Feb. 19, 1935. A. S. HOWELL 1,991,853

REEL AND SPINDLE MOUNT THEREFOR

Filed Aug. 21, 1933

Fig-1

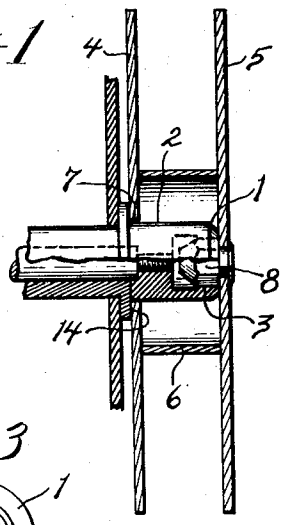


Fig-2

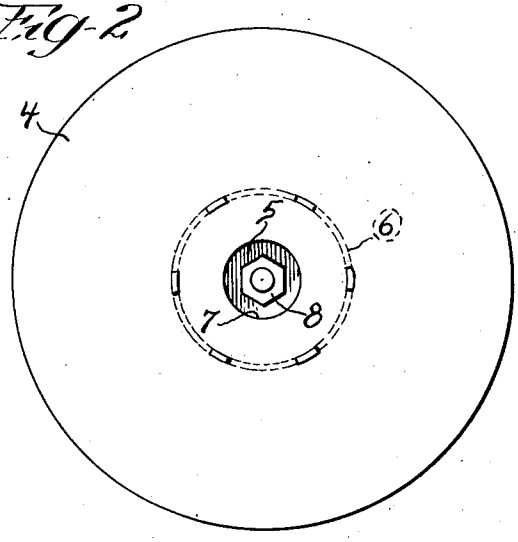


Fig-3

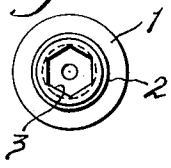


Fig-4

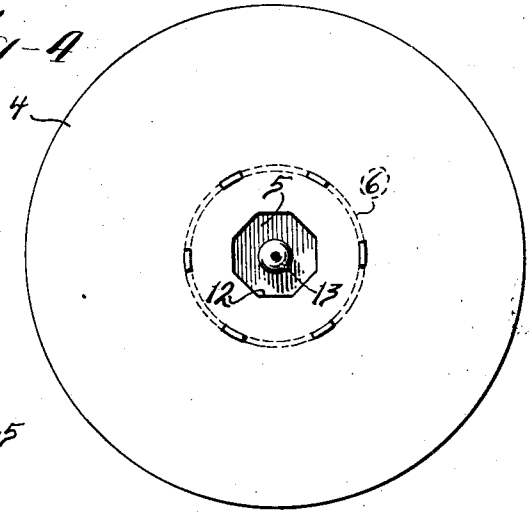


Fig-5

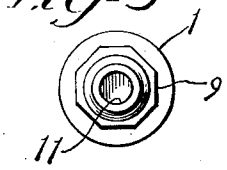
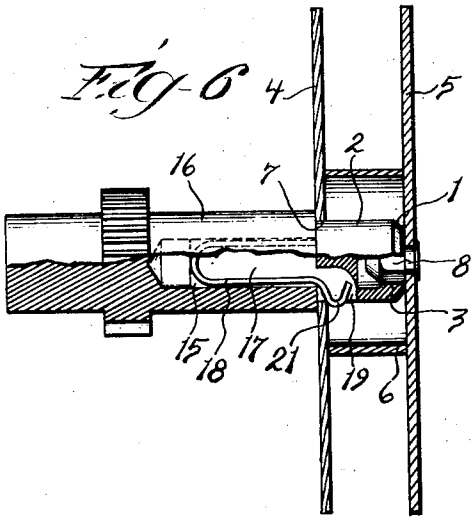


Fig-6



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UNITED STATES PATENT OFFICE

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REEL AND SPINDLE MOUNT THEREFOR

Albert S. Howell, Chicago, Ill., assignor to The Bell & Howell Company, Chicago, Ill., a corporation of Illinois

Application August 21, 1933, Serial No. 685,984

10 Claims. (Cl. 242—70)

My invention has particular relation to reel and spindle mounts of the type usually employed on motion picture machines although not limited to this use alone.

The main feature of the invention relates to the provision of a novel and effective reel and spindle mount therefor, particularly with a view toward preventing reverse mounting of the reel on the spindle.

With this feature in view my invention consists of certain features of novelty in the construction, combination and arrangement of parts by which the said feature is effected, all as fully described with reference to the accompanying drawing and more particularly pointed out in the appended claims.

In the said drawing—

Figure 1 is a side elevation of a spindle mount structure, partially broken away and shown in section, with a reel, shown in central vertical section, mounted thereon and embodying my invention;

Figure 2 is a face elevation of the reel shown in Figure 1;

Figure 3 is an end elevation of the spindle shown in Figure 1;

Figure 4 is a face elevation of a reel embodying a modified form of my invention;

Figure 5 is an end elevation of a spindle embodying my invention and corresponding with the reel of Figure 4; and

Figure 6 is a side elevation of a spindle mount structure, partially broken away and shown in section, with a reel, shown in central vertical section, mounted thereon.

Like characters of reference indicate like parts in the several views.

Referring to Figures 1, 2, 3 and 6 of the drawing, 1 designates a revolubly mounted spindle having an extending end portion forming the reel mount portion thereof. This extending end portion of the spindle is provided with a round external surface reel mount portion 2, and is provided with an axial bore 3 extending inwardly from this projecting end of the spindle and this bore is of polygonal shape as shown in Figure 3.

The reel consists of spaced side plates 4 and 5 secured in a usual manner to opposite ends of a central tubular member 6, and the side plate 4 is provided with a round central spindle aperture 7 adapted to engage over the external surface mount formation 2 of the spindle. See Figures 1 and 2. A stud 8 is secured centrally on the plate 5 in coaxial relation with the aperture 7 and projects from the plate 5 toward the plate 4 and is adapted to engage in the bore 3 of the spindle to cooperate with the spindle aperture 7 in the mounting of the reel on the spindle, the stud being polygonal in shape, as shown in Figures 1 and 2, to cooperate with the polygonal shape of the bore 3 for angularly fixing the spindle and reel.

The modification shown in Figures 4 and 5 is the same as the form shown in Figures 1, 2 and 3, with the exceptions that the external surface reel mount portion of the spindle is polygonal, as designated at 9, in Figure 5, and the axial bore of the spindle is round, as designated at 11 in Figure 5, and the spindle opening of the plate 4 of the reel is polygonal, as designated at 12 in Figure 4, to cooperate with the polygonal shape of the external surface portion 9 for angularly fixing the reel with the spindle, the stud of the plate 5 being round, as designated at 13, to conform with the round bore of the spindle.

Thus, is provided a novel and effective reel and spindle mount structure, which in the forms shown prevents reverse mounting of the reel on the spindle.

As shown, in Figure 1 inward movement of the reel on the spindle is limited either by a shoulder 14 engaged by the plate 4 of the reel or by the engagement of the plate 5 of the reel with the projecting end of the spindle, outward movement of the reel on the spindle being limited by means not shown, such as the usual removable cover of the film chamber of a motion picture camera within which the reel is mounted on the spindle.

Figure 6 shows the reel and spindle mount structure as shown in Figure 1, but differs as to the spindle structure and includes a releasable device on the spindle for retaining the reel inwardly on the spindle, which will now be described.

The spindle of Figure 6 comprises the spindle 1 provided with a reduced shank 15 which is tightly engaged in an axial bore in a relatively large spindle 16. The shank 15 is provided with a diametrical slot 17 in which a U-shaped spring 18 is disposed. The free end of one leg of the spring 18 is disposed in a lateral opening 19 in the main portion of the spindle 1 and is reversely bent to form an outwardly projecting latch portion 21 adapted to engage the plate 4 to retain the reel inwardly, the portion 21 engaging and releasing with axial pressure exerted on the reel.

Having thus described my invention, I do not wish to be limited to the precise details described as changes may be readily made without departing from the spirit of my invention, but having

thus described my invention, I claim as new and desire to secure by Letters Patent the following:

1. In a device of the character described the combination of a spindle adapted for the removable mounting of a reel over an end thereof and provided with an external surface reel mount formation and provided with an axial bore extending inwardly from said end thereof and providing an internal surface reel mount formation, and a reel having a spindle opening engageable with said external surface formation of the spindle and provided with an axial projection engageable in said bore for the mounting of the reel on the spindle.

2. In a device of the character described the combination of a spindle adapted for the removable mounting of a reel over an end thereof and provided with an external reel mount surface and provided wtih an axial bore extending inwardly from said end thereof and providing an internal reel mount surface, and a reel having a spindle opening engageable with said external surface and an axial projection engageable in said bore for the mounting of the reel on the spindle, one of said reel mount engagements being an interlocking one for angularly fixing the reel and spindle.

3. In a device of the character described the combination of a spindle adapted for the removable mounting of a reel over an end thereof and provided with an external surface reel mount formation and provided with an axial bore extending inwardly from said end thereof and providing an internal surface reel mount formation, and a reel including two axially spaced side plates one of which is provided with a spindle opening engageable with said external surface formation of the spindle and the other plate of which is provided with an axial projection projecting in the direction of the first mentioned plate and engageable in said bore for the mounting of the reel on the spindle.

4. In a device of the character described the combination of a spindle adapted for the removable mounting of a reel over an end thereof and provided with an external surface reel mount formation and provided with an axial bore extending inwardly from said end thereof and providing an internal surface reel mount formation, and a reel including two axially spaced side plates one of which is provided with a spindle opening engageable with said external surface formation of the spindle and the other plate of which is provided with an axial projection projecting in the direction of the first mentioned plate and engageable in said bore for the mounting of the reel on the spindle, one of said reel mount engagements being an interlocking one for angularly fixing the reel and spindle.

5. In a device of the character described the combination of a spindle adapted for the removable mounting of a reel over an end thereof and provided with an external surface reel mount formation and provided with an axial bore extending inwardly from said end thereof and providing an internal surface reel mount formation of polygonal shape, and a reel including two axially spaced side plates one of which is provided with a spindle opening engageable with said external surface formation of the spindle and the other plate of which is provided with an axial stud projecting in the direction of the first mentioned plate and engageable in said bore and having a polygonal shape cooperating with the polygonal shape of said bore for angularly fixing said reel and spindle.

6. A reel spindle adapted for the removable mounting of a reel over an end thereof and provided with a reel mount structure comprising an external surface reel mount formation and an axial bore extending inwardly from said end thereof and providing an internal surface reel mount formation, said external and internal surface formations being adapted to cooperate with corresponding formations of a reel for the mounting of the reel on the spindle.

7. A reel spindle adapted for the removable mounting of a reel over an end thereof and provided with a reel mount structure comprising an external surface reel mount formation and an axial bore extending inwardly from said end thereof and providing an internal surface reel mount formation, said external and internal surface formations being adapted to cooperate with corresponding formations of a reel for the mounting of the reel on the spindle, and said bore being polygonal for interlocking with the corresponding formation of the reel for angularly fixing the reel and spindle.

8. A reel provided with a spindle opening at one side thereof and a relatively small projection disposed axially of said spindle opening and projecting from a point axially spaced from said side toward said side and adapted to engage in an axial bore of a suitable spindle to cooperate with said spindle opening for the removable mounting of the reel on the spindle.

9. A reel including two axially spaced side plates one of which is provided with a spindle opening and the other of which is provided with a relatively small projecting formation disposed axially of said spindle opening and projecting toward said first mentioned plate and adapted to engage in an axial bore of a suitable spindle to cooperate with said spindle opening for the removable mounting of the reel on the spindle.

10. A reel including two axially spaced side plates one of which is provided with a spindle opening and the other of which is provided with a relatively small projecting formation disposed axially of said spindle opening and projecting toward said first mentioned plate and adapted to engage in a polygonal axial bore of a suitable spindle to cooperate with said spindle opening for the removable mounting of the reel on the spindle, said projecting formation being polygonal for interlocking with the spindle bore to angularly fix the reel and spindle.

ALBERT S. HOWELL.