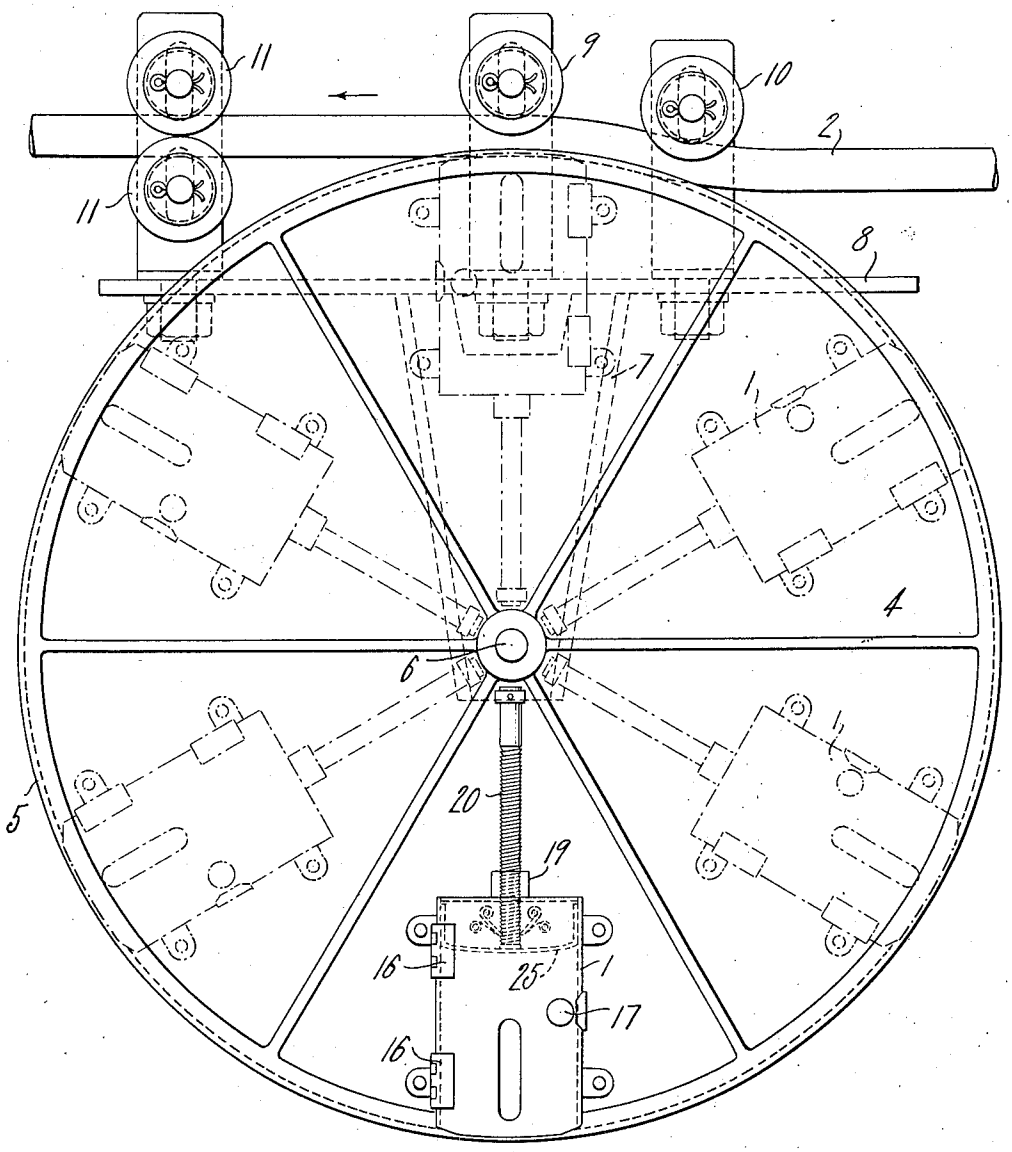
Nov. 10, 1936. H. R. GILSON 2,060,193

LABEL APPLYING MACHINE

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Fig. 1.



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Fig. 2.

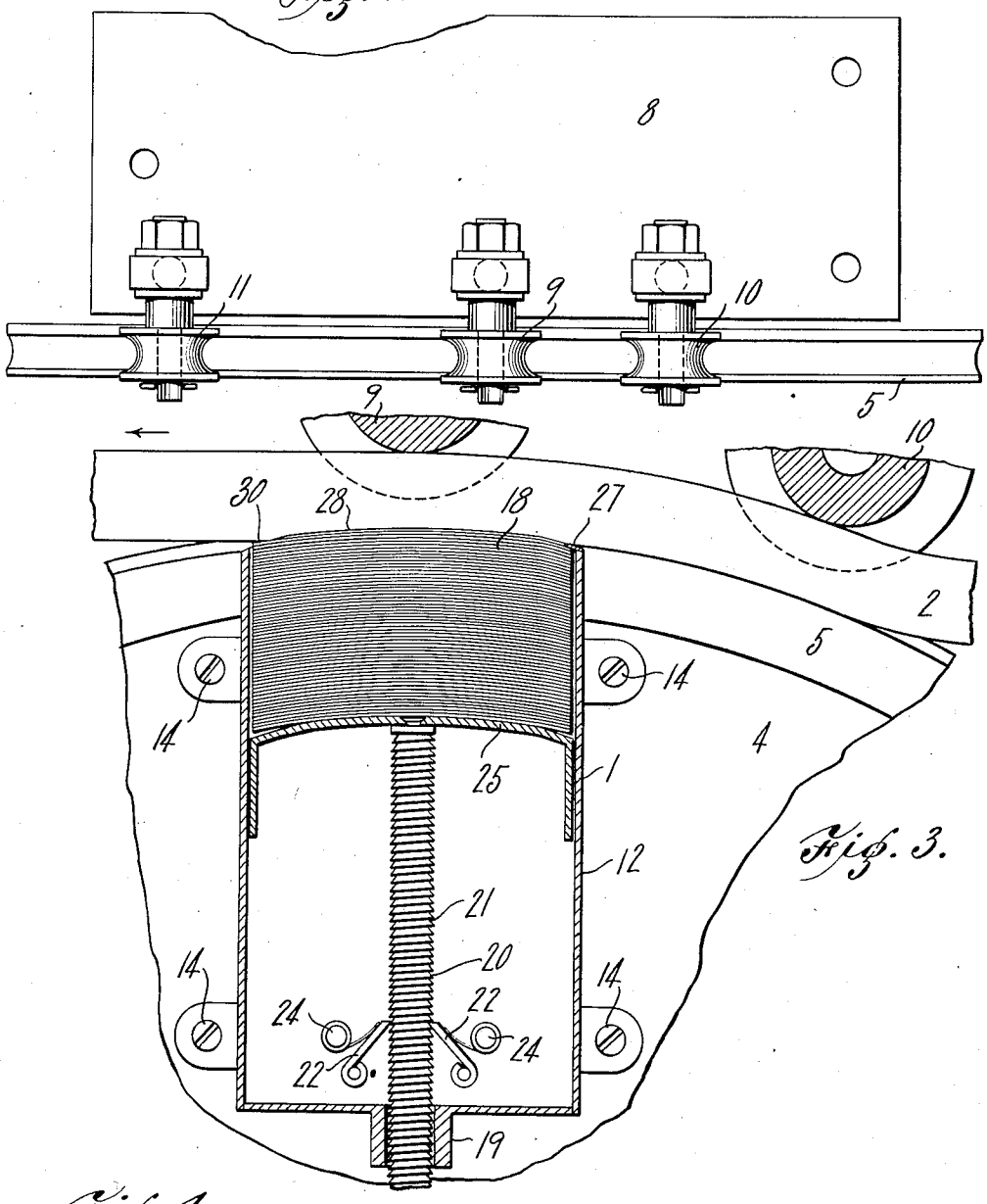
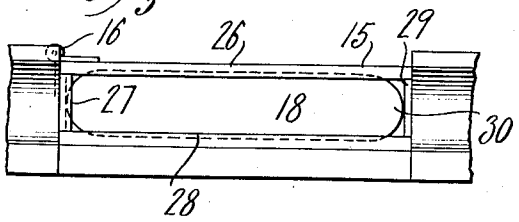


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE

2,060,193

LABEL APPLYING MACHINE

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Application July 21, 1933, Serial No. 681,417

5 Claims. (Cl. 216—34)

My invention relates to label applying machinery, and more particularly to machinery for continuously applying labels to successive portions of an object or to successive articles.

Heretofore it has been customary to apply many types of labels, and particularly rubber labels, to successive portions of the same article or successive articles by hand. This is a rather expensive operation as it requires the services of an operator. Also, the labels are not applied uniformly as to position, spacing and firmness of engagement. With hand application of labels difficulty is also experienced where the temperature of the article is elevated, as for example where rubber is coming from an extruding machine.

I provide a machine by which labels, and particularly rubber labels, may be applied to successive portions of an article or to successive articles in a uniform manner and without the constant attention of an operator. My apparatus is particularly useful in applying rubber labels, either partially or wholly cured, to objects having a sticky or tacky surface. One or more magazines is or are caused to engage the article or articles to which the labels are to be applied while they are in motion. The relative motion of the object and a magazine causes a label to be withdrawn from the magazine and carried along by the object. Pressure rolls are utilized for firmly securing successive labels in place. Preferably each magazine is disposed in a vertical plane so that the force of gravity may be utilized to keep the desired pressure on the labels remaining in the magazine. Particular use for my machine is in the application of rubber labels to hose or electrical cables after the latter have been treated with a rubber coating.

The magazine utilized for discharging the labels is provided with an opening facing the article to receive the label and roughly corresponding to the contour of the article. The opening is provided with overhanging edges along its side and rear faces so as to confine the labels. Along the forward edge, in the direction of movement of the magazine and the article, the overhanging edge is omitted so that the leading edge of the label is pressed against the article and thereafter the remainder of the label is engaged with the article by a rolling motion. As the magazine and article separate the label is withdrawn from behind the overhanging edges of the magazine and the succeeding label engages the overhanging edges preparatory to a subsequent operation.

The accompanying drawings illustrate a present preferred embodiment of the invention, in which

Fig. 1 is a side elevational view of a machine embodying my invention;

Fig. 2 is a plan view thereof;

Fig. 3 is an enlarged view partially in section, of the magazine showing the application of a label to an article; and

Fig. 4 is an end view of the magazine.

Referring to the drawings, one or more magazines 1 are mounted for periodically engaging successive portions of an article 2 or successive articles to deposit a label. The magazine may be mounted in many ways, a satisfactory mounting being on a wheel 4, the periphery 5 of which is shaped to engage the surface of the article 2. The periphery 5 is interrupted at the outlet or outlets of the magazine or magazines 1 so as to expose the open end or ends of the magazines. The wheel 4 is preferably supported in a vertical plane by a shaft 6 which is carried by brackets 7 attached to a suitable base or foundation 8. By having the wheel 4 disposed in a vertical plane the force of gravity is utilized to keep the labels in the magazine 1 compacted as hereinafter described. Pressure rolls 9 and 10 are mounted on the base 8 and serve to bring the article 2, here illustrated as a length of hose or cable having a rubber surface, into engagement with the periphery 5 of the wheel. A pair of complementary pressure rolls 11 are also mounted on the base 8 for engaging the article 2 after the application of the label for firmly pressing the label into position. Preferably the wheel 4 is rotated by frictional engagement with the article 2.

While I have illustrated the mounting for the magazine in the form of a wheel, it is to be understood that other mountings may be utilized which periodically bring the magazine into engagement with the article. Also, the invention is applicable to many articles other than hose or rubber covered cables.

Referring particularly to Figs. 3 and 4, each of the magazines comprises a casing 12 which is secured to the wheel 4 by suitable means such as screws 14. The casing 12 is provided with an open end which faces outwardly and occupies one of the openings in the periphery 5 of the wheel. The exposed side 15 of the casing 12 is made a door which is supported by hinges 16 and secured by a latch 17. By having the side 15 in the form of a door the supply of labels 18 may be easily replenished without the necessity of stopping the machine.

The radially inner end of the casing is provided with a sleeve 19 through which extends a rod 20 provided with teeth 21, which preferably slope so as to provide half steps by reason of the offset edges of the teeth on opposite faces of the rod. The length of the rod 20 is greater than the length of the casing 12 for reasons hereinafter pointed out. Spring pressed dogs 22 are mounted within the casing 12 for engaging the teeth 21. Stops 24 are provided for limiting the movement of the dogs 22.

A follower 25 is attached to the end of the rod 20. The follower 25 is shaped to conform to the interior of the housing 12 and to bear against the labels 18. If desired, the follower 25 may be given sufficient weight to exert a desired compacting pressure on the labels.

The open end of the casing 12 is provided with overhanging edges 26, 27 and 28 along two sides and the rear, in the direction of movement of the magazine, of the opening. The forward or leading edge 29 is not provided with an overhanging edge so that the advancing edge 30 of the label is brought directly into engagement with the article 2. After the leading edge 30 of the label engages the article 2 the remainder of the label is brought into engagement with the article by a rolling motion. As the magazine and article separate the leading edge is carried along with the article and the remaining edges of the label are pulled out from under the overhanging edges 26, 27 and 28, whereupon the succeeding label engages the edges. The edges of the label are firmly pressed against the article by the rollers 11. If the surface of the article is soft or tacky, such as a freshly extruded rubber, the engagement with the label is quite firm.

As the magazine nears the lower point of its path of travel the force of gravity operates on the follower 25 to press it downwardly against the labels 18 remaining in the magazine. If a sufficient number of labels have been withdrawn to permit the follower to move downwardly by substantially half the width of one of the teeth 21, one of the fingers 22 will slide under one of the teeth 21 to lock the follower in the lower position. As the magazine reaches the upper part of its path of travel the follower is held in the raised position by one or both of the fingers 22 thereby holding the labels outwardly to be engaged by the article 2.

It is to be understood that the foregoing cycle of operations may be repeated for a number of times corresponding to the number of labels in the magazine. Thereafter another magazine may be brought into use. I have found that an idle magazine can be carried on the wheel 4 in an idle position by placing a piece of metal behind the edges 26, 27 and 28. When it is desired to bring that particular magazine into use the metal is withdrawn exposing the labels. With this construction it is also possible to have different colored labels mounted in different magazines in the same machine.

While the machine may be used for applying a wide variety of labels, I have found it particularly advantageous in applying rubber labels either wholly or partially vulcanized to rubber articles, particularly rubber articles having a sticky or tacky surface, such as hose or electrical cables leaving an extruding or tubing machine. The shape of the periphery 5 of the wheel may be varied as desired to conform to the exterior surface of a wide variety of articles. By the use of my machine the labels are applied uniformly both as to positioning and as to spacing. The machine applies labels to articles which are at elevated temperatures.

In order to replenish the magazine 1 the door 15 is opened, the dogs 22 are released and the rod 20 is withdrawn to its retracted position, as shown in Fig. 1. A new supply of labels 18 is introduced beneath the follower 25 and the door closed, whereupon the magazine is ready for operation.

While I have shown and described a present preferred embodiment of apparatus for applying labels, it is to be understood that it may be otherwise embodied within the spirit of the invention and the scope of the appended claims.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:

1. A label applying machine comprising a wheel mounted to rotate in a vertical plane having a periphery conforming to the shape of a relatively long article or articles to be labeled, a label magazine mounted on said wheel and having an open end disposed at the periphery of said wheel, and means for holding such article with its longitudinal dimension in the plane of rotation of said wheel and in rolling contact with the periphery of said wheel, and means for moving such article longitudinally for engaging and withdrawing a label from the open end of such magazine.

2. A label applying machine comprising a wheel mounted to rotate in a vertical plane having a periphery conforming to the shape of a relatively long article or articles to be labeled, a label magazine mounted on said wheel and having an open end disposed at the periphery of said wheel, said magazine having a follower adapted to contact the labels, a rod associated with said follower having teeth thereon, and dogs cooperating with said teeth for holding the follower in the advanced position by increments of less than the pitch of said teeth, and means for holding and moving such article in contact with the periphery of said wheel and thereby rotating the magazine periodically into engagement with said article for depositing labels thereon.

3. A label applying machine comprising a wheel having a circumferential groove in its periphery conforming to the cross-sectional shape of a continuously moving rubber article, the periphery of said wheel being interrupted by the discharge end of a label magazine, and means for holding and moving said article in contact with said groove and thereby rotating the magazine periodically into engagement with said article for depositing labels thereon.

4. A rubber label applying machine comprising a wheel mounted to rotate in a vertical plane having a circumferential groove in its periphery conforming to the cross-sectional shape of a relatively long article or articles to be labeled, a magazine for rubber labels mounted on said wheel and having an open end disposed at the periphery of said wheel, and means for causing such an article to be held with its long dimension in the plane of rotation of said wheel and in rolling contact with the periphery of the wheel and to be moved longitudinally for engaging and withdrawing a label from the open end of said magazine.

5. A label applying machine comprising a rotatable wheel mounted on a horizontal axis, said wheel having a periphery provided with a circumferential groove adapted to roll in contact with the article to be labeled, a label magazine mounted on said wheel and provided with a discharge opening in said groove, a follower movable radially of said wheel in said magazine and adapted by its weight to compact said labels, and means connected to said follower to retain it in the lowest position urged by gravity during its rotation.

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