

[54] **DEVICE FOR MAKING AND FILLING WRAPPERS WITH BOTTOM FOLD BY MEANS OF A CIGARETTE WRAPPING MACHINE**

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[58] **Field of Search**..... 53/183, 243, 192, 53/284, 148, 169; 198/33 AC

[57] **ABSTRACT**

A device for withdrawing wrappers from mandrels on which the wrappers are formed and presenting the wrappers to a feed path along which articles to be placed in the wrappers move. The wrappers are withdrawn from the mandrels linearly and are then bodily turned into the feed path with the open ends facing the approaching articles and are then rotated about the longitudinal axes thereof to place the wrappers in an oriented position conforming to that of the articles.

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6 Claims, 2 Drawing Figures

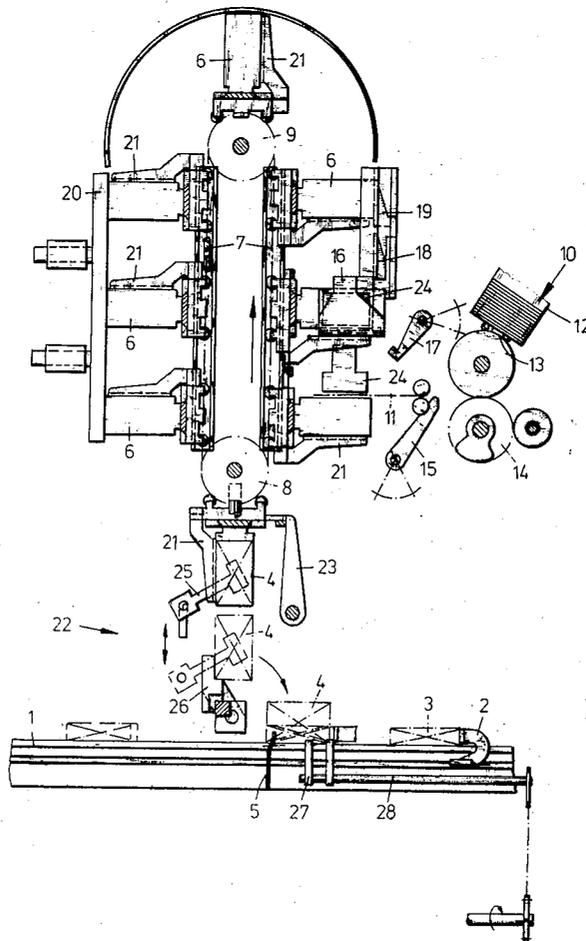


Fig.1

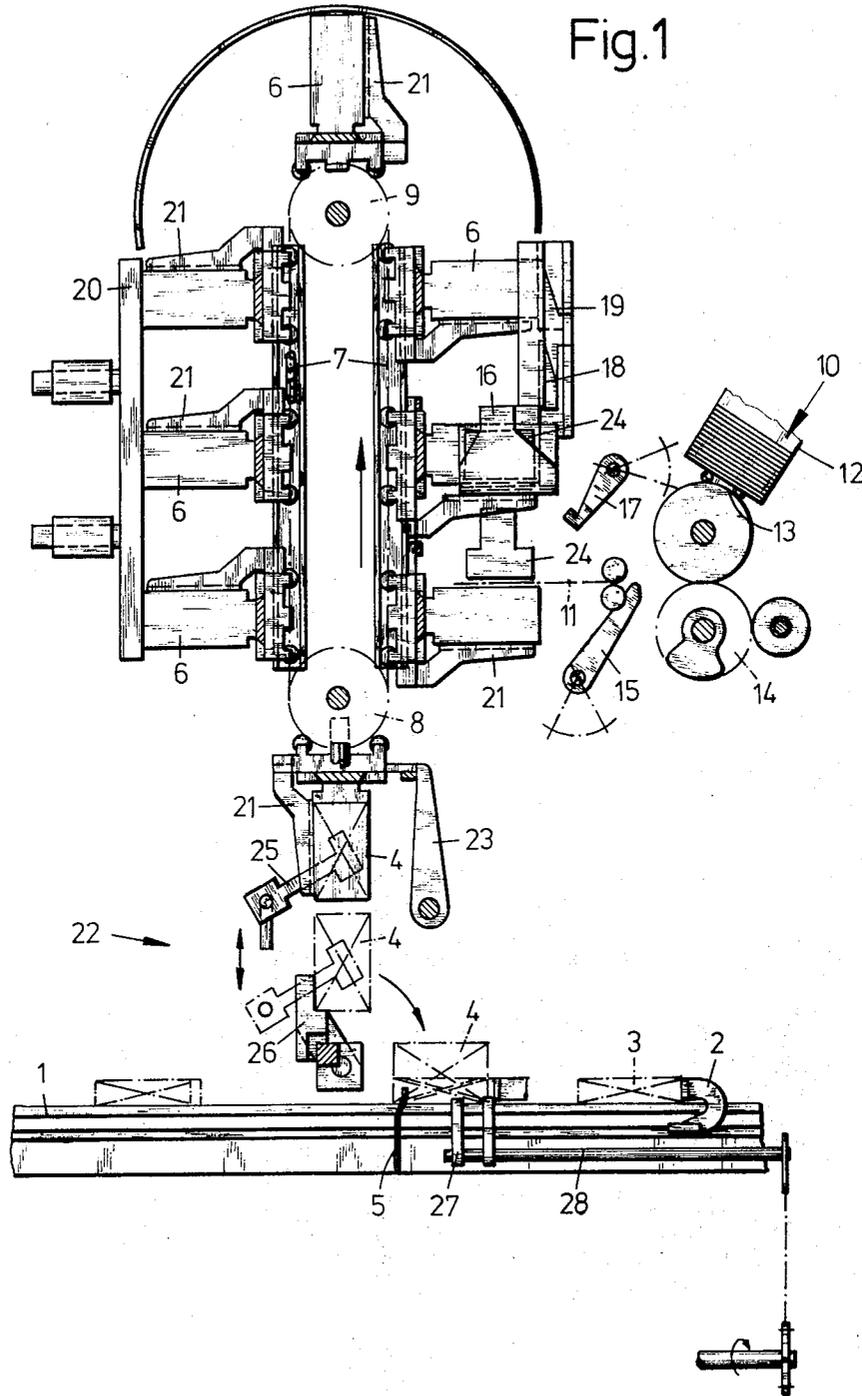
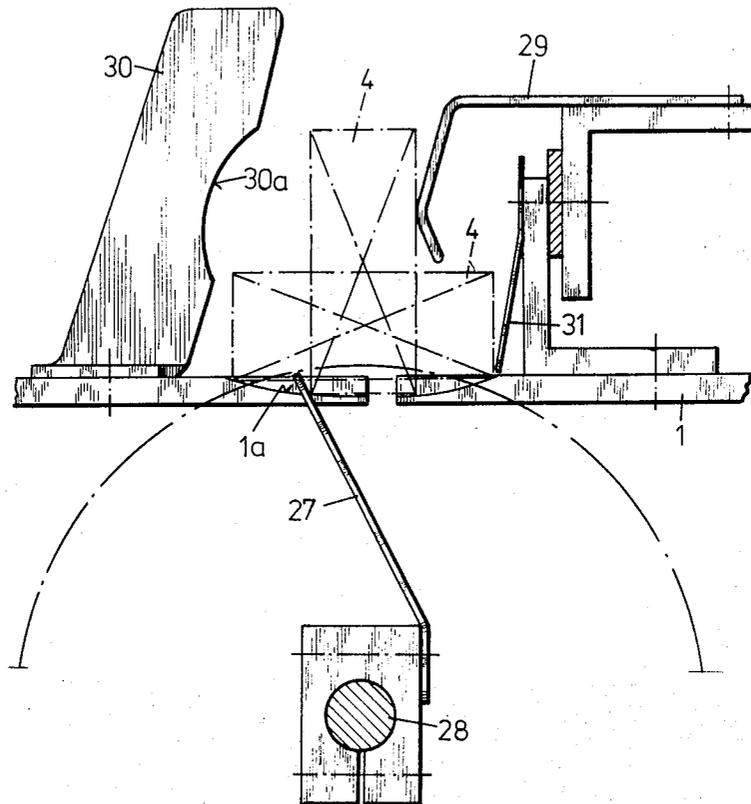


Fig. 2



DEVICE FOR MAKING AND FILLING WRAPPERS WITH BOTTOM FOLD BY MEANS OF A CIGARETTE WRAPPING MACHINE

The present invention relates to a device for making and filling wrappers with bottom fold by means of a cigarette wrapping machine comprising a circulating device which carries folding mandrels and on which the wrappers are prepared. The device comprises a conveyor for conveying cigarette blocks. The cigarette blocks are, by means of a wrapper transfer device, moved into wrappers placed upon the conveyor while the wrapper transfer device includes a gripper for withdrawing from the circulating device wrappers which are open at one end face. The device furthermore comprises a gripper for depositing said wrappers upon the conveyor.

With this heretofore known device, the withdrawal gripper is adapted to be lifted and turned in order to turn the wrappers by 90° prior to their transfer to the depositing gripper, said wrappers arriving with their wide sides perpendicular to the conveying plane. In this way the depositing gripper is able to deposit the wrappers with the wide sides upon the conveyor. Inasmuch as the withdrawal gripper has to carry out a withdrawal movement in vertical direction and a rotating movement, a specific control requiring relatively many parts is necessary.

It is, therefore, an object of the present invention to provide a transfer device of the above mentioned general type, in which the wrappers are deposited on the conveyor by simple movements and are without control devices placed into receiving position.

These and other objects and advantages of the invention will appear more clearly from the following specification, in connection with the accompanying drawings, in which:

FIG. 1 is a side view of a circulating device and also shows the wrapping transfer means and a portion of the conveyor.

FIG. 2 represents a cross section through the conveyor within the range of the wrapper transfer device, the scale of FIG. 2 being considerably greater than that of FIG. 1.

The device according to the present invention is characterized primarily in that the withdrawing gripper carries out a reciprocatory movement and in that the depositing gripper carries out a pivoting movement as a result of which the wrappers are placed with their narrow side upon the conveyor. The device according to the invention is furthermore characterized in that below the conveying path there is arranged a shifting lever which rotates continuously about an axis which is parallel to the conveying direction and by means of an end portion protruding from a slot in the conveyor brings about a tilting over of the deposited wrapper.

According to a further feature of the invention, above the rotating shifting lever the conveyor has arranged thereon a counter holder for engagement with the deposited wrapper, and at least one guiding plate for preventing lateral displacement of the deposited wrappers.

Referring now to the drawings in detail, FIG. 1 shows only that much of a cigarette wrapping machine as is necessary for understanding the present invention. More specifically, FIG. 1 shows a conveyor 1 on which cigarette blocks 3 provided with a foil wrapping are conveyed by followers 2. Each cigarette block 3 is in-

serted into a wrapper 4 of paper, which wrapping has been prepared on a circulating device located above the conveyor 1 and is deposited upon the conveyor with its open end face in the direction toward the oncoming cigarette blocks 3. During the insertion of the cigarette block 3, the wrapper 4 is held fast by a controlled abutment 5 which abutment following the introduction of the cigarette block into the respective wrapper is moved out of the path of movement of the cigarette blocks 3.

The circulating device serving for preparing the wrappers 4 is provided with a plurality of folding mandrels 6 which are connected to an endless chain 7 circulating in steps. This chain 7 is driven by a driving roller 8 and is furthermore passed around a deviating roller 9 which with the embodiment illustrated in the drawing is perpendicularly arranged above the driving roller 8. Such an arrangement furnishes two rectilinear circulating sections for the folding mandrel 6 connected to the chain 7. It is within the range of these rectilinear circulating sections that the wrappers 4 are folded.

Behind the circulating section which is located on the right-hand side of the drawing, there is arranged a feeding device 10 for the wrapper blanks 11 employed for producing the wrappers 4. The wrapper blanks 11 are by suction means 13 withdrawn from the magazine 12 and have glue applied to corresponding areas by means of a glue roller 14 which carries glue segments. By means of a control lever 15 the wrapper blank 11 having glue applied thereto is moved onto a folding mandrel 6, the broad sides of which extend parallel to its direction of movement.

During its stepwise movement of the conveyor, the folding mandrel 6 which carries the wrapper blank, moves into the region of longitudinal folding means 16 which brings about the lateral folding of the wrapper 4. In view of a controlled wrapping thumb 17 and by means of folding switches 18 and 19, the wrapper bottom is produced so that the folding mandrel 6 carries a finished folded wrapper 4 when it enters the upper arch-shaped circulating section. On the oppositely located rectilinear circulating section there is provided a movable pressing-on and heating strip 20, by means of which the wrapper bottom is pressed on and the glue connection on the bottom is solidified.

Adjacent to each folding mandrel 6 there is provided a pressure spring-urged holder 21 which is likewise connected to chain 7 and which, following the completion of the longitudinal folding, is placed upon the glue seam of the wrapper 4 and presses upon the glue seam until the wrapper 4 is withdrawn from the folding mandrel 6. For purposes of transferring the completed wrapper 4 to a wrapper transfer device 22 which is located below the driving roller 8 for chain 7, the holder 21 is lifted off the folding mandrel 6 by means of a pressure lever 23 so that the wrapper 4 can be pulled off the folding mandrel 6 in downward direction.

The lower portion of FIG. 1 shows that the withdrawal of the wrapper 4 from the folded mandrel 6 is effected by means of a withdrawing gripper 25. This gripper merely carries out a reciprocatory vertical movement and is equipped with lateral suction nozzles. In the lower position of the withdrawal gripper 25, the wrapper is taken over by a depositing gripper 26 which carries out a pure pivoting movement and deposits the wrapper 4 with its narrow side upon the conveyor 1.

This position of the wrapper 4 is indicated in FIG. 1 by dot-dash lines.

Before the next cigarette block 3 oncoming on the conveyer 1 can be inserted into wrapper 4, the wrapper 4 has to be turned over onto its wide side. To this end, there is provided a continuously rotating turnover lever 27 which is connected to a shaft 28, which latter extends in longitudinal direction below the conveyer 1. As will be evident particularly from FIG. 2, the turnover lever 27 protrudes slightly from a slot into the path of the conveyer 1 in order to engage the wrappers 4 which have been deposited upon the conveyer 1 with their narrow side. The conveyer path is within the region of the deposited wrappers 4 provided with a circular recess 1a, and on its upper side carries a counter holder 29 as well as a guiding plate 30.

The wrapper 4 which has been placed with its narrow side into the recess 1a of the conveyer 1, rests with one wide side against the counter holder 29 as shown in FIG. 2. The turnover lever 27 which rotates continuously now engages the lower portion of wrapper 4 which, as a result thereof, is taken along (in the drawing toward the right). With this turning movement of wrapper 4, the wrapper is guided by the lower end of the counter holder 29 and the guiding plate 30 which latter to this end likewise has a circular recess 30a. As soon as the turnover lever 27 has released the wrapper 4, the wrapper 4 will occupy the position shown in FIG. 2 with the wide side deposited upon the conveyer 1. In this position a supporting plate 31 sees to it that the wrapper 4 occupies its proper receiving position for the cigarette blocks 3 which have been brought to this area by means of a follower 2. In this position, the wrapper 4 is, by means of a controlled abutment 5 held until the cigarette block 3 is completely introduced into the wrapper 4. Subsequently, the cigarette block 3 provided with a paper cover is moved on for closing the wrapper 4. As will be evident from the above, the wrappers can be placed in the position in which they arrive from the circulating device, i.e., with the narrow side upon the conveyer on which they are by a control device placed into receiving position. In this way, only a few structural elements are needed and a simple course of movement is made possible with the result that the entire machine output is greatly increased.

It is, of course, to be understood that the present invention is, by no means, limited to the particular showing in the drawings, but also comprises any modifications within the scope of the appended claims.

What is claimed is:

- 1. In a packaging device having a horizontal feed

path with longitudinal edges along which articles in the shape of parallelepipeds move in a direction parallel to said longitudinal edges and with the broad sides on the top and bottom respectively means adjacent said path for supplying wrappers for receiving said articles and including parallelepiped mandrels on which wrappers corresponding in shape to said articles are formed with one end closed and the other end open, said mandrels presenting wrappers in succession to a station with the wrappers vertical and with the closed ends lowermost and with the broad sides of the wrappers parallel to said feed path, the improvement comprising first gripper means operable to grip a wrapper in said station and move the wrapper vertically downwardly off the respective mandrel, second gripper means operable to engage a wrapper thus withdrawn and turn the wrapper bodily into said feed path and release it thereon with the open end facing the approaching articles, and with the broad sides of the wrapper vertically disposed, and rotating means for rotating the thus released said wrapper about a longitudinal axis thereof to dispose the broad sides thereof on the top and bottom in conformity with the position of said article on said feed path.

2. A packaging device according to claim 1 in which said rotating means comprises a lever rotatable on an axis parallel to said feed path and disposed beneath said feed path, a free end of said lever intersecting said feed path and engaging a lower region of one side of a wrapper released on said feed path so as to rotate said wrapper about the longitudinal axis thereof.

3. A packaging device according to claim 2 which includes a stationary holder element which engages the wrapper being rotated near the top on a side opposite the side engaged by said rotating lever.

4. A packaging device according to claim 3 which includes at least one locating member engageable with a narrow side of the wrapper in rotated position of the wrapper to position the wrapper laterally in said feed path.

5. A packaging device according to claim 4 which includes a guide member opposite said locating member to guide the rotating wrappers into engagement with said locating member.

6. A packaging device according to claim 1 in which said feed path is formed by flat plate means, and including an upwardly concave longitudinal recess in said flat plate means in which said wrapper is deposited by said second gripper means, said recess being formed about an axis parallel to said feed path and facilitating rotation of said wrapper about the longitudinal axis thereof.

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