

Nov. 23, 1954

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2,695,140

MAGNETIC REEL

Filed Feb. 20, 1950

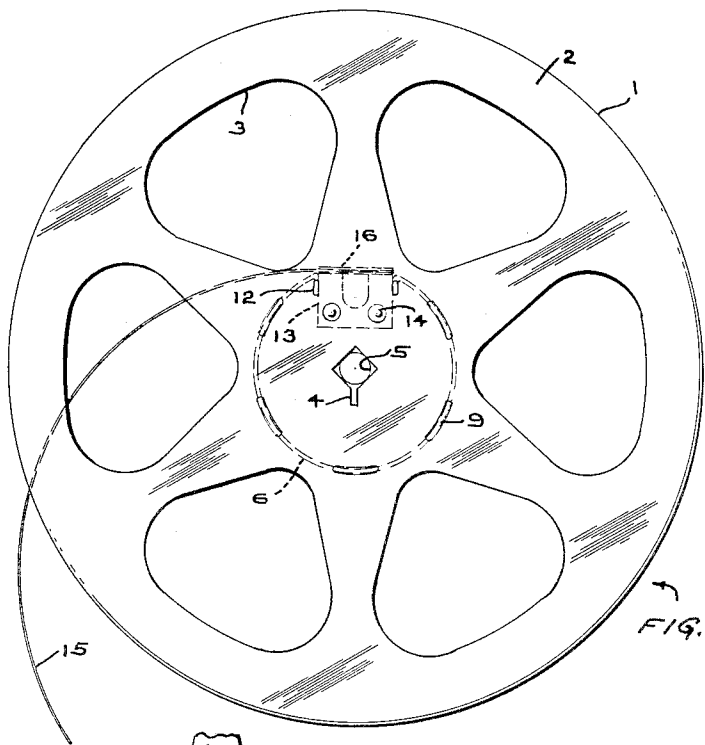


FIG. 1.

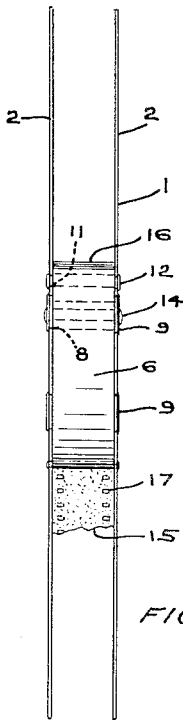


FIG. 2.

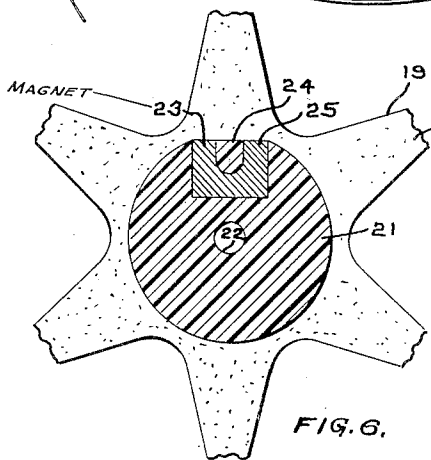


FIG. 3.

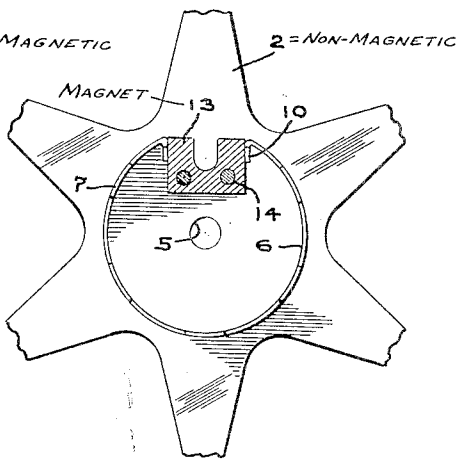


FIG. 4.

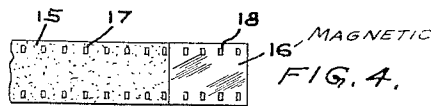


FIG. 5.

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1

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MAGNETIC REEL

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Application February 20, 1950, Serial No. 145,287

1 Claim. (Cl. 242—74)

This invention relates to a spool or reel for motion picture machines or the like and more particularly to a small portable magnetic reel which may be threaded by hand without the necessity for accurate manipulation.

The small portable reel or spool of the type wherein the present invention has particular utility has a relatively narrow core and relatively large flange extensions compared to the human hand. In such a spool it is common practice to provide a slot in the core into which the end of a strip to be wound on the spool must be inserted to thread the spool. Since it is usual that the strip to be wound is rather flexible, some difficulty is usually experienced in inserting the strip end into the slot, the hand and the strip end grasped thereby being unable both to penetrate between the flanges to the slot. Side openings in the flanges may be provided, but are necessarily small so that accurate and skillful manipulation of the strip is still required often with poor visibility of the slot adding to the difficulty.

It is a main object of this invention to avoid the necessity for accurate and skillful manipulation in threading a reel of the type above described, but to provide a reel which may be threaded by merely dangling the end of the strip between the flanges, without passing the fingers or hand between the flanges or through side openings thereof.

To accomplish this a permanent magnet is mounted in the core of the reel and, where the strip to be wound on the reel is of non-magnetic material, magnetic material is united to the strip adjacent its end. When the strip end is then merely dangled between the flanges, it is attracted to the magnet and held thereby to thread the strip on the reel, so that it may be wound thereon.

Other objects and features of the invention will be apparent from the following description and the accompanying drawings in which:

Figure 1 is a side elevation of a moving picture reel constructed in accordance with this invention, with a film threaded thereon.

Figure 2 is an edge elevation thereof.

Figure 3 is a fragmentary side elevation prior to the attachment of one flange, with the permanent magnet in section.

Figure 4 is a top plan view of an end portion of a strip of film modified in accordance with this invention.

Figure 5 is a side elevation of the end portion of the film.

Figure 6 is a fragmentary sectional view of a second embodiment of the reel of this invention.

The invention will be described as applied to a reel for use in a motion picture projector by way of example.

The reel or spool 1 is a standard 16 millimeter moving picture reel having flanges 2 and a central core. The flanges 2 are preferably made of a non-magnetic metal, such as aluminum, and have openings 3 in the side walls thereof and central holes 4 and 5 for receiving the shaft of the projector. As will be seen in Figure 1, the hole 4 in the flange to be mounted adjacent the projector is key-hole shaped to lock with the shaft of the projector for rotation therewith.

The core may comprise a single sheet 6 of non-magnetic metal having paired opposed ears 7 at intervals along the length thereof, Figure 3. The sheet 6 is curved in a generally circular shape and arcuate holes 8 are provided in the flanges 2, as seen in dotted outline in Figure 2 to receive the ears 7. With the flange assembled on the ears 7 of the curved sheet 6, the ears are peened over to

2

hold the flange in engagement with the sheet as shown at 9 in Figures 1 and 2.

As shown in Figure 3, the ends of the core sheet 6 are turned inwardly and carry ears 10 adapted to project into holes 11 in the flange, Figure 2, and to be peened over to hold the flange as at 12, Figure 1.

The core sheet ends are spaced from each other to receive between them a channel magnet 13. This magnet may be secured in position, with its pole faces flush with the periphery of the sheet 6 by means of rivets 14 which pass through the body portion of the permanent magnet 13 and through the flanges 2, as best seen in Figure 3.

The film 15 which is modified in accordance with my invention is shown in Figures 4 and 5. The modification preferably comprises a pair of strips 16 of magnetic metal glued or otherwise fixed to the end of the film 15 and punched to duplicate the openings 17 of the film as indicated at 18. The metal strips 16 must be of such combined thickness that the film end will pass easily through the projector.

The threading of the reel according to this invention is as follows: The end portion of the film 15 is dangled in proper orientation between the flanges 2 of the reel which may be slowly rotated in the direction in which the film is to be wound. When the strip 16 on the end of the film comes into proximity to the permanent magnet 13, it is attracted thereto to bridge the poles, thus holding the film in the core to thread the film thereon.

The necessity for inserting a hand or fingers to thread the film in a slot or the like is thus avoided regardless of the flexibility of the film or strip to be threaded, the reel being threaded readily from without the reel. Where the side openings 3 of the flanges 2 are small, the central core and therefore the distance between the flanges 2 is narrow, and the length of the flange extensions beyond the core is large compared to the human hand, this result is likely to be especially pleasing to the user of the reel.

A second embodiment of the invention is illustrated in Figure 6. Here a reel 19 is molded entirely of plastic and includes flanges 20 of the same form as a standard reel of metal and a solid core 21 having a hole 22 for receiving the rotating shaft of the projector. The same type key-hole slot shown in Figure 1 may be used to lock the reel to the rotating shaft (not shown). A permanent channel magnet 23 is included in the solid core 21. As shown in Figure 6, a portion 24 of the core 21 formed within the channel of the magnet will project from the integral flanges 20 and will serve to hold the magnet 23 firmly in place in its recess in the core. The reel may be so formed that the magnet poles 25 are flush with the periphery of the core.

Other arrangements and shapes may be used, and other means of metalizing the end of the film may be employed, or the reel could be used to wind a magnetic metal tape thereon.

While several embodiments of the invention have been suggested or illustrated and described in the foregoing drawings and specification, it is not intended that the invention be limited thereby, as the scope of the invention will be defined in the appended claim.

What is claimed as new and is desired to be secured by Letters Patent is:

A reel characterized by being threadable readily from without the reel, said reel having a narrow core and non-magnetic flanges at each side extending substantially beyond the core, a narrow strip of non-magnetic and non-conducting material adapted to be wound on the core between the flanges, magnetic material on the lead end of the strip to be wound and a permanent magnet in the core of the reel, whereby the magnetic material on the strip end upon dangling of the strip end between the reel flanges is attracted and held by the permanent magnet to thread the strip on the reel.

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