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1,782,470

ROLL SPREADER

Filed Oct. 13, 1928

Fig. 1.

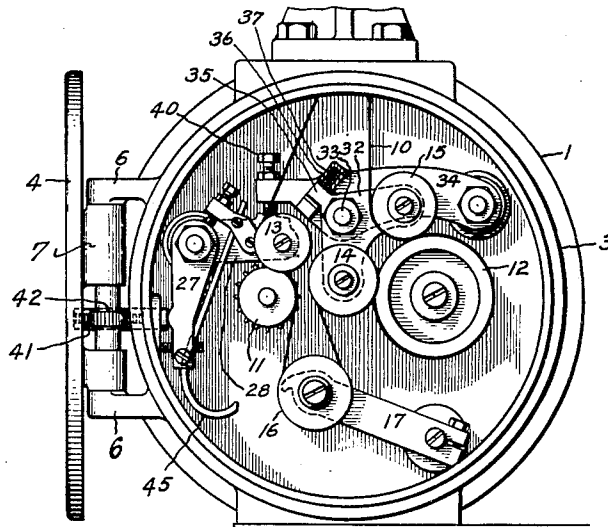


Fig. 2.

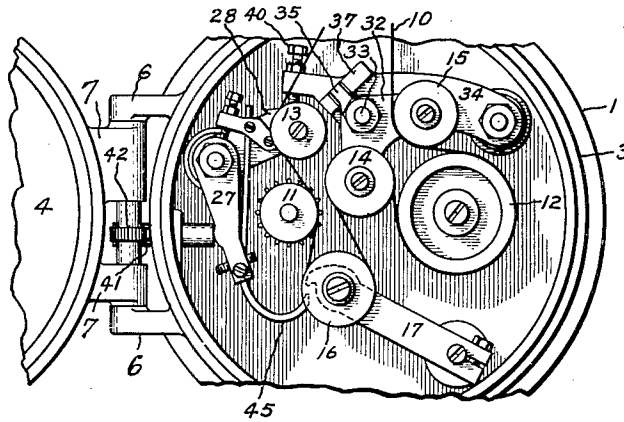
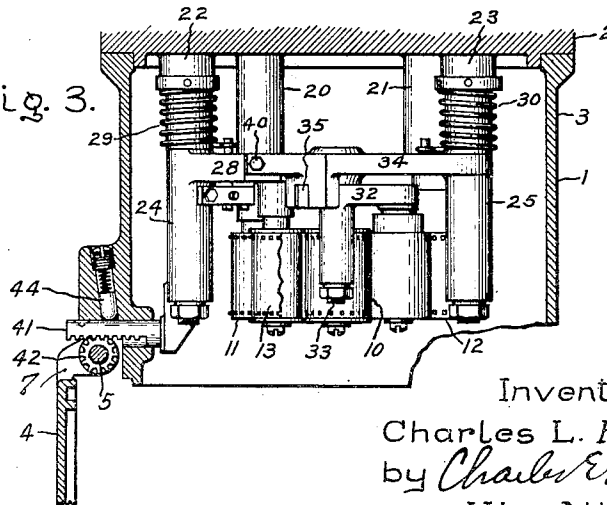


Fig. 3.



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UNITED STATES PATENT OFFICE

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ROLL SPREADER

Application filed October 13, 1928. Serial No. 312,391.

My invention relates to apparatus employing a film strip upon which a record is made or from which a reproduction is made from a previously made record thereon. More particularly my invention relates to the apparatus by means of which the film strip is directly supported and moved.

In apparatus of this character the film is commonly engaged by various rolls against which it is pressed by other auxiliary rolls and to facilitate the threading of the film through the apparatus the auxiliary rolls usually are shifted manually one at a time by the operator each out of engagement with its cooperating roll. It is an object of my invention to provide an improved apparatus of this character whereby the spreading of a plurality of pairs of rolls between which the film passes may be simultaneously effected. Another object is the provision of improved means for effecting this spreading of the rolls in response to a predetermined opening movement of the casing containing the apparatus.

My invention will be better understood from the following description taken in connection with the accompanying drawing, and its scope will be pointed out in the appended claims.

This application is a continuation in part of my copending application Serial No. 212,349, filed August 11, 1927.

Referring to the drawing, Fig. 1 shows in side elevation one embodiment of my invention with the casing door partly open; Fig. 2 is similar to Fig. 1 with the door fully open; and Fig. 3 is a cross section corresponding to Fig. 1.

For the purpose of illustration I have chosen to show my invention as forming a part of a sound recording apparatus. The casing 1 enclosing the apparatus is shown comprising the base 2, the cylindrical portion 3 and the door 4, the latter being hinged to the casing by the pivot pin 5 carried by lugs 6 and 7 respectively on the casing and the door. In the present embodiment of my invention the film 10 enters and leaves the casing through suitable openings in the top and from there extends to suitable reels (not

shown). In its course through the apparatus the film passes over various rolls, some of which drive the film while others serve only to press the film thereagainst. In the present embodiment I have shown one of the rolls as the driving sprocket 11 and another of the rolls as the driving drum 12. Idler roll 13 serves to press the film against the sprocket 11 and idler rolls 14 and 15 press the film against the drum 12. Idler 16 engages a loop in the film and is mounted on the end of lever 17, movement of which controls the relative speeds of the sprocket and drum in the manner shown and explained in my aforesaid copending application Serial No. 212,349. For convenience in the claims I have termed the sprocket 11 and drum 12 main rolls, and have termed the idlers 13, 14 and 15 auxiliary rolls.

The shafts of the sprocket and drum are mounted respectively in the bosses 20 and 21 on the base 2. Pivoted on fixed studs supported by other bosses 22 and 23 are the sleeves 24 and 25. Sleeve 24 has the downwardly projecting arm 27 at its forward end and the laterally projecting arm 28, on the outer end of which is carried the idler 13. Coil spring 29 yieldingly holds idler 13 against the sprocket with the proper pressure and a similar spring 30 likewise holds idlers 14 and 15 against the drum. Idlers 14 and 15 are mounted on the yoke 32 which is pivoted at 33 on the arm 34 carried by sleeve 25. To insure that both idlers 14 and 15 shall lift from the surface of drum 12 when arm 34 is raised, the yoke 32 is provided with the projection 35 which is engaged by the coil spring 36 mounted in the housing 37 on arm 34. The free end of arm 34 carries the adjusting screw 40 arranged to engage and be lifted by arm 28. Arm 27 is operated by the rack rod 41 mounted to slide in the casing wall with its teeth in mesh with the pinion 42 which is fixed to the door lugs 7 and surrounds the hinge pin 5. The rack rod 41 is of such length that the door may be opened approximately 90° before it engages the arm 27. This permits the operator to open the door sufficiently to observe the operation of the mechanism without disturbing it. If a

new film is to be threaded he merely swings the doors to its full open position as shown by Fig. 2 when rack rod 41 moves arm 27 which in turn raises arms 28 and 34, thus lifting idler 13 from the sprocket and idlers 14 and 15 from the drum. To prevent the door being pushed shut by the reaction of the springs on the sleeves 24 and 25 I have provided the detent 44 which when the door is fully open engages a suitable notch in the rack rod 41. When a film is being threaded the idler 16 should be in its raised position. For convenience in holding it in this position at this time I have provided the spring hook 45 which is adjustably attached to arms 27 and 28. When the door is swung from full open position to that shown in Fig. 1 the hook releases idler 16 as well as releasing idlers 13, 14 and 15.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. Apparatus of the character described comprising an enclosing casing having a door, a plurality of pairs of rolls therein between which a film is adapted to pass, adjustable supporting means for one roll of each pair and means controlled by the position of said door for moving said supporting means.

2. Apparatus of the character described comprising a main roll, a pair of auxiliary rolls adapted to press a film thereagainst, a pressure equalizing support for said auxiliary rolls, roll-separating means, and means for causing both rolls of said pair to separate from the main roll when said roll separating means is operated.

3. Apparatus of the character described comprising an enclosing casing having a door, a plurality of rolls in the casing including a control idler adapted to engage a loop in a film, said idler being mounted to move in accordance with variations in the size of the loop and means for holding the idler in one position when the door is in a certain position and for releasing the idler when the door is moved to another position.

4. In apparatus of the character described, an enclosing casing, a main roll therein over which a film is adapted to pass, an auxiliary roll mounted on said casing for movement toward and from said main roll, a door for said casing, and means responsive to a movement of the door to a predetermined position for separating said rolls.

5. In apparatus of the character described, an enclosing casing, a plurality of main rolls therein, an auxiliary roll for each main roll mounted on said casing, means for resiliently pressing the auxiliary rolls against their respective main rolls, a door pivoted to said casing, and means responsive to the movement of said door to a predetermined open position for spreading the respective main and auxiliary rolls.

6. In apparatus of the character described,

an enclosing casing, a main film engaging roll mounted therein, an arm mounted in the casing having an auxiliary roll arranged to press the film against the main roll, a door hinged to the casing, and a connection between said arm and said door operative in response to movement of the door beyond a predetermined open position thereof to separate the auxiliary roll from the main roll.

7. In apparatus of the character described, an enclosing casing, a main film engaging roll mounted therein, an arm pivoted to the casing having an auxiliary roll arranged to press the film against the main roll, a door hinged to the casing, and a lost motion connection between the door and the arm, whereby the door may be opened to a predetermined position to permit viewing the apparatus in the casing without affecting the auxiliary roll but movement of the door beyond that position causes the auxiliary roll to be separated from the main roll.

In witness whereof, I have hereunto set my hand this 11th day of October, 1928.

CHARLES L. HEISLER.