March 28, 1950 F. SKUPIEN 2,502,178

MICROVIEWER

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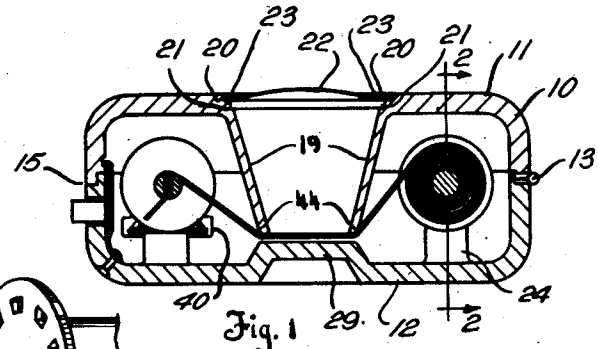


Fig. 1

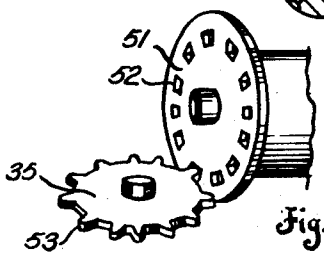


Fig. 6

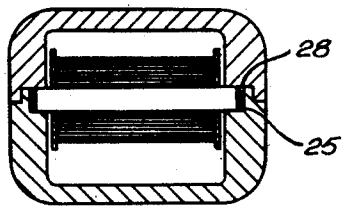


Fig. 3

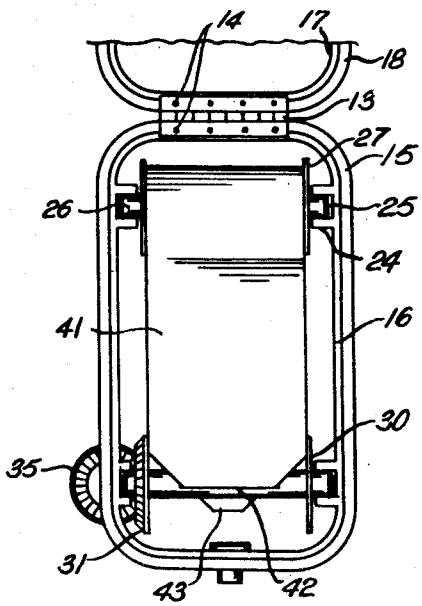


Fig. 2

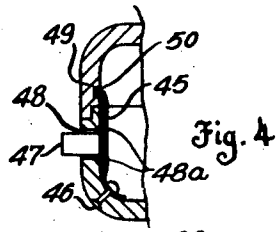


Fig. 4

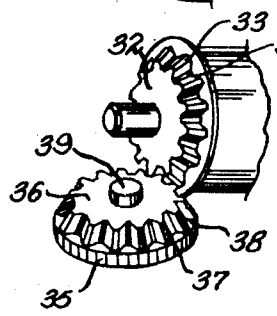


Fig. 5

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MICROVIEWER

Frank Skupien, Chicago, Ill.

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1 Claim. (Cl. 88—39)

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This invention relates to a micro-viewer or micro-reader, more particularly a reading or viewing device which may be small and compact and easily carried in the pockets, purse, or hands of the user to provide simple and efficient means of reading in crowded streetcars or other places where space may be at a minimum.

It is also contemplated that the present invention will serve a useful purpose in the amusement of children, since the film strip or ribbon, presently described, may carry comic pictures or "Mother Goose" rhymes, for example, which are particularly pleasing to children.

Another object of the present invention is to provide a simple and effective means for advancing the ribbon or film strip from one spool to the other.

These and other objects of the present invention will be readily apparent from the following description, taken together with the accompanying drawings, in which—

Figure 1 is a longitudinal cross section of the device of the present invention;

Figure 2 is an open plan view of the lower cover member of the device showing the relative position of the parts therein, showing also a fragmentary portion of the upper cover member;

Figure 3 is a cross section partially taken on the line 2—2 of Fig. 1, looking in the direction of the arrows;

Figure 4 is a partial cross-section of the locking mechanism also shown in Fig. 1 but here shown separately for clearness of description;

Figure 5 is a perpective view of the mean for manual rotation of the winding mechanism; and

Figure 6 is a perspective view of a modification thereof.

Referring in detail to the illustrative construction shown in the drawings, the numeral 10 indicates the two-part rectangular case which houses the various parts of the present invention. This case 10 may be suitably made of a molded metal or plastic, but plastic is preferred for economical reasons.

As shown in the drawings, the case 10 is comprised of the upper cover member 11 and lower cover member 12. The upper cover member 11 and the lower cover member 12 are hinged together at one of their ends by the common hinge 13, which is retained to each of the cover members by screws 14. The lower cover member 12 is cut away right angularly at 15 around its entire periphery and is provided with a ridge 16 in the same fashion. Conversely, the upper cover member 11 is cut away right angularly at 17 and ridged at 18 so that when the case 10 is closed the shoulder 15 of the lower cover member receives the ridge 18 of the upper cover member and the shoulder 17 of the upper cover member receives the ridge 16 of the lower cover member, thereby affording a tight seal against moisture and air. It will be understood that the portions of the cover members to which the hinge 13 is screwed do not carry the ridges as above described, but present flat surfaces into which the hinge screws 14 are received.

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The upper cover member 11 carries integral members 19 which project angularly downwardly from the lower surface thereof and terminate just short of a step on the floor of the cover member 12. The center top portion of the upper cover member 11 is right-angularly cut away as at 20 and 21 as shown. A magnifying glass 22 is then received onto the steps 21 and plastic strips 23 are flowed into or otherwise placed in steps 20 to secure the magnifying glass 22 firmly in place in the cover. With the magnifying glass 22 in place, the members 19 form an interior hood therefor. The members 19 and as a matter of fact the height of the step upon the floor of the cover member 12, presently described, may be regulated by the power of the magnifying glass 22 inserted into the upper cover member 10.

The lower cover member 12 carries integral members 24 right-angularly to the upper edge of the lower cover member 12 and which are channeled as at 25 (Figs. 2 and 3) to receive the axle 26 of the spools 27, as will be best seen at Fig. 3. When the upper cover member 11 is closed upon the lower cover member 12, the axle will be securely held in position by the juncture of the shoulders 17, shown in Fig. 3 at 28 of the upper cover member 11 bearing against the axle 25.

The portion of the floor of the lower cover member 12 immediately below the interior hood formed by the integral members 19 is stepped upwardly at 29, as already alluded to, to afford a bearing surface or support for the film strip or ribbon. One end of the spool, in this instance the spool 30 and the end 31 thereof, carries a bevel gear 32 having teeth 33 and slots 34 therein. A thumb wheel 35 carrying a similar bevel gear 36 having teeth 37 and slots 38 is mounted right-angularly on the floor of the cover member 12, on a pin 39. The lower cover member 12 is cut away in a slot 40 which allows the turning portion of the gear wheel 35 to protrude through the exterior surface of the case.

The spool 27 has wound upon it a film strip or ribbon 41, the free end of which is drawn man-

ually to the spool 30 and passed through a slot 42 so that a small tab 43 will protrude through the slot. Manual rotation of the thumb wheel 35 will cause the teeth 37 to engage in the slots 34 and the teeth 33 to engage in the slots 38 so that the spool 30 may be rotated, which action draws the film strip 41 from the spool 27 and causes the film strip 41 to be wound upon the spool 30.

The integral members 19 may be slightly rounded as at 44 to reduce frictional wear on the film strip or ribbon 41.

An angular leaf spring 45 is placed at the interior end of the case opposite the hinge and one end thereof is firmly held in position in the lower cover member 12 by means of the pin 46 embedded into the plastic material of the case. A button release 47 protrudes through a slot 48 in the lower cover members and is shouldered at 48a before being spot-welded to the spring 45. The upper cover member 11 is slotted as at 49 to receive the angular curved end 50 of the spring 45. It will thus be noted that with the cover members closed the end 50 of the spring 45 will rest in the slot 49 and will retain the cover members 11 and 12 securely together. However, because the shoulders 48a abut the interior surface of the lower cover member 12, the end 50 of the spring 45 will not be permitted to bear frictionally against the slot 49 but will be held rigidly and snugly therein.

Instead of the bevel gears 32 and 36 carried respectively by the spool 30 and the thumb wheel 35, the means for manually rotating the spools may be formed as shown in Fig. 6. In this modified view the spool wheel 51 has spaced notches 52 punched adjacent the periphery thereof and the thumb wheel 35 has blunt teeth 53 which engage the slots 52 so that rotation of the thumb wheel 35 will cause the spool to rotate in like manner.

The film strip or ribbon 41 may advantageously carry printed matter or comic pictures or pictures in general. Since a great many characters may be shown in reduced size upon such a film strip and brought up to viewing size by means of the magnifying glass, the present invention will be economical in manufacture and will accomplish the desired result with a minimum of parts.

In practice the loaded spool 27 is placed in position at the end of the case nearest the hinge and the end 43 of the film strip is threaded into the slot 42 of the roller 30 as hereinbefore described. The cover member 11 is then closed over the cover member 12 and locked in position as shown in Fig. 1 by the spring 45. It will be understood that the closing action will cause the integral members 19 to press the film strip down upon the step 29 of the lower cover member 12,

as shown in Fig. 1. Then the thumb wheel 35 may be manually operated in a clockwise direction which will rotate the spool 30, causing the film strip 41 to pass directly beneath the magnifying glass 22. During this operation the observer may view the film strip through the magnifying glass 22 until the film strip 41 has been completely wound upon the spool 30.

As will be understood from the foregoing, the device may be carried in one hand of the user, and the thumb wheel 35 may be operated by the thumb of the hand in which the device is carried.

It will be understood that when one film strip has been exhausted the case may be opened by manual pressure applied longitudinally against the end of the button 47 and the spool carrying the strip removed therefrom and a fresh spool inserted, after which the above described operation may be repeated.

Having described my invention, I claim:

A micro-viewer of the class described adapted to be held and operated simultaneously in one hand, comprising, in combination, a two part casing of upper and lower cover members, the contacting peripheral edges of said cover members being oppositely ridged and shouldered to afford a sealing fit when closed, a film bearing spool rotatably secured at one end of said casing and another spool rotatably secured at the opposite end of said casing, a magnifying glass permanently embedded in the upper cover member, an interior hood formed by integral angular members projecting downwardly from the upper cover member, an integral upwardly extending step projecting from the lower cover member, said step being immediately below said magnifying glass and nearly co-terminous with the lower open end of said hood, a film strip or ribbon extending over said step, a thumb operated rotary member engaging meshing means integral with one of said film bearing spools, and manually actuated spring locking means for connecting the cover members securely together.

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