

J. W. SCHAB.
MACHINE FOR RENOVATING FILMS FOR PICTURE MACHINES.
APPLICATION FILED OCT. 5, 1914.

1,162,812.

Patented Dec. 7, 1915.
4 SHEETS—SHEET 1.

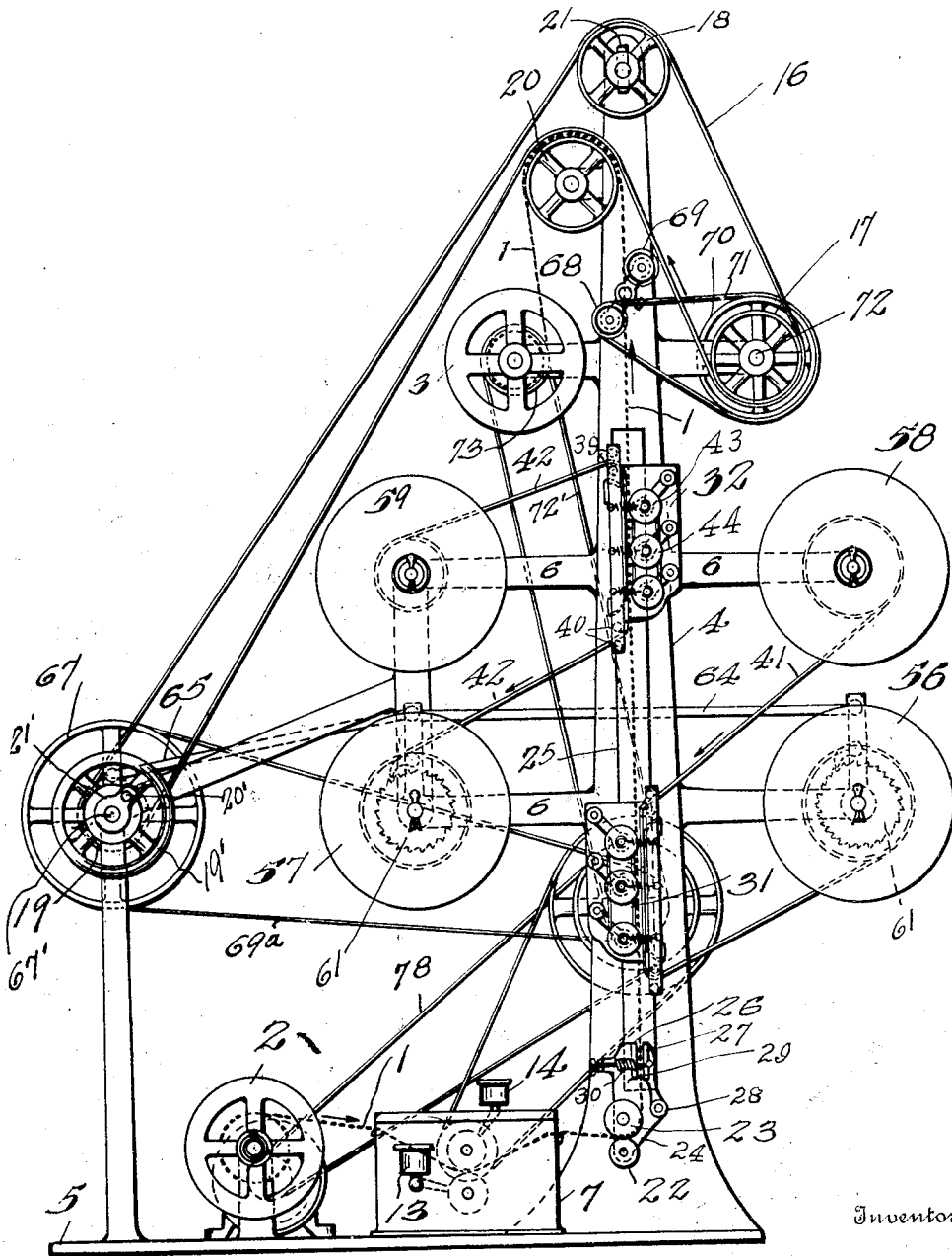


FIG. 1

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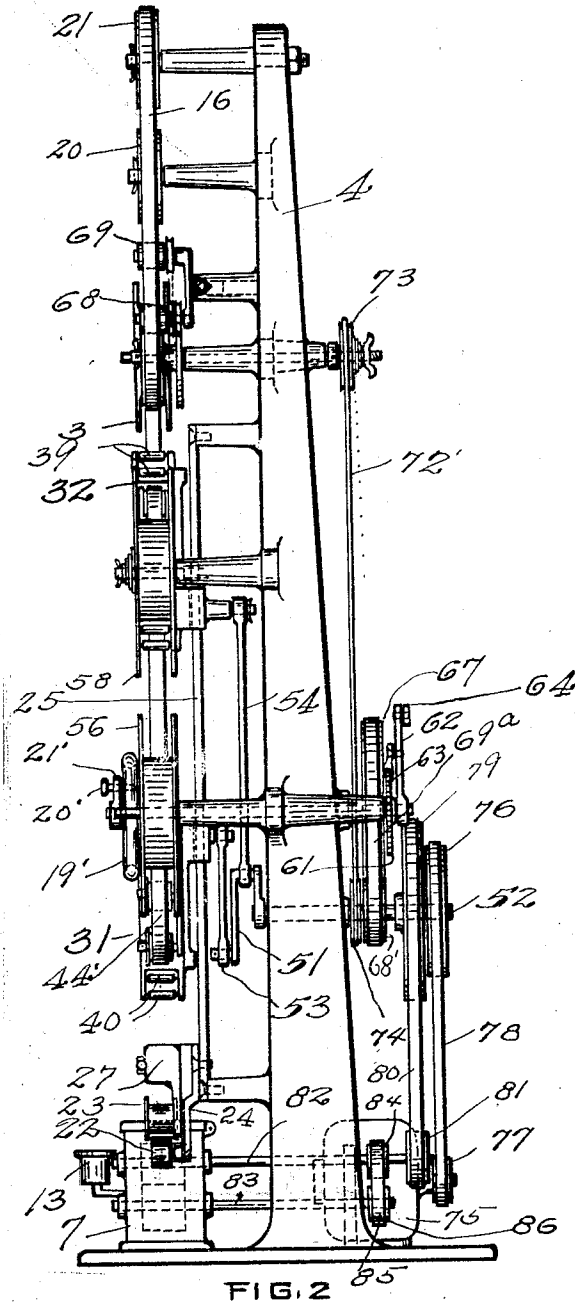


FIG. 2

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4 SHEETS—SHEET 3.



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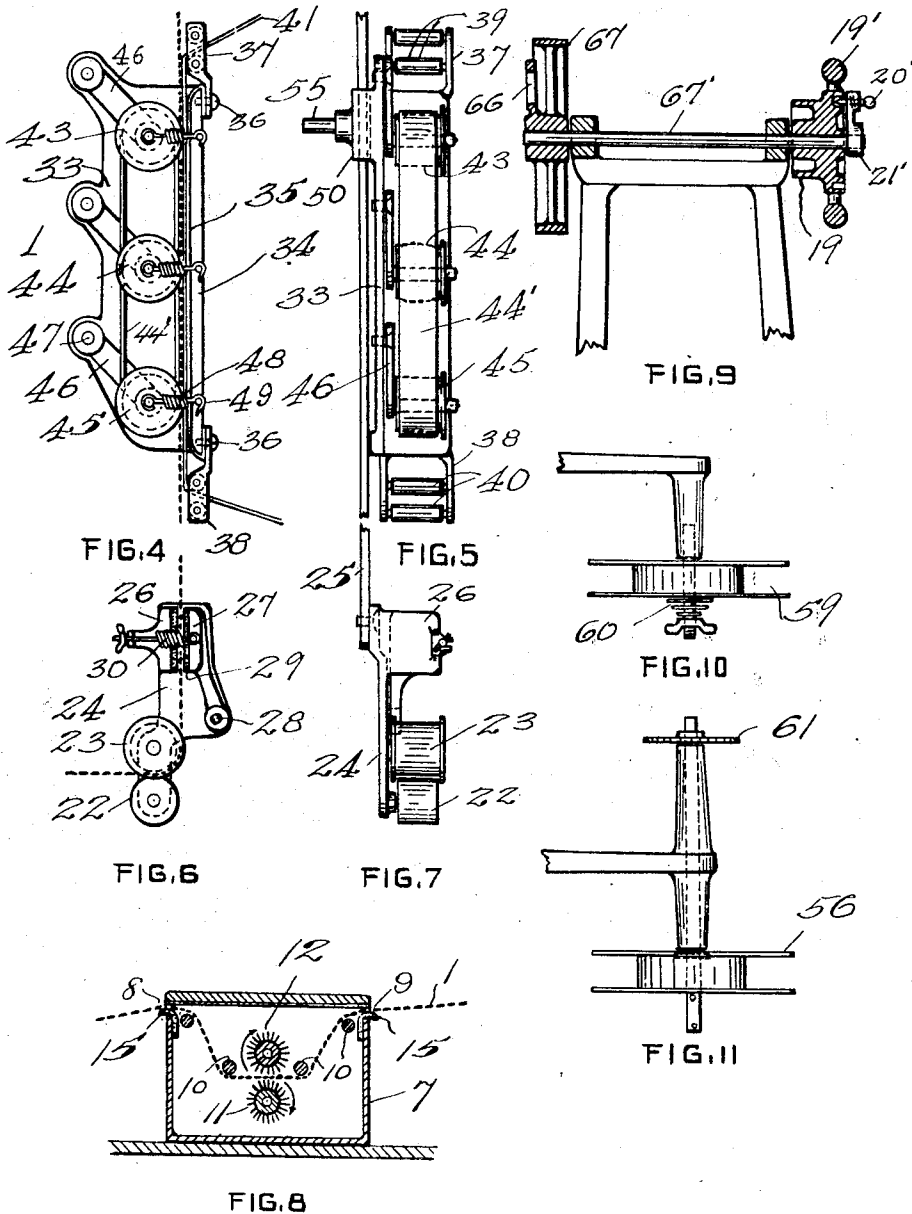
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UNITED STATES PATENT OFFICE.

JOHN W. SCHAB, OF COLUMBUS, OHIO.

MACHINE FOR RENOVATING FILMS FOR PICTURE-MACHINES.

1,162,812.

Specification of Letters Patent.

Patented Dec. 7, 1915.

Application filed October 5, 1914. Serial No. 865,142.

To all whom it may concern:

Be it known that I, JOHN W. SCHAB, a citizen of the United States of America, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Machines for Renovating Films for Picture-Machines, of which the following is a specification.

The present invention relates to machines for renovating films for picture machines, and is designed especially for the purpose of washing, oiling and renewing moving picture films that have become soiled, streaked or oily from usage.

The invention consists in certain novel combinations and arrangements for accomplishing the above purpose involving wipers which clean and polish the film on both its sides as it is passed through the machine; in a particularly novel means for drawing the film through the machine which accomplishes its function without danger of breaking or injuring the film while under tension as it is being drawn through the machine; and in certain other features as will be hereinafter more fully pointed out.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles of my invention.

Figure 1 is a front elevation of a machine complete involving the novel features of my invention. Fig. 2 is a side elevation as seen from the right in Fig. 1. Fig. 3 is a rear elevation view. Fig. 4 is an enlarged detail front view of one of the film wiping devices. Fig. 5 is an edge view thereof. Fig. 6 is an enlarged view of one of the fixed wipers. Fig. 7 is an edge view thereof. Fig. 8 is a sectional view of a film washing box. Fig. 9 is a sectional view of connections on the countershaft at the left in Fig. 1. Fig. 10 is a plan view of one of the winding tape reels with a spring brake. Fig. 11 is a plan view of one of the tape reels with its ratchet drive.

The film to be renovated is fed from one standard reel to a second winding reel of standard type, the movement of the film being a continuous one through the machine, and while the film is traveling, preferably in a vertical direction, it is wiped on each side by a continuously moving reciprocating

wiper or rubbing tape which is operated in a step by step manner in order to present a continuously changing surface to the film. In the drawings the film is represented by a dotted line 1 which is unwound from the standard feed reel 2 and wound upon the winding reel 3.

The machine is compactly arranged, a post or standard 4, with a base 5 and supporting bracket arms 6, 6, the latter extending horizontally from the standard at convenient positions for supporting the different parts of the machine.

In describing the machine and its operation, the course of the film will be followed starting with the film reel 1. After leaving the reel the film is preferably fed through a cleaning box 7 provided with inlet 8 and outlet 9, and interior guide rollers 10. Within the box a pair of brushes 11 and 12 are journaled in position to permit the film to pass between them and be brushed by them. The brushes are supplied with a suitable cleaning liquid from the respective reservoirs 13 and 14, which feed the liquid, which may be oil, through the box walls to the brushes as they revolve in contact with the film, one at the top and one at the bottom of the film and thoroughly cleanse and oil the film as it passes through the box.

The inlet and outlet of the box are provided with cushions, preferably of felt as 15 which guide the film as it enters the box and leaves it. The film passes from the box, and after being renovated as will be described, is wound upon the winding reel 3. This winding is accomplished by means of the conveyer belt 16 which is an endless belt as shown passing over the pulleys 17, 18, 19, 20 and passing around the two end pulleys 17 and 19 as shown. The top pulley 18 is adjustably supported in the slot 21 (Fig. 3) so that the tension of the belt may be increased or diminished as desired. In Fig. 1 it is plainly seen that the film is held securely on the perimeter of the idler pulley 20 by the conveyer belt, and as the contact between the belt film and pulley extends throughout nearly one half the circumference of the pulley, it will be evident that the action of the belt and pulley will draw up the film, but without strain. Thus as the underlap of the belt passes over the idler pulley between the two end ones, the film is drawn steadily up at one side of the idler and released at the other side, by frictional

contact between it and the belt and pulley. Between the idler pulley 20 and the washing box 7, the film is subjected to the rubbing and polishing action to renovate it. After leaving the washing box 7, the film passes between the two guide rolls 22, 23 that are journaled in line on the bracket arm 24, the latter being fixed to the lower end of a vertically arranged metallic bar 25 attached to and parallel with post 4. Above the two guide rolls 22, 23 are arranged a pair of jaws 26, 27, the former fixed and the latter pivoted at 28 to the bracket arm. These jaws are faced with a soft material as felt, indicated at 29, and as the film passes between the jaws, the pivoted one is pulled toward the fixed one by a spring 30, and by this means, both sides of the film are rubbed by frictional contact with the felt pieces 29 and excess oil removed.

Above the stationary wiper or rubbing device just described, there are arranged two reciprocating rubbers indicated as a whole by the numbers 31 and 32, the lower one (31) cleaning and polishing the right side of the film, and the upper one (32) cleaning and polishing the left side of the film. Both these devices are adapted to slide vertically upon the metallic bar 25 fixed on the post 4, and inasmuch as the construction of each is the same as the other a description of one will suffice for the other. Referring particularly to Figs. 4 and 5 which show the rubbers or wipers on an enlarged scale. Each rubber includes a metallic plate 33 formed with a right angular flange 34 which is covered with tape or other soft material at 35, its ends being bent over the ends of the flange and secured by screws 36 which also attach the upper and lower roller brackets 37 and 38 to the flange. Each of these brackets carries a pair of guide rollers 39, 40, adapted to guide the rubbing tape 41, or 42 as the case may be, so that it will pass freely over the fixed tape 35 on the flange 34. The tapes 41 and 42 are designed to rub the film, and to hold the film in position so that it may be rubbed, I employ a series of rollers 43, 44, 45, each journaled in a bracket arm 46 that is pivoted at 47 to the plate 33 and pulled toward the rubbing tape by their individual springs 48 that are attached at 49 to the flange 34. In Fig. 5 it will be noted that the roller 44 is somewhat the shape of a barrel or convexed, and this construction is provided to insure that the central portion of the film may be thoroughly wiped or rubbed, it being well known that the film is usually thinner at the center on account of the roughened perforations along the edges becoming thicker from usage. A cushion belt 44' passes over the rolls. These two rubbers or wipers are adapted to be vertically reciprocated, moving in opposite directions, and for this purpose the plates 33

are each provided with a slotted head 50 adapted to slide upon the bar 25, and a crank 51 on the shaft 52 (Fig. 2) has two crank arms and links 53 and 54 connected to the studs 55 of the heads, so that the rotary movement of the crank shaft is converted into reciprocatory movement of the two wipers or rubbers. The rubbing tapes 41 and 42 are wound upon similar drums or reels 56, 57 from unwinding reels 58, 59, the two latter reels being provided with springs 60 for frictional engagement to act as brakes to prevent excessive revolution of the reel and to keep the tape taut between its reel and the rubber.

The winding tape reels 56 and 57, each has a winding ratchet wheel 61, a lever 62 and pawl 63 engaging the ratchet wheel, and the two levers are pivotally connected by the link 64. A second link or rod 65 is connected to the slotted arm 66 of the pulley 67 on the countershaft 67' so that as the shaft revolves the ratchet wheels are moved through the connection with the pawls so that the rubbing tapes are wound upon their winding reels 56 and 57, thus continually presenting fresh rubbing surfaces to the film. Pulley 67 is moved from shaft 52 by pulley 68' and belt 69'. Above the reciprocating rubbers a second set of auxiliary brushes 68 and 69 are provided, being revolved from the pulley 70 and belt 71 on the shaft 72 which is revolved from the conveyor belt 16, and crossed belt 68'.

The winding reel 3 is revolved by belt 72' and pulley 73 from pulley 74 on the crank shaft 52, and this provides for winding the film after it has passed over the idler pulley 20. The crank shaft 52 is revolved from the motor 75 through the pulleys 76, 77, and belt 78, and the brushes in the washing box are revolved from the crank shaft through pulley 79, belt 80, pulley 81, shaft 82, the latter being the upper brush shaft, and the lower brush shaft 83 is revolved from shaft 82 by pulleys 84, 86 and belt 85. The speed of travel of the rubbing tapes 41 and 42 may be adjusted to suit conditions, and if for instance the film is in a bad condition, the travel of the rubbing tape may be increased. This adjustment is accomplished through the attachment of the rod 65 to the slotted crank arm 66, the change in the crank motion increases or decreases the travel of the ratchets 61 to drive the tape reels 56 57.

The film moves slowly, in a substantially straight line, but the reciprocating rubbers move swiftly, in opposite directions as described. The auxiliary buffing wheels or brushes 68 69 remove any lint, dust or other foreign matter from the film before it is finally wound in clean condition on the winding reel 3. A cut out for the countershaft is shown in Fig. 9, where the com-

bined belt pulley 19 and hand wheel 19', at this point may be disconnected by the pin 20' between the crank arm 21' and wheel 19'. This allows hand operation of the conveyer belt so that the film can be drawn through the machine if necessary, leaving the remainder of the machine idle, and this arrangement also facilitates "threading" of the film through the machine.

10 The wiping or rubbing tapes are readily removable and replaceable when desired, and when worn on one side they may be reversed and the other side used as will be understood. The continually moving rubbing tape presents at all times a fresh rubbing surface to the film, and it will be understood that the travel of the tape may be varied as before described.

I claim:—

20 1. The combination with means for continuously moving a film, of a flexible rubbing tape in frictional contact with the film at one side, and resiliently supported means at the other side of the film for guiding the film in contact with the tape.

25 2. The combination with means for continuously moving a film, of an intermittently moving flexible rubbing device at one side of the film, and resilient guide means for holding the film in contact with said device.

30 3. The combination with means for con-

tinuously moving a film, of a reciprocating device carrying an intermittently moving flexible rubbing tape at one side of the film, 35 and resilient guide means at the other side of the film for holding it in contact with the tape.

4. The combination with means for continuously moving a film, of a bodily reciprocable device carrying a flexible rubbing tape at one side of the film, resiliently supported guide rolls at the other side of the film, and a cushion belt passed around said rollers.

5. The combination with means for continuously moving a film, of a bodily reciprocable device carrying a rubbing tape at one side of the film, and a series of resiliently supported guide rolls at the other side of the film, one of said rolls being provided with a convex periphery. 50

6. The combination with means for continuously moving a film, a pair of rubbing devices one in frictional contact at each side of the film, and means for synchronously reciprocating said devices in alternately opposite directions. 55

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. SCHAB.

Witnesses:

F. M. GLICK,
H. W. GORDON.