

UNITED STATES PATENT OFFICE

2,207,134

GROUND ROD AND METHOD OF MAKING THE SAME

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Application November 30, 1938, Serial No. 243,274

2 Claims. (Cl. 174—7)

This invention relates to the science of earth-
ing, more particularly to the grounding electrodes
commonly known as ground rods and has for its
object to produce a ground rod of economical
construction, one that can be readily transported
and easily handled without damage mechanically
and be inserted in the ground without the use of
special driving heads or rods.

It has long been known that copper is the most
desirable material for ground rods because of its
high electrical conductivity and excellent corro-
sive resistance, but it is necessary to use a diam-
eter of rod larger than that ordinarily required
to carry the current in order to obtain sufficient
surface in contact with the earth and to give
proper mechanical strength. This over size in-
creases the cost materially.

To overcome this high cost, thin wall copper
tubing has been used provided with a pointed
end, and driven into the ground by inserting in
the tubular portion a dowel or driving rod pro-
vided with a driving head. The force of the blow
of the hammer on the driving head is trans-
mitted to the pointed end, thus relieving the
strain on the tube. This is not thoroughly satis-
factory because the thin unsupported wall of
copper is fragile and can only be used in rela-
tively soft soil, and for the further reason that
when the force of the blow is transmitted to the
point through a bouncing dowel inserted in the
tube, vibrations are set up within the structure
that retards its progress in the earth requiring
much more foot pounds of energy.

I have discovered that when I reinforce a
thin wall tube by a core of compressed wood or
other similar fibrous material, so that the as-
sembly approaches a complete composite struc-
ture it has all the characteristics of a unitary
column. With this construction I provide a
means of hardening the fibrous structure and
thus place a tension in the wall of the tubing
producing high frictional grip between the two
members of the composite body resulting in
greater columnar strength than with the two
members in merely laminated relation.

By compressing the wood core within the cop-
per tube to a point of minimum absorption, ex-
pansion due to moisture absorption is practically
eliminated. By using a hexagonal tube, I pro-
vide for any slight expansion that might occur
within the tube thus ensuring a long life to the
rod.

A ground rod constructed as above described
can be driven into the ground with 35 to 40%
less foot pounds of energy than is required with

a ground rod of similar size and point, but with
a wooden dowel inserted in the tube without any
compressing of the wood.

A further object of this invention is to pro-
duce a grounding rod of sufficient surface and
electrical area compatible with lightness and
strength. To achieve this end a thin wall tube
may be used of any cross section desired as will
be readily understood.

The foregoing and other features of my in-
vention will now be described in connection with
the accompanying drawing forming part of this
specification in which I have represented my
ground rod in its preferred form after which I
shall point out more particularly in the claims
those features which I believe to be new and
patentable.

In the drawing:

Figure 1 is a side elevation of my ground rod
in its preferred form having a conductor clamp
on one end.

Figure 2 is a side elevation of same at right
angles to that shown in Figure 1, the conductor
clamp not shown.

Figure 3 is a section along the line 3—3, Figure
2, looking towards the right.

Figure 4 is a section along the line 4—4, Figure
1, looking towards the left.

Figure 5 shows a section of a modified form
which I may employ.

In the carrying out of my invention I use a
wooden or other fibrous material core which
is inserted within a thin wall metal copper tube
I prefer to use a hexagon shaped tube for
the reason that it has a greater area of copper
in its exposed surface than a round tube of the
same unit cross sectional area and further for
the reason it provides for any expansion of the
filler that may take place due to absorption of
water or other causes. This tube and filler is
then drawn down to a reduced diameter, by any
well known means so that the O. D. of the fin-
ished rod after drawing is smaller than the diam-
eter of the filler rod. This compressing of the
wood produces a filler that will not readily absorb
moisture and consequently will not swell and
burst the copper tube. It also keeps the copper
tube under tension, increasing the frictional grip
between the two members forming a composite
body.

On one end I secure a pointed conical member
provided with a shank adapted to screw
into the wood as shown in Figure 1 or be driven
into a hole in the wood provided for the purpose
as shown in Figure 2. It will be observed that