April 29, 1941. G. W. VON HOFE 2,240,106

LABELING MACHINE

Filed Dec. 28, 1939

Fig. 1.

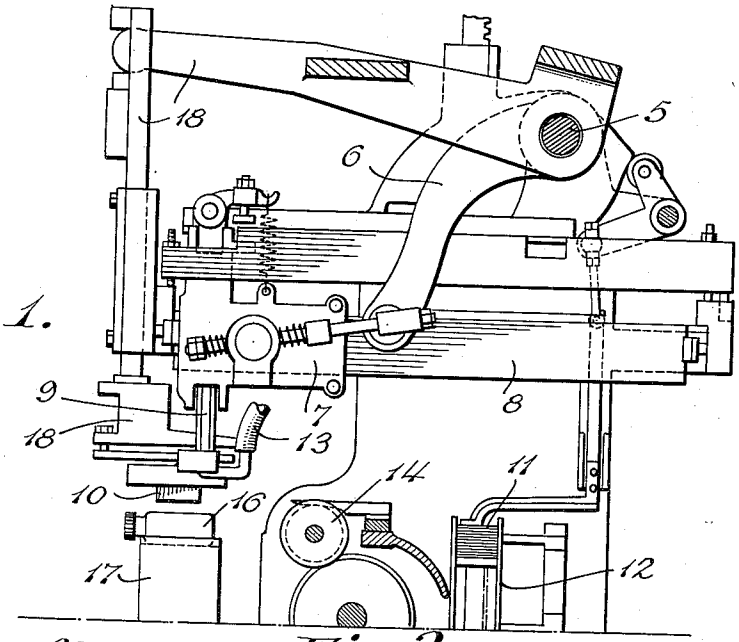


Fig. 2.

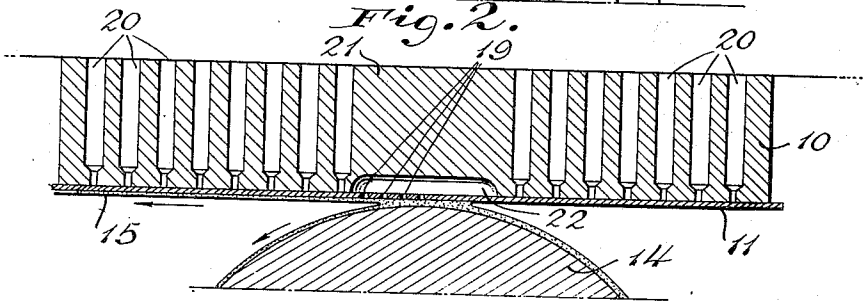


Fig. 3.

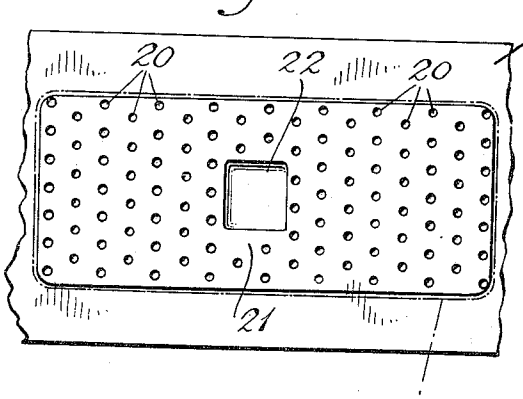
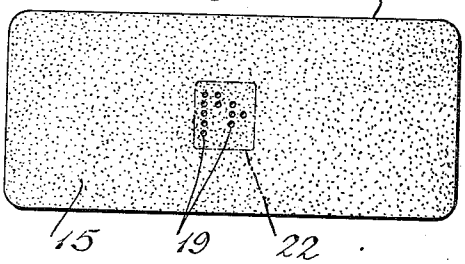


Fig. 4.



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LABELING MACHINE

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2 Claims. (Cl. 91—50)

The invention relates to labeling machines, and more particularly to that class of such machines in which the labels are conveyed over a given path to a label applying station and during such conveyance receive a surface application of adhesive. Such machines in practice are ofttimes required to handle labels provided with perforations grouped together in predetermined arrangements to constitute code marks which convey certain information to the initiated and prevent unauthorized use of such labels or the containers to which they are applied. When such labels, during the above-mentioned conveyance receive applications of adhesive, the latter ofttimes passes through the perforations to the surface of the conveying device, such as a suction head, and thereby causes subsequent labels to adhere thereto and to each other. This obviously interferes with the operation of the machine and requires the latter to be frequently shut down to permit the difficulty to be overcome, and accordingly reduces the productive efficiency of said machine to a material degree.

The invention has for its object to provide a novel arrangement whereby the aforesaid difficulties and objections are avoided. The invention contemplates more specifically the provision of a novel suction head or equivalent conveying device whereby the tendency of the adhesive to pass through the perforations of the labels is reduced to a minimum and whereby the effect of such adhesive as may find its way through said perforations is neutralized. Other more specific objects will appear from the description hereinafter and the features of novelty will be pointed out in the claims.

In the accompanying drawing which illustrates an example of the invention without defining its limits, Fig. 1 is a fragmentary sectional elevation of a labeling machine of a type for which the invention is adapted; Fig. 2 is an enlarged sectional view of a suction head embodying the novel features and showing a label carried thereby in the act of receiving an application of adhesive from an adhesive applying roll; Fig. 3 is a bottom face view of the suction head, and Fig. 4 is a face view illustrating an example of perforated label.

For the purpose of enabling the novel features of the invention to be readily and fully understood, it will be sufficient to briefly describe the operation of the labeling machine shown in Fig. 1; as the labeling machine per se forms no part of the present invention, it is unnecessary to describe in detail the construction thereof.

During an operative period of the illustrated machine, a rock-shaft 5 is rocked on its axis by suitable mechanism to correspondingly actuate an arm 6 fixed upon said shaft 5. The operation of the arm 6 reciprocates a carriage 7 with which it is connected, lengthwise of a stationary guide rail 8 to carry a label conveying and applying means between a label pick-up station and a label applying station in said machine. At the label pick-up station a carrier 9 movably mounted on the carriage 7 is moved downwardly to bring a suction head 10 of said carrier 9 into surface engagement with the terminal label 11 at the upper end of a supply stack in a container 12. At the proper moment suction is developed in the suction head 10 through a suction tube 13 and draws said terminal label 11 into surface contact with the lower face of the suction head 10 after which the carrier 9 is raised on the carriage 7 to correspondingly lift the suction head 10 and the label 11 carried thereby.

With the parts in this position, the carriage 7 is shifted along the guide rail 8 to the left in Fig. 1 and carries the label 11 on said suction head 10 in progressive tangential relation with an adhesive applying roll 14 from which said label 11 receives an application or coating 15 of adhesive. From this point the adhesive coated label 11 is carried to the supplying station at which the carrier 9 is moved downwardly on the carriage 9 to correspondingly move the suction head 10 and cause the adhesive coated label 11 carried thereby to be deposited upon a bottle 16 or other article supported at the applying station upon a suitable support 17. In proper synchronism with the operative cycle of the machine suction is discontinued in the suction head 10 which is raised with the carrier 9 on the carriage 7 and leaves the label 11 in adhesive connection with said bottle 16 or other article. The application of the label 11 to the latter may be completed by means of suitably operated pressure means 18, and the cycle of operations set forth above may then be repeated.

As shown in Fig. 4 the label 11 is provided with perforations 19 arranged in a group to constitute a code mark having a predetermined meaning known only to the initiated and to those entitled to the information. As the label 11 carried by the suction head passes in adhesive receiving relation to the applying roll 14 adhesive from the latter will tend to pass through the aforesaid perforations 19 into contact with the surface of

the suction head 10 with the result that the label 11 will adhere thereto and will not be deposited in the intended manner on the bottle 16 or other article. If this condition is not discovered by the attendant, the label 11 adhering to the suction head 10 will be carried back to the pick-up station and the next successive terminal label will be picked up from the supply stack and held in surface engagement with the previous label 11 which has remained in adhesive connection with said suction head 10. As the second label is carried in receiving relation to the adhesive applying roll 14 adhesive therefrom will pass through the perforations 19 of said second label and cause it to adhere to the first label on the suction head 10. This operation may be repeated a number of times to cause a number of labels 11 to become adhesively stuck together on the suction head 10 before the attendant discovers what is happening. In any case, whether one or more labels 11 become adhesively attached to said suction head 10, it is necessary to stop the machine for the purpose of removing the adhered labels and cleansing the suction head 10 before operations can be resumed.

To overcome these objections and to prevent the adherence of perforated labels 11 to the suction head 10 and successively to each other, the suction head 10 is provided with a plurality of air ducts 20 terminating at the lower face of said suction head 10 and with a solid portion 21 in or at which no suction is developed at any time. In its lower face the solid portion 21 is provided with a recess 22, the latter and the solid portion 21 being dimensioned and located to register with the perforations 19 of the labels 11 when the latter are picked up by and in proper position on the suction head 10.

With this arrangement any adhesive which tends to pass through the perforations 19 as the labels 11 are carried in adhesive receiving relation to the roller 14 will not contact with any part of the surface of the suction head 10 because of the presence of the recess 22 in registry with said perforations 19. In addition to this, the perforated portion of the label 11 which is in registry with said recess 22 is not subject to any material pressure in passing over the adhesive applying roll 14 with the result that any tendency to press or otherwise force adhesive through the perforations 19 is reduced to a minimum if not entirely eliminated; in other words, the recess 22 enables the perforated portion of a carried label 11 to yield as it passes over the roll 14 to thereby neutralize any tendency of adhesive from said roll 14 to squeeze through the perforations 19.

As a result of the aforesaid arrangement, the labels 11 develop no adhesive connection with the suction head 10 or with each other and accordingly are at all times free to be adhesively applied to the articles 16 in the intended manner at the applying station.

While the novel features are shown and described in connection with a label transfer or conveying means including a suction head, it is obvious that said features may be embodied in equivalent devices other than the suction operated head of the illustrated example.

Various changes in the specific forms shown and described may be made within the scope of the claims without departing from the spirit of the invention.

I claim:

1. In a labeling machine, a suction head for carrying labels perforated in a predetermined manner for adhesive application to articles, said suction head having a carrying surface constituting the major portion of the active face of said suction head and provided with air ducts throughout its area in which suction is developed on the unperforated portions of said labels, and having a recess of minor dimensions in said carrying surface arranged to register with the perforated portions of said labels to provide a free space behind the same.

2. In a labeling machine including adhesive applying means, a suction head for carrying labels perforated in a predetermined manner into operative relation with said adhesive applying means to receive an overall coating of adhesive therefrom, said suction head having a carrying surface constituting the major portion of the active face of said suction head and provided with air ducts throughout its area in which suction is developed on the unperforated portions of said labels, and having an imperforate recess of minor dimensions arranged to register with the perforated portions of said labels to prevent any adhesive which may pass through the same from developing adhesive connection between the carried labels and the suction head.

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