

TECHNICAL NOTES

LIGHTWEIGHT COLLAPSIBLE PLOT FRAME

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A collapsible frame of lightweight steel tubing is efficient for outlining plot boundaries in forest and range inventories. It is strong and durable, yet light and compact for easy handling. Because it can be assembled and dismantled quickly, it can be used in dense brush where a solid frame is practically worthless.

The four sides of the frame, plus a corner brace and a short spacer, are made of ½-inch thin-wall galvanized steel conduit, which is available at electrical supply houses in 10-foot sections (Figure 1). Other materials are galvanized bolts, nuts, and washers as follows:

- Stove bolts, ¼-inch
 - 2 2¼ inches long
 - 3 2½ inches long
 - 1 2¾ inches long
 - 1 1¾ inches long
- Flat washers, 3/16-inch
18
- Lock washers, 3/16-inch
5
- Hexagon nuts, ¼-inch
9

All bolt holes are drilled slightly oversize, 17/64-inch, one inch from the ends of the tubing. To lessen collapsing of the conduit when bolts are tightened, a 3/16-inch flat washer is placed beneath each nut and each bolt head. A lock washer is placed under all nuts except where lock nuts are used.

Two sides of the frame are permanently joined at one end by a bolt 2¼ inches long. This forms a hinge joint, permitting the sides to fold together when the frame is dismantled. Two 3/16-inch flat washers placed between the sides prevent binding

(Detail A). Lock nuts keep the joint tight.

A hole is drilled through the free end of one of the hinged sides. The free end of the other hinged member is fitted with a bolt 2½ inches long as shown in Detail C.

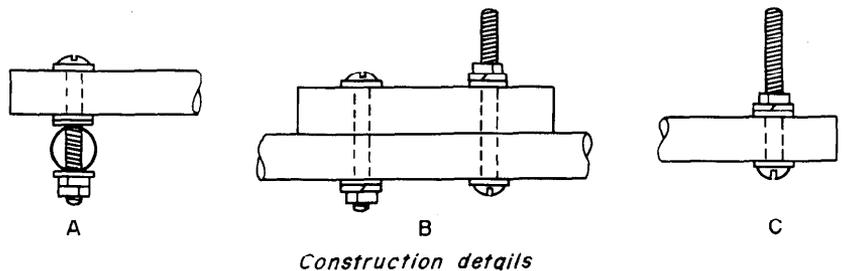
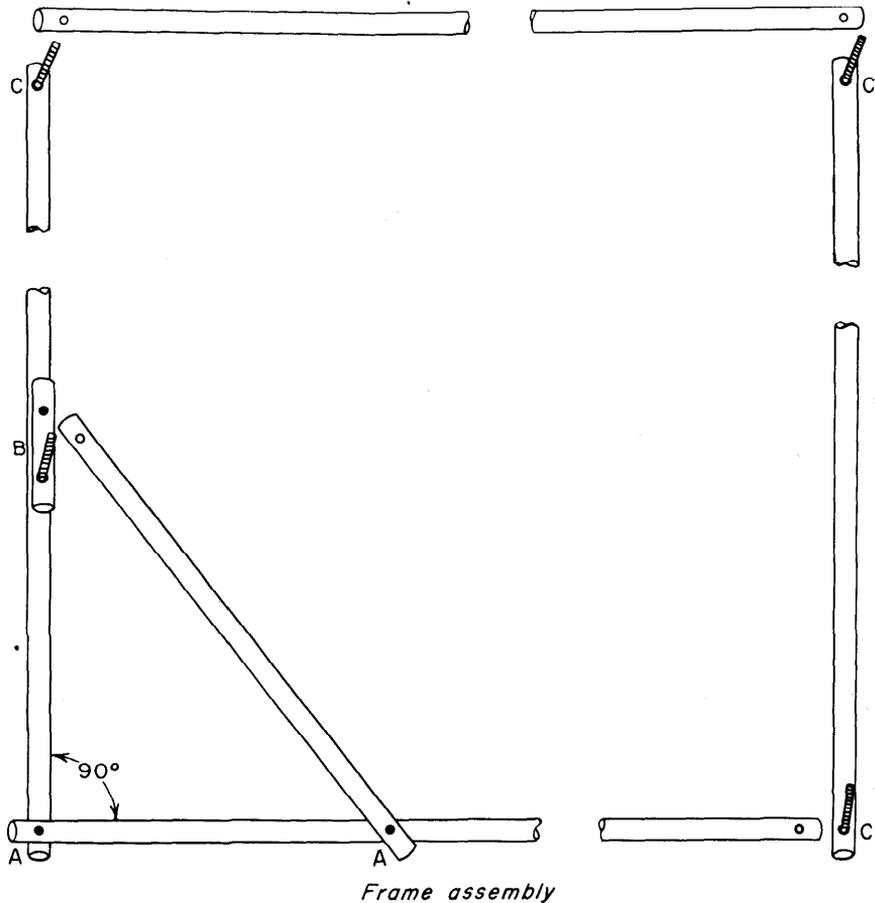


FIGURE 1. Diagram of collapsible plot frame.

A short section of conduit placed diagonally across the hinged corner squares the assembled frame. One end of this brace is permanently attached to a hinged side (Detail A). The other end is drilled to fit over a bolt $2\frac{3}{4}$ inches long installed in the adjacent hinged side as illustrated in Detail B. A 6-inch section of tubing serves as a spacer to keep the corner brace level. An additional bolt, $1\frac{3}{4}$ inches long, helps hold the spacer in place. Thus, the hinged sides and

the diagonal brace comprise an integral folding unit.

The two remaining sides are readily detachable. One side has a hole drilled at each end; the other is fitted with stove bolts $2\frac{1}{2}$ inches long as shown in Detail C.

When the frame is being assembled, bolts at points B and C are inserted into corresponding holes in the adjacent members. This forms a secure yet readily detachable joint without the use

of nuts. On uneven ground the threads bind in the holes, holding the joints fast.

The frame is relatively cheap, considering its durability. One a milacre in size can be constructed in about two man-hours at a cost of \$2.65 for materials.

Because a bolt may occasionally break, several extras, together with spare nuts, washers, and a small wrench, should be carried in the field. Otherwise, frames rarely need repair despite rough use in heavy brush.