J. S. HANSEN.

ELECTRICALLY HEATED TOOL.

APPLICATION FILED MAY 7, 1908.

1,020,603. Patented Mar. 19, 1912.

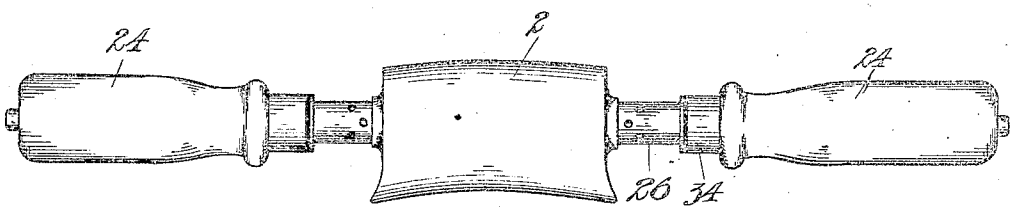

Fig. 1.

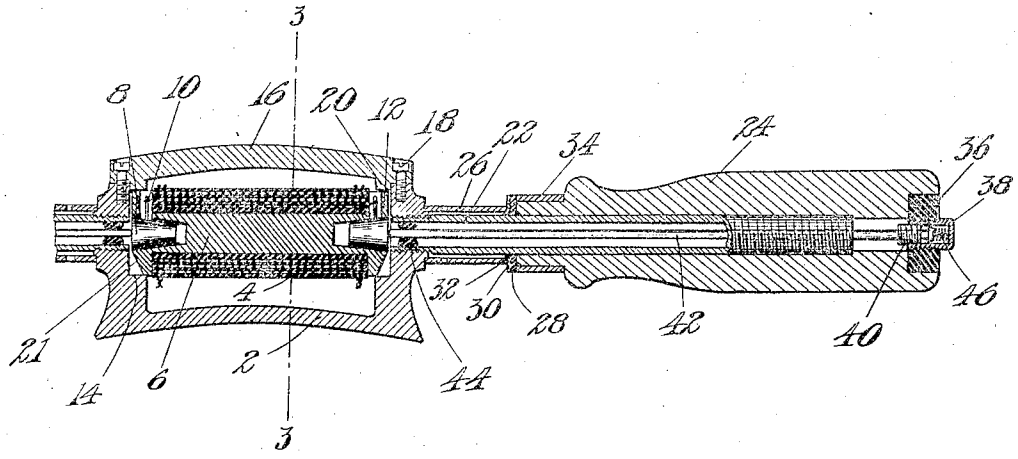

Fig. 2.

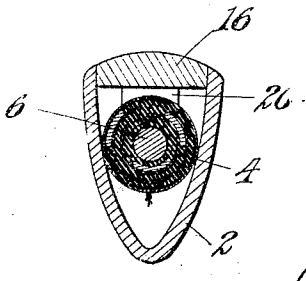

Fig. 3.

WITNESSES.

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ELECTRICALLY-HEATED TOOL.

1,020,603. Specification of Letters Patent. Patented Mar. 19, 1912.

Application filed May 7, 1908. Serial No. 431,359.

To all whom it may concern:

Be it known that I, JOHN S. HANSEN, a citizen of the United States, residing at Brockton, in the county of Plymouth and Commonwealth of Massachusetts, have invented certain Improvements in Electrically-Heated Tools, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to electrically heated tools and is herein disclosed embodied in an electrically heated treeing iron for use in finishing boots and shoes.

Heretofore electrically heated treeing irons have been so constructed that if the heating resistance becomes ineffective through short-circuiting, the iron is returned for repair to the factory where manufactured. This course of procedure has been made necessary by the difficulties incident to removing and replacing a heating resistance. An important object of the present invention is to provide an electrically heated treeing iron in which the heating resistance may be readily removed and replaced. In the iron herein shown, this may be done without disturbing the remaining electrical equipment of the iron. In irons of this class the conductors leading to and from the heating resistance are placed in the handle or handles with which the iron is provided. An important feature of the present invention consists in a treeing iron provided with a hollow body part and with one or more detachable handles extending from said part, and a heating resistance arranged within the body part and constructed to be removed from said part independently of a handle. In the embodiment illustrated, the body part or ironing portion of the iron is provided with a detachable section covering an opening through which the heating resistance may be inserted and removed. The body part is provided with two handles leading from opposite sides thereof.

The heating resistance, which is preferably of cylindrical shape, is provided with contacts at its two ends, and electrical connection with these contacts is made through conductors leading from the exterior of the iron. The arrangement is such that the heating resistance may be freely removed and replaced without the manipulation of electrical connections upon the iron. In the construction shown, the conductors are pressed yieldingly into engagement with said contacts, but are not mechanically connected therewith and therefore do not interfere with removal of the resistance from between them.

In the iron shown, the handles are mounted upon stems attached to the body part of the iron, and are secured to said stems by having threaded engagement therewith. The conductors which pass through the handles from the exterior are so arranged that they do not interfere with the rotary movement of the handles upon their supporting stems in case, for example, such movement is desired to tighten the handles.

Other features of the invention will be hereinafter described and defined in the appended claims.

In the drawings,—Figure 1 is a view in side elevation of a treeing iron constituting one embodiment of the invention; Fig. 2 is a view in longitudinal vertical section of a portion of the iron shown in Fig. 1; Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 2.

Referring to the drawings, the reference numeral 2 indicates the body part of the iron which is provided upon its exterior with ironing surfaces of the usual contour. The body part 2 is provided with an internal cavity containing a heating resistance 4. The heating resistance comprises a spool 6 upon which are arranged alternately layers of insulating material such as mica, and coils of resistance wire. It will be understood that the several concentrically arranged coils are formed of a continuous length of wire. The spool 6 contains at each end a plug 8 of conducting material, such as brass, suitably insulated from the material of the spool. Each plug 8 is provided with a laterally extending pin 10, said pins being connected respectively with the two ends of the resistance wire. The spool is formed with flanges 12 at its two ends. The body part of the iron is provided upon its interior with transversely concave supporting ledges 14 upon which the resistance is seated, the flanges 12 resting upon said ledges. The upper side of the body part of the iron, as shown in Fig. 2, is formed by a removable plate 16, forming approximately the entire upper side of said body part. This plate is

secured to the body part of the iron by screws 18 arranged at opposite ends thereof. It will be understood that the plate 16 constitutes a portion of the ironing surface of the iron. The plate 16 is provided upon its inner sides with transversely curved lugs 20, which, in the operative position of the parts, bear upon the flanges 12 of the heating resistance and hold said resistance firmly upon the seat formed by the ledges 14. It will be understood that the transverse curvature of the ledges 14 and lugs 20 is provided to cause them to fit the circular shape of the flanges 12. The flanges 12 are provided with beveled surfaces 21, which serve a purpose hereinafter referred to.

Secured to each end of the body part 2 of the iron is a hollow stem 22, the outer end of which is externally threaded to retain in place thereon an exterior casing or handle 24 of wood. A shell 26 is arranged about the stem 22 in contact with the body part 2, and between said shell and the adjacent handle 24 is arranged insulation 28 and a metal washer 30. The inner edge of the washer is provided with a flange 32 which lies between the shell 26 and the stem 22. The inner end of the wooden handle 24 is provided with a metal ferrule 34. The shell 26 is preferably foraminated, as shown in Fig. 1, to lessen the conduction of heat from the body part of the iron to the handle.

In the outer end of each handle 24 is inserted a ring 36 of insulating material in which is received a thimble 38 arranged with its closed end outermost. The thimble 38 is screwed into the ring 36 and is provided with a threaded interior surface to receive a tubular plug 40 within its inner open end. A conductor 42 is supported within the plug 40 and is sustained at its inner end by a tubular support 44 of suitable insulating material. The conductor 42 is headed at its outer end. Between its head and the end of the thimble 38 is arranged a spring 46. As will be apparent from Fig. 2, in the operative position of the heating resistance, each spring 46 presses its conductor 42 against a plug 8 in the heating resistance. When the heating resistance is removed, longitudinal movement of the conductor 42 into the cavity of the iron is limited by engagement of its head with the tubular plug 40.

The outer parts of the thimbles 38 constitute exposed contacts which may be connected with the terminals of a dynamo or other supply system when desired, in order to complete the circuit and thereby heat the iron.

In the use of the treeing iron shown, the parts are normally in the position illustrated in Fig. 2. If the iron becomes inoperative through the presence of a short circuit in the heating resistance, the resistance may be removed by detaching the plate 16, and a new resistance may be inserted. It will be seen that in this way the use of the iron is but momentarily interfered with. In inserting the new resistance the conductors 42 engage the beveled surfaces 21 over which they ride into contact with the plugs 8. There is thus no adjustment or manipulation of the conductors required in inserting or removing a heating resistance. After the insertion of the heating resistance the plate 16 is secured in place and the resistance thus clamped in position within the cavity of the body part of the iron.

It will be observed that not only is the heating resistance removable independently of the handles, but the handles are capable of independent adjustment or removal. It will also be seen that the conductors 42 are so arranged that they do not interfere with the rotatory adjustment of the handles 24 in case this is desired in order to tighten the handles upon their supporting stems.

The operation of the specific tool shown is as follows:—Connection is made in any suitable manner between the contacts 38 and the terminals of a dynamo or other supply system, and the iron is allowed to become heated. When sufficiently hot it is removed from the circuit and applied in the proper manner to the shoe.

It will be understood that the invention is not limited to the particular construction shown, but that many modifications may be made in the construction and arrangement of the parts as well as in the general organization of the device without departing from the spirit of the invention.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A treeing iron having a hollow body part, a heating resistance arranged within said body part, handles extending from opposite sides of said part, the body part having an opening through which the resistance may be inserted or removed while the handles are in their normal position and a cover for said opening.

2. A treeing iron having a hollow body part provided with an opening intermediate its ends, a heating resistance removably supported in said part, handles extending from the ends of said part, a contact arranged in an exposed position upon each of the handles and electrical connections leading from said contacts to the resistance.

3. A treeing iron provided with a hollow body part and a heating resistance arranged within said part, a stem secured to said part, a handle rotatably adjustable upon said stem, a contact arranged in an exposed position upon the handle and a conductor leading from said contact to the resistance and constructed to permit free rotatory movement of the handle upon said stem.

4. A treeing iron having a body part provided with an internal cavity, a heating resistance removably supported in said cavity, two handles extending in opposite directions from said body part, contacts arranged in exposed positions upon the two handles, and electrical connections leading from said contacts to the resistance, said body part having an opening intermediate of the handles through which said heating resistance may be removed.

5. A treeing iron provided with a hollow body part and with detachable handles extending from said part, a heating resistance arranged within the body part and constructed to be removed from said part independently of said handles, and means for holding said heating resistance in working position within said body part.

6. A treeing iron having an internal cavity and an opening leading into said cavity, a heating resistance within said cavity constructed to be inserted through said opening, said resistance having contact terminals, contacts projecting into the cavity to engage said terminals, and a cover for said opening constructed to retain the resistance in working position within said cavity.

7. In an electrically heated treeing iron the combination with a hollow body part and a heating resistance arranged within said body part, of a handle extending from said body part, a contact upon the outer end of the handle, a conductor in continuous electrical connection with said contact arranged for movement longitudinally of the handle and formed to enter the cavity of the body part and to have engagement with the heating resistance, and means for pressing said conductor yieldingly into engagement with the resistance.

8. A treeing iron having a hollow body part, handles extending in opposite directions from said body part, conductors leading into said body part from opposite sides, and a heating resistance within the cavity of the body part constructed to be inserted between said conductors and removed therefrom by movement transverse to the iron.

9. A treeing iron, having a hollow body part, handles extending from opposite sides of said body part, contacts arranged upon the ends of the handles, conductors within said handles having continuous electrical connection with the contacts arranged for movement longitudinally of the handles and formed to enter the cavity of the body part, means for pressing said conductors yieldingly toward the body part and a heating resistance constructed to be interposed between the ends of said conductors and provided with inclined surfaces formed to move the conductors outwardly in the insertion of the resistance in working position within said cavity.

10. A treeing iron, having a hollow body part, conductors entering the cavity of said body part from opposite sides, a heating resistance provided with a contact at each end, means for removably sustaining the resistance in working position between said conductors, and means for effecting yielding engagement between the conductors and said contacts upon the insertion of the resistance in working position.

11. A treeing iron having a body part provided with an internal cavity, handles extending from opposite sides of said body part, a heating resistance removably supported in said cavity, contacts carried by said heating resistance and contacts arranged in said cavity to coöperate with the contacts on said resistance when it is in working position in the iron.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN S. HANSEN.

Witnesses:
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ELIZABETH C. COUPE.