Oct. 10, 1950 A. BOSSI 2,525,202

MACHINE FOR THE PRODUCTION OF PACKAGING INLAYS

Filed March 15, 1948

Fig. 1

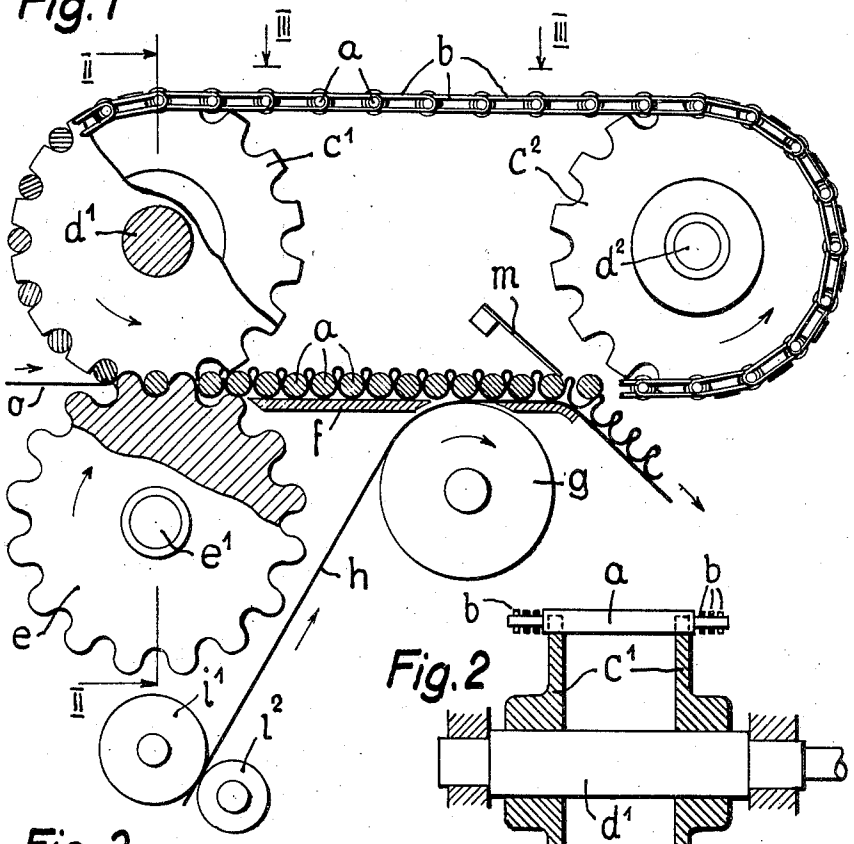


Fig. 2

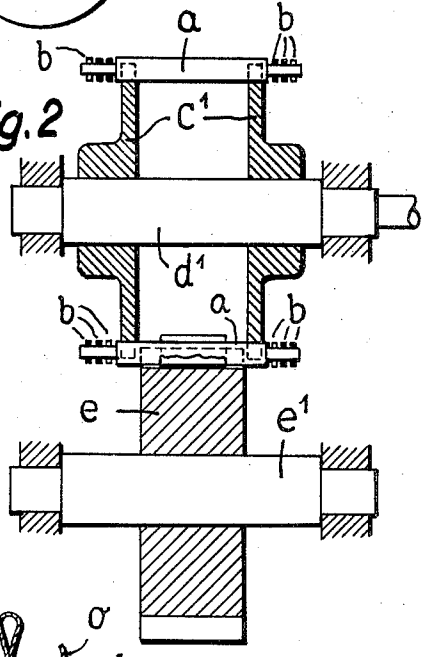


Fig. 3

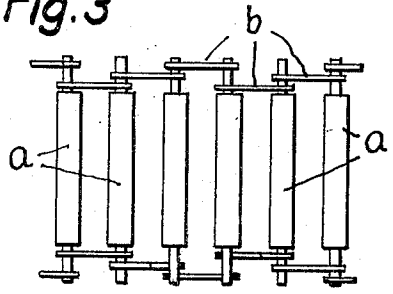
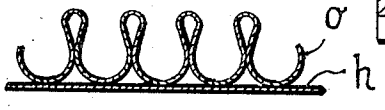


Fig. 4



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Patented Oct. 10, 1950 2,525,202

UNITED STATES PATENT OFFICE

2,525,202

MACHINE FOR THE PRODUCTION OF PACKAGING INLAYS

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Application March 15, 1948, Serial No. 14,874
In Switzerland January 8, 1948

7 Claims. (Cl. 154—31)

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The present invention relates to a machine for the production of packaging inlays having a succession of recesses formed in a band of material, for the reception of elongated objects and presenting narrowed entries to hinder the inserted objects from falling out. According to the invention the machine comprises a caterpillar-like circulating member with cross-rods serving to form the recesses in the band of material, each connected to the next at its ends by chain members constituting slotted guides, a toothed band-pressing roller which engages with its teeth between successive cross-rods, and a device leading a base strip which is to be stuck to the formed band, to the terminal part of the working zone of the cross-rods, the whole being so arranged that recesses corresponding to the cross-rods are formed in the band led through the machine, by the co-operation of the band-pressing roller with the cross-rods, the entries to the recesses being narrowed by holding back and so closing together the cross-rods which are led through the working zone with play in the direction of movement, and the band with the recesses so formed finally being stuck to the base strip which is led to it from below.

An example of an embodiment of the invention is illustrated in the accompanying drawing, but only to the extent necessary for understanding the invention.

Figure 1 shows partly in elevation and partly in section that part of the machine which is directly involved by the invention;

Fig. 2 is a cross-section on the line II—II of Figure 1;

Figure 3 is a detail plan view on the line III—III of Figure 1, and

Figure 4 is a longitudinal section of a packaging inlay produced on the machine of Figure 1.

The machine illustrated in Figures 1, 2 and 3 has a caterpillar-like circulating member with cross-rods a, the successive rods being connected together at their reduced ends by chain members b forming slotted guides. The cross-rods a so connected run over two pairs of chain wheels c^1 and c^2, of which one pair is on a shaft d^1 and the other on a shaft d^2. Of the two shafts, d^1 is driven. Below the pair of chain wheels c^1, on a loose shaft e^1, is a band-pressing roller e which engages with its teeth between the successive cross-rods a of the circulating member. Directly below this member, between the wheel pairs c^1, c^2 is provided a guide table f which presents a transverse opening into which a guide roller g enters. Over this roller g runs a strip h

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which is conveyed to it by two feed rollers i^1, i^2 of which the roller i^1 at the same time serves to coat the strip with an adhesive, the strip then running through the opening in the table and then being drawn away over the terminal part of the table as may be seen in Figure 1. m is a blade spring constituting a braking member, which is secured by one end to some stationary part and with its other end engages with the cross-rods passing by it below, in such a way that the rods are held back over the whole length of the guide table f. In this way the recesses formed by the cross-rods a which traverse the working zone between the wheel pairs c^1 and c^2, and the band pressing roller e, in a band o of material carried through the machine, are squeezed together and their entries are automatically narrowed. The band o with the recesses formed in it comes over the guide roller g into contact with the base strip h and is stuck thereto, the recesses in the band o so being secured in their squeezed together formation. Pieces of desired length of the combined band and strip stuck together in this way are cut off, which can be used as packaging inlays having recesses with narrowed entries, suitable for the reception of elongated objects as for example glass ampules or the like.

The holding back of the cross-rods a necessary for the formation of recesses with narrowed entries, can also be brought about by arranging the caterpillar-like circulating member not horizontally as in Figure 1, but vertically, in which case the holding back is ensured by the weight of the cross-rods a and a braking member becomes unnecessary.

It is to be noted that the inlay is made continuously from two sheets of suitable material. The sheet o being initially formed with substantially equal or uniform corrugations by the interaction of the members e, c' and the rods or mandrels a. The mandrels a determine the configuration and size of the recesses of the inlay. The corrugations which lie intermediate of two adjoining mandrels, while the sheet is still under the influence of the members e and c', are converted, as they leave the influence of said members, into ribs or beads as shown both in Figs. 1 and 4 by the interaction of the braking member m and the arrangement whereby each mandrel a may advance to squeeze the walls of such corrugations together (see Fig. 4) and thereby form the ribs or beads. The ribs or beads are not formed by the use of an internal mandrel, but the material thereof is permitted to freely flow or mold itself to such configuration, as it tends

to assume, by reason of the squeezing or extruding action of the mandrels *a* and the braking member *m*. Contact of the under side of the mandrel supported recesses, with the adhesive on the sheet *h*, is made after the beads have been formed, but while they are still retained under the influence or supported by the mandrels *a* in order that the contours of the recesses remain fixed. The mandrels leave the recesses, after the adhesive is set sufficiently to fix the contour of the recesses, as is illustrated in Fig. 1 by the divergence of the inlay from the path of travel from that of the mandrels, the inlay readily flexing to permit the mandrels, successively, to pass out of the recesses.

What I claim is:

1. In a machine for the production of packaging inlays, the combination of a caterpillar-like circulating member including cross-rods each connected at its ends to the next by chain members permitting longitudinal play to the rods, a toothed band-pressing roller engaging with its teeth between successive cross-rods, means for feeding a band of material between said roller and said circulating member whereby recesses are formed in said band by the co-operation of said rods and roller, said rods remaining within said recesses during their traverse of a working zone, means for holding back said rods during their traverse of the working zone so closing them together and producing narrowed entries to the recesses, and means for leading a base strip to the terminal end of said working zone and there sticking said band to said strip after the recesses with their closed entries have been formed in the band.

2. A machine as set forth in claim 1 wherein said working zone is horizontal and the means for holding said rods back is a braking member engaging them.

3. A machine as set forth in claim 1 wherein said working zone is vertical, the weight of said rods constituting the means for holding them back.

4. A machine as set forth in claim 1 wherein said working zone is horizontal, the machine also including a guide table over which said rods and the band run during their traverse of the working zone, said table being slotted near its terminal end, and a guide roller entering the slot from below, the base strip being led over said roller, through the slot and over the terminal part of said table.

5. In a machine for the production of packaging inlays the combination of a plurality of cross rods, slotted chain members connecting the ends of successive rods to constitute a closed loop member in which the rods have longitudinal play, freely rotatable means over which one of said loop member runs, a pair of driven chain wheels axially spaced over which the other end of said loop runs, a table guiding the slack run of said loop member, a toothed roller engaging between said rods in the region where they leave said chain wheels so that a band led between said rods and roller and over said table will have recesses formed in it by the co-operation of said rods and roller, means holding back the rods during their passage over the table, said table so closing them together and narrowing the entries of the recesses in the band, and means for leading an adhesive-coated base strip between the terminal part of said table and the band so that the band is stuck to the strip.

6. A machine as set forth in claim 5 wherein said table has a slot near its terminal end, the machine also including a guide roller for the strip located behind said table and entering the slot therein.

7. A machine as set forth in claim 6 also including a pair of feed rollers between which the strip passes and is thereby fed to said guide roller, one of said feed rollers also constituting an adhesive-coating roller.

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