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REEL FOR TAPES, FILMS AND THE LIKE

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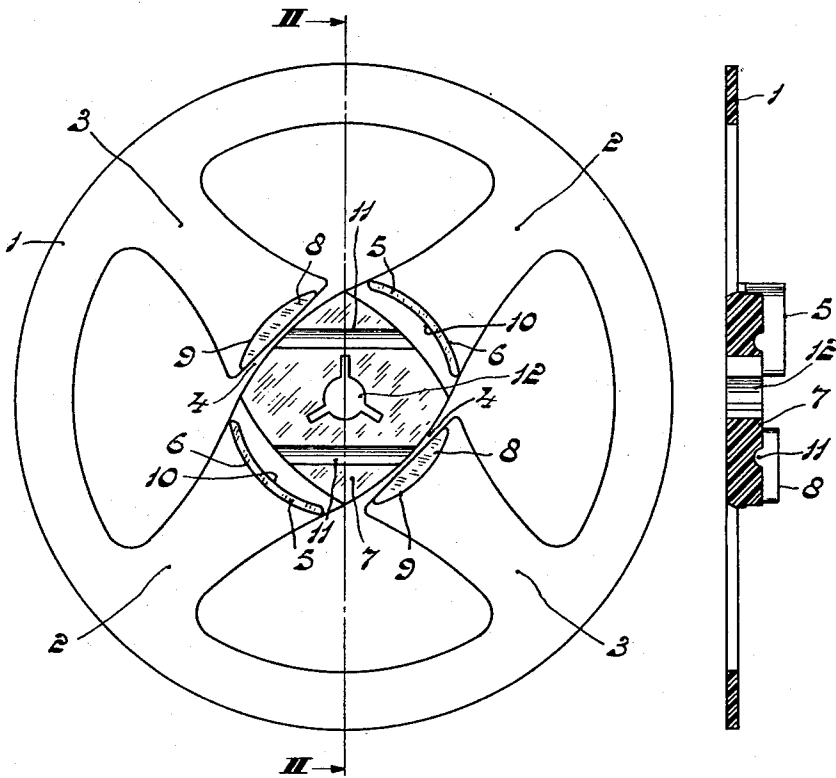


Fig. 1

Fig. 2

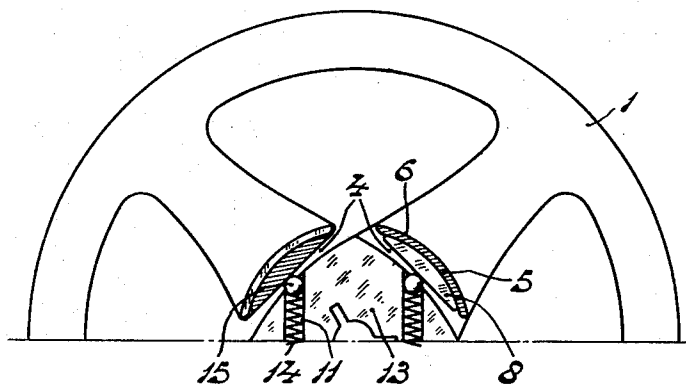


Fig. 3

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REEL FOR TAPES, FILMS AND THE LIKE

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2 Claims. (Cl. 242—70)

The invention relates to reels for tapes, films and the like comprising at least one slit in the core for attaching the tape end by means of a clamping device in the core and a flange which is at least at one endface of the core secured thereto.

In the usual construction of reels of this kind the slit terminates in the cylindrical external surface of the core on one side only. In this construction the tape-end required to be secured has to be moved into the slit between the clamping device in the radial direction of the reel. When a clamping device exerting a continuously active clamping force is used, securing the tape requires great skill. In addition, the tape must necessarily have sufficient natural rigidity to allow it to be arranged in clamping devices of this kind.

It is also possible to make use of a clamping device the clamping action of which can be adjusted either by a special action or automatically by the tension of the tape. This requires a comparatively complicated construction comprising movable parts.

In all these cases it takes comparatively much time and trouble to secure the tape-end. This applies more particularly if resilient tapes are required to be wound on the reel.

The object of the invention is to provide a very simple reel which can be readily operated and allows the tape, even if it is very resilient, to be secured rapidly and in a simple manner, the magnitude of the clamping force of the clamping device being enabled to be chosen quite irrespective of the natural rigidity of the tapes used.

According to the invention the slit extends from at least one end face of the axial direction and its section taken on planes at right angles to the core axis terminates on either side in the cylindrical outer surface of the core, the slit being accessible in at least one of the end faces from the outside of the reel in a manner such that the tape is enabled to be arranged in stretched condition in the slit by means of supports in line with the slit on either side.

This allows the tape to be arranged on the reel in the axial direction in stretched condition, for example, between the fingers of either hand. Particularly in the case of resilient tapes the additional advantage is obtained that the tape end can be secured rapidly and easily and that the magnitude of the clamping force can be chosen quite irrespective of the natural rigidity of the tape. In addition, both in the case of rigid and of resilient tapes a very simple and readily operated reel is obtained in which holding of the tape-end is ensured once the tape end has been arranged in the clamping device.

Especially in the case of reels comprising flanges at either side the tape can be arranged in a simple manner. This is particularly advantageous since in the usual reels of this kind the tape is required to be moved in between the flanges at the outer periphery and then to be moved into the slit between these flanges in the radial direction. In many cases the space available between the flanges is

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very small so that it is reserved for skilled people only to attach the tape-end to the reel rapidly.

According to the invention the core may be provided with a flange comprising spokes at least one of which extends inwards from a flange rim to within a distance of a slit-width from the remainder of the flange, the slit thus produced coinciding with the slit in the core. In spite of the presence of flanges this construction also allows the tape to be arranged on the reel in the axial direction in stretched condition. It is true that the loose tape-end is required to be moved through the flange rims, it can, however, thereupon be pulled out through an aperture between two spokes so that as far as space is concerned there is sufficient possibility to stretch the tape between the fingers of either hand and to arrange it in this condition in the slit in the axial direction. Obviously in reels comprising more than one slit and accessible, when mounted, on either side it is advantageous to design both flanges in the above-mentioned manner, in which case several accessible slits may be provided on either side of the reel.

In a preferred embodiment of the invention the reel consists of two identical parts which are symmetrically arranged in the axial direction. Assembly of the reel is effected in that both parts are shifted for 90° relatively to one another and are pushed into one another in the axial direction. Each part consists of a flange rim comprising four radial spokes two of which in line with one another are integral with the central core part and are provided with rims, the two remaining spokes extending from the flange rim to within the distance of a slit-width from the spokes forming a rigid structure and also being provided with rims, the external boundary of the rims of two spokes in line with one another fitting into the internal boundary of the rims of the other spokes which are in line with one another.

The invention will now be described with reference to the accompanying drawing, in which an embodiment thereof, more particularly a reel for a magnetic record carrier, is given by way of example, and in which

Fig. 1 is an elevation of one of the identical parts from which a reel according to the invention can be assembled.

Fig. 2 is a cross-section of the device shown in Fig. 1 taken along the line II—II, and

Fig. 3 is a sectional view of one half of a reel after assembly.

Referring now to the figures, in Figs. 1 and 2 a flange rim comprising two radial spokes 2 is designated 1. The said spokes are in line and integral with one another. In addition, the flange rim 1 comprises two radial spokes 3 which extend from the flange rim to within a distance of one slit-width from the spokes 2. Thus slits 4 are obtained. The spokes 2 comprise rims 5. As will be seen hereinafter the circular boundary thereof forms part of the outer boundary of a core, when the reel is assembled.

At the end faces the spokes 3 terminate in a rim 8 which is arranged at right angles to the spoke surface. The outer boundary 9 of this rim fits into the inner boundary 10 of the rim 5 of the other section. In addition, the spokes 2 comprise one half 7 of that part of a core which lies within the slits 4. This core-half 7 is provided with grooves 11 and an aperture 12 for securing the reel to a shaft.

Assembly of two parts shown in Figs. 1 and 2 results in a complete reel according to the invention. Fig. 3 shows half of such a reel the formation of which is most readily conceived with reference to the figures by folding the two halves of Fig. 1 situated on either side of the line II—II along this line. In Fig. 3 the rims 8 internally engage the rims 5. The boundary 6 forms part of the outer boundary of a core 13, the central part of which within the slits 4 is formed by two halves 7, the remaining

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part outside of the slits by the rims 5 and 8. The grooves 11 form ducts in which a clamping device consisting of a helical spring 14 flanked on either side by balls 15 can be arranged. Thus, a reel is obtained comprising slits 4 which allow a tape end to be held by the balls. In the core 13 the slit 4 extends axially from the end faces and its section taken on planes at right angles to the core axis terminates on either side in the cylindrical outer surface, whilst the slit 4 is accessible from the outside of the reel in a manner such that it allows a tape to be arranged in the axial direction after the tape end has been pulled between the flange rims 1, thereupon pulled out through one of the apertures between the spokes 2 and 3 and then is held stretched between two hands, since the flange slit coincides with the core slit.

Obviously, as an alternative, the rims 5 can be provided on the spokes 3 and the rims 8 on the spokes 2.

What is claimed is:

1. A film reel comprising a central core having at least two axial slits therein, said reel being constituted by two identical parts arranged symmetrically in the axial direction of said reel, each being provided with four radial spokes, a pair of said radial spokes being in line and in-

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tegral with said central core and the other pair of radial spokes being in line but unattached to said central core whereby a narrow slit is provided between each of said other pair of radial spokes and said central core, said pairs of radial spokes being provided with flange rims whereby when one of said two identical parts is rotated 90° relative to the other part, the outer bounding surface of the flange rims on one of said pairs of radial spokes fits in the inner bounding surface of the flange rims on the other pair of said radial spokes.

2. A film reel as set forth in claim 1 further comprising at least two spaced grooves in said central core and spring-pressed balls in said grooves, each being adapted to urge the film into clamping engagement with one of said flange rims.

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