

ALIEN PROPERTY CUSTODIAN

METHOD OF INCREASING THE QUALITY OF STRUCTURES OF ALUMINUM ALLOY SUCH AS GIRDERS FOR AIRSHIPS AND THE LIKE

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many; vested in the Alien Property Custodian

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My invention relates to a method of increas-
ing the quality of structures of aluminum alloy
and has special reference to structures of this
kind as they are made use of in aeronautics, for
example girders for airships and other similar
structures.

Aluminum alloys containing to a certain per-
centage copper and magnesium have been found
to be susceptible to considerable improvement in
quality by heat treatment and following cooling
down. The quality increases especially during a
certain period during which the heat-treated
alloy is at rest. When such improved alloy is
again subjected to a lower heat treatment of
100 to 200 degrees centigrade for a longer or
shorter period a further increase in quality is
obtainable. In such manner it is possible to
get plates, tubes, channels and other structural
elements of a considerably improved strength,
breaking as well as tensile.

But when assembling a structure from such
improved elements the product does not show an
adequate improvement in quality. If the parts
are welded together there are created zones of
lower strength because of the partial heating to
which they are subjected and which causes re-
duction in strength. If the elements are joined
by riveting the rivets constitute the weak points
as it is not possible to hit them in the hardened
state.

My invention improves these conditions and
makes possible that the assembled structure ac-
quires an improved strength, if so desired. For
this purpose the elements are assembled by weld-
ing or riveting before undergoing the second heat
treatment; and when the structure is completed
it is subjected in its entirety to the heat treat-
ment. This new way according to my invention
has the great advantage that the joining of the
elements is simpler and easier as they are not
yet of the harder quality which they attain later.
Furthermore, all parts of the structure are sub-
jected to the heat treatment, the portions of
lower strength because of welding as well as the
rivets, if the elements were riveted together.
Thus a uniform state of quality is attained all
over the entire structure.

If it is desired to have the structure provided
with an outer cover of lacquer which is burnt into
the surface it is advantageous to combine the
burning in of such lacquer with the last heat
treatment for improvement of the metal quali-
ties thus simplifying and rendering cheaper the
entire method of production.

I do not want to be limited to the details de-
scribed as variations may be possible without
departing from the scope of my invention.

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