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MAGNIFIER

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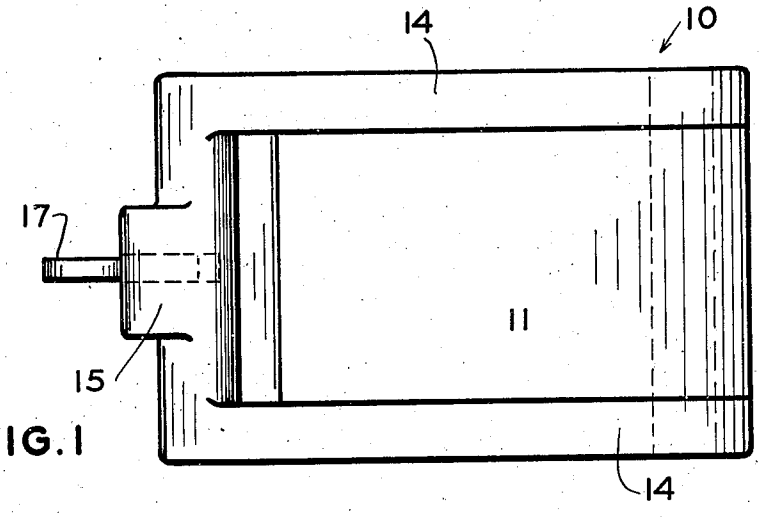


FIG. 1

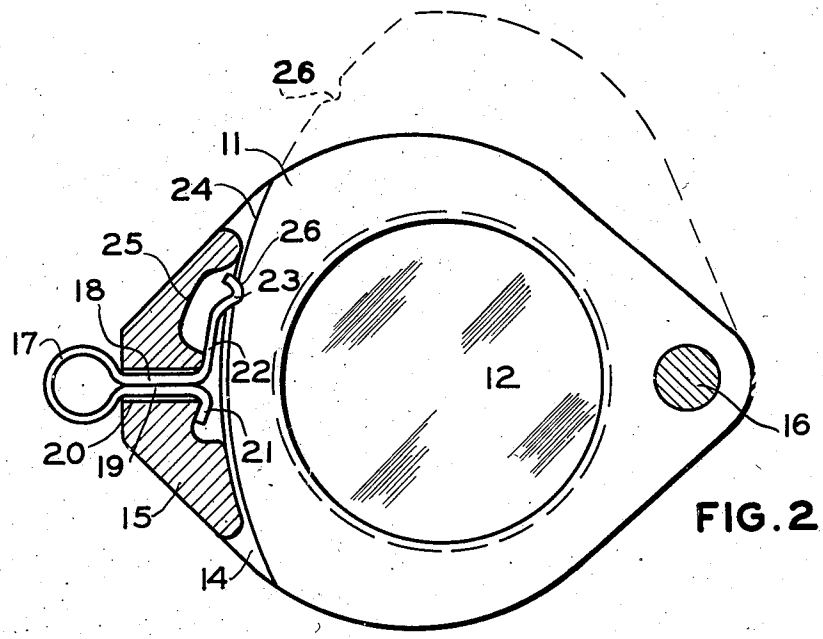


FIG. 2

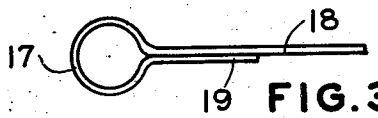


FIG. 3

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MAGNIFIER

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4 Claims. (Cl. 88—39)

This invention relates to magnifiers and more particularly to a small hand-held magnifier pivotally mounted to a casing for housing the same when not in use.

Such small magnifiers have been heretofore proposed and have generally consisted of a lens-carrying frame pivotally mounted for movement into and out of a casing. The casing in the prior devices usually was formed of a plurality of plates spaced apart by a separate piece which formed a wall of the casing. The casing often times has been provided with a small ring-like member which served as a means for securing the magnifier to a chain or the like worn by the user.

To retain the lens-carrying frame in the casing when the magnifier was not in use, the frame has been made so that the opposite edges thereof were frictionally engaged by the inner surfaces of the casing. After a short period of use, however, the resultant wear of the engaging surfaces of the frame and casing impaired the frictionally engagement and consequently the frame failed to remain in its closed position. As a result the lens faces would be scratched or chipped particularly where the magnifier was carried in a pocket of the user which contained other articles.

In the magnifier of the present invention the casing is formed of some suitable material by a simple molding operation as an integral piece. The lens-carrying frame is preferably formed in a similar manner and is mounted to the casing by means of a small pivot pin, the opposite ends of which the mounted in aligned apertures formed in the spaced walls of the casing. This manner of forming the casing greatly reduces the number of forming operations heretofore necessary and consequently reduces the manufacturing costs of the magnifier.

The difficulty had in prior magnifiers after the engaging surfaces become worn is obviated by the magnifier herein disclosed for the casing thereof is provided with means which more positively engage the frame and securely maintain the same within the casing. The means comprises a resilient detent member such as a spring catch carried by the casing which engages a notch formed in the lens-carrying frame when the latter is moved into the casing. The resiliency of the spring catch securely holds the frame within the casing but yet permits the same to be easily moved out of the casing when it is desired to use the magnifier.

To further simplify the manufacture of the magnifier, the detent member is formed as an integral part of a resilient cotter pin, the head of which forms an attaching loop for the magnifier. The pin is inserted into a passageway formed in the transverse wall of the casing until the loop thereof is brought into engagement with the outer surface of the casing whereafter the one arm of the pin is bent over to retain the pin within the passageway. The other arm of the pin can then be formed into the detent member so disposed as to engage the frame and dog the same when the frame is moved to the position in which the detent will ride into the notch of the frame.

It will thus be seen that the one piece molded casing can be economically manufactured and that the detent member can be easily formed after the pin is inserted in the passageway of the casing. The resultant magnifier is not only more efficient in use but considerably more economical to manufacture than previously proposed magnifiers of the type herewith shown.

Other objects and advantages of the present invention will appear from the following description taken in connection with the accompanying drawing in which:

Fig. 1 is a side elevational view of the magnifier of the present invention.

Fig. 2 is a horizontal, central section of the magnifier of Fig. 1 and showing in dotted lines a lens-carrying frame partly removed from the casing.

Fig. 3 is a top plan view of the cotter pin prior to the assembly of the same with the casing.

In the now preferred embodiment of the present invention, referring now to Fig. 1, the numeral 10 designates the casing for housing the frame 11 in which is mounted the lens 12. The casing, in the embodiment of the invention now preferred, is formed of some suitable material capable of being molded. As the casing 10 can be molded as an integral unit, the plurality of forming and assembling operations necessary to complete many of the magnifiers heretofore proposed are eliminated. Thus the manufacturing costs of the magnifier of the present invention are relatively low as compared with prior magnifiers of the type herein disclosed.

The casing comprises a pair of walls 14 spaced apart by a transverse wall 15 to form a storage member for the frame 11. The frame is preferably mounted to the casing for pivotal movement into and out of the same and in the form of the invention illustrated, the frame is formed with an opening for receiving a single pin 16 of such a length that the opposite ends thereof will project beyond the frame for reception in aligned

openings in the walls 14 of the casing. As the frame can be molded the hinge means of the frame may consist of a pin formed integral with the frame on opposite sides thereof.

As it is often desirable to carry magnifiers of the type herein shown attached to the person of the user, a loop 17 is provided which may be used as an anchoring ring if it is desired to secure the magnifier to a chain or similar article worn by the user. In the form of the invention now preferred, the loop is an integral part of a bifurcate member, such as the cotter pin illustrated, having tines 18 and 19 of unequal length. The pin is mounted in a passageway 20 extending through the wall 15 of the casing with the loop thereof engaging the outer surface of the wall. To hold the cotter pin in the passageway 20, the shorter tine 19 is laterally bent to form a retaining member 21, the interior surface of the wall 15 being recessed to receive the retaining member so that the same will not interfere with movement of the frame 11 into and out of the casing.

The longer tine 18 is bent laterally intermediate the ends thereof to form the finger 22 provided adjacent the free end thereof with a reverse bend 23 which forms a detent in the embodiment of the invention illustrated for holding the frame within the casing when the latter is moved into the same. The arm 22 is so formed that the detent 23 is normally disposed in the path of movement of the frame 11 and, therefore, will be engaged by the edge face 24 of the frame during movement of the latter. To permit the finger 22 and the detent 23 to be cammed back out of the path of movement of the frame 11 so that the same can be freely moved into and out of the casing, the interior surface of the wall 15 is formed with an elongate recess 25. The recess is so formed that the base of the finger is disposed within the same in all positions of the frame. The edge face 24 is provided with a notch 26 which is so disposed on the edge face that the detent 23 will ride therein when the frame is moved to the storage position within the casing. The finger 22 should be sufficiently resilient to permit the frame to be moved out of the casing by merely applying a small pressure to the exposed edge face of the frame 11 but rigid enough to dog the frame 11 against accidental movement.

To restrain the cotter pin from rotation relative to the casing, the recess 25 as well as the recess in which the retaining member 21 is disposed, are just slightly wider than the latter and the finger 22. Thus as long as the retaining member 21 and the finger 22 are disposed in the recesses, the walls of the latter will hold the cotter pin against rotation.

It will be seen that the present invention provides a very compact and efficient magnifier at a relatively low cost for as heretofore explained, the casing can be easily molded as an integral unit. The assembly of the cotter pin and casing is a simple one for the arm 18 can be formed with the detent 23 and the cotter pin merely slipped through the passageway 20 until the loop 17 is brought up against the outer surface of the wall 15. It is then possible with a suitable tool to bend over the tine 19 to form the retaining member 21 after which the tine 18 can be urged over to form the finger 22. As the base of the finger 22 will also hold the cotter pin against longitudinal movement relative to the passageway 20, there is no danger of the cotter pin becoming separated from the casing.

Although the preferred embodiment of the present invention has been illustrated and described herein, it is to be understood that the invention need not be limited thereby but is susceptible of changes in form and detail within the scope of the appended claims.

I claim:

1. A magnifier comprising a lens, a frame for said lens; a casing for receiving said frame; means for pivotally mounting said frame to said casing for movement into and out of the same; said casing having a passageway extending through a transverse wall thereof; an elongate member carried within said passageway, said member having a loop formed at the outer end thereof of a diameter greater than the width of said passageway; retaining means carried by the inner end of said member and engageable in a recess formed in the interior surface of said transverse wall for holding said member against movement in said passageway, said retaining means releasably holding the frame within said casing.

2. A magnifier comprising a casing having a passageway extending through a wall thereof; a lens; a frame for said lens rotatively mounted for movement into and out of said casing, said frame having a notch formed therein; an elongate member bent over on itself, said member being mounted in said passageway with the ends of said member disposed within said casing, one of said ends being formed with a retaining member to prevent withdrawal of said member from said passageway; and a detent formed on the other end of said member and engageable in said notch for holding said frame within said casing.

3. A magnifier comprising a casing having a passageway extending through the wall thereof; a lens; a frame for said lens rotatably mounted for movement into and out of said casing; a bifurcated means disposed within said passageway; a ring carried by the exterior end of said means, one tine of said means terminating in a laterally extending member for holding said means against withdrawal from said passageway; and a detent means carried by the other of said tines, said last named tine being resilient and normally holding said detent in the path of movement of said frame, said frame having a notch formed therein for receiving said detent means when the frame is moved into said casing, the interior surface of said transverse wall being recessed to receive the last named tine when the frame is moved into said casing and held therein by said detent.

4. A magnifier comprising a casing having a passageway extending through a transverse wall thereof, a lens; a frame for said lens rotatably mounted for movement into and out of said casing; a bifurcated member mounted in the passageway with the tines thereof disposed adjacent the interior surface of said wall; means carried by the exterior end of said member to prevent inward movement of said member relative to said passageway, one of the tines of said member being bent over into engagement with the interior surface of said transverse wall; a finger angularly projecting from the other of said tines; and a detent carried by said finger and normally disposed in the path of movement of said frame, said frame having a notch formed therein for receiving said detent when said frame is moved into said casing.

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