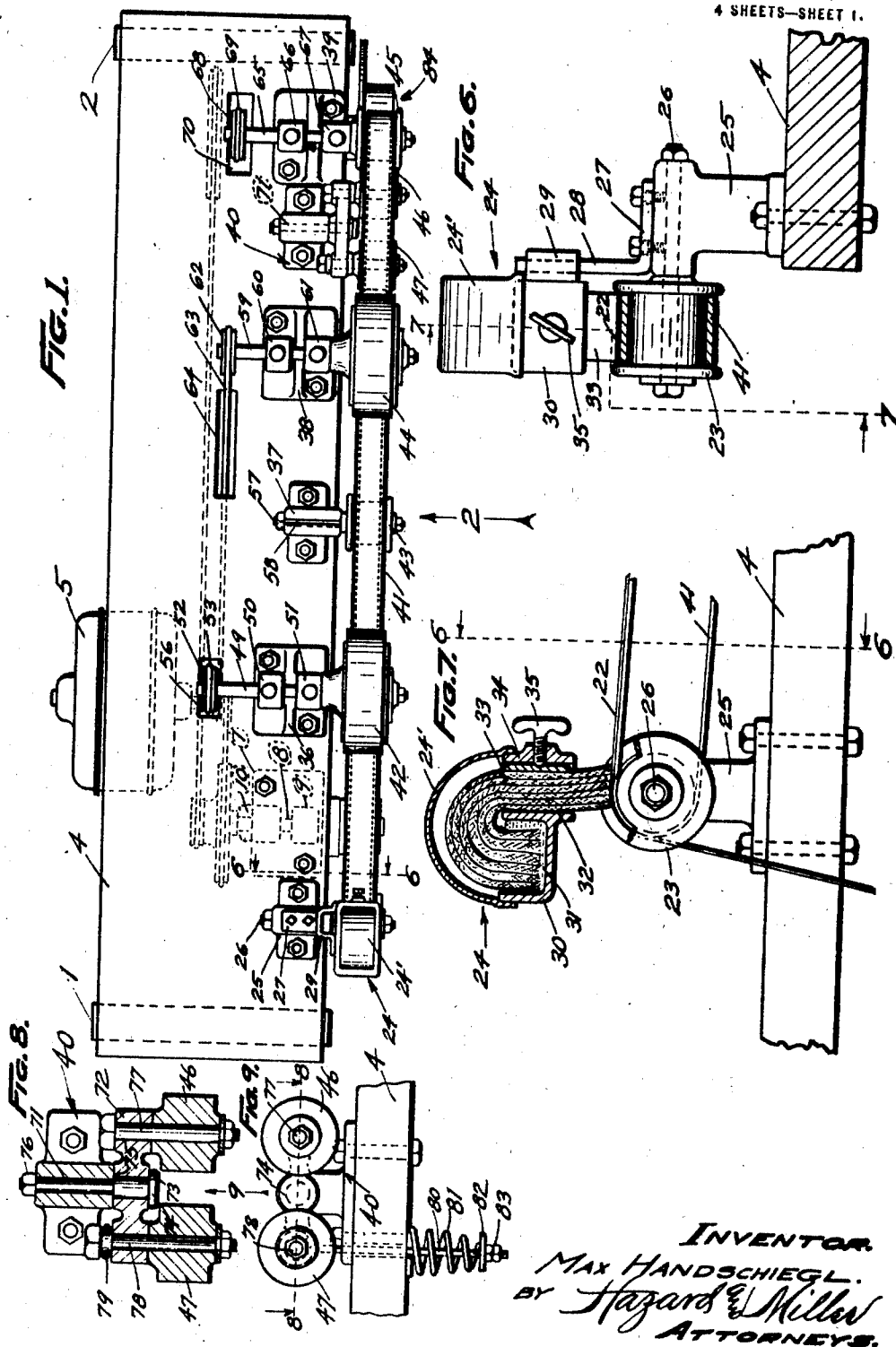


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Patented Mar. 23, 1920.
4 SHEETS—SHEET 1.

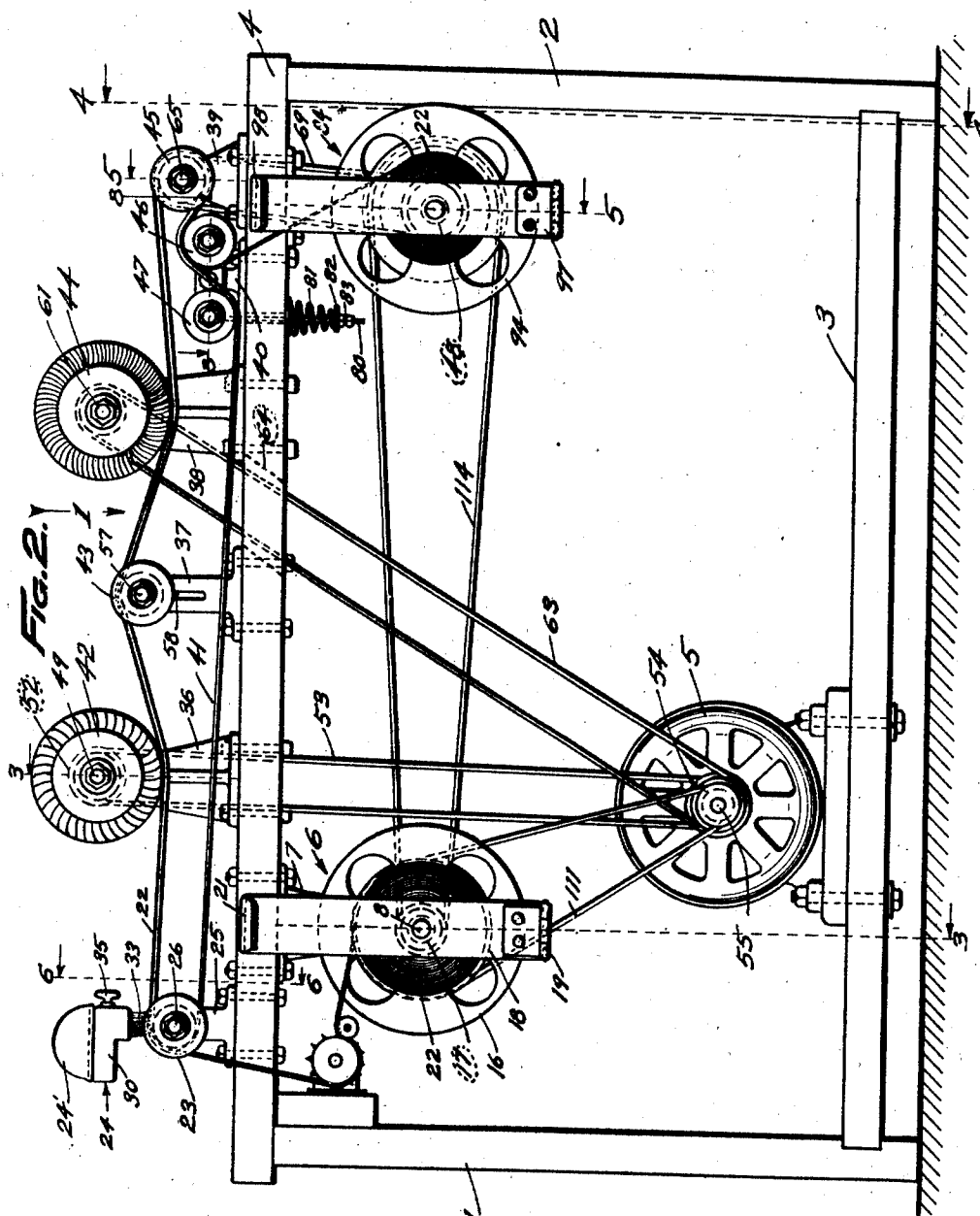


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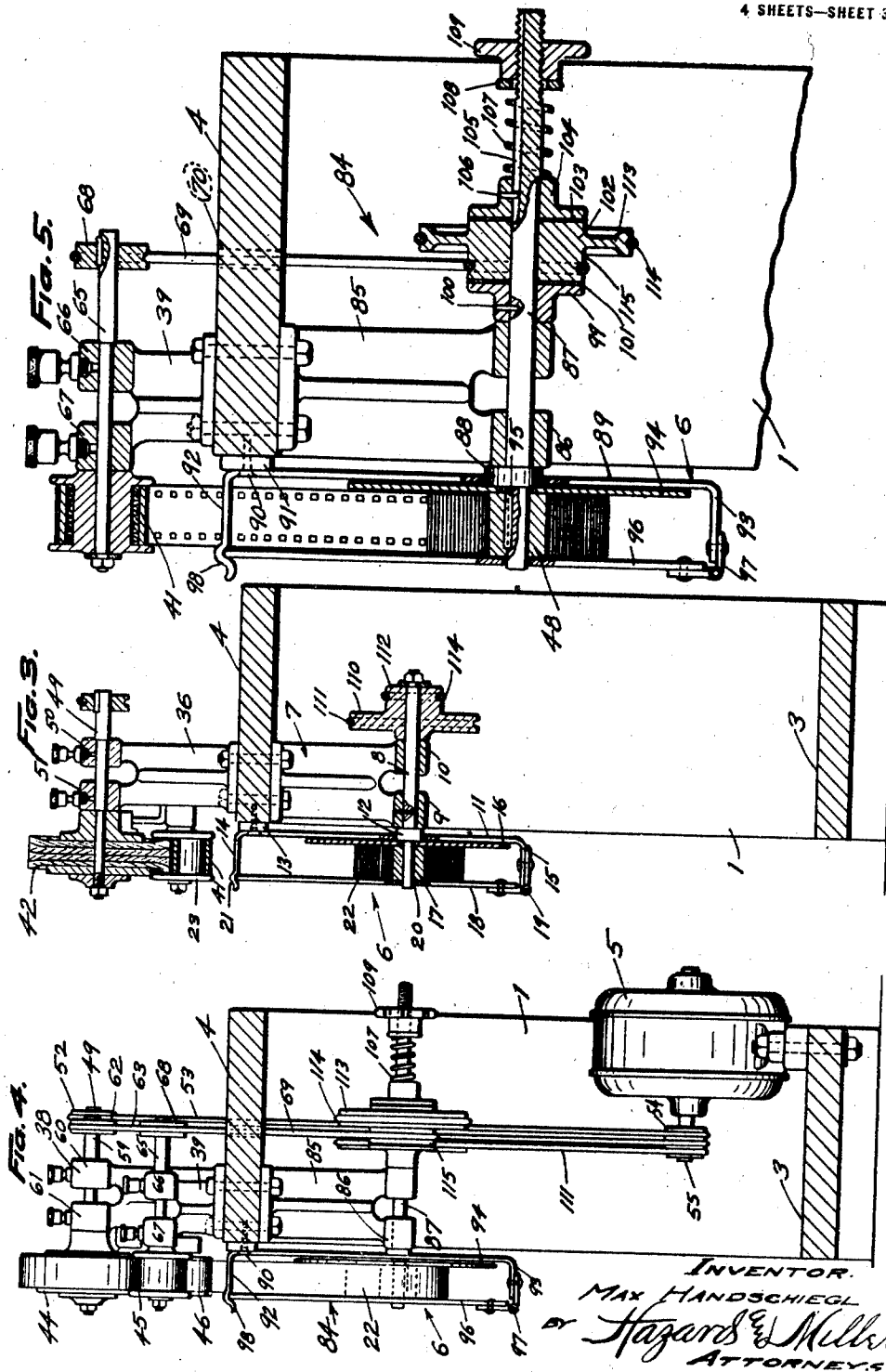
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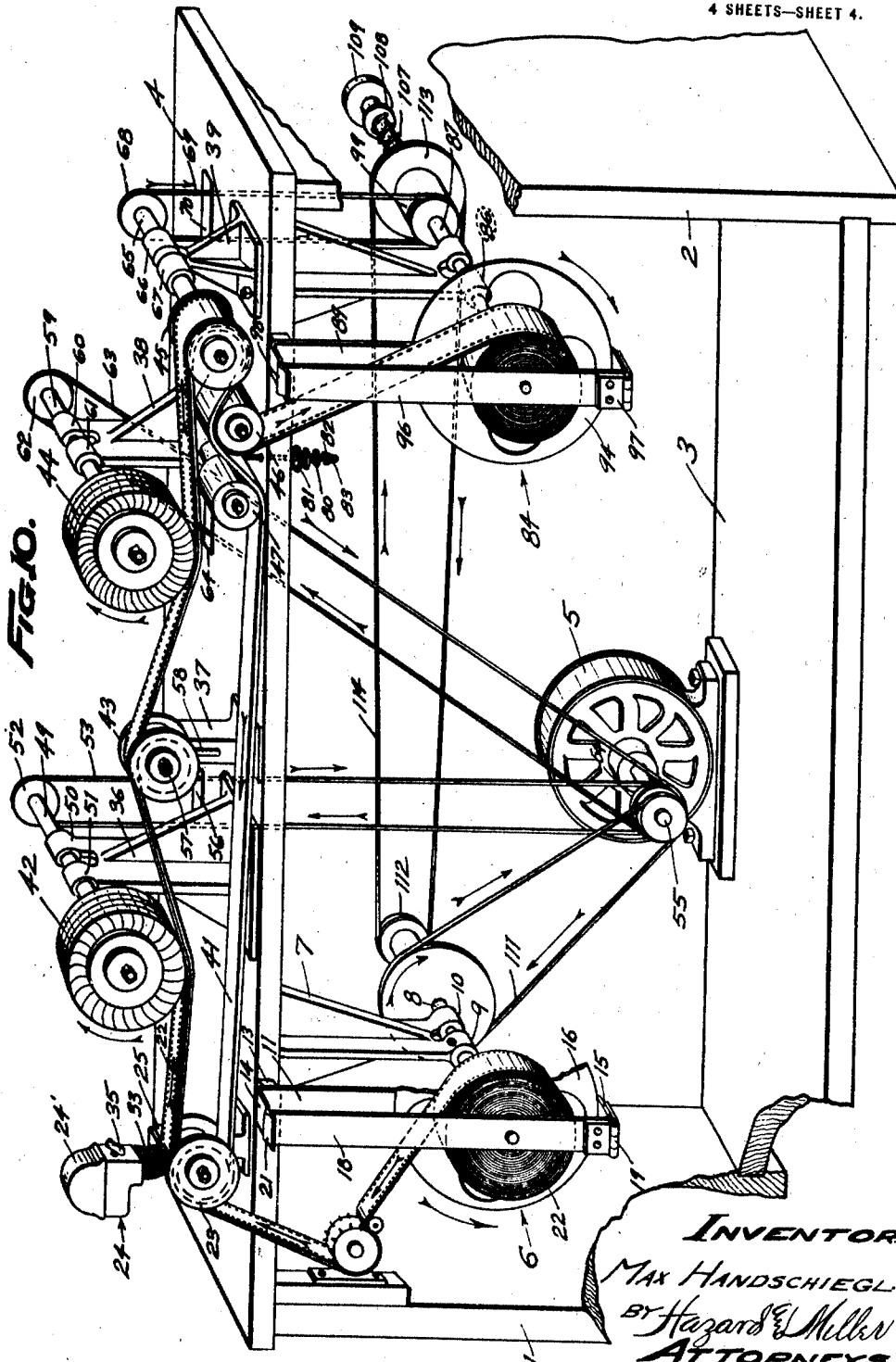
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ATTORNEYS

UNITED STATES PATENT OFFICE.

MAX HANDSCHIEGL, OF LOS ANGELES, CALIFORNIA.

FILM-POLISHING MACHINE.

1,334,655.

Specification of Letters Patent.

Patented Mar. 23, 1920.

Application filed September 9, 1919. Serial No. 322,716.

To all whom it may concern:

Be it known that I, MAX HANDSCHIEGL, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Film-Polishing Machines, of which the following is a specification.

My object is to make a film polishing machine, and my invention consists of the novel features herein shown, described and claimed.

Figure 1 is a top plan view of a film polishing machine embodying the principles of my invention and looking in the direction indicated by the arrow 1 in Fig. 2.

Fig. 2 is a side elevation looking in the direction indicated by the arrow 2 in Fig. 1.

Fig. 3 is a vertical cross section on the line 3—3 of Fig. 2 and looking in the direction indicated by the arrows.

Fig. 4 is a vertical cross section on the line 4—4 of Fig. 2 and looking in the direction indicated by the arrows.

Fig. 5 is a vertical cross section on the line 5—5 of Fig. 2 and looking in the direction indicated by the arrows.

Fig. 6 is a vertical cross section on the lines 6—6 of Figs. 1 and 2.

Fig. 7 is a sectional detail on a plane parallel with Fig. 2 and on the line 7—7 of Fig. 6.

Fig. 8 is a horizontal sectional detail on the lines 8—8 of Figs. 2 and 9 and looking downwardly as indicated by the arrows.

Fig. 9 is a fragmentary side elevation looking in the direction indicated by the arrow 9 in Fig. 8.

Fig. 10 is a diagrammatic perspective of the transmission system.

The ends 1 and 2 are solid boards, the bottom 3 is a solid board mortised into the lower ends of the ends 1 and 2, and the top 4 is a solid board fastened against the upper faces of the ends 1 and 2. The motor 5 is mounted upon the bottom 3 and the other mechanism is mounted upon the top 4.

The unwinding reel construction 6 is shown in detail in Figs. 2 and 3 and is as follows:

A shaft hanger 7 is secured against the lower face of the top 4. The shaft 8 is fixed non-rotatably in the bearings 9 and 10 at the lower end of the hanger 7. A sheet metal bar 11 is placed upon the forward end

of the shaft 8 against a collar 12 and the bar is secured against a block 13 and the block is secured against the front edge of the top 4. The upper end 14 of the bar 11 is bent forwardly to a horizontal position and the lower end 15 is bent forwardly to a horizontal position.

The film spool guard 16 is mounted loosely upon the forward end of the shaft 8 and the film spool 17 is mounted loosely upon the forward end of the shaft 8 against the guard 16. The bar 18 is connected to the lower end 15 by a hinge 19 and swings upwardly into a position parallel with the bar 11 and against the front side of the spool 17, and the shaft 8 extends through the central opening 20 in the bar 18. A spring catch 21 is formed at the forward end of the end portion 14, so that the upper end of the bar 18 will be held by the catch 21.

When it is desired to remove the spool 17 carrying the roll of film 22 or to remove the empty spool the upper end of the bar 18 is manually grasped and pulled outwardly and swung downwardly on the hinge 19 then a new spool and roll of film may be placed in position against the guard 16 and the bar 18 swung upwardly and latched while the film is being unwound.

The spool of film 22 to be polished is mounted upon the shaft 8 and passes upwardly around the roller 23 and in passing over the roller 23 the film is moistened with alcohol from the moistener 24.

The details of the moistener 24 are shown in Figs. 1, 2, 6 and 7 and are as follows:

A stand 25 is mounted upon the top 4. A stub shaft 26 is fixed horizontally through the top of the stand and the roller 23 is mounted loosely upon the front end of the shaft 26. An attaching plate 27 is secured to the top of the stand 25 and a post 28 extends upwardly from the forward end of the plate 27. A bearing 29 is inserted loosely downwardly upon the post 28.

The alcohol pot 30 is formed integral with the bearing 29 and has an alcohol chamber 31 leading upwardly and a passage 32 leading downwardly. Alcohol is placed in the chamber 31. Wicking 33 is placed with one end in the chamber 31 and the wicking is bent over and inserted downwardly through the passage 32 to engage the film 22 as the film passes over the roller 23. The cap 24' covers the pot and wicking.

The wicking bearing upon the film 22 supports the pot 30 and as the wicking wears away the bearing 29 will move downwardly upon the post 28. A regulating plate 34 is placed in the passage 32 against one side of the wicking 33 and a wing head screw 35 is tapped through the wall against the plate 34, so that by manipulating the screw 35 the pressure upon the wicking 33 may be increased or decreased to regulate the flow of alcohol through the wicking to the film.

The buffing stand 36 is mounted upon the top 4 a short distance from the stand 25. The guide roller stand 37 is mounted upon the top 4 a short distance from the stand 36. The second buffing stand 38 is mounted a short distance upon the opposite side of the stand 37 from the stand 36 and the feed roller stand 39 is mounted some distance behind the stand 38.

The guide roller stand 40 is mounted between the stands 38 and 39. The belt 41 runs around the roller 23 upon the stand 25 under the buffing wheel 42 upon the stand 36, over the guide roller 43 upon the stand 37 under the buffing wheel 44 upon the stand 38, around the driving roller 45 upon the stand 39, over the gripping roller 46 upon the stand 40, and under the gripping roller 47 upon the stand 40 and back to the roller 23, and the film 22 is carried by the belt 41 from the roller 23 to the roller 46 and then the film passes to the rewinding spool 48.

As the film passes over the roller 23 upon the belt 41 the film face to be polished passes the wick 33 and is moistened with alcohol then the film passes under the buffing wheel 42. The rollers 23 and 34 sustain the belt and film, and the buffing wheel 42 bears downwardly upon the film and belt between the rollers 23 and 43, so that the contact between the film and the buffing wheel is substantially yielding for the purpose.

The buffing wheel shaft 49 is mounted in bearings 50 and 51 in the stand 36, and a pulley 52 is fixed upon the rear end of the shaft 49 and is driven by a belt 53 running over a pulley 54 upon the motor shaft 55. The belt 53 runs through an opening 56 in the top 4. The guide pulley 43 is mounted upon the stub shaft 57 extending through a slot 58 in the stand 37, the shaft 57 being provided with a shoulder and nut, so that the shaft may be raised or lowered to the extent of the slot 58 to adjust the tension upon the belt 41 and to adjust the pressure upwardly against the buffing wheels 42 and 44.

The buffing wheel 44 is mounted upon the shaft 59 extending through bearings 60 and 61 in the stand 38 and a pulley 62 is fixed upon the rear end of the shaft 59 and is driven by a belt 63 running through an opening 64 in the top 4 and around the pulley 54 upon the motor shaft 55.

The driving pulley 45 is fixed upon a shaft

65 extending through bearings 66 and 67 and a pulley 68 is fixed upon the rear end of the shaft 65 and is driven by a belt 69 extending through an opening 70 in the top 4. The pulley 45 drives the belt 41 and the tension of the belt 41 drives the pulleys 46 and 47.

The details of the stand 40 and rollers 46 and 47 are shown in Figs. 1, 2, 8 and 9 and are as follows:

The stand 40 has a bearing 71 at its top. The lever 72 fits against the front end of the bearing 71. The bolt 73 is inserted through the lever 72 and through the bearing 71 and has a head 74 upon its front end, a shoulder 75 engaging the front end of the bearing 71, and a nut 76 upon its rear end, so that by tightening the nut the shoulder 75 tightens against the bearing 71 to hold the bolt rigid and leaves the lever 72 free to swing. The normal position of the lever 72 is horizontal. A bolt 77 is inserted through one end of the lever 72 and the roller 46 runs loosely upon the forward end of the bolt 77. A bolt 78 is inserted through an eye 79 and through the opposite end of the lever 72 from the bolt 77, and the roller 47 runs loosely upon the forward end of the bolt 78.

The eye 79 is formed upon the upper end of a tension bolt 80 and the bolt 80 extends downwardly through the top 4. An expansive coil spring 81 is placed around the bolt 80 below the top 4. A spring seat 82 is placed upon the bolt against the spring and nuts 83 are placed upon the bolt to support the spring seat 82. The tension of the spring 81 is exerted to pull the roller 47 downwardly and swing the roller 46 upwardly to tighten the belt 41 and to grip the film 22 against the belt 41 as the film passes over the roller 46 and the tension of the spring is regulated by manipulating the nuts 83.

From the roller 46 the film 22 passes to the rewinding reel construction 84, and referring to Figs. 2, 3, 4 and 5 the details are as follows:

A shaft hanger 85 is secured against the lower face of the top 4 and has a bearing 86 at its lower end. A shaft 87 is rotatably mounted in the bearing 86. A collar 88 is formed upon the shaft 87 against the front face of the bearing 86. A bar 89 fits loosely upon the collar 88 and extends in a vertical position and is secured to the top 4 by a screw 90 inserted through the upper end of the bar 89, through the block 91 and into the top 4.

The upper end 92 of the bar 89 is bent forwardly to a horizontal position and the lower end 93 is likewise bent forwardly to a horizontal position. The film guard 94 fits loosely upon the shaft 87 against the collar 88. A spline 95 is fixed in the shaft 87 and extends forwardly from the collar 88 through

the guard 94. The spool 48 fits loosely upon the shaft and is held to rotate with the shaft by the spline 95. The film 22 is re-wound upon the spool 48.

5 The bar 96 is connected to the end 93 by a hinge 97 and swings upwardly to a position parallel with the bar 89 and against the front end of the spline 48 to serve as a guard to hold the film 22 between the guard 94 and the bar 96. The shaft 87 extends through 10 the bar 96. A spring catch 98 is formed upon the forward end of the upper end 92 of the bar 89 so that when the bar 96 is swung upwardly into its normal position the 15 catch will hold the bar during the operation of rewinding the film. When the bar 96 is swung downwardly the spool and film may be readily removed and a new spool applied.

20 A flange 99 is mounted upon the shaft 87 against the rear side of the bearing 86 and is held in place by a pin 100. A friction plate 101 is placed against the face of the flange 99. The pulley hub 102 is placed 25 loosely upon the shaft 87 against the friction plate 101. The friction plate 103 is placed against the opposite side of the pulley hub from the plate 101. A flange 104 is placed loosely upon the shaft 87 against the 30 friction plate 103. A keyway 105 is formed in the shaft 87 and a pin 106 is fixed through the flange 104 and extends into the keyway 105, so that the flange 104 may slide endwise upon the shaft 87 and is held to 35 rotate with the shaft.

An expansive coil spring 107 is placed upon the shaft 87 against the flange 104. A spring seat 108 is placed upon the shaft against the spring 107. A nut and hand 40 wheel 109 is screw-seated upon the shaft 87 against the spring 107 so that by manipulating the hand wheel nut 109 the tension of the spring 107 is regulated to regulate the friction between the friction plates 101 and 45 103 and the pulley hub 102 to drive the shaft 87 from the rotation of the pulley hub 102 and to allow the shaft 87 to slip when the strain upon the film requires it.

The shaft 8 extends backwardly beyond 50 the bearings 9 and 10 and the shaft 8 is rigidly held from rotation. The idler pulley 110 is loosely mounted upon the shaft 8 and is driven by a belt 111 running around the pulley 54 upon the motor shaft 55. The 55 reducing pulley 112 is formed integral with the pulley 110. A pulley 113 is formed upon the pulley hub 102 and a belt 114 runs around the pulleys 112 and 113. The pulley 115 is formed upon the pulley hub 102 and 60 the belt 69 runs around the pulley 115 and around the pulley 68.

The rewinding reel construction 84 winds the film 22 upon the spool 48 and of course as the roll of film increases in size the 65 peripheral speed increases and the tension

on the film is regulated by the hand wheel nut 109 so as to allow the shaft 87 to slip and not pull too hard upon the film.

Thus I have produced a continuously operating film polishing machine comprising 70 a driving pulley, an idler pulley mounted on a level with the driving pulley, a belt traveling around the driving pulley and the idler pulley, a spring pressed belt tightener over which the belt travels, an adjustable 75 guide pulley over which the upper side of the belt travels, buffing wheels mounted on each side of the adjustable guide pulley, a moistener mounted above the idler pulley, and a rewinding reel construction friction- 80 ally driven and mounted to take the film from the belt tightener so that a roll of film may be mounted upon the unwinding reel construction and run around the idler pulley upon the belt under the moistener under the 85 first buffing wheel over the adjustable guide pulley under the second buffing wheel around the driving pulley and around the belt tightener to the rewinding reel construction.

Various changes may be made without 90 departing from the spirit of my invention as claimed.

I claim:

1. A film polishing machine comprising a driving pulley, an idler pulley mounted on a 95 level with the driving pulley, a belt traveling around the driving pulley and the idler pulley, a spring pressed belt tightener over which the belt travels, an adjustable guide pulley over which the upper side of the belt 100 travels, buffing wheels mounted on each side of the adjustable guide pulley, a moistener mounted above the idler pulley, and a rewinding reel construction frictionally driven and mounted to take the film from the belt 105 tightener.

2. A film polishing machine comprising a driving pulley; an idling pulley mounted on a level with and spaced from the driving pulley; a guide pulley disposed between the 110 driving pulley and the idling pulley; a belt tightening means comprising two pulleys carried upon an arm fixed to a rocking shaft and having a spring for actuating the belt tightening means; a belt operatively 115 placed upon the driving pulley, the idling pulley, over one of the tightening pulleys, and under the other tightening pulley, and over the guide pulley; a film reel mounted adjacent to the idling pulley and adapted to 120 carry a film to be fed upon the belt over the idling pulley, over the guide pulley, over the driving pulley, and over the first tightening pulley; a second reel positioned adjacent to the driving pulley for receiving the film 125 coming from the idling pulley; a film moistening means mounted above the idling pulley; and a film polishing means adapted to operate upon the film on either side of the guide pulley. 130

3. A film polishing machine comprising an idling pulley, a guide pulley, a driving pulley and a double roller tightening means; a belt disposed around the idling pulley the
5 top side of which passes over the guide pulley and around the driving pulley and over and under the tightening pulleys; a film moistening means mounted above the
10 idling pulley; a film polishing buffer mounted above the belt beyond the moistening means; a second film polishing buffer mounted beyond the first above the belt, the belt being adapted to run from the moistening means toward the polishing buffers; and
15 reels adapted to pay out and receive film passing on to the belt and beneath the moistening and polishing means.

In testimony whereof I have signed my name to this specification.

MAX HANDSCHIEGL.