

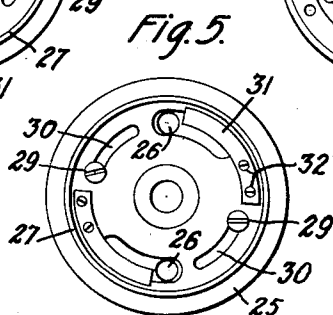
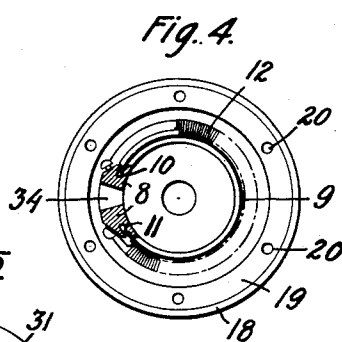
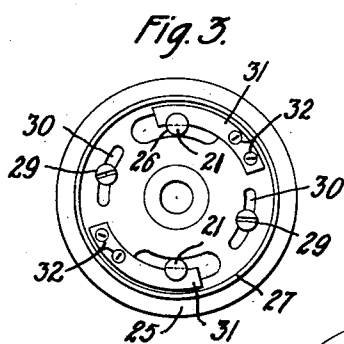
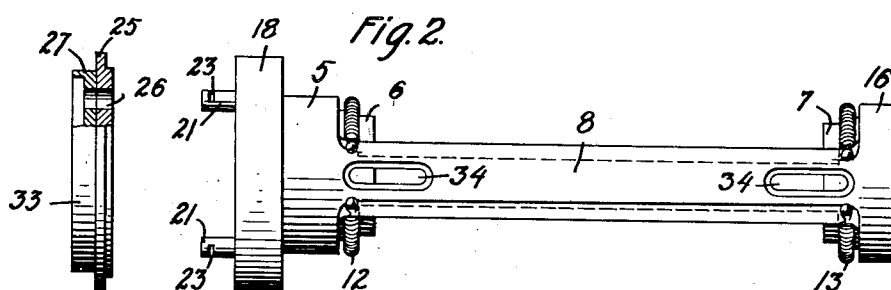
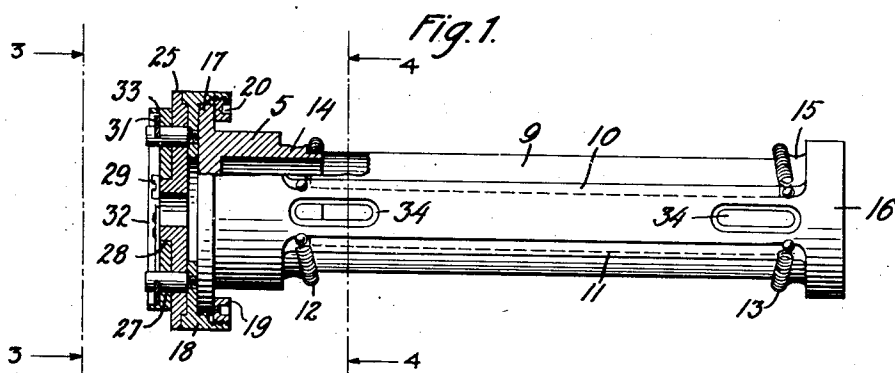
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C. H. HAYNES

SHEET MOUNTING DEVICE

Filed May 5, 1924



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UNITED STATES PATENT OFFICE.

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SHEET-MOUNTING DEVICE.

Application filed May 5, 1924. Serial No. 711,035.

To all whom it may concern:

Be it known that I, CHESTER H. HAYNES, a citizen of the United States of America, residing at Cranford, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Sheet-Mounting Devices, of which the following is a full, clear, concise, and exact description.

This invention relates to sheet mounting devices and more particularly to a device for holding a sheet of material in cylindrical form in fixed relationship to a driving member.

The problem often arises of holding sheets of material in cylindrical form, of rotating them by means of a revolving shaft, and of detaching the material from the shaft. One example occurs in connection with equipment for the transmission of pictures by electricity. In such equipment it is customary to mount a transparency of the picture to be transmitted on a glass drum which is connected to the driving shaft of the sending apparatus. A photo-electric cell is mounted within the drum in such a manner as to be variably affected by light passing through the transparency as the drum is rotated. At the reproducing terminal a recording blank is attached to another rotatable drum. For ease of manipulation these sheet holding devices or drums are made detachable from the driving shafts. The devices previously known, while effective, were difficult to manipulate, or complicated and expensive.

An object of the present invention is to obviate the use of glass drums. Another object is to simplify the sheet holding devices and to make them easily detachable from the driving mechanism without the use of separate tools.

In one embodiment of the invention a film is held in cylindrical position by circular supports at each end and a single member extending therebetween for holding the supports in position and for holding the remaining edges of the film. The film is held against the circular supports by coiled springs. The film holding device is detachably connected to a revolvable shaft by a hand operated clamping mechanism.

The novel features which are considered characteristic of this invention are set forth with particularity in the appended claims.

The invention, both as to its organization and method of operation, together with other objects and advantages thereof, will be further set forth in the following detailed description having reference to the accompanying drawing consisting of the following figures:

Fig. 1 shows a film holding device with film in position connected to a mounting member.

Fig. 2 shows the film holding device with the film removed and disconnected from the mounting member.

Fig. 3 is an end view of Fig. 1 looking toward the right.

Fig. 4 is a cross-sectional view of Fig. 1 looking toward the left at the line 4—4.

Fig. 5 is an end view of the mounting mechanism of Fig. 2 looking toward the right.

Like reference characters are used for like elements in each of the figures of the drawing.

A film holder consists of two short cylindrical surfaces 6 and 7 connected by a metallic member 8. The cylindrical surfaces 6 and 7 are arranged coaxially and separated by the length of film to be held. The metallic member 8 is integral therewith and occupies only a small portion of the periphery. The relative location of the cylindrical surfaces 6 and 7 and metallic member 8 is shown in Fig. 4. The opposite edges of the metallic member 8 are parallel to each other and provided with grooves 10 and 11. A film 9 is wrapped around the cylindrical surfaces 6 and 7 and the remaining edges are slipped into grooves 10 and 11. Coiled springs 12 and 13 are then slipped over the film to hold it in position. Circular grooves 14 and 15 are provided to conveniently hold the springs 12 and 13 while the film is being placed in position. Reinforcing ring 16 is provided for cylindrical surface 7, while ring 5 serves the same purpose for surface 6. Ring 5 also serves as a connecting link in the mounting of the film holder.

Flange 17, integral with ring 5, is provided for attaching the film holder to a face plate 18. An externally threaded ring 19, having screw engagement with face plate 18, completes the connection. Holes 20 in ring 19 are provided for the use of a wrench. Mounted on the face plate 18 are two posi-

tioning and clamping pins 21, 21. Each of these pins has a notch 23.

In a simplified arrangement the pins 21, 21 are mounted directly on the flange 17, thus eliminating face plate 18 and clamping ring 19 and reducing the cost.

A mounting plate 25 is provided with two holes 26, 26 so positioned as to receive pins 21, 21. The mounting plate 25 may be secured to a driving shaft in any suitable manner, preferably by providing the end of the shaft with a collar and screw threads whereby the mounting plate may be forced rigidly against the collar by means of a nut. For the sake of simplicity, this arrangement is not shown in the drawing. A clamping plate 27 is rotatably mounted on the mounting plate 25, the cylindrical surface 28 serving as a bearing for the clamping plate 27. The clamping plate 27 is held in position by screws 29, 29 which pass through slots 30, 30 in the mounting plate 27. Clamping springs 31, 31 are mounted on the clamping plate 27 by means of screws 32, 32. The clamping plate 27 is provided with a knurled surface 33 so that it may be rotated by hand.

In order to disengage the film holding device from the mounting device, the clamping plate 27 is rotated clockwise (see Fig. 3), until the springs 31 disengage the notches 23 of pins 21, 21. The film holding device can then be disengaged from the mounting device by slipping the pins 21, 21 out of the holes 26, 26. To engage the film holding device and the mounting device the opposite procedure is followed. After the pins 21, 21 have been slipped into holes 26, 26, the clamping plate 27 is rotated in counter clockwise direction until the clamping springs slip into notches 23, 23 and, as the rotation is continued, clamp the face plate 18 tightly against the mounting plate 25.

It is thus seen that the relative location of the film holding device with respect to the mounting device is always the same and depends upon the relative location of the pins 21, 21 and the holes 26, 26. This relative location is not changed by the rotation of the clamping plate 27, the position of which determines the tightness of the clamping effect. The arrangement for mounting the film in cylindrical form obviates the use of a glass cylinder which previously has been used, holding the transparency of a picture to be transmitted in cylindrical shape. The arrangement according to this invention is not only simple in construction but is easily manipulated. Since for picture transmission the light passing through the film to the photo-electric cell has to pass only through the film, inaccuracies due to the glass cylinder are eliminated.

While the connecting member 8 is shown integral with members 5 and 16 they may

obviously be separate elements connected together in any suitable manner.

The member 8 is provided with holes 34, 34 at either end for testing purpose, when it is desired to allow light to shine upon a photo-electric cell located inside of the drum before the transmitting process commences.

Modification of the specific embodiment of the invention, as hereinbefore described, may be made without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

1. The method of holding a flexible sheet in cylindrical shape which comprises supporting opposite edges upon a circular form, holding the remaining edges in straight form, and flexibly holding the first mentioned edges against said circular support.

2. The method of detachably connecting two members which comprises positioning the two members in fixed relationship to each other and securing them in this position by a rotary movement of a portion of one of said members.

3. A first member having a recess, a second member, a projection on said second member adapted to enter said recess, said projection having a notch therein and a rotating member mounted on said first member, the rotation of which engages said notch to hold said members in fixed relationship.

4. A first member, a second member secured thereto in definite relationship therewith, said first member having a plurality of holes therein, corresponding projections on said second member projecting into said holes, each of said projections having a notch therein, a hand operated rotating member mounted on said first member, the rotation of which engages said projections to clamp the two members together.

5. A first member having a plurality of holes therein, a second member secured thereto in definite relationship therewith, corresponding projections on said second member projecting into said holes, each of said projections having a notch therein, a hand operated rotating member mounted on said first member, springs mounted upon said rotating member for entering said notches upon the rotation of said member to clamp said two members together.

6. Two circular members, a connecting member therebetween extending only partially around the periphery of said circular members, a flexible sheet of material mounted on said circular members in cylindrical form, and means to hold said sheet in said position.

7. A metallic member terminating at each end in coaxially cylindrical forms, a flexible sheet of material mounted on said cylindrical forms, opposite edges of said metallic member having grooves into which the

straight edges of said sheet are inserted, and means to hold said sheet in fixed position on said forms.

8. A device for holding a transparent film in the form of a hollow cylinder comprising a pair of members having short cylindrical surfaces, a member joined to said cylindrical surfaces for holding them at a distance from each other but in coaxial relationship, and means to hold opposite edges of a film in contact with said surfaces.

9. A device for holding a transparent film in the form of a hollow cylinder comprising a pair of members having short cylindrical surfaces, a member joined to said cylindrical surfaces for holding them at a distance from each other but in coaxial relationship, means to hold opposite edges of a film in contact with said surfaces, said

parallel edges having slits to receive the straight edges of the film, and extensible members for holding the other edges of said film against said cylindrical surfaces.

10. A device for holding a transparent film in the form of a hollow cylinder comprising a pair of members having short cylindrical surfaces, and a member joined to said cylindrical surfaces for holding them at a distance from each other but in coaxial relationship, said joining member having holes at each end for testing purposes.

11. A sheet holding device comprising a cylindrical drum from which a substantial portion is missing, a flexible sheet wrapped around said surface, and means to hold said sheet in cylindrical position.

In witness whereof, I hereunto subscribe my name this 29th day of April A. D. 1924.

CHESTER H. HAYNES.