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L. W. WRIGHT ETAL

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SHOE VIEWING SCOPE

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Fig. 1.

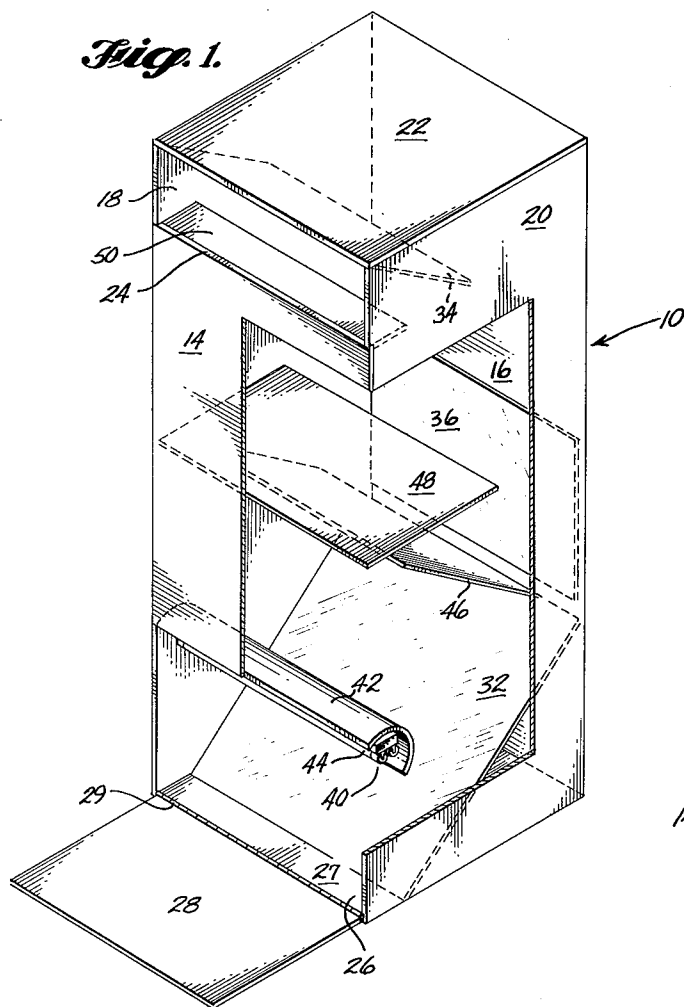
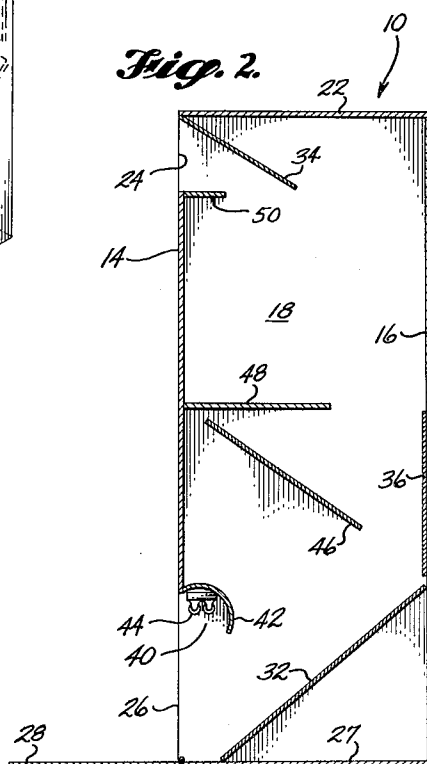


Fig. 2.



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SHOE VIEWING SCOPE

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1 Claim. (Cl. 88-85)

This application is a continuation-in-part of copending application Serial No. 57,475 for a Mirror Device, now abandoned.

This invention relates to a scope particularly useful for enabling a person to view conveniently shoes being worn by such person, and is especially useful for lady shoestore customers.

The principal object of the shoe viewing scope is to enable the wearer of shoes to see them in apparent elevated position at approximately the eye level of the wearer without the necessity of the wearer bending down or tilting her head down. A particular object is to enable the shoes to be thus viewed in an attitude looking at them from a position somewhat above them, generally comparable to the view which would be obtained by a person near the wearer.

Another object of the invention is to provide a scope which will afford the wearer such a view of shoes being worn while obscuring the portion of the person above about the ankle or calf of the leg, so that the attention of the viewer will be concentrated on the shoes and feet.

A further important object is to provide such a shoe viewing scope in which the wearer's feet and shoes will appear in erect or normal position, instead of being inverted as they would appear in a periscope.

Still another object is to provide such a foot viewing scope of economical construction but one which will have ample field of vision so that the feet can be moved closer or farther from the viewer and turned, as may be desired, to enable the shoes to be viewed in different attitudes, as well as during simulated walking. Such a scope can also be used conveniently by persons differing considerably in height and will even enable more than one person to observe in it the shoes on a particular wearer.

An additional object is to provide such a shoe viewing scope which can be embodied in a free-standing cabinet or which can be incorporated into a building structure. Whichever type of installation is used it is an incidental object to provide lighting which will illuminate satisfactorily the shoes to be examined, but which will otherwise be shielded from the viewer's eyes.

In general, a shoe viewing scope capable of accomplishing the foregoing objects includes an upright enclosure providing in it an upright passage having an upper viewing opening at eye level, and a lower object opening generally in registry with shoes worn by the observer and located on the same side of the enclosure. A lower foot-reflecting mirror is located in the enclosure generally in registry with the object opening and an upper eye-viewing mirror is located within the enclosure generally in registry with the viewing opening. An intermediate upright mirror is located elevationally between such upper and lower mirrors which are inclined oppositely relative to such intermediate upright mirror. Such intermediate mirror is located at one side of the upright passage through the enclosure, either at the side of the enclosure passage toward which the upper and lower mirrors converge or at the opposite side of the enclosure passage. In either case the intermediate mirror will be more nearly parallel to the lower mirror than to the upper mirror so that sight lines will be inclined downward from the lower mirror onto the upper portions of the shoes to be viewed from the top to a greater or lesser extent. The sides of the shoes adjacent to the enclosure

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are illuminated directly from a light source carried by and preferably located in the enclosure.

FIGURE 1 is a top perspective of the shoe viewing scope with parts broken away, and FIGURE 2 is a longitudinal vertical section through the scope. FIGURE 3 is a diagrammatic view similar to FIGURE 2 with parts omitted to sight lines to be illustrated more conveniently.

FIGURE 4 is a top perspective of an alternative type of shoe viewing scope with parts broken away, and FIGURE 5 is longitudinal vertical section through such scope. FIGURE 6 is a diagrammatic view similar to FIGURE 5, but with parts omitted to facilitate illustration of sight lines.

As has been mentioned above, the shoe viewing scope of the present invention can be incorporated in a building structure such as in one wall of a shoe sales room, but the principles of such a scope are portrayed in the drawings as embodied in a free-standing cabinet. In either case the mirrors of the scope should be mounted in a lightproof enclosure so that the view in the scope will be concentrated on shoes being worn as the object of attention. The cabinet 10 forming the enclosure of the scope includes the bottom 27, the front, back and sides 14, 16, 18 and 20 and the top 22 enclosing an upright passage. In the top of the front 14 is a horizontally elongated viewing opening or slot 24 which preferably extends virtually from side-to-side of the enclosure. Adjacent to the bottom of the front 14 is an object opening or slot 26 elongated horizontally and which extends virtually from one side of the enclosure to the other. To provide a firm and unyielding area on which the shoe wearer can stand a platform 28 preferably is provided projecting outward from the front of the enclosure 10 and such platform can be secured to the enclosure by a piano hinge 29. When the scope is not in use such platform can be swung upward about the hinge to cover the object opening 26.

The scope is composed entirely of mirrors arranged in proper combination with the enclosure 10. Such mirrors include a lower plane foot-reflecting mirror 32 extending between the sides 18 and 20 and inclined upward away from the object opening 26, but disposed generally in registry with such opening. The upper plane eye-viewing mirror 34, disposed generally in registry with the viewing opening 24, is inclined downwardly away from such opening. This mirror also preferably extends substantially from one to the other of the cabinet sides 18 and 20. The intermediate plane upright mirror 36 is located elevationally between the lower mirror 32 and the upper mirror 34 in a position to transmit a foot image from the lower mirror to the upper mirror. The elevational and angular relationship of the mirrors 32, 34 and 36 is important to enable the wearer looking at the mirror 34 to see the image of the shoes worn in the proper relationship, and in the desired proximity.

The importance of the relationship between the attitudes of the mirrors 32, 34 and 36 in the shoe viewing scope is illustrated in FIGURE 3. In order that the shoe may be viewed as being substantially on the eye level of the wearer the upper lines of sight 37 from the eye of the viewer to the mirror 34 should be substantially horizontal. To enable the top of the shoe to be seen, however, instead of the shoe being viewed from floor level, it is important that the lines of sight 39 from the shoe to the mirror 32 be inclined from the shoe upward to the mirror. In FIGURE 3 this angle of inclination to horizontal is shown as being approximately 20°, but the mirrors could be arranged to provide a greater or lesser angle. The intermediate upright mirror 36, shown as being mounted on the enclosure back 16, must therefore

be located elevationally between the mirrors 32 and 34 to transmit the sight lines between these mirrors by reflection so that the image of the shoes viewed in mirror 34 will appear in erect or normal position, instead of being inverted. Such action of the intermediate mirror is illustrated by the sight lines 38 which cross in front of the mirror. If such sight lines were transmitted simply in parallel relationship between the mirror 32 and the mirror 34 the sight lines would cross only adjacent to each of such mirrors, which would invert the image of the shoes. The intermediate mirror 36 effects a third crossing of the sight lines to provide an erect image.

In order to enable the shoe wearer to view the shoes at least partially from the top, as mentioned previously, it is necessary for the sight lines 39 between the shoes and the mirror 32 to be inclined downward from the mirror, as shown, while the sight lines 37 from the observer's eye to the mirror 34 are substantially horizontal. Such disposition of the sight lines 39 is accomplished by arranging the mirrors so that the angle between the reflecting surface of the intermediate mirror 36 and the reflecting surface of the lower mirror 32 is smaller than the angle between the reflecting surface of the intermediate mirror and the reflecting surface of the upper mirror 34. Thus, in the illustration of FIGURE 3 the reflecting surface of the upper mirror 34 is inclined approximately 60° to the reflecting surface of the intermediate mirror 36, whereas the reflecting surface of the lower mirror 32 is inclined approximately 50° to the reflecting surface of the intermediate mirror, placing the reflecting surface of the intermediate mirror more nearly parallel to the reflecting surface of the lower mirror than to the reflecting surface of the upper mirror. Also, of course, these two mirrors are inclined oppositely to the intermediate mirror. The greater the difference in the angles between the intermediate mirror 36 and the upper and lower mirrors the greater will be the slope of sight lines 39, and consequently the more will the shoes be viewed from the top.

In order to enable the average lady to observe shoes which she is wearing in the shoe viewing scope, it is preferred that the height of the viewing opening 24 above the platform 28 be approximately 5 feet. Also, in order to enable the shoes on both feet to be viewed at the same time from the side during simulated walking and thus to determine the fit of the shoes, it is preferred that the width of the enclosure front 14 be at least 2 feet and preferably 2½ to 3 feet. The depth of the cabinet between the front 14 and the back 16 will probably also be 2½ to 3 feet.

Because of the relatively narrow vertical width of the object opening 26 the shoe viewing scope will reveal to the shoe wearer only the portion of the wearer below about the ankle or calf of the leg. Consequently, the attention of the wearer will be focused on the shoes rather than on any other portion of her dress. In order to enable the shoes to be observed easily it is important that they be illuminated adequately and for this purpose it is desirable to build into the scope lighting directly effective to illuminate the platform 28 and shoes standing on such platform. Such illumination may be accomplished by a light box 40 built into the enclosure 10 immediately above the object opening 26, shown in FIGURES 1 and 2. Such lighting box includes a focusing reflector 42 arranged to focus onto the platform 28 light from a light fixture, such as fluorescent tubes 44. The light thus projected onto the platform by the reflector will illuminate the side of the shoes adjacent to the objective opening 26, which otherwise would be inclined to be shaded by the legs of the wearer from the general illumination of the room.

Although the light from the tubes 44 generally is directed onto the platform 28 by the reflector 42, stray light will shine on the lower portion of the mirror 32 which will tend to illuminate generally the upright pas-

sage within the enclosure 10 so that the image of the shoes will not stand out sharply. Consequently, it is desirable to provide one or more baffles between the mirrors 32 and 34 to prevent direct reflection of light from the mirror 32 to the mirror 34, and diffusion of light to the mirror 34 and the viewing opening 24 through the upright passage of the enclosure. For this purpose an inclined baffle 46 is shown extending between the opposite sides 18 and 20 of the cabinet and a further horizontal baffle 48 may be provided above the baffle 46. Such baffle means thus project toward the intermediate upright mirror 36 transversely of such mirror and the upright passage into a position close to the intermediate mirror, for deterring direct passage of light through the upright passage, while being spaced from the intermediate mirror so as to avoid obstructing transmission of the foot image from the lower mirror to the intermediate mirror, and from the intermediate mirror to the upper mirror past the baffle means. In addition, a flange 50 may extend inward from the lower edge of the viewing opening 24 to form a further baffle. General reflection of light through the upright passage of the enclosure can be decreased further by painting the interior surfaces of the cabinet, with the exception of the reflector 42 and the mirrors 32, 34 and 36, dead black.

A lady wearing shoes to be seen in the scope will stand on the platform 28, which is hard in contrast to carpeted floors normally provided in shoe sales rooms, so that the wearer may stand steadily and naturally. The platform is located adjacent to the scope so that shoes on such platform will be in proper range relative to the scope. The wearer may then stand naturally in erect position, with head raised, while the shoes are observed in the mirror 34 on substantially eye level and thus more conveniently than they could be observed by the wearer either bending over or looking at the shoes in a single wall mirror. The wearer's shoes and feet will be seen in normal or erect position, as they would be observed by a person adjacent to the wearer, but the image appears much higher than the shoes would appear to such an observer.

In the type of scope shown in FIGURES 1, 2 and 3 the upright mirror 36 is located between the nearer edges of the mirrors 32 and 34 or, expressed in another way, such mirrors converge toward the upright mirror 36. An alternative and more compact mirror arrangement is shown in the scope of FIGURES 4, 5 and 6, in which the intermediate upright mirror located elevationally between the upper and lower mirrors is located generally intermediately between the farther edges of the upper and lower mirrors or, expressed in another way, the upper and lower mirrors converge in a direction away from the intermediate mirror. In the shoe viewing scope shown in FIGURES 4, 5 and 6 the cabinet is composed of a bottom 12', front, back and sides 14', 16', 18' and 20', and a top 22'. In the upper portion of the front 18' is the viewing opening 24' and adjacent to the bottom of the front is the object opening 26'. These various components and features are similar to those of the scope described in connection with FIGURES 1, 2 and 3, so that no further description of them should be required. In this instance, however, the sides 18' and 20' of the cabinet are much narrower than the corresponding sides of the cabinet shown in FIGURES 1, 2 and 3, because of the mirror arrangement utilized, so that the cabinet is much more compact than that of FIGURES 1, 2 and 3, although the width of the viewing opening 24' and the object opening 26' and the size of the platform 28' may be the same or comparable to the corresponding features of the previously described cabinet.

In this instance the lower mirror 32' generally in registry with the object opening 26' and the upper mirror 34' generally in registry with the viewing opening 24' are spaced rearwardly from such respective openings and

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from the front 14' of the cabinet. The intermediate upright mirror 36' is mounted on the cabinet front instead of on the cabinet back 16', and faces rearwardly. Also, the mirrors 32' and 34' are arranged much more nearly vertical than in the scope of FIGURES 1, 2 and 3. While the width and height of the cabinet 10' may be comparable to that of the cabinet 10 shown in FIGURES 1 and 2, the depth of the cabinet between the front 14' and the back 16' may be of the order of 1½ feet instead of 2½ to 3 feet.

While in the shoe viewing scope of FIGURES 1, 2 and 3 the upper mirror 34 is at an angle of 60° to vertical and 30° to horizontal, the angle of the upper mirror 34' in the scope of FIGURES 4, 5 and 6 is approximately 30° to vertical and approximately 60° to horizontal. The mirror 32' is still more nearly vertical than the mirror 34', being at an angle to vertical of approximately 12°. In this instance, however, the direction of the sight lines between the shoe and the mirror 32' are approximately 45° to horizontal, instead of approximately 20° to horizontal, as in the scope of FIGURES 1, 2 and 3. The angle of such sight lines to horizontal could be decreased to 20°, if desired, by lowering the mirror 32' to the position 32'' and increasing its angle to vertical to approximately 22° from approximately 12°. The mirror in such case would still be more nearly vertical than the upper mirror 34'. Also, as indicated, it would be necessary to increase the depth of the cabinet to some extent between the front 14' and the rear 16'.

In the mirror arrangement of FIGURES 4, 5 and 6, as in the mirror arrangement of FIGURES 1, 2 and 3, it will be seen that the reflecting surface of the intermediate mirror 36' is always more nearly parallel to the reflecting surface of the lower mirror 32' than to the reflecting surface of the upper mirror 34' for effecting reflection of sight lines inclined downwardly from the reflecting surface of the lower mirror onto the upper portion of the foot exposed through the object opening.

Alternatively, the depth of the enclosure for the scope of FIGURES 1, 2 and 3 between the front 14 and the rear 16 can be reduced if the angle to the horizontal of the sight lines between the shoes and the lower mirror is increased, such as from 20° to 45°. In this instance the mirror 36' would be moved into the position 36a, shown in FIGURE 3, and the lower mirror 32 would be raised to the position designated 32a in that figure. While the mirror 36 is shown as being raised to the position 36a such mirror could merely be moved in toward the front 14 of the cabinet if it were long enough. Also, it will be evident that where the angle of the sight lines between the object and the lower mirror are steeper the reflecting surface of the lower mirror is more nearly parallel to the reflecting surface of the intermediate upright mirror 36 or 36' whether the upper and lower mirrors converge toward the upright mirror, as in FIGURE 3, or converge away from it, as in FIGURE 6. In addition, where the sight lines from the object to the lower mirror are steeper it is necessary for the object lower opening in the enclosure front to be increased in height or to be raised.

If the sight lines from the shoes being viewed to the lower mirror are inclined sufficiently, such as the lines 39' of FIGURE 6 or 39a of FIGURE 3, the light source for illumination of the shoes may be located below the object opening, as shown in FIGURES 4 and 5. In this instance the light mounting partition 40' is located below

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the object opening 26' and the reflector 42' extends down to the bottom of the cabinet behind the fluorescent light tubes 44'. With this arrangement there is much less possibility of stray light escaping up through the upright passage of the cabinet because the light cannot shine onto the lower mirror 32'. The interior of the cabinet, except for the mirrors 32', 34' and 36', should still be painted dead black, however, and a horizontal baffle 48' and an upper flange 50' may still be provided to obscure random reflections from the platform 48' passing to the mirror 34', if desired.

The manner in which the alternate type of shoe viewing scope shown in FIGURES 4, 5 and 6 is used is similar to that in which the shoe viewing scope of FIGURES 1, 2 and 3 is used, so that no further explanation of the operation of such alternative device should be required.

We claim:

A foot viewing scope comprising an enclosure defining therein an upright passage having in one side thereof an upper viewing opening and a lower object opening, an upper plane eye-viewing mirror in said enclosure disposed generally in registry with said viewing opening, a lower plane foot-reflecting mirror in said enclosure disposed generally in registry with said object opening, an intermediate plane upright mirror located in said enclosure elevationally between said upper and lower mirrors and at one side of said upright passage to transmit a foot image from said lower mirror to said upper mirror, the reflecting surfaces of said upper and lower mirrors being inclined oppositely relative to the reflecting surface of said intermediate mirror, and the reflecting surface of said intermediate mirror being more nearly parallel to the reflecting surface of said lower mirror than to the reflecting surface of said upper mirror for effecting reflection of sight lines inclined downwardly from the reflecting surface of said lower mirror through said lower object opening onto the upper portion of a foot exposed through said lower object opening when the viewing sight lines between the observer's eye and said upper mirror through said upper viewing opening are substantially horizontal, and light baffle means at the side of said upright passage opposite said intermediate mirror and projecting toward said intermediate mirror transversely of said intermediate mirror and said upright passage into a position close to but spaced from said intermediate mirror to confine direct passage of light through said upright passage within limits without obstructing transmission of the foot image from said lower mirror to said intermediate mirror and from said intermediate mirror to said upper mirror past said baffle means.

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