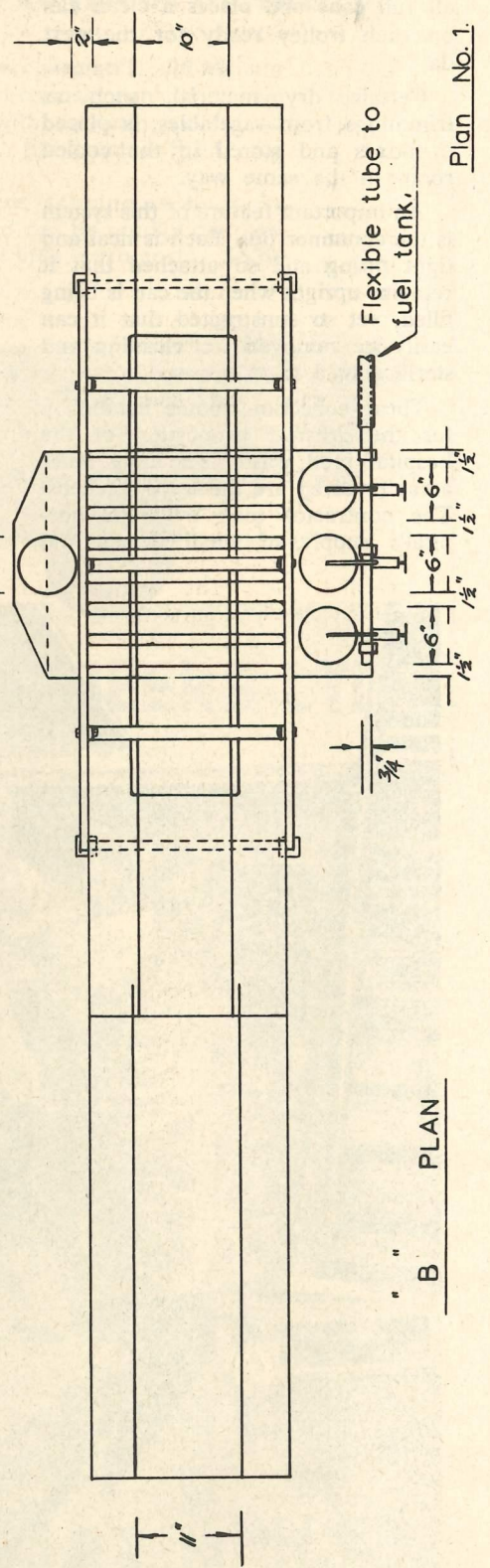


Support provided by
two full depth supers.

" A " SIDE ELEVATION — FIRE - BOX SIDE



" B " PLAN

PRESERVING BEEHIVE PARTS WITH PARAFFIN WAX

By V. A. COOK, Apiary Instructor, Dept of Agriculture, Oamaru.

AN improved version of a device for preserving beehive parts with paraffin wax has been designed by Mr F. A. Bartrum, of Pleasant Point. Hot wax treatment, in addition to its value as a means of preserving hive parts, may be used, where this is approved by the apiary instructor, to sterilise equipment salvaged from diseased colonies after the combs and bees have been destroyed.

In the October, 1964, issue of the Journal, Mr S. Line, apiary instructor, of Hastings, described a method, devised by Mr R. Berry, of Havelock North, of preserving hive parts with paraffin wax. The method entails pushing the hive parts through a tank of wax heated by a wood fire. Guide

rails ensure that the equipment being treated becomes completely submerged in the wax.

Mr Bartrum's device, an improvement on that designed by Mr Berry, comprises a large wax tank, an oil-fired heating unit and a draining tray. The heating unit consists of three burners from an oilburning, drip feed, down-draught boiler, which are located at the front of the wax tank. Heat generated in the burners passes through the lower part of the wax tank, by way of 14 2in boiler tubes, into a smoke chamber at the back of the tank. The smoke box is detachable to give access to the boiler tubes.

A 12ft high, 6in diameter rolled steel chimney is mounted over the smoke chamber.

Two $\frac{3}{8}$ in iron rod guide-rails guide equipment being treated over the heating tubes. Further guide rails in the upper part of the wax tank can be adjusted to allow treatment of half-depth supers, bottom boards, lids, three-quarter depth and full depth supers.

The fuel used is home heating oil. The rate of flow into the burners is controlled by needle valves.

Paraffin wax is procurable from petroleum companies.

The procedure for lighting the heating unit is as follows: The chimney is removed and a sheet of newspaper soaked in heating oil is inserted in the smoke box and lit. The chimney is quickly replaced. The resulting draught up the chimney draws air down through the burners. A piece of burning newspaper is immediately placed in each burner and the fuel supply is turned on.

The boiling point of paraffin wax is about 680deg F. At about 316deg white vapour comes off the surface and this temperature is suitable for both preservation and sterilisation purposes.

Ten minutes' immersion at this temperature is sufficient to sterilise equipment taken from B.L. (*Bacillus larvae*) infected hives after the bees and combs have been destroyed.

For preservation purposes equipment is immersed for about two minutes.

Operating costs are influenced by many factors such as the wax temperature, atmospheric temperature, labour costs and the rate at which equipment is passed through the wax. Assuming an operating rate of 25 supers an hour and a labour cost based on a wage paid to a fully qualified assistant, the cost of treating one full depth super is about six cents.

Treated supers have very little wax in their exterior surfaces, which can be painted to improve their appearance. Some beekeepers apply paint with a brush while the boxes are still hot.

Copies of plans and specifications of this device are available from local apiary instructors.

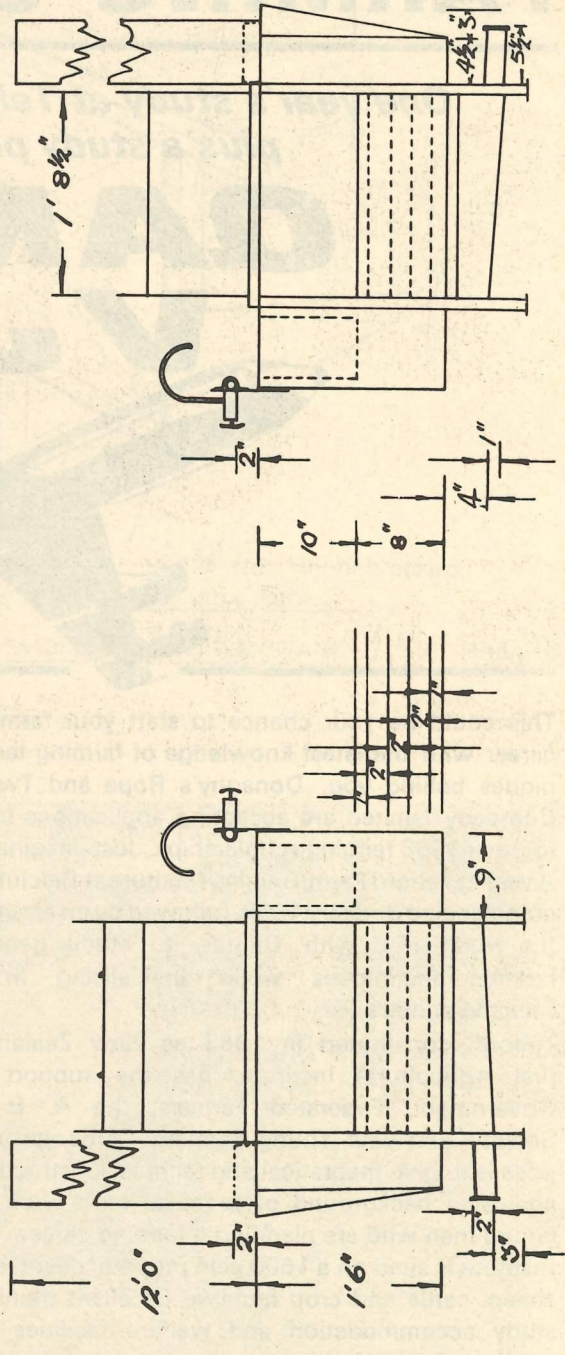
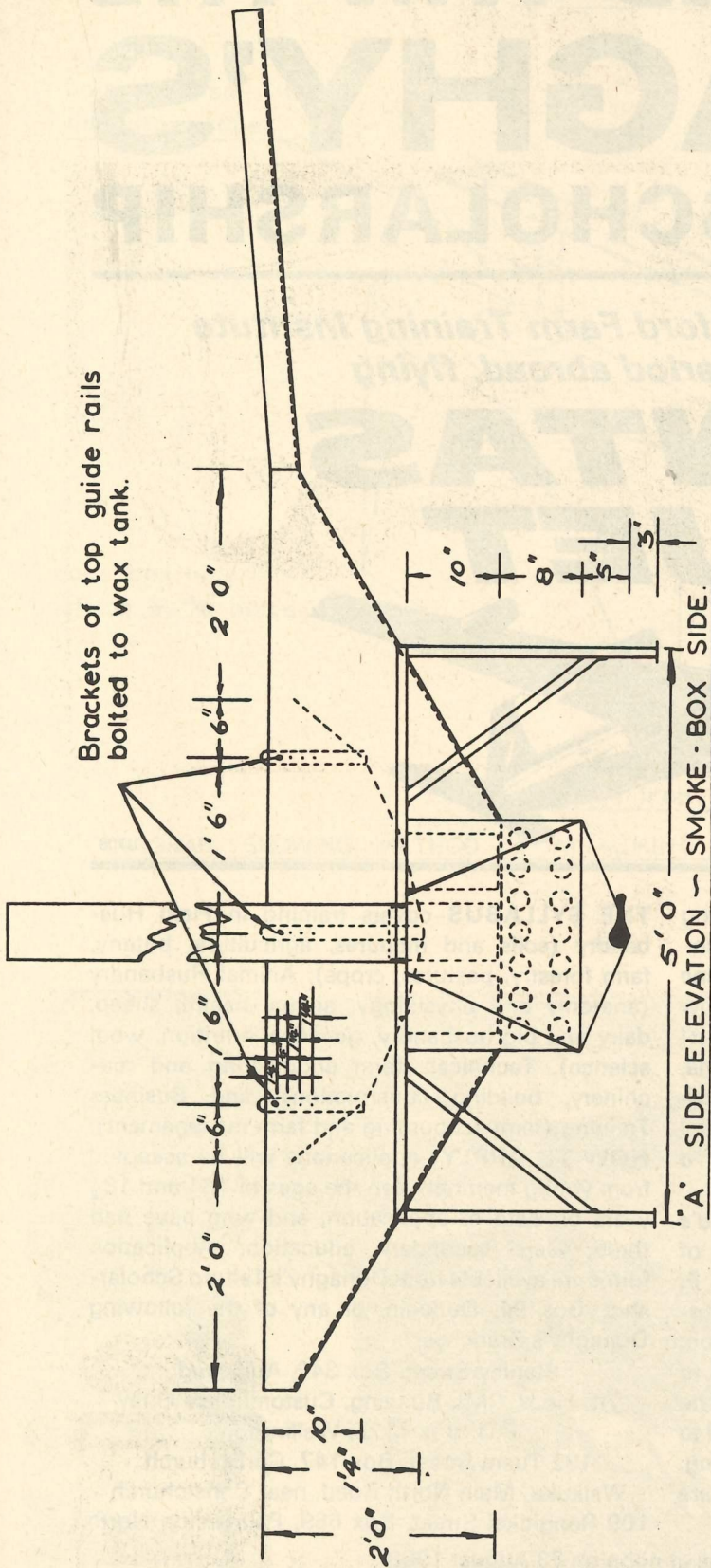
REFERENCE: Line, S. (1964): Method of preserving hive boxes with paraffin wax, N.Z. Journal of Agriculture, 109: 329-331.

SPECIFICATIONS

WAX TANK:	16 gauge plate, all joints welded.
FIRE BOX:	$\frac{1}{4}$ in plate, all joints welded. Fire box welded to wax tank. The three 6in diameter burners are of the standard down-draught "Speed-way" boiler type.
HEATING TUBES:	14 2in boiler tubes convey the heat generated in the fire box through the lower part of the wax tank. Plans No. 1A, 1B and 2B.
FUEL SUPPLY:	Home heating oil is drip fed into the burners. The rate of flow is controlled by needle valves. A flexible tube connects the fuel tank to the feed pipe, which can be turned in its three "D" bracket holders to facilitate removal of the burners without causing damage to the $\frac{1}{8}$ in drip tubes. Plan No. 1B.
SMOKE BOX:	8 gauge plate. The smoke box is detachable to give access to the heating tubes. Plan No. 3.
CHIMNEY:	Four 3ft lengths of 6in diameter rolled steel tubing.
GUIDE RAILS:	$\frac{3}{8}$ in iron rod. The lower rails, which are spot welded to the wax tank, guide the equipment being treated over the heating tubes. The upper rails can be adjusted to allow treatment of half depth supers, bottom boards and lids, $\frac{3}{4}$ depth or full depth supers. Plans No. 1A, 1B and 2A.
DRAINING TRAY:	16 gauge plate. The draining tray is a continuation of the wax tank on which treated equipment is held briefly to allow any surplus wax to drain from it. Two $\frac{3}{8}$ in rods, similar to the guide rails are included to facilitate drainage. The protruding ends of the rods fit over the end of the wax tank. Plan No. 1B. The tray is supported at the other end by two full depth supers.
FRAME:	1in angle iron.
DRAINING SEDIMENT:	Sediment from old boxes collects in the lower part of the wax tank and should be drained off periodically. A small pit is dug beneath the drain gate to hold a bucket. A small quantity of wax is occasionally drained off and the sediment caught in a wire gauze strainer.

HIVE PARTS contd.

Plan No. 2.



HIVE PARTS contd.

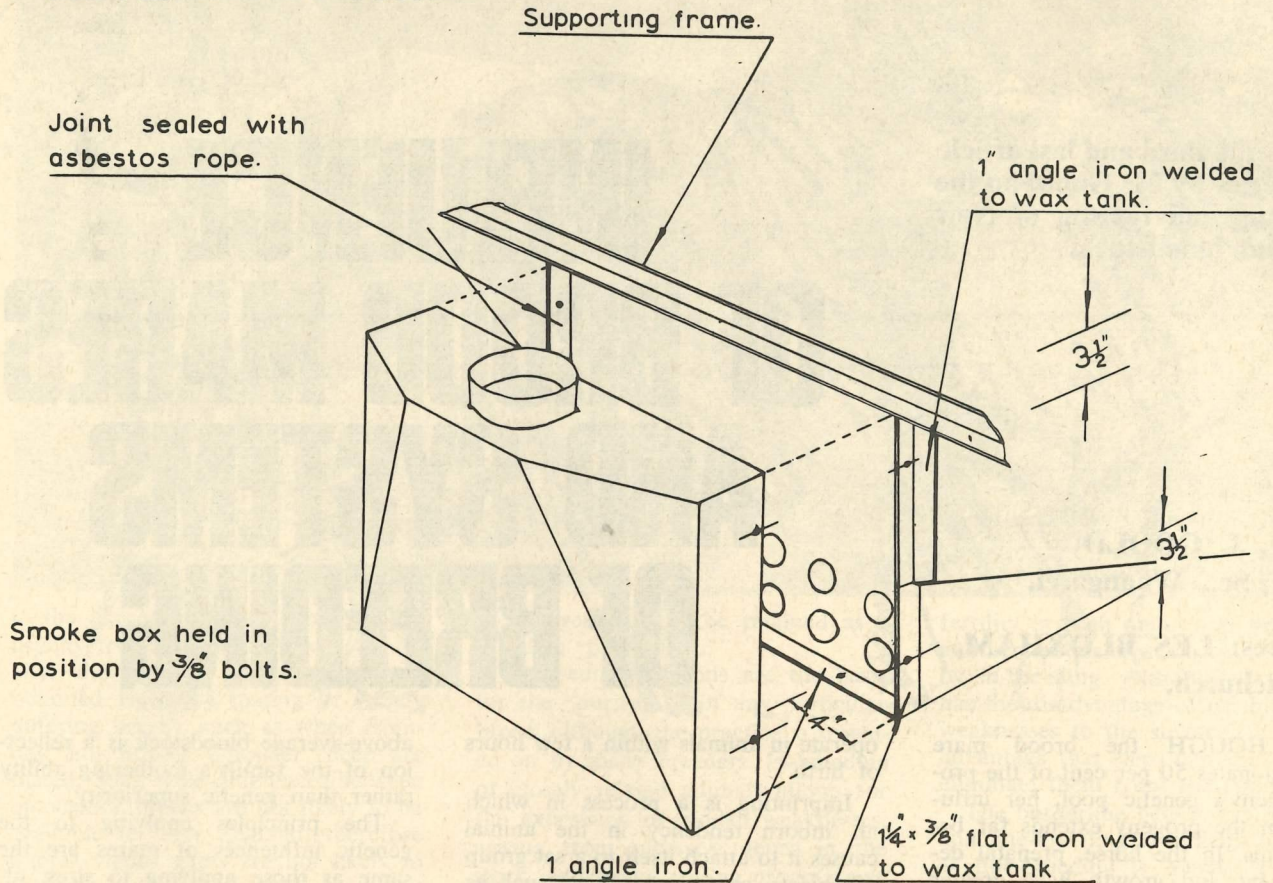
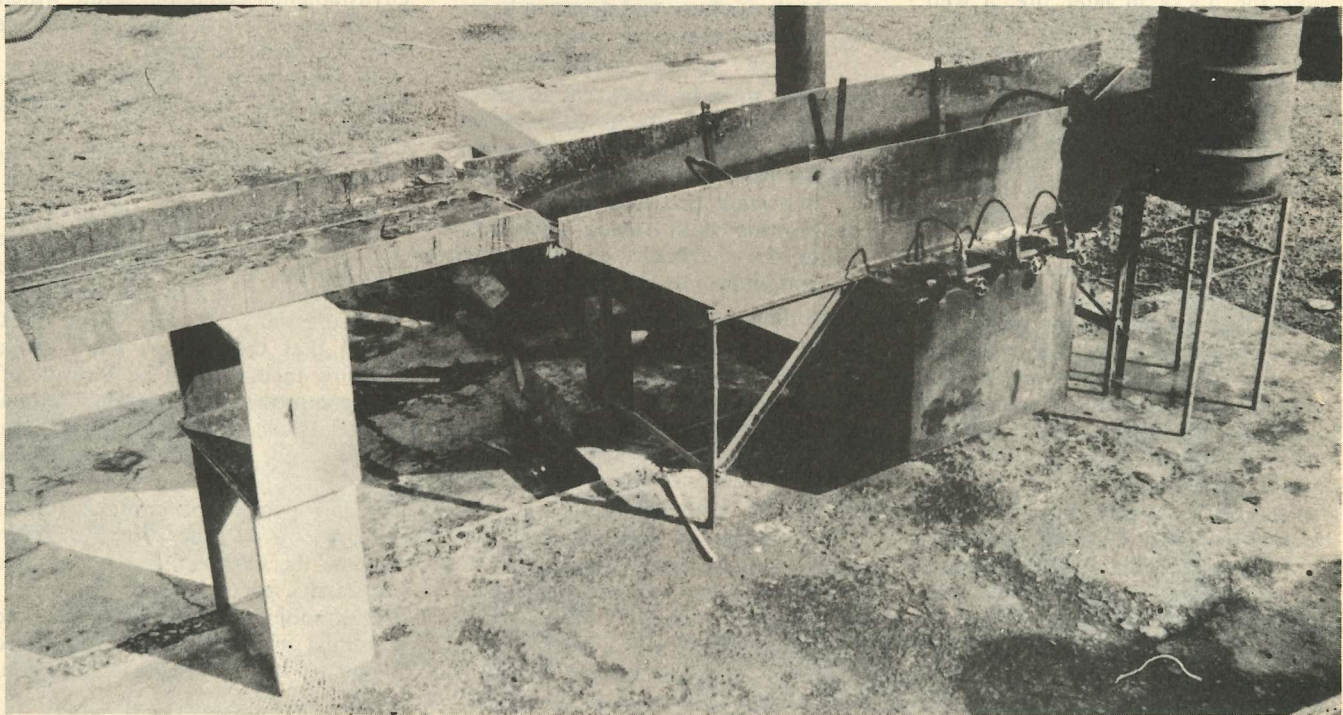


DIAGRAM SHOWING METHOD OF ATTACHING SMOKE BOX TO WAX TANK.

Plan No. 3



The improved device for preserving hive parts with paraffin wax.