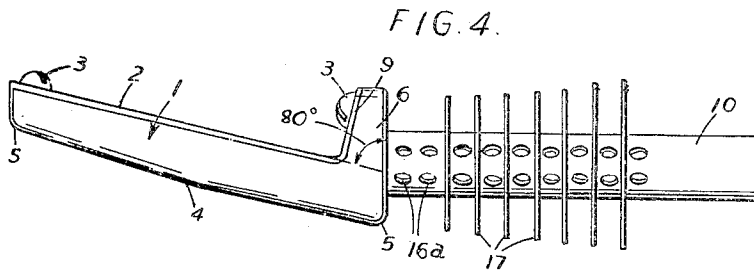
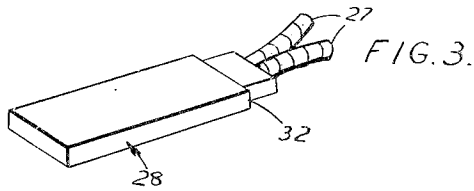
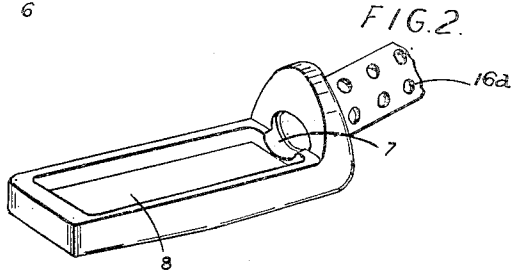
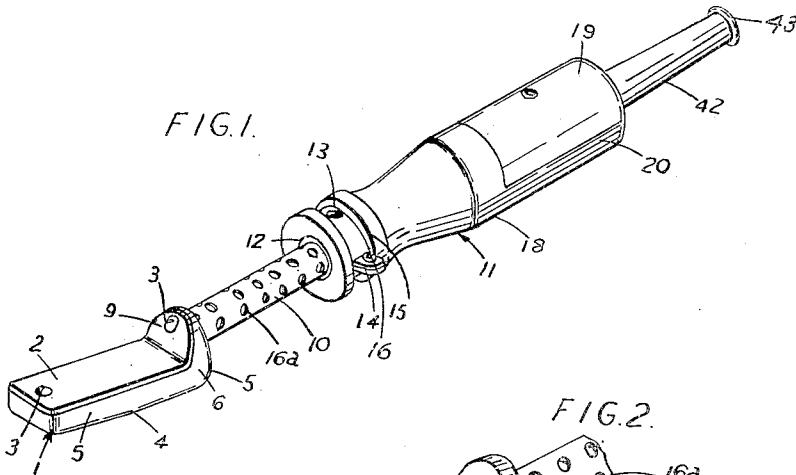


Feb. 14, 1950

W. T. WARREN
ELECTRIC SEALING IRON
Filed Nov. 19, 1947

2,497,146



William T. Warren ^{Inventor}
by Henry J. Lucke _{Attorney}

UNITED STATES PATENT OFFICE

2,497,146

ELECTRIC SEALING IRON

William Thomas Warren, Brightlingsea, England

Application November 19, 1947, Serial No. 787,018
In Great Britain October 4, 1944Section 1, Public Law 690, August 8, 1946
Patent expires October 4, 1964

5 Claims. (Cl. 219—21)

1

This invention concerns improvements in or relating to electric sealing irons intended for use in sealing wrapping paper around goods packed therein, and particularly those of the kind having an electrically heated sole plate or bit (hereinafter referred to generally as the "heating unit") carried at one end of a tubular shank or rod provided at its other end with a wooden or other heat insulating handle, adapted to be grasped in the hand during the manipulation of the tool, the heating unit being wiped over the wrapping material to soften adhesive sealing matter carried thereon and cause sealing of the wrapping.

An object of the invention is to provide a generally improved sealing iron of the above mentioned kind.

According to one aspect of this invention there is provided an electric sealing iron of the kind specified wherein the heating unit comprises a housing of hollow box form colinearly arranged with respect to the handle shank as these parts are seen in plan but said handle shank being inclined or directed upwardly from the heating unit as the parts are seen in side elevation, said housing having one side closed by a cover which forms the side of the heating unit opposite to the operative heating surface or sole of the unit and is adapted to be moved relatively to the housing to give access to the interior thereof in order to permit the heating element to be placed in or removed bodily from the housing without detaching the heating unit itself from the handle.

According to another aspect of this invention there is provided an electric sealing iron of the kind specified and which comprises a heating unit in the form of a shallow box the bottom of which forms the operative heating surface or sole of the unit and the top or opposite side of which is removable to give access to the interior of the box to enable a heating element removably mounted therein to be removed at will, said box being rigidly secured at one end to one end of a tubular shank attached co-axially at its other end to a handle, the included angle between the axis of the shank and the top of the box being rather less than 180° and the interior of the shank communicating directly without any acute changes in direction with the interior of the box so that electric leads from the heating element may simply and easily be threaded through the shank into the handle.

Preferably the heating unit has a continuous imperforate heating surface or sole.

The shank of the handle may be provided with

2

transverse openings for heat dissipating purposes and/or it may be provided with circumferential fins or gills for the same purpose.

The handle of the sealing iron may be formed of thermal and electrically insulating material and may comprise two complementary parts constituting respectively an electric connector for the electric leads to the electric heating element and those to the electric supply source and a cover for such connector. The electric connector part of the handle may have separate (electrically connected) terminals for the supply leads and the electric heating element leads thereby either of these sets of leads may be disconnected from the sealing iron without disturbing the other set. Also the electric connector may have means for clamping the supply leads thereto so as to relieve the supply lead terminal of strain and it may have a flexible resilient reinforcing sleeve through which the supply leads pass into the connector and which sleeve is anchored at one end to the latter.

Further features of the invention will become apparent from the following description.

In order that the nature of the invention and the method of carrying same into effect may be more thoroughly understood, certain embodiments of the same will now be described by way of example with reference to the accompanying drawings in which:

Fig. 1 is a perspective view of a sealing iron according to this invention;

Fig. 2 is an enlarged perspective view of the heating unit of the sealing iron shown in Fig. 1 with the lid thereof removed;

Fig. 3 is a view on the same scale as Fig. 2 showing in perspective the electric heating element for the heating unit shown in Fig. 2;

Fig. 4 is a side elevation of the heating unit and the handle shank associated therewith and illustrates a modification of the arrangement shown in Fig. 1.

This sealing iron comprises a heating unit in the form of a shallow hollow metal housing or box 1 of oblong form. The top of the box 1 is removable and is in the form of a cover or plate 2 secured to the box by means of a pair of screws 3. The bottom of the box 1 forms the sole plate 4 of the iron and its underside is a continuous imperforate surface of longitudinally convex form, being inclined gradually upwardly from approximately the centre of the length of the box to the opposite ends thereof. The bottom corners of the box 1 are rounded off as shown at 5 so as not to impede the smoothing action

3

of the sole plate 4 as it is slidden over the wrapping paper to be sealed thereby.

The box 1 may be conveniently formed as a brass or other suitable metal casting, and at one end it has an upwardly projecting lug 6 which is not perpendicular to the upper surface of the box but slightly inclined inwardly with respect to this surface. The angle between the outer end surface of the said lug 6 and the top surface of the box 1 is conveniently about 80°. The cover 2 of the box 1 has an upwardly directed limb 9 which fits against the inner surface of the lug 6.

The lower part of the lug 6 has a hole 7 extending through it and leading directly into the interior 8 of the box 1 and in the outer end of this hole is fixed one end of a straight metal tubular rod forming a handle shank 10. This handle shank 10 is in axial register with the hole 7 in the lug 6 and the axis of the handle shank is perpendicular to the outer end surface of the lug 6 so that the sole plate 4 is inclined relatively to the axis of the handle shank, the included angle between them being rather less than 180°, although the box 1 forms a collinear extension of the handle shank as seen in plan.

That end portion of the handle shank 10 which is remote from the box 1 is fitted axially into a handle 11 formed of wood or other suitable heat and electrically insulating material, and the portion of the handle shank within the handle 11 may be surrounded by a sleeve 12 of asbestos or other heat and electrically insulating material. A grub screw 13, pin or equivalent means may be provided in the handle 11 and engaged with the handle shank 10 to secure the latter against axial and rotary movement in the handle.

The handle 11, especially where formed of wood, is also preferably provided with a metal ferrule 14 at the end into which the handle shank 10 is inserted. This ferrule 14 is preferably in the form of a circular adjustable band around the handle 11 and situated in a peripheral circumferential groove 15 in the latter. The ferrule 14 may comprise, as shown in the drawing, a metal band having its two ends turned radially outwards and anchored together adjustably by a nut and bolt 16. Providing an adjustable ferrule 14 in this way enables the ferrule to be tightened up if the material (e. g., wood) of which the handle 11 is formed should shrink thus substantially strengthening that portion of the end of the handle taking the strain during operation and whereby the ferrule can remain operative instead of becoming a loose fit on the handle and inoperative as is usual with the ordinary friction held ferrule.

In the handle shank 10, and between the lug 6 of the box 1 and the handle 11, are provided a series of ventilation holes 16a for heat dissipating purposes, and if desired, as shown in Fig. 4, a plurality of axially spaced annular fins or gills 17 may be arranged in spaced relationship on the handle shank and these serve to radiate from the handle shank heat passing therealong from the box 1 towards the handle, thus additionally reducing the heat conducted up the handle shank towards the handle and the danger of the handle becoming unduly hot or damaged.

The fins 17, if used, preferably decrease progressively in diameter from the fin nearest to the handle 11 to the fin nearest to the box 1. If desired, the fins 17 may be used without the holes 16a but it is preferred to use the latter.

4

The portion 18 of the handle 11 which forms the grip part thereof and is adapted to be held in the palm of the hand, with the fingers engaged therearound, is of cylindrical form but it could be of any other suitable form, for example, of hexagonal form in cross-section. The handle 11 is longitudinally divided along its diameter for a part of its length and one of the two halves of the handle so formed is also separated from the other half in a transverse direction so that one half 19 of the portion 18 of the handle is completely removable and serves as the cap or cover of an electric connector housed within the other half 20 of the handle portion 18.

The heating element 28 is preferably of rectangular form (see Fig. 3) and is enclosed in a mica insulation or equivalent insulation and preferably also in a sheet metal sheath 32, the heating element being of flat oblong form so as to fit closely in the said box 1 which is of dimensions to suit the heating element. The leads 27 from the electric heating element 28 leave the latter at one end and are provided with any suitable insulation as for instance, insulating beads, so that the leads are insulated from the handle shank 10 and the interior of the handle 11 of the sealing iron. Access to the heating element 28 is gained by removing the cover 2 from the box 1.

A sealing iron constructed as above described offers a considerable number of advantages. In the first place the box 1 and its sole plate 4 extend collinearly with the straight handle shank 10 and the handle 11 and the electric leads 27 from the electric heating element 28 pass, without any acute changes in direction, in substantially straight lines from the heating element through the handle shank into the handle to the electric connector housed in the latter, and consequently no appreciable difficulty is experienced in threading these leads into the tool or withdrawing them therefrom. The heating element 28 is readily accessible for examination or replacement by simply removing the cover 2 of the box of the box 1. The leads 27 of the electric heating element 28 are secured to the terminal plates in the electric connector housed in the handle 11 independently of the leads of the main supply cable and the electric heating element can therefore be removed from the sealing iron without first disconnecting the cable, and likewise the cable can be removed from the handle without disconnecting the heating element. Since the handle 11 houses an electric connector which has a removable cover, examination of the connections within the handle can be effected simply merely by removing the cover of the connector. Moreover the connections can easily be made and unmade. Furthermore, the supply cable is supported by a reinforcing sleeve 42 against being bent acutely adjacent the handle 11, such sleeve being provided at each end with an annular enlargement 43, one of which is adapted to be clamped firmly between the two parts 19 and 20 of the handle 11, which parts are suitably recessed internally to receive the enlargement 43 of the sealing iron. As the cable is thus unlikely, as hitherto, to break adjacent the handle its life is therefore prolonged. The provision of such means for clamping the cable to the handle 11 also removes the liability of the cable leads being pulled from the terminal screws within the handle and reduces the chances of the cable being twisted out of the handle. The provision

of an adjustable ferrule 14 around the handle 11 enables the ferrule to be adjusted to accommodate modifications of the handle resulting, for example, in the case of a wooden handle, from shrinkage.

The provision of holes 16a and/or fins 17 in or upon the portion of the handle shank 10 between the box 1 and the handle 11 ensures that excessive heat will be dissipated from the handle shank before reaching the handle.

Furthermore, the arrangement of the handle shank 10 at a slight inclination to the sole plate 4 ensures that when the latter is being used over a flat surface the handle 11 of the tool is somewhat spaced from this surface to give clearance for the hand by which the handle is gripped.

I claim:

1. An electrically heated sealing iron for use in sealing wrapping papers around goods packed therein such iron comprising a heating unit in the form of a shallow hollow metal box of oblong substantially parallelepipedon form, the bottom of said box being inclined upwardly and outwardly from substantially the centre of its length and forming an imperforate sole plate adapted to be wiped over the wrapping paper to be sealed, an electric heating element of rectangular parallelepipedon form detachably located in said box, a detachable cover to close the upper side of said box and to retain said heating element therein, said cover being removable from the box to give access to the electric heating element, a tubular handle shank secured at right angles to one narrow end of said box, the end of the box to which said handle shank is secured being of greater depth than the other perimetrical walls of the box and being of upwardly tapering form with its outer surface inclined at an angle of approximately 80° to said cover, so that the box is inclined upwardly with respect to the handle shank but is collinearly arranged with respect thereto when seen in plan, a heat and electrically insulating handle on the end of said handle shank opposite to the box, electric connection means within such handle, electric leads from said heating element passing through the said handle shank to the electric connection means within the handle and heat dissipating means provided on said handle shank.

2. An electrically heated sealing iron for use in sealing wrapping papers around goods packed therein, such iron comprising a heating unit in the form of a shallow hollow metal box of oblong substantially parallelepipedon form, the bottom of said box forming an imperforate sole plate adapted to be wiped over the wrapping paper to be sealed, an electric heating element of rectangular parallelepipedon form detachably located in said box, a detachable cover to close the upper side of said box and to retain said heating element therein, said cover being removable from the box to give access to the electric heating element, a tubular handle shank secured at right angles to one narrow end of said box, the end of the box to which said handle shank is secured being of greater depth than the other perimetrical walls of the box and being of upwardly tapering form with its outer surface inclined at an angle of approximately 80° to said cover, so that the box is inclined upwardly with respect to the handle shank but is collinearly arranged with respect thereto when seen in plan, a heat and electrically insulating handle on the end of said handle shank opposite to the box, electric connection means within said handle,

electric leads from said heating element passing through the said handle shank to the electric connection means within the handle and heat dissipating means provided on said handle shank which means includes a plurality of ventilation holes arranged along the handle shank.

3. An electrically heated sealing iron for use in sealing wrapping papers around goods packed therein, such iron comprising a heating unit in the form of a shallow hollow metal box of oblong substantially parallelepipedon form, the bottom of said box forming an imperforate sole plate adapted to be wiped over the wrapping paper to be sealed, an electric heating element of rectangular parallelepipedon form detachably located in said box, a detachable cover to close the upper side of said box and to retain said heating element therein, said cover being removable from the box to give access to the electric heating element, a tubular handle shank secured at right angles to one narrow end of said box, the end of the box to which said handle shank is secured being of greater depth than the other perimetrical walls of the box and being of upwardly tapering form with its outer surface inclined at an angle of approximately 80° to said cover, so that the box is inclined upwardly with respect to the handle shank but is collinearly arranged with respect thereto when seen in plan, a heat and electrically insulating handle on the end of said handle shank opposite to the box, electric connection means within said handle, electric leads from said heating element passing through the said handle shank to the electric connection means within the handle and heat dissipating means provided on said handle shank which means includes a plurality of annular fins spaced axially along the handle shank.

4. An electrically heated sealing iron for use in sealing wrapping papers around goods packed therein such iron comprising a heating unit in the form of a shallow hollow metal box of oblong substantially parallelepipedon form, the bottom of said box being inclined upwardly and outwardly from substantially the centre of its length and forming an imperforate sole plate adapted to be wiped over the wrapping paper to be sealed, an electric heating element of rectangular parallelepipedon form detachably located in said box, a detachable cover to close the upper side of said box and to retain said heating element therein said cover being removable from the box to give access to the electric heating element, a tubular handle shank secured at right angles to one narrow end of said box, the end of the box to which said handle shank is secured being of greater depth than the other perimetrical walls of the box and being of upwardly tapering form with its outer surface inclined at an angle of approximately 80° to said cover, so that the box is inclined upwardly with respect to the handle shank but is collinearly arranged with respect thereto when seen in plan, a heat and electrically insulating handle on the end of said handle shank opposite to the box, electric connection means within said handle, the latter being longitudinally divided for part of its length and one of the two halves of the handle so formed being also separated from the other half in a transverse direction so as to form a cap for said electric connection means and electric leads from said heating element passing through the said handle shank to the electric connection means within the handle.

5. An electrically heated sealing iron for use in sealing wrapping papers around goods packed

therein, such iron comprising a heating unit in the form of a shallow hollow metal box of oblong substantially parallelepipedon form, the bottom of said box being inclined upwardly and outwardly from substantially the centre of its length and forming an imperforate sole plate adapted to be wiped over the wrapping paper to be sealed, an electric heating element of rectangular parallelepipedon form detachably located in said box, a tubular handle shank secured at right angles to one narrow end of said box, the end of the box to which said handle shank is secured being of greater depth than the other perimetrical walls of the box and being of upwardly tapering form with its outer surface inclined at an angle of approximately 80° to said cover, a detachable cover to close the upper side of said box and to retain said heating element therein, said cover being removable from the box to give access to the electric heating element, said cover being provided at the end adjacent the end of the box of greater depth with an upstanding lug inclined at an angle of approximately 80° to the rest of the cover, means for securing said cover to the box including a securing member passing through said lug and the adjacent part of the wall of the box, a heat and electrically insulating handle on

the end of said handle shank opposite to the box, electric connection means within said handle, electric leads from said heating element passing through the said handle shank to the electric connection means within the handle and heat dissipating means provided on said handle shank.

WILLIAM THOMAS WARREN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

	Number	Name	Date
15	1,065,131	La Vergne et al.	June 17, 1913
	1,503,890	Flesch	Aug. 5, 1924
	1,616,544	Paolicelli et al.	Feb. 8, 1927
	1,674,047	La Bombard et al.	June 19, 1928
	1,714,147	Weisbarth	May 21, 1929
20	1,926,520	Fox	Sept. 12, 1933
	2,292,700	Kennedy	Aug. 11, 1942
	2,304,559	Engesser	Dec. 8, 1942

FOREIGN PATENTS

	Number	Country	Date
25	322,418	Great Britain	Dec. 5, 1929