March 9, 1937. J. H. McNABB 2,073,538

MOTION PICTURE MACHINE AND THE LIKE

Filed May 31, 1934 3 Sheets-Sheet 1

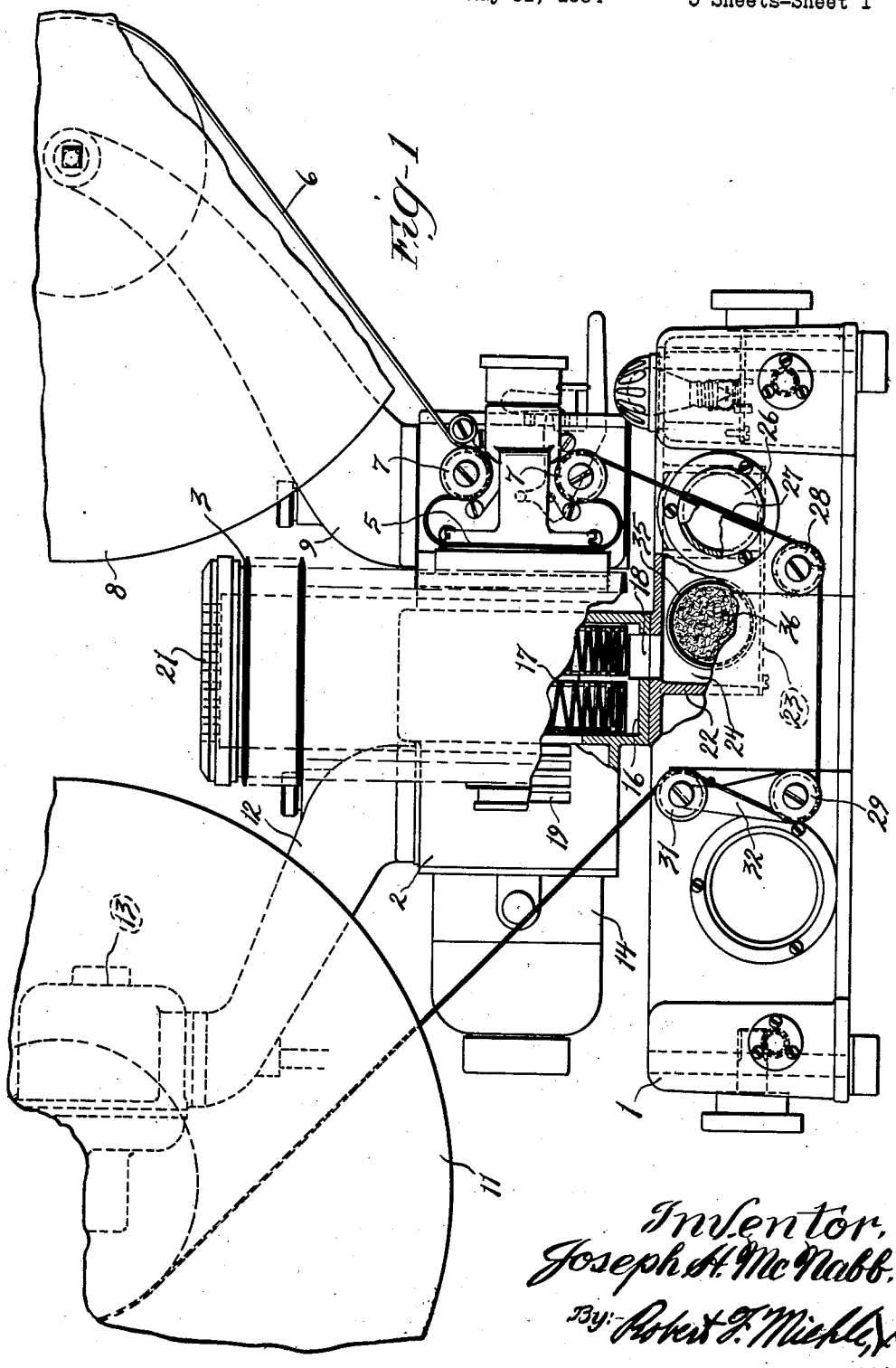

Fig. 1

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Filed May 31, 1934 3 Sheets-Sheet 2

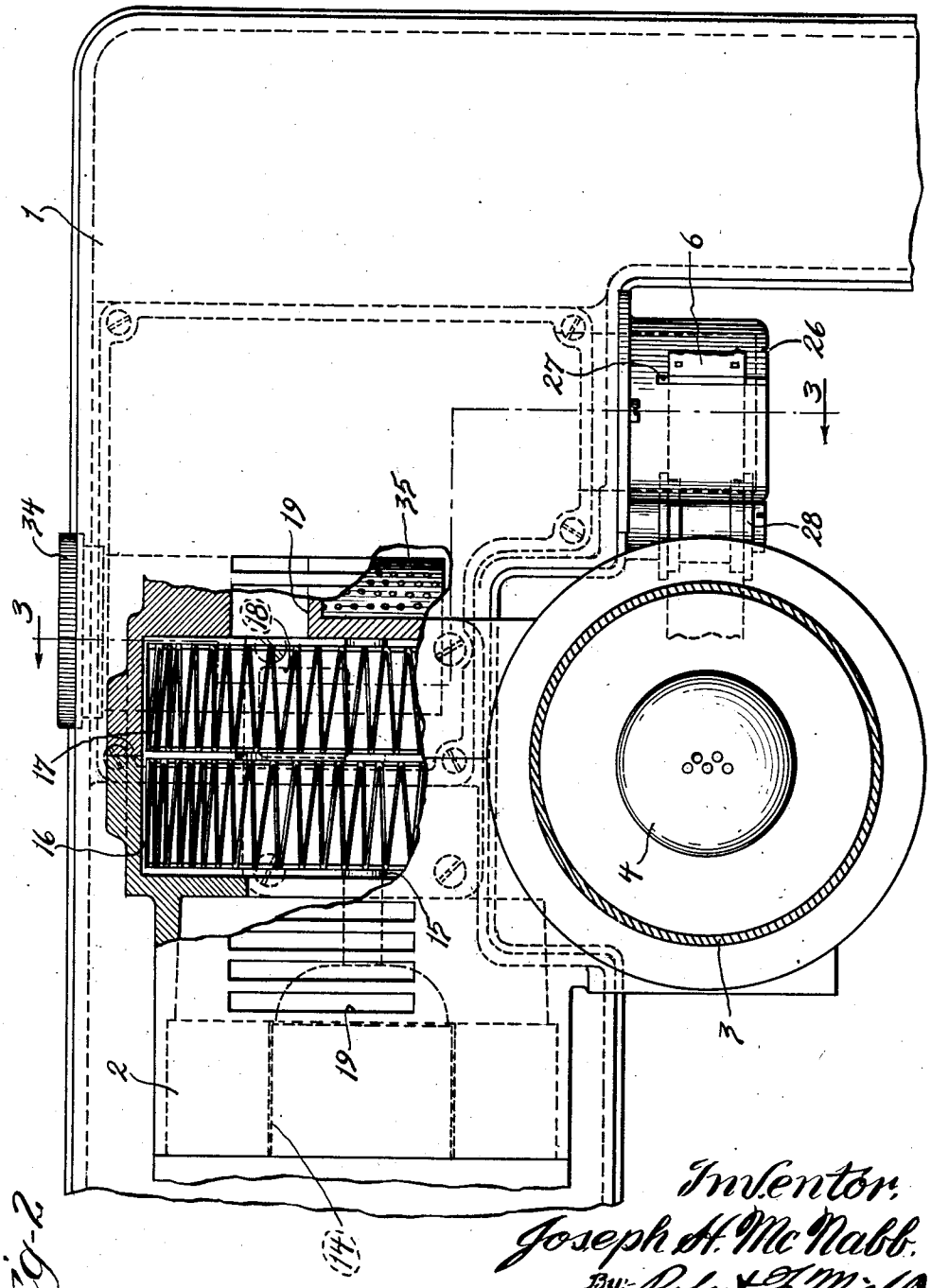

Fig-2

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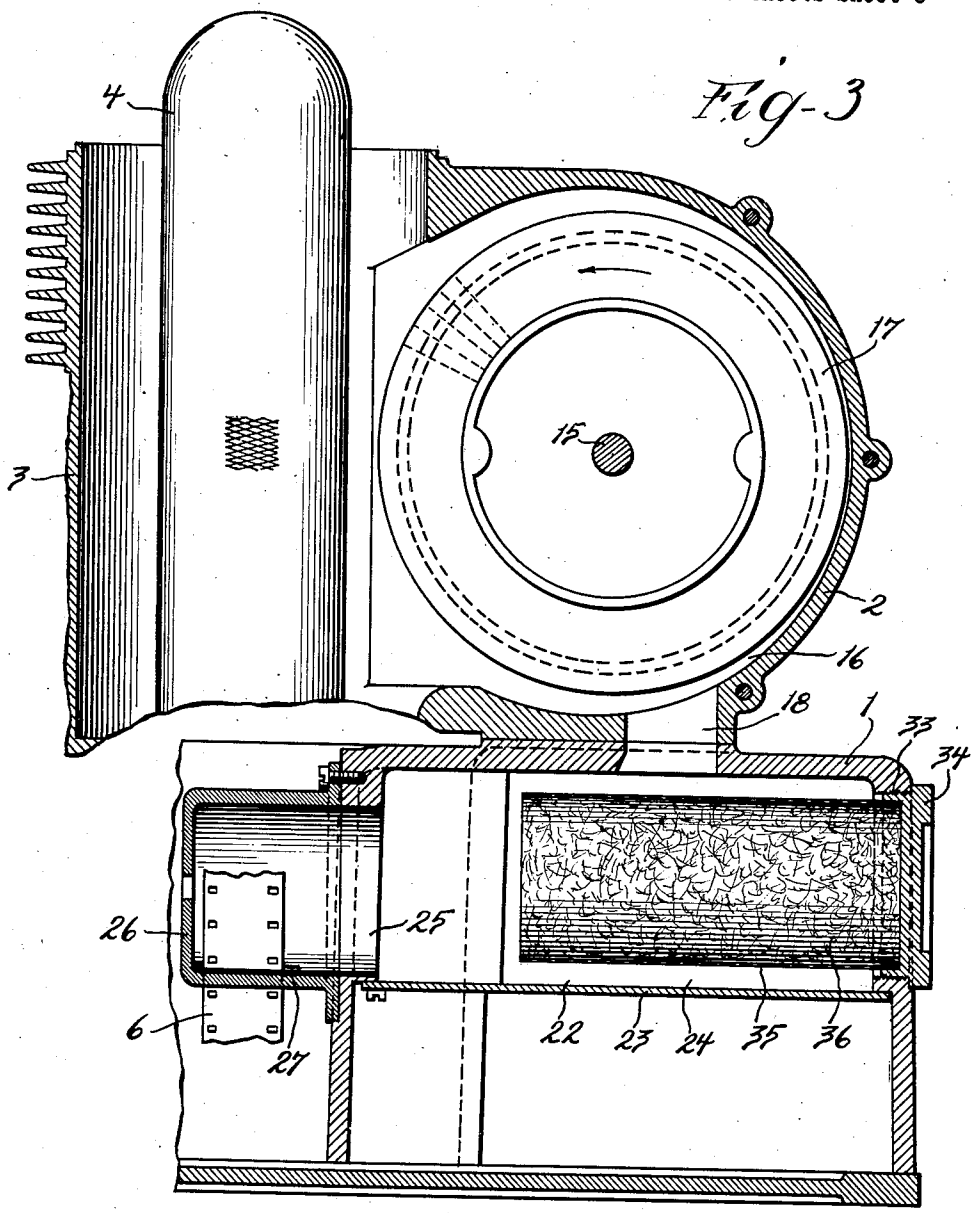
Filed May 31, 1934 3 Sheets-Sheet 3

Fig-3



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UNITED STATES PATENT OFFICE

2,073,538

MOTION PICTURE MACHINE AND THE LIKE

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Application May 31, 1934, Serial No. 728,270

2 Claims. (Cl. 88—17)

My invention relates particularly to motion picture projecting machines although not limited to this use alone.

The invention has for its main object the provision of novel and effective means for humidifying a film, such as a motion picture film, as it is fed, the invention in its specific application contemplating the humidification of a film as it is projected, thus offsetting the drying effect of the heat of the projection light upon the film at the exposure aperture.

With this object in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said object and certain other objects, hereinafter appearing, are effected, all as fully described with reference to the accompanying drawings and more particularly pointed out in the appended claims.

In the said drawings—

Figure 1 is a partial side elevation of a motion picture projecting machine embodying my invention, with parts broken away and shown in section;

Figure 2 is a partial top plan view of the same with parts broken away and shown in section;

Figure 3 is a partial section taken on the line 3—3 of Figure 2.

Referring to the drawings, 1 designates the base of the machine, which is hollow, and mounted on the base is a projector frame 2 which includes a lamp house 3 within which is mounted an incandescent electric projection lamp 4. Film feeding mechanism is carried on the frame 2 and is inclusive of an exposure apertured intermittent film feed guide 5 through which a film 6 is intermittently fed as usual by intermittent film feeding mechanism not shown and constant feed sprockets 7 for feeding the film to and from the guide 5. See Figures 1, 2 and 3.

The film is fed to the feeding mechanism from a revoluble reel 8 carried on an arm 9 which is mounted on the frame 2, and is taken up from the feeding mechanism upon a revoluble reel 11 carried on an arm 12 which is mounted on the frame 2, the reel 11 being driven to take up the film by an electric motor driving device generally designated at 13. See Figure 1.

An electric driving motor, generally designated at 14, is mounted on the frame 2 on a forwardly and rearwardly projecting axis, and its shaft 15 extends forwardly for driving the film feeding mechanism, say in the manner illustrated in U. S. Patent No. 1,587,955, granted June 8, 1926, on application of A. S. Howell, for improvement in Motion picture projecting machine and the like. See Figures 2 and 3.

Secured on the motor shaft 15 within an enclosure 16 of the frame 7 is a double centrifugal fan 17, each portion of which is constructed similarly to that described in U. S. Patent No. 1,897,947, granted February 14, 1933, on application of A. S. Howell, for improvement in Fan structure, and the enclosure 16 communicates directly with the lamp house 3, see Figure 3, and with the enclosure of the base 1 by a passage 18. See Figures 2 and 3.

The motor 14 rotates counter clockwise, as indicated by the arrow in Figure 3, and air is drawn through openings 19 in the frame 2, see Figure 2, to the center of the fan 17 and is ejected from the periphery thereof into the lamp house 3 for cooling the lamp 4, one portion of the air current induced by the fan issuing through a perforated top 21 on the lamp house, and another portion of this air current, which is heated by the heat dissipated by the lamp, issuing into the enclosure of the base 1 through the passage 18.

The enclosure of the base 1 is provided with a downwardly projecting partition structure 22 and a bottom plate 23 is secured upwardly thereagainst to form, with the sides of the base, an enclosure 24 into which the passage 18 enters. See Figures 1 and 3.

The side of the base 1 adjacent the film path plane is provided with an opening 25 communicating with the enclosure 24, and a hollow projecting cap 26 is secured on the exterior this side of the base and continues the opening 25. See Figures 1, 2 and 3.

The cap 26 is provided with a diametrical slot 27 through which the film 6 passes from the lower constant feed sprocket 7 in its passage from the film feeding mechanism to the take up reel 11, a revoluble guide roller 28 mounted on the base 1 below the cap 26 cooperating with the lower sprocket 7 in guiding the film through the slot 27. See Figure 1.

From the roller 28 the film 6 passes rearwardly under and about another revoluble guide roller 29 mounted on the base 1, and thence upwardly and reversely about another guide roller 31 mounted on a spring tensioned arm 32 pivotally mounted on the base, and thence upwardly to the driven take up reel 11.

The side of the base 1, opposite that on which the cap 26 is disposed, is provided with an opening 33 communicating with the enclosure 24, and

screwthreaded into this opening for ready removal is a plug 34. See Figure 3. Secured on the inside of this plug and projecting axially thereof is a perforated hollow cylinder 35 within which is contained absorbent material 36 capable of absorbing for gradual dissipation a humidifying agent such as water, the perforations of the cylinder 35 providing for the dissipation of the humidifying agent.

In operation the film 6 is fed downwardly through the exposure apertured intermittent film feed guide 5 where it is subjected to the projection light of the lamp 4, then through the closure of the cap 26, and is finally wound on the take up reel 11.

During the projection operation the fan 17 induces an air current through the lamp house 3 for cooling the lamp 4 and induces an air current, heated by the lamp 4, through the passage 18, the enclosure 24, the enclosure of the cap 26 and over the film in the cap and out through the slot 27, thus subjecting the film to the heated air current.

As the heated air current passes through the enclosure 24 it absorbs moisture from the previously moistened material 36 in the perforated cylinder 35 and transmits it to the film, the heating of the air current materially assisting in the humidifying operation.

Preferably, as shown, the film is subjected to humidification after it passes the projection station, so that the film is wound on the take up reel in proper condition for storage or for another projection therefrom.

Having thus described my invention, I do not wish to be limited to the precise details described as changes may be readily made without departing from the spirit of my invention, but having thus described by invention, I claim as new and desire to secure by Letters Patent the following:

1. In a motion picture projecting machine the combination with projection means including film feeding means, a projection lamp and a closure for said lamp, of a fan for inducing an air current through said closure for cooling said lamp, additional closure means having an intake associated with said fan and lamp closure and an outlet associated with a film fed by said feeding means and adapted to direct a current of air induced by said fan and heated by said lamp onto said film, and a humidifying device associated with said additional closure means intermediate said intake and outlet and adapted to humidify said heated air current.

2. In a motion picture projecting machine the combination with projection means including film feeding means, a projection lamp and a closure for said lamp, of a film reel associated with said feeding means, a motor for driving said feeding means, a fan driven by said motor for inducing an air current through said closure for cooling said lamp, additional closure means having an intake associated with said fan and lamp closure and an outlet slot through which a film fed by said feeding means passes between said feeding means and said reel and adapted to direct a current of air induced by said fan and heated by said lamp onto said film at said outlet slot, and a humidifying device associated with said additional closure means intermediate said intake and said outlet slot and adapted to humidify said heated air current.

JOSEPH H. McNABB.