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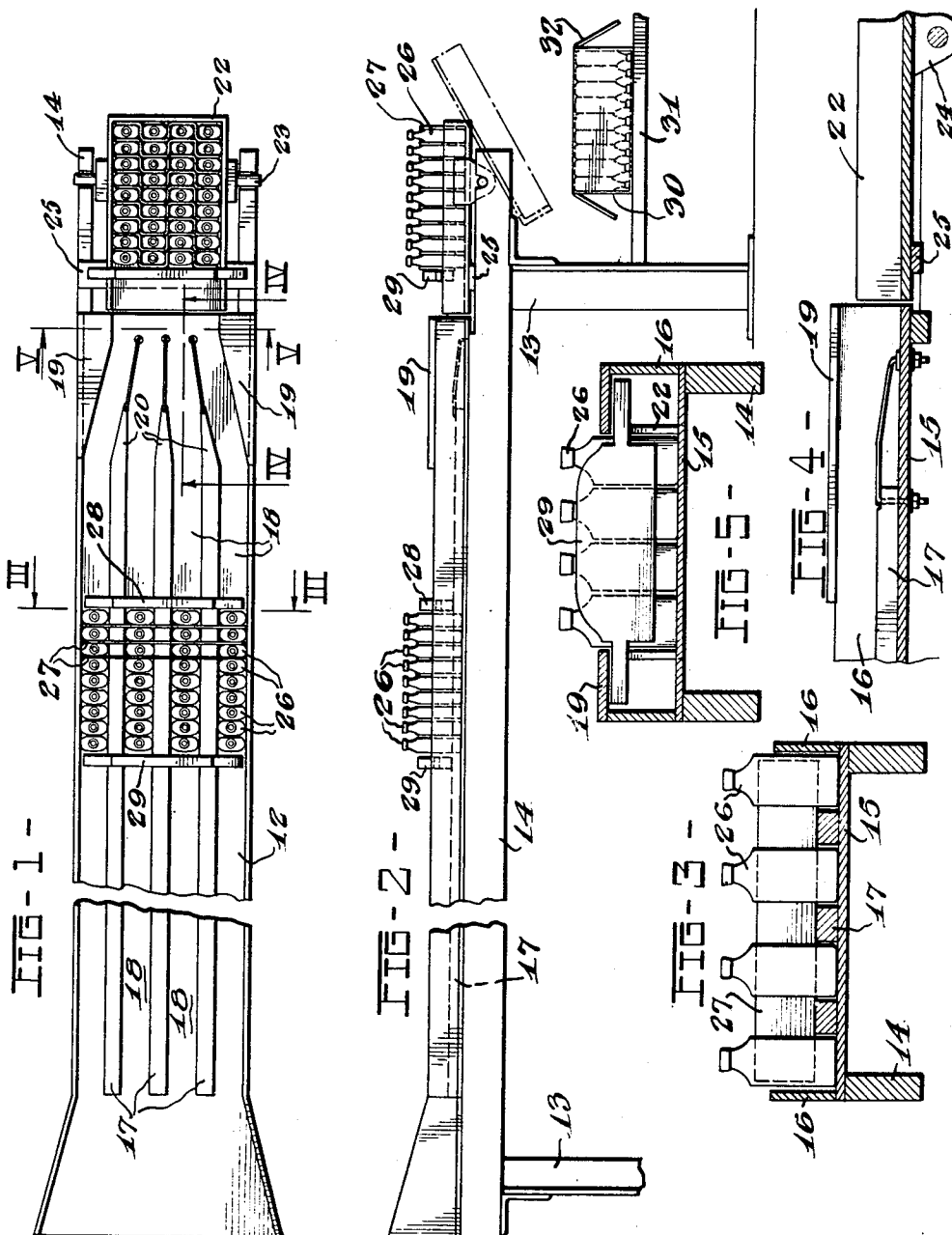
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METHOD AND APPARATUS FOR PACKING BOTTLES AND OTHER ARTICLES

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3 Sheets-Sheet 1



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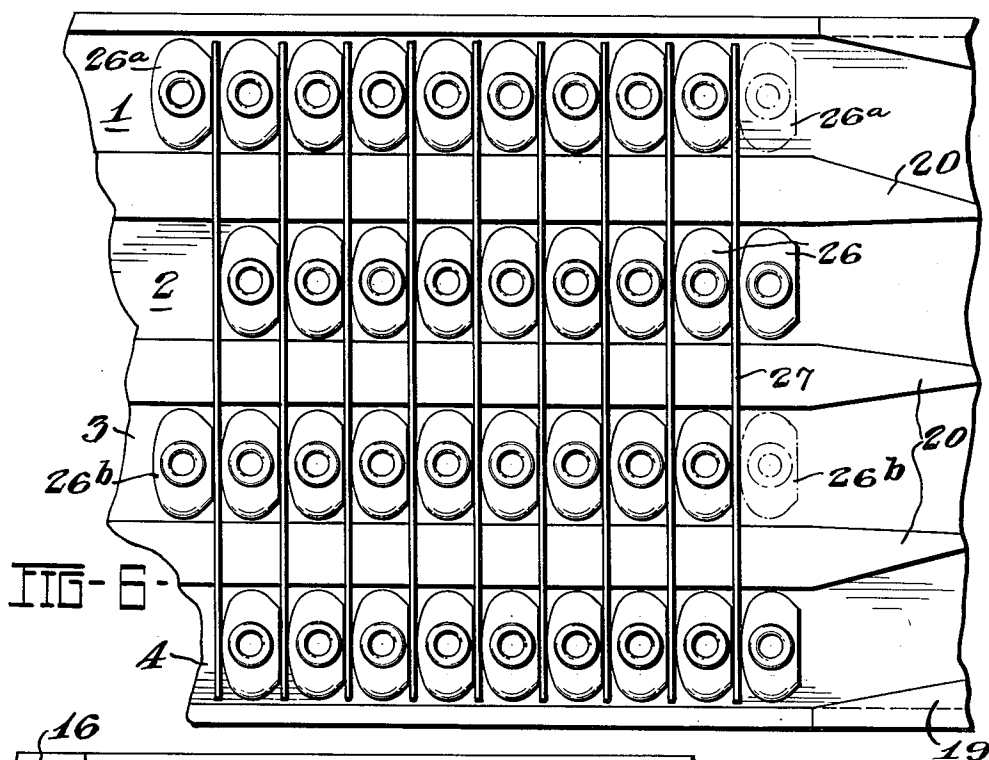
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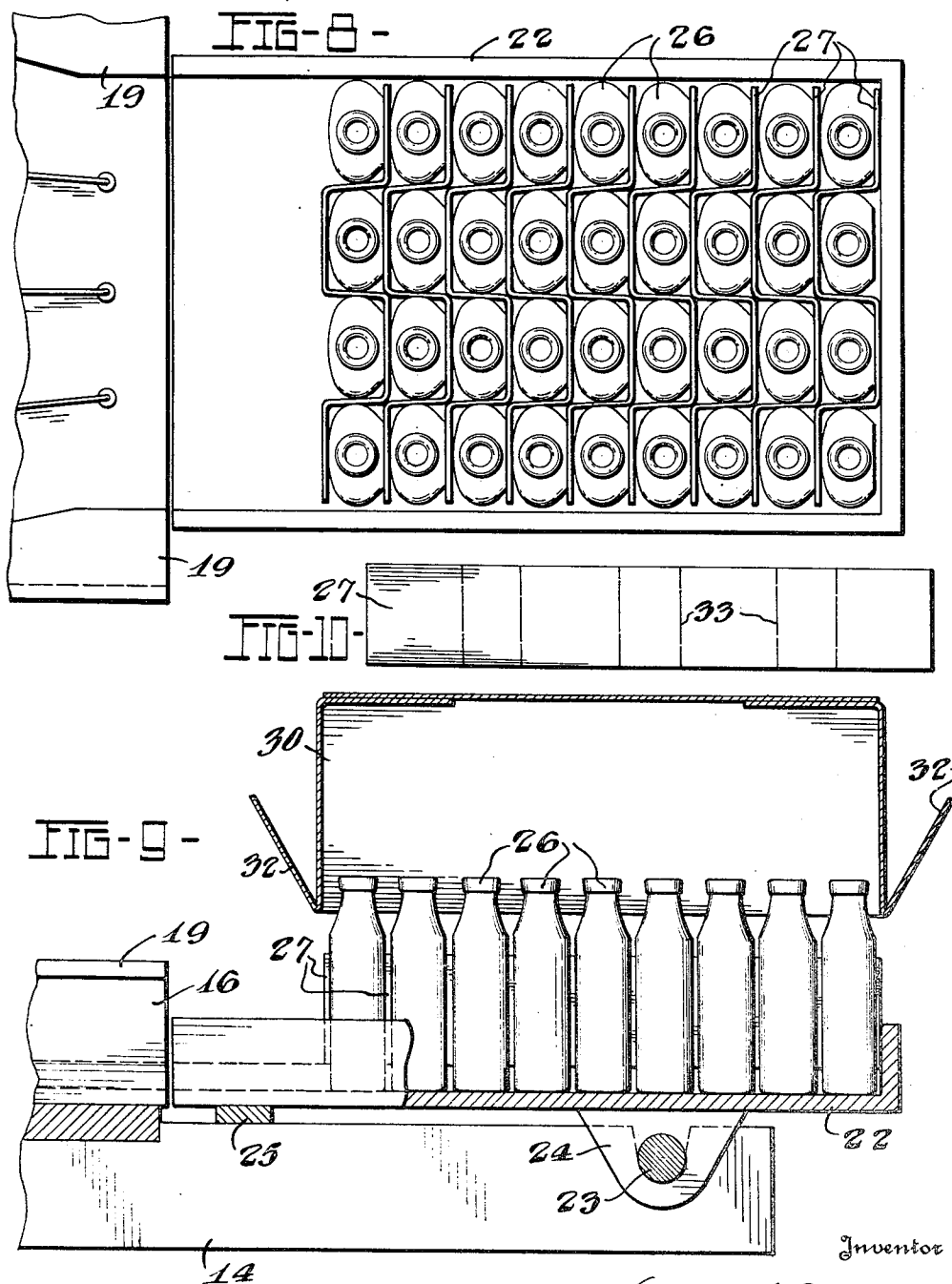
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METHOD AND APPARATUS FOR PACKING BOTTLES AND OTHER ARTICLES

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3 Sheets-Sheet 3



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METHOD AND APPARATUS FOR PACKING
BOTTLES AND OTHER ARTICLESKemp K. Deeren, Gas City, Ind., assignor to
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Application November 23, 1933, Serial No. 699,340

4 Claims. (Cl. 226—14)

My invention relates to a method and apparatus for use in packing bottles, jars and various other articles into boxes, cartons, or other containers. The invention is herein shown and described as used for packing bottles as they come from the annealing lehr, into cartons. The invention, however, is not limited to such use, as it may be adapted for use in packing numerous other articles.

At the present time it is customary to pack various articles, as for example, bottles, in cartons or containers which are provided with spacing strips of corrugated paper or other material arranged in the form of cells to receive the individual articles and hold them in spaced relation preventing scratching, marring, and breakage. These partitions or fillers are ordinarily made by slotting strips of the material at the required intervals along their length and assembling the slotted strips in interlocked relation to form the individual cells. This assemblage is then placed within the carton or container, after which the bottles or other articles are placed within such cells.

An object of my invention is to provide a simplified and improved method and means for packing bottles and other articles, which comprises assembling the spacing strips with the articles which are to be packed, prior to the placing of the articles in the carton or container, and which, moreover, dispenses with the usual operations of slitting the strips and assembling them in cell formation prior to the introduction of the articles thereinto.

A further object of the invention is to provide a novel method and means of packing the articles, by which the amount of time and labor required is materially reduced as compared with methods already in general use.

The invention further provides a method and means by which the articles may be closely packed without any waste space, thus reducing liability of breakage and also reducing the amount of packing material required as well as permitting the use of a container of comparatively small size.

Other objects of the invention will appear hereinafter.

In the accompanying drawings:

Fig. 1 is a plan view of an apparatus for use in packing bottles or the like.

Fig. 2 is an elevation of the same.

Fig. 3 is a section at the line III—III on Fig. 1.

Fig. 4 is a fragmentary sectional elevation at the line IV—IV on Fig. 1.

Fig. 5 is a section at the line V—V on Fig. 1.

Fig. 6 is a fragmentary plan view on a larger scale, showing a portion of the slideway and a group of bottles therein.

Fig. 7 is a similar view showing another portion of the slideway.

Fig. 8 is a plan view showing the pivoted tray at the end of the chute.

Fig. 9 is a sectional elevation of the same, also showing how the carton is applied to a group of bottles on the tray.

Fig. 10 shows a spacing strip.

Referring to the drawings, a horizontal slideway 12 is mounted on a framework comprising legs 13 and horizontal supporting bars 14 extending lengthwise beneath the slideway. The latter comprises a bottom 15 and retaining side pieces 16. The slideway may be made of metal, wood, or other suitable material. Spacing strips 17 are mounted on the floor of the slideway and extend lengthwise thereof, thereby providing parallel spaced channels 18.

Near the forward end of the slideway, tapered guiding strips 19 are mounted on the side pieces 16. The inner edges of said strips are forwardly convergent and provide guiding surfaces which are a continuation of the parallel inner surfaces of the frame members 16. The forward ends 20 of the spacing bars 17 are also tapered so that the channels 18 as a group are convergent at their forward ends for a purpose hereinafter set forth.

A tray 22 is tiltably mounted at the forward end of the slideway. The mounting comprises a pivot rod 23 extending through lugs 24 (Fig. 9) on the bottom of the tray, said rod being journaled in the forward ends of the frame pieces 14. A cross piece 25 forms a support for the inner end of the tray, supporting it in alignment with the slideway.

The apparatus is herein shown as used for packing bottles 26 and illustrates a method of packing bottles in a carton or container. The bottles may be taken directly from the annealing lehr and placed on the slideway as indicated in Fig. 1, which shows a quarter gross of bottles in a group comprising four rows of bottles in the four channels 18, with nine bottles in a row. The rows of bottles are designated 1, 2, 3, and 4, respectively. Spacing strips 27 which may consist of corrugated paper or other suitable material are placed in position as shown in Fig. 6, in which each strip extends transversely across the slideway, thereby separating the bottles in each row one from another. After the spacing strips have been positioned, a pair of pusher bars 28 and 29 are employed to hold the bottles compactly in a group

and push them forward along the slideway and into the tray 22. Before the group of bottles reaches the point where the channels 18 converge, near the forward end of the slideway, the foremost bottle of each alternate row is taken up and placed at the rear end of the row. In Fig. 6, these bottles 26^a and 26^b are shown in broken lines in their forward position and in full lines after they have been transferred to their positions at the rear ends of their rows. In this manner, the rows of bottles are brought into staggered relation. The group of bottles are now advanced by means of the pusher bars and carried through the convergent portion of the slideway (Fig. 7) and into the tray 22. During this movement the rows 1 and 3 are advanced relative to the rows 2 and 4 so that the bottles are again brought into alignment transversely of the slideway and at the same time are drawn laterally towards each other as they move along the tapered portion of the slideway. During such movement, the spacing strips 27 are gradually bent in zigzag fashion so that each strip extends along opposite sides of the adjoining bottles in a transverse row, with intermediate portions of the strip interposed between adjoining bottles in the row.

The group of bottles as they leave the slideway are carried forward into the tray 22, the group as a whole being in rectangular formation with the bottles arranged in longitudinal and transverse rows and with the spacing strips arranged as shown to provide individual cells each containing a bottle. The group of bottles is transferred to a carton 30 (Fig. 9) by placing the inverted carton over the group of bottles and then tilting the tray about its pivot 23 to inverted position as shown in dotted lines (Fig. 2), thereby discharging the carton with the bottles therein onto a platform 31. The top flaps 32 of the carton can then be folded in and sealed in the usual manner, thus completing the package.

The spacing strips 27 may be scored, if desired to facilitate the bending thereof into their zigzag position. Thus as shown in Fig. 10, the strip 27 is provided with scores or weakened lines 33 at which the strip bends as it assumes the zigzag shape. The pusher bars 28 and 29 may be operated either manually or may be automatically controlled and operated by mechanical means.

Modifications may be resorted to within the spirit and scope of my invention.

What I claim is:

1. The method of packing articles which comprises arranging a group of the articles in longitudinal and transverse rows, placing packing strips transversely of said group with each strip interposed between two adjoining transverse rows, and advancing alternate longitudinal rows relative to the adjoining longitudinal rows, and thereby bending the said strips into position to provide spacing means between both the horizontal and transverse rows.

2. The method of packing articles which comprises arranging a group of the articles in longitudinal and transverse rows, placing packing strips transversely of said group with each strip interposed between two adjoining transverse rows, advancing alternate longitudinal rows relative to the adjoining longitudinal rows and thereby bending the said strips into position to provide spacing means between both the horizontal and transverse rows, and introducing said group of articles and spacing strips as a whole into a container.

3. The method which comprises arranging a group of articles into longitudinal and transverse rows with each alternate longitudinal row in advance of the adjoining longitudinal rows so that said longitudinal rows in their entirety are in staggered relation, placing spacing strips transversely of the group with each strip separating adjoining transverse rows, and effecting a relative longitudinal movement of the alternate longitudinal rows and thereby bending the spacing strips into zigzag formation in which they form cells surrounding and containing the articles.

4. The method which comprises arranging a group of articles into rectangular formation comprising longitudinal and transverse rows, placing spacing strips transversely of the group with each strip separating adjoining transverse rows, transposing an end article from each alternate longitudinal row to the opposite end of its row, so that the longitudinal rows in their entirety are in staggered relation, and effecting a relative longitudinal movement of the alternate longitudinal rows to bring them all to the same position of advancement, and simultaneously with said relative movement of the longitudinal rows, bending the spacing strips into zigzag formation, thereby forming them into cells containing the articles.

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