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STRIP FOLDING MECHANISM FOR A PACKING MACHINE

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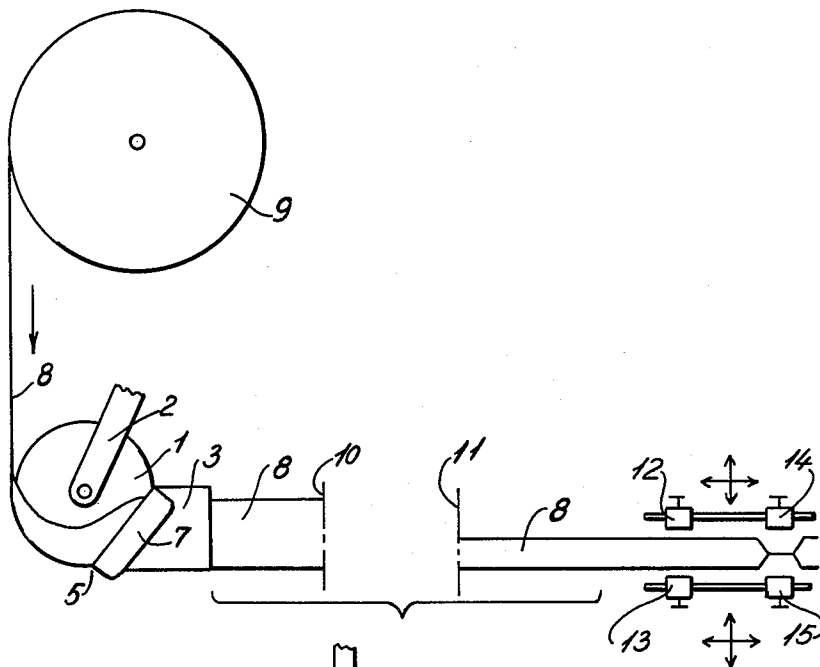


Fig. 1

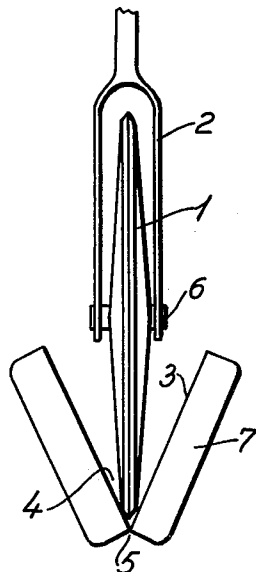


Fig. 2

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3,147,009 STRIP FOLDING MECHANISM FOR A PACKING MACHINE

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1 Claim. (Cl. 270—86)

This invention relates to a folding mechanism for a packing machine, and more particularly a folding mechanism of the type comprising a rotatably mounted wheel adapted to fold a strip of packing material along a longitudinal line.

It is an object of the invention to obtain a reliable guiding of the strip of packing material immediately adjacent the wheel so that the line along which folding takes place will have no tendency of being displaced transversely of the strip of material.

With this object in view, according to the invention, a guiding member of substantially V-shaped cross section is provided, said guiding member being so located relative to said wheel that the latter penetrates at least partly into said guiding member with its periphery located adjacent the bottom of the V.

It has been found that as a result of the direct co-operation of the wheel and the guiding member located closely adjacent thereto, the line along which folding is performed will have no tendency of being displaced in the lateral direction of the strip of material during the folding operation.

As will be understood from the above explanation, the strip of material is to be folded from plane shape to the shape of an acute V, and in order to permit this change of shape to take place along a relatively long path, without having to make the wheel excessively big, the end of the guiding member facing the wheel may, according to the invention, be inclined in such a manner as to form an angle of less than 90° with the bottom of the guiding member, said end being located substantially radially with respect to the axis of said wheel.

Moreover, according to the invention, in order to obtain a gentle folding of the edges of the strip of material, the edges of the guiding member at the end thereof facing said wheel may be bent outwards away from said wheel.

The invention will now be described in further detail with reference to the accompanying drawing, in which

FIG. 1 diagrammatically illustrates one form of a folding mechanism according to the invention, in side view, and

FIG. 2 on a larger scale the folding mechanism of FIG. 1 as viewed from the left with the strip of packing material removed.

In the drawing, 1 is a wheel which is rotatably mounted in a fork 2 which may preferably be adjustably mounted in a packing machine. The wheel penetrates partly into a guiding or folding member 3 of V-shaped cross section, this guiding or folding member being so arranged relative to the wheel that the periphery of the latter is located closely adjacent the bottom of the V-shaped groove 4, FIG. 2 of the folding member.

The end of the folding member 3 facing the wheel 1 is inclined, forming an angle of about 45° with the bottom of the folding member. The tip 5 thereby formed and constituting the end of the bottom of the folding member is located substantially radially with respect to the axis of rotation 6 of the wheel, viz. on a radius extending perpendicularly to the longitudinal direction of the guiding member. The marginal end portions of the guiding member 3 facing the wheel are bent outwards to form guiding or folding lips 7.

In FIG. 1, the folding mechanism is illustrated as being

mounted in a machine for the packing of ice lollies. A strip of material 8 is supplied from a feeding roller 9 and, after having been folded by the folding mechanism according to the invention, proceeds to parts of the packing machine located between the lines 10 and 11 where ice lollies are individually placed in spaced positions in the groove of the folded strip of material whereupon the latter is closed around the ice lollies to form a tube enclosing same. The section of the packing machine between the lines 10 and 11 does not form part of the invention. It may comprise means for transforming the folded strip of packing material from V-shape to U-shape preparatory to the deposition of ice lollies therein, and it may also comprise a mechanism for tilting ice lollies supplied to the groove of the strip of packing material from vertical position to horizontal position in a controlled manner, as described in an application filed concurrently herewith, as well as additional means for thereafter closing the strip of packing material around the ice lollies. After the section of the packing machine between the lines 10 and 11 follows a sealing section which may be constructed as set forth in my copending application Ser. No. 216,258, filed on August 10, 1962. In FIG. 1 of the present application, the sealing section is diagrammatically illustrated by a set of pressing and sealing members 12, 13, 14, 15 which are reciprocable both towards and away from the tube formed by the strip of packing material in this section of the machine, and longitudinally of the said tube. When the pressing and sealing members 12, 13, 14, 15 are first moved towards one another to clamp the packing tube therebetween, and are then moved to the right in FIG. 1, they will pull the strip of packing material through the whole of the machine, while at the same time performing a sealing operation as described in my said copending application Ser. No. 216,258.

When the strip of packing material is pulled through the packing machine as described, it first passes through the folding mechanism according to the present invention which is constituted by the parts to the left of the line 10. The part of the strip of material entering the folding mechanism is caught by the wheel 1, and the part of the strip of material leaving the folding mechanism is guided in the folding member 3 so that the said two parts of the strip of material form an angle of about 90° with one another. Thereby the strip of material will be gradually folded along about 90° of the periphery of the wheel and during its passage it will cause the wheel 1 to rotate so that the latter will be in rolling contact with the strip of material. The folding or sweeping lips 7 of the folding member 3 cause the edges of the strip of material to be folded gently towards one another, and as a consequence of the inclined end of the folding member 3 and the location of the tip 5 relative to the wheel there is ample space available for the marginal portions of the strip of material so that these may be gently folded inwards without sudden changes of direction. At the position where the folding is at its maximum rate and which is therefore the most delicate position, there will be no scraping effect at all so that the resistance to the passage of the strip of material is as small as possible, and the danger of tearing of the strip of material is therefore reduced to a minimum. Nevertheless, a relatively abrupt folding can be obtained because the periphery of the wheel is rather sharp, as illustrated in FIG. 2, though not sharp enough to act as a cutting edge.

It will be understood that the folding mechanism according to the invention may be used for the folding of any strip of material irrespective of the intended use of the latter and irrespective of the type of machine in which the strip of material may be subjected to further operations after having been folded by means of the

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folding mechanism according to the invention. Thus, the packing machine diagrammatically illustrated in the drawings and described in outline above is to be regarded as one example only of the use of a folding mechanism according to the invention and its combination with other parts of a packing machine.

I claim:

A folding mechanism for a packing machine comprising a rotatably mounted sharp edged folding wheel, a fixed guiding member of substantially V-shaped cross section, said guiding member being so located relative to said wheel that the latter penetrates at least partly into said guiding member with its periphery located adjacent the bottom of the V at one end of said guiding member with the bottom of the V-shaped trough lying in a tangent to the wheel, the edges of said guiding member at said one end being bent outwards away from said wheel for forming folding lips for said packing machine, said folding

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lips including an angle of less than 90° with the bottom of the guiding member, and means for longitudinally supplying a strip of material tangentially to a point of the periphery of said folding wheel remote from said fixed guiding member at a sharp bending angle relative to the longitudinal direction of said guiding member with the angle between the tangent the strip forms with the wheel upon reaching it and the tangent it forms with the wheel when leaving it by contacting the bottom of the folding trough producing the abrupt folding.

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