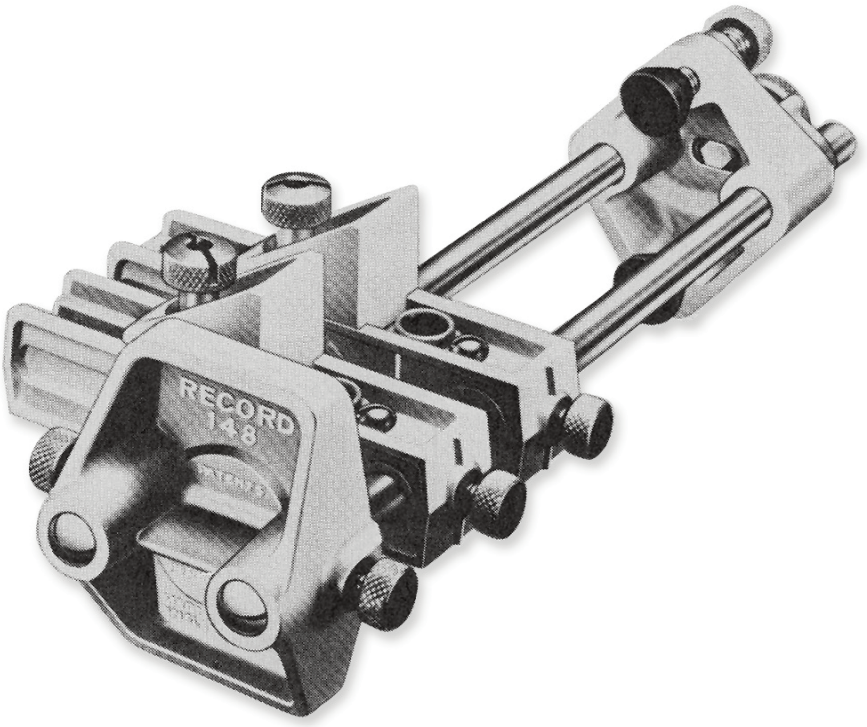
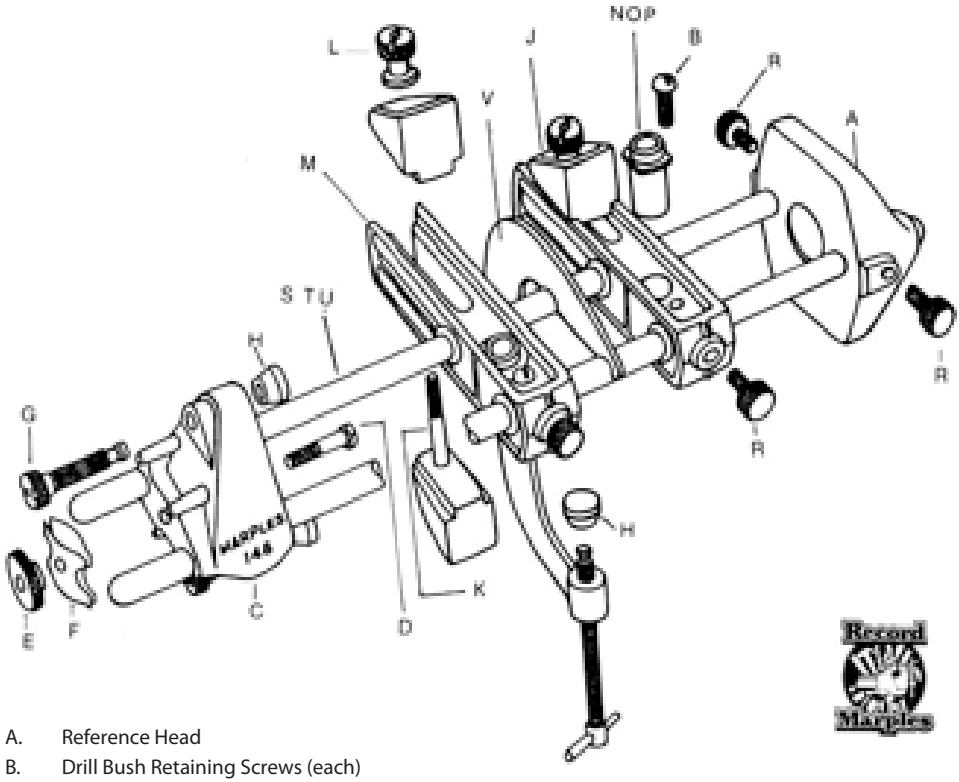
OPERATING INSTRUCTIONS



Record

RECORD NO. 148 DOWELLING JIG



A. Reference Head
B. Drill Bush Retaining Screws (each)
C. Adjustable Head
D. Adjustable Head Bolt
E. Adjustable Head Nut
F. Adjustable Head Spring (pair)
G. Adjustable Head Screws (each)
H. Swivel Shoes (each)
I. Fence Complete
J. Fence
K. Screwed Fence
L. Fence Nut
M. Drill Bush Carriers
N. Drill Bush 1/4" pair
O. Drill Bush 6rnm pair
P. Drill Bush 5116"/8mm pair Drill Bush 318" pair
Q. Drill Bush 9mm pair Dril Bush Pair 10mm
R. Reference Head Retaining Screws/ Drill Bush Carrier Fixing Screws
S. Standard Slide Rods per pair (6")
T. Medium Slide Rods per pair (12")
U. Long Slide Rods per pair (18')
U-24 Long Slide Rods per pair (24")
U-30 Long Slide Rods per pair (30")
U-36 Slide Rods per pair (36")
V. Jig Clamp

The Record 148 Dowelling Jig is a versatile tool enabling dowel holes to be drilled accurately and quickly with the minimum of marking out, ensuring that frame and carcass constructions can be assembled easily and without error. The Jig is designed to be used for 1/4 inch (6.3mm), 5/16 inch (8 mm) and 3/8 inch (9.5 mm) dowels. It is supplied with ¼ inch (6.3 mm) and 3/8 inch (9.5 mm) drill brushes and two standard slide roads accepting boards up to 6 inch (152 mm). Additional bushes 8 mm and roads of 350 mm (12 inch) and 460 mm (18inch) capacity are also available. (See accessories list packed with this tool).

DESCRIPTION

The dowelling jig comprises two hardened steel bushes **N**, **O** or **P** Held in carriers **M** by retaining screws **B** the carriers are fitted with double fences **J** and are mounted onto slide rods **S** which enable the carriers to be placed at convenient distances across the boards or scantlings. The rods **S** are grooved at one end to position a reference head **A**, secured by two screws **R**. From the reference head A all measurements can be set.

An adjustable head **C** which can be fixed in any position along the rods with its nut **E,** carries two screws **G** which are fitted with nylon swivel shoes **H**. These may be tightened with a coin or a screwdriver enabling the jig to be clamped securely to the work. The provision of two screws allows the jig to be inverted.

On the bush carriers are datum lines **Y** and **Z** which permit the drill bushes **N** to be lined up with pencilled lines on the work, or on the fences **J** permit accurate positioning of the drill brushes **N** in relation to the thickness of the timber and allow for accurate repositioning of the timber when the jig is inverted to drill and opposite set of holes. The fences which are held in position by screw **K** and nut **L**, are easily removed to permit the Jig to be used on the face of a board **(Fig 1)**.

When the jig is placed at the end of the bath and to make a corner joined the adjustable heads say must be removed and the G clamp they used to clamp the Jig to the timber **(Fig 2)**.

The clamp must also be used when drilling any intermediate position along the batten since neither reference nor adjustable head can be used **(Fig 3)**.

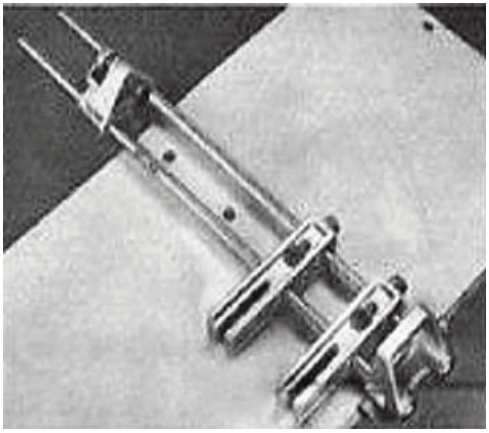


Fig. 1

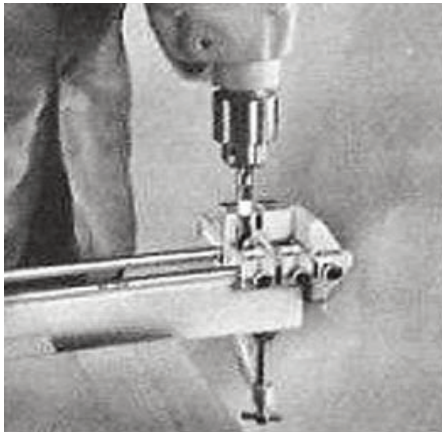


Fig. 2

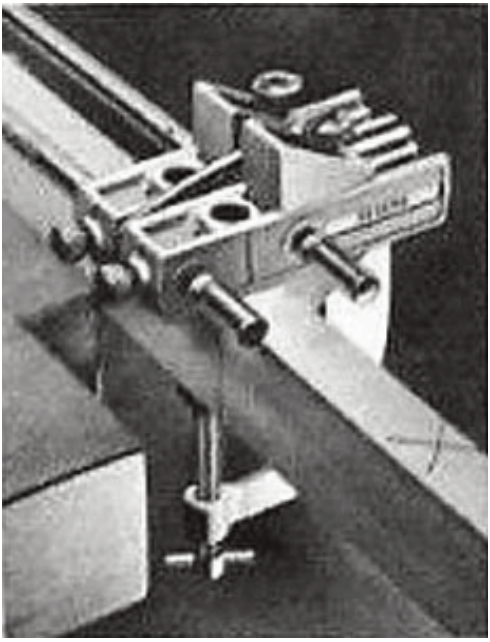


Fig. 3

IMPORTANT

- Use carefully prepared timber.
- Reference head and fences must be in register against marked faces of the timber.
- Check that Jig is secure before drilling.
- Invert the Jig to drill opposite components of each joint.
- Retain bush settings until all holes are drilled before repositioning for additional dowel holes.

GENERAL

Drills:

Jobbers twist drills used in a power drill are recommended for use with the jig. When the power tool is not available the record handdrill number 4238 with a 8mm chuck capacity will be found suitable for the two smaller sizes of dowel rod.

Dowels:

All dowels should be equal length and cut slightly short to ensure a flush fit of the joint and perfect mating in assembly. The ends of the dowels should be chamfered with the dowel sharpener to ensure ease of entry into the dowel holes. A saw cut along the length of the towel permits the escape of excess glue and air and also acts as a key.

Depth Gauge:

A hole depth gauge may be made by drilling a hole in a spare piece of dowel so that it forms a sleeve over the drill and prevents further entry after the required depth has been reached. An alternative method is to position a piece of insulating tape on the drill level with the Bush carriers after first passing drill through the bush until his extends to the required depth of hole.

Timber preparation:

When jointing it is essential to carefully prepare the timber to uniform wtidths and thicknesses all timbers should be square and marked with face side  and face edge marks  and the user should check that the reference head and/or bush carrier fence faces are always in register against these faces. It is good practice when making a frame to have all face sides marks uppermost and face edge marks inside. Observation of these simple rules will ensure that the dowels are correctly positioned and the faces of the timber flush when the joints are assembled.

Marking out:

No complicated marking out is necessary with the record 148 dowelling jig. The bush positions can be accurately set using a rule and measuring from the reference head to the brush carrier datum line and also measuring from the face of the fence to the bush carrier datum line. However when preparing boards for shelving, a line must be drawn square across the border to indicate the line of dowels. This will ensure the Jig to be accurately lined up across the board **(Fig 1)**. Similarly a line for correct positioning of the bush carriers will be needed when the joints are being made **(Fig 3).**

The Jig can be used to make the following joints: (Fig 4)

Framing

Corner joints - Tee joints - Mitred joints - Leg joints

On timber of a minimum thickness of 16mm (5/8″)
On timber of a maximum thickness of 76mm (3″)

Carcasses

Corner joints - Shelving joints - Dowel holes for adjusting shelves

In boards of 152mm (6″) width (standard slide rods)
In boards of 305mm (12″) width (standard slide rods)
In boards of 460mm (18″) width (long slide rods)

Board jointing

End to end - Edge to edge - End clamping

Holes for slot screwing can be drilled where screw heads sizes correspond with available bush sizes

ASSEMBLING THE JIG

Select the required size of drill bush. Unscrew the bush retaining screw until the head of the screw is clear of the top face of the Bush carrier. Insert and rotate the selected drill bush in its socket until the drill bush flange passes beneath the retaining screw head. The drill bush flats will now locate in the recess in the bush carrier. Tighten retaining screw to secure the drill brush in place.

Position at the grooved ends of the slide rods in the reference head and securely tighten the reference head fixing screws, ensuring that screws located in the grooves. Slide the bush carriers onto the slide roads and finally place the adjustable head on the roads using the adjustable head nut to tighten.

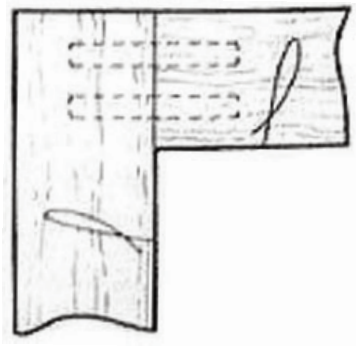


Fig 4.

MAKING JOINTS:

Corner joints (Fig 4)

Prepare timber for use and mark up the faces as previously described. Use the Jig components assembled on the standards slide rods. Having decided upon the distance between centres of dowels (this will depend upon the width of the timber being used) set the bush carriers in position on the slide rods using a rule from the reference head **(Fig 5)**. Allow a gap of at least 3 mm (1/8inch) between the carriers to permit the use of the Jig clamp to secure the jig when drilling the style **(Fig 2)**. Set the fences to position the drill bushes in the centre of the thickness of the timber **(Fig 6)**. Lock the adjustable head in position and locate the Jig, using the adjustable head screw. Drill holes to the required depth. Take the Jig from rail and remove the adjustable head. Invert the jig and secure to the style with the jig clamp placed between the bush carriers **(Fig 2)**.

Check that the inverting the Jig the reference head and the fences are registering against the marked faces. Drill as before and assemble using the dowels and glue to produce a perfect joint.

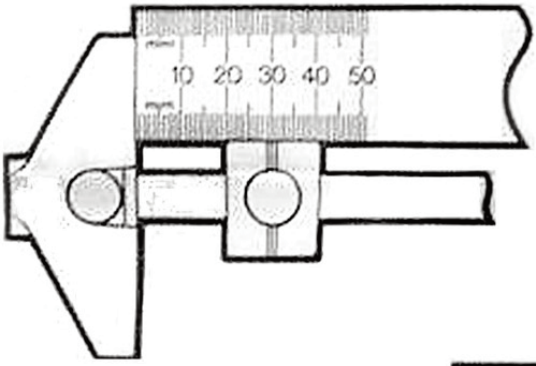


Fig 5.

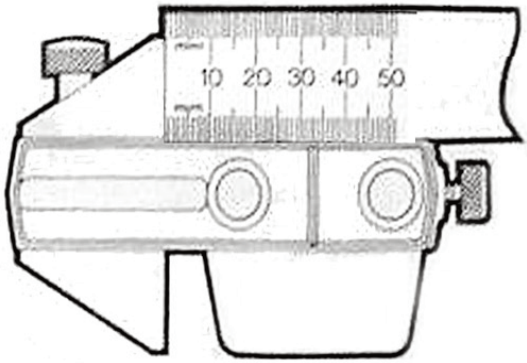


Fig 6.

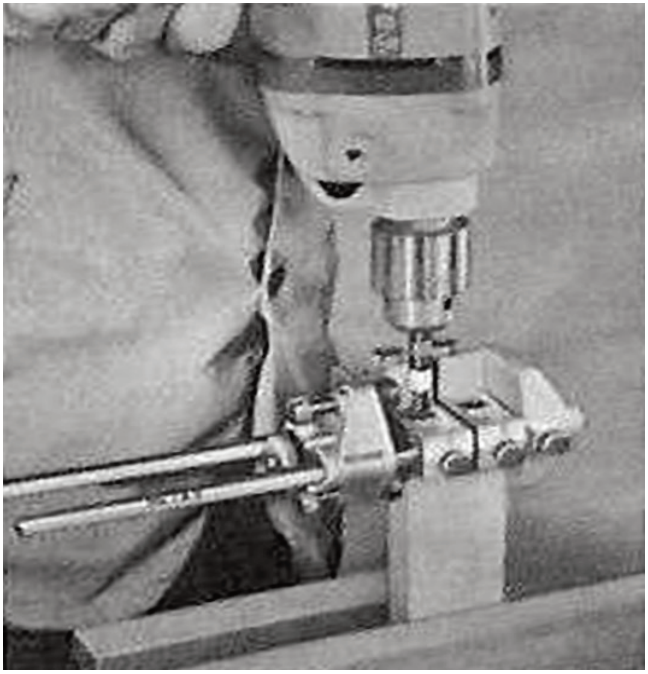


Fig 7.

Tee Joints (Fig. 8)

A tee joint using similar timber can be made without altering the settings. Replace the adjustable head and clamp the jig on the rail checking the fences register against the face side and the reference head against the face edge. Drill as before.

Take the jig from the work and remove heads. Place a pencil mark along the style **(fig. 3)** to indicate the position of the rail. Put the jig clamp between the bush carriers, invert the jig so the fences register against the face side and tighten the jig clamp.

Drill as before.

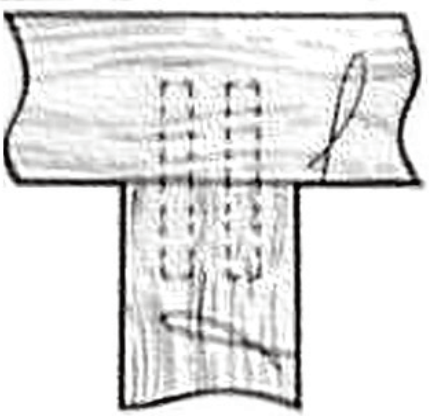


Fig 8.

Mitre Joints (Figs. 9 & 10)

Mark the dowel hole centres on the mitre face of piece (a). Set the Dowelling Jig with one bush carrier only and both reference and adjustable heads fitted. Place piece (a) in the vice and mount the Dowelling Jig with its reference head against the face edge of the timber. Position the bush carrier so that the bush carrier datum lines a coincident with the dowel hole centre lines on the timber. Slide the fence onto the carrier, place in register against the timber and tighten the locking nut.

Tighten the adjustable screw to secure the Jig in position and drill the first hole. Do not remove the Jig from piece (a) but locate piece (b) on the opposite side of the Jig against the fence and tighten the adjustable head screw.

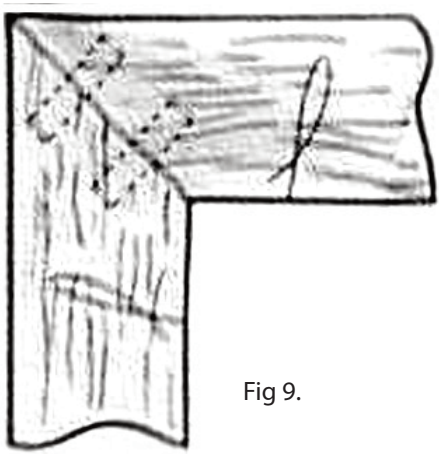


Fig 9.

Unscrew the lower adjustable head screw to release the Jig from piece **(a)**, invert piece **(b)**, secure in the vice and drill. Reposition the bush carrier so that it's lines coincide with the second dowel hole centre lines on the timber and then drill. Reposition piece **(a)** in the Jig as before, release piece **(b)** and invert to place **(a)** in the vice, secure and drill. The joint is now ready for assembly.

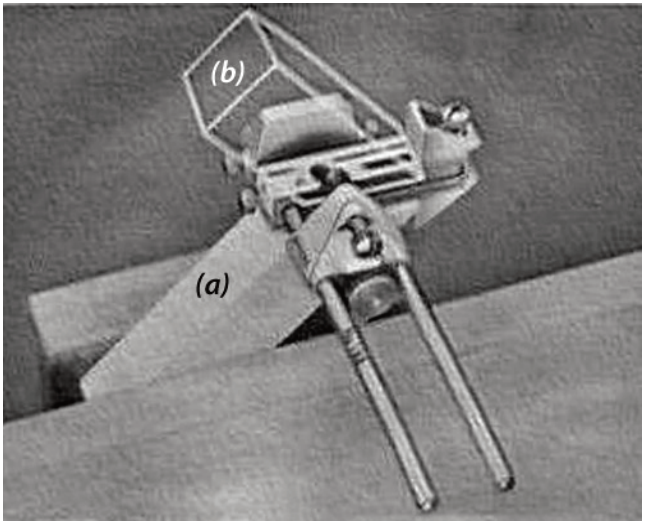


Fig 10.

Carcase Jointing (Fig 11).

Some typical carcase joints are illustrated. As a general rule on wider boards dowels should be located approximately 25mm (1 inch) from the edge of the boards and at approximately 75mm (3 inch) centres. Prior to using the Jig prepare boards to the correct widths and mark the face side and face edge . If man made boards of the chipboard variety are being used these will generally be of standard sizes.

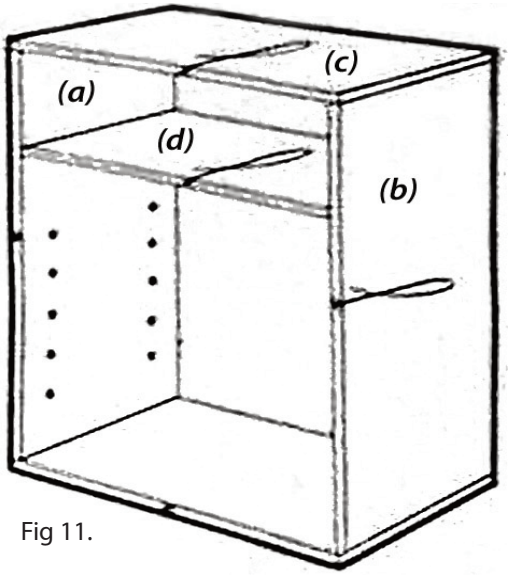


Fig 11.

Choose rods and drill bushes of suitable capacity. Fit both carriers with the selected size of drill bush. Decide upon the positions of the dowel holes and note the measurements. For ease in setting up and drilling it may be convenient to place the wood in a vice. Secure the reference head to the rods and set the first bush carrier in position on the slide rods using a rule to measure the distance between the face of the reference head and the bush carrier datum line. Secure the bush carrier. Set the second bush carrier in the same way and secure.

Position the bush carrier fences and using a rule, set the fence to half the thickness of the timber away from the bush carrier datum line. Slide on the adjustable head. Place the Jig in position on the end of piece **(a)**, reference head against the face edge and fences against the face side. Tighten the adjustable head to clamp the Jig to the work **(Fig. 12)**. Drill both holes.

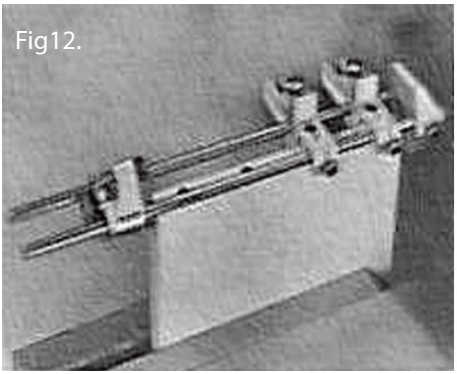


Fig12.

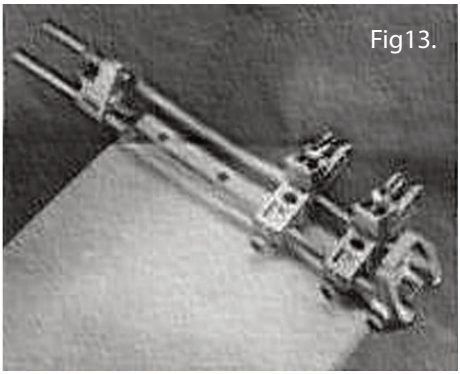


Fig13.

Slacken the adjustable head screw but leave all other components of the Jig in place, invert the Jig to place in position against the face marks on piece **(c) (Fig. 13)**. Clamp and drill. Follow round the carcase with each corner joint in turn until each pair of holes has been drilled. Now take shelf (d) and clamp the Jig on the end as with piece **(a)** and drill. Remove the Jig as before, clamping it to the opposite end of piece **(d)** and drill. Remove Jig and clamp at the shelf position on piece **(a)** lining up the Jig bush carrier datum line with the shelf centre line marked on piece **(a)** for one club and drill both holes remove Jake in the clamp at the shelf position on piece **(b)** drill holes and remove Jig. When all holes are drilled with the carriers in first position, slide them along the rods into the next pair of positions and drill in the same sequence as before. If more than four dowels are being used in each joint, the procedure will have to be repeated. Alternatively the user may care to add extra bushes (which are readily available) to avoid this.

BOARD JOINTING.

End to End **(Fig 14.)**

Timber ends must be accurately squared before jointing. Set up the Jig as for normal carcase work, drill, invert the Jig and reposition it on the end of the second piece. Reposition the bush carriers and repeat the procedure.

Fig 14.

Edge to Edge **(Fig.15)**

Shoot both boards with a trying plane. Man-made board will not need to be planed. Set up the Jig as for carcase work and follow the procedure for end to end jointing.

Fig 15.

End Clamping of Boards (Fig.16)

This can be carried out in a similar way to edge to edge and end to end jointing.

After drilling one half of the joint, always remember to invert the Jig in order to keep its register faces against the marked faces of the job. This will bring flush all faces of the joint.

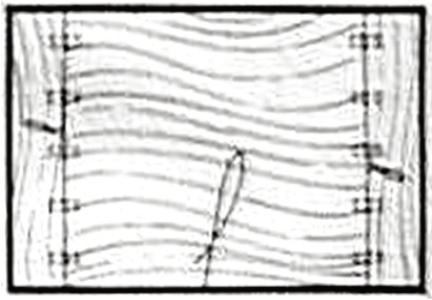


Fig 16.

Leg Joints (Fig. 17).

Proceed as for corner jointing, note offset dowels.

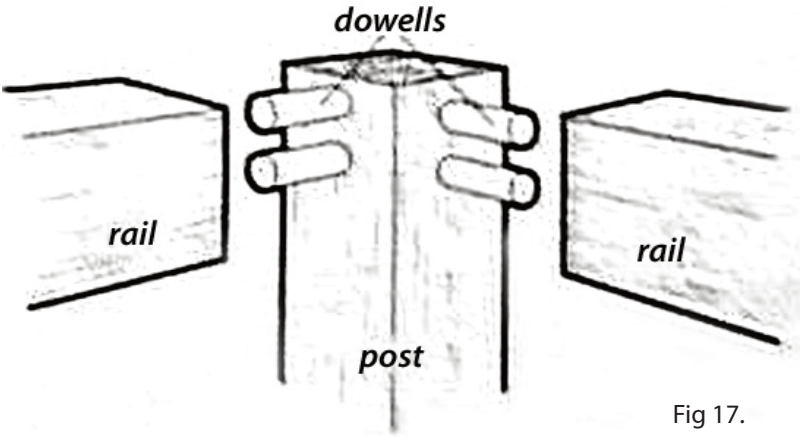


Fig 17.

Reproduction of the Record 148 Dowelling Jig manual by Charlie de Montagnac (chas@demont.o.uk)