

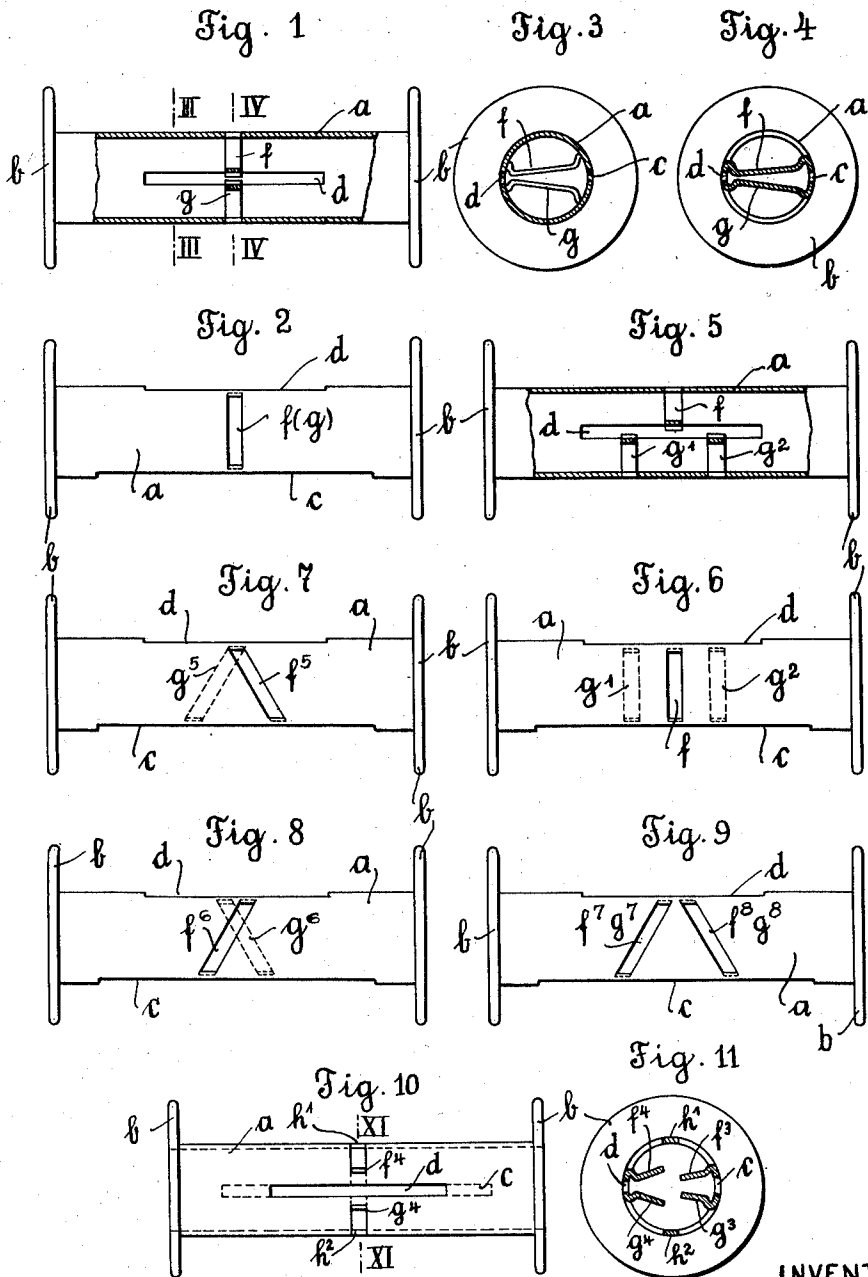
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P. SCHWARZ

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SPOOL OR BOBBIN FOR ROLL FILMS

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INVENTOR
Philipp Schwarz
BY *Mark S. Appelman*
ATTORNEYS

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SPOOL OR BOBBIN FOR ROLL FILMS

Philipp Schwarz, Wuppertal-Barmen, Germany

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8 Claims. (Cl. 242—71)

The invention relates to spools or bobbins for roll films, of the type wherein the wall of the tubular middle portion or core is provided with two slots lying in a plane passing through the axis of the spool for the passage of the film, guiding means being provided in the interior of the middle portion or core for guiding the end of the paper strip carrying the film. The improved spool or bobbin according to the invention differs from known film spools or bobbins having guiding means for the end of the paper strip, substantially in that guide webs are stamped out of the wall of the spool core on both sides of the plane containing the slots in such a manner that the openings made in the wall of the core or tube in the production of the webs do not extend to the slots for the passage of the strip. This new construction of the guiding means for the paper strip not only avoids the drawbacks of the known construction, but affords in addition substantial advantages. In the first instance, owing to the fact that the guide webs are made out of the tube wall itself, no additional material is required in the manufacture of the spools. Consequently the sheet plate or blank required for the manufacture of a spool tube or core need not have any widened portions for the formation of the guiding means, but it merely possesses a width corresponding to the developed width of the tube, whereby working material is economized and consequently the cost of the spool is reduced. The passage slots for the paper strip carrying the film need not be arranged on one side of the tube, but may be arranged in a plane passing through the axis so that the paper strip on being wound is bent at each slot, through an acute angle, whereby at both points a very effective maintenance of the paper strip is insured. The edges of the passage slots are not interrupted or broken as in some known constructions, both slots of the improved spool having continuous and uninterrupted edges. This shape of the edge slots insures a smooth and clean bending of the paper strip on winding and avoids entirely the formation of creases or bulges by which satisfactory winding of the paper strip and film might be prevented. The problem of guiding the film carrying paper strip in the interior of the tubular spool core is therefore solved by the present invention in a very economic and perfect manner.

Several constructions embodying the features of the invention are shown by way of example in the accompanying drawing, in which:

Fig. 1 is an elevation partly in section, of the first construction of a roll film spool,

Fig. 2 is an elevation of the film spool shown in Fig. 1, but turned through an angle of 90° about its axis,

Fig. 3 is a cross section on line III—III of Fig. 1,

Fig. 4 is a cross section on line IV—IV of Fig. 1.

Fig. 5 shows in elevation and partly in longitudinal section a second construction of the roll film spool.

Fig. 6 is an elevation of the spool shown in Fig. 5 after turning the spool through an angle of 90° about its axis.

Figs. 7, 8 and 9 are elevations of three further constructions.

Figs. 10 and 11 show a further construction in elevation and cross section on line XI—XI of Fig. 10.

In all the figures *a* indicates a spool tube or core made of a cylindrically rolled sheet strip, whilst *b* indicates spool flanges made of circular sheet discs and fixed in any known or suitable manner to the ends of the spool tube. The outer edges of the flanges may be rolled in the usual manner. In all the constructions shown the spool tube *a* has two diametrically opposite passage slots *c*, *d* for the paper strip carrying the film. The inlet slot *c* has, in known manner, a somewhat greater length than the outlet slot *d*.

On both sides of the plane containing the slots for the paper strip, which plane passes through the axis of the tube, there are provided webs *f* and *g* in the middle plane of the slot lengths, and these webs are stamped out of the tube wall in such a manner that the openings or cross slots made in the tube wall by stamping out the webs, do not extend to or reach the passage slots *c* and *d*. In the construction according to Figs. 1 to 4, two such webs are provided which are arranged directly opposite each other. Each of the webs *f* and *g* is at both ends in direct and integral connection with the tube wall. The webs therefore are in the form of U-shaped yokes having straight middle portions, said yokes being pressed or stamped inwardly out of the tube wall. The straight middle portions of the webs are, as may be seen particularly from Figs. 3 and 4, inclined from the inlet slot *c* towards the outlet slot *d* in such a manner that the clear opening between the ends adjacent to the outlet slot *d* is somewhat less than the clear opening of the outlet slot. On the other hand,

the clearance between the ends of the middle portions of the yokes adjacent to the inlet slot *c* is preferably made somewhat larger than the clearance of the inlet slot. If preferred, the clearance between the web ends near the inlet slot may be equal to the clearance of the inlet slot. As may be seen from the drawing, the two webs *f*, *g* form a guide for the end of the paper strip, which tapers funnel-like from the inlet slot *c* towards the outlet slot *d*, so that the paper strip end on being pushed through the slot *c*, is smoothly guided during its feed into the outlet slot *d*.

In the construction according to Figs. 5 and 6, there are provided more than two, viz. three webs or guiding yokes, which are staggered with regard to each other in the axial direction of the spool tube *a*. On one side of the guide plane containing the slots for the passage of the paper strip, there is arranged one central web *f* located in the middle of the slot length, whereas upon the other side there are two webs *g*¹ and *g*² arranged on both sides of the centre of the length. The webs have again the shape described in the construction according to Figs. 1 to 4. The staggered arrangement of the webs has the advantage that the transverse slots made in the two halves of the tube wall during the stamping out of the webs, do not lie at the same point, that is, the same transverse plane of the tube, but lie at different points displaced relatively to each other in the direction of the axis of the tube. Consequently, there is opposite each transverse slot made in one half of the tube wall, a solid wall portion upon the other side of the tube wall, and therefore the tube is not unduly weakened by the cross slots.

In the hitherto described constructions the webs or guide yokes *f*, *g* or *g*¹, *g*² run at right angles to the axis of the tube or the longitudinal direction of the spool.

In the construction according to Fig. 7, the webs are arranged obliquely. On each side of the guide plane there is only one web and the two webs *f*⁵ and *g*⁵ are arranged obliquely but in opposite directions. As shown in Fig. 7, the ends of the webs adjacent to the outlet slot *d* are arranged directly one above the other. In the construction shown in Fig. 8 the webs *f*⁶ and *g*⁶ are arranged obliquely in opposite directions and the ends cross each other as near as possible to the outlet slot *d*. The oblique arrangement of the webs as described and the cross slots produced in the spool tube by the stamping out of the web, avoids undesired weakening of the tube wall.

Fig. 9 shows a further construction embodying obliquely arranged webs or guiding yokes. In this construction there are provided upon each side of the plane containing the slots for the paper strip, two webs *f*⁷, *f*⁸ and *g*⁷, *g*⁸ which are arranged obliquely to the axis of the tube in opposite directions and in such a manner that the ends adjacent to the outlet slot *d* are located very close together. It may be pointed out that the pairs of webs arranged on opposite sides of the guide plane of the paper strip, may be arranged either in an identical manner or the angles of inclination of the two pairs may be different.

In the construction according to Figs. 10 and 11, the guide webs *f*³, *f*⁴ and *g*³, *g*⁴ are divided at about the centre of their length and the webs are stamped out of the tube wall in such a manner that they leave between the adjacent

ends of the web halves an intermediate space. Consequently solid portions or bridges *h*¹, *h*² remain in the tube wall between the transverse openings or slots formed in the tube wall in the making of the webs. The transverse halves of the spool tube *a* lying on the left and on the right side of the cross slots made in the stamping of the webs, are therefore in integral connection not only at the end of the web halves or the adjacent edges of the passage slots *c*, *d*, but they are also in integral connection at points displaced with regard to these slots by an angle of 90°, that is, they are connected by the bridges *h*¹, *h*² and consequently the tube wall possesses very great resistance notwithstanding the stamping out of the webs.

The divided guide webs *f*³, *f*⁴ and *g*³, *g*⁴ are again pressed inward out of the tube wall and in such a manner that the two halves *f*³, *g*³ adjacent to the inlet slot *c* converge towards each other with their free ends, whilst the two web halves *f*⁴, *g*⁴ adjacent to the outlet slot have divergent free ends, but converge at their fixed ends towards each other so that the clearance between them is about equal to the clearance of the slot *d*. The two web halves *f*⁴, *g*⁴ therefore constitute a sort of funnel in front of the outlet slot *d*, into which the end of the paper strip is introduced by the other two web halves *f*³ and *g*³.

The guide webs stamped out of the tube wall may be joined at both ends with the tube wall and may be pressed inwardly so as to form yokes. In this construction, the webs are constituted by U-shaped yokes having straight or substantially straight middle portions and they are so arranged that the middle portions of webs located on opposite sides of the plane containing the slots converge towards each other from the inlet slot towards the outlet slot.

In another construction, the guiding webs which are produced on both sides of the plane containing the slots by stamping out of the wall of the spool core and by pressing inwards, are divided at about the center of their lengths, that is to say, they are stamped out of the tube wall in such a manner that each web leaves in the tube wall two slots separated by a bridge portion.

It will be understood that the invention may be modified as regards details within the scope of the appended claims.

I claim:

1. A roll film spool having a tubular core provided in its wall with two slots arranged in an axial plane of the tube for the passage of the paper strip carrying the film, and provided in its interior with means for guiding the end of the paper strip, characterized by the fact that on both sides of the plane containing the slots guide webs are stamped out of the wall of the spool core in such a manner that the openings produced by the stamping in the tube wall do not extend to the passage slots substantially as described.

2. A roll film spool according to claim 1, further characterized by the fact that the webs are at both ends in integral connection with the tube wall and are inwardly pressed in the shape of yokes.

3. A roll film spool according to claim 1 characterized by the fact that the webs are in the shape of yokes, the middle portions of which are substantially straight and converge towards each other from one slot to the other, the clearance between the yoke middle portions at the ends

adjacent to one slot being preferably somewhat smaller than the clearance at the other slot.

4. A roll film spool having a tubular core, the said core having longitudinally extending slots, means interiorly of the core for guiding the end of a paper strip characterized by the fact that webs are partially dislodged from the said tubular core and in position to extend approximately transversely of the core therein, the said webs being staggered with relation to each other in the axial direction of the spool.

5. A roll film spool having a tubular core, the said core having longitudinally disposed slots for the passage of a paper strip carrying film, guide webs forming a portion of the spool and shaped therefrom on each side of each of the slots, the said webs extending inwardly in spaced relation to each other and acting as guides, the core at the adjacent ends of the webs on each side of the slots being undisturbed and forming a bridge between the slots occasioned by the removal of the webs.

6. A roll film spool according to claim 5 characterized by the fact that the web members ad-

jacent the slot intended to receive the paper strip converge toward each other at their inner ends, and the web members adjacent to the slot through which the paper strip emerges from the core diverge with relation to each other at their inner ends.

7. A roll film spool having a tubular core, the said core having a longitudinally extending slot, means interiorly of the core for guiding the end of a paper strip characterized by the fact that the means are partially dislodged from the tubular portion of the core and positioned to extend transversely of the core.

8. A roll film spool having a tubular core, the said core having longitudinally extending slots, means interiorly of the core for guiding the end of a paper strip characterized by the fact that the means are partially dislodged from the tubular portion of the core and positioned to extend transversely of the core, the guiding means being independent of those portions of the core having the slots.

PHILIPP SCHWARZ.

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35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150