Aug. 9, 1927. 1,638,392

T. W. CASE

TALKING MOVING PICTURE MACHINE

Filed March 18, 1926

FIG. 1.

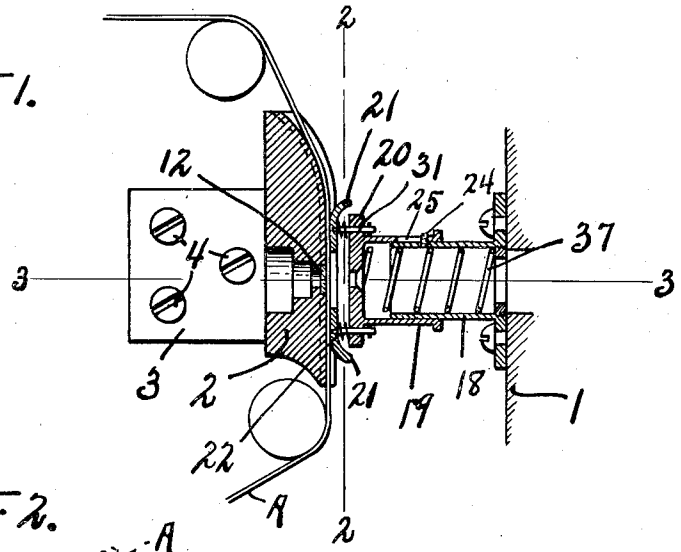


FIG. 2.

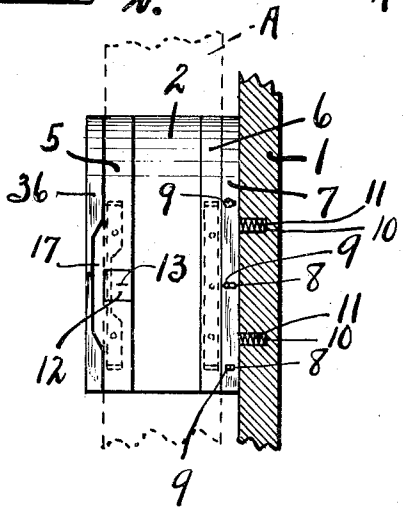


FIG. 3.

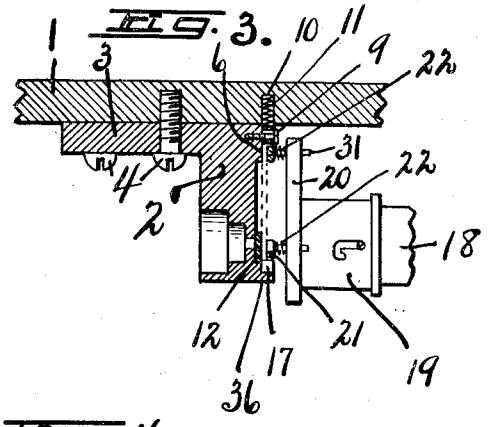


FIG. 4.

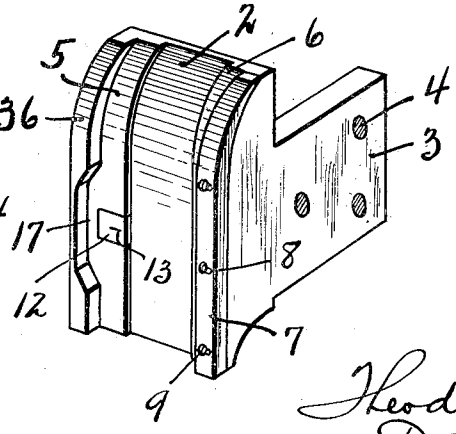
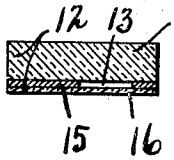


FIG. 5.



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UNITED STATES PATENT OFFICE.

THEODORE WILLARD CASE, OF AUBURN, NEW YORK, ASSIGNOR TO CASE RESEARCH LABORATORY INCORPORATED, OF AUBURN, NEW YORK, A CORPORATION OF NEW YORK.

TALKING-MOVING-PICTURE MACHINE.

Application filed March 18, 1926. Serial No. 95,593.

This invention relates to certain new and useful improvements in talking moving picture machines.

In machines of this type, particularly in reproduction work, it is essential to accurate reproduction that the extremely narrow slit through which the light passes to the film shall at all times be arranged in exact alignment with the lines produced on the film in the taking of a talking picture. And as the member containing the slit must be removed and replaced at more or less frequent intervals, and as it is found unsatisfactory to permit the ordinary machine operator or like workman to perform this duty because of resulting inaccuracies, the main object of this invention resides in the production of a talking picture unit adapted to be assembled with a moving picture machine in such a manner that it is readily moved from the machine and readily replaced in the same position, and includes the member containing the slit or the slit unit fixed thereto in predetermined position, so that the film is guided over the slit with the lines on the film in perfect alignment with the slit whereby exact reproduction is effected.

Further, where a film moves over a track containing a slit unit and provided with guides for limiting the lateral movement of the film, dirt and foreign matter tend to collect in the corner at the junction of the track and the guide, and the film is thereby lifted away from the slit, and an additional object of this invention resides in the production of a talking picture unit in which the lateral guide is omitted at points opposite and adjacent the slit so that the difficulty experienced with former structures in the accumulation of foreign matter and the lifting of the film away from the slit is eliminated.

Other objects and advantages relate to the details of the construction and the parts thereof, all as will more fully appear from the following description, taken in connection with the accompanying drawings, in which:—

Figure 1 is an elevation partially in section of an apparatus of this invention.

Figure 2 is a section on line 2—2, Figure 1.

Figure 3 is a section on line 3—3, Figure 1.

Figure 4 is a perspective view of the device.

Figure 5 is a section through a preferred form of slit unit.

The apparatus as here illustrated comprises a moving picture machine, a portion of which is illustrated at —1— combined with a replaceable talking picture unit including a fixed slit unit of desired construction. The replaceable talking picture unit comprises a body section —2— including a flange —3—, in this instance extending at substantially right angles to the body and formed with a plurality of openings for the reception of screws —4—, three being illustrated in this instance, which are adapted to be threaded into openings in the wall —1'— of the moving picture machine.

The body section —2— further includes longitudinally extending tracks —5— and —6—, in this instance spaced apart and elevated above the central portion of the body —2— and longitudinally extending lateral guides or strips —6— and —7— disposed upon opposite sides of and elevated above the respective tracks —5— and —6—, upon which tracks the film A is adapted to ride between the guides —6— and —7—.

One of these guides, as —7—, is preferably laterally movable with respect to the body —2— so as to tightly engage the adjacent edge of the film —A— and hold the opposite edges in contact with the guide or strip —36—. For this reason the guide —7— is formed with laterally extending slots —8— adapted to receive screws —9— which extend into openings in the body, and as the strip —7— lies in substantial contact with the wall —1—, this wall is formed with one or more recesses —10— adapted to receive coil springs —11— which bear against the outer edge of the guide —7— and tend to force it inwardly toward the guide —36— so that the film will at all times be tightly confined between the guides.

The track —5— in this illustration is formed with a recess within which there is secured by cementing or otherwise a slit unit —12— or a member containing an elongated, extremely narrow slit —13—, the body —2— being formed with a comparatively large opening underlying the slot so that light rays from a suitable source may pass through the body and the slot to the film.

This slit unit may preferably be constructed of a base plate —14— of a transparent material, such as glass having deposited thereon in vaporized form or in the form of minutely sub-divided particles an extremely thin layer —15— of opaque material, such as a metal like silver, and in this opaque layer —15— the slot —13— is ruled. An extremely thin cover glass —16— is then secured by such a material as Canada balsam, permanently in place over the slot —13— and is preferably of a size substantially equal to the size of the base plate —14— so as to form a symmetrical unit. This unit is placed in the recess formed in the track —5— adapted to receive it, and the recess is preferably of such a size that the slit unit fits it, and the surface of the cover glass —16— is flush with the surface of the track.

In order to prevent the accumulation of dirt and foreign matter at the juncture of the guide —36— and track —5— at a point adjacent the slit —13—, the guide —36— is cut away at its inner edge so as to form a lateral recess —17— which preferably extends some distance upon opposite sides of the slit unit —12— and the floor of this recess is flush with and forms a continuation of the track —5— so that there is no angular part at points adjacent the slit unit to collect dirt or foreign matter.

Means is provided for holding the film in tight contact with the tracks —5— and —6— and in this illustration that means takes the form of telescoping tubes —18— and —19—, one of which as —18— is connected at its base by screws or otherwise to the wall —1— of the moving picture machine, and the other section, such as —19— carries at its forward end a plate —20— which plate in turn carries a plurality of, in this instance two shoes —21—, one for pressing the film into contact with each of the tracks —5— and —6—, and the shoe which is adapted to hold the film in contact with the track —5—, is laterally cut away to form a recess therein at a point adjacent the slit unit —12— so that no portion of the shoe overlies the slit —13—. The tubes are normally urged apart by enclosed coil spring —37—.

As best shown in Figures 1 and 3, these shoes are supported from the plate —20— by means of pins —31— secured to the shoes and extending through the plate in a slidable manner, springs —22— being mounted on pins between the shoe and the plate so that the shoes are urged by the spring toward the tracks —5— and —6— respectively to resiliently hold the film in contact with the tracks.

The telescoping tubes —18— and —19— are slidably secured together by means of stud —24— secured to the tube —18— and extending outwardly therefrom and positioned in an elongated slot —25— in the tube —19—.

It will be obvious that the entire unit including the body —2—, the tracks, the guides and the slit unit, are removable from the wall —1— and are readily replaced in the same position and secured therein by screws —4— so that the unit when secured in the machine is always at a predetermined position, and as the slit unit —12— is fixed with respect to the body —2— it will in like manner always be fixed in a predetermined position with respect to the film —A— which moves over it and the recess —17— will prevent the collection of any foreign matter at points adjacent the slit unit —12— which would lift the film away from the slit, and altho I have shown and described a specific construction and a specific form and relation of the parts thereof, I do not desire to limit myself to any particular form, arrangement or construction of the parts, as various changes and modifications may be made within the scope of the appended claims.

I claim:

1. A removable talking picture unit comprising a body portion, spaced longitudinally extending tracks elevated above the central portion of the body, one of said tracks formed with a recess, and a slit unit inset in said recess and having its contact surface substantially flush with the track.

2. A removable talking picture unit comprising a body portion, spaced longitudinally extending tracks elevated above the central portion of the body, one of said tracks formed with a recess, a slit unit inset in said recess and having its contact surface substantially flush with the track, and guides upon the outer sides of the tracks.

3. A removable talking picture unit comprising a body portion, spaced longitudinally extending tracks elevated above the central portion of the body, one of said tracks formed with a recess, a slit unit inset in said recess and having its contact surface substantially flush with the track, guides upon the outer sides of the tracks, one of said guides being mounted in a laterally movable manner, and spring means tending to move said guide toward the opposite guide.

4. A removable talking picture unit comprising a body portion having spaced longitudinally extending guides, a slit unit carried by the body portion and the said guide on the side adjacent the slit unit being cut away to form a recess opposite the slit unit.

5. A removable talking picture unit comprising a body portion, spaced longitudinally extending tracks adapted to support a film, longitudinally extending guides upon the outer sides of the tracks for confining a film, and one of said tracks formed with a recess, and a slit unit secured in said recess.

6. A removable talking picture unit comprising a body portion, spaced longitudinally extending tracks adapted to support a film, longitudinally extending guides upon the outer sides of the tracks for confining a film, and one of said tracks formed with a recess, and a slit unit secured in said recess, and having its contact surface substantially flush with the track.

7. A removable talking picture unit comprising a body portion, spaced longitudinally extending tracks adapted to support a film, longitudinally extending guides upon the outer sides of the tracks for confining a film, and one of said tracks formed with a recess, and a slit unit secured in said recess, and the said guide adjacent the slit unit being cut away to form a lateral recess adjacent the outer edge of the slit unit.

8. A removable talking picture unit comprising a body portion having means for securing the same to a wall of a moving picture machine, longitudinally extending tracks adapted to support a film, a slit unit in one of said tracks, longitudinally extending guides at opposite sides of the tracks, means for mounting the guide adjacent the wall of the moving picture machine in a manner to permit its lateral movement, and a spring interposed between the said wall and the guide adapted to normally urge said guide toward the opposite guide.

9. A removable talking picture unit comprising a body portion having means for securing the same to a wall of a moving picture machine, longitudinally extending tracks adapted to support a film, longitudinally extending guides at opposite sides of the tracks, means for mounting the guide adjacent the wall of the moving picture machine in a manner to permit its lateral movement, a spring interposed between the said wall and the guide adapted to normally urge said guide toward the opposite guide, a slit unit carried by the body near the opposite guide, and said opposite guide formed with a lateral recess adjacent the slit unit.

10. A talking picture unit comprising a body portion having a surface over which a film is adapted to ride in contact, a slit unit mounted in said body and substantially flush with the surface over which the film rides, and a guide for contact with the edge of the film adjacent the slit unit, said guide being cut away to form a recess opposite the slit unit.

In witness whereof I have hereunto set my hand this 5th day of March, 1926.

THEODORE WILLARD CASE.