Dec. 10, 1935. L. M. SMOYER 2,024,072

METAL ARTICLE

Filed June 26, 1933

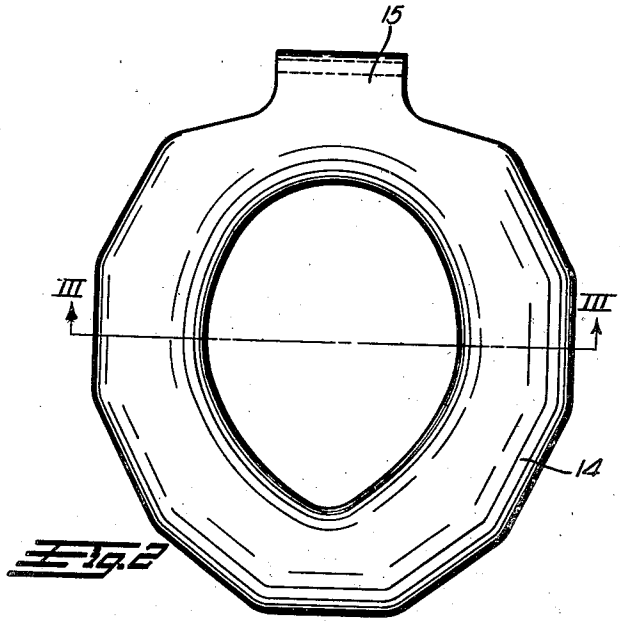


Fig. 2

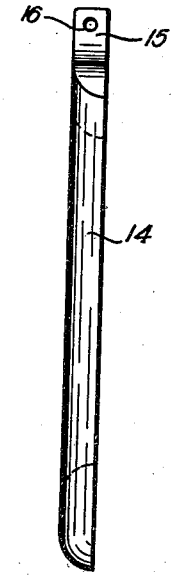


Fig. 4

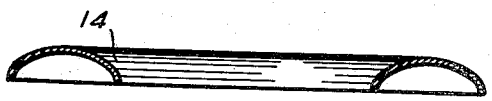


Fig. 3

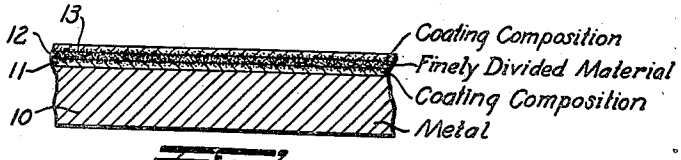


Fig. 1

Inventor

Lloyd M. Smoyer

By Strauch & Hoffman

Attorneys

Patented Dec. 10, 1935 2,024,072

UNITED STATES PATENT OFFICE

2,024,072

METAL ARTICLE

Lloyd M. Smoyer, Allentown, Pa.

Application June 26, 1933, Serial No. 677,738

3 Claims. (Cl. 4—237)

This invention relates to a novel surfaced metal article. More particularly, the invention relates to a metal article provided with a surface layer acting as a barrier to prevent the transfer of heat to or from the metal article.

The use of metal in the fabrication of articles of furniture, bath room stools, toilet seats and the like has heretofore been generally regarded as objectionable because of the readiness with which metal conducts or transfers heat. In view of this characteristic of metal, when the latter is used for any purpose that will bring the metal into contact with the body of the user, a sensation of chilliness is produced and continues as long as contact with the metal exists. This is due to the readiness with which the heat of the body flows through the metal which is generally at room or lower temperatures or well below the normal body temperature.

It has been found that all paints, varnishes, enamels, and the like in common use do not possess the property when applied to metal of preventing the substantially free flow of heat into the metal. Accordingly, the use of metal for such purposes as the manufacture of bath stools, toilet seats and the like has heretofore been regarded as impracticable in spite of the manifest advantages of metal over wood, in cost of production, and in strength and durability.

The primary purpose of the present invention is to provide an improved metal article having a surface covering that will substantially prevent heat transfer to or from the metal of which the body is composed.

Another object of the invention is to provide a novel article of manufacture in which a layer of minute particles of a material having a very low heat conductivity covers the metal surface and in which the particles are secured to the metal by a binder of initially liquid form that hardens when dry.

Still another object of the invention is to provide an improved toilet seat constructed of metal and having a surface layer of very low thermal conductivity so that the sensation of chilliness is avoided in using the seat.

Further objects of the invention will appear as a description thereof proceeds with reference to the accompanying drawing in which:

Figure 1 is an enlarged fragmentary sectional view showing how metal may be provided with a coating that will prevent the transfer of heat thereto or therefrom.

Figure 2 is a plan view of a preferred form of metal toilet seat provided with the present invention.

Figure 3 is a transverse section taken on the plane indicated by the line 3—3 on Figure 2.

Figure 4 is an edge elevation of the seat.

Like reference characters indicate like parts throughout the several views.

The use of metal in the fabrication of articles with which any part of the person comes in direct contact has generally heretofore been avoided because of the readiness that characterizes the flow of heat from the body to the metal, resulting in a chilly sensation when the metal is located in ordinary room temperatures.

By this invention, the metal may be provided with a covering, united to the metal so as to form a unitary structure that serves to substantially completely insulate the metal from the body when the latter is in contact therewith, so as to substantially completely prevent heat transfer through said covering.

The result just stated may be secured by coating the metal 10 with a layer of an initially liquid paint-like composition 11. Said composition may take the form of enamel, lacquer, varnish, a liquid phenol condensation product, synthetic resins or gums or the like. Liquid phenol condensation product or enamel are preferred. Such liquids do not in themselves prevent heat transfer to and from the metal.

The liquid compositions may be applied by brush or spraying to the surface of the metal that is to be covered. While the compositions are wet, a layer 12 of finely divided or minute particles of a material having the characteristic of preventing the flow of heat is applied by dusting, blowing or otherwise substantially evenly spreading the particles over the wet composition, the latter serving to adhesively secure the particles to the metal. In order to insure evenness of the layer, excess particles may be removed by a light sandpapering operation after the coating 10 has been permitted to dry and harden. It is desirable however to apply sufficient particles so as to provide a complete layer or so that the coating 11 is completely covered. If desired, the layers 11 and 12 may be multiplied if a very thick covering is required.

Material suitable for the layer 12 has been found to be wood flour, very finely divided wool, cotton or flax fibre, finely divided particles of leather, hard rubber in powdered form, and the chaff or dust of grains of various kinds. Wood flour is at present preferred.

After the layer 12 has been applied as just de-

scribed, a second coating 13 of an initially liquid composition is applied to the layer 12 filling the interstices between the particles constituting said layer. Sufficient initially liquid composition is applied to provide a smooth finished surface preferably completely concealing the particles of layer 12. The coating 13 is then permitted to dry and the metal is ready for use. Any of the compositions above specified for use in the coating 11 may be used for coating 13, the composition being selected in accordance with the desired characteristics in the completed product.

Metal having a surface or surfaces treated in the manner just described may be used for many purposes. In particular, the method provides a satisfactory way of utilizing metal in the construction of the seats of bath room stools, toilet seats and the like.

In the drawing, a novel toilet set is illustrated comprising a body 14 stamped or cast to the desired form. Preferably the body is formed to provide nicely rounded surfaces as illustrated and provided with an integral extension 15 having openings 16 extending transversely thereof for the reception of the hinge pins of posts secured to the bowl in known manner. The extension 15 with the openings takes the place of separate hinge members now applied to wooden or composition seats heretofore proposed so that in constructing seats in the form described, the hinge and seat is, in effect, one piece thus greatly reducing the cost of a seat ready for hinged connection to a bowl of a toilet. The seat is preferably constructed of aluminum because of the lightness, strength and relative cheapness thereof, though other metal may be used, if desired.

The upper surface of the seat is covered with a coating including minute particles of finely divided material of the character and in the manner above described. The covering may extend only over the portions of the surface that in the normal use thereof contact with unprotected parts of the body of persons using the same, or said covering may be applied over the entire top surface of the seat as may be desired.

A toilet seat made as just described may be produced at low cost, has a smooth finished surface that will not crack or peel, presents a pleasing appearance, does not cause a feeling of chilliness when used, and is nevertheless of greatly improved strength and durability.

What is claimed and desired to be secured by United States Letters Patent is:—

1. A seat such as a toilet seat comprising a metal body having the surfaces thereof that are intended to contact with the human body coated with a thin smooth hard finish coating consisting solely of a substance having the qualities of a metal finishing enamel and a complete layer of finely divided particles of a material having very low heat conductivity, said particles being completely embedded in said substance.

2. A seat such as a toilet seat comprising a metal body having the surfaces thereof intended to contact with the human body coated with a thin smooth hard finish coating consisting solely of a substance having the qualities of a metal finishing enamel, and a complete layer of finely divided particles of wood flour completely embedded in said substance.

3. A seat such as a toilet seat, comprising a metal body having the surfaces thereof that are intended to contact with the human body coated with a thin, smooth, hard-finish coating consisting solely of a coating of a synthetic resin and a complete layer of finely divided particles of a material having very low heat conductivity, said particles being completely embedded in said coating.

LLOYD M. SMOYER.