

Sept. 19, 1933.

A. S. DWORSKY

1,927,784

FILM CLEANING MACHINE

Filed Dec. 24, 1931

2 Sheets-Sheet 1

Fig. 1

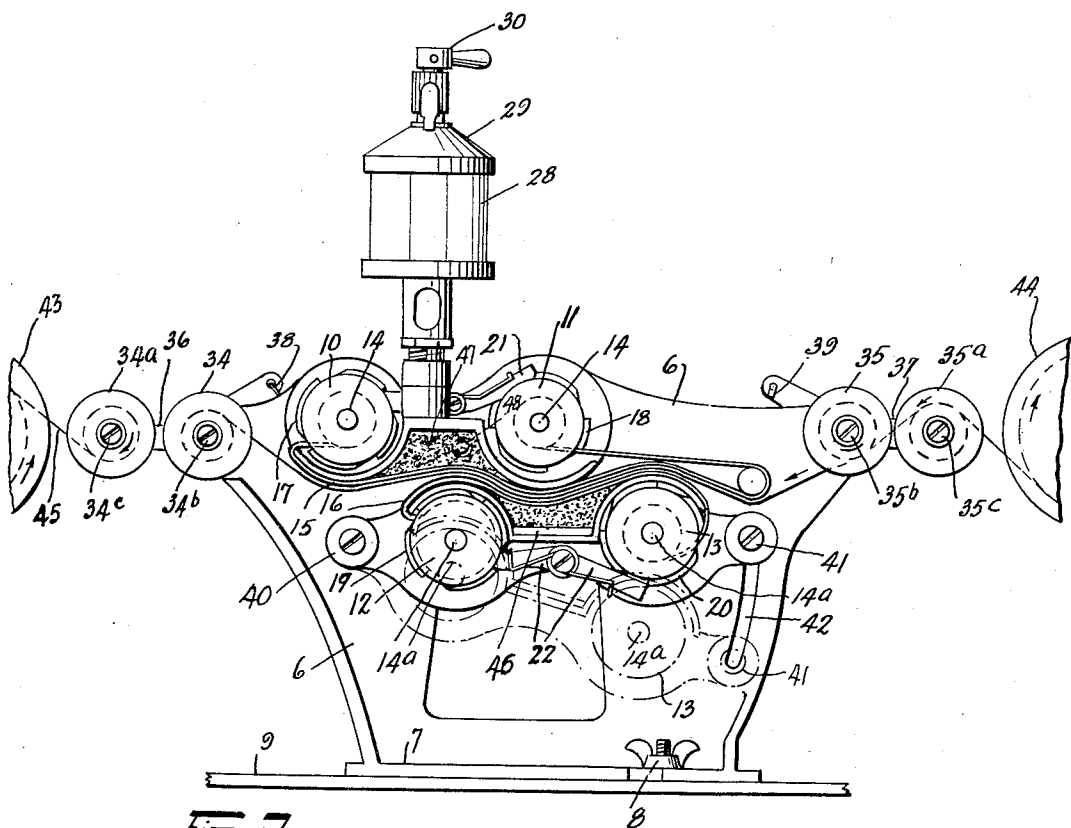
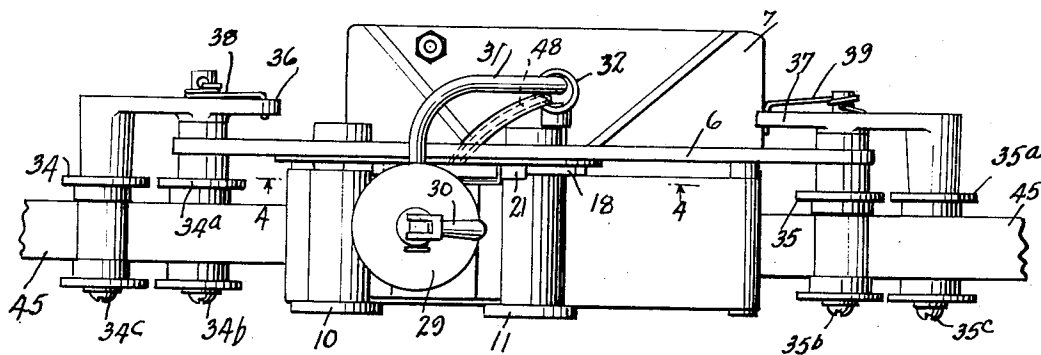


Fig. 2



INVENTOR
Abraham S. Dworsky
BY *James C. Carter*
ATTORNEY

Sept. 19, 1933.

A. S. DWORSKY
FILM CLEANING MACHINE

1,927,784

Filed Dec. 24, 1931

2 Sheets-Sheet 2

Fig. 3

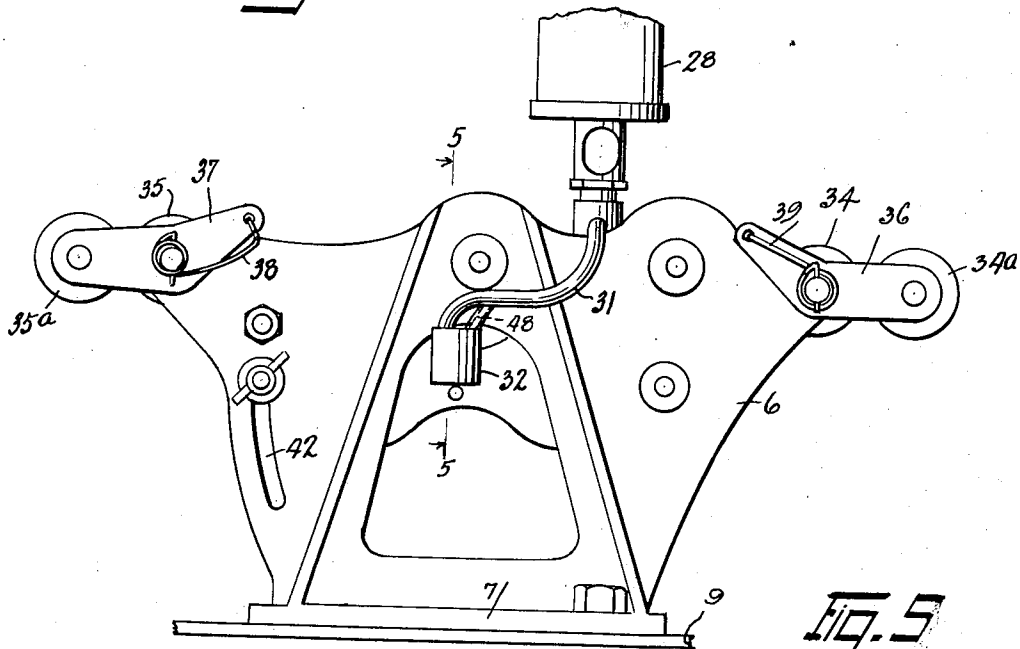


Fig. 4

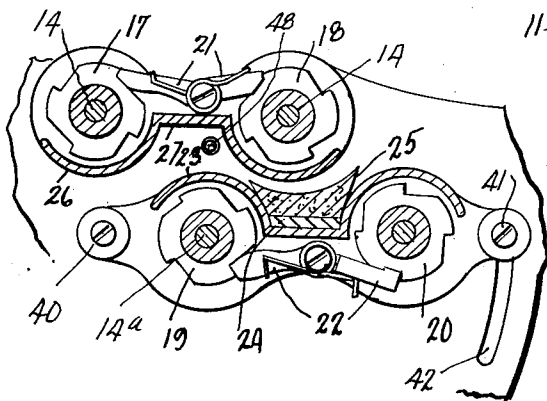
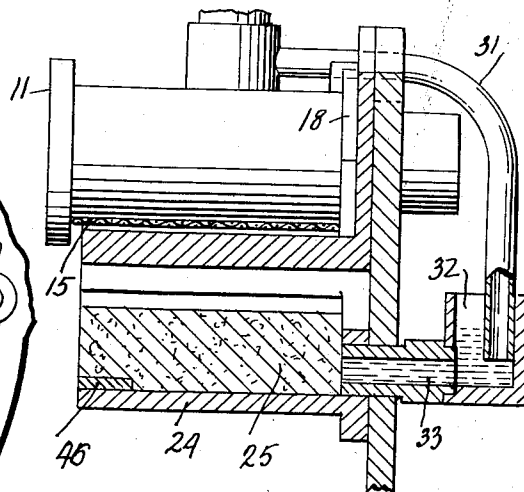


Fig. 5



INVENTOR
Abraham S. Dworsky.
BY *James B. Carter*
ATTORNEY

UNITED STATES PATENT OFFICE

1,927,784

FILM CLEANING MACHINE

Abraham S. Dworsky, New York, N. Y., assignor
to James N. Catlow, New York, N. Y.

Application December 24, 1931
Serial No. 583,130

9 Claims. (Cl. 15—100)

This invention relates to film cleaning machines and particularly to machines for cleaning motion picture films, such films being cleaned by passing the same through the cleaning machine which is situated intermediate a paying off reel and a receiving reel carrying such film.

A principal object of the invention is to provide a machine for cleaning films which may be operated in conjunction with the rewinding of a film after the same has been projected.

Another principal object is to provide a machine having cleaning cloths, portions of which are constantly provided with a proper amount of cleaning fluid, and portions of which are absorbent, which cloths are adapted to contact with the faces of the film in the cleaning operation.

Another principal object is to provide means to shift at will the cleaning faces of the cloths.

Another principal object is to provide means for holding the film in proper tension during the cleaning operation.

Other objects will be apparent from reading this specification in connection with the accompanying drawings which form part of the same.

In the drawings,

Figure 1 is a front view of my film cleaning machine;

Figure 2 is a top view thereof;

Figure 3 is a rear view of the machine;

Figure 4 is a detail showing the feeding mechanism for the cleaning cloths; and

Figure 5 is a cross section taken along the line 5—5 of Figure 3.

Referring now in detail to the drawings, in which similar characters refer to similar parts throughout, 6 is the frame of the machine, and 7 the base thereof. Securing means 8 are provided to fasten the machine to a table 9 or other support.

Mounted in the frame of the machine are spindles 14, on which are adapted to rotate a pair of upper spools, 10 and 11, respectively, and hingably connected with the frame of the machine is a lower cleaning assembly in which are spindles 14a, 14a, carrying a pair of lower spools 12 and 13, respectively. On the upper pair of spools 10 and 11 is mounted the upper cleaning cloth 15 and on the lower pair of spools is mounted the lower cleaning cloth 16. Any one of these spools may be manually rotated so as to wind the cleaning cloth thereon, the same being correspondingly paid off the other spool in operative connection therewith. That is, if the cloth is wound on spool 10, it will be paid off from spool 11,

and if the cloth is wound on spool 12, it will be paid off from spool 13. The reverse movement of the cloths may be effected by winding the same on spools 11 and 13, respectively, in which case the paying off spools will be spools 10 and 12, respectively.

The respective discs of the spools 10, 11, 12 and 13 adjacent the frame 6 are given the form of ratchet wheels 17, 13, 19 and 20, respectively, ratchet wheels 17 and 18 being adapted to be engaged by the pawl 21 and ratchet wheels 19 and 20 being adapted to be engaged by the pawl 22. The cooperation of the pawls and ratchet wheels holds the cloths in operative position.

Mounted in the lower spool assembly and forming part of such assembly is a lower platform 23 extending over the lower spools 12 and 13 and having a depressed portion 24 in which is inserted a moistening pad 25. This depressed portion is provided with an impervious step 46 at its outer end which fits closely to the floor and sides of the depressed portion, for the purpose of preventing the drip of cleaning fluid from the absorbent pad 25. This platform 23 at its ends preferably follows the contour of the upper portion of the lower spools 12 and 13. I have also provided an upper platform 26 supported in the frame of the machine, having a depressed portion 27, which platform at its ends follows the contour of the lower portions of the spools 10 and 11. protruding surfaces of these upper and lower platforms preferably intersect a plane between the upper and lower pairs of spools when the machine is in operative position so as to give a slightly waved condition to the cleaning cloths and film passing between.

I have provided a reservoir 28 having the closed top 29 and means 30 for filling the reservoir, the said reservoir being adapted to contain the cleaning fluid intended to be passed to the cleaning cloths. Connected with this reservoir is a conduit 31 which conducts the cleaning fluid to a cup 32 which by the conduit 33 connects with the moistening pad 25.

Two pairs of tension spools 34, 34a, 35, 35a, are also mounted on spindles and supported by the frame. One of each pair of these spools, namely, 34 and 35, is mounted on a spindle 34b and 35b, respectively, which spindles are carried directly by the frame of the machine. The other spools 34a and 35a are mounted on spindles 34c and 35c, respectively, which in turn are carried by oscillating arms 36, 37, which are mounted on the spindles 34b and 35b which extend through the rear of the frame for this purpose.

The said oscillating arms 36 and 37 are influenced by tension springs 38, 39, adapting the spools carried by said arms to add tension to the film in its travel through the cleaning machine.

- 5 The lower spools 12 and 13 and the lower platform 26 are made in one assembly which is hinged to the frame of the machine at 40, the other end of said assembly being provided with a set screw 41 which passes through the slot 42 in the frame and which set screw is adapted to secure the said
10 lower assembly in fixed position to the frame. The depressed portion 27 of the upper platform is provided with a moistening pad 47 which is fed by a wick 48 which extends from said moistening
15 pad through the platform of the machine to the cup 32 which contains cleaning fluid.

In operation a reel of film 43 intended to be cleaned is shown, and a winding reel 44 is provided for the film as the same has been cleaned
20 by the machine. It will be assumed that the moistening pad 25 has been saturated with the cleaning fluid passing from the reservoir 28 through the conduit 31, cup 32, and conduit 33, and that the moistening pad 47 has been saturated
25 through the capillary attraction of the wick 48, the opposite end of which is inserted in the cleaning liquid in the cup 32, and that the cleaning cloths 15 and 16 are in their respective positions on and between their respective rolls. The
30 lower spool and platform assembly is let down to the position shown in dotted lines in Figure 1 preparatory to threading the film 45 through the machine. The film 45 is then threaded from the direction of the paying off reel 43 to the winding
35 reel 44, passing under the spool 34, and over the spool 34a between the two cleaning cloths 15 and 16, under the spool 35 and over the spool 35a, onto the winding reel 44. The winding of the spool 44 draws the film through the cleaning machine, thereby effecting a cleansing of the film. The
40 spools 34 and 35a are influenced out of their inoperative position by the film which is held in tension thereby so as to take up any slack in the film between the reels and the cleaning machine, and the film in its travel through the machine
45 between the cleaning cloths is given a slightly waved path so as to provide for proper wiping thereof to clean the film of foreign matter. The portions of the cloths contiguous to the moistening pads are moistened from the pads to dissolve
50 foreign particles on the film which are removed, and the film dried by its further travel between the dry absorbent portions of the cloths.

The cleaning cloths 15 and 16 are adapted to
55 be shifted so as to present clean surfaces to the film passing therebetween. This is done by manually turning either of the spools 10 or 11 to change the cleaning surface of the upper cloth, and turning the spools 12 or 13 to change the
60 cleaning surface of the lower cloth.

I have above shown and described what I believe to be the best embodiment of my invention. I do not wish to be limited in patent protection, however, to the embodiment shown and described,
65 but what I desire to cover by Letters Patent is set forth in the appended claims.

I claim:

1. In a film cleaning machine, a pair of cleaning elements having faces contiguous to each other, means for maintaining the same in operative position, means for moistening portions of
70 said cleaning elements, a portion of said cleaning elements being maintained in dry absorbent condition, and means adapted to draw a film be-

tween the contiguous faces of said cleaning elements for the purpose of moistening and drying the film in its travel between said cleaning elements.

2. The structure defined in claim 1 in which
80 the means for moistening portions of the cleaning elements consist of absorbent pads, a cleaning fluid reservoir and conductors for carrying the cleaning fluid to the said moistening pads.

3. The structure defined in claim 1 in which
85 the means for moistening portions of the cleaning elements consist of absorbent pads, a cleaning fluid reservoir, conductors for carrying the cleaning fluid to the said moistening pads, and means provided for preventing drip from the
90 moistening pads.

4. In a film cleaning machine, a pair of cleaning elements, a pair of rolls on which one of said cleaning elements is supported and another pair of rolls on which the other of said cleaning elements is supported, means for maintaining said
95 rolls in operative position, faces of said cleaning elements being contiguous to each other, and means for moistening portions of said cleaning elements, other portions thereof being maintained
100 in dry absorbent condition.

5. In a film cleaning machine, a pair of cleaning elements, a pair of rolls on which one of said cleaning elements is supported and another pair of rolls on which the other of said cleaning
105 elements is supported, faces of said cleaning elements being contiguous to each other, means for maintaining said rolls in operative position and means for moistening portions of said cleaning elements and other portions thereof being maintained
110 in dry absorbent condition, the said rolls being adapted to be turned to change the position of their respective cleaning elements.

6. The structure defined in claim 5 in which a hingeable frame is provided adapted to carry
115 one pair of rolls, and means for securing the hingeable frame in fixed position to the frame of the cleaning machine.

7. The structure defined by claim 5 in which a platform is provided extending partially over
120 each pair of rolls, said platforms having chambers therein adapted to hold moistening pads.

8. In a film cleaning machine, a winding reel and a paying off reel, a pair of cleaning elements, means for maintaining the same in operative position, means for moistening portions of said
125 cleaning elements, other portions thereof being maintained dry and absorbent, such dry absorbent portions being nearer to the winding reel than the moistened portions, said winding reel being
130 adapted to draw the film from the paying off reel through the machine and between its cleaning elements for the purposes set forth.

9. In a film cleaning machine, a winding reel and a paying off reel, a pair of cleaning elements,
135 means for maintaining the same in operative position, means for moistening portions of said cleaning elements, other portions thereof being maintained dry and absorbent, such dry absorbent portions being nearer to the winding reel
140 than the moistened portions, said winding reel being adapted to draw the film from the paying off reel through the machine and between its cleaning elements for the purposes set forth, and means being provided for holding the film in
145 tension between the reels and the cleaning machine.

ABRAHAM S. DWORSKY.