Nov. 18, 1924. 1,516,014

P. E. HUNTER

ANNEALING BOX

Filed Aug. 7, 1922

FIG. 1

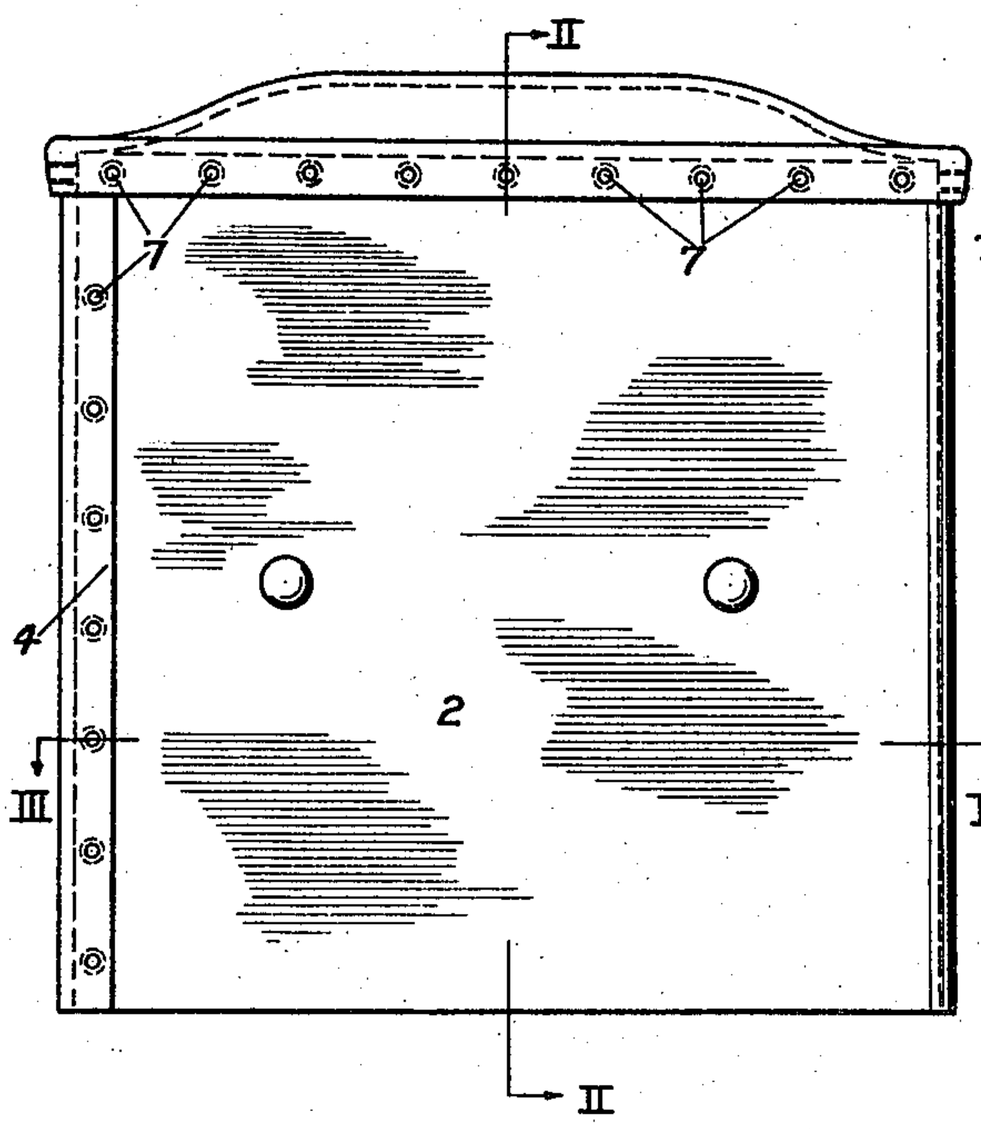


FIG. 2

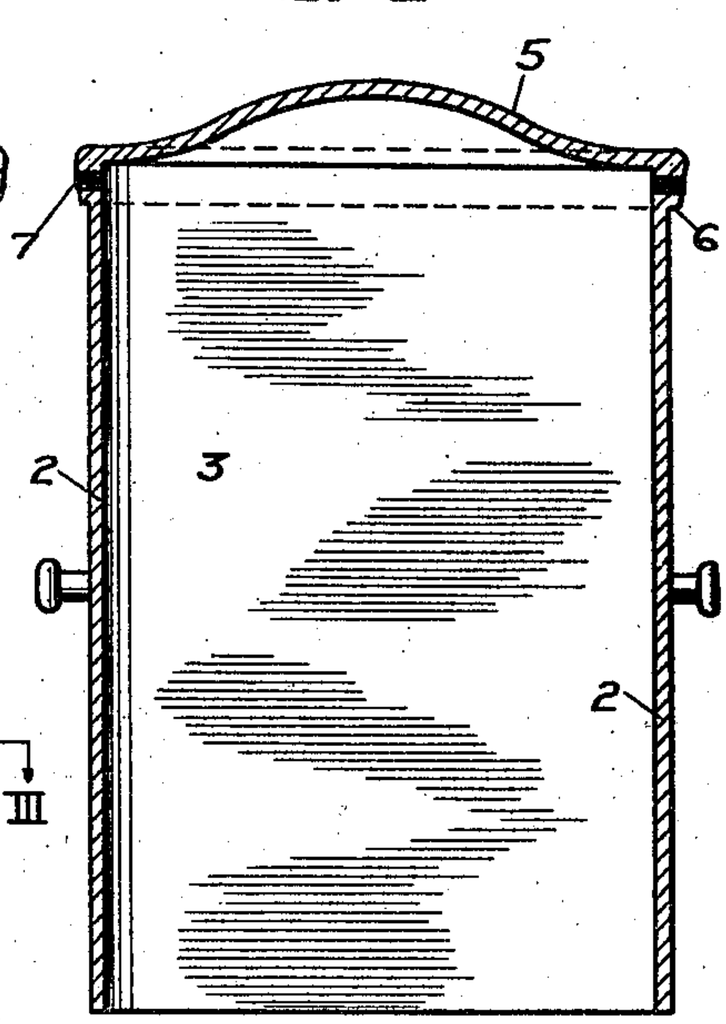


FIG. 3

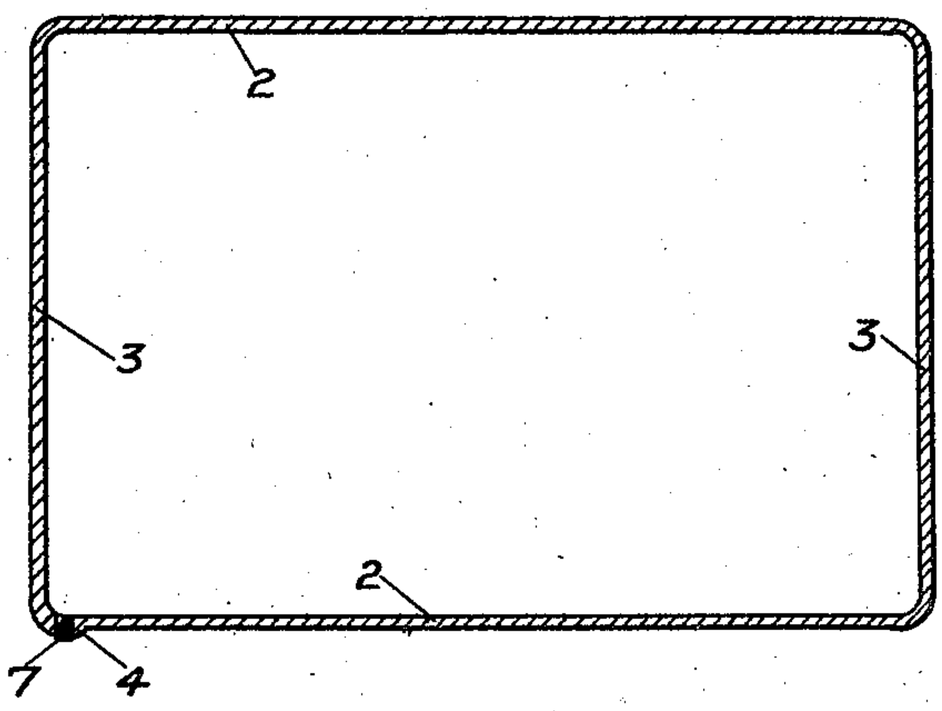


FIG. 4

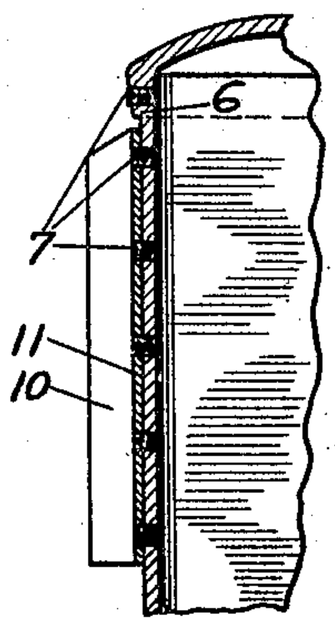
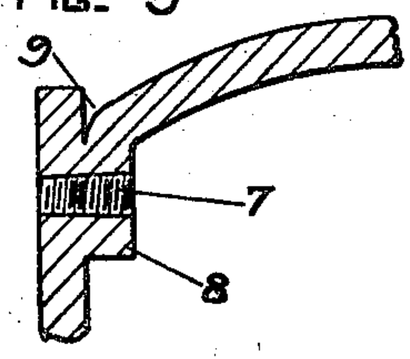


FIG. 5



INVENTOR

Percy E. Hunter

BY

C. M. Clarke

ATTORNEY

Patented Nov. 18, 1924. 1,516,014

UNITED STATES PATENT OFFICE.

PERCY E. HUNTER, OF PITTSBURGH, PENNSYLVANIA.

ANNEALING BOX.

Application filed August 7, 1922. Serial No. 580,207.

To all whom it may concern:

Be it known that I, PERCY E. HUNTER, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Annealing Boxes, of which the following is a specification.

My invention consists of an improvement in annealing boxes for use with tin plate or other purposes, wherein the enclosed charge of metal is subjected to the high heat of annealing or similar operations.

In such devices, the body portion is ordinarily made of heavy plate metal with a covering top connected thereto by an overlapping or inserted flanged head, usually welded thereto.

In my invention, I reinforce the welded, shrunk, or otherwise connected joint by means of supplemental transverse threaded plugs or bolts, extending through and firmly connecting the adjacent joined wall, flange, or other members, as hereinafter more fully described. The objects in view are to give additional reinforcing security and strength to the already connected members; to prevent any partial or initial opening or seam from spreading; and to so utilize the invention as to make it unnecessary to reduce the thickness of material as much as is ordinarily necessary in the usual process of welding.

While the invention is primarily adapted to the joint connections referred to, it is also available in connection with the usual stiffeners of the sides or heads, or any place where rivets or bolts might ordinarily be used, but which are subject to the deteriorating effect of heat. This is due to the fact that, while a bolted joint cannot be made entirely air tight, and a rivet will ultimately become burned or loose and admit air, due to expansion and contraction, a plug, either tapered or straight and threaded, when drawn up tight, to its proper position, is much more effective. This is because it has a number of surfaces in immediate threaded contact and is not, therefore, affected by expansion or contraction, or weakened by continued action of the flame upon the ordinary exposed terminals.

In the drawings, showing certain preferred utilizations of the invention:

Fig. 1 is a view in side elevation of an annealing box embodying the invention;

Fig. 2 is a vertical section on the line II—II of Fig. 1;

Fig. 3 is a horizontal section on the line III—III of Fig. 1;

Figs. 4 and 5 are sectional detail views showing various applications of the invention in detail.

The box as a whole is generally rectangular, having sides 2 and ends 3, usually made of a continuous blank of heavy plate metal connected by an overlapping, welded, shrunk, or other suitable joint at one corner, as indicated at 4. The top or cover 5 of any suitable form, as shown, has a flange connection with the top edges of the box, as at 6. Joints 4 and 6 are made throughout by suitable welding mechanism to firmly join the metal members together continuously and coextensive of the joint, in the usual way, or they may be tightly connected by shrinking.

In utilizing the present improvement, I drill or punch a series of holes through the overlapping members at suitably close distances apart, and screw short plugs 7 therethrough, as shown, tightly into binding engagement, so as to firmly hold the members together by such supplemental and periodical connections, in addition to the usual welded or other joint. The plugs 7 may be straight, but are preferably slightly tapered and threaded, as shown.

The driving end of the threaded plug 7 may have a short squared nut extension for engagement by a socket wrench or brace, to facilitate tight insertion in the holes, or they may be provided with an ordinary bolt head or screw-driver slot. They may also be driven by a suitable shallow threaded socket and brace, which is removed by reversal after the plug is driven in tight. The joints may be made by an overlapping flange connection, as at 6, or with the edge of the cover inserted within the sides, as at 8, Fig. 5, providing a packing gutter 9.

The invention may be also utilized in connection with a stiffening rib or brace 10, welded or otherwise secured by its flange or flanges 11 to the side or end of the box, as in Fig. 4. In such case, the threaded plugs 7 firmly connect the braces permanently to the walls of the box, and overcome any tendency to separate by partial failure of the weld under the excessive heat of use.

The threaded plug or bolt tends to become very firmly and tightly welded with the con-

nected flanges or other members, especially because of the heat action, so that I am able to secure a very firm and enduring heat resisting joint, by the continuous threaded engagement.

The proportions, sizes, location and arrangement of the several parts may be readily adapted to the particular use or instance in which the invention is used, by the skilled mechanic, and it may be changed or varied in such details without departing from the scope of the claims.

What I claim is:

1. An annealing box having overlapping flanged members tightly and continuously connected together and provided with transverse connecting screw plugs.

2. An annealing box having overlapping flanged members continuously welded together and provided with transverse connecting screw plugs.

3. An annealing box having overlapping flanged members continuously welded together and provided with transverse perforating holes and plugs tightly inserted therein.

4. An annealing box having overlapping flanged members continuously welded together and provided with series of transverse connecting plugs threaded therethrough.

5. An annealing box having overlapping flanged members continuously welded together and provided with series of transverse tapered connecting plugs threaded therethrough.

6. In an annealing box, means connecting adjacent continuously welded metal members and supplementing their welded connection consisting of a series of threaded plugs screwed tightly through both members.

In testimony whereof I hereunto affix my signature.

PERCY E. HUNTER.