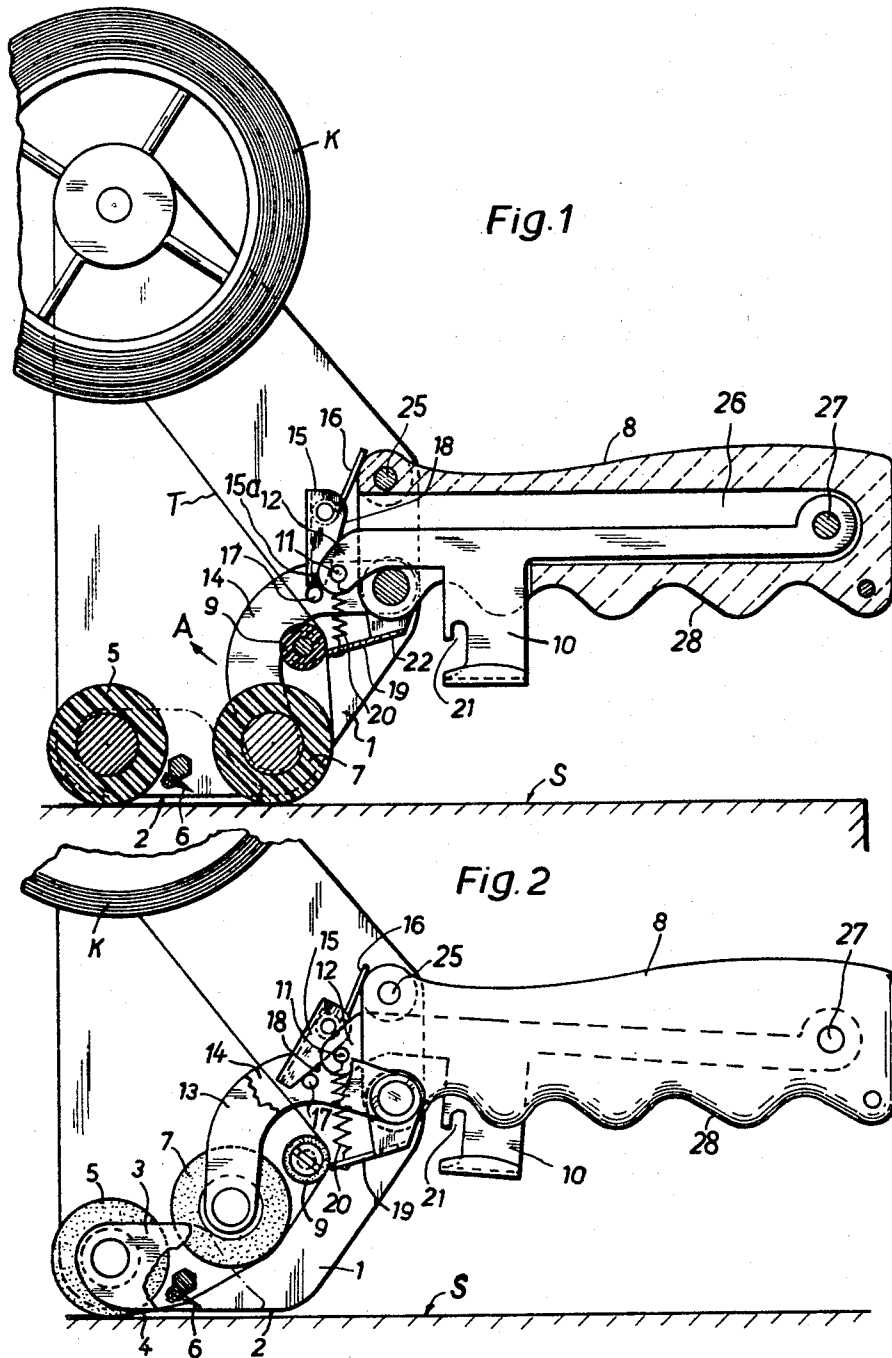


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APPARATUS FOR THE APPLICATION OF A SELF-ADHERING BAND TO A SURFACE

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ABSTRACT OF THE DISCLOSURE

An apparatus for applying a tape to an object wherein there is a stationary pressure roller and a movable second pressure roller. Between such two rollers a cutting knife is positioned so that when the movable pressure roller is in lower position the tape is removed from the knife and when the movable pressure roller is in a second position the tape is brought into contact with the knife and cut. Means are provided whereby the movable pressure roller may be held in the position holding the tape away from the knife and means are also provided for releasing such holding action of the movable pressure roller so that the movable pressure roller pivots to allow the tape to be cut by the knife.

The present invention has reference to an improved apparatus for the application of a self-adhering or self-sealing band or tape to the surface of an object, for instance a carton or the like.

Most of the apparatuses which are used for this purpose possess a stationary pressure or contact roller and a stationary knife arranged at the outlet side of the band. With such an arrangement the apparatus must be tilted during cutting through of the adhesive band or tape. In order that the knife does not cut too slowly into the discharging band and thus cause tears it is necessary to interrupt the feed or discharge movement. This constitutes an important disadvantage of such type apparatus. A further disadvantage of this apparatus resides in the fact that the stationary knife severs the adhesive tape at the band discharge side of the stationary roller, so that a band end is obtained which is too long for the next taping operation and either must be adhesively bonded to the object by first turning back the apparatus or by subsequently manually pressing the tape onto the object.

In accordance with a further known physical construction these disadvantages are prevented in that the band or tape is cut at the band infeed side of the stationary pressure roller by a partially movable cutting knife manually actuated by means of a release lever. However, in this type apparatus it is also necessary to interrupt the movement of the band or tape in order to carry out the cutting operation. Additionally, the band end must again be placed in front of the contact or pressure roller for the next operation by means of a special mechanism, and this often results in disturbances occurring.

Accordingly, it is an important object of the present invention to provide an improved apparatus of the mentioned type which overcomes the previously indicated disadvantages.

Another considerable object of the present invention resides in the provision of an improved apparatus for the application of a self-adhesive tape to a surface, such apparatus being characterized by the features that it is of relatively simple construction incorporating relatively few moving parts so that the chances of malfunction are considerably eliminated, is extremely robust in construction, applies the band to the object in a highly efficient and reliable manner, and enables cutting the band from the supply roll at a desired location in an efficient and posi-

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tive manner and without necessitating interruption of the movement of the band.

Still a further important object of this invention concerns itself with an improved construction of apparatus for the application of a self-adhering band or tape to the surface of an object including band locking means for safeguarding against undesired return movement of the band during the cutting operation.

In order to implement these and still further objects of the invention which will become more readily apparent as the description proceeds, the inventive apparatus comprises a stationarily mounted contact or pressure roller, a stationarily arranged knife which is disposed at the band infeed side of this contact or pressure roller and between the side walls of the apparatus, a second pressure or contact roller which is pivotably mounted between said knife and a roll of adhesive band, means for arresting the movable pressure roller in an outer pivotal position where the adhesive band is removed from the cutting knife, and means for releasing the arresting action such that this movable pressure roller pivots or rocks in such a manner that the band can be cut.

Other features, objects and advantages of the invention will become apparent by reference to the following detailed description and drawing in which:

FIGURE 1 is a side view, partially in elevational cross-section, of a preferred embodiment of inventive apparatus for the application of an adhesive band or tape to an object; and

FIGURE 2 is a side view of the apparatus of FIGURE 1 in a second position which such apparatus assumes during cutting of the adhesive band.

Describing now the drawing, in the embodiment depicted by way of illustration therein, it will be seen by inspecting FIGURE 1 that the inventive apparatus comprises a side wall 1 at which are mounted the remaining components of the apparatus which will be considered hereinafter. A second side wall 3 is arranged substantially parallel to the side wall 1 and at a distance therefrom. It can be seen that side wall 3 is mounted in such a manner that its lower marginal edge 4 lies in one plane with the lower marginal edge 2 of the side wall 1. In the region of the end of the peripheral or marginal edges 2, 4 disposed at the left of the drawing there is rotatably mounted a stationary contact or pressure roller 5 which projects out of the plane of these marginal edges 2, 4. It will further be seen that at a small distance from the pressure roller 5, simply stated, at the right side of such pressure roller, there is arranged a cutting knife 6 or the like which is disposed between the side walls 1 and 3 and within the confines of the marginal edges 2, 4. Moreover, the inventive apparatus possesses a movable contact or pressure roller 7 which during application of the adhesive band, in other words in the position according to FIGURE 1, projects the same distance past the marginal edges 2, 4 as the stationary pressure roller 5.

An adhesive band or tape supply roll K is rotatably mounted at the top of the side wall 1. Also, for the purpose of carrying and guiding such apparatus there is provided a handgrip 8 which extends substantially parallel to the marginal edges 2, 4 and is laterally mounted to the side wall 1. The band or tape T which is pulled-off the adhesive tape supply roll K is trained about a stationary guide roller 9 rotatably mounted at the side wall 1 and is also guided over the movable pressure roller 7, as best shown in FIGURE 1. The handgrip 8 is connected by means of a suitable fastening element 25 to the side wall 1 and possesses an outer undulated portion 28 to facilitate holding as well as a hollow internal construction defining a compartment 26 which extends axially of the aforesaid handgrip 8.

A release or actuating lever 10 is arranged in the

compartment 26 of the handgrip 8 and is pivotably mounted by means of pivot bolt 27 or the like therein. This release or actuating lever 10 possesses at its free end a nose 12 provided with a release pin 11 and which extends out of the compartment 26 at the left end of the handgrip 8. The movable contact or pressure roller 7 is rotatably mounted at the lower end of two flexed or arched pivot levers 13, 14 at the inner end of the handgrip 8. Furthermore, a locking pawl 15 is mounted at the side wall 1 and is rotated downwardly by means of a torsion spring 16 or equivalent expedient, in other words in the direction of the marginal edges 2, 4. The pivot or pivotal lever 13 possesses an inwardly directed locking pin 17 which in the operable position depicted in FIGURE 1 impacts the lower end 15a of the locking pawl 15 and, thus, prevents inward rocking or pivoting of the movable contact or pressure roller 7 in the direction of the arrow A. In this operable position of the apparatus the tape or band T is stretched between the contact or pressure rollers 5, 7 externally of the marginal edges 2, 4 and, therefore, is disposed out of the operative region of the cutting knife 6.

It will further be recognized that the release pin 11 engages with a cam surface 18 of the locking pawl 15 in such a manner that, upon pressing the release lever 10 into the handgrip 8 the release pin 11 upwardly presses the locking pawl 15, that is, out of the operative zone of the locking pin 17, so that the movable pressure or contact roller 7 can be inwardly rocked or rotated in the direction of arrow A of FIGURE 1.

Moreover, the inventive apparatus incorporates a locking mechanism which safeguards against rearward or return movement of the band or tape T and which embodies a pivotable flap member 19 which is pressed by means of spring force against the guide roller 9. Thus, a tension spring 20 is mounted at one end to the nose member 12 of the release lever 10 and at its other end to the flap member 19 in such a manner that in the rest position of the release lever 10 the flap member 19 does not quite bear against the guide roller 9 and, thus, does not exert any pressure against the sticky or adhesive side of the running-off band or tape T. Furthermore, this actuating or release lever 10 possesses a marginal recess 21 in which there can be suspended the flap member 19 of the tape return-locking mechanism in its ineffective or pivoted-back position by means of a recess 22, whereby the introduction of the adhesive band or tape T is rendered easier.

It is here mentioned that in the illustrated embodiment the movable contact or pressure roller 7 is not subjected to spring pressure, since with the usual horizontal position of the marginal edges 2 and 4, according to FIGURES 1 and 2, it again falls back into its lower starting position for applying the tape T to the surface of the object S by virtue of its own weight after the completed separation or cutting of the band T. If necessary, however, the movable contact roller 7 could be subjected to the action of a spring, for example a hairpin spring or the like, which slightly urges this pressure roller in the direction of its pivoted or swung-out position.

The previously mentioned band return-locking mechanism for the tape or band fulfills two functions. Firstly, it prevents that the end of the band, for example due to the momentum of a large roll of adhesive tape, during the cutting operation withdraws or pulls-back and thus is not in preparatory position for the next working cycle. Secondly, such band return-locking mechanism brakes the tape or band T during the cutting operation due to pressure applied to the adhesive side of the tape, so that the movable contact or pressure roller 7 is positively pressed due to tape traction into the cutting position (inner position of FIGURE 2).

It will further be understood that the described physical construction of inventive apparatus permits it to be either applied to a surface and that the band after application of a given band length can be cut-off, or the apparatus can

be applied to the vertical side of the object turned away from the operator and the band, after passing one or two edges of this object (L or U closure) can be separated, and indeed without the apparatus having to be moved out of its position which is most favorable for operation.

While there is shown and described a present preferred embodiment of the invention it is to be distinctly understood that the invention is not limited thereto but may be otherwise variously embodied and practised within the scope of the following claims.

What is claimed is:

1. Apparatus for the application of a self-adhering type band onto a surface comprising supply means for a self-adhering type band, a stationarily mounted pressure roller, a cutting element for the band fixedly mounted at the band infeed side of said stationarily mounted pressure roller, a movable pressure roller mounted for pivotal movement and disposed between said cutting element and said supply means, said movable pressure roller being pivotal into a first position where said band is removed from said cutting element and into a second position where said band is acted upon by said cutting element, means for arresting said movable pressure roller in said first position where said band is removed from said cutting element, means for releasing said arresting means to enable said movable pressure roller to move into said second position where said band is cut by said cutting element, said arresting means for said movable pressure roller comprising a locking pin cooperating with said movable pressure roller, a locking element biased to act upon said locking pin for urging said movable pressure roller in a direction towards the surface onto which said self-adhering type band is applied, said releasing means comprising a displaceable release lever including means for displacing said locking element into a position for freeing said movable pressure roller so that the traction of said band displaces said movable pressure roller in a direction away from the surface onto which said self-adhering type band is applied, whereby the aforesaid band is contacted and cut by said cutting element.

2. Apparatus for the application of a self-adhering type band onto a surface as defined in claim 1, further including locking means for preventing reverse movement of said band in the direction of said supply means, said displaceable release lever actuating said locking means so that the latter is effective during cutting of said band by said cutting element.

3. Apparatus for the application of a self-adhering type band onto a surface comprising supply means for a self-adhering type band, a stationarily mounted pressure roller, a cutting element for the band fixedly mounted at the band infeed side of said stationarily mounted pressure roller, a movable pressure roller mounted for pivotal movement and disposed between said cutting element and said supply means, said movable pressure roller being pivotal into a first position where said band is removed from said cutting element and into a second position where said band is acted upon by said cutting element, means for arresting said movable pressure roller in said first position where said band is removed from said cutting element, means for releasing said arresting means to enable said movable pressure roller to move into said second position where said band is cut by said cutting element, and locking means for safeguarding against return movement of said band towards said supply means, said locking means being positioned at the band infeed side of said movable pressure roller and first coming into operation upon initiation of cutting of the band.

4. Apparatus for the application of a self-adhering type band onto a surface as defined in claim 3 wherein said locking means safeguarding against return movement of said band comprises a flap member operably connected with said releasing means.

5. Apparatus for the application of a self-adhering type band onto a surface comprising supply means for a self-

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adhering type band, a stationarily mounted pressure roller, a cutting element for the band fixedly mounted at the band infeed side of said stationarily mounted pressure roller, a movable pressure roller mounted for pivotal movement and disposed between said cutting element and said supply means, said movable pressure roller being pivotal into a first position where said band is removed from said cutting element and into a second position where said band is acted upon by said cutting element, means for arresting said movable pressure roller in said first position where said band is removed from said cutting element, means for releasing said arresting means to enable said movable pressure roller to move into said second position where said band is cut by said cutting element, a handgrip, said releasing means including a spring-biassed release lever cooperating with said hand-

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grip, pivot lever means cooperating with said release lever for pivotably mounting said movable pressure roller for movement between an outermost pivotal position defining said first position and an inward pivotal position defining said second position, means for mounting said release lever for pivotal movement between a rest position where said movable pressure roller assumes said first position and a working position where said movable pressure roller assumes said second position.

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