Cables and casings

By **GEOMETER**

For a " round-the-corner " pull through a short distance, or a light rotary drive, a stranded flexible cable in a casing provides an easy solution to what could otherwise be a difficult problem. A cable. which is not enclosed in a casing must run straight between two points to transmit pull; or there must be pulleys for it to pass round-which may not always be convenient, and in any case adds to complications.

For the reverse movement of a flexible cable, the lever or part which is operated is pulled back by a spring, as only a light push can be given by a cable. A solid but springy wire (piano wire) in a casing is better in this respect, and may be used where the main action is pull, but some push is required in return, as with the choke or mixture control on a car carburettor.

Soldering the nipples

The ordinary Bowden cable has soldered-on nipples at the ends, either elongated or pear-shape, or the round type, as at ***Al,*** 2 and 3, 4. In fitting either of these, it is slipped on the cable which is held by pliers underneath so that it will protrude slightly. Then it is tack-soldered to hold. The end strands are picked apart with a knife? and a small centre punch may be driven in to splay the strands. Reheatmg the nipple, it is held vertically downwards on the cable, and a blob of solder runs down into the splayed strands. The surplus solder and rough ends of the wires may then be filed or ground off, and the nipple will never pull free.

On car brake cables, secure end fixings can be made as at B. For a circular end to be held in a sleeve by a bolt, the cable can be splayed into the interior with a steel cone punched down, and the whole sweated solid with solder-the method used for Austin Seven cables. When a fork is fitted at the end of a cable, a cross-hole may be provided, and a sharp-pointed taper pin then driven through the cable and the whole soldered solid. In each case, the cable end should be tinned and also the hole into which it is to be fitted.

Unless care is taken to prevent strands unwinding, difficulties can arise in fixing nipples on cables, with considerable waste when cables are cut 'from a long roll. A simple cut with pliers will certainly result in the unwinding of some, if not of all, the strands for a distance. Sometimes, they can be worked down again by making several turns of fine wire, and twisting in the winding-up direction to the end, as at C. Advisedly, however, the cable should be soldered where the cut will be for a distance X-Y, which in most instances can be fin. to 1 in. Lacking good pliers or snips, a sharp cold chisel can be used to cut the cable laid on a support block.

The casing

Any casing for a pull control cable must have firm end abutments and be solid endwise throughout its length. If it is damaged or stretched, endwise pressure will cause compression like a spring, and this will absorb effective movement on the cable. A sleeve in steel, brass or aluminium, as at ***D*** (top), makes a firm abutment for casings which are in two parts; and the type with an adjusting screw and locknut (bottom) is often used when end adjustment is liiited. Casings and cables should lie in easy regular curves and as few of these as possible. A proper radius gives the easiest action for a cable requiring sensitive operation (accelerator of a car); since once curved, the cable can move round without each part at the curve having to be separately bent as it moves.

The end of an open cable turned in a loop can be clamped in V-plates, as at ***El,*** to hold. A cable in a pivot on a lever (2) can be held by a screw -which should not be over-tightened; and a simple stop on a cable (3) can be made from a piece of stud drilled cross-wise and fitted with a collar and nut.

For an open cable, an adjuster as at ***F*** consists of a steel U-plate with a hook and nut to pull the line of cable from the straight-a type used on brake cables. Most cables work best with moderate lubrication. as when using a light-to-medium oil or a graphite grease. E!