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WEB WIND UP HUB

Filed March 9, 1959

Fig. 1

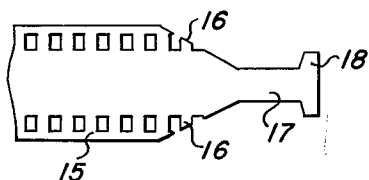


Fig. 5

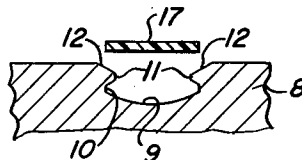


Fig. 2

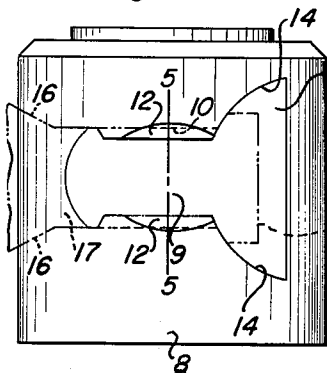


Fig. 3

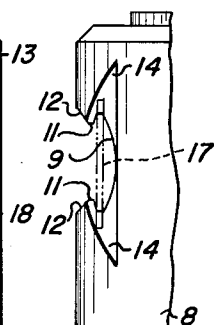


Fig. 6

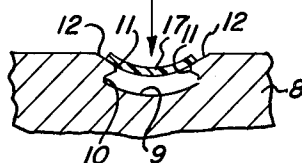


Fig. 7

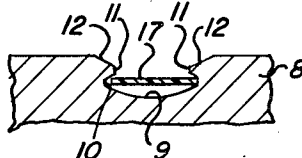
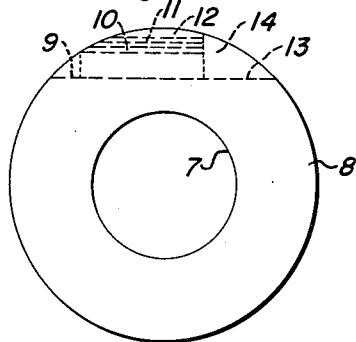


Fig. 4



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WEB WIND UP HUB

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This invention relates generally to fastening devices, and more specifically to a wind-up hub having improved means for releasably securing the end of a web thereto.

Many fastening devices are known in the prior art for releasably securing the end of a web to a spool or hub upon which the web is wound. These prior-known fastening devices have the following disadvantages: (1) they are complicated and expensive to manufacture; (2) they require parts in addition to the hub and web such as spring clips for releasably securing the web end to the hub; and (3) they present a difficult assembly problem necessitating special equipment for releasably securing the end of the web to the hub. Furthermore, in some instances the fastening devices are not as reliable or dependable as desired, resulting in the web being prematurely released from the hub. Applicant's improved fastening device is believed to obviate all of these disadvantages of prior-known fastening devices.

Therefore, one of the primary objects of this invention is to provide a wind-up hub having an improved fastening means for releasably securing the end of a web to the hub that is of simple design and construction, thoroughly reliable and efficient in operation, and economical to manufacture.

Another object of this invention is the provision of a wind-up hub having an improved fastening means that eliminates the need for expensive special equipment for releasably securing the end of a web to the hub.

One more object of this invention is to provide a wind-up hub having an improved fastening device for releasably securing the end of a web to the hub that eliminates the need for additional parts such as spring clips.

Still another object of this invention is to provide a wind-up hub having an improved fastening means for releasably securing the end of a web to the hub that relies on the natural resilience of the web to prevent release of the web in at least one direction.

Objects and advantages other than those set forth above will be apparent from the following description when read in connection with the accompanying drawing in which:

FIG. 1 is a plan view of one end of a film strip which the improved wind-up hub of the present invention is designed to accommodate;

FIG. 2 is a top plan view of a hub with a film end shown in broken lines releasably secured thereto;

FIG. 3 is a segmental side elevation view of the hub of FIG. 2;

FIG. 4 is an end elevation view of the hub of FIG. 2;

FIG. 5 is a segmental section view of a spool taken substantially along line 5—5 of FIG. 2 and showing a sectioned filmstrip in a position above the spool and in register with a recess therein prior to assembly;

FIG. 6 is a view similar to FIG. 5 showing the position of the filmstrip as it is being urged downwardly in the direction of the arrow; and

FIG. 7 is a view similar to FIGS. 5 and 6 showing the filmstrip in an assembled position on the hub.

As shown in the drawings, a cylindrical hub 8 is provided having an axial opening 7 for mounting hub 8 on a suitable spindle, not shown. The hub 8 has a substantially T-shaped, peripheral recess 9 as best seen in FIG. 2, having a narrow portion 10 and a semi-circular

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wide portion 13 formed by outwardly extending arcuate walls 14. The hub 8 further has a pair of spaced apart, inwardly extending ribs 11 overhanging narrow portion 10 of recess 9 and providing an entrance slot therefor. The ribs 11 are further provided with beveled portions 12 to facilitate the entrance of a web into recess 9. The recess 9 extends over only a small portion of the periphery of hub 8, and the base of recess 9 lies substantially along a chord of hub 8.

A filmstrip 15 as seen in FIG. 1 which is to be releasably secured to hub 8, is provided at one end with tapered edges 16 merging into a necked-down portion 17 terminating in an outwardly extending or transverse flap 18 of wider width than necked-down portion 17 and narrower than the main portion of filmstrip 15. The width of necked-down portion 17 is greater than the distance between ribs 11, and less than the width of narrow portion 10 of recess 9 for a purpose to be explained hereinafter.

To releasably secure the end of filmstrip 15 to hub 8, filmstrip 15 is placed over hub 8 with necked-down portion 17 and flap 18 in register with narrow portion 10 and wide portion 13 respectively of recess 9. The portion 17 of filmstrip 15 is then pressed downwardly in the direction of the arrow as seen in FIG. 6 by any suitable means, not shown, causing portion 17 which is wider than the distance between ridges 11 to be transversely bowed downwardly until the width thereof is foreshortened sufficiently to pass between ribs 11. Once the portion 17 of filmstrip 15 has been urged past ribs 11 into an assembled position as seen in FIG. 7, the natural resilience of filmstrip 15 causes it to resume its normal flat position preventing withdrawal of filmstrip 15 from hub 8 in a radial direction. In this assembled position, flap 18 is received by recess portion 13 which is larger than the flap so that no portion of flap 18 extends beyond the periphery of hub 8. Consequently, when filmstrip 15 is wound on hub 8, the flap 18 does not interfere with the wound convolutions of filmstrip 15.

Once the end of filmstrip 15 has been assembled as indicated, it cannot be readily disengaged from hub 8.

The ribs 11 prevent withdrawal of filmstrip 15 in a radial direction, walls 14 in cooperation with flap 18 prevent withdrawal of filmstrip 15 in one longitudinal direction, and the end of ribs 11 in cooperation with tapered edges 16 prevent withdrawal of filmstrip 15 in the opposite direction. Since these are the only directions in which the end of filmstrip 15 can be moved for disengaging it from hub 8, it is obvious that the end of filmstrip 15 will be positively secured thereto until such time as the operator desires to release it. To disengage the film end from hub 8, it is necessary for the operator to insert a suitable instrument, not shown, below necked-down portion 17 and bow this portion upwardly sufficiently to cause it to pass between ribs 11.

The invention has been described in detail with particular reference to preferred embodiments thereof, but it will be understood that variations and modifications can be effected within the spirit and scope of the invention as described hereinabove and as defined in the appended claims.

I claim:

1. A unitary wind-up hub for receiving a flexible web, one end of which has a necked-down portion terminating in a transverse flap which is wider than the necked-down portion and of less width than the main portion of the web, said flap having shoulders merging with the edges of said necked-down portion, said hub comprising: a cylindrical portion having a substantially T-shaped recess in which the part of the cylindrical portion forming the bottom of the recess extends substantially along a chord of the cylindrical portion, the narrow portion of said recess

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being at least as wide as the necked-down portion of the web end and the wide portion of said recess being at least as wide as said transverse flap; a pair of spaced-apart walls provided by said cylindrical portion transverse to the bottom of said recess and connecting the outer periphery of said cylindrical portion to the bottom of said recess and further defining the outer boundary of said wide portion and providing stop means for said shoulders of said flap; and a pair of spaced apart, substantially parallel peripheral ribs provided by said cylindrical portion in overhanging relation with the narrow portion of said recess and having one end of each rib merging with one of said walls, said ribs defining an entrance slot for said recess of

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less width than the necked-down portion of said web.

2. The invention according to claim 1 wherein said walls are arcuately formed, and said ribs are provided with a beveled surface to facilitate movement of said necked-down portion through said ribs.

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