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(12) # EUROPEAN PATENT SPECIFICATION

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(54) **A device for twisting a packing wrapping.**

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Description

The invention relates to a device for twisting the extremities of a packing wrapping consisting of a means for supplying and discharging objects about which the packing wrapper has to be twisted by pairs of twisting claws, said pairs of twisting claws being hingedly mounted about levers to oppositely rotating heads, means being provided to move both claws toward and away from each other, one of the pairs of claws being adapted to receive a stick attached to the object.

A similar device is known from GB—A—328145. The hinged joints of one of the pairs of twisting claws have to be at a relatively large distance of the spheroidal portion of the object. This requires long levers, which results in high centrifugal forces. Consequently, it is nearly impossible to obtain a device whose number of revolutions is sufficient for keeping up with the high production rate of modern machines for the production of lollipops.

The invention tries to improve this. According to the invention this has been achieved in that

— a mounting plate is offset from the axis of rotation,

— the levers are pivotably mounted on that plate and their plane of movement is also offset from the axis of rotation, and

— the claws are mounted in an offset manner on the ends of the levers with the recesses moving in a plane incorporating the axis of rotation.

The device can be designed such that the pair of claws in question in each wrapping cycle makes three and a half revolutions with the object and half a revolution without the object. Within the scope of the invention it is also possible, however, to start from three revolutions per cycle. The head of the one pair of claws then consists of a flange portion for guiding a steering rod for the toothed rack, and a bridge portion confronting the mounting plate in balance with regard to the bridge portion. For further balancing the device it is further proposed that the levers of the pair of twisting claws are provided with a counter mass beyond the hinged joint of the head.

The invention will be illustrated hereinunder with the aid of the drawing, in which by way of example an embodiment of a device according to the invention is shown. In the drawing

Fig. 1 shows a top view and

Fig. 2 shows a side view, partially in cross-section, according to the line II—II of Fig. 1.

The device shown in the drawing consists of two heads 1 and 2 which rotate in opposite directions for twisting the extremities of a packing wrapping 3 shown by dotted lines in Figure 1, so that an object 5 provided with a stick 4, such as a lollipop, can efficiently be provided with a packing having an attractive appearance.

The left-hand head 1 in the drawing is provided with hinged levers 6 which at their free ends have the appearance of a claw 7. The hinging of these levers is effected in a known fashion in that a toothed rack 8 is movable in the head in axial direction of the head. The teeth of this toothed rack 8 engage teeth applied to the circular rear end of the levers 6 positioned about the pins 9. Because of safety it is necessary that the claws are closed by a spring pressure and are opened with force.

The right-hand head 2 in the drawing is provided with hinged levers 10 which at their free ends have the appearance of a claw 11. The hinging of these levers is effected by a stepped toothed rack 12 which engages teeth applied to the rear ends of the levers 10 positioned about the screwed connections 13.

The special feature of the right-hand head 2 with regard to the left-hand head 1 now is that though the lever pairs 7 and 6, resp. are equally short, the central axis of the stick nevertheless can be taken into and from the central axis of rotation. This has been achieved by designing the head 2 in such a way that the lever pair 10 will be sufficiently spaced from the axis of rotation of this head 2, and by providing the claws 11 with for instance a semicircular recess 14.

The head 2 consists of a cylindrical flange portion 15 with a guide bush 16 for guiding a steering rod 17 for the toothed rack 12. The flange portion 15 is integral with a bridge portion 18 which in its turn is integral with a mounting plate 19 which supports the levers 10 by means of the screwed connections 13. For balancing all this the mounting plate 19 is positioned preferably diametrally opposite the bridge portion 18. As the mounting plate must be relatively long and wide, the bridge portion is therefore of a proportionally thick construction. The mounting plate 19 may also be fitted out with edges (not shown) dropping over a short distance for guiding the toothed rack 12.

In order to limit also the centrifugal forces on the metal claws 11 to a minimum, the levers 10 may continue to beyond the screwed connections 12 in order to constitute balancing masses 20. The claws 7 of the left-hand head 1 are made of plastic because they need not be heated and are therefore not subject to high centrifugal forces. For the claws 11 are made of metal indeed, because they can be heated in a way not relevant.

The above described device operates in the following way: The object 4/5 and the packing wrapping 3 arrive in the pairs of claws 6 and 7 according to the sense of arrow 21. In order to make the twisting of the packing wrapping possible, the object remains at rest for a part of the cycle of the device, for instance for three and a half revolutions of head 2. The lollipop is retained by a device which is driven by a Malthezer cross. In consequence the device moves 120° of a 360° cycle and is 240° at rest. The head 2 rotates during this stationary period 240/360° × four revolutions. By selecting other ratios of the movement of rest of the device which retains the lollipop and the number of revolutions of head 2, the outcome is different but the principle remains the same. After twisting the object moves further according to the

sense 22 of arrow 22 of Fig. 1. As also stick 4 has to move, it will be necessary that the head 2 has rotated 180° when the packed object leaves the claws again. Modern lollipop production machines have a production of about 300 piece per minute, so that the head 2 must have a number of revolutions of about 1200 revolutions per minute. That is why it is of so great importance to control the centrifugal forces.

It is remarked that the scope of the claims also includes other embodiments than shown in the drawing. In particular with respect to the claims it is not relevant how the object and the packing are introduced into and discharged from the device. For also other applications than lollipops are conceivable and as for the packing wrapping, one may also think of different principles, such as a folded piece of paper, a sandwich, so a piece of paper both under and over the object, and a sachet, so a kind of triangular bag.

Claims

1. A device for twisting the extremities of a packing wrapping (3), consisting of a means for supplying and discharging objects (5) about which the packing wrapping has to be twisted by pairs of twisting claws (7, 11), said pairs of twisting claws being hingedly mounted about levers (6, 10) to oppositely rotating heads (1, 2), means being provided to move both claws toward and away from each other, one (11) of the pairs of claws being adapted to receive a stick (4) attached to the object, characterised in that

— a mounting plate (19) is offset from the axis of rotation,

— the levers (10) are pivotably mounted on that plate (19) and their plane of movement is also offset from the axis of rotation, and

— the claws (11) are mounted in an offset manner on the ends of the levers with the recesses (14) moving in a plane incorporating the axis of rotation.

2. A device according to claim 1, characterized in that the head of the one pair of claws consists of a flange portion (15) for guiding a steering rod (17) for a rack (12), and a bridge portion (18) confronting the mounting plate and in balance with regard to the bridge portion.

3. A device according to claim 1 or 2, characterized in that the levers (10) of the twisting claw pair in question are provided with a counter mass (20) beyond the hinged joint of the head.

Revendications

1. Dispositif de tortillement des extrémités d'une bande d'emballage (3), constitué par un organe d'amenée et de décharge d'objets (5) autour desquels la bande d'emballage doit être tortillée par des paires de mâchoires à retorde (7, 11), disposées par articulation autour de leviers (6, 10) sur des capes rotatives opposées (1, 2) et pourvues de dents s'engageant dans des crémaillères montées de façon coulissable dans lesdites capes, l'une des paires de mâchoires à retordre (11) étant ménagée pour recevoir une baguette (4) fixée à l'objet, caractérisé en ce que

— une plague de fixation (19) se trouve décalée par rapport à l'axe de rotation,

— les leviers (10) sont montés par articulation sur ladite plaque (19) et leur plan de mouvement se trouve également décalé par rapport à l'axe de rotation,

— les mâchoires sont montées de façon décalée sur les extrémités de leviers, alors que les évidements se déplacent dans un plan comportant l'axe de rotation.

2. Dispositif selon la revendication 1, caractérisé en ce que la cape de l'une des paires de mâchoires est constituée par une partie du flasque (15) pour guider une barre de commande (17) pour la crémaillère (12) et par une partie du pont (18) faisant face à et étant en équilibre avec la plaque de fixation.

3. Dispositif selon la revendication 1 ou 2, caractérisé en ce que les leviers (10) de la paire de mâchoires à retordre en question sont pourvus d'une contre-masse (20) au-delà du point d'articulation de la cape.

Patentansprüche

1. Vorrichtung zum Ineinanderdrehen der Ende eines Verpackungswickels (3), mit einem Glied zum Zuführen und Wegführen von Gegenstande (5), um welche der Verpackungswickel durch Paare rotierenden Klaue (7, 11) herum gedreht werden soll, welche Paare von Klaue gelenkig um Hebel (6, 10) herum mit entgegengesetzt rotierenden Köpfen (1, 2) verbunden sind, und mit Glieder zum zueinander und voneinander Bewegen der beiden Klaue, wobei eines (11) der Paare von Klaue einen am Gegenstand befestigten Stock (4) aufnehmen kann, dadurch gekennzeichnet, dass

— ein Befestigungsplatte (19) aus der Rotationsachse versetzt angeordnet ist,

— die Hebel (10) gelenkig mit der Platte (19) verbunden sind und dass ihre Bewegungsfläche auch aus der Rotationsachse versetzt ist, und

— die Klaue (11) in versetzter Weise auf den Enden der Hebel angeordnet sind, während die Aussparungen (14) in einer Fläche die die Rotationsachse enthält, bewegen.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, dass der Kopf jedes Klaupaars aus einem Flanschteil (15) zum Führen einer Lenkstange (17) für eine Zahnstange (12), und aus einem, die Befestigungsplatte gegenüberliegenden Brücketeil (18) und im Gleichgewicht damit, besteht.

3. Vorrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass die Hebel (10) des betreffenden Paares von Klaue mit einer Kontramasse (20) jenseits der Gelenkverbindung versehen sind.

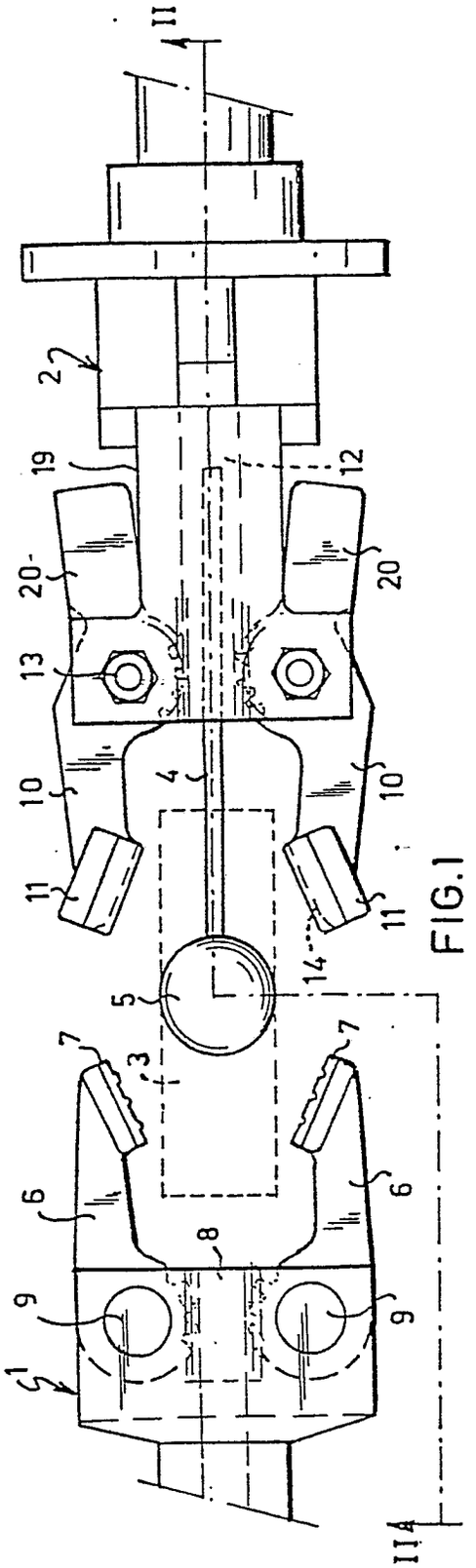
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FIG.1

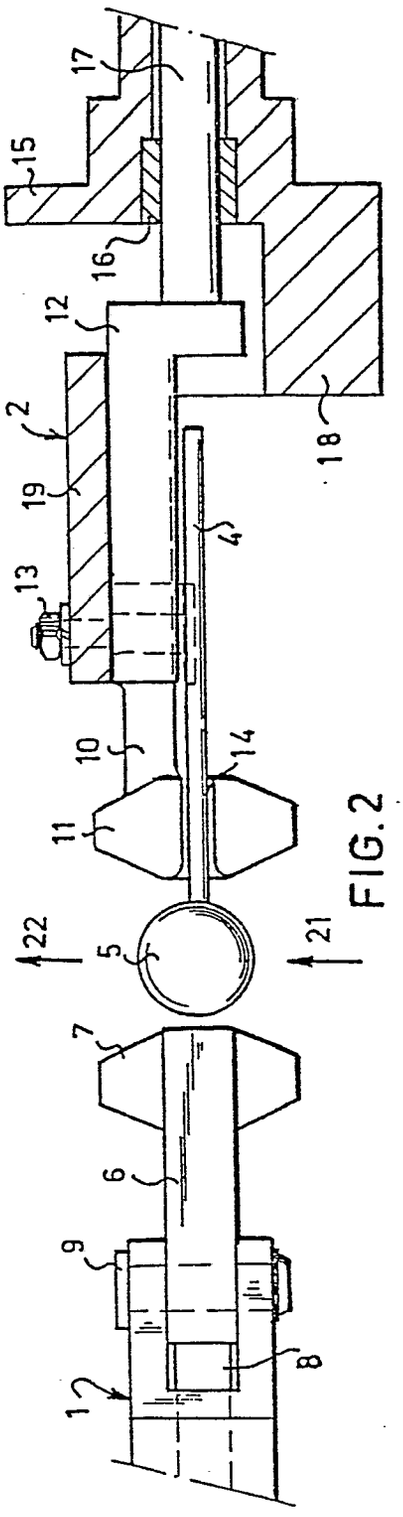
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FIG.2