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METHOD OF INTERMITTENTLY CASTING VARIABLY COLORED THERMOPLASTICS

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This invention relates to the molding or die casting of thermoplastics, such for example, in the casting of the links or scoops of separable fastener stringers; and the object of the invention is to provide a method which consists in intermittently and periodically casting upon a single workpiece or supporting member, such for example, as the tape or stringer of a separable fastener, a series of differently colored or contrastingly colored cellulose acetate elements in any desired grouping or arrangement to produce a predetermined design on the resulting article or a pair of articles coupled together; a further object being to provide a method of intermittently and periodically casting two or more different types and kinds of die casting materials which consists in providing independent units for the supply of the respective materials for delivering, heating and injecting the same into a single mold or die by moving the respective units into position to register with the admission orifice or gate of the die; and with these and other objects in view, the invention consists in a method of casting thermoplastic materials which is more fully hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of our improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a diagrammatic sectional view illustrating one use of our improved method.

Fig. 2 is a diagrammatic sectional view substantially on the line 2—2 of Fig. 1.

Fig. 3 is a diagrammatic sectional view substantially on the line 3—3 of Fig. 2.

Fig. 4 is a view similar to Fig. 3 showing parts in a different position.

Fig. 5 is a view similar to Fig. 1 showing only a part of the construction and with parts in a different position.

Fig. 6 is a detail view of two fastener stringers made according to our invention and shown in coupled relationship.

Fig. 7 is a view similar to Fig. 6 showing the stringers coupled together in a different manner; and,

Fig. 8 is a view similar to Fig. 6 and showing one of a number of other forms of construction which may be employed.

To illustrate one method of carrying the invention into effect, the accompanying drawings diagrammatically illustrate methods of die cast-

ing the links or scoops of separable fasteners onto the mounting tapes or stringers employed. In Figs. 6, 7 and 8 of the drawings, certain forms and arrangements of links are shown to produce different designs or effects upon the complete finished fastener. For example, in Fig. 6 of the drawings, we have shown at 10, 10a the tapes of two similarly formed stringers of a separable fastener. To one edge of each tape is attached a series or group of links 11 of one color, such as white, and at 11a, black links. Four of the links of each color are arranged in each group so as to produce an effect similar to that shown in Fig. 7. Other staggered or irregular arrangements may be made of the two similar stringers by simply shifting one stringer longitudinally of the other, and this can be controlled in the manufacture of the stringer tapes.

In Fig. 8 of the drawings, one of the many other types and forms of stringer tapes is shown. In this construction, white and black links 11, 11a are alternately cast on the edge of the stringer tapes 10, 10a to produce the result illustrated. In this connection, it will be understood that any desired form and arrangement or grouping of links of contrasting colors or other characteristics may be made, and an odd arrangement such as one white and two black or six white and four black, etc. can be provided. The various patterns or designs are controlled by the machine operation through suitable cams, jacquards or other means. While the invention herein described is shown as applicable to the manufacture of separable fastener stringers, this is only illustrative of one of many uses to which the invention may be applied. To give one other specific example, it will be apparent that a plurality of die cast beads, knobs or other elements of different colors may be arranged longitudinally of a string or strand in forming what is known as pull chains.

In Fig. 1 of the drawings, we have diagrammatically illustrated a section through one unit of the mechanism for carrying the method into effect and forming the links of a separable fastener stringer. In this figure, 12 represents a hopper casing having independent hopper compartments 13, 13a with slides 14, 14a movable across the discharge opening 15, 15a of said compartments. The slides have apertures 16, 16a for measuring predetermined quantities of a suitable thermoplastic material 17, 17a for delivery into independent cylinders 18, 18a of a cylinder block 19 as will be seen upon a consideration of Figs. 1 and 2 of the drawings.

The casting or molding material 17, 17a may