

THE CONCENTRIC SYSTEM OF WIRING.

THIS system of Electric Light Wiring is a notable departure in its application to house wiring : where its simplicity and the thorough and consistent elaboration of its every detail merit for it the serious attention of both electrical engineers and their clients.

The wire and cable used is concentric, and the curious anomaly in the present electrical practice by which the costly insulation is divided between the two conductors is boldly challenged and the outer of the two concentric conductors is left uninsulated. This practice, against which there is really no valid objection if consistently adhered to throughout the circuit, not only greatly cheapens the cost of the line but it enables the outer conductor to be developed into an armouring or protection for the inner and "live" wire, as it may be called in this case, and such armouring proves in practice a most efficient protection, so that none other such as wood casing is required ; and it is also protective in an electrical sense as well as mechanically, since no dangerous element of current can leave the cable : also any serious accident to the line must, by reason of its construction, immediately develop a dead short circuit, thus cutting it out of circuit through the safety device.

The form and material of this conductive armouring is capable of much variation, making it readily adaptable to many different conditions. The most usual form is a stranded layer or two of galvanised iron wires, which has the advantage of cheapness, strength, and ease of manipulation. The total sectional area of the iron wires is made over seven times the area of the inner copper conductor in order to secure an equivalent resistance. Other forms in use comprise an outer conductor of copper strand, copper braid, copper tape, copper strand lead sheathed, copper tube, brass tube, or iron tube. Many of these can be made to lend themselves very effectively to decorative purposes, and their extreme compactness as compared with wood and other casings, allow any of these varieties of wire to be easily hidden by cornices or mouldings, or they can be run in the walls or ceilings with the same facility as gas piping.

The mode of jointing is an important characteristic of the system. Its essential feature consists in the closing of the continuity of the armouring by means of a copper sheath, after which the joint is sealed by means of molten fusible metal cast in a suitable mould around it. The method secures a perfect joint, mechanically and electrically, as there is no likelihood of heating or failure of insulation at the joints of this system ; and it is sufficiently simple easy working in practice.

At the point of attachment to the fittings the wire is jointed to a wall socket screwed to receive the fitting. This socket has a central contact embedded and recessed in a special stone insulation in connection with the inner conductor of the system : a spring contact on the fitting makes connection with the central wire of the fitting, and so the centre contact of the lamp. The metal of the lamp cap, fitting and wall socket, form the return to the outer conductor. The wall sockets are made of uniform size, and thread for all fittings up to a capacity of 5 lights, thus securing a complete interchangeability of fittings. They are supplied ready wired for screwing in place.

The switches and fuses are similarly constructed, so that the case forms the continuation of the outer conductor, and completely encloses the mechanism. The break is of course in the inner conductor, the switch being single pole. It is of the Andrews' patent design, and has some novel and excellent features : it is quick break, the break being twofold and quite independent of the operator. The fuse boxes are made to take a fuse plug of special design, which is constructed to prevent the possibility of inserting a wrong size.

Fitting switches are strongly advocated in this system as having indubitable advantages both in cheapness and application over wall switches. These fitting switches are made in exactly similar design to the larger sizes, but are contained in small globular or cylindrical boxes of neat design to harmonise with the character of the fittings. The flexible leads of this system are most satisfactory, and the readiness with which they can be handled has been proved in several trying instances. The whole system has been most completely carried out in every detail, and it has been well tested by long trials in many installations.

This wiring is recommended for every class of installation, and especially those having isolated plants.

Special Price List on Application.