Chapter III

PREPARATION AND ASSEMBLY

3.1 Split ring connector

Split ring is a kind of connectors used for connecting timber to timber to resist lateral force. Split ring is a metal ring forming a closed true circle.

Split ring used in this research were steel rings cut from a steel pipe of selected diameter and desirable ring depth. Each ring formed a closed true circle and split circumference (shown in Fig. 3) so that ring circumference could contact the core timber at all points

The standard and the actual size of split rings used in the research are compared below.

Table 3.1 Split ring dimensions

Dimensions (mm.)		ø 70 mm. Ring	
		Standard	Actual
Ring :	Depth	19.0	19.0
	thickness	4.2	2.5
	inside diameter	65.0	69.0
Groove:	depth	9.5	9.5
	width	4.5	4.1
	inside diameter	65.0	72.0
	outside diameter	74.0	76.1
Bolt size		ø ½"	ø 12 mm.

3.2 Timber specimens

Takian-tong timber was used in this research. They were selected from commercial timbers available in Bangkok from the same tree. The specimens were 5.00 x 10.00 cm. and 10.00 x 10.00 cm. of norminal sizes. All specimens were kiln dried to 12 per cent moisture content by the Forest Industry Organization. All specimens were dressed to 4.00 x 9.00 cm. and 8.5 x 8.5 cm. sizes.

The kiln dried specimens were selected to perform small clear specimen tests, static bending, compression test parallel to grain, direct shear test along grain and also test of split ring connectors joint.

3.3 Joint assembly

The prepared specimens of 4 x 9 cm. cross section were cut 60 cm. long. The groove was cut by hole saw (Fig. 4) to the depth of half of ring depth on the contact face. The center of groove was 15 cm. from one end, pre-bore hole for ø 15 mm. was also drilled. The joint members were assembled together with split rings which fit snugly in the pre-cut grooves. The three members were fastened by a bolt which was tighten by hand and having 5 cm. square steel washers of 6 mm. thick (Fig. 5). End surfaces of the joint member were carefully cut at right angle with the longitudinal axis to ensure the contact area and to prevent eccentricity of applied load.

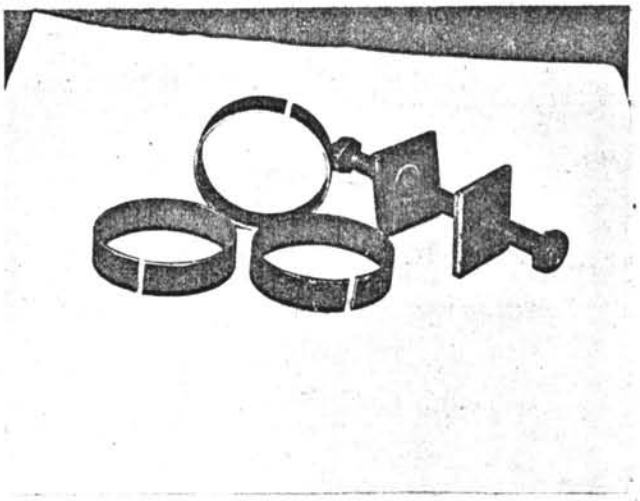


Fig. 3 Split rings

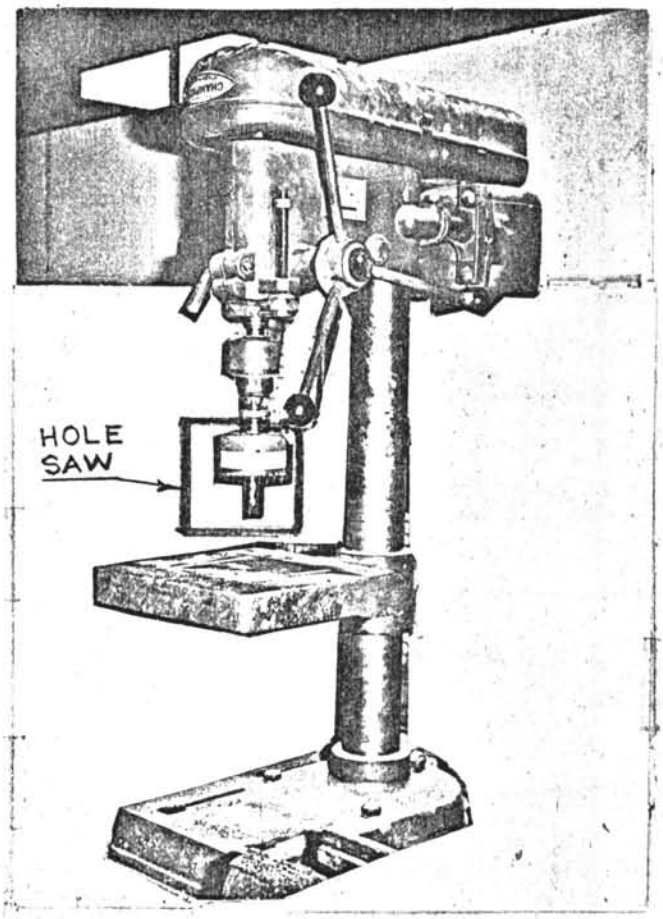
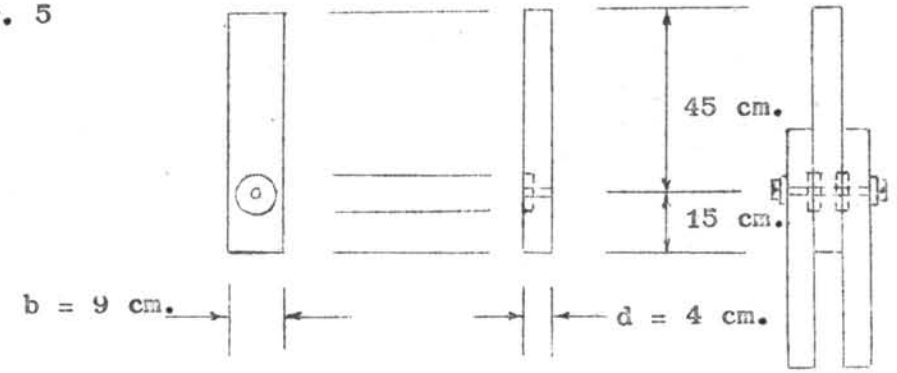


Fig. 4 Hole saw apparatus

Fig. 5



3.4 Spaced columns assembly

Spaced columns were assembled for both type 'a' and type 'b' as shown in Fig. 6. All spacer blocks were 20 cm. long and the plit rings were placed in the pre-cut groove in the same manner as joint assembly. The ends of the column shafts were cut at right angle to the longitudinal axis to ensure full contact area and preventing load eccentricity.

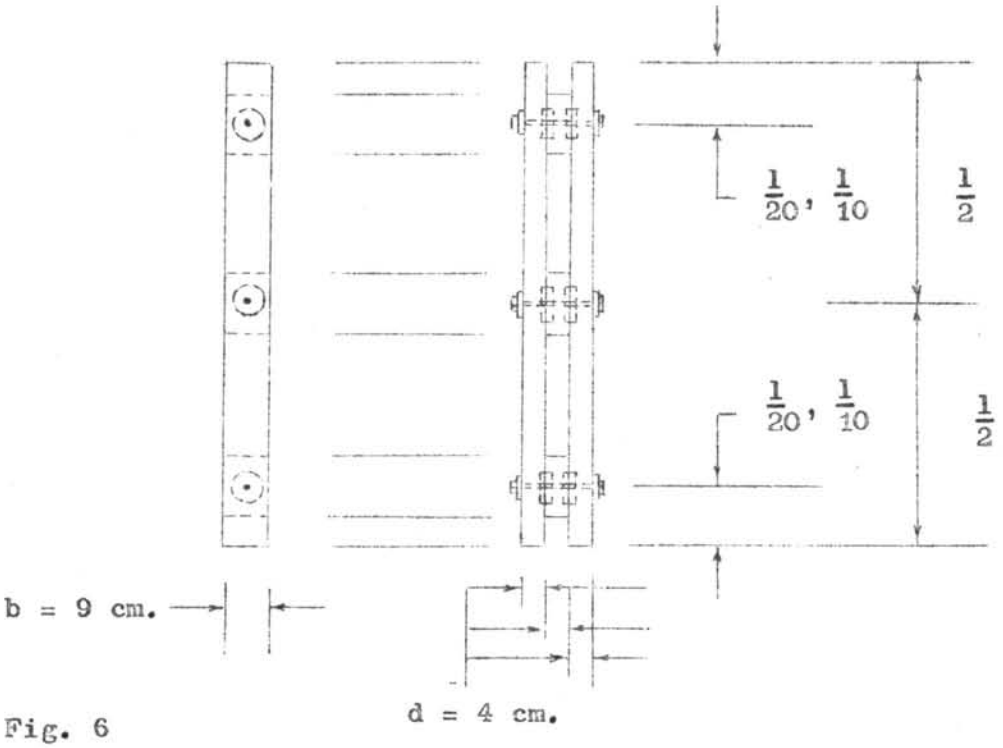


Fig. 6

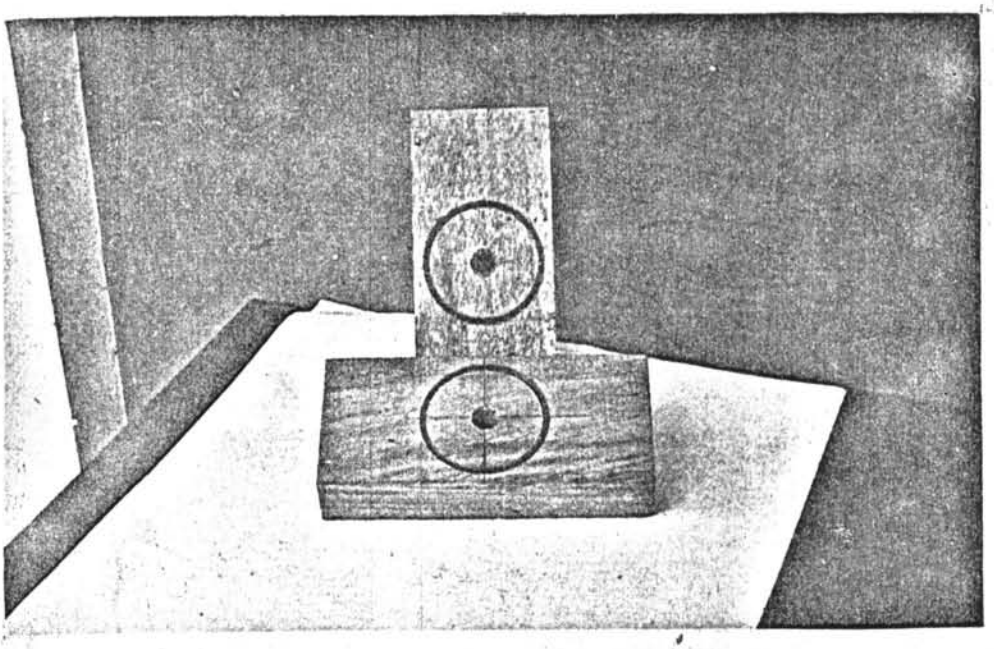


Fig. 7 Spacer blocks