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1,911,858

EXTRUSION DIE

Filed July 7, 1931

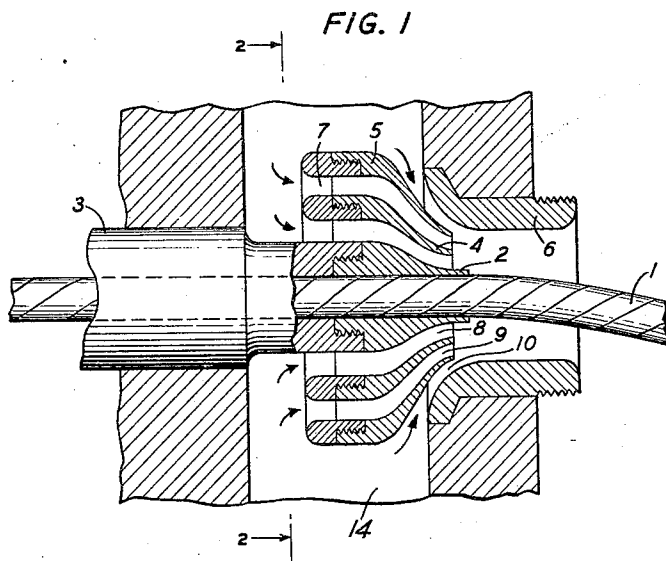
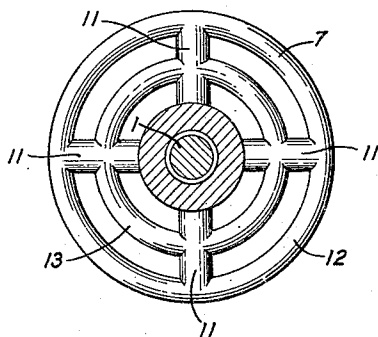


FIG. 2



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EXTRUSION DIE

Application filed July 7, 1931, Ser'al No. 549,171, and in Great Britain December 3, 1930.

This invention is an improvement in or modification of the arrangement disclosed in applicant's Patent 1,859,901, granted May 24, 1932.

5 In this patent, apparatus for extruding insulating material upon cores for applying the insulating material in a plurality of layers is disclosed. This apparatus comprises a number of die members of successively increasing diameters all having their exit orifices substantially in the same plane taken transversely of the core. The object of the prior arrangement was to obtain a satisfactory application of insulating material notwithstanding any slight flexure of the cable immediately after leaving the dies.

10 It has been found, however, that the above arrangement is not altogether satisfactory but that still further improved results can be obtained, in accordance with the present invention, by extending the central nozzle from which the core emerges a short distance beyond the plane of the exit orifices of the other die members. The extension is normally only 15 a matter of a few millimeters but it serves as a protector for the soft coating of equalizing medium already on the core at the place of application of the several layers of insulating material. By this means, the soft coating is protected against distortion by any eddy currents in the insulating material which are set up, even with the stream line arrangement described in the patent referred to.

20 The invention will be readily understood with reference to the accompanying drawing in which,

Fig. 1 is a sectional elevation of an arrangement according to the invention,

40 Fig. 2 is a sectional view of the die block shown in the arrangement shown in Fig. 1 through line 2—2 thereon.

45 In Fig. 1 of the drawing is shown an electrical conductor 1 passing through an extruding head for the purpose of being covered with three layers of insulating material. The extruding head comprises a nozzle 2 screwed into the pipe 3 in which, as described in the patent referred to, pressure equalizing material is applied under pressure. Surrounding the nozzle 2 are dies 4 and 5 having exit

orifices of successively increasing diameter and the final sizing die 6. The dies 4 and 5 consist of nozzle-like members screwed onto a permanent supporting member 7 carried on the aforementioned end of the tube 3 and the three orifices 8, 9, 10, formed between the nozzle 2 and the sizing die 6, lie in the same plane while the nozzle 2 itself extends in advance of this plane for a distance of a few millimeters depending on the diameters of the insulating layer to be applied to the core. In extruding thermoplastic insulation of diameters from 15 to 20 mm. at a speed of 300 meters per hour, it was found by experimentation that the optimum length of the extension of the tip of the nozzle 2 is between 2½ and 3 mm. The length of the extension of the tip required to produce the best results under other conditions may be determined by experimentation in accordance with the scope of this invention. It is believed that in general the extension of the tip required for insulating cable conductors of all ordinary and usual sizes will not differ very much from the one specified above.

75 The construction of the permanent supporting member 7 is clearly illustrated in Fig. 2. It consists as shown of a casting formed or secured on the end of the tube 3 and comprising cross members 11 serving to maintain ring members 12 and 13 on which the die members 4 and 5 are screwed in correct spaced relation.

80 The various passages leading to the three exit orifices 8, 9 and 10 are stream-lined as described in the above mentioned patent, the cross members 11 of the extrusion head also being formed with stream-lined shapes.

85 The extrusion head is mounted in a chamber 14 into which insulating material to be extruded on to the cable is forced under pressure, and if it is required to form the insulating coating with a number of layers of different materials each passage is connected with a separate compartment containing different material from that supplied to the other passages.

90 With the above described arrangement of parts the die members 4 and 5 of the nozzle 2 are readily replaceable either for the pur-

pose of varying the thickness of the layer of the insulating material applied to the cable, or for any other purpose.

It will readily be understood that the use of the extending nozzle 2 is not restricted to an embodiment in an extrusion head in which the die members are screwed on to a permanent member as described above, but the head may be formed in any desired workmanlike manner, such as entirely by casting, which is within the scope of the appended claims.

What is claimed is:

1. An extrusion die of the type which is adapted to apply simultaneously a plurality of layers of plastic material to a central core substance, the die comprising in combination, a central orifice through which the core substance passes, and a plurality of surrounding concentric orifices, the central orifice extending outward a short distance beyond the plane of the surrounding orifices.

2. An extrusion die of the type which is adapted to apply simultaneously a plurality of layers of plastic material to a central core substance, the die comprising in combination, a central orifice through which the core substance passes, and a plurality of surrounding concentric orifices, the central orifice extending outward a short distance beyond the plane of the surrounding orifices by a length which is not less than two and one half millimeters and which is not more than three millimeters.

In witness whereof, I hereunto subscribe my name this 30th day of June, 1931.

BRUNO M. A. TREBES.

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