June 29, 1943. C. R. TALMAGE 2,323,162

FLAT IRON BASE

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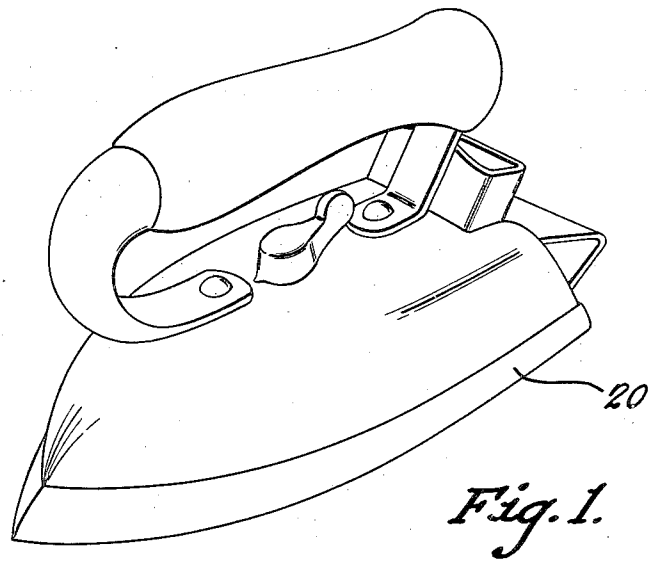


Fig. 1.

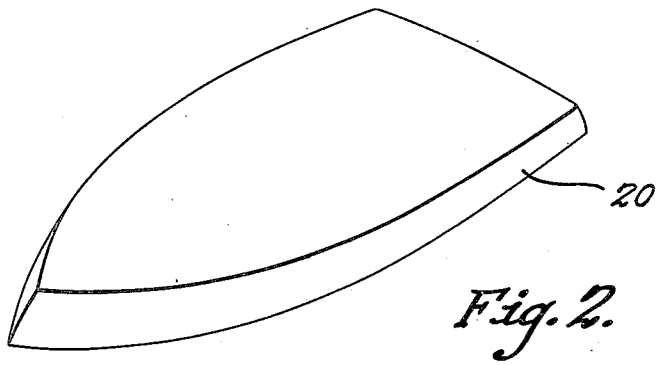


Fig. 2.

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FLATIRON BASE

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2 Claims. (Cl. 38—93)

This invention relates to flat iron bases and is particularly concerned with flat iron bases made from powdered iron.

It is the prime object of the invention to fabricate a flat iron base from iron powder wherein the base may be molded to the exact size and shape and thereby eliminate the necessity of machining.

It is a further object in some cases to impregnate the porous iron base with a metal or metals which will aid in increasing the conductivity of the base and simultaneously facilitate the application of a metal coating by electrodeposition.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing wherein a preferred embodiment of the present invention is clearly shown.

In the drawing:

Fig. 1 is a view in perspective of an electrically heated flat iron, and

Fig. 2 is a view showing the shoe, or base, of a flat iron.

In the manufacture of bases, or shoes, for flat irons it has been the conventional procedure to fabricate these bases from cast iron. The cast iron parts upon being removed from the molds are rough and only approximate the size desired, and therefore require much tedious machining and finishing in order to insure a flat surface at the base thereof, and likewise to shape the iron base to the desired contour. This machining is further necessary in order to produce a smooth surface suitable for electro-plating, which plating is utilized for preventing oxidization of the base, for simultaneously improving the appearance thereof, and to provide a smooth ironing surface. These finishing operations add considerably to the cost of the base.

My invention is particularly concerned with the fabrication of a flat iron base from briquetted sintered iron powders, wherein the base is substantially exactly molded to the desired size and shape, and wherein, after sintering, the surface thereof is smooth and requires no grinding or machining operations of the character heretofore described. If desired the ironing surface may be machined or finished although in most instances this is unnecessary.

In making a flat iron base in accordance with my invention, I propose to utilize iron powder such as sponge iron, comminuted iron, electrolytic iron, etc., either with or without small quantities of carbon and/or copper powder. The metal powder is filled into a mold of the desired configuration and briquetted under high pressures, preferably ranging from 20,000 to 60,000 pounds per square inch, to form a self-sustaining mass which is then sintered under non-oxidizing or reducing conditions at a temperature of approximately 2,000° F. for from 10 to 40 minutes, whereupon the metal powder sinters together to form a substantially continuous network or matrix, which has a degree of porosity that is determined by the initial briquetting pressure. The drawing shows such a base at 20 wherein the molded article after sintering presents a smooth surface at all portions thereof.

In some cases it is desirable to mix copper powders with the iron in percentages of from 5 to 20 percent of the total weight of the metal powder used, which copper powder upon sintering coats the iron and acts as a bonding agent therewith. Similarly, aluminum, bronze or other powders having good heat conducting qualities may be used. Another embodiment comprehends the impregnation of the sintered article with molten copper or other good heat conducting metals, wherein the iron may either be immersed in a bath of the molten metal for a short period, or wherein a piece of the metal may be placed on top of the iron base and soaked in by capillarity, by placing the base with the metal thereon in a furnace at a temperature above the melting point of the metal but below the melting point of iron, such procedure being well known in the art. In this instance the copper or other metal impregnant, due to its high heat conductivity, increases the conductivity of the base, while simultaneously not sacrificing the strength or hardness of the iron base. Then too, copper coated iron facilitates electro-plating since it is desirable in most cases to copper plate prior to nickel plating etc.

Another embodiment proposes the use of selective briquetting wherein a layer of copper powder or copper and iron powder is first filled into the mold to a predetermined depth, which is less than the depth of the mold, then the remainder of the mold cavity is filled with iron powder. In this manner a surface of the shoe can be made of copper while the remainder of the surface is iron, thus providing for an ironing surface of high heat conductivity and simultaneously utilizing the inherent strength of the iron. Likewise, this procedure reduces the cost of the shoe over a shoe made of pure copper since the copper surface thereof may not exceed a six-

teenth of the depth. In this instance the sintering temperature should not exceed 1950° F.

It is therefore apparent that I have provided an iron base or shoe which due to its smooth mold surface is particularly adaptable for its intended use, and wherein the necessity of expensive machining and finishing operations are eliminated thereby reducing the cost of the article. While the use of the iron shoe is particularly adapted for sad irons and the like, it is apparent that similar bases may be fabricated for use such as hot plates or in connection with electrical heating elements in electric ranges. In each case the grooves into which the elements are placed may be molded in the part, thereby eliminating practically all machining. Obviously the smooth molded surface, which is formed at the sintering briquetted iron parts, is very desirable for any of these heating plates or bases. In the case of impregnated iron the porosity of the surface is destroyed and the piece is substantially continuous, the same as cast metal. Similarly, when the shoe or base is plated with a chromium plate, for example, which is the usual practice in connection with irons, the porosity is at least partially destroyed due to the fact that the plating tends to bridge over the pores of the iron matrix. It is to be understood that in the claims which follow the use of the word "shoe" or "base" is considered sufficiently broad to include any of the uses herein mentioned.

While the embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. A new article of manufacture comprising a flat iron base characterized by a smooth ironing surface integral with the remainder of the base, said base consisting of a stratified structure wherein the portion thereof adjacent the ironing surface is predominately copper and the portion away from the ironing surface consists predominately of iron, said base consisting of sintered metal.

2. The article as claimed in claim 1 wherein the ironing surface has been electro-plated.

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