

(No Model.)

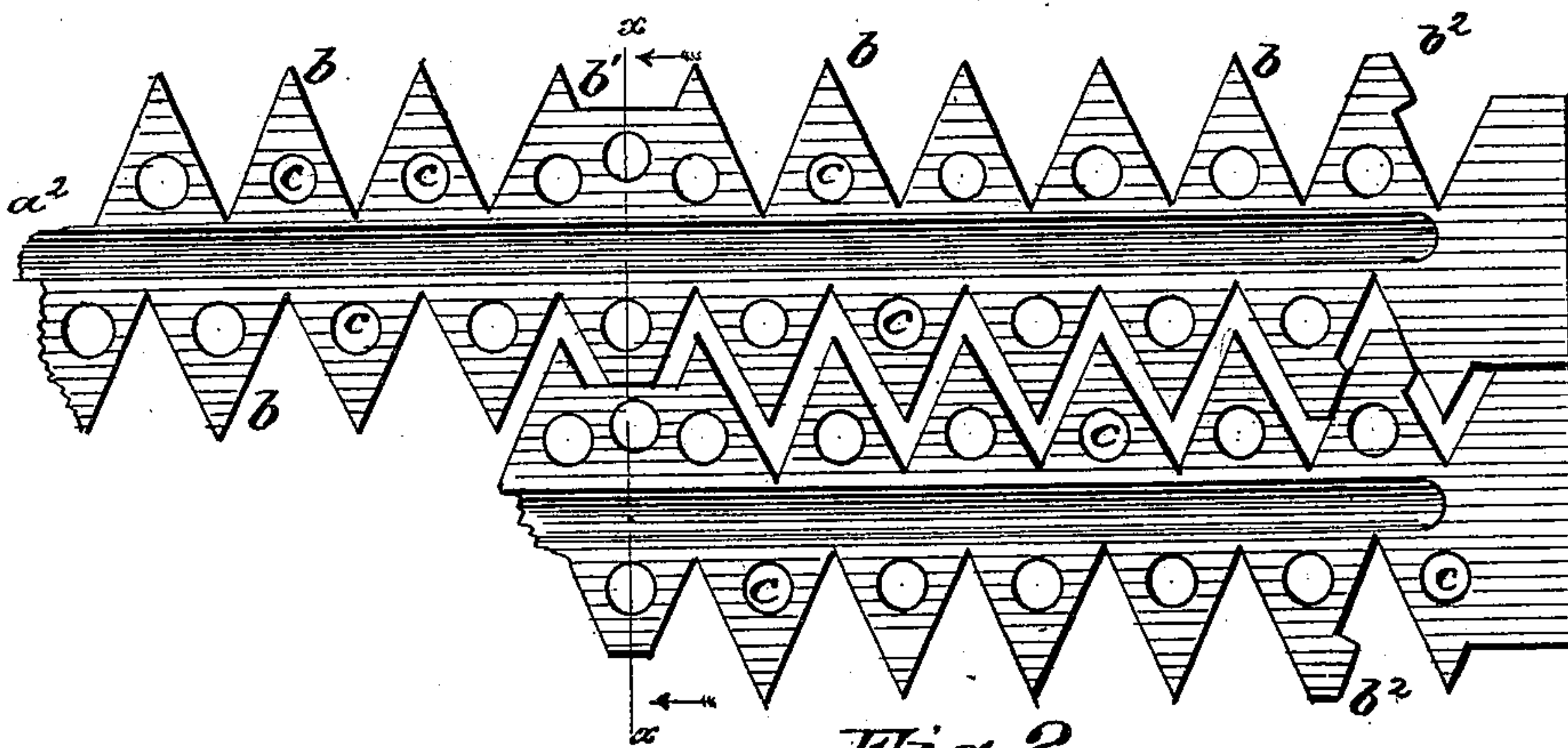
A. RODGERS.

GRATE BAR.

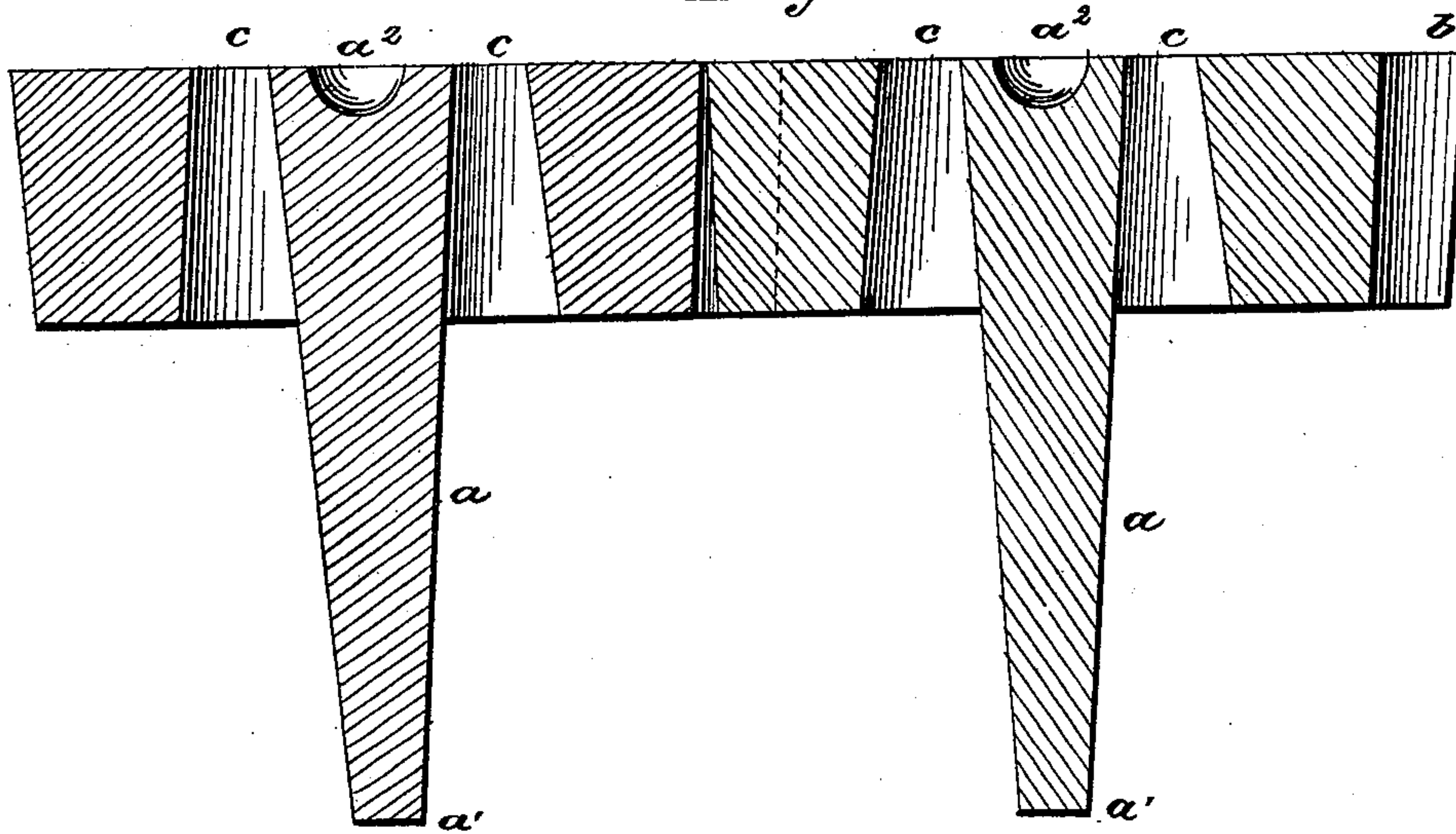
No. 246,978.

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*Fig. 1.*



*Fig. 2.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

ALEXANDER RODGERS, OF MUSKEGON, MICHIGAN.

## GRATE-BAR.

SPECIFICATION forming part of Letters Patent No. 246,978, dated September 13, 1881.

Application filed May 20, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER RODGERS, a citizen of the United States of America, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Grate-Bars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in grate-bars for furnaces burning sawdust, spent tan, or other varieties of fuel, the object being to produce a bar furnishing a large amount of air-space, and easily adjusted to vary the space between the bars, and which is readily cast in the ordinary green-sand molds without the use of other cores than those formed in the process of molding.

The invention therefore consists in the peculiar construction and adaptation of the grate-bar to the purposes above named, all as will be hereinafter fully described, and then specifically stated in the claim.

In the accompanying drawings, Figure 1 is a plan of two of the bars placed side by side. Fig. 2 is a transverse section on the line  $x x$ , Fig. 1, enlarged.

This bar is composed of the vertical member or web  $a$ , tapering gradually in section to its lower edge,  $a'$ , so that it may readily be drawn from the sand in molding, and having in its upper surface or edge the ordinary ash-groove,  $a^2$ . Projecting horizontally upon each side of the upper portion of the web  $a$  is a serrated flange,  $b$ , so placed that the serrations on opposite sides of the web shall alternate with each other, each projection of the flanges  $b$  being pierced by a conical air-opening,  $c$ , the conical shape of which, it will be observed, enables it to be formed by a green-sand core in the ordinary process of molding.

In order to preserve proper relative distance between the grate-bars, certain of the spaces between the serrations or points, as at  $b'$ , are partially filled, and the corresponding points of the adjacent bar cut off, so as to allow the desired width of opening between the serrations of the adjoining bars; and to prevent end movement of the bars with relation to each other, additional projections  $b^2$  are formed upon the serrations near each end of the bar. Bearing-surfaces are also formed between the edges of the flanges  $b$  at each end of the bar. It will be apparent that by a slight change in these bearing-surfaces the width of opening between the bars may be varied to suit the fuel used in the furnace to which they are destined. It will also be seen the simplicity of their form enables them to be successfully molded and cast by ordinary workmen, thus avoiding great loss by failure in casting so common with the more complicated forms of bar.

I am aware that grate-bars have been constructed with serrated or zigzag edges, the projections on one bar fitting into the depressions on the other; but these were not perforated with the conical openings, which form an essential element of my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:

The grate-bar herein described, consisting of the web  $a$ , having serrated flanges projecting from each side of said web, provided with perforations, and having stops for regulating the desired opening between two adjacent bars, all substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

ALEXANDER RODGERS.

Witnesses:

DAVID McLAUGHLIN,  
R. E. BUNKER.