Dec. 9, 1969 A. L. BEARDSLEY 3,482,794

SPINDLE ADAPTOR

Filed March 14, 1968

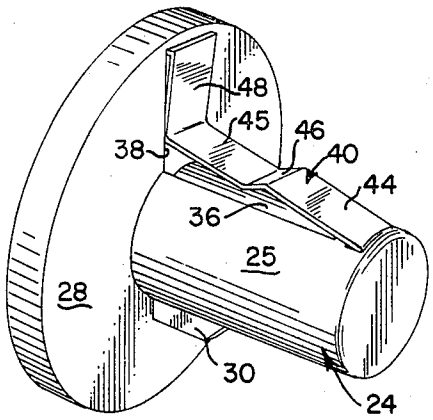


FIG. 1

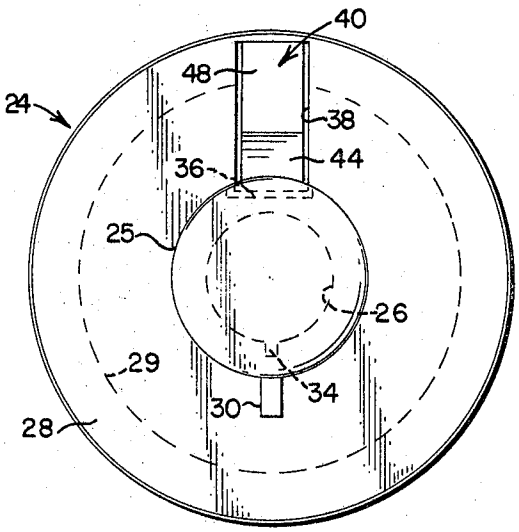


FIG. 2

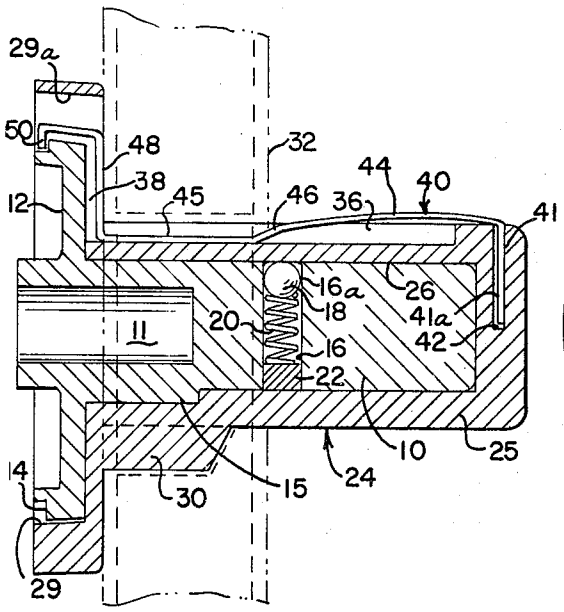


FIG. 4

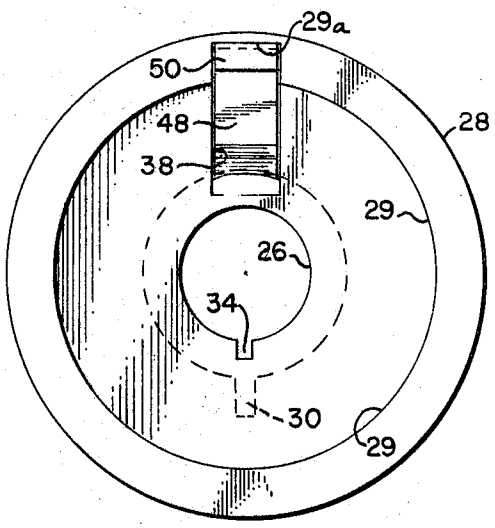


FIG. 3

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SPINDLE ADAPTOR

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U.S. Cl. 242—68.3 4 Claims

ABSTRACT OF THE DISCLOSURE

The adaptor is slideable onto a spindle, and has an outside diameter corresponding to the inside core diameter of a film reel. The adaptor has an axially extending recess adapted to receive a portion of a spring latch strip one end of which is secured to the adaptor. The other end of the strip is formed to define a catch engageable with a shoulder on the spindle for retaining the adaptor thereon. When a reel is slid onto the adaptor, the strip is engaged by the reel core thereby bringing the catch into latching engagement with the spindle shoulder. The strip also releasably retains the reel on the adaptor.

BACKGROUND OF THE INVENTION

In certain apparatus of the type having spindles adapted to support reels of web material, such as film or tape, it is desirable to adapt the spindles to accommodate reels having different inside core diameters. One such apparatus wherein this is desirable is a moving picture-projector adapted selectably to project both standard 8 mm. film as well as Super 8 film.

As is known to those skilled in the art, a Super 8 reel has the inside core diameter thereof greater than the inside core diameter of a standard 8 mm. reel. The purpose of this difference in core diameter is to prevent a standard reel from being inadvertently placed on a projector adapted to accommodate only Super 8 film and likewise to prevent a Super 8 reel from being inadvertently placed on a projector adapted to project standard film only.

Certain projectors are designed to project both standard 8 mm. and Super 8 film. These projectors require some form of adaptors to allow the spindles thereof alternately to support standard reels and Super 8 reels. The present invention provides such an adaptor in a quite simple form, such adaptor having an automatic or self-latching feature whereby the adaptor is latched to the spindle in response to positioning of a reel on the adaptor.

OBJECTS OF THE INVENTION

A primary object of the present invention is the provision of a new and improved spindle adaptor.

Another object of the present invention is the provision of a new and improved spindle adaptor having a latch which engages the spindle to retain the adaptor thereon, such latch being brought into operation in response to sliding a reel onto the adaptor.

Still another object of the present invention is the provision of an adaptor according to the foregoing object, wherein such latch also serves for releasably retaining the reel on the adaptor.

These and other objects and advantages of the invention will become apparent from the following specification disclosing a preferred embodiment shown in the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an adaptor made in accordance with the present invention;

FIG. 2 is a front elevational view of the adaptor;

FIG. 3 is a rear elevational view of the adaptor; and

FIG. 4 is a longitudinal section taken through the adaptor and showing the same latched to the spindle of a moving picture projector.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring to FIGURE 4, the spindle **10** of a web feeding apparatus, such as a moving picture projector, is of the usual cylindrical form including a blind bore **11** adapted to receive a shaft (not shown) of the projector, which shaft is provided to rotate the spindle. An annular flange **12** is integral with the spindle **10**, such flange having a notch formation defining an annular shoulder **14**. The spindle **10** includes the usual key **15** adapted to be received in the radially extending keyway of a reel (not shown) for driving engagement therewith. The spindle **10** has a diametrically extending bore **16** opening at one surface of the spindle at a reduced-in-diameter aperture **16***a*. A retaining ball **18** is disposed in the bore **16** and urged toward the aperture **16***a* by a coil spring **20**, the latter being retained in the bore **16** by a suitable plug **22**. It will be understood that a portion of the ball **18** extends outwardly through the aperture **16***a* for releasably retaining a reel on the spindle.

The spindle **10** is adapted to support a standard 8 mm. reel. The present invention has to do with a device adapting the spindle **10** to accommodate a reel, such as a Super 8 reel, having an inside core diameter greater than the diameter of the spindle **10**.

The adaptor, generally designated **24**, includes a tubular body member **25** provided with a blind bore **26** having a diameter just slightly greater than the diameter of the spindle **10** thereby permitting the adaptor to be slid onto the spindle **10**. The body **25** joins with an integral annular flange **28**, such flange being provided with an annular recess **29** on the rear side thereof for receiving the spindle annular flange **12**. The adaptor has a radially extending key **30** adapted to be received in the keyway of a reel, such as a Super 8 film reel the outline of which is shown in broken lines in FIGURE 4 and designated **32**. The adaptor body **25** is provided with an axially extending, internal recess **34** for receiving the spindle key **15**, thereby to key the adaptor to the spindle for being driven by the latter.

The adaptor body **25** contains an external, axially extending recess **36** which joins with a generally radially extending, rectangular opening **38** formed in the adaptor flange **28**.

A latch in the form of a bent spring strip, generally designated **40**, has one end **41** thereof received in a slot **42** formed in the body **25**. The end **41** preferably has a struck out portion **41***a* thereby insuring a snug engagement of the end **41** in the slot **42**. The latch strip **40** includes a first intermediate portion **44** joined to a second intermediate portion **45** by an inclined portion **46**. The latch strip portion **45** joins with a generally radially extending portion **48**, the latter having the free end thereof bent to form a catch **50**. The latch portions **48** and **50** are received in the opening **38** in the adaptor flange **28**. The latch or spring strip **40** is bent such that the catch end **50** thereof is normally biased against a surface **29***a* which is formed by the opening **38**.

When the reel **32** is slid onto the adaptor **24**, the core of the former engages the intermediate portion **44** and deflects the latch **40** into the position shown in FIGURE 4 thereby deflecting the strip portion **45** into the recess **36** and bringing the catch **50** into latching engagement with the spindle annular shoulder **14** for retaining the adaptor to the spindle. The portion **46** of the latch or spring strip **40** engages the outside face of the reel **32** adjacent the core thereof for releasably retaining the reel on the adaptor.

It will be apparent that the adaptor automatically latches itself to the spindle upon sliding of a reel onto the adaptor. The adaptor is automatically released for removal from the spindle as soon as the reel is removed from the adaptor.

I claim:

1. A device adapting a spindle to accommodate a reel with an inside core diameter greater than the diameter of the spindle, which spindle is of the type including a shoulder at one end thereof, said device comprising, a tubular member slideable onto said spindle from the other end thereof and having an outside diameter corresponding to the inside core diameter of said reel thereby permitting the latter to be slid onto said member, a latch carried by said member for movement between first and second positions and biased to said first position, said latch in the second position thereof being adapted for latching engagement with said shoulder thereby to retain said tubular member on the spindle, said latch being moved to its second position by engagement with said reel upon sliding the latter onto the tubular member, said tubular member including an element releasably retaining said reel thereon, said tubular member including means for keying engagement with the spindle and other means for keying engagement with said reel.

2. The device according to claim 1 wherein said latch comprises a spring strip.

3. The device according to claim 1 wherein said element is defined by a formation on said latch.

4. A device adapting a spindle to accommodate a reel with an inside core diameter greater than the diameter of the spindle, which spindle is of the type including an annular shoulder at one end thereof, said device comprising, a tubular member slideable onto said spindle from the other end thereof and having an outside diameter corresponding to the inside core diameter of said reel thereby permitting the latter to be slid onto said member, said tubular member having an external recess extending axially thereof, a spring latch strip having one end thereof secured to the outer end of said tubular member, which strip has an intermediate portion extending axially of said recess and adapted to be at least partially received therein, the other end of said strip being in the form of a catch movable with said intermediate strip portion generally radially of the spindle between inner and outer positions, said catch in the inner position thereof being adapted for locking engagement with said shoulder thereby to retain the tubular member on the spindle, said intermediate strip portion in the outer position thereof extending at least partially out of said recess, said catch and said intermediate portion being biased to the outer position thereof, said catch and said intermediate strip portion being moved to said inner position by engagement of said reel with the intermediate strip portion upon sliding of the reel onto said tubular member, said strip having a formation adjacent said intermediate portion engageable with said reel for releasably holding the latter on the tubular member, said tubular member including means for keying engagement with the spindle and other means for keying engagement with said reel.

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