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METHOD AND MEANS FOR THE PRODUCTION  
OF ORNAMENTAL SCREENLIKE MATERIAL  
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2 Sheets—Sheet 1

Fig. 1

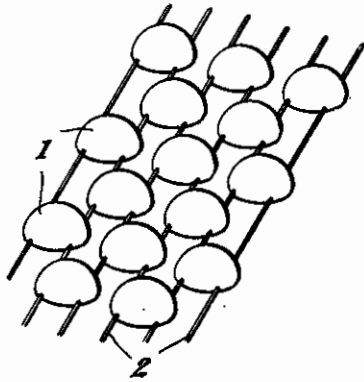


Fig. 2

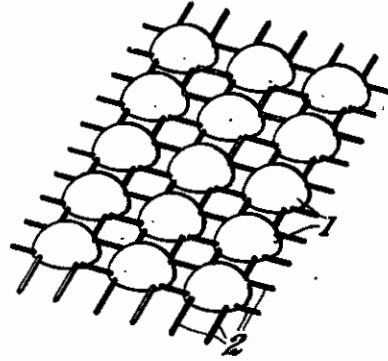


Fig. 3

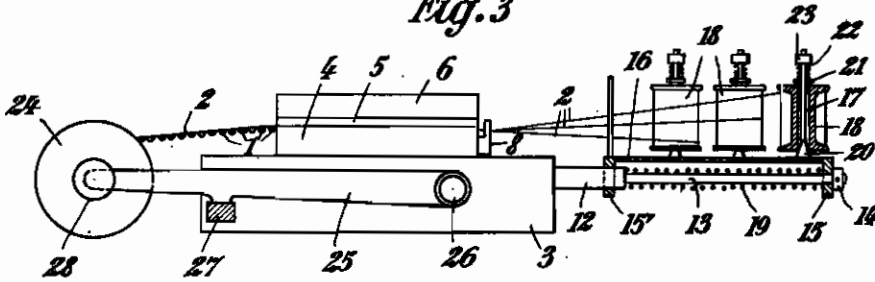
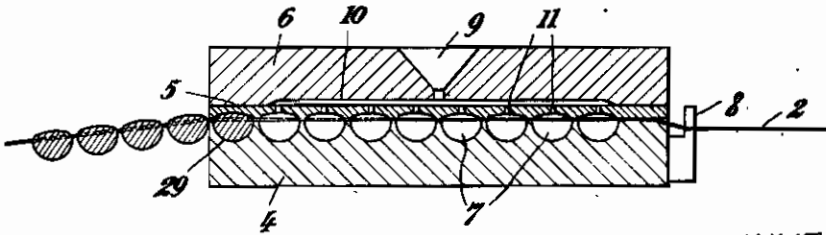


Fig. 4



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Fig. 5

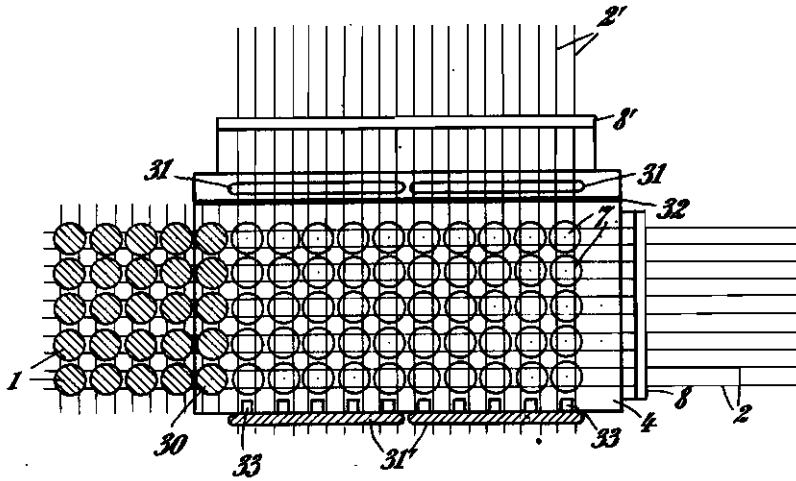
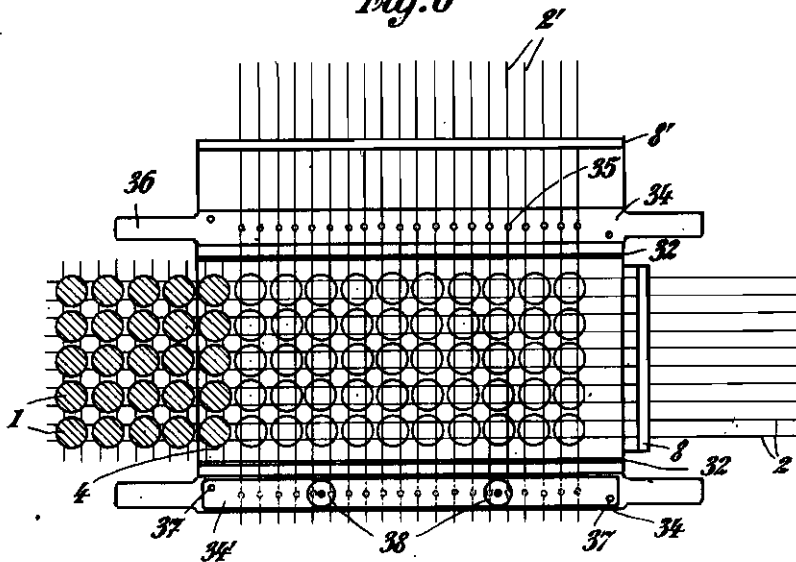


Fig. 6



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# ALIEN PROPERTY CUSTODIAN

## METHOD AND MEANS FOR THE PRODUCTION OF ORNAMENTAL SCREENLIKE MATERIAL

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Application filed July 22, 1939

The invention relates to a method and a device for the production of tapes, chains or the like comprising plastic materials held together by mounting means, such as threads, wire webbing and in some cases with decorative objects, wherein the threads or the like are embedded in the material during the plastic formation thereof.

Tapes, chains etc. of the type set forth particularly when of a more flat shaped structure, are used as trimmings for dresses or for objects of use and the like, and may also, without any special strengthening, be employed for the production of objects such as satchels or the like.

An object of the invention is to provide a method and means for the mass production of tapes, chains or the like of the type set forth in a particularly simple and cheap manner, and above all to avoid all interruptions in manufacture, which may easily occur with the formation of the above-mentioned bodies on the supporting threads, nets or webs, and which may lead to some of the articles being rejected. The invention also covers means for ensuring the position of the mounting means during production, and means for the simplification of the production of the tapes, both as regards the process and the devices for practising the said process.

According to the invention, a process is provided for the production of tapes, chains or the like comprising plastic materials held together by mounting means, such as threads, wire, webbing and in some cases with decorative objects, the threads or the like being embedded in the material during the plastic formation thereof, whereby the mounting means is under tension during the moulding of the body, the tension being preferably the same for the threads or the like which extend parallel to one another. The mounting means on which the bodies are repeatedly formed advantageously moves step-by-step, upon the formation of the bodies, through the mould in which the said bodies are formed and the threads or the like, in the direction of movement of the tape, are held under a continuous tension.

The invention also provides a device for carrying out the process according to the invention, wherein at the sides of the mould serving for the group production of the bodies and opposite to the direction of the threads are arranged, on the one side, thread supply reels mounted on, for example, slides forced away from the mould by means of springs, and, on the other side, a take-up drum or the like for the tape provided with the bodies.

In order that the invention may be readily understood and practised, some embodiments thereof will now be described with reference to the accompanying drawings, in which:

5 Figures 1 and 2 illustrate diagrammatically two forms of construction of tapes or chain-like structures consisting in approximately semicircular bodies held together by parallel or crossed threads;

10 Figure 3 illustrates a diagrammatic side view of a device for practising the process;

Figure 4 illustrates a longitudinal section through the mould for forming the body;

15 Figure 5 is a top view of the lower part of the mould for the production of a tape with transverse threads as a mounting means of the main body.

20 Figure 6 illustrates an alternative device for the production of articles having transverse threads.

Referring to Figures 1 and 2, the bodies possess in this embodiment approximately a hemispherical shape whereby the under-side has the configuration of a flat ball cap. The connections between the bodies consist in threads 2 which pass through the plane determined by the plane of the ball caps. In the tapes according to Figure 1, parallel threads are provided throughout, the threads pairwise carrying a series of bodies staggered relatively to one another. According to figure 2, longitudinal and transverse threads are provided, pairwise carrying a longitudinal or transverse series of bodies, whereby four threads extend through each body.

25 The moulding of the bodies and the simultaneous embedding of the threads in the plastic material may be effected by casting, spraying or in a press. The necessary mould is fixed on a bench 3 and consists in a lower part 4, an upper part 5 and a cover 6, in which the plastic mass is inserted and appropriately distributed. The lower part 4 of the mould (figure 4) contains the negative impression 7 for the upper raised ball heads, whilst the upper part contains the negative impression for the lower ball caps of the lower side of the body. In the lower part 4 are also grooves for the threads 2 which pass through a thread guide consisting in a bracket 8 firmly secured to the lower part 4. The cover 6 has correspondingly numerous openings 9 for pouring in the plastic mass which is distributed, over the bodies forming a row, by way of passages 10, which are connected by openings 11 with the individual hollow moulds, through which the threads pass freely.

The threads, in parallel with each other, passing through the moulds, are held under the same tension, for which purpose the device illustrated in Figure 3 is employed. On the bench 3 are secured two columns 12, (one of which is invisible in Figure 3), each column comprising a stay bolt 13 having at one end an adjustable collar 14 which collar or abutment is held in position by means of a cotter pin. Jaws 15, 15' are slidably arranged on the columns 12 and bolts 13 and are interconnected by means of a plate 16 which carries bolts 17, on which are placed the thread reels 18. Spiral springs 19 are arranged on the bolts 13, which press at one end against the front ends of the columns 12 and at the other end against the outer jaws 15 and force the reels 18 away from the mould. The bolts 17 have conical bases 20 on which are seated the reels 18, and have at the top slidable cones 21, to brake the rotation of the reels, which extend into the bores of the reels and thus centre same. Above the cones 21 small helical springs 22 are arranged on the bolts 17 which may be kept in tension by the adjusting nuts 23, by means of which the cones are forced into the reel bores and the reels on to the conical bases 20. The pressure may be adjusted in such a manner that the threads can only be drawn off by overcoming the resistance of the reels to rotation, the threads being under tension in the end position of the slide illustrated. The take-up support for the threads under tension may be arranged for the finished tape itself with the bodies already anchored on the threads, and may consist of a winding drum. Such a drum 24 is arranged at the end of an arm 25, which is pivoted at 26 on the bench 3 and rests, due to its own weight, on a stop 27 on the bench. The drum carries a disc 28 for hand operation for pivoting the arm 25 and for turning the drum. Instead of the drum any other suitable apparatus for carrying the finished tapes may be employed.

The threads under tension lie uniformly in the hollow chambers of the mould so that the bodies may be formed on the threads at exactly equal distances apart. The bodies consist in warm plastic masses obtained by casting or spraying, and preferably of heatable plastic masses formed by presses or a compressed casting process. The bodies may also be produced from a sprayed metal. After removal of the mould parts 5 and 6 and the pouring members, the finished part of the tape is removed from the lower part of the mould 4 by displacing the arm 25 in a clockwise direction, and the tape is then wound on the drum by rotating it, whereby corresponding lengths of the threads are drawn from the coils 18. The moulding process may then be repeated.

In order to ensure that the next following group of bodies are spaced apart at correct distances, in the lower part 4 and upper part 5 of the mold, at the outlet side of the tape, a transverse row of hollow moulds 29 is arranged which are, however, not connected to the material distribution passage 10. In these hollow moulds the last transverse row of the finished bodies next to those to be formed is laid (Figure 4). The above-mentioned last series of bodies also anchors the threads to be provided with bodies against the pull of the reel slide.

For the production of tapes, according to Figure 2, with transverse threads, tension devices are also provided for the said transverse threads.

In the step-by-step production of a long tape the transverse threads are cut off after each moulding prior to the advance of the tape, the ends of the threads separated from the finished tape being inserted in the mould for the next series of bodies. Such an action can be effected by means of a suitable clamping device. Since, however, the process deals with plastic masses, the process may also be practised as illustrated in Figures 5 and 6.

The mould, the lower part of which is illustrated in Figure 5, has the hollow shapes for the bodies to be moulded and a transverse row, not used for casting, in which may be inserted the last transverse row 30 of the previously finished tape. The threads 2 pass through their thread guide 8 in longitudinal direction, and the threads 2' pass through their thread guide 8' in the transverse direction. Tension is maintained on the longitudinal threads in the manner described above, the tension on the transverse threads, which are also subjected to a tension from the reels, may be provided by means of a clamping device which during the step-by-step production may work in the following manner. The mould possesses, in addition to the hollow moulds for the bodies, two longitudinally extended hollow spaces 31 on the running side of the transverse threads through which pass the said transverse threads. At the same time the bodies are moulded or immediately following this operation, bridge pieces are formed in the hollow spaces which connect the cross threads with one another in their correct relative positions. On removal of the upper part of the mould and cover, the cross threads are cut off by inserting a knife in the slot 32 of the lower part 4, the opposite side being also cut off, whereupon the further movement of the finished part of the tape and the longitudinal threads can occur in the above-described manner. The bridge pieces seated in the hollow spaces 31 of the lower part 4 are then removed, for example, by grasping the cross threads hanging thereto, within the thread guide 8' by means of a comb-like tool and laying them on the opposite side and attaching them behind the stops 33 of the lower part, in which position they are indicated by reference numeral 31'. After the following moulding process the cross threads are preferably cut off between the stops and bridge piece. The cross threads, during moulding, remain under constant tension. The bridging material may be used again.

An alteration to the above-mentioned process may be provided for the gathering of the ends of the transverse threads in a particular manner for the further movement of the threads, in which the transverse threads 2' pass over the lower part 34 (figure 6) into the hollow spaces 35 where small knots are formed, which in this case serve only to anchor the threads in the mould. After moulding these knots, the parts of the transverse threads cut off at 32 are moved with the auxiliary mould into the new position on the opposite side by laying the auxiliary mould on the lower part 4 of the main mould, the lower part 34 of the auxiliary mould having handles 36. In the new position shown in the lower part of figure 6, the upper part 34' having passages for the distribution of the plastic material with pins 37 and injection openings 38 are visible. The knots may be replaced by small bridge pieces which need not be connected together, as the spacing of the transverse threads is ensured by the auxiliary mould. For the separation of the transverse

threads at the holding device a groove 32' is provided. For such a process two auxiliary moulds are required.

The device for tensioning the threads may also be arranged in a different manner. Instead of braking the reels, the threads themselves may be braked, for example, between the reels and the thread guide, appropriate brake rollers or similar devices may be provided through which the

threads are arranged to pass. The reels may also be arranged differently, for example, one above the other.

The decorative tapes produced according to the invention may be treated by painting the formed bodies, or by spraying colour or lacquer thereon, as well as by drawing through coloured threads between the other threads or web parts.

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