May 1, 1934. H. ZIMMERMAN 1,957,378

OBSERVATION DEVICE

Filed July 17, 1933

Fig. 1.

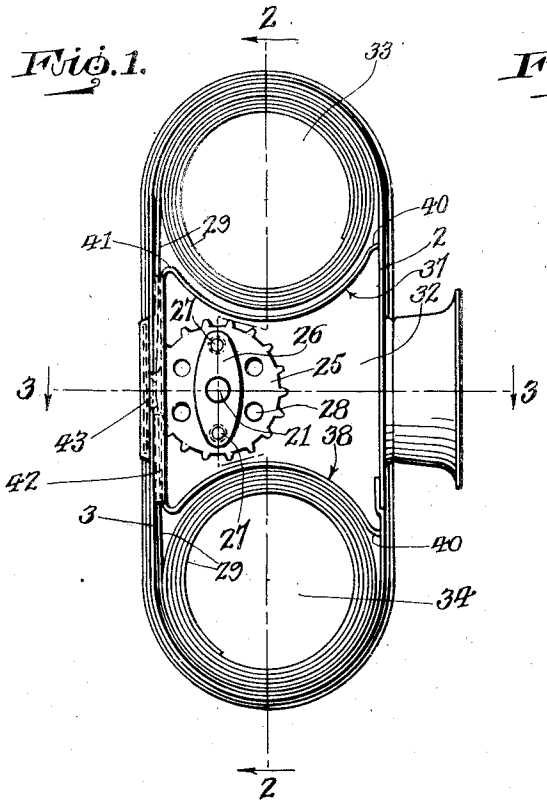


Fig. 2.

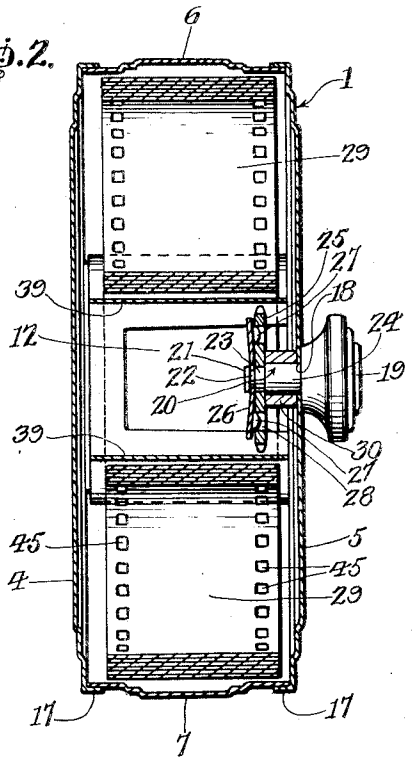


Fig. 3.

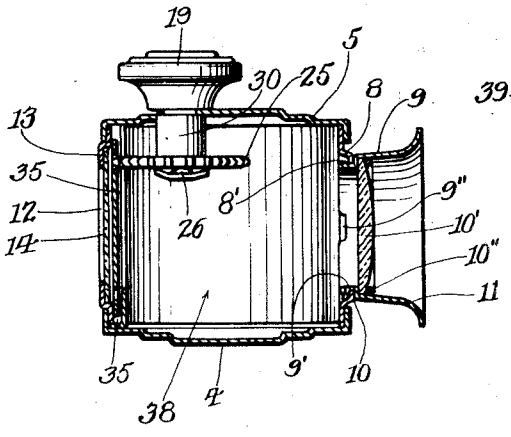
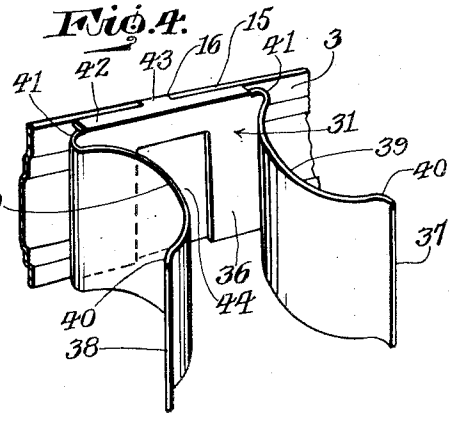


Fig. 4.



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UNITED STATES PATENT OFFICE

1,957,378

OBSERVATION DEVICE

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Application July 17, 1933, Serial No. 680,873

4 Claims. (Cl. 40—86)

This invention relates to a device for direct observation of picture films, and has for its object to provide, in a manner as hereinafter set forth, a device of the class referred to so constructed and arranged for portraying in a thoroughly efficient manner, scenes, characters, buildings or any other objects reprinted upon a film, and is designed primarily for use in connection with thirty-five or sixteen millimeter stock film, but it is to be understood that the device, in accordance with this invention may be set up for use in connection with any size or character of film for which it may be found applicable.

The invention has for its further object to provide, in a manner as hereinafter set forth, a device of the class referred to capable of being used for educational and advertising purposes.

A further object of the invention is to provide, in a manner as hereinafter set forth, a device of the class referred to including means for shifting a film to unwind, when the latter is in a rolled up condition, and with means automatically functioning to encourage the rolling up of successive stretches of the film which are unwound, after such stretches have moved successively more than the necessary distance to portray the objects thereon.

A further object of the invention is to provide, in a manner as hereinafter set forth, a device of the class referred to including a structure including a rotatable shifting element for and engaging in the film, and with said structure including means to prevent rotation of said element, when the latter is held by the tightness of the film or otherwise, whereby the film will not be damaged.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a device for the purpose referred to which is simple in its construction and arrangement, strong, durable, compact, pleasing in appearance, thoroughly efficient in its use, conveniently operated, readily assembled, and comparatively inexpensive to manufacture.

To the above ends essentially and to others which may hereinafter appear, the invention consists of such parts, and such combination of parts which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is an elevation of the device looking into the interior thereof and with the removable side wall of the housing not shown.

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 fragmentary view illustrating in perspective the partition element.

The device includes a housing 1 formed of a front wall 2, a rear wall 3, a removable side wall 4 constituting a removable closure for the housing, a fixed side wall 5 and a pair of end walls 6, 7. The housing 1 is of oval contour.

The front wall 2 centrally thereof is formed with an outset portion 8 of angle-shaped cross section formed with an opening 8'. Seated against the outset portion 8 is a sight directing member 9 formed with a reduced inner portion 9' which extends through opening 8', and is upset as at 9'' for clamping member 9 to wall 2. The member 9' is formed with an inwardly extending shoulder 10 which merges into the reduced portion 9'. The shoulder 10 provides a seat for a lens 10'' which is held in position by a retaining ring 10''. The member 9 is of annular form and has a flared outer end 11.

The rear wall 3 at its center is provided with a light entrance opening 12 of rectangular contour and the portions of wall 3 bordering said opening 12 is outset, as at 13 to provide a seat for a translucent member 14 which extends entirely across opening 12. The edge 15 of wall 3 at its center is formed with a notch 16 disposed in alignment with the lengthwise median of opening 12 for a purpose to be referred to.

The side wall 4 is formed with an endless flange 17 which encompasses and frictionally engages with the outer faces of the front, rear and end walls of the housing for detachably securing it in position. The front and rear walls merge into the end walls.

The side wall 5 is provided adjacent one side of its longitudinal median and in proximity to rear wall 3 with an opening 18. Abutting against the outer face of wall 5 is a rotatable knob 19 having fixed thereto the outer end of a shank 20 which seats in and extends inwardly from opening 18. The shank 20 has a head 21 at its inner end and a pair of reduced portions 22, 23, the former being of less diameter than the latter and merges into head 21. The portions 22, 23 are of less diameter than the remaining portion 24 of the shank. The portions 22, 23 merge into each other. The portion 24 extends from knob 19 and merges into portion 23. Loosely mounted on portion 23 is a sprocket wheel 25. Interposed between wheel 25 and head 21, mounted at its center on portion 22 and fixed to shank 20 is a resilient coupling member 26 of substantially elliptical contour provided at a point in proximity to each end thereof with a coupling pin 27.

The sprocket wheel 25 has its body formed with a set of spaced openings 28 disposed equidistant with respect to each other. The openings 28 are arranged in pairs. The openings 28 of each pair are disposed diametrically opposite each other. Each pair of openings are for selectively receiving the pair of pins 27 on member 26 for the purpose of detachably coupling such wheel with the stem, whereby when the knob is rotated, under ordinary conditions, sprocket wheel 25 will be bodily carried therewith and shift a film 29 to be hereinafter more fully referred to. If the wheel 25 is held by the tightness of the film or from some other cause, the member 26 will function to move clear of the wheel 25 when the knob is rotated, and the latter will turn without turning wheel 25 so that the film will not be damaged. The wheel 25 is disposed at right angles to, but below opening 12 and extends into very close proximity to the inner face of wall 3. A reinforcing and spacing sleeve 30 is mounted on stem 20 and is interposed between wheel 25 and wall 5.

Arranged within the housing 1 is a partition element 31 which coacts with the front and side walls 2, 4, 5 respectively to provide the housing with a central compartment 32 for the passage of light from the film to the eye, coacts with the front, rear, side and end walls 2, 3, 4, 5, 6, 7 respectively to form the housing with a pair of substantially circular end compartments 33, 34 and coacts with the rear wall 3 to form a guide passage 35, adjacent the rear wall of the central compartment 32, for the film 29. The length of the guide passage 35, as well as the width thereof is greater than the width and length respectively of opening 12. The knob 19, stem 20, wheel 25 and member 26 provides a rotatable shifting structure for film 29, wheel 25 is termed a shifting element for the film and member 26 termed a releasing element for said shifting element. The stem 20, wheel 25, member 26 and sleeve 30 are arranged in the central compartment 32 and to one side of the lens 10' so as not to interfere with the vision. The wheel 25 and member 26 are positioned in proximity to wall 5.

The partition element 31 is substantially of U-shaped contour when looking in plan at either lengthwise edge thereof and is formed from a strap of resilient material of the desired width and length. The strap is shaped to provide a rectangular base part 36 and a pair of oppositely disposed side parts 37, 38 extending at right angles to the base part 36 and each formed for the major portion of its length with a portion 39 of concave curvature, another portion of its length providing an outer end portion 40 of convex curvature and the remaining portion of its length providing an inner end portion 41 of convex curvature merging into one end of the base part 36. The portion 39 of a side part 37 or 38 forms a curved inner end wall for a circular end compartment 33 or 34. The parts 37, 38 form the end walls of compartment 32. The base part 36 has extending from one side thereof and at right angles thereto an oblong flat spacing flange 42 which abuts and is flush with the edge 15 of wall 3. The flange 42 centrally of its free lengthwise edge has extending therefrom a flat rectangular lug 43 which seats in and completely fills notch 16. The outer face of lug 43 is flush with edge 15 of wall 3. The base part 36 centrally and transversely thereof is provided with a rectangular opening 44 which aligns with and is spaced from opening 12. The opening 44 extends from a point adjacent the flanged edge of body part 36 to and through the outer edge of the latter. The sprocket wheel 25 extends through opening 44 into the guide passage 35. The latter is provided by base part 36 in connection with the central portion of the wall 3. The side parts 37, 38 of element 31, when base part 36 is connected to the wall 3 by lug 43 and spaced from such wall by flange 42 extend to and abut the inner face of wall 2.

The side parts 37, 38 of partition 31 in connection with the end walls 6, 7 function to encourage the rolling up of successive stretches of film 36 which are unwound from a roll of film, after such stretches have moved successively more than the necessary distance to portray the objects thereon.

The film 36 has spaced perforations 45 adjacent each edge thereof. The sprocket wheel 25 functions when rotated to engage in the perforations 45 adjacent one of the edges of the film for successively shifting stretches of the latter through the guide passage 35 and across the translucent member on panel 14 and the opening 44. The latter being positioned in alignment with lens 10'. The member 9 is arranged at the front of compartment 32 and the opening 44 in the rear end of the latter.

The film 34 in rolled up form is positioned in compartment 33 and a stretch thereof is threaded through guide passage 35. On operating the film shifting structure, the sprocket wheel 25 engaging in the stretch of film extending through passage 35 will unwind the roll and provide for the film to enter compartment 34, and the end walls of the latter will function to roll up successive unwound stretches of the film. As the film moves through guide passage 35, one can view the objects portrayed thereby through the member 9 and lens. The opening 12 in connection with the member or panel 14 provides for the necessary light to enable the object to be thoroughly distinguishable from the eye cup.

The housing 1 can be formed of any desirable material, as well as element 31 and the sight directing member 9.

What I claim is:—

1. In a device for direct observation of picture films, a housing including front, rear, a pair of side and a pair of curved end walls, and a partition element of substantially U-shaped contour positioned within said housing and forming in connection with the latter respectively a circular end compartment for storing an unwindable body of rolled up film, a circular end compartment for receiving and including end walls acting to roll up stretches of the film unwound from the rolled up body of film, a guide passage for the stretches of the film as they unwind from said rolled up body and a central compartment for the passage of light from the film to the eye, said passage being disposed exteriorly of one end of said central compartment, said housing being formed with translucent means for the passage of light to the film, said partition element being formed with an opening at the rear end of said central compartment communicating with said passage and providing for the passage of light rays from the film to the eye, means at the front end of said central compartment for direct observation of the objects on the stretches of the film, means at one side of the central compartment for unwinding the film from said rolled up body and shifting it to said receiving compartment, said housing having its rear wall notched, and said partition element intermedi-

ate its ends having a part opposing said rear wall, said part being formed with a spacing flange abutting the inner face of and for spacing said part from said rear wall, said flange being provided with a lug seating in said notch for connecting the said element to said rear wall, and said element including spaced opposed parts abutting the inner face of said front wall.

2. In a device for direct observation of picture films and of that type including an oval-shaped housing having a rear wall formed with a notch, a partition element for mounting in and for connection to the housing to provide the latter with a central compartment for the passage of light rays from the film to the eye, a circular storage compartment at one end of the housing for an unwindable rolled up body of film, a circular film receiving compartment at the other end of the housing for rolling up stretches of the film unwound from said rolled up body and a film guide passage in the rear of said central compartment connecting the end compartments together, and for the pasage of said stretches, said element comprising a base part and a pair of oppositely disposed concaved side parts extending at right angles to the ends of said base part, said base part being formed at one side with a right angularly disposed spacing flange extending in an opposite direction to said side parts for abutting said rear wall of the housing and a coupling lug projecting from the free lengthwise edge of said flange for seating in the notch of said rear wall.

3. In a device for direct observance of picture films and of that type including a housing provided with a storage compartment for a rolled up body of film, a receiving compartment for the stretches of the film unwound from said rolled up body, a film guide passage for said stretches and connecting said compartments together and a compartment between said other compartments arranged forwardly of said guide passage and having its rear wall cutout to provide for the passage of light rays from said stretches to the eye, the combination of a rotatable stem supported by a wall of the housing and extending into said central compartment, a rotatable element for extension into said passage to engage the film for shifting the latter, said element being loosely mounted on said stem, and a resilient coupling element bodily moving with the stem and provided with means releasably engaging in said shifting element for coupling it with the stem to provide for the bodily rotating of said elements and stem, said coupling element being releasable from said shifting element when the movement of the latter is arrested to provide for the rotation of the stem and coupling element independent of the shifting element.

4. In a device for direct observation of picture films, a housing provided respectively with a storage compartment for an unwindable body of rolled up film, a circular film receiving compartment spaced from said other compartment for receiving successive stretches of the film unwound from said body, the end walls of said receiving compartment acting to roll up the successive stretches of the film received therein, means to permit of the direct observation of said successive stretches, a film guide connecting the storage and receiving compartments and arranged rearwardly of said means and means for the entrance of light, and a film shifting structure including an element normally latched for rotation and extending into said passage to engage in the film for shifting the latter and automatic means for releasing said element from its normal position when the movement of said element is arrested.

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