A TYPE OF HIGH-WATER GAUGE

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Introduction

The need for a robust, high-water gauge, necessitated by the hydrological studies being conducted in the jarrah forest, led to the development of the gauge described here.

Unlike most instruments for gauging high water levels (for example, glass vials individually placed on a large, cumbersome board or the more intricate float system), this instrument is sturdy enough and compact enough for very few, if any, site restrictions to have to be imposed. Also, data cannot be lost through breakage.

Since most of the creeks to be monitored remained within the 1 m maximum-minimum flow, 1 m was accepted as a suitable range of measurement.

Materials required.

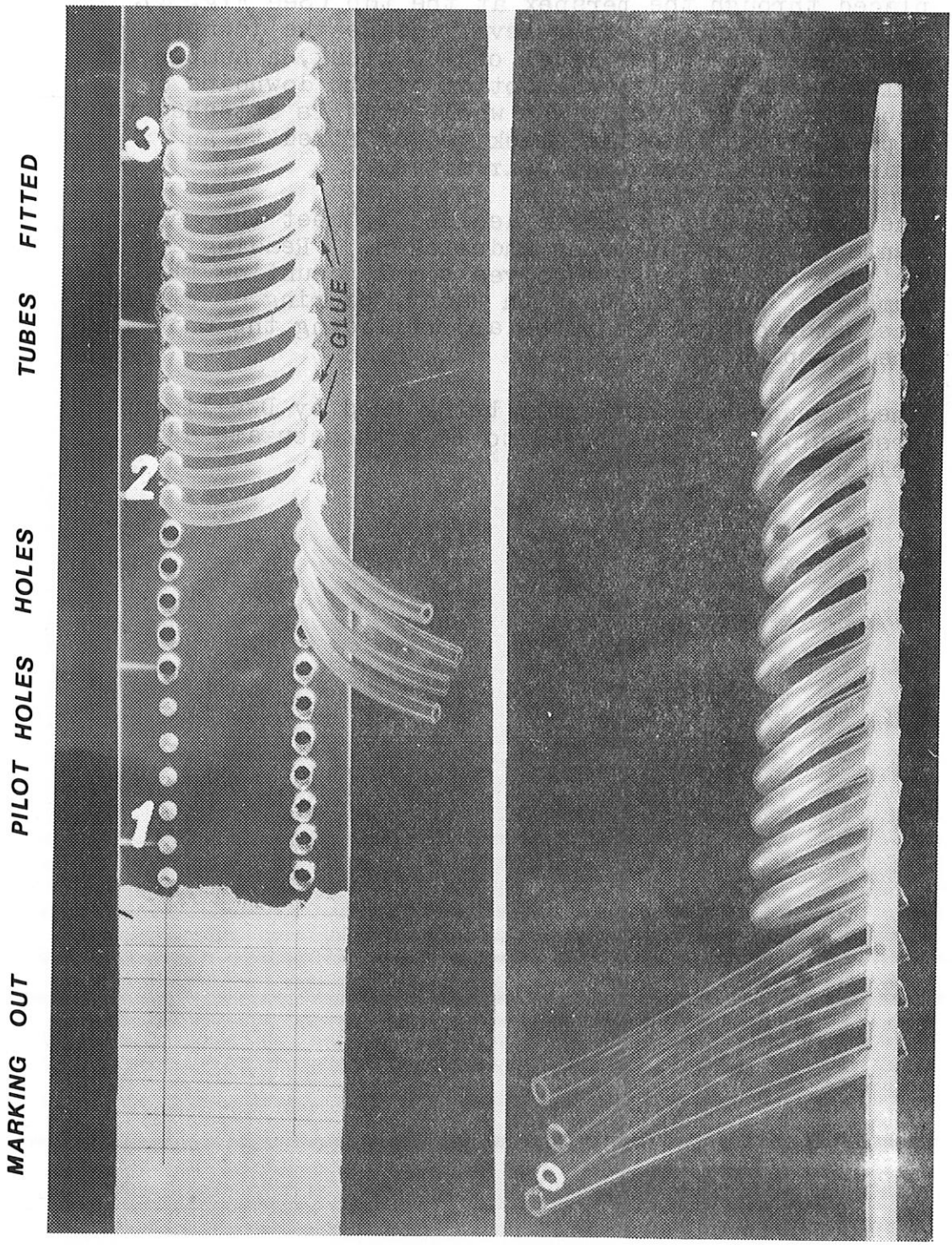
1 sheet of perspex 7.5 cm x 10 cm, and 5 mm thick.
94 pieces of clear plastic tubing (NYLEX CLEAR VINYL CAT. 15440041 size $\frac{1}{8}$ x 3/64), each 8 cm long.
1.2 m of downpipe.
40 cm of 20 gauge wire.

Method of construction:

1. Two parallel lines of holes are bored in the perspex. The holes are 1 cm apart and at an angle of 60° to the perspex (See Fig. 1). There are 94 holes per line, and each line is 15 mm from the outer edge.

   To bore the holes, clamp the perspex between two pieces of wood; one serves as a backing and the other as a guide (See Fig. 2).

2. To fit tubing, place one end in hole 1, line A, and the other in hole 1, line B, and so on until all 94 have been fitted. This operation is followed by gluing and subsequent trimming of the tubes (See Fig. 3). Care must be taken when trimming the end of the tubing protruding to ensure that a small lip is left on the upper side so that any moisture (caused by rain, condensation etc.) running down the gauge is deflected, and does not enter the tube.



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3. The gauge is suspended in the downpipe by a wire bar placed through the perspex at the top (See Fig. 4). To ensure that the water level inside the downpipe represents the water level of the creek, a number of holes are drilled at the bottom of the downpipe on the down creek side. The whole unit is attached to a post driven into the creek bed or fixed to an existing staff gauge at weir sites.

   The scale employed can be decided to meet the requirements of the study being undertaken. Reading and resetting of the gauge involves simply counting the number of tubes filled with water, pouring or blowing the water out of the tubes and replacing the unit in the downpipe .

   These gauges are currently being used by Dwellingup Research, and have proved to be both accurate and reliable to within 1 cm.

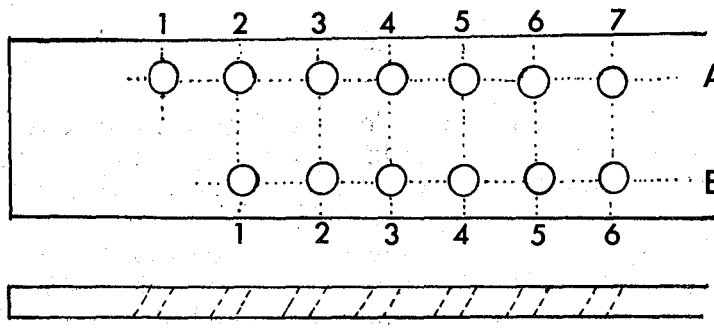

FIG 1

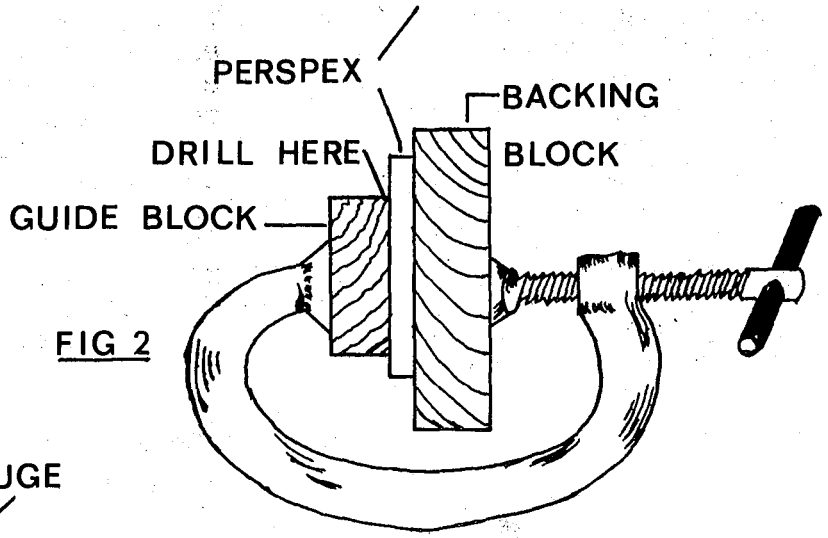

FIG 2

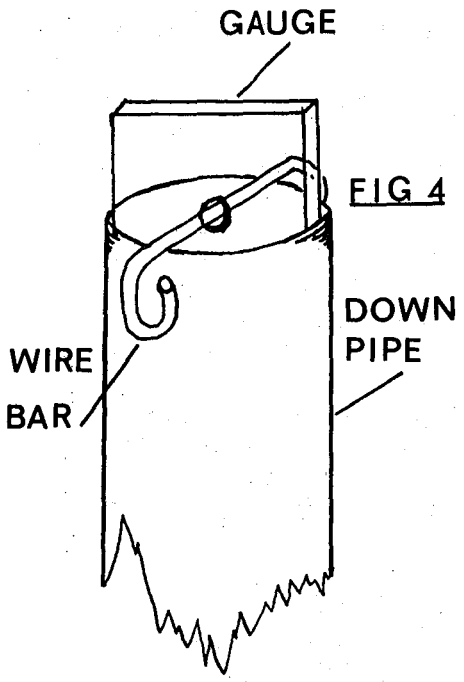

FIG 4

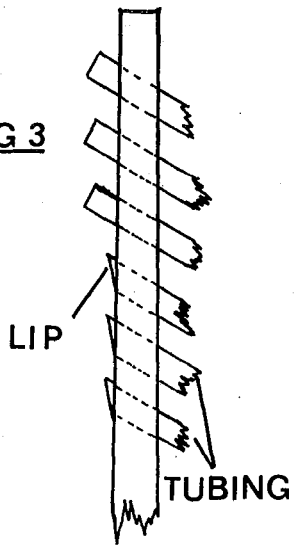

FIG 3