

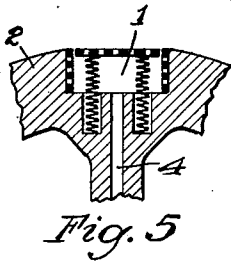
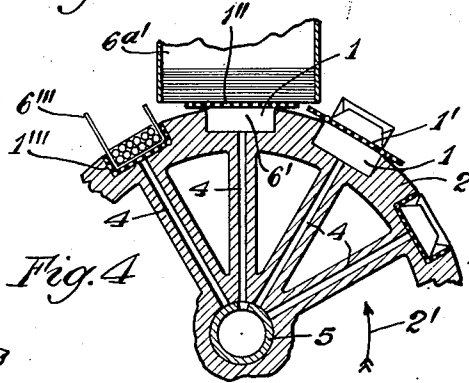
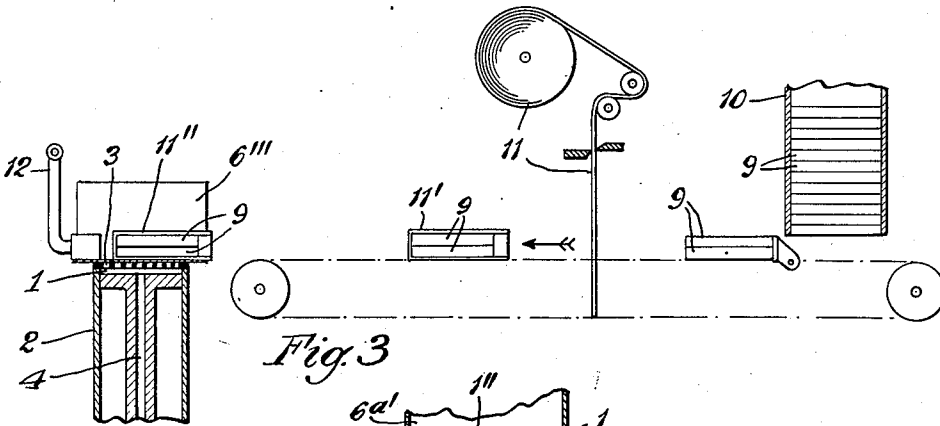
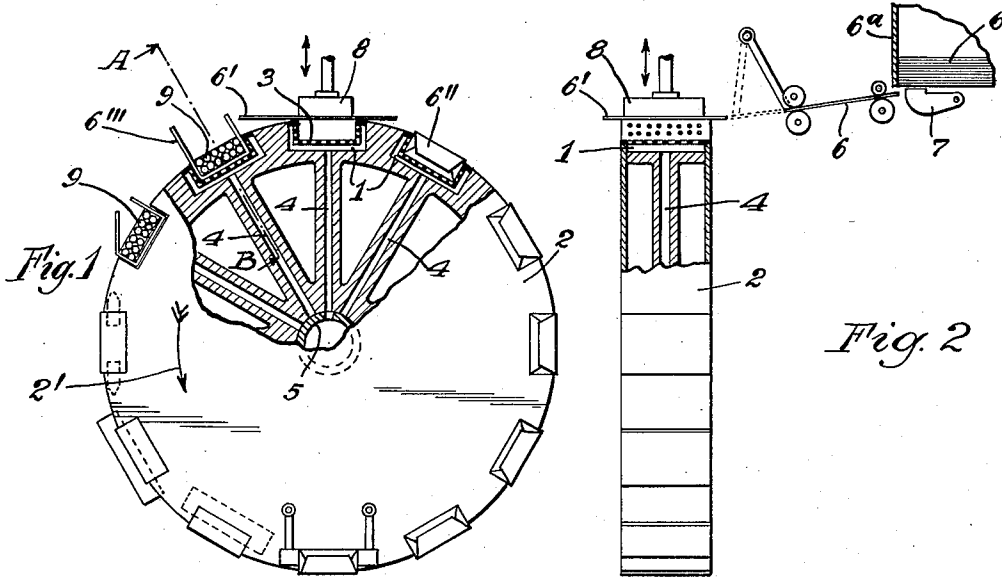
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MACHINE FOR WRAPPING CIGARETTES

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MACHINE FOR WRAPPING CIGARETTES

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1

This invention relates to a machine for wrapping cigarettes and other articles and more particularly to a method by which all forming and folding operations on the wrapping blank are done around the article itself.

Most of the customary methods for wrapping cigarette packages and the like require that the wrapping blanks are first folded and sealed into a tubular form and then bottom folded and sealed on one end, the other end remaining open to receive the package later on. These preparatory operations on the wrapper blanks forming the hull into which later on the package or article is introduced are mostly performed with tools, dies, form blocks etc. arranged in devices on conveyors or turret heads from which the so prepared hulls are then ejected. They have to be picked up and arranged again for the actual packing operation, which is by this method an additional working operation.

One feature of the present invention is that it avoids this additional working operation necessary with the method above described. The package or article to be wrapped is placed directly on a flat wrapping blank and all operations as folding, tucking, sealing etc. are performed after the article is in place within the wrapper.

Another feature is a new and efficient wrapping method and arrangement by which the package is laterally carried onto the wrapping blank held in cavities or pockets arranged at operation stations on a conveyor or turret head. All wrapping operations are done in place until the ready package is removed. Thus much handling and time is saved.

Other features and advantages will become apparent on hand of the following specification. The accompanying drawing illustrates an embodiment of the invention in connection with a turret head. It is to be understood, however, that the operations and methods according to my invention may be performed as well on a suitable conveyor without departing from its spirit and scope.

Referring to the drawing:

Fig. 1 is a side view of the turret head partly sectioned to show more detail;

Fig. 2 is a front view of the turret head partly as section on the line A—B of Fig. 1, with diagrammatical indication of a blank feed;

Fig. 3 is a detail showing diagrammatically the arrangement for carrying the article into the wrapper blank showing also a partial section on the line C—D of Fig. 1;

2

Fig. 4 is a section of a turret head with a modified construction of pockets; and

Fig. 5 is a sectional view of a further modification employing a different lining for the pockets.

The pockets 1 arranged around the outer circumference of the turret head 2 replace the customary tools, form blocks, and dies generally found on machines for the present purpose. The pockets 1 are provided with perforated suction linings 3. The space behind these linings is connected to the hub of the turret head by suction passages 4. All suction passages are connected at the hub where a control valve 5 is interposed and from where a pipe leads to a suitable vacuum source. Suction may thereby be applied to any pocket as required during the wrapping process. The number of pockets 1 corresponds to the number of operation steps necessary to complete the work cycle, for example, side folding, tucking-in, bottom folding, top folding, sealing, drying and to complete the wrapping process. Arranged laterally from the turret head, not shown in the drawing but in a well known manner, are the several tools and devices to perform the above operation steps. The turret head revolves during operation intermittently from one station to the next in the direction of rotation 2' starting with station 6' where the wrapper blank is inserted following successively all stations until station 6'' where the ready wrapped package is ejected.

The wrapping blanks are fed onto the turret head by a suction nozzle and a suitable feeding device from a supply hopper 6a, at position 6'. At the moment feeding takes place a pocket is registered at station 6' and the blank slides on top of this pocket under a plunger 8 which is not revolving but stationary mounted at this station. The plunger now descends into the pocket taking the blank with it so it lines the pocket lying close to the suction lining and attaining thereby U-shape as indicated at 6'''. Manipulation of control valve 5 will now supply suction to this pocket through suction passage and the perforation in the lining which will hold the blank in place while the plunger ascends. The turret head now turns until the pocket with its empty blank registers at station 6'''. According to this invention, the package is laterally introduced into the empty U-shaped wrapper blank at this station. As shown in Fig. 3, the cigarettes 9 dropping out of a supply hopper 10 are carried forward on a conveyor to receive an inner enclosure of tinfoil or other suitable material. This operation may be performed in any conventional manner and a supply bobbin with tinfoil web or

the like 11 is shown diagrammatically in the drawing from which the enclosure blanks are cut. The drawing illustrates my method by which the enclosure web, descending somewhat through the conveyor, is being cut at the moment the cigarettes, carried forward, push against it. In this manner the enclosure 11' extends in one piece, U-shaped around one end, on both sides for the whole length of the cigarettes. This kind of enclosure is to be preferred as it prevents unnoticed taking out of cigarettes at the bottom of the package without disturbing the tax stamp at the top. The cigarettes so enclosed are now carried forward into the U-shaped wrapping blank 6''' where a suitable stop 12 (Fig. 3) locates the package properly. So introduced, the package is now advanced in the turret head to the subsequent stations where in steps, as already mentioned, the wrapping is completed and the ready sealed and dried package ejected at station 6''.

As indicated in the modification shown in Fig. 4, the plunger 8 (Figs. 1 and 2) may be omitted when the suction lining of the pockets 1 is in any way movably arranged in such a manner that it may emerge out of the pocket into a flat position beneath a supply hopper 6a' as indicated at 1'' (Fig. 4). To arrange the lining movable, I have fastened the sides of it by hinges to the bottom with springs introduced urging the sides outward. If such a lining emerges from the pocket, the sides flap outward and it lies flat across the top of the pocket as shown at 1' and 1''. Care has to be taken that joints and abutments are tight so that the vacuum beneath the lining is not considerably reduced by this movement. The suction lining with its perforations so brought into close contact with the wrapping blank at the bottom in hopper 6a' will suck a blank with it when it retreats into the pocket, giving it a U-shape as desired. The movable linings are operated by a suitable mechanism in synchronism with the revolving turret head. They emerge at station 6'' to eject a ready package and retreat at station 6' after suction has been applied to this pocket. At all other stations they remain retreated. Besides using hinged sides it is also possible to have the sides fixed and the bottom sliding between them, as shown in Fig. 5, without changing the final result. Pockets equipped with these modified linings permit higher speed of operation as the time required for ascension of the plunger 8 is saved.

Besides wrapping cigarettes and other articles in the manner above described, it is also possible to use the same facilities for forming cardboard boxes with slide covers. For this purpose cardboard blanks with incisions for the edges are introduced into the pockets of the turret head and the box formed. At a proper station the blank for the slide cover is pushed on and folded around the box so the box with cover is completed at one turn of the turret head.

Having thus described a preferred embodiment of my invention, I do not wish to be limited thereto, but desire the appended claim to be construed as broadly as possible in view of the prior art.

What I claim is:

1. In a machine for wrapping cigarettes in which an outer wrapper is positioned on a carrier at a first stage, cigarettes wrapped in tin foil are positioned on the wrapper on the carrier at a second stage, the wrapper is wrapped around the cigarettes at subsequent stages and

the wrapped cigarettes are discharged at a final stage, the carrier then repeating the cycle; a rotatable cylindrical carrier having a plurality of U-shaped pockets in its periphery, means establishing communication between each of said pockets and a source of vacuum at said first stage, and a flexible perforate lining for each of said pockets, each lining at said final stage being allowed to assume a normal flat position outside its associated pocket for reception of a wrapper at said first stage, said lining and said wrapper being drawn into said pocket to conform to the U-shape thereof upon application of vacuum at said first stage, whereby said lining and said wrapper are shaped to receive cigarettes at said second stage.

2. In a machine for wrapping cigarettes in which a wrapper is positioned in a pocket at a first stage, cigarettes are positioned in the pocket at a second stage, the wrapper is wrapped around the cigarettes at succeeding stages and the wrapped cigarettes are discharged from the pocket at a final stage, a rotatable cylinder having a plurality of spaced pockets in its periphery, means for establishing communication between a vacuum source and each of said pockets, a valve controlling communication between said source and said means so that each pocket is subjected to vacuum at said first stage, and a flexible perforate lining for each of said pockets, each lining at said final stage being allowed to assume a normal flat position outside the pocket so as to receive a wrapper at said first stage, said lining and said wrapper being drawn into the associated pocket to conform to the U-shape thereof upon application of vacuum at said first stage, whereby said lining and said wrapper are shaped to receive cigarettes therein at said second stage.

3. A machine for wrapping cigarettes comprising a rotatable cylinder, said cylinder having a plurality of U-shaped pockets formed in its periphery at spaced intervals, said cylinder having a tubular hub, means establishing communication between said hub and each of said pockets, said hub being in communication with a vacuum source, a valve positioned in said hub and controlling communication between said hub and said means, and a flexible perforate lining for each of said pockets, each lining normally lying outside its associated pocket and being flat for reception of a cigarette wrapper, said lining and said wrapper being drawn into said pocket to conform to the U-shape thereof due to the vacuum pressure condition in said pocket when said lining receives said wrapper.

4. In a machine as claimed in claim 1, each of said linings comprising a bottom portion and two side portions, said side portions being hingedly connected to said bottom portion, means for urging said side portions outwardly, and means for urging said bottom portion out of its associated pocket, whereby said lining normally assumes a flat position on the periphery of said carrier.

5. In a machine as claimed in claim 1, each of said linings comprising a movable bottom portion and two fixed side portions, and means for urging said bottom portion out of its associated pocket, whereby said lining normally assumes a flat position on the periphery of said carrier.

6. In a machine as claimed in claim 1, a hopper located at said first stage adjacent the periphery of said carrier, and a plurality of wrappers positioned in said hopper, said wrappers being with-

drawn one at a time from said hopper, received by one of said linings and drawn into one of said pockets, upon application of vacuum to said pocket at said first stage.

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