No. 673,000. Patented Apr. 30, 1901.

C. P. DYER.

FRICTION HINGE.

(Application filed Aug. 20, 1900.)

(No Model.)

Fig. 1.

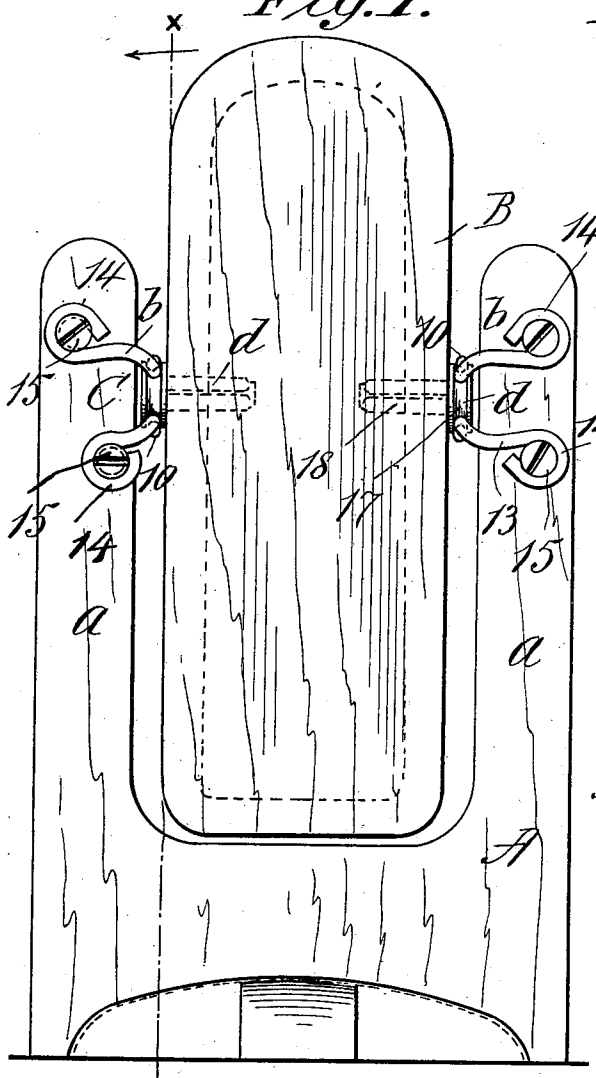


Fig. 2

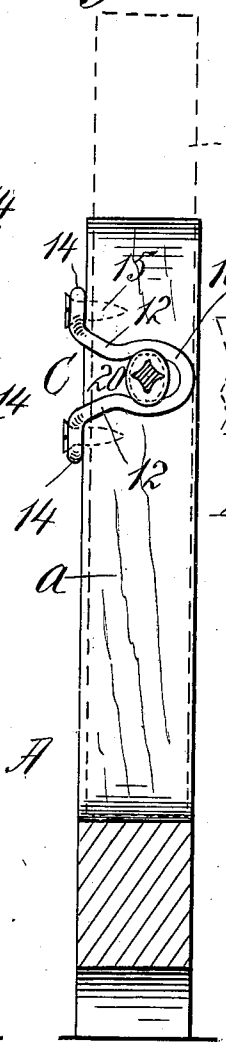


Fig. 3.

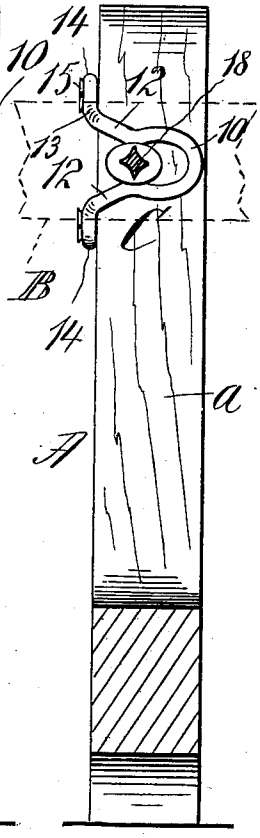


Fig. 4.

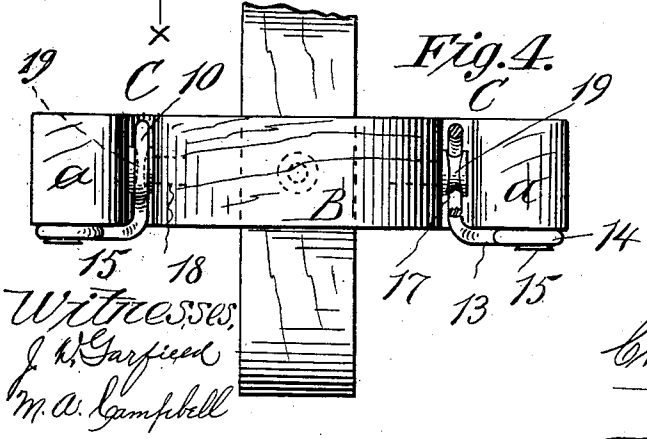
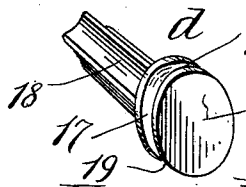


Fig. 5.



Witnesses,
J. W. Garfield
M. A. Campbell

Inventor,
Charles P. Dyer,
by Wm. S. Bellows,
Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES P. DYER, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO LUCY E. DYER, OF WEST SOMERVILLE, MASSACHUSETTS, AND CHARLES F. LIBBY, OF PORTLAND, MAINE.

FRICTION-HINGE.

SPECIFICATION forming part of Letters Patent No. 673,000, dated April 30, 1901.

Application filed August 20, 1900. Serial No. 27,428. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. DYER, a citizen of the United States of America, and a resident of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Friction-Hinges, of which the following is a full, clear, and exact description.

This invention relates to improvements in friction-hinges, and more particularly to improvements in hinges for the hanging of swinging mirrors, transoms, cellar-windows, and the like, where it is required that the hinge-supported part may be retained in the vertical position or any inclined position relatively thereto by reason of the frictional binder between the parts which constitute the hinge.

The objects of the invention are to produce a hinge which is of extremely simple and inexpensive construction and capable of satisfactory operation for a protracted time and to produce a hinge for the purpose indicated which will enable as occasion may require most readily the detachment of the mirror or other part which is hinge-supported from the frame or support therefor.

The invention consists in a hinge having the forms and peculiarities of construction hereinafter described and explained, and set forth in the claims.

Reference is to be had to the accompanying drawings, in which the improved hinge is fully illustrated, and in which—

Figure 1 represents the rear of a mirror-frame and a mirror-supporting upright and the duplicated hinge whereby the mirror is supported within the upright. Fig. 2 is a vertical sectional view as taken on the plane indicated by the line *x x*, looking in the direction of the arrow on Fig. 1, the relative position of the mirror being shown by dotted lines. In Fig. 2 the parts have their relative positions as seen when the mirror is vertical. Fig. 3 is a vertical sectional view substantially similar to Fig. 2, but showing the relative position of the parts of the hinge not only when the mirror is swung into a horizontal position, but also when the part of the hinge which is provided on the mirror has been almost forced out from engagement with the part of the hinge provided on the frame or mirror-support. Fig. 4 is a plan view of Fig. 1, one portion of the hinge at the right being shown as partly broken away. Fig. 5 is a perspective view of the one part of the hinge, which comprises the driving-pin, which is forced into the mirror frame or casing, and the integrally-formed frictionally-bearing oblong-grooved head or stud.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the upright mirror-support or yoke-like frame, comprising the two vertical opposite standards *a a*, and B represents the mirror frame or casing. The relative proportions of these two parts in the drawings are somewhat distorted in order to maintain the illustration of the hinge on a comparatively large scale.

The duplicated hinge is represented at C. Each hinge consists of the part *b*, which is provided on the support, and the part *d*, which is provided on the mirror or part which is supported; but obviously a reversed manner of mounting these said parts of the hinge may be practiced without departing from the invention. The said hinge portion *b* comprises the loop 10, which is in the form of a partial oval and constituted by the middle portion of a length of wire which is of quite large diameter and of considerable stiffness, the portions of the wire next outside of the mouth leading into the loop diverging, as shown, at 12 12, while the extremities 13 of the wire are both bent to stand in a plane at approximately right angles to that comprising the oval loop and divergent extensions 12, and terminate in the eyes 14, whereby the so-described part of the hinge may have the eye-provided portions thereof secured by screws, as shown at 15, upon the rear of the supporting-standard *a* and sustaining the loop-provided part 10 alongside the inner edge or face of the standard. The other member of the hinge, as shown, comprises a stud or body 16, of oblong or elliptical shape, having the surrounding peripheral groove 17, this stud having its fixed location at the edge of the mirror casing or frame B, and it is preferably constructed integrally with the driving-pin 18 of a cruciform, as shown. The groove 17 preferably is wider on the long

sides of the stud or head 16 than on the short sides or ends, the reference 19 indicating the narrowed portion of the peripheral groove.

The opening 20 at the neck of the wire-formed part *b*, which enters into the somewhat larger oval opening within the loop 10, is normally of slightly-less width than the distance between the bases of the groove 17, measured on the short diameter of the stud or head 16. The long diameter of the grooved portion of the head exceeds the normal width of opening within the loop 10, and the driving-pin is forced into the lateral edge of the mirror-casing with care that the long diameter of the head ranges in the length of the mirror.

Fig. 3 renders manifest the capability of detachment of the mirror from its support or the engagement of the one with the other, it being understood that the mirror is swung or tilted into the horizontal position, so that the long diameter of the elliptical stud ranges in the median line of the space within the loop and the mouth thereof, whereby the narrower grooved side of the stud may be crowded through the neck against the yielding resistance thereat. As the mirror is swung from the horizontal toward or to a vertical position the frictional binding between the stud and the loop within which it is engaged becomes increased. It is further explained that when the stud is turned with its longer dimension across the loop there will not only be the friction between the loop and the bottom of the groove at the opposite sides of the stud as produced by the difference in diameters of the latter, but there will also be a friction produced by the sides of the narrower portion 19 of the groove, which will clutch the wire with almost treble the friction acquired by merely the groove-bottom friction. Where large and heavy mirrors are hinge-supported, it is desirable to have this powerful friction to retain the mirrors in any given inclined position.

As shown at the left of Fig. 1, one of the extremities of the looped and eye-ended wire-hinge members is extended less far than the other, so that the one eye 14 is offset or out of line with the other eye, and hence receiving the screws in such correspondingly-offset relations both screws do not penetrate the wood in the line of the grain, and hence there is greatly less liability of the wood becoming split.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A friction-hinge consisting of a looped part having an opening leading to the space within the loop having provisions for attachment of said part to the desired fixture, and a second part comprising a head or stud which is peripherally grooved and constructed to be rigidly affixed to the part for which it is to be provided.

2. A friction-hinge as to the one member thereof consisting of a length of comparatively heavy wire, the intermediate portion of which is formed into a loop 10 having the neck opening thereinto and having extremities formed into attachment-eyes and as to the other member consisting of a head or stud provided with a peripheral groove and having provisions for its attachment to the part on which it is to be applied.

3. A friction-hinge, one member of which consists of a length of comparatively heavy spring-wire the intermediate portion of which is formed into a loop having a neck opening thereinto and having the extremities turned into a plane angular to that which the loop is located, one being longer than the other, and both terminating in eyes which are offset or out of line; and the other member consisting of a peripherally-grooved stud, and means for its attachment to the part on which it is to be applied for the purposes set forth.

4. A friction-hinge consisting of a looped part with an opening leading to the loop-inclosed space and provisions for the attachment of said part to an appropriate fixture, and a second part comprising a head or stud of elongated form peripherally grooved and constructed to be rigidly affixed on the part for which it is to be provided.

5. A friction-hinge consisting of a looped part, and means for its attachment, and a second part comprising a head or stud of elongated form having a peripheral groove which is the wider along the long sides of the stud than at the ends, and constructed to be rigidly affixed on the part for which it is to be provided.

6. A friction-hinge, as to the one member thereof, consisting of a part formed of a length of comparatively thick wire, the intermediate portion of which is formed into the loop 10, having the neck opening thereinto and the portions of the wire adjacent the neck extending divergent and having the extremities turned into a plane angular to the loop and terminating in the eyes; and as to the other member, consisting of a head or stud of elongated form having a peripheral groove, and means for its attachment to the part on which it is to be applied, for the purposes set forth.

Signed by me at Somerville, Massachusetts, this 16th day of August, 1900.

CHARLES P. DYER.

Witnesses:

HARRY A. TRUE,

WALTER E. WILKINS.