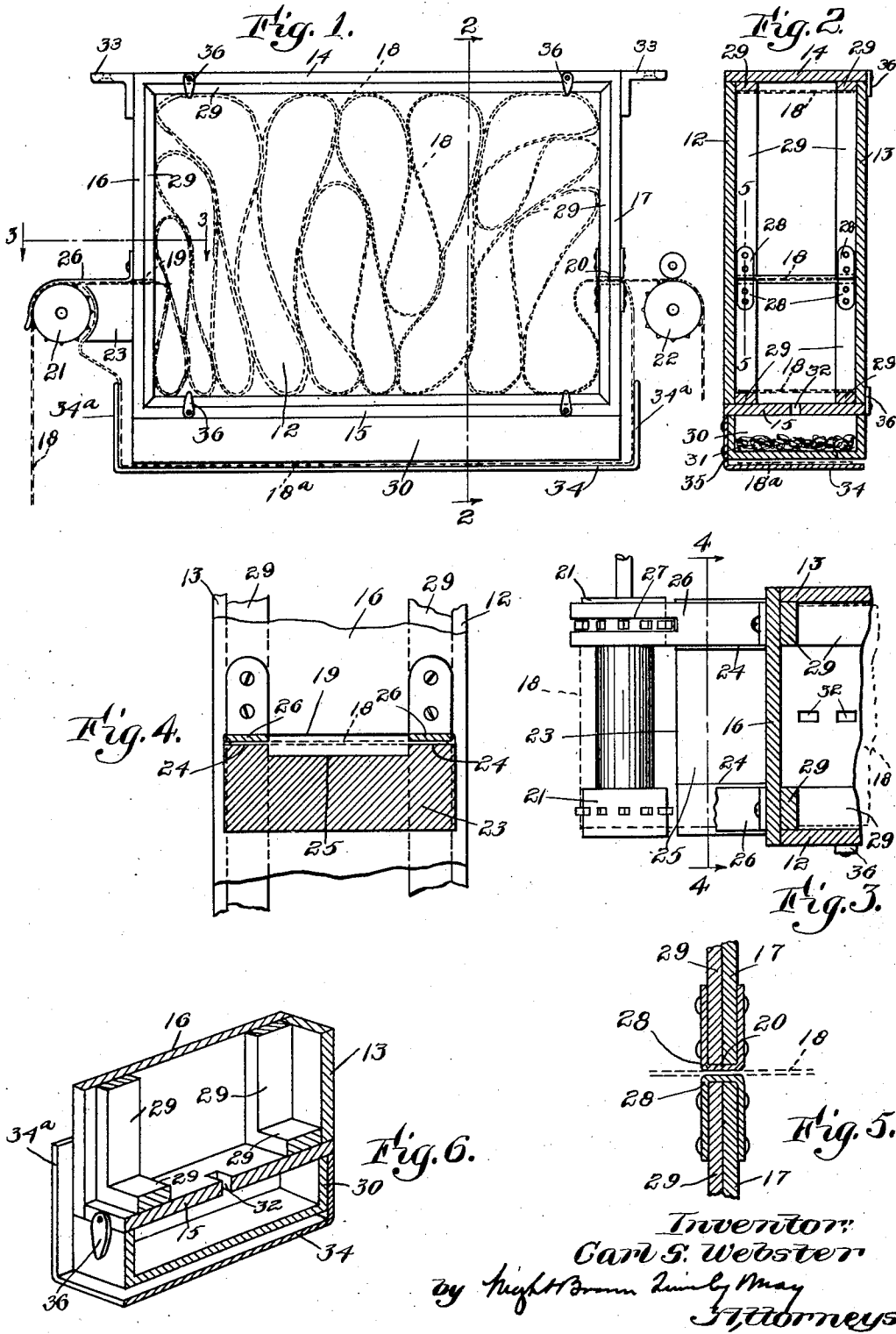


C. S. WEBSTER.
 FILM MAGAZINE FOR MOTION PICTURE MACHINES.
 APPLICATION FILED MAR. 29, 1918.

1,297,049.

Patented Mar. 11, 1919.



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UNITED STATES PATENT OFFICE.

CARL S. WEBSTER, OF HAVERHILL, MASSACHUSETTS.

FILM-MAGAZINE FOR MOTION-PICTURE MACHINES.

1,297,049.

Specification of Letters Patent.

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Application filed March 29, 1918. Serial No. 225,555.

To all whom it may concern:

Be it known that I, CARL S. WEBSTER, a citizen of the United States, residing at Haverhill, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Film-Magazines for Motion-Picture Machines, of which the following is a specification.

This invention relates to apparatus adapted to project motion pictures, the film strip employed being an endless band, the major portion of which is stored in a magazine from one end of which the film is drawn and guided to the projection apparatus of the machine, the film being returned to the opposite end of the magazine and stored in the magazine in numerous loose bights or folds.

The chief objects of the invention are as follows:

First, to prevent contact of the intermediate picture-bearing portion of the film with any surfaces liable to scratch the said portion, only the edge portions of the films contacting with the means provided for guiding the film in its progressive movement.

Secondly, to provide means for lubricating the film within the magazine, and thus prevent liability of scratching the intermediate portion thereof by rubbing contact between the bights or folds of the film.

Thirdly, to provide means for guarding that portion of the endless band of film which is outside the magazine when the magazine is removed from the apparatus for storage or shipment, the magazine being removably attached to the casing of the apparatus so that it may be transferred from one casing to another.

To these and other related ends the invention is embodied in the improvements which I will now proceed to describe and claim.

Figure 1 is a side view of a magazine embodying the invention.

Fig. 2 is a section on line 2—2 of Fig. 1.

Fig. 3 is a section on line 3—3 of Fig. 1, looking downwardly.

Fig. 4 is a section on line 4—4 of Fig. 3.

Fig. 5 is a section on line 5—5 of Fig. 2.

Fig. 6 is a fragmentary perspective view showing portions of the magazine.

The same reference characters indicate the same parts in all of the figures.

My improved magazine is embodied in a rectangular box having opposite spaced

apart side walls 12 and 13, top and bottom walls 14 and 15, and end walls 16 and 17.

The side walls 12 and 13 are spaced apart a distance slightly exceeding the width of a film strip 18, said strip being of indeterminate length and having its ends connected to form an endless band. The end wall 16 is provided with a horizontal slot 19 (Figs. 1 and 4) constituting a film inlet, and the end wall 17 is provided with a horizontal slot 20 (Figs. 1 and 2) constituting a film outlet.

The edge portions of the film strip are provided as usual, with orifices to engage the teeth of feed rollers 21, 22, arranged in pairs, the rollers 21 being adjacent to the slot 19, and the rollers 22 adjacent to the slot 20. These rollers are continuously driven by any suitable mechanism, not shown, the rollers 21 acting to force the film into the magazine while the rollers 22 act to withdraw the film from the opposite end of the magazine.

Associated with the slots 19 and 20 are film guides adapted to contact with only the perforate edge portions of opposite sides of the film and maintain the intermediate or picture-bearing portion of the film sides out of contact with the sides of the slots, so that the picture-bearing portion of the film is not subjected to rubbing contact with any surface, but is, so to speak, suspended in the air.

The film guides associated with the inlet slot 19, as here shown, include a fixed arm or block 23, attached to and projecting outwardly from the end wall 16 below the slot 19, and provided with spaced apart raised faces 24 (Fig. 4) and a depressed intermediate face 25. The faces 24 constitute guide members for the edge portions of the film. Narrow metal arms 26 attached to the end wall 16 and projecting over the raised faces 24 constitute complementary guide members for the edge portions of the film.

By reference to Fig. 4, it will be seen that the guide members 24 and 26 maintain the intermediate portion of the film out of contact with the sides of the slot 19. The arms 26, one of which is shown broken away in Fig. 3, are provided with slots 27 to receive the teeth of the wheels 21.

The guides associated with the slot 20, as here shown, are formed by U-shaped shoes 28, attached, as shown by Figs. 2 and 5, to the end wall 17, the neck portions of

said shoes extending through the slot 20, and in effect reducing the width of the end portions of the slot, the edge portions of the film 18 contacting with said shoes, while the intermediate portion is maintained out of contact with the sides of the slot 20, as best shown by Fig. 2.

The magazine is provided internally with spaced apart tracks 29, adapted to contact with the edge portions of one side of the film, and maintain the intermediate portion of said side out of contact with the magazine. The said tracks, as here shown, are narrow marginal portions offset inwardly from the end walls 16 and 17, and from the top and bottom walls 14 and 15.

By reference to Figs. 1 and 2, it will be seen that the tracks 29 are arranged to bear on edge portions of the bights or loops of the film within the magazine, the intermediate portions of said bights or folds being free from contact with the magazine, so that said intermediate portions cannot be scratched by contact with fixed guiding surfaces. For the sake of simplicity of illustration, I have shown the tracks 29 as cleats or strips attached to the end walls and the top and bottom walls of the magazine. It is obvious, however, that said tracks may be integral with the said walls, and that the walls and tracks may be formed from pressed sheet steel, or other metal.

The slots 19 and 20 extend through the track portions or members on the end walls 16 and 17, portions of the shoes 28 being attached to said track members, as indicated by Figs. 2 and 5.

30 represents a reservoir attached to the magazine and located below the bottom wall thereof, said reservoir being adapted to maintain a charge of a suitable volatile oil, such as eucalyptus oil, the vapor of which is adapted to lubricate the bights or folds of the film. The chief object of this lubrication is to maintain the film in a flexible condition and prevent it from becoming brittle and cracking at its abruptly bent portions. The lubrication also prevents liability of injury of the surfaces of the films by rubbing contact of the bights with each other, and enables the edge portions of the film to slide easily on the tracks 29. The volatile oil may be contained in an absorbent body 31, such as a body of felt inserted in the reservoir 30. The reservoir communicates with the interior of the magazine through orifices 32 in the bottom wall 15, so that the oil vapor may rise from the reservoir into the magazine.

When the film is in use, a portion of it is conducted by suitable guide rollers across the head of the motion-picture machine, in a well known manner. When it is desired to transfer the film from one machine or apparatus to another, this may be accom-

plished by detaching the magazine from the machine casing and transferring it to another casing, the magazine being provided with means such as ears or brackets 33 (Fig. 1), perforated to receive attachment screws. Prior to the removal of the magazine, the portion of the film outside the magazine is disconnected from the usual guiding rollers, and that portion of the film indicated by the reference numeral 18^a in Fig. 1, which remains outside the magazine is inserted between portions of the exterior of the magazine and a guard 34 which is attached at 35 to a suitable support, such as the reservoir 30, and projects across the under side of the magazine. The guard 34 may be provided with upstanding end portions 34^a (Fig. 1), spaced from the end walls of the magazine. When the magazine is removed from the casing, the film is disengaged from the feed rolls 21 and 22, and inserted as indicated by the dotted line portion 18^a (Figs. 1 and 2) in the space between the guard 34 and the adjacent surface of the magazine. When the magazine is inserted in another casing, the portion 18^a of the film is withdrawn from the guard and the film is engaged with the feed rolls 21 and 22 of the apparatus to which the magazine is transferred.

The side wall 12 is preferably of glass, and removably connected with the body of the magazine by suitable means, such as buttons 36. The tracks 29 are preferably provided with smooth surfaces such as may be produced by applying varnish to said tracks.

I claim:

1. A film magazine formed internally to store and guide an elongated motion picture film in loose bights, and having slots constituting a film inlet and a film outlet, respectively, spaced apart film guides associated with said slots and adapted to contact with the edge portions of opposite sides of the film, and maintain the intermediate portions of the film sides out of contact with the sides of the slots, and spaced apart tracks within the magazine adapted to contact with the edge portions of one side of the film and maintain the intermediate portion of said side out of contact with the magazine.

2. A film magazine formed internally to store and guide an elongated motion picture film in loose bights, said reservoir having opposed parallel side walls spaced apart a distance slightly exceeding the width of the film, and constituting guides for the opposite edges thereof, and narrow internal spaced apart tracks adjoining the side walls and arranged to bear on the edge portions of one side of the film, and maintain the intermediate portion of the film out of contact with the reservoir, the reservoir being

provided with a film inlet and with a film outlet.

3. A film magazine formed internally to store and guide an elongated motion picture film in loose bights, said reservoir having opposed parallel side walls spaced apart a distance slightly exceeding the width of the film, and constituting guides for the opposite edges thereof, and narrow internal spaced apart tracks adjoining the side walls and arranged to bear on the edge portions of one side of the film, and maintain the intermediate portion of the film out of contact with the reservoir, the magazine being provided with a slot constituting a film inlet and with external guides arranged to bear on edge portions of the opposite sides of the film and maintain the intermediate portions of the film sides out of contact with the sides of said slot.

4. A film magazine formed internally to store and guide an elongated motion picture film in loose bights, said reservoir having opposed parallel side walls spaced apart a distance slightly exceeding the width of the film, and constituting guides for the opposite edges thereof, and narrow internal spaced apart tracks adjoining the side walls and arranged to bear on the edge portions of one side of the film, and maintain the intermediate portion of the film out of contact with the reservoir, the magazine being provided with a slot constituting a film outlet and having relatively narrow end portions formed to bear on edge portions of the opposite sides of the film, and a wider intermediate portion out of contact with the intermediate portions of the film sides.

5. A film magazine formed internally to store and guide an elongated motion picture film in loose bights, said reservoir having

opposed parallel side walls spaced apart a distance slightly exceeding the width of the film and constituting guides for the opposite edges thereof, and intermediate walls including end walls and top and bottom walls, each provided with offset marginal portions constituting inwardly projecting spaced apart tracks adjoining the side walls and arranged to bear on the edge portions of one side of the film and maintain the intermediate portion of the film out of contact with the intermediate walls, the magazine being provided with a film inlet and with a film outlet.

6. A film magazine formed internally to store and guide an elongated motion picture film in loose bights, and having a wall provided with a film slot constituting a film outlet, and with U-shaped shoes contracting the width of the end portions of the slot, and adapted to bear on edge portions of opposite sides of the film, the intermediate portions of the film sides being maintained by said shoes out of contact with the intermediate portion of the slot.

7. A film magazine formed internally to store and guide an elongated motion picture film in loose bights, and having a wall provided with a film slot, and a reservoir communicating with the magazine and adapted to contain a volatile oil to supply a lubricating vapor to the film.

8. A film magazine formed internally to store and guide an elongated motion picture film in loose bights, and provided with film slots, said magazine having an external guard for a portion of the film.

In testimony whereof I have affixed my signature.

CARL S. WEBSTER.