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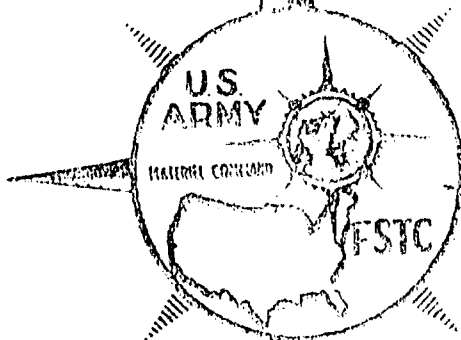
TRANSLATION

MOIST THERMAL METHOD FOR DISINFECTING
CONTAINERS

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FOREIGN SCIENCE
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Colonel, G.S.
Deputy Commander

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Moist Thermal Method for Disinfecting
Containers

by

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MOIST THERMAL METHOD FOR DISINFECTING CONTAINERS

Numerous cases are known in which quarantined pests have been spread with containers in which agricultural products were shipped.

Oriental fruit moths, Mediterranean fruit flies, large mandarin flies, and certain other dangerous fruit pests have been discovered repeatedly in quarantine inspections in which imported goods arriving in wooden boxes were examined. If such containers were utilized for household purposes without previous disinfection, they could become sources for spreading pests through the country.

One may judge how great this danger is by the data from our quarantine inspection service -- the total number of boxes remaining after the sale of fruit in the city of Leningrad alone is in the hundreds of thousands.

After several years of research, the Leningrad Quarantine Laboratory discovered a simple, cheap, and very effective method for disinfecting boxes -- in boiling water.

In 1959 more than 170,000 boxes which had contained Chinese and Korean apples were processed in this way in the fruit sales bases of Lengorplodoovoshch [Leningrad City Vegetable and Fruit Administration]. The results were good.

The method we proposed was approved and established as the standard by the State Inspection Service for Quarantine of Agricultural Plants of the Ministry of Agriculture USSR throughout the RSFSR in instances where there is no chamber for chemical processing of containers.

Stationary or mobile facilities with rectangular or semi-cylindrical boilers which make use of furnaces or superheated steam to heat the water can be utilized for disinfecting boxes in boiling water.

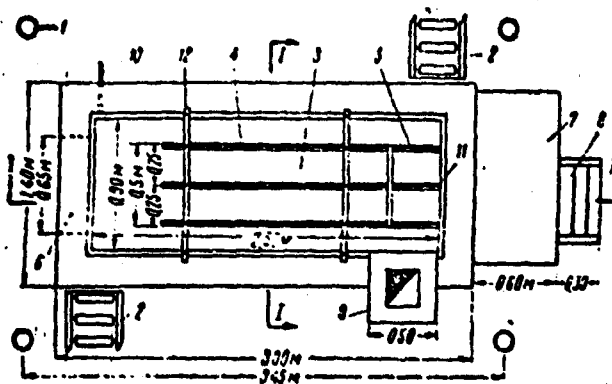
The length of the boiler is 2.5 m, its width 0.9 m, and its depth 0.7 m. It is made by welding sheet steel 3 to 4 mm thick to a framework

of 40 x 40 mm angle iron. The same sort of angle iron is used for making double guiding slide rails for delivering boxes and holding them in the water.

Six to eight standard boxes can be immersed at intervals of 8 - 10 seconds in a boiler of this length. The boxes can be moved from under the guide rails to the surface of the water and removed from the boiler at the same rate. Thus, every box is immersed in boiling water for 40 to 60 seconds and completely disinfected within this interval.

This apparatus is handled by two persons. Conveys or roller conveyors can be set up to lighten the delivery of boxes to the boiler and to move them to the stacking area after disinfection.

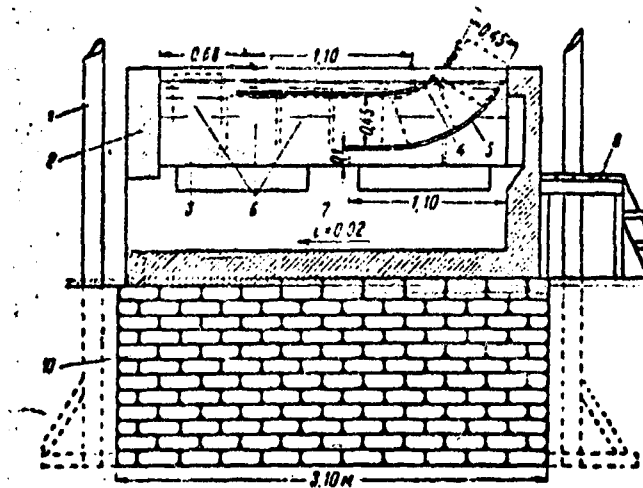
Plan



Plan of a stationary facility with furnace heating

1 - shed pillars; 2 - roller conveyors; 3 - boiler; 4 - upper guide rails; 5 - lower guide rails; 6 - firebox; 7 - platform for loading boxes; 8 - steps; 9 - smokestack; 10 - valve for draining water; 11 - place for fastening the lower guide rails to the side of the boiler; 12 - place for fastening the upper guide rails to the side of the boiler.

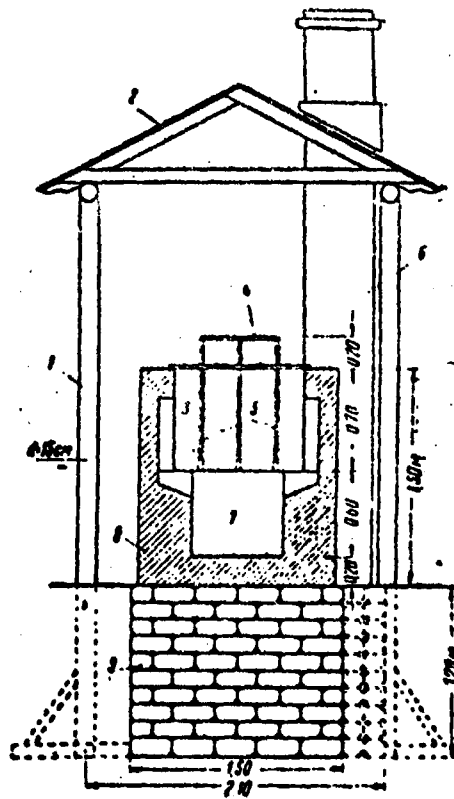
Cross section through II-II



Longitudinal cross section of the facility

1 - shed pillar; 2 - brickwork; 3 - boiler; 4 - upper guide rails; 5 - lower guide rails; 6 - boxes under processing (shown by dashed lines); 7 - firebox; 8 - platform for loading boxes; 9 - steps; 10 - stone foundation.

Cross section through I-I



Transverse cross section of the facility

1 - open shed; 2 - tar paper roof; 3 - boiler; 4 - upper guide rails; 5 - lower guide rails; 6 - smokestack; 7 - firebox; 8 - brickwork; 9 - stone foundation.