July 5, 1938. E. C. FRANZMANN 2,122,936

HEATING DEVICE

Filed Nov. 16, 1936

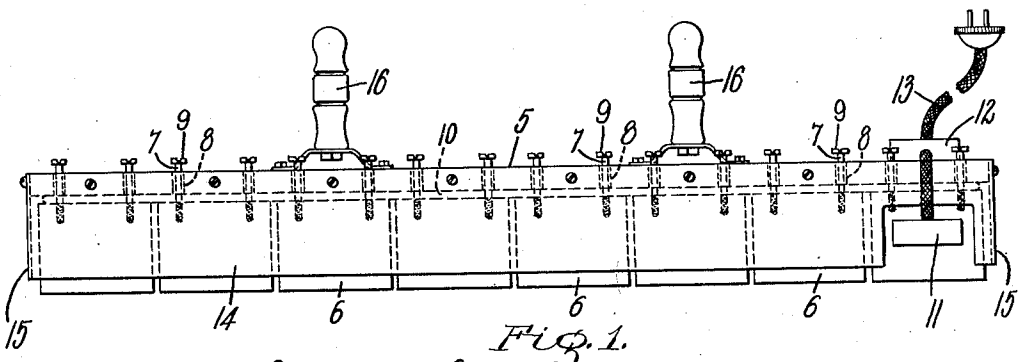


Fig. 1.

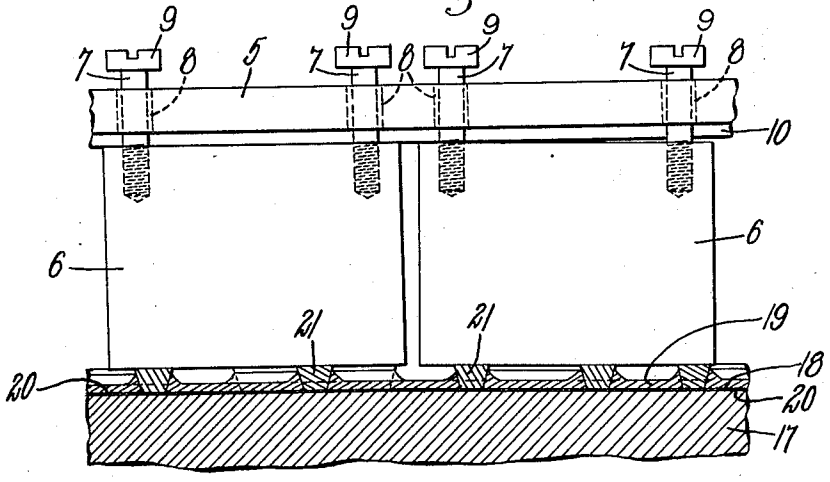


Fig. 2.

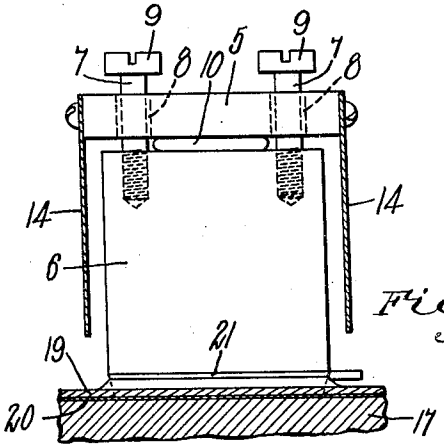


Fig. 3.

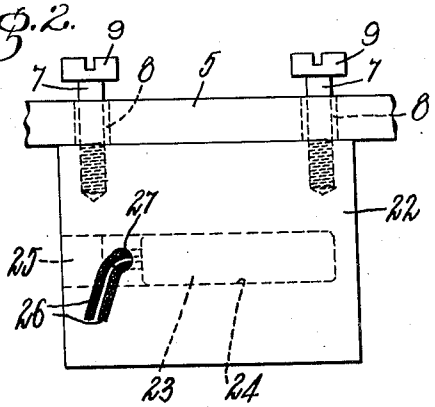


Fig. 5.

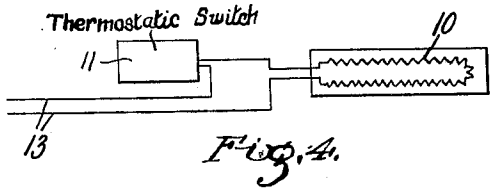


Fig. 4.

Inventor:
Emile C. Franzmann.
by
Franklin E. Low.
Atty.

Patented July 5, 1938

2,122,936

UNITED STATES PATENT OFFICE

2,122,936

HEATING DEVICE

Emile C. Franzmann, Arlington, Mass.

Application November 16, 1936, Serial No. 111,003

10 Claims. (Cl. 219—19)

This invention relates to a heating device and particularly to a device for heating and pressing cast numerals, letters, designs, and the like, into a gelatinous material adhering to the surface of such materials as stone, concrete, glass, wood, and certain metals.

In the art of applying inscriptions to the surfaces of such memorials as headstones, monuments, and similar stone structures, it has been the custom to apply a layer of a gelatinous material commonly known as "Speed Sheet" to the surface of the stone and then cut the inscription in and through said gelatinous layer in such a manner that the inscription may thereafter be cut in said stone by means of a sand blast cutting operation in a well-known manner. Attempts have been made to form inscriptions in the gelatinous material by simultaneously pressing a plurality of cast letters and the like into the gelatinous material by means of a unitary heating member having a single flat working surface embodied therein, but difficulty has been experienced in carrying out this idea because supposedly flat surfaces of the stones upon which the inscriptions are to be placed are often so uneven that a plurality of perfect impressions cannot be made simultaneously even though the irregularities may not be perceptible to the naked eye.

The object, therefore, of this invention is to provide a heating device by means of which a plurality of cast letters or the like may be heated and pressed simultaneously into a gelatinous material adhering to a surface that may be slightly uneven, said operations being performed in a manner to produce perfect impressions in said material, all to the end that the sand blasting operation may be carried out in a manner to produce clear-cut distinct lettering and designs on the stone.

The invention consists in a heating device as set forth in the following specification and particularly as pointed out in the claims thereof.

Referring to the drawing:

Fig. 1 represents a side elevation of a heating device embodying my invention.

Fig. 2 is an enlarged detail sectional elevation illustrating two heating members constituting a part of my heating device resting upon a plurality of cast letters forming a portion of an inscription to be transferred to a stone or other object, said letters being illustrated pressed through a gelatinous material cemented to the surface of said stone and the upper surface of the latter being slightly uneven and causing one of the heating members and the letter therebeneath to tip slightly to accommodate themselves to said uneven surface.

Fig. 3 is an enlarged transverse sectional elevation of the device as viewed from the left of Fig. 1.

Fig. 4 is a wiring diagram of the electric connections to the electric heating element.

Fig. 5 is a detail side elevation of a modified type of heating member which may be substituted for the heating members illustrated in Figs. 1 to 4 inclusive.

Like numerals refer to like parts throughout the several views of the drawing.

In the drawing, referring particularly to Figs. 1 to 3 inclusive, 5 represents a flat rectangular metal plate constituting a support for a plurality of metal heating members 6 which are positioned end to end and secured to the under side of said support 5 by means of screws 7 which have screw-threaded engagement with said heating members and project upwardly therefrom and through holes 8 provided in the support, said holes being considerably larger than the diameter of the screws 7 to permit the heating members 6 to tip freely relatively to the support. Heads 9 for the several screws 7 are located a substantial distance above the top surface of the support 5 to still further permit the movement of the heating members relatively to said support and to limit the vertical movement of said heating members relatively to the support.

A flat heating element 10 of well-known type is secured to the under surface of the support 5 and when the heating device is located in its normal position as illustrated in Figs. 1, 2 and 3, said heating element 10 contacts with the top surfaces of the various heating members 6 and transmits heat thereto. The electric current supplied to the heating element 10 is controlled by means of a thermostatic switch 11 of well-known type which is secured to a side of one of the heating members 6 and is electrically connected to a terminal box 12 mounted upon the top of the support 5 and from which an electric connection 13 adapted to communicate with the source of electric supply extends.

The heating members 6 are partly enclosed by means of side plates 14 and end plates 15, which are attached to the sides and ends respectively of the support 5. These plates act to confine the heat around the heating members 6. Handles 16 are provided for the support 5, being attached thereto by means of brackets which space the

lower ends of said handles at a distance above the upper surface of the support **5**.

The general operation of the heating device hereinbefore specifically described is as follows: A stone **17** which may be a headstone, a monument, or any other form of memorial, or object, upon which it is desired to apply an inscription to a supposedly flat surface **18** is prepared to receive the lettering or other design by first having a layer of a gelatinous material **19**, well known in the art, secured thereto by means of a suitable adhesive **20**. Letters, numerals, or other suitable members **21**, preferably constructed of cast metal and having tapering side walls, are then positioned upon the gelatinous material **19** in a manner to form the desired inscription or design, after which the heating device of this invention, which has been heated to a desired temperature, is placed upon the impression members **21** and the latter, upon being heated, are caused to be forced downwardly into and through the gelatinous material **19** until impressions of the members **21** are formed in said material. It is intended when the stone **17** is shaped that the surface **18** which is to receive the inscription shall be perfectly flat, but it more often happens that said surface is uneven although the imperfection is not apparent to the naked eye. Under such circumstances, when the heating device is applied to the members **21**, the various heating members **6** of the device will adapt themselves to the uneven surface **18** because they are permitted to tip slightly as illustrated by the right hand unit **6** in Fig. 2, and each or all of said members **6** may tip relatively to each other and relatively to the support **5** if the uneven character of the stone so affects said members.

In the operation of the heating device, the temperature of the heating members **6** is controlled automatically by means of the thermostatic switch device **11**, which may be manipulated in a manner well known to those skilled in the art. The heating device is first brought to a predetermined degree of temperature before it is applied to the letters or other impression members **21** and after being applied to said members is maintained as near as possible to the predetermined degree of temperature.

After the impression members **21** have been impressed into and through the gelatinous material **19**, the heating device is removed and the stone or other object with the gelatinous material **19** still adhering thereto is subjected to a sand-blasting operation well known in the art, during which operation any remaining portion of the adhesive **20**, which is utilized to secure the gelatinous material to the stone, is first cut away by the action of the sand blast, after which the letters or designs are cut in the stone to the depth desired.

In Fig. 5 I have illustrated a modified embodiment of my invention in which heating members **22**, similar in shape to those hereinbefore described, are secured to the under side of a support **5** by means of a plurality of screws **7** which project through openings **8** provided therefor in the support, and said openings are of sufficient size to permit the members **22** to tip universally in all directions upon said support. In this form of the invention, however, individual electric heating elements **23** are provided for each heating member **22**, said heating elements being inserted in openings **24** provided therefore, which extend inwardly from one end of the member. After the heating element **23** has been inserted in its opening **24**, a plug **25** is inserted in said opening for the purpose of holding the element therein. Electric wires **26** for the heating element **23** emerge from the heating member **22** through an opening **27** provided in a face of said member. The heating elements **23** for the various heating members **22** are all connected in series in the electric circuit in a well-known manner. A heating device provided with a plurality of the heating elements **22** will function in exactly the same manner as the heating device illustrated in Figs. 1 to 4 inclusive.

Although the device of this invention is particularly adapted for use upon monuments, headstones, and similar types of memorials, it is evident that it may be used successfully for applying inscriptions and designs to the surfaces of glass, wood, and certain metals, where the surfaces that are to receive the inscriptions are not perfectly flat.

I claim:

1. An electric heating device comprising, in combination, a support, a plurality of weights also constituting heating members suspended from said support beneath the under side thereof and adapted to tip universally relatively thereto, and an electric heating element interposed between said support and heating members and adapted to contact with and transmit heat to said members.

2. An electric heating device comprising, in combination, a support, a plurality of weights also constituting heating members suspended from said support beneath the underside thereof and adapted to tip in all directions relatively thereto and to each other, and means to transmit heat individually to each of said heating members.

3. An electric heating device comprising, in combination, a support, a plurality of weights also constituting heating members suspended from said support beneath the under side thereof and adapted to tip in all directions relatively thereto and to each other, and an electric heating element adapted to contact individually with each of said heating members and transmit heat thereto.

4. An electric heating device comprising, in combination, a support, a plurality of heating members loosely mounted in a row upon the under side of said support and adapted to tip in all directions relatively thereto and to each other, and an electric heating element fast to said support and extending longitudinally thereof above the heating members and adapted to contact with and transmit heat to said heating members.

5. An electric heating device comprising, in combination, a support, a plurality of weights also constituting heating members suspended from said support beneath the under side thereof and adapted to tip in all directions relatively thereto and to each other, an electric heating element adapted to contact individually with each of said heating members and transmit heat thereto, and a housing fast to the support and enclosing the heating members and confining the heat thereabout.

6. An electric heating device comprising, in combination, a support, a plurality of weights also constituting heating members suspended from said support beneath the under side thereof and adapted to tip in all directions relatively thereto and to each other, an electric heating element adapted to contact individually with each of said heating members and transmit heat

thereto, and means for regulating and controlling the temperature of the heating members.

7. A device of the character described comprising, in combination, a support, a plurality of weights adapted to receive and transmit heat positioned side by side beneath said support, and suspension members rigidly fast to said weights and projecting loosely through and overlying a portion of the support, whereby said weights are suspended from said support and also permitted to tip in all directions relatively thereto and to each other when resting upon an uneven surface.

8. A device of the character described comprising, in combination, a support, a plurality of weights adapted to receive and transmit heat positioned side by side beneath said support, and a plurality of screws rigidly attached to each weight and projecting loosely through the support, said screws having portions embodied therein adapted to overlie said support, whereby said weights are suspended from the support and are also permitted to tip in all directions relatively thereto and to each other when resting upon an uneven surface.

9. A heating device of the character described comprising, in combination, a support, a plurality of weights also constituting heating members positioned side by side beneath said support, a plurality of suspension members rigidly attached to each of said heating members and projecting loosely through a portion of the support, whereby said heating members are suspended from said support and also permitted to tip in all directions relatively thereto and to each other when resting upon an uneven surface, and means to transmit heat to each of said heating members.

10. An electric heating device comprising, in combination, a support, a plurality of weights also constituting heating members positioned side by side beneath said support, suspension members rigidly attached to each of said heating members and projecting loosely through and overlying a portion of the support, whereby said heating members are suspended from said support and also permitted to tip in all directions relatively thereto and to each other when resting upon an uneven surface, and an electric heating element extending longitudinally of said heating members and adapted to contact individually with and transmit heat thereto.

EMILE C. FRANZMANN.