M. E. NOBLE.

MOTION PICTURE FILM CLEANER.

APPLICATION FILED MAY 22, 1916.

1,239,295.

Patented Sept. 4, 1917.

3 SHEETS—SHEET 1.

Fig. 1.

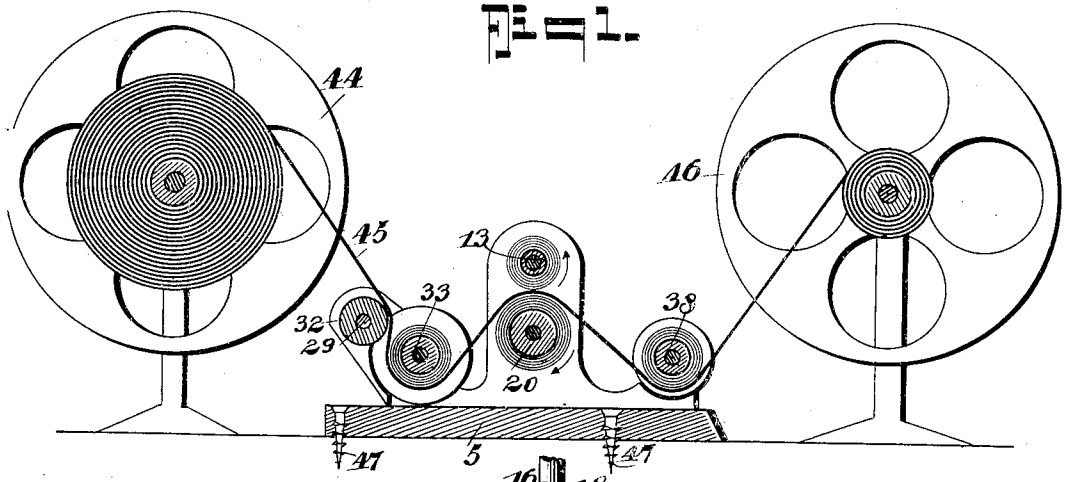


Fig. 2.

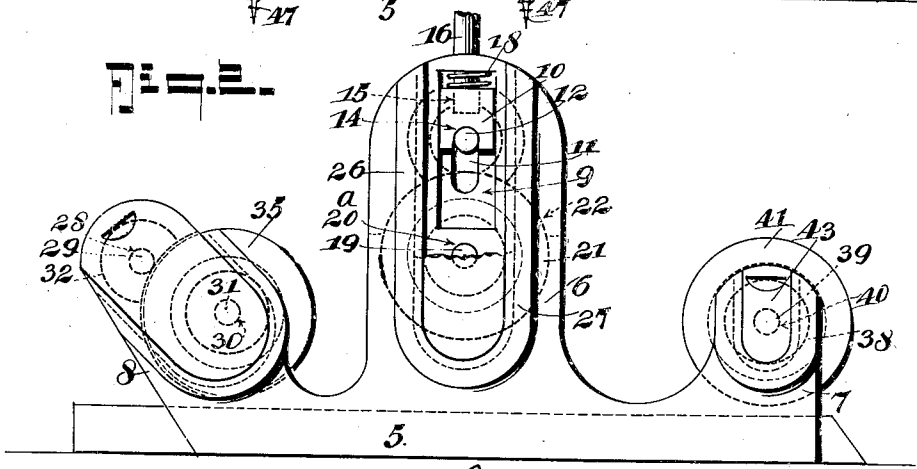
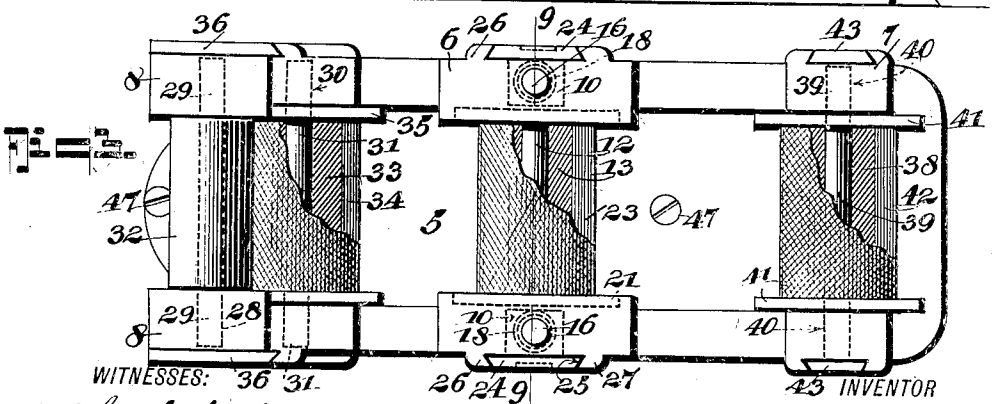


Fig. 3.



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Fig. 5.

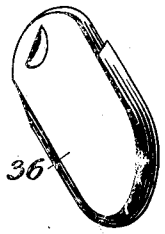


Fig. 4.

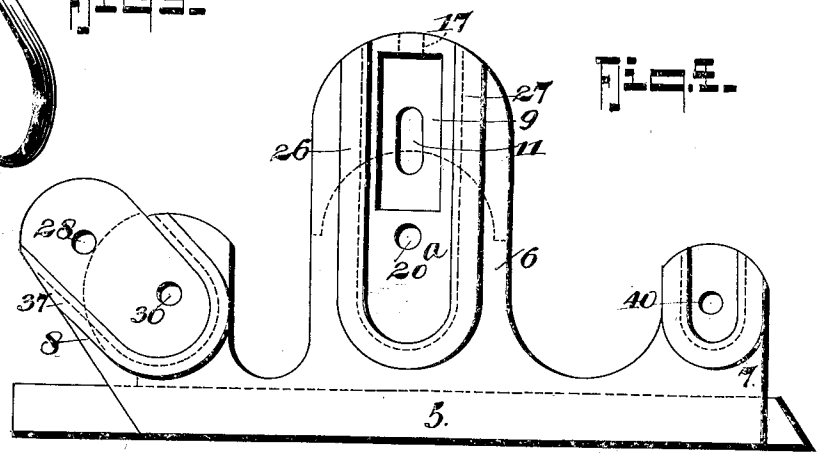


Fig. 7.

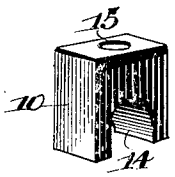


Fig. 6.

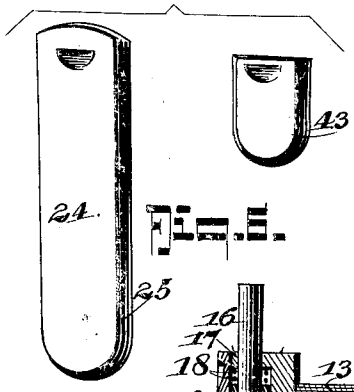


Fig. 8.

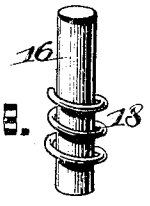
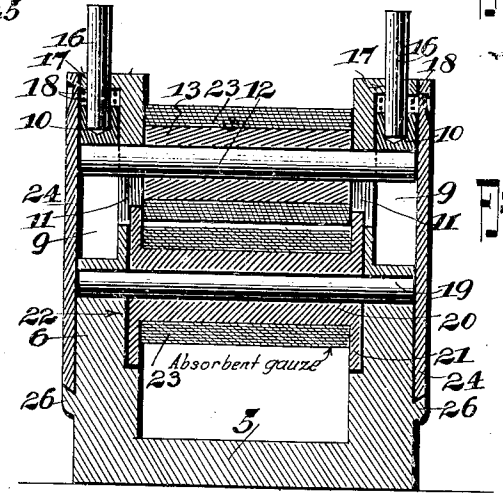


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 10.

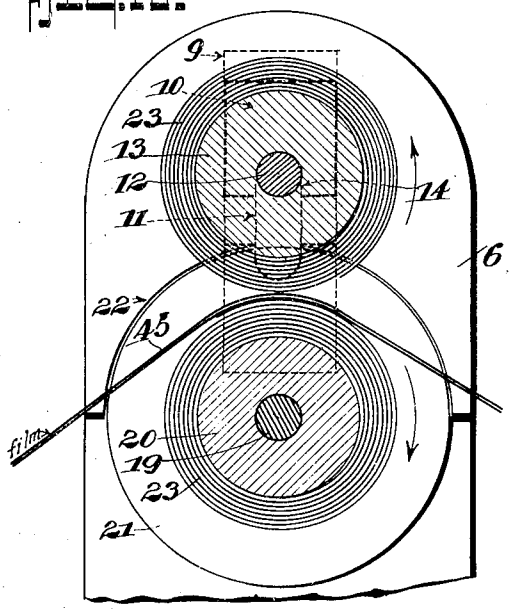


Fig. 11.

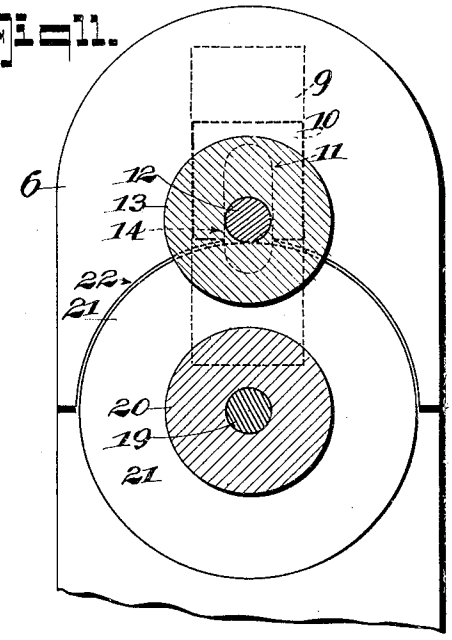


Fig. 12.

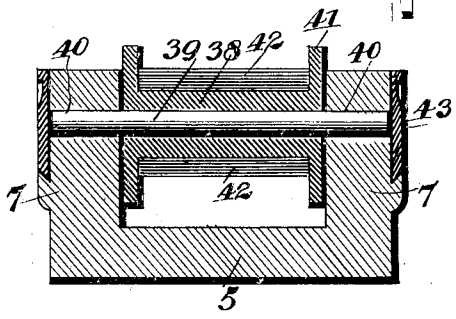


Fig. 13.

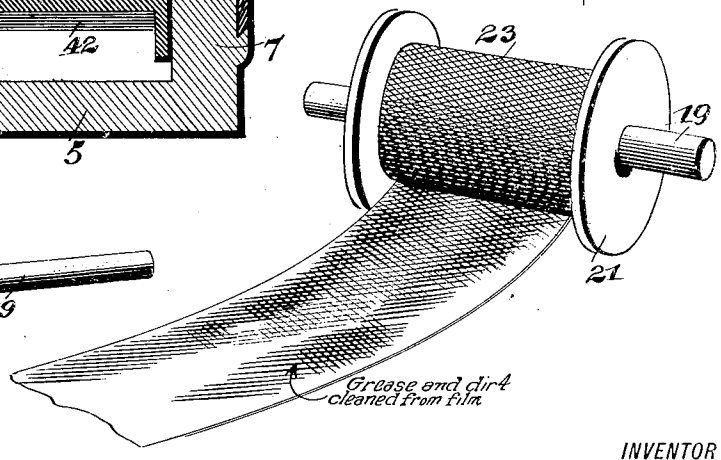
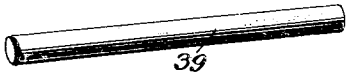


Fig. 14.



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UNITED STATES PATENT OFFICE.

MARCOS EUGENE NOBLE, OF ELGIN, TEXAS.

MOTION-PICTURE-FILM CLEANER.

1,239,295. Specification of Letters Patent. Patented Sept. 4, 1917.

Application filed May 22, 1916. Serial No. 99,209.

To all whom it may concern:

Be it known that I, MARCOS E. NOBLE, a citizen of the United States, and a resident of Elgin, in the county of Bastrop and State of Texas, have invented a certain new and useful Improvement in Motion-Picture-Film Cleaners, of which the following is a specification.

It is well known in the art to which this invention relates that a great deal of inconvenience and annoyance has been caused by the oil and grease that is thrown on motion picture films by the machines, and it is a primary object of my invention to allay this nuisance by the provision of a device for quickly and thoroughly removing the oil and dirt from the film.

The details of construction, arrangement and operation of parts composing the apparatus are as hereinafter described and illustrated in the accompanying drawing in which—

Figure 1 represents a view taken in section longitudinally of a film cleaning device constructed according to my invention, showing the same in operation.

Fig. 2 represents a side elevational view of the device.

Fig. 3 represents a top plan view thereof, certain of the rolls being shown partly in section.

Fig. 4 represents a view similar to Fig. 2 with the rolls and cover plates removed.

Fig. 5 represents a view in perspective of one of the cover plates.

Fig. 6 represents a view in perspective of the remaining cover plates.

Fig. 7 represents a view in perspective of the journal blocks.

Fig. 8 represents a view in perspective of the pin and associated spring for actuating the journal blocks.

Fig. 9 represents a view in section taken vertically and transversely on the plane indicated by the line 9—9 of Fig. 3.

Fig. 10 represents a view in section taken transversely through the central rollers representing in detail the method in which the gauze is wound thereon.

Fig. 11 represents a similar view showing the position of the rollers after the gauze has been entirely removed.

Fig. 12 represents a view taken longitudinally through one of the end rollers.

Fig. 13 represents a view in perspective of one of the rollers representing the manner in which soiled lengths of the gauze may be pulled out for severance from the roll.

Fig. 14 represents a perspective view of one of the axles or shafts on which the rollers are mounted.

Referring more particularly to the drawings, the frame of the device on which the cleaning rollers are mounted, may be cast of iron or steel or aluminum or of other suitable metal. It includes a substantially rectangular base 5, from adjacent whose lateral edges at their central portions rise the spaced vertical central standards 6. At one end of the base rises a pair of shorter standards 7, which may be conveniently termed the rear standards, and from the opposite end rises a forward pair of standards 8.

The central standards 6 have their outer surfaces near their upper ends provided with rectangular recesses 9, in which the journal blocks 10 are arranged for vertical sliding movements. The standards are pierced with horizontally alined elongated openings 11, which occur centrally of the floors of the recesses 9, and through these openings extends an axle 12 on which a roller 13 is journaled, between the standards 6. The ends of the axle are engaged in the blocks 10, the latter as indicated in Fig. 7 being recessed at 14 for receiving the ends of the axle. The blocks are arranged above the axle, and are provided at their upper ends with recesses 15 receiving the lower ends of pins 16, which pins extend upwardly and slidably through openings 17 provided in the roof portions of the recesses 9. Between the roof of the recesses and the blocks 10 are arranged coil springs 18 whose tendency is to force the blocks downwardly.

A lower axle 19 is arranged in vertical alinement with and below axle 12, being extended at its ends through openings 20 provided in the standards 6 below the recesses 9. Rotatably mounted on this axle is a second roller 20 provided at its ends with flanges 21 spaced apart a distance substantially equal to or greater than the length of the roller 13. These flanges 21 are positioned in recesses 22 provided in their inner walls of standards 6. On each of the rollers or spools 13 and 20 there is wound a strip of absorbent gauze 23, to a thickness of about a quarter of an inch. The gauze strip preferably has a selvage edge. As indicated in

Fig. 10, the strips of gauze are wound on the spools in a direction opposed to the direction in which the spools rotate as the film passes between them, whereby there will be no tendency to unwind the gauze as the spools rotate. It will of course be understood that I may, if it is found desirable, use some other absorbent material in lieu of the gauze. The inner walls of the uprights 6, it will be noted, retain the gauze strips in proper position upon the roller 13, while the flanges 21 prevent lateral disarrangement of the gauze on the roller or spool 20. These flanges, furthermore, serve to properly guide the film as it is fed between the gauze rolls.

The tension mechanism and the axles are retained in position in the standards 6 by means of the cover plates 24, which as shown are provided with beveled edges 25 which snugly and slidably fit against the beveled shoulder 26 defined by a bead 27 formed on each of the standards 6, as indicated clearly in the drawings. This method of construction and assembly of the parts render the latter readily accessible, allows for the ready removal and replacing of the parts, and provides a means whereby the rollers can quickly be dismounted and rewound with the absorbent material, and then placed back in position.

The forward standards 8, as indicated, are arranged at an inclination of about forty-five degrees to the vertical, and are provided with an upper pair of transversely alined openings 28 for receiving an axle 29 and with a lower pair of transversely alined openings 30 for receiving an axle 31. A guide roller 32 is mounted on the axle 29, and a roller 33, on which may be wound a strip of gauze 34, is mounted on the axle 31. This roller 33 is provided with end flanges 35 which are received in recesses provided in the inner faces of the standards 8. The cover plates 36 constructed substantially similar to the plate 24 and slidably retained in beads 37 provided on the standards 8, prevent lateral displacement of the axles 29 and 31.

A fifth roller or spool 38 is mounted on an axle 39 which is received in transversely alining openings 40 provided in the rear standards 7. This roller 38 is provided with end flanges 41, and on the roller a strip of gauze or other absorbent material 42 is wound. The cover plates 43 similar in construction to those already described, retain the axle 39 in place.

The manner of operating the device for cleaning a moving picture film, is indicated in Fig. 1. Each of the rollers, except the guide roller 32, is wrapped with a suitable length of the absorbent material, which material is wound in a direction opposed to the direction in which the rollers rotate while in operation. From a suitable reel indicated generally at 44, the film 45 is directed between the rollers 32 and 33, being guided over the roller 32 and under roller 33, is then directed upwardly and between the gauze lengths wound upon the rollers 13 and 20, then downwardly to pass under the roller 38, and thence is wound upon a suitable reel, indicated generally at 46. The reel 46, it will be understood, is rotated in a direction to feed the film from the reel 44 and through the cleaner. Roller 33, similarly to roller 38, is arranged below the level of the roller 20, so that the film, as it passes through the cleaning device will be retained in a flat condition and will be prevented from sagging or becoming slack. As the film passes between the various gauze-wrapped rollers, the oil and grease and dirt upon the film will be absorbed by the material, and the film will eventually be wound upon the reel 46 in a clean condition. After a film has been run through the cleaner, the operator removes the soiled portion of each of the gauze rolls, by catching hold of the end of the roll and pulling it out, as indicated in Fig. 13, until the soiled portion of the gauze has been unwrapped. This soiled portion is then severed from the roll, and the device is again ready for operation. The advantage of this arrangement resides in the fact that many films may be passed through the cleaner without requiring replenishment of the rollers with the absorbent material.

As the film passes between the central rollers, the spring tensioned roller in tending to force the rolls of material upon the central rollers together, effectuates a thorough contact of the gauze with the film on both sides of the latter, so that the oil and grease will be thoroughly absorbed and removed from the film.

As indicated in Fig. 6 the flanges 21 of roller 20 extend, at the upper portions of their peripheries, above the lower end of the elongated opening 11 within which the axle 12 moves. The thickness of the wraps of gauze upon the rollers 13 and 20, ordinarily retains the axle 12 out of contact with the flanges 21, and as the thickness of these wraps decreases by removal from time to time of soiled portions of the gauze from the rolls, the axle moves downwardly until at a time when substantially all of the gauze has been removed, the axle will engage and bind upon the flanges 21, whereby to notify the operator that the rollers need replenishing. The position of the parts taken at this time is indicated in Fig. 11.

The base 5 is provided at suitable points with openings for receiving screws or other fastening elements 47 for attaching the cleaning device to a table or other support.

I claim:—

1. A film cleaning device including a base

having a forward, a central, and a rear pair of standards rising therefrom, a pair of vertically unalined rollers detachably carried by the forward standards, a pair of vertically alined rollers detachably carried by the central standards, and a roller detachably carried by the rear standard, the rollers adapted to have a film guided between them in such manner as to prevent slack occurring in the film, certain of the rollers having absorbent material wound thereon for removing oil and grease from the film, and means for detachably securing the rollers in place whereby they may readily be removed at will for replenishment.

2. A film cleaner including forward rollers arranged one above the other out of vertical alinement adapted to receive a film between them, one of the rollers being wound with absorbent material, a central pair of rollers arranged in vertical alinement and having rolls of absorbent material wound on them between which the film is adapted to pass, the axis of the lowermost of the central rollers being arranged above the axis of the lowermost roller of the forward rollers, and a rear roller having a roll of absorbent material thereon under which the film is adapted to pass, the rear roller having its axis arranged below the axis of the lowermost of the central pair.

3. A film cleaning device including a standard having a lower roller carried thereby and an upper spring tensioned roller movable toward the lower roller, both of the rollers being wrapped with absorbent material between which the film is adapted to pass, said absorbent material being adapted to be removed from time to time as it becomes soiled, and flanges provided on the lower roller against which flanges the upper roller is adapted to bind when there is but a predetermined amount of material left on the rollers.

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Witnesses:
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C. D. Carlson.