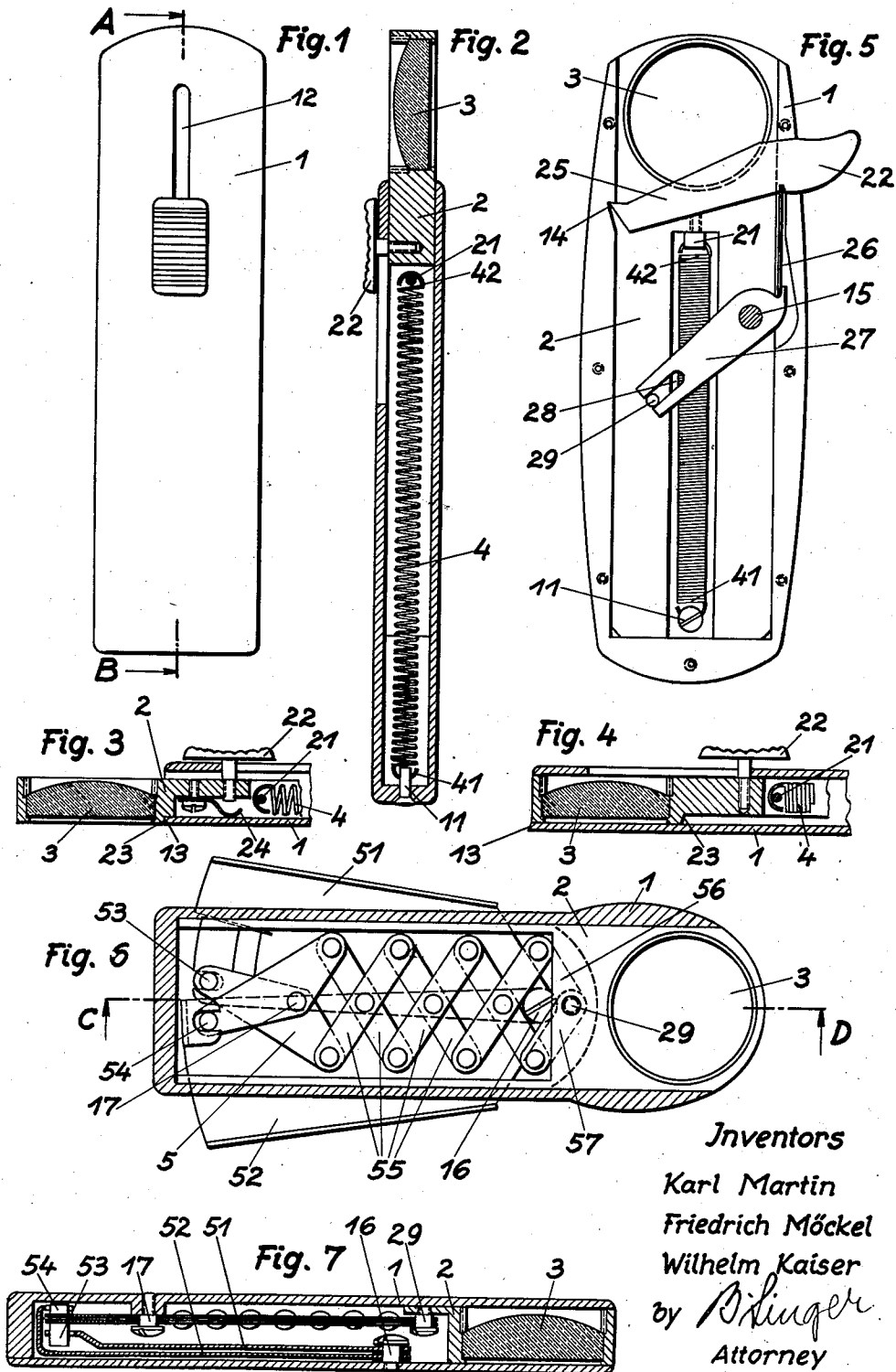


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MAGNIFYING DEVICE

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## MAGNIFYING DEVICE

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The present invention relates to an improved constructional form of monocular magnifying devices lenses, used for assisting in reading printed matter and being known under the name reading-lens or reading-glass.

Such magnifying lenses have already been provided with mounts designed as a sleeve or a casing for the purpose of preventing the lens from being damaged during that time in which it is not used.

The first object of the present improvement is to provide the magnifying lens with a protective device able to prevent it from being soiled under conditions where it is subjected to rough usage, as for instance in work-shops and the like, where a man uses the lens with a dirty hand or places it upon a dirty table. In order to attain the object in view, we provide an elastic connection between the lens or its mount and the protective casing, that connection being so designed that the casing is withdrawn from the lens in a positive manner, counter to the action of a spring, by the hand which takes hold of the lens with its protective casing in order to make use of it, the lens is again covered with the protective casing by action of said spring when the device is laid aside and the hand withdrawn.

Another object of the invention is to arrange the uncovering device for the lens at the handle of the device so that this latter can be manipulated with only one hand whereby the following particular and important advantage is obtained, viz.: An article to be examined is generally examined at first with the naked eye with respect to defective places, and if such a one has been found, then it is particularly examined with the aid of the magnifying lens. With the known magnifying lenses with protective casing both hands must be used in order to remove the casing from the lens, and in many cases it is difficult to detect again the faulty place, especially if the article of manufacture is cylindrical or spherical and tends, therefore, to roll away. Counter thereto, the one-hand magnifying lens with its protective casing according to this invention renders it possible to hold the article with the other hand and to let the eyes dwell on the defective place either continually or with short interruptions.

Still another object of the invention is to render the device able to store a large portion of the power of the spring which tends to draw the lens back into the protective casing after it had been withdrawn therefrom for use, the hand of the operator being correspondingly relieved and

the attention of the same being not deviated by the strain to which the muscles of his hand are otherwise subjected.

Further objects will appear while the invention is described in detail in the following part of this specification.

The invention is illustrated diagrammatically and by way of examples on the accompanying drawing on which

Figure 1 is a plan of a constructional form of the device,

Figure 2 is a section in the line A—B of Fig. 1, showing the device in its position of use,

Figure 3 is a partial view and shows a section through the middle of the device in the position of use of the same and in connection with the constructional form illustrated in Fig. 1 and being intended for partly relieving the hand of the user,

Figure 4 is a view similar to Fig. 3 and shows a modification of a device intended for the same purpose as that in Fig. 3, this modified device being shown in its position of rest,

Figure 5 is a plan of another constructional form of the invention, the upper part of the casing being removed,

Figure 6 is a plan of the interior of still another constructional form of the invention, and

Figure 7 is a section in the line C—D of Fig. 6. Referring first to the Figs. 1 and 2, 1 denotes the casing of the device, 2 the mount of the lens, and 3 the lens itself. The casing is open at its upper end and encloses the mount 2 which is so designed as to constitute a sliding member. A helical spring 4 is attached at its end 41 to an eye of a pin 11 affixed to the lower bottom of the casing 1, and the other end 42 of said spring is secured to the eye of a pin 21 attached to the lens mount in such a manner that the spring constantly tends to draw the lens with its mount 3 into the casing 1. A grip 22 connected with the lens mount and designed as a rippled plate extends through a slot 12 of the casing and serves to move the lens out of the casing counter to the action of said spring. When said handle is let go the extended helical spring contracts so as to re-assume its former length and draws the lens back into the said casing.

In the modification shown in Fig. 3 there the lens mount 2 is at the place 23 which lies adjacent to the outer edge 13 when the lens has been withdrawn from the casing provided with a lug 23 that, owing to the obliquely downwardly acting pressure exerted by the operating finger upon the grip 22 extends over the rim 13 of the

casing and relieves, therefore, the hand from the tensile force of the spring. But in order to warrant that the lens is automatically withdrawn into the casing, a weak flat spring 24 is provided at the lens mount 2 and abuts on the inner wall of the casing so as to tend to lift the lens mount in the direction to the grip 22. This is, however, prevented by the finger that holds the device and need only overcome the force of said weak spring.

The constructional form illustrated in Fig. 4 is, on principle, similar to that shown in Fig. 3 as regards the means for relieving the hand of the user of the device, but counter to Fig. 3 the lug 23 and the edge 13 of the casing are designed not as vertically stepped surfaces, but as oblique surfaces, the inclination of which is such that when the grip 22 is let go the tensile force of the spring 4 overcomes the friction between the two oblique surfaces 22 and 13 so that the lens mount slides first upwardly along the edge 13 and then into the casing 1.

The magnifying device shown in Fig. 5 consists essentially of the same parts as the constructional form shown in Fig. 1, viz. of the casing 1 which is open at one of its sides, the lens mount 2, the lens 3, and the spring 4 which is secured in place between the casing and said mount. Withdrawing the lens from the casing is effected across a system of transmission levers comprising a lever 25, the portion 22' of which is designed as a grip, and which is supported in a notch 14 of the casing that constitutes the fulcrum of this lever, and comprising, furthermore, a connecting member 26 which is designed as a flat body, and a lever 27 having unequally long arms and being turnable on a pivot 15 attached to the casing, said lever co-operating by the intermediary of a slot 28 with a pin 29 attached to the mount 2. When the lever 25 is depressed in the direction to the closed bottom of the casing the longer arm of the two-armed lever 27 will be moved upwardly and shift the lens mount together with the lens out of the casing. This casing consists in this constructional form of two parts which are connected with one another by screw-threads and of which the upper one has been omitted in Fig. 5.

In the further constructional form shown in the Figs. 6 and 7 a device designed in accordance with the principle of the Nuremberg scissors is used. 51 and 52 are two pressure levers which are supported on a pivot 16 attached to the casing; each of said levers acts upon a pivot 53, or 54 respectively, attached to the first members of the Nuremberg scissors 5, the individual members of which bear the reference numeral 55. Said first or initial members of the Nuremberg scissors are turnably attached to the casing by means of pivots 17, whereas the last or end members 56 and 57 are affixed to the lens carrier 2 with the aid of pivots 29.

The device described in the preceding paragraph is actuated as follows: The hand to be used grasps around the casing 1 and presses upon the levers 51 and 52 whereby the scissors will be expanded and the lens carrier be shifted out of the casing. When the hand lets go said levers a return-spring (not shown for the sake of distinctness of the figure, and being, for instance, designed similar to the spring 4 shown in Fig. 2) becomes active and pulls the lens 3 back into the casing 1. Instead of a helical ten-

sile spring like that just mentioned a compressive spring similar to such as used in connection with gardener's scissors can be used and arranged between the two pressure levers 51 and 52.

We wish it to be understood that we do not limit ourselves to the constructional forms of the improved magnifying device, as shown and described, in that they are merely intended as examples. We claim as our invention all constructional forms falling within the scope of the annexed claims.

What we claim is:

1. A magnifying device comprising a casing, a magnifying lens, a mount for said lens, means for slidably supporting said mount in said casing for moving said lens selectively into exposed position for use and into an inoperative position in which said lens is covered by said casing, manually operable means attached to the mount and extending from said casing for slidably moving said mount into a position in which the lens is exposed, spring means attached to the mount and casing within said casing for returning said mount to its inoperative position in which said lens is covered by said casing, cooperating holding means on said casing and mount for holding the latter relatively to the casing when the lens has been moved into its operative exposed position, and means in the casing for automatically releasing the said holding means when said manually operable means is disengaged.

2. A magnifying device comprising a lens in a mount, a casing for said mounted lens, a spring in said casing and connected to the latter and said mount respectively, for normally retaining said lens in its inoperative position in which it is covered by said casing, a manually operable member attached to one side of said mount for moving the latter outwardly against the action of said spring into an extended position in which the lens is exposed for use, and a slanted projection on the other side of said mount, which projection owing to the pressure exerted upon said manually operable means slips behind a corresponding slanted shoulder on said casing when said lens has been moved into its operative position, said spring being effective to dislodge said mounted lens from said shoulder and return the lens into its inoperative position within said casing as soon as the pressure upon said manually operable member is removed.

3. A magnifying device comprising a lens in a mount, a casing for said mounted lens, a spring in said casing and connected to the latter and said mount respectively, for normally retaining said lens in its inoperative position in which it is covered by said casing, a manually operable member attached to said mount for moving the latter outwardly against the action of said spring into an extended position in which the lens is exposed for use, a projection on said mount adapted to be urged by said tensioned spring against a shoulder on said casing when the lens has been moved into its exposed operative position, and a second spring adapted to disengage said projection from said shoulder when said manually operable member is disengaged by the user of the device, so that the first mentioned spring becomes effective to pull the mounted lens into said casing.

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