

Aug. 2, 1938.

F. BARMÉ

2,125,664

IRON ANNEALING RECEPTACLE

Filed March 31, 1937

2 Sheets-Sheet 1

Fig. 1

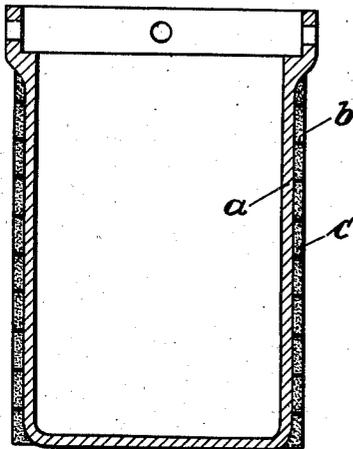


Fig. 2

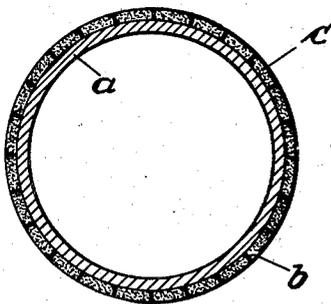
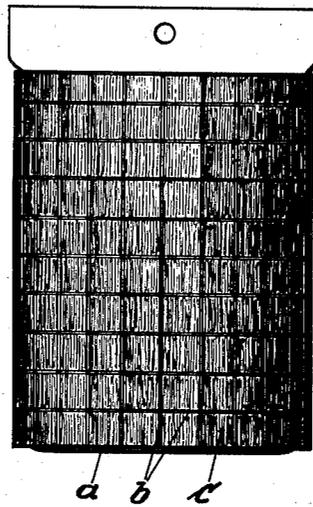


Fig. 3

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Fig. 4

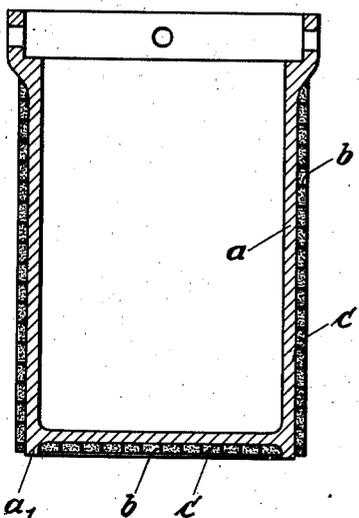


Fig. 5

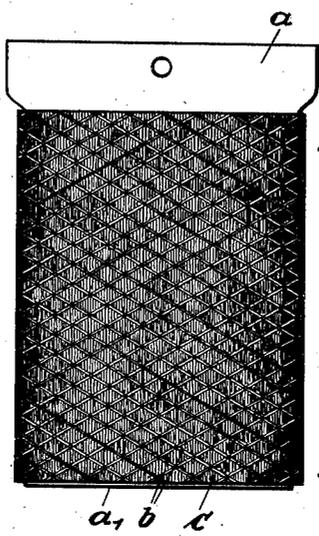


Fig. 6

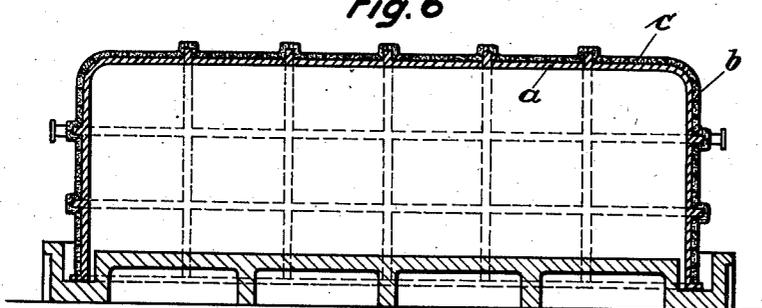
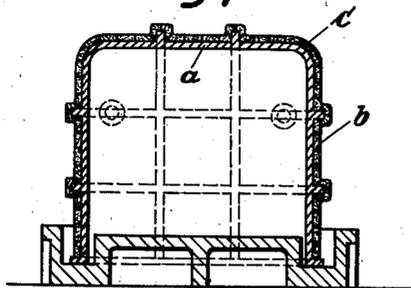


Fig. 7



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UNITED STATES PATENT OFFICE

2,125,664

IRON ANNEALING RECEPTACLE

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Application March 31, 1937, Serial No. 134,175
In Germany December 3, 1936

2 Claims. (Cl. 263—49)

For annealing metal articles, for example, rolled material such as band iron and the like, it has hitherto been usual to employ annealing boxes of cast steel with walls of a thickness of 30-40 mms. or in some cases annealing boxes of wrought iron with walls of a thickness of 20-25 mms. Such annealing boxes require to have such thick walls in view of the heavy load due to the articles inserted. This however, has the result that the boxes are comparatively heavy and at each annealing the large mass of the box has to be heated up. In addition owing to the presence of oxygen there is a considerable formation of scale on the boxes at each heating and cooling. The result is a comparatively long time of annealing and a rapid deterioration of the boxes which considerably increases the annealing costs.

It is on account of these disadvantages that for some time annealing boxes have been made of refractory metal and with comparatively thin walls. Such boxes however, are easily damaged during manipulation, for example, when being removed from the annealing furnace. Moreover, the refractory metal is very sensitive to thin flames and the sulphur contained therein so that the length of life of the boxes and the operating costs are detrimentally affected.

It has already been proposed to avoid the action of the heating gasses on the annealing boxes and the scaling thereof due to contact with the air, by screening the box with a protecting jacket of heat resisting sheet metal. This known screening however, again leads to thicknesses of the annealing box wall which have a detrimental effect on the manipulation and the operation, that is, rapid heating and cooling of the box. Also a protective jacket of heat resisting sheet metal is very sensitive to thin flames and the sulphur contained therein and therefore will itself be destroyed in a comparatively short time.

In order to avoid these drawbacks and also to obtain the advantage of thin walled annealing receptacles according to the invention the thin walled receptacle, for example, an annealing box, an annealing hood or pot and the like, is surrounded by a protective covering in the form of a network, for example, of expanded metal which protects the receptacle against damage. The effect of this protective covering is further improved according to the invention by the meshes of the network being filled with a material of good thermal conductivity which at the same time affords reliable protection against formation of scale and corrosion of the receptacle.

On account of this covering of the receptacle its total wall thickness is brought to a size which is very favorable for practical purposes.

The material for the covering is preferably Nichrotherm, an alloy of high melting point which resists scale and corrosion and ensures rapid heating and cooling of the receptacle. The filling for the meshes is preferably refractory clay or any other suitable substance with good thermal conductivity.

Several constructional examples of the invention are illustrated in the accompanying drawings.

Fig. 1 shows an annealing box in axial section. Fig. 2 is a side elevation.

Fig. 3 is a cross section.

Fig. 4 shows a further construction of an annealing box according to the invention in axial section.

Fig. 5 is a side elevation.

Fig. 6 shows an annealing hood or box provided with the protective covering according to the invention in longitudinal section.

Fig. 7 is a cross section.

a is the annealing receptacle proper of cast steel, wrought iron or of a specially heat resisting metal. b is a net-like protective covering which is made of ordinary wrought iron or preferably of a metal which resists scale and corrosion, for example, Nichrotherm. The meshes of the net-like protective covering are filled with a fire resisting material c of good thermal conductivity.

In order to protect the covering on the bottom of the annealing box from damage the bottom of the box can be suitably set back as shown in Figures 4 and 5, with respect to a supporting edge a_1 in order to form a cavity in which the covering is placed. Obviously the provision of the protective covering according to the invention is not limited to the annealing receptacles illustrated but is also applicable to any type of annealing receptacle.

What I claim is:—

1. An external protective covering for an iron annealing receptacle, consisting of a network of expanded metal and a refractory material of good thermal conductivity filling the meshes of the network.

2. An iron annealing receptacle having an external protective covering constructed in the form of a network of expanded metal and a supporting edge around the bottom of the container for forming a depression in which the protective covering may be placed.

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