

[54] **DEVICE FOR PACKAGING REELS OF
MAGNETIC TAPE OR THE LIKE AND
FOR STOWING THEM BY SUSPENSION**

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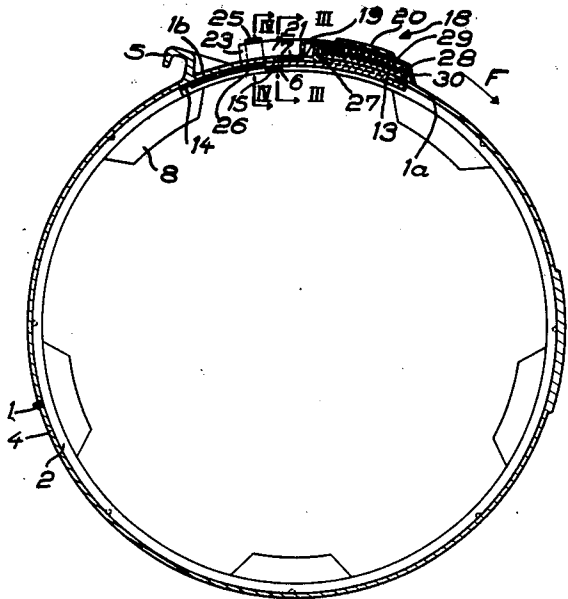
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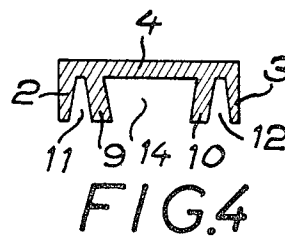
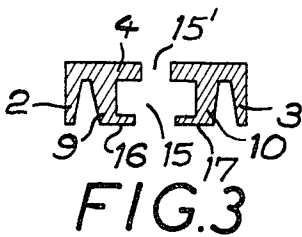
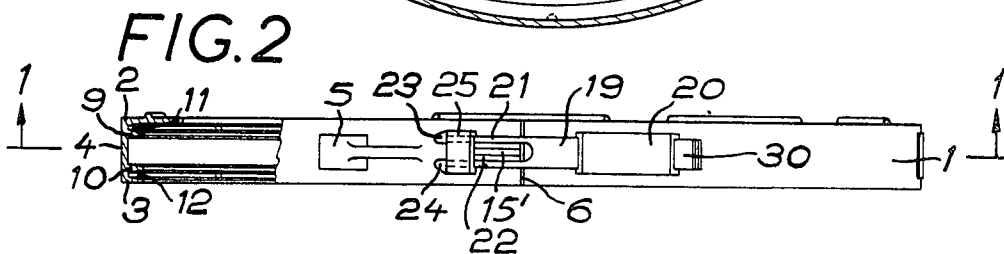
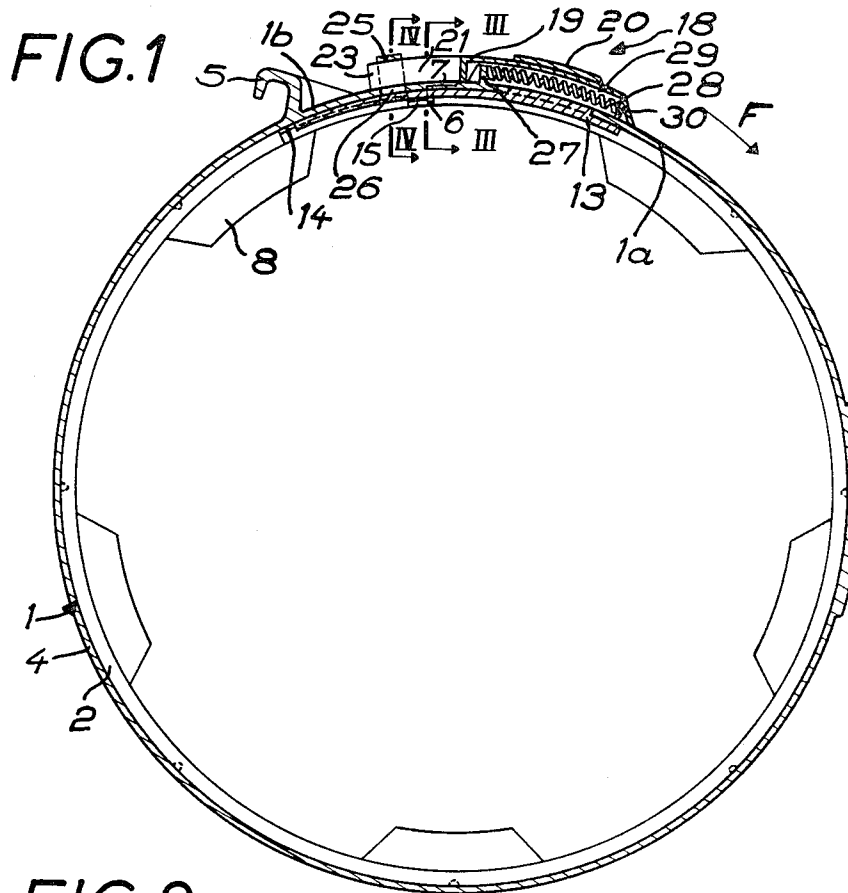
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[57] **ABSTRACT**

This invention relates to a device for packaging reels of magnetic tape, cinematographic film or the like and for stowing them in a suspension-type filing cabinet, comprising on the one hand a relatively supple, open annular band, which is U-sectioned and centered on the geometric axis of a reel, on the other hand a locking member connecting the ends of the band and finally, at least one resilient means tending to apply said band, for the purpose of sealing, against the edge of the sides of the reel to be protected, wherein a resilient-return slide is guided in concentric translation on the outer face of the first end of the band, the free terminal part of this slide being separated, by a slit perpendicular to the above-mentioned axis, into two arms having two locking teeth projecting into a direction parallel to this axis, said teeth being capable of cooperating with a guard member unitary with the second end of this band and provided for the passage of said slide.

4 Claims, 4 Drawing Figures





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DEVICE FOR PACKAGING REELS OF MAGNETIC TAPE OR THE LIKE AND FOR STOWING THEM BY SUSPENSION

BACKGROUND OF THE INVENTION

The present invention relates to a device for packaging reels of magnetic tape or the like and for stowing them by suspension.

For stowing and filing reels of magnetic tape, cinematographic film or the like, devices are known which are provided with a suspension hook. These known devices are substantially constituted by a lockable and sealed annular ring, provided for surrounding the reel to be packaged. This ring is generally less expensive than a conventional box, but its main advantage is that, being less thick than said latter, the number of reels stowed in a predetermined storing volume becomes much greater.

One of these known devices comprises an open ring whose opposite ends are guided with respect to one another and connected by a lock device with articulated levers (as for the closing of certain beer bottles) of the knuckle-joint type; this ring is therefore expansible for unlocking. In addition, it defines grooves in which are housed rubber toric joints, normally placed in contact and pressed against the edges of the sides of the reel to be packaged.

A first disadvantage is that upon use, the rubber, even by wearing out and ageing slightly, produces dust which of course is harmful to the preservation of the tapes and their property, i.e., to the quality of transmission of the information that they contain. A second disadvantage is that the elastic force holding the lock device locked is furnished by the rubber joints, the sole role of which would be to ensure a clean seal. A third disadvantage is that, as the geometrical disparities of the reels that may appear from the beginning of their use, which moreover is without disadvantage, cannot be compensated by the lock device whose form and dimensions are definitive, they can only be compensated by the rubber joints; this is another reason why these latter are strongly compressed, not fulfilling very well the only function that they have to carry out, i.e., a clean seal.

Another known device comprises no more than a ring and a non-adjustable lock. However, this ring is made of resilient material and, moreover, is completely open; it may therefore be very easily deformed, twisted and consequently it does not participate in the rigidity of the assembly, since on the contrary, it is the reel which must hold it. Another disadvantage, which is more serious for the user, resides in the fact that he has great difficulty in placing it around a reel, due to its lack of firmness, and loses much too much time in carrying out this operation. In addition, the seal, in certain cases, may not be absolute, as a defect in positioning or the presence of a foreign body does not prevent closing, and this defect is not detectable if the user does not pay a great deal of attention.

SUMMARY OF THE INVENTION

The present invention has for its object to remedy the above disadvantages of the known devices and to reconcile their advantages, adding others thereto, such as the possibility of moulding only two parts, facilitating the assembly of the complete ring ready for use, reducing the total manufacturing time, and finally reducing the cost price.

Like the known devices, the device according to the invention comprises on the one hand a relatively supple, U-sectioned, open annular band, one edge of which is provided with inwardly projecting support clips, on the other hand, a locking member connecting the ends of the band and finally, at least one resilient means tending to apply said band, for the purpose of effecting a seal, against the edge of the sides of the reel to be protected. In accordance with the invention and in combination with the above-mentioned means, a resilient-return slide is guided in concentric translation on the outer face of the first end of the band, the free terminal part of said slide forming two arms separated by a slit and presenting two

locking teeth projecting into a direction perpendicular to said slit, which are capable of cooperating with at least one part unitary with the second end of said band.

Thus, it is very easy to assemble a reel in this ring, its seal is almost absolutely ensured by contact between relatively supple surfaces but under the effect of a pressure exerted by a distinct member, the compensation of the geometric disparities is automatic without the guide-, holding and seal elements having to intervene, the locking and unlocking operations are sure, convenient and quick to execute.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described in greater detail with reference to the accompanying drawings, in which:

FIG. 1 is a view taken along line 1—1 in FIG. 2 illustrating a cross section of the device according to the present invention.

FIG. 2 is a plan view of the device according to the present invention.

FIGS. 3 and 4 are part sections taken, on a larger scale, along lines III—III and IV—IV respectively of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, FIGS. 1 and 2 show the device which comprises a band 1 which is elastically undeformable but relatively supple; as this band is U-sectioned it has two coronal edges 2, 3 and a web 4 unitary with a suspension hook 5, but this band is open due to a transverse slit 6 and its ends are provided with covering parts 7.

When the band 1 is in expanded position, i.e., when the lips of the slit 6 are spaced apart, the inner diameter of the edge 3 is greater than the outer diameter of the sides of the reel to be packaged, so that this latter may easily be inserted; nonetheless, its penetration is limited as the edge 2 is unitary with support clips 8 projecting towards the center and distributed equiangularly.

In this position, the reel may be hermetically enveloped by the band 1. In fact, the web 4 is unitary with ribs 9 and 10 parallel to the edges 2 and 3 and defining with these latter edges grooves 11 and 12 for centering and seal purposes. The grooves are trapezoidal in section and are spaced by the same distance as the sides of the reel. Thus, the edges of the reel sides automatically engage in the grooves, when the band 1 is closed by bringing the lips of the slit 6 closer to each other and the seal upon their contact is obtained due on the one hand to the supple but non-elastic nature of said band, on the other hand to the suitably chosen inclination of the sides of said grooves and, finally to the calibrated pressure produced over the whole of the periphery by means of an elastic pressing member defined hereinafter and integrated in the closing lock.

Being given that the band 1 is split, it must remain flat, whether it be open or closed, and the maximum limitation of its opening must be guaranteed while not opposing its voluntary opening which is total and free. To this end, one of the ends (1a for example) of the band 1 is unitary, or rendered such, with an arcuate tongue 13 guided in a groove 14 made in the other end (1b for example). In the embodiment shown, by way of preferred but non-limiting example, the section of the groove 14 is dove-tailed (FIG. 4) and defined by the ribs 9 and 10. At its inlet (FIG. 3), i.e., near the slit 6, this groove has a narrow portion 15 whose section, which for example is rectangular, may be inscribed in the trapezoidal section 14.

Knowing that only the free end of the tongue 13 is complementary of the (trapezoidal) groove 14 and that in addition the tongue is complementary of the (rectangular) narrow portion 15, and knowing, in addition, that the ribs 9 and 10 are unitary with clips 16 and 17 projecting into the narrow portion 15, it is certain that the two ends 1a and 1b are perfectly guided with respect to one another (consequently that the band 1 remains flat under all circumstances) and that the maximum opening of said band is limited by the end of the tongue 13 stopping against the narrow portion 15 and its clips 16, 17. Finally, knowing that a longitudinal slit 15' is made in the web

4 to open out onto the transverse slit 6 and to extend beyond the narrow portion 15, it is certain that the side walls of this latter are resiliently deformable and may therefore allow passage, if a sufficient traction is exerted, to the end of the tongue 13. This is advantageous for facilitating moulding the band in one piece and the assembly of its complementary elements.

The device also comprises a lock device 18 which comprises a resilient-return slide 19 guided in concentric translational movement in a fixed member 20 of one of the ends of the band (1a for example) and the free end of which, forming a lock bolt, is forked so that its arms 21 and 22 extended by locking teeth 23 and 24 cooperate, by resilient deformation, with another piece or fixed lock staple 25 of the other end of said band (1b for example).

In the embodiment shown in the drawing by way of preferred but non-limiting example, the arms 21 and 22 are parallel to the edges 2 and 3; their teeth 23 and 24 project outwardly in a direction perpendicular to the plane of these latter and may cooperate with the uprights of a guard member constituting the lock staple 25 in question; this guard normally covers the slide 19 which is introduced into the interior thereof; it is moulded with the end 1b of the band and in order to allow this, an opening 26 is made in the web 4 opposite the crosspiece of said guard. Of course, the teeth 23 and 24 may be directed to the inside and co-operate with a staple 25 which is male instead of being female, so that locking is then effected by resilient stacking, instead of by engagement. Moreover, in one case as in the other, the bolt and the staple may be located in a plane perpendicular to that shown in FIG. 1, i.e., so that the resilient deformation of engagement and disengagement is produced not in a tangential plane but in a plane parallel to the faces.

Still in the embodiment shown in the drawing, the fixed guide piece 20 is a U-sectioned chute whose walls are moulded with the tongue 13 which is rendered unitary with the end 1a of the band and, in order to project outwardly, this piece 20 passes through an opening in the web 4 of said end. This latter is moreover provided with a prominent outer stop on which a spring 28 abuts which is intended to return the slide 19 in the direction F of locking and, at the same time, to exert the above-mentioned contact pressure between the band 1 and the sides of the reel. This slide is preferably hollow op-

posite the piece 20 and therefore it defines a recess 29 for housing the spring 28. This latter is therefore hidden and protected; it is interposed between the stop 27 and the base 30 of the slide which constitutes a push for locking and unlocking.

In order to enable the lock 18 to be actuated, the push 30 projects from the piece 20 whatever the position of the slide 19. Moreover, in order to permit the lock to be mounted, whilst it is constituted by a minimum of distinct elements, the stop 27 is located in front of the piece 20.

I claim:

1. A device for packaging reels of magnetic tape, cinematographic film or the like and for stowing them in a suspension-type filing cabinet, comprising: a relatively supple open annular band having connectable first and second ends, said band having a U-shaped cross section and being centered about the geometric axis of a packaged reel; a locking member connecting the ends of said band; and at least one resilient means mounted on said band for urging said band into a sealing engagement against the edge of the sides of the reel to be protected, said locking member including a resilient-return slide guided in concentric translation on the outer face of said first end of said band, said slide having a free terminal portion separated by a slit extending perpendicularly to said axis into two arms each having a locking tooth projecting in a direction parallel to said axis, a guard member unitary with the second end of said band, said teeth cooperating with said guard member for the passage therethrough of said slide.

2. A device as defined in claim 1, wherein said first end of said band has a tunnel unitary therewith for guiding said slide with a support stop located at one end of said tunnel, and wherein said slide has a recess and a spring housed in said recess with said spring being interposed between the base of said recess and said stop.

3. A device as claimed in claim 1, wherein one end of said band has a unitary tongue having at its end an enlarged portion, and wherein said other end of said band has a groove therein including two peripheral throats and into which penetrates an opening-limiting stop, said tongue being guided into said groove between its two peripheral throats.

4. A device as claimed in claim 3, wherein said other end of said band is slit longitudinally and is provided with grips for covering said tongue.

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