Straining device for tests of plastic caulking materials

Ishii, M.

Technical Note (National Research Council of Canada. Division of Building Research); no. TN-193, 1955-01-05

NATIONAL RESEARCH COUNCIL OF CANADA

DIVISION OF BUILDING RESEARCH

No. 193

TECHNICAL NOTE

NOT FOR PUBLICATION FOR INTERNAL USE

PREPARED BY M. Ishii CHECKED BY E.V.G. APPROVED BY N.B.H.

PREPARED FOR General Information

DATE January 5, 1955

SUBJECT

Straining Device for Tests of Plastic Caulking Materials.

The straining device illustrated in Method No. 35, 1-GP-71, Canadian Government Specifications Board, for use in tests of plastic caulking materials is relatively simple. It is, however, considerably more expensive to construct than is at first apparent, because of the accuracy with which the holes to accommodate the four vertical standards must be matched, to provide a smooth sliding fit of the movable centre plate. An alternative apparatus, as shown in Fig. 1, has been designed and it is believed that it can be made at much lower cost, for the same precision of straining.

A lathe milling attachment, which can be purchased at small cost, is mounted on a suitable base attached to the work-holding device. The parts normally fixed to the tool post thus become the sliding head. A 50-tooth worm wheel is fastened to the top of the head of the traversing screw, and a simple U-shaped bracket, carrying the single-threaded worm is fastened to the body. The light shaft carrying the worm, and fitted with a suitable handle, is restrained in the engaged position by a small collar when turned so as to raise the main sliding component through rotation of the worm wheel and traversing screw. One revolution of the worm shaft produces a movement of the sliding head of 0.001 in., and good control of straining rate during testing is thus obtained. The worm can be disengaged by retracting the shaft, allowing the gear to be rotated directly for more rapid adjustment as required, in setting up a test.

A modification in the test procedure has been introduced through the use of a $1\frac{1}{2}$ in. wood screw and small washer to hold together the wood blocks and spacer which carry the mastic under test. These pieces are thus conveniently held together during application and curing of the mastic. The screw is removed only after insertion of the test assembly in the apparatus. The mastic bond is thus protected against premature straining and possible rupture due to shifting of the wood blocks during handling.

The means provided for rotating the device about the tool post bracket is not now required and is locked, with the clamping screw, so that the lower face of the bracket is parallel to the base. This lower face provides a horizontal surface against which the top of the test assembly is held by a clamp of sheet steel. A hole in the top of this clamp provides access for removal of the wood screw used to hold the wood test blocks together, and for placement of the liquid test dye.

Once the test assembly is held in place by the top bracket, the knurled nuts, two on each of the three threaded posts in the base, may be adjusted so as to fix the lower of the two wood blocks of the test assembly. This arrangement, if used carefully, can be made to compensate for any inaccuracies in the test assembly. The wood screw holding the test assembly can then be removed and the strain test begun from a condition of no initial strain on the mastic.

Plans have been prepared, showing the details of the modifications to one particular make of milling attachement. These may be obtained on request from the Division of Building Research, National Research Council, Ottawa.

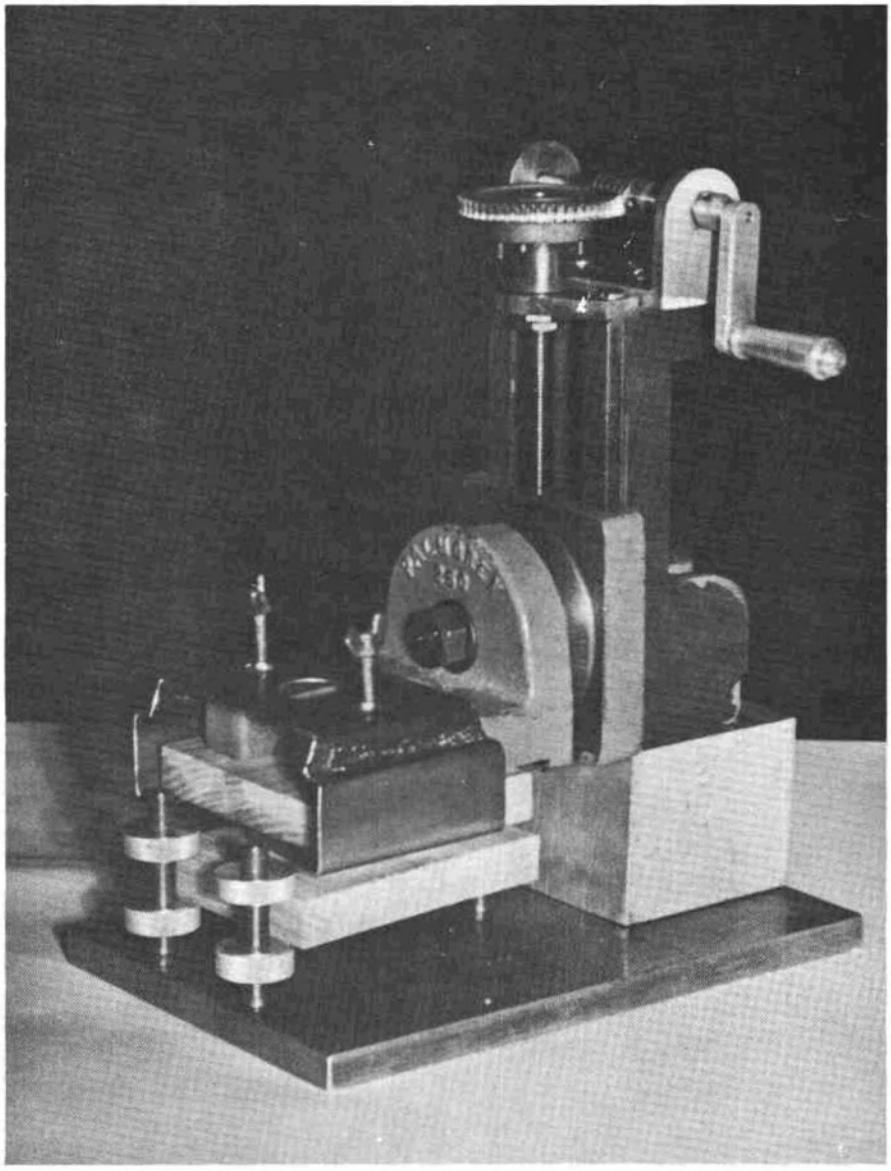

Fig. 1 Mastic straining device made from lathe milling attachment