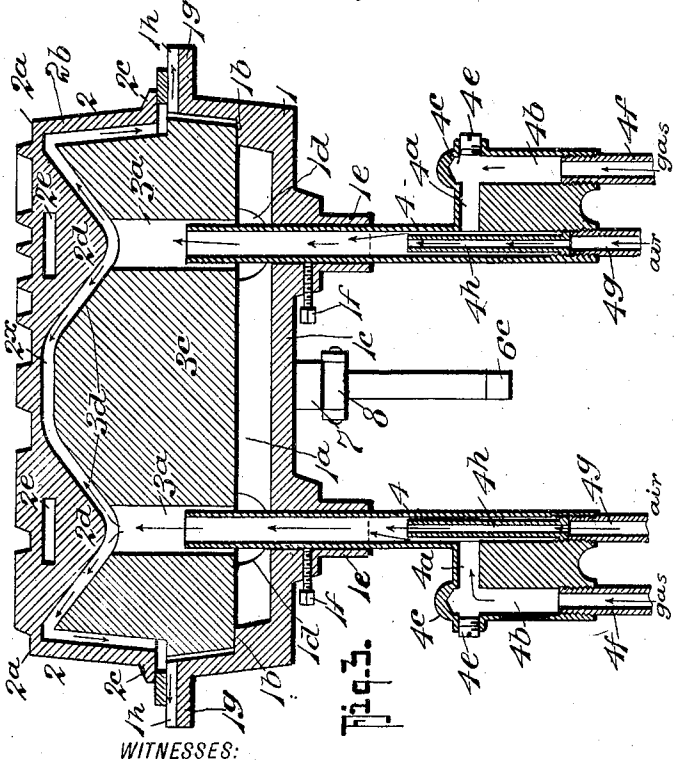


Fig. 5.

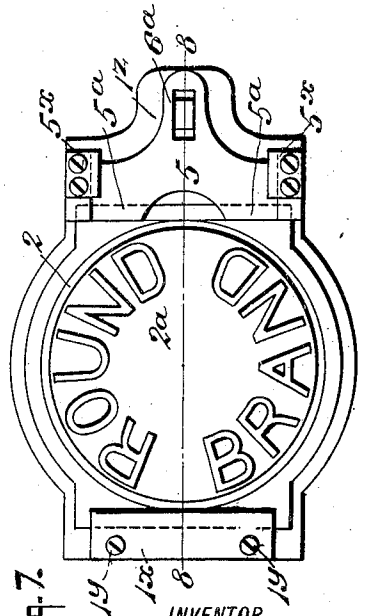


Fig. 7.

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BRANDER.

No. 896,454. Specification of Letters Patent. Patented Aug. 18, 1908.

Application filed April 12, 1907. Serial No. 367,833.

To all whom it may concern:

Be it known that I, HERBERT E. MARSDEN, residing at Ottumwa, in the county of Wapello and State of Iowa, have invented certain new and useful Improvements in Branders, of which the following is a specification.

My invention which relates to that type of branders employing self-heating burners, primarily has for its object to provide a burner of a very simple and effective construction in which the heating mechanism is so arranged and designed as to afford an even distribution of heat over the entire die face of the apparatus, and in which the parts can be easily and quickly removed or taken apart, as conditions may make desirable.

In its generic nature my brander comprises a brand or die section and a base section to which it is removably secured, the die section inclosing a heating chamber in which a fire-proof core of heat retaining material is held. The base section also supports the burner air and gas feeding mechanism.

A combustion space is provided between the die walls and the fire-proof core, the die section also having heat interrupting air passages to enable a more uniform distribution of the heat over the impression or die surfaces of the die section. An air space is also provided below the fire-proof member in the base section to prevent over-heating thereof.

In its more subordinate nature, the invention embodies certain details of construction, combination and arrangement of parts, all of which will be first described in detail, and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which:

Figure 1, is a top plan view of one form of my invention. Fig. 2, is a side elevation thereof. Fig. 3, is a central vertical longitudinal section on the line 3—3 of Fig. 1. Fig. 4, is a cross section on the line 4—4 of Fig. 1. Fig. 5, is a perspective view of the fire-proof core used in connection with the type of my invention shown in Fig. 1. Fig. 6, is a vertical end elevation of the form of my invention shown in Fig. 1. Fig. 7, is a top plan view of another form of my invention. Fig. 8, is a vertical longitudinal section on the line 8—8 of Fig. 7. Fig. 9, is a perspective view of the fire-proof core used in the form of my invention shown in Fig. 7.

Referring now to the accompanying drawings, in which like numerals and letters of reference indicate like parts in all of the figures, 1 represents the base section which is provided with an internal chamber 1^a and is formed with an internal shoulder or seat 1^b to receive core 3^c of fire-proof material which will be hereinafter again referred to, it being understood that the core 3^c seated upon the shoulder 1^b will leave an air space between the bottom thereof and the bottom 1^c of the base section, ventilating apertures 1^d being provided to admit air to the air space, as shown.

In the form of my invention shown in Figs. 1, 2 and 3, of the drawings, the base section 1 is provided with apertured lugs 1^e to receive burner fuel pipes 4 which pass through the lugs 1^e into the chamber 1^a of the base section 1 and will be projected into alining bores 3^a in the fire-proof core 3, it being understood that the diameter of the bores 3^a is preferably greater than that of the pipes or tubes 4 to allow for a slight air draft.

The pipes 4 are adjustably held in place by set screws 1^f which pass through the lugs or bosses 1^e, as shown.

The base section 1 is provided with an annular flange 1^g at its upper edge which flange has its upper surface provided with grooves or undulations 1^h to form a passage from the exterior of the brander to the interior thereof, for a purpose which will be presently explained.

The die section 2 comprises a member having a die face 2^a and side and end walls 2^b which terminate in beveled flange portions 2^c to fit under the fixed bevel stops 1^x that are removably secured to the base member 1 by screws 1^y or otherwise, and the flange 2^c is also adapted to be engaged by the locking slide 5, hereinafter again referred to.

The die section 2 is made hollow to provide an internal chamber that coöperates with the chamber 1^a to receive the fire-proof core 3^c, hereinbefore referred to, and the under side of the die face 2^a is provided with one or more projections 2^d wedge-like in cross section to coöperate with the similarly formed depressions 3^d of the core 3^c a combustion space 2^x being provided between the inner walls of the die section 2 and corresponding adjacent walls of the core 4, as clearly shown in Fig. 3. The combustion

space 2^x connects with the grooves or undulations 1^h so that the products of combustion can pass out from the interior of the brander through the grooves 1^h to atmosphere.

2^e designates apertures which pass through the projections 2^d from one side of the die section to the other and at each end the apertures 2^e communicate with the atmosphere whereby to form air passages that serve to break the heat in the center and enable a uniform distribution of heat over the entire die face 2^a of the die section in a manner which will be readily understood by reference to the drawings, it being understood, of course, that the location of the apertures 2^e is preferably in alinement with the pipes 4.

The air and gas feeding mechanism includes the burner pipe 4 which at its lower end is provided with a horizontal passage 4^a that communicates with a bore 4^b in the tubular section 4^c that is integrally formed with the pipe 4, the bore 4^a being closed by a screw plug 4^e, as shown.

Into the lower opening of the bore 4^b the gas pipe 4^f is secured by threading or otherwise, while the air pipe 4^g is similarly secured in the lower end of the bore of the pipes 4, it being understood that the air pipes 4^g may be made to merge with a nozzle 4^h of less diameter than the main portion of the air pipe 4^g and of less diameter than the internal diameter of the pipe 4, so that the effect of a "Bunsen" flame may be obtained.

The adjustability of the pipe 4 within the lug 1^e permits of the flame being directed onto the depressions 3^d in such a manner as to obtain a maximum heating effect.

In order to removably hold the die section 2 to the base section, in addition to the fixed bevels 1^x, I provide on the opposite side, the slide 5 hereinbefore referred to, which has beveled fingers 5^a to engage the bevels 2^c and lock the die sections to the base section. The slide 5 operates between a pair of bevel guide plates 5^x that are removably secured to the base section by screws 5^y or otherwise, and the slide 5 is locked from movement to hold the die and base sections together by a mechanism now to be described. This mechanism comprises a lever 6 which is fulcrumed at 6^a to the slide 5 and is also fulcrumed at 6^b between a pair of lugs 1^z of the base section 1.

7 designates a relatively fixed wedge removably secured to the base section by screws or bolts 7^a and the fixed wedge 7 cooperates with the sliding wedge 8 carried by the lever 6 the wedge 8 being secured to the lever 6 by straps 8^a that pass around the lever and being held in its adjusted positions by a set screw 8^b, as shown, the wedge 8 being limited in its movement along the lever 6 by a stop 6^c on the lever.

When the parts are in the position shown in full lines in Fig. 4, the slide 5 is locked and the die section and base section are firmly secured together and when the wedge 8 is released and permitted to fall downwardly, as shown in Fig. 4, then the lever 6 may be swung to the position shown in dotted lines in Fig. 4, to withdraw the slide 5 from engagement with the die section which can then be lifted off the base section and the core 3^c removed therefrom, if desired.

In Figs. 6 to 9 inclusive I have shown a slightly modified form of my invention in which the apparatus is adapted to be used with a single burner mechanism instead of a double burner mechanism as shown in the other figures of the drawings, and in which the burner is of the round brand type instead of the rectangular form as shown in the other figures of the drawings. Also in the form shown in the latter figure instead of using a plurality of bevel plates 1^x a single long plate may be used, if desired, the locking arrangement being essentially the same. In this form of my invention, the air space between the core 3^c and the base 1 may be of lesser depth than in the form shown in Figs. 1 to 4 inclusive. In this form of my invention the lug 1^e is provided with a pocket 9 and an internal wall 9^a having a small bore so that the flame may be lighted at and begin in the pocket 9 otherwise this form of my invention is essentially the same as that shown in the remaining figures of the drawings.

From the foregoing description taken in connection with the accompanying drawings it is thought the complete construction, operation and many advantages of my invention will be readily understood by those skilled in the art to which my invention appertains and I desire it understood that numerous slight changes in the detail construction, combination and arrangement of parts may be made without departing from the spirit of the invention or the scope of the appended claims.

What I claim is:

1. In a brander, a base section, a die section removably held on the base section, said sections inclosing a chamber, a fire-proof core within said chamber, said sections having a ventilating space beneath said core, said core being spaced from the die section walls to form a heating space, said core having an aperture, and burner devices carried by the base and coöperating with said aperture to heat the core and the die section.

2. In a brander, a base section, a die section removably held on the base section, said sections inclosing a chamber, a fire-proof core within said chamber, said sections having a ventilating space beneath said core, said core being spaced from the die section walls to form a heating space, said core having an aperture, burner devices carried by the base and

coöperating with said aperture to heat the core and the die section, said die section having internal projections and said core having corresponding depressions.

3. In a brander, a base section, a die section removably held on the base section, said sections inclosing a chamber, a fire-proof core within said chamber, said sections having a ventilating space beneath said core, said core being spaced from the die section walls to form a heating space, said core having an aperture, burner devices carried by the base and coöperating with said aperture to heat the core and the die section, said die section having internal projections, said core having corresponding depressions, and said die section having heat interrupting air passages, substantially as shown and described.

4. A brander comprising a base section, a die section secured to said base section said sections inclosing a chamber, said base section and said die section having shoulders, a non-combustible core held within said chamber on said base section shoulder and spaced from the bottom wall of the base section to form a ventilating space, said base section having apertures in its walls to open communication between said ventilating space and the atmosphere, said core having a portion projecting upwardly into the die section and means for heating said core and die section, substantially as shown and described.

5. A brander comprising a base section, a die section secured to said base section said sections inclosing a chamber, said base section and said die section having shoulders, a non-combustible core held within said chamber on said base section shoulder and spaced from the bottom wall of the base section to form a ventilating space, said base section having apertures in its walls to open communication between said ventilating space and the atmosphere, said core having a portion projecting upwardly into the die section, and means for heating said core and die section, said heating means comprising burner mechanism adjustably supported by said base section.

6. A brander comprising a base section, a die section secured to said base section said sections inclosing a chamber, said base section and said die section having shoulders, a non-combustible core held within said chamber on said base section shoulder and spaced from the bottom wall of the base section to form a ventilating space, said base section having apertures in its walls to open communication between said ventilating space and the atmosphere, said core having a portion projecting upwardly into the die section and means for heating said core and die section, said heating means comprising burner mechanism having air and gas feed passages, and a burner pipe coöperating therewith, said base section having an apertured lug to permit passage of said burner pipe.

7. A brander comprising a base section, a die section secured to said base section said sections inclosing a chamber, said base section and said die section having shoulders, a non-combustible core held within said chamber on said base section shoulder and spaced from the bottom wall of the base section to form a ventilating space, said base section having apertures in its walls to open communication between said ventilating space and the atmosphere, said core having a portion projecting upwardly into the die section, means for heating said core and die section, said heating means comprising burner mechanism having air and gas feed passages, a burner pipe coöperating therewith, said base section having an apertured lug to permit passage of said burner pipe and means for adjustably securing said burner pipe to said base section.

8. A brander comprising a base section, a die section secured to said base section said sections inclosing a chamber, said base section and said die section having shoulders, a non-combustible core held within said chamber on said base section shoulder and spaced from the bottom wall of the base section to form a ventilating space, said base section having apertures in its walls to open communication between said ventilating space and the atmosphere, said core having a portion projecting upwardly into the die section, means for heating said core and die section, said die section having heat interrupting air passages.

9. A brander comprising a base section, a die section secured to said base section said sections inclosing a chamber, said base section and said die section having shoulders, a non-combustible core held within said chamber on said base section shoulder and spaced from the bottom wall of the base section to form a ventilating space, said base section having apertures in its walls to open communication between said ventilating space and the atmosphere, said core having a portion projecting upwardly into the die section, said die section having internal projections and said core having corresponding depressions, said core being spaced from the die section walls to form a heat passage, said sections having openings communicating between said heat passage and the atmosphere and a heating means coöperating with said sections.

10. A brander comprising a base section, a die section secured to said base section said sections inclosing a chamber, said base section and said die section having shoulders, a non-combustible core held within said chamber on said base section shoulder and spaced from the bottom wall of the base section to form a ventilating space, said base section

having apertures in its walls to open communication between said ventilating space and the atmosphere, said core having a portion projecting upwardly into the die section, said die section having internal projections and said core having corresponding depressions, said core being spaced from the die section walls to form a heat passage, said sections having openings communicating between said heat passage and said die section having air passages through its projections to form heat interrupting means, and a burner carried by one of said sections, substantially as shown and described.

11. A brander combining a base section with a die section, means for removably sesuring the die section to the base section, said means comprising a flange on the die section, fixed abutments on the base section for cooperating with said flange, a slide carried by the base section for engaging said flange to lock the die section to the base section, and means for locking the slide from movement.

12. A brander combining a base section with a die section, means for removably securing the die section to the base section, said means comprising a flange on the die section, fixed abutments on the base section for coöperating with said flange, a slide carried by the base section for engaging said flange to lock the die section to the base section, means for locking the slide from movement, said last named means comprising a lever fulcrumed to the base section and to the slide and wedge locking devices carried by the base section and the lever, substantially as shown and described.

HERBERT E. MARSDEN.

Witnesses:
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T. H. BRUCHMAN.