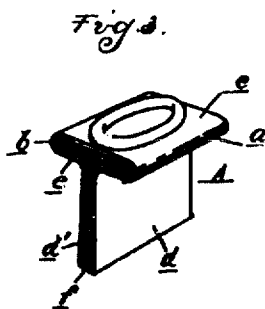
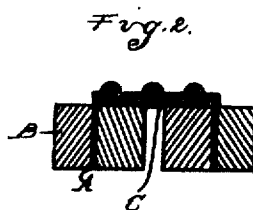
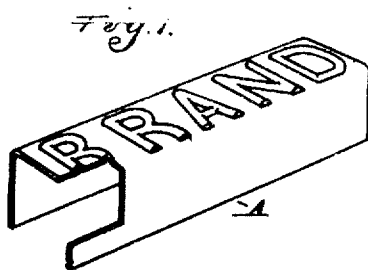
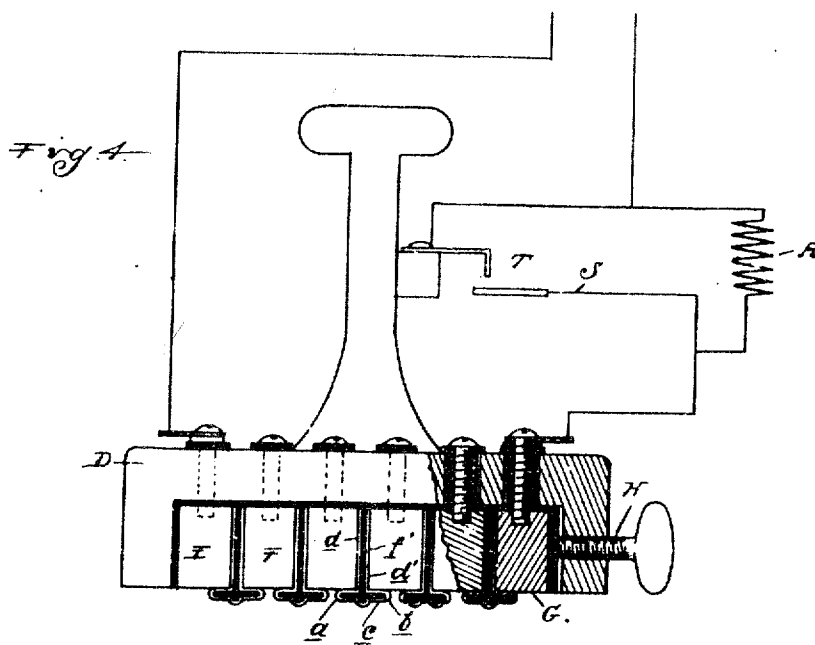


No. 838,652.

PATENTED DEC. 18, 1906.

G. J. SCHNEIDER.
ELECTRIC BRANDER.
APPLICATION FILED JULY 10, 1906.



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GEORGE J. SCHNEIDER, OF DETROIT, MICHIGAN

ELECTRIC BRANDER.

No. 838,652.

Specification of Letters Patent.

Patented Dec. 18, 1906.

Application filed July 10, 1906. Serial No. 288,121.

To all whom it may concern:

Be it known that I, GEORGE J. SCHNEIDER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Electric Branders, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates to electrically-heated branding tools, and has for its primary object the obtaining of a construction in which the current consumed is reduced to the minimum.

15 It is a further object to provide the tool with interchangeable type or branding characters which are of substantially equal electrical resistance and may be arranged either in series or multiple between clamping electric terminals.

20 With these objects in view the invention consists, first, in the means employed whereby the heat is electrically generated directly at the point of consumption; second, in maintaining a substantially uniform electrical resistance in all portions of the branding-conductor; and, further, in certain novel features of construction, as will be hereinafter set forth.

30 In the drawings, Figure 1 is a perspective view of one form of my brander. Fig. 2 is a cross-section thereof. Fig. 3 is a perspective view of a construction of detachable branding-type. Fig. 4 is a longitudinal section through a clamping-holder, showing a series of type secured therein.

35 Heretofore certain constructions of electric branding-tools have been made in which type or branding characters are mounted upon an electric conductor of sufficient resistance to develop the required amount of heat when supplied with a suitable electric current. With such constructions the heat is developed primarily in the cross-section of the resistance upon which the characters are mounted, but only to a small extent in the characters themselves. This is in accordance, with the well-known laws, first, that the heat is the product of the resistance into the square of the current, and, second, that the resistance is inversely proportional to the cross-section of the conductor. As a consequence the cross-section of the conductor, which includes the raised characters, being greater than that between the raised portions of the character, it is of lower electrical resist-

ance, and the amount of heat generated therein is less than in the smaller cross-section. Thus the heat which is utilized in branding must be largely communicated to the branding-surface by conduction from the points of smaller cross-section. In the present construction this defect is avoided by maintaining the resistance in the embossed portion of the conductor as high as that in the unembossed portions, preferably by striking up the characters from a sheet of uniform cross-section.

40 Another defect in constructions heretofore used is the large percentage of loss of heat through conduction and radiation. This is avoided in the present construction by limiting the size of the resistance and also from the fact (above stated) that the heat is developed largely in the embossed portions of the resistance and is consumed in the branding operation, as generated instead of escaping by conduction to the electric terminal.

45 In the specific construction illustrated in Figs. 1 and 2, A is a metallic conductor which is bent in a substantially U-shaped form and has formed in the connecting portion of the U one or more embossed characters which are struck out by dies to maintain a uniform cross-section. This conductor is secured to suitable terminals, such as B, which are clamped or otherwise secured to the parallel arms of the U. C is a suitable backing of some electrically-insulating heat-resisting material, such as mica, which is adjacent to the inner face of the embossed portion of the conductor and prevents the latter from being bent out of shape when heated and in use. Thus when an electric current of sufficient volume is passed through the conductor the embossed portion will be heated and will communicate its heat directly to the material in which the branding is performed.

50 The construction just described is adapted for use where the distance between the electric terminals is comparatively small; but where the size of the brander is above a certain limit there is danger of the embossed portion being thrown out of shape by expansion when heated. Such a result may be effectually prevented in the construction illustrated in Fig. 3, in which the conductor is return-bent at a b upon opposite sides of the embossed portion c and is then bent to form substantially parallel terminal portions d adjacent to each other. With such a construction the expansion in the embossed por-

tion is nearly equaled by that in the return-bent parallel portion *e* and buckling of the metal is therefore prevented.

The construction shown in Fig. 3 is also well adapted for interchangeable detachable type, the portion *d* forming both the electric terminals and the mechanical connection between the type and its holder. This is illustrated in Fig. 4, in which *D* is a clamping-holder of any suitable construction, having an insulated contact-block *E* at one end and a series of intermediate insulated contact-pieces *F* between said end and the opposite terminal contact *G*. Between these various contacts the shanks *d* of the different type are placed, and then by means of a suitable clamp, such as the screw *H*, the whole series is pressed into good electric contact. To insulate the two contact ends *d* and *d'* from each other suitable insulating material, such as *f*, is placed therebetween.

With the construction as described in operation the current being supplied to the terminal contacts *E* and *G* it will pass successively through the type clamped between the will be developed in the embossed section and in the return-bent portion *e*. Where the device is intermittently used, it is preferable to provide electric connections by which the current supplied when the brander is not in use is only sufficient to maintain the branding-surface hot. When, however, the brander is in actual operation, additional current is supplied to the brander, with the result that the heat is more rapidly generated to compensate for that consumed in branding. This will make the operation of the instrument more rapid without in any way endangering its life. As illustrated, the effect just described is obtained by including normally in the branding-circuit a resistance *R*, (preferably an inductive resistance to prevent loss of energy,) which diminishes the amount of current.

S is a shunt for the resistance *R*, which contains a normally opened switch *T*, and this switch is so connected with the operating mechanism for the brander that whenever the branding-surface is pressed in contact with the work the switch *T* will be closed. This will result in cutting out the resistance *R*, whereby a greater volume of current is supplied to the branding-conductor and a correspondingly greater amount of heat is generated.

While I have illustrated the detachable branding-type as mounted in a clamping-holder connected electrically in series, it is obvious that they might be connected in multiple.

What I claim as my invention is—

1. An electric brander comprising a conductor forming the heating resistance having portions thereof in relief, and a backing for

said conductor of electrically-insulating heat-resisting material.

2. An electric brander comprising a conductor of substantially uniform cross-sectional electrical resistance fashioned to place portions thereof in relief.

3. An electric brander comprising a conducting-strip embossed or struck up to throw portions thereof in relief.

4. An electric brander comprising a conducting-strip of substantially uniform thickness embossed or struck up to throw portions thereof in relief.

5. An electric brander comprising a conductor of substantially uniform cross-section, embossed or struck up to throw portions thereof in relief, and a backing for said conductor of electrically-insulating heat-resisting material.

6. An electric brander comprising an electric conductor of substantially uniform cross-section embossed or struck up to throw portions thereof in relief, a backing for the embossed portion of said conductor formed of electrically-insulating and heat-resisting material, the ends of said conductor being bent at an angle and forming terminal contacts therefor.

7. An electric brander comprising an electric conductor embossed or struck up to throw portions thereof in relief, a backing for the embossed portion of said conductor formed of electrically-insulating and heat-resisting material, said conductor having a return-bent portion adjacent to said backing and substantially parallel to the embossed portion, for the purpose described.

8. An electric brander comprising a conductor embossed or struck up to throw portions thereof in relief, a backing for the embossed portion of said conductor of electrically-insulating and heat-resisting material, said conductor having a return-bent portion substantially parallel to said embossed portion, and substantially parallel terminals extending at an angle to the plane of the embossed portion.

9. An electric brander comprising an electric conductor embossed or struck up to throw portions thereof in relief, said conductor being return-bent parallel to said embossed portion and having terminals at its opposite ends extending substantially parallel adjacent to each other and at an angle to the plane of the embossed portion, and an electrically-insulating and heat-resisting material placed between said terminals and between the embossed and the return-bent portion of said conductor.

10. An electric brander comprising a holder, a plurality of detachable and interchangeable branding-type secured therein each forming a portion of an electric circuit, and clamping terminals for said type in said holder.

11. An electric brander comprising a holder, a plurality of detachable and interchangeable type secured therein, each type forming a portion of an electric circuit and
5 having an embossed portion, and terminals extending at an angle to said embossed portion, and clamping electric contacts in said holder for said terminals.

12. In an electric brander, the combination with an embossed branding-surface, of
10 means for generating heat directly in the embossed portions of said surface.

13. In an electric brander, the combination with an embossed branding-surface, of

means for supplying an electric current to
15 generate heat directly in the embossed portions of said surface to maintain the same in a heated condition, and means automatically operating when said branding-surface is pressed in contact with the work for supply-
20 ing additional current to increase the generation of heat.

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

GEORGE J. SCHNEIDER.

Witnesses:

AMELIA WILLIAMS,
EDWARD D. AULT.