

Jan. 1, 1952

A. BLOOM

2,581,234

DOOR WICKET

Filed Sept. 3, 1947

2 SHEETS—SHEET 1

Fig. 1.

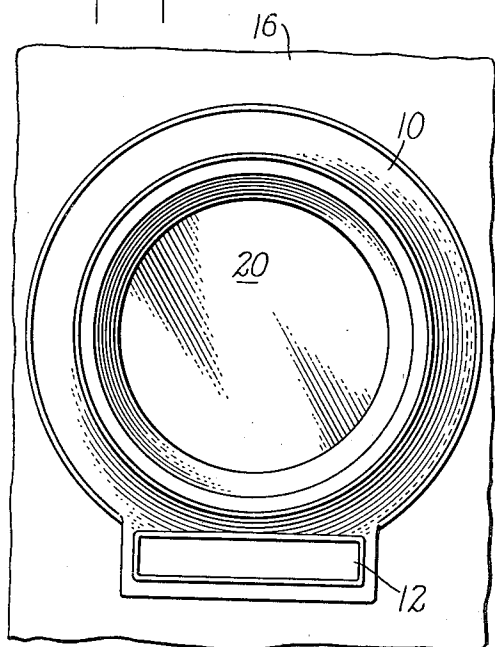


Fig. 2.

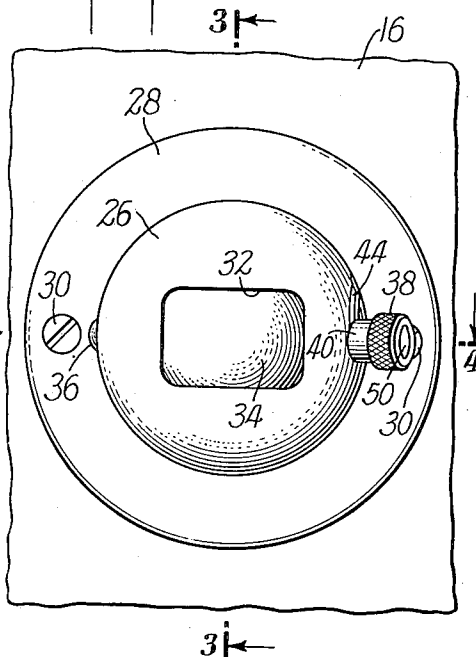
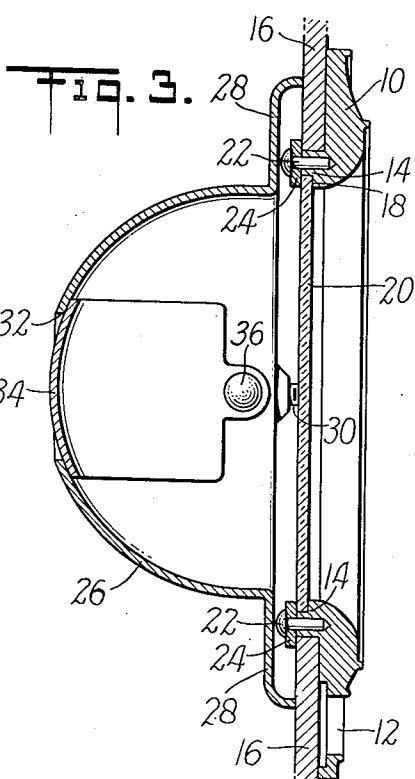


Fig. 5.

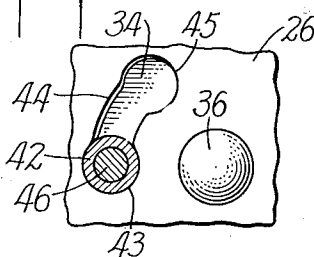
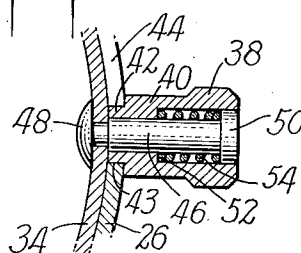


Fig. 6.



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2 SHEETS—SHEET 2

Fig. 4.

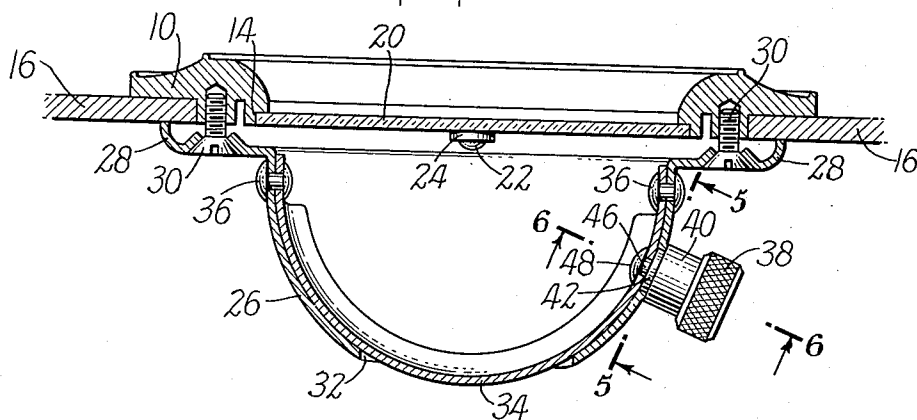


Fig. 7.

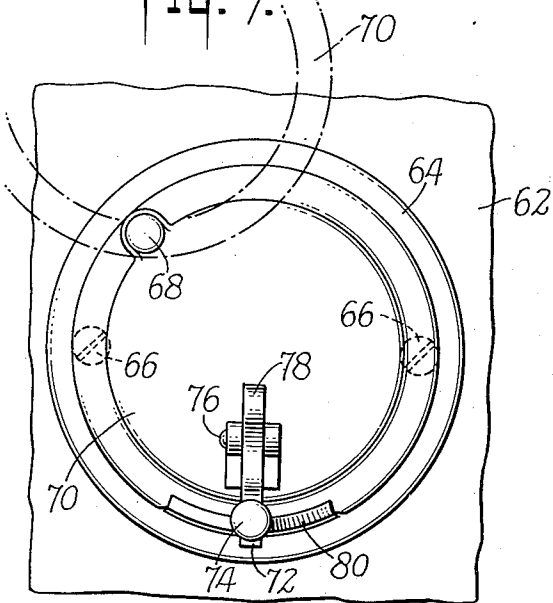


Fig. 8.

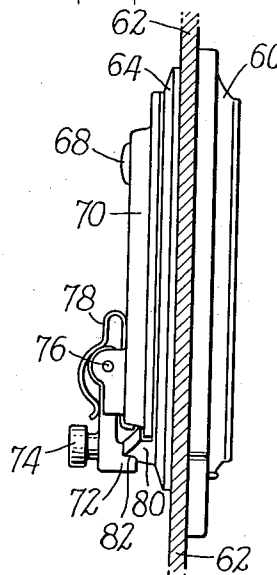
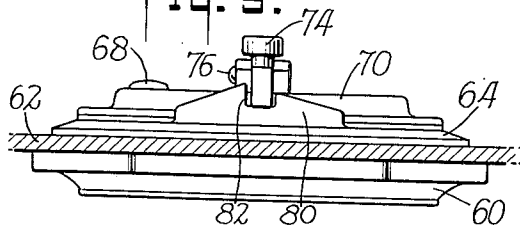


Fig. 9.



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DOOR WICKET

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6 Claims. (Cl. 20—39)

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This invention relates to door wicket of the type that are adapted to be mounted in the door of a dwelling to permit an occupant of the dwelling to observe a visitor before permitting him to enter the dwelling. The term dwelling is used in the present specification and claims in a broad sense to comprehend any enclosure, e. g., a house, apartment, club, or the like, containing an occupant who may wish to observe a visitor before permitting him to enter the enclosure.

In the past it has been a common practice to mount in the door of a dwelling a door wicket comprising an opening through the door and a hinged or pivoted cover for the opening. The door wicket is so arranged that an occupant of the dwelling may remove the cover to observe a visitor who seeks ingress to the dwelling before permitting him to enter. Door wickets of this type are open to the objection that they permit two-way observation, that is, the occupant of the dwelling cannot observe the visitor without also permitting the visitor to observe him. It is accordingly a general object of the present invention to provide a door wicket adapted to be mounted in the door of a dwelling to permit an occupant of the dwelling to observe a visitor without himself being observed.

In general, the object of the present invention is achieved by providing a door wicket having a transparent mirror incorporated therein. Transparent mirrors are known in the optical art and are characterized by the fact that when their opposite faces are exposed to light of different intensities, the face that confronts the light source of greater intensity presents a mirror surface, whereas the side of the mirror that is exposed to the light of lesser intensity is substantially transparent, and objects can be observed through the mirror from this side of the mirror. For purposes of convenience, the side of the mirror that presents a mirror surface will be referred to in the present specification and claims as the front of the mirror, and the other side will be referred to as the back of the mirror.

Transparent mirrors suitable for use in the door wicket of the present invention may be conveniently made by coating a pane of glass with a relatively thin layer of a metal, i. e., a layer of the order of several millionths of an inch in thickness. The application of the metal coating to the glass may be effected by a thermal evaporation process. That is, the glass may be placed in a highly evacuated chamber in the presence of a filament of the metal with which the glass is to be coated and the filament heated to vaporize the metal which then condenses on the surface of the glass to produce an extremely thin coating of relatively uniform thickness thereon.

In the past, transparent mirrors have been

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used for various optical purposes wherein the light intensity at the back of the mirror was very close to zero and hence the differential light intensity on the two sides of the mirror was relatively high. Moreover, in these optical applications the transparent mirror has not, in general, been subject to abrasion. In applications of this character, the type of metal used and the thickness of the coating is not particularly critical.

In the case of a door wicket, however, it is usually not practical to reduce the light intensity at the back of the mirror to zero, or substantially zero, because of the fact that most dwellings have interior lighting and the intensity of this lighting varies considerably both in a particular dwelling and from dwelling to dwelling. Thus in order to provide a transparent mirror that may be used satisfactorily in a door wicket adaptable to all types of dwellings, I have found that the physical characteristics of the transparent mirror used, should be carefully predetermined and controlled. In particular, I have found that while any of various metals may be used for coating the glass of the mirror, a coating of chromium is substantially more satisfactory than coatings of other metals, since chromium coating is resistant to corrosion and also adheres very strongly to the surface of the glass. Hence such a coating resists abrasion to which the front of the mirror may be subjected in use.

I have also found that in order to ensure the desired one-way visibility through the mirror under the varying conditions of interior and exterior lighting to which the door wicket is normally exposed, the coating of metal on the glass should preferably be of such a thickness that between about 5% and 11% of the total incident light in the visible range is transmitted through the mirror. When the metal coating is of such a thickness as to transmit this proportion of the incident light, the one-way visibility of the mirror is retained even when the differential light intensity on the two sides of the mirror is reduced to a relatively low value.

The many objects and advantages of the present invention may best be appreciated by reference to the accompanying drawings which illustrate a door wicket construction incorporating a preferred embodiment and an alternative embodiment of the invention, and wherein:

Fig. 1 is a front view of the door wicket;

Fig. 2 is a rear view of the door wicket showing the light shield;

Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2 showing the mounting of the transparent mirror, light shield, eyehole and eyehole closure;

Fig. 4 is a horizontal section taken on the line

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4—4 of Fig. 2 and showing from a different direction, the elements shown in Fig. 3;

Fig. 5 is a detail of the closure latch taken on the line 5—5 of Fig. 4;

Fig. 6 is a section through the closure latch taken on the line 6—6 of Fig. 4 and showing its internal construction;

Fig. 7 is a rear elevation view of a modification of the door wicket shown in Figs. 2-6;

Fig. 8 is a side view of the modification of Fig. 7; and

Fig. 9 is a bottom view of the modification of Fig. 7.

Referring to the drawings and more particularly to Figs. 1-4, the door wicket construction shown comprises a ring-shaped mirror support 10 having a panel 12 in which a card bearing the name of the occupant of the dwelling may be inserted. The mirror support 10 is provided with an annular flange 14 that extends through an opening in the door 16 of the dwelling. At its inner rear edge, the flange 14 is provided with a peripheral groove 18 in which the transparent mirror 20 is mounted. The mirror 20 is mounted with its coated surface at the front, the coating of metal being so thin that it cannot be conveniently shown in the drawing. The mirror 20 is held in place in the support 10 by means of a pair of pins 22 that extend into the flange 14 of the support 10 and are provided with the washers 24 that bear against the periphery of the back face of the mirror.

In order to reduce the light intensity at the back face of the mirror 20 and thus ensure the desired one-way visibility, a generally hemispherical light shield 26 is provided having a rim 28 which is fixed (see Fig. 4) to the mirror support 10 by means of the screws 30. The hemispherical shield 26 is provided with an eyehole 32 and a movable cover plate 34 that is shaped to conform with the contour of the shield 26 and is pivotally mounted on the shield by means of the rivets 36. The construction is such that the cover plate 34 may be pivoted about the rivets 36 to open or close the eyehole 32 and thereby expose or cover the back face of mirror 20.

The cover plate 34 may be moved to open or close the eyehole by means of a hollow knurled knob 38, and a latch is provided for latching the cover plate in open or closed position. Referring particularly to Figs. 5 and 6, the hollow knob 38 is integral with a sleeve 40 having an extension 42 of reduced diameter that extends into the enlarged end 43 of an arcuate slot 44 in the shield 26 and abuts the outer surface of cover plate 34. Located within the sleeve 40 and knob 38 there is a post 46, the inner end of which extends through cover plate 34 and is fixed to the cover plate by means of its peened end 48. At its outer end post 46 is provided with a cap 50 of greater diameter than the post 46. The sleeve 40 is provided with an internal shoulder 52, and a helical spring 54 is mounted between the post 46 and the sleeve 40 in such manner that it bears against cap 50 and the shoulder 52. The construction is such that when the knob 38 is grasped and pulled outwardly, the extension 42 may be withdrawn from shield 26 to a point beyond the outer surface of the shield and the knob moved to rotate the cover plate 34 about its pivots 36 to open or close the eyehole 32. As the knob is moved, post 46 moves along slot 44 and when the upper enlarged end 45 of slot 44 is reached, spring 54 forces extension 42 into the enlarged end 45 to latch the cover plate 34 in open position.

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The manner in which the present door wicket is mounted and used is largely apparent from the foregoing description. The mirror support 10 is mounted on the outside of the door of the dwelling in such manner that the flange 14 extends rearwardly through a hole in the door. The mirror is mounted in the mirror support with its back uncoated side confronting the interior of the dwelling and its front metal-coated side exposed to the exterior of the dwelling. The shield 26 and cover plate 34 are provided to shield the back face of the mirror from light within the dwelling.

To permit an occupant of the dwelling to observe the visitor, the knob 38 is grasped and pulled axially outward to withdraw the extension 42 from the shield 26 and the knob is then moved upwardly and forwardly to cause the post 46 to travel along the slot 44 and thereby move the cover plate 34 about its pivots 36 and open the eyehole 32. When the post 46 reaches the upper enlarged end 45 of slot 44, the knob is released and extension 42 is caused to move by spring 54 into the shield 26 to latch the cover plate 34 in open position. When desired the cover plate 34 may be returned to its original position opposite the eyehole 32 to close the eyehole by carrying out the above operations in the reverse manner.

In cases where the interior lighting of the dwelling is certain to be of substantially less intensity than the light outside the dwelling, the modified construction shown in Figs. 7, 8 and 9 may be used, wherein the light shield 26 is omitted. Referring to these figures of the drawings, the mirror support 60 is similar to the support 10 and is similarly mounted on the door 62 and supports a mirror similar to the mirror 20. On the rear side of the door 62 there is a ring 64 that is fixed to the backwardly extending flange of mirror support 60 in any suitable manner such as by the screws 66. Pivoted to the ring 64 by a pin 68 is a cover plate 70 that is pivotable in a plane parallel to the plane mirror support 60 and its associated mirror.

Near the bottom of cover plate 70 a latch is provided comprising a latching member 72 having a knob 74 and pivotally mounted on the cover plate at 76. A spring 78 fixed to cover plate 70 urges the latching member about its pivot 76 toward the ring 64. Mounted on the bottom of ring 64 there is a detent 80 having a notch 82 into which the lower end of the latching member 72 fits.

When it is desired to expose the mirror to permit observation of a visitor outside the door 62, the knob 74 is manually grasped and the latching member 72 withdrawn from notch 82. The cover plate 70 is then swung about its pivot 68 to a position such as that shown in dotted lines in Fig. 7 and the back face of the mirror is exposed.

From the foregoing description it is apparent that the structures shown in the drawing effectively accomplish the object of the invention in that they permit an occupant of a dwelling to observe a visitor without himself being observed. In the preferred embodiment of the invention the light shield 26 ensures reduction of the light intensity at the back side of the mirror to a relatively low value so that there is little or no possibility of the visitor being able to see the interior of the dwelling. Hence when this type of door wicket is used the intensity of the interior lighting of the dwelling may vary considerably and the door wicket will still operate satisfactorily.

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When the interior lighting of the dwelling is of low intensity the modified construction shown in Figs. 7, 8 and 9 of the drawings may be used. Also if the light intensity at the back face of the mirror is sufficiently low the cover plate may be omitted altogether.

By using a coating of chromium metal on the front face of the mirror, the resistance of the mirror to abrasion and corrosion may be significantly increased and by making the thickness of the coating such that between 5% and 11% of the incident light is transmitted, the reflectivity of the front surface of the mirror is maintained even with relatively small values of differential light intensity on the two sides of the mirror.

Since many embodiments might be made of the present invention and since many changes might be made in the embodiment disclosed herein, it is to be understood that the foregoing description is to be interpreted as illustrative only and not in a limiting sense.

I claim:

1. A door wicket adapted to be mounted in the door of a dwelling to permit an occupant of the dwelling to observe a visitor without himself being observed by said visitor, said door wicket comprising, in combination, a mirror support, a transparent mirror mounted at its periphery in said support, a convex, opaque light shield for reducing the amount of light reaching the back face of said mirror from the interior of said dwelling, said light shield being effectively fixed at its periphery to said mirror support and extending backwardly away from said mirror, said shield having an eye-hole therein of approximately the dimensions of the human eye and an operating opening therein spaced from said eye-hole, a movable closure plate mounted on the inner side of said shield and movable into and out of registry with said eye-hole to selectively open or close said eye-hole, said closure plate having a part extending through said operating opening whereby said closure plate can be selectively moved to open or close said eye-hole.

2. A door wicket adapted to be mounted in the door of a dwelling to permit an occupant of the dwelling to observe a visitor without himself being observed by said visitor, said door wicket comprising, in combination, a mirror support, a transparent mirror mounted at its periphery in said support, a convex, opaque light shield for reducing the amount of light reaching the back face of said mirror from the interior of said dwelling, said light shield being effectively fixed at its periphery to said mirror support and extending backwardly away from said mirror, said shield having an eye-hole therein of approximately the dimensions of the human eye and an operating slot therein spaced from said eye-hole, a movable closure plate mounted on the inner side of said shield and movable into and out of registry with said eye-hole to selectively close or open said eye-hole, said closure plate being provided with a pin extending through said slot and slidable therein and manually operable means secured to said pin externally of said light shield, whereby said closure plate may be selectively moved to open or close said eye-hole.

3. A door wicket adapted to be mounted in the door of a dwelling to permit an occupant of the dwelling to observe a visitor without himself being observed by said visitor, said door wicket comprising, in combination, a mirror support, a transparent mirror mounted at its

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periphery in said support, a hemispherical light shield for reducing the amount of light reaching the back face of said mirror from the interior of said dwelling, said light shield being effectively fixed at its periphery to said mirror support and extending backwardly away from said mirror, said shield having an eye-hole centrally located therein of approximately the dimensions of the human eye and a curved operating slot therein spaced from said eye-hole, a movable closure plate curved to conform with the curvature of said light shield and pivotally mounted on the inner side of said shield for movement into and out of registry with said eye-hole to selectively close or open said eye-hole, said closure plate being provided with a pin extending through said slot and slidable therein, and manually operable means secured to said pin externally of said light shield, whereby said closure plate may be selectively moved to open or close said eye-hole.

4. A door wicket adapted to be mounted in the door of a dwelling to permit an occupant of the dwelling to observe a visitor without himself being observed by said visitor, said door wicket comprising, in combination, a mirror support, a transparent mirror mounted at its periphery in said support, a hemispherical light shield for reducing the amount of light reaching the back face of said mirror from the interior of said dwelling, said light shield being effectively fixed at its periphery to said mirror support and extending backwardly away from said mirror, said shield having an eye-hole centrally located therein of approximately the dimensions of the human eye and a curved operating slot therein spaced from said eye-hole, a movable closure plate curved to conform with the curvature of said light shield and pivotally mounted on the inner side of said eye-hole for movement into and out of registry with said eye-hole to selectively close or open said eye-hole, said closure plate being provided with a pin extending through said slot and slidable therein, a knob mounted on said pin for axial movement with respect thereto, and a spring interconnecting said knob and pin and biased to urge said knob toward said slot, said slot having at at least one end thereof an enlarged portion adapted to receive a portion of said knob to provide a manually releasable latch for holding said knob and pin at said one end of said slot.

5. A door wicket according to claim 4 and wherein said pin is provided with a head of greater diameter than said pin, said knob is in the form of a sleeve having an internal shoulder defining with said pin and head an annular space, and said spring is located in said annular space.

6. A door wicket according to claim 4 and wherein both ends of said slot are provided with enlarged knob-receiving portions.

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