(No Model.) 2 Sheets—Sheet 1.

D. HEALD & C. H. FRENCH.

MIRROR SUPPORTING AND ADJUSTING DEVICE.

No. 419,521. Patented Jan. 14, 1890.

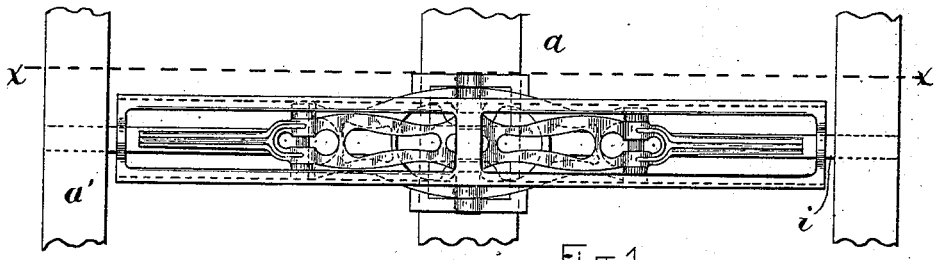

Fig. 1.

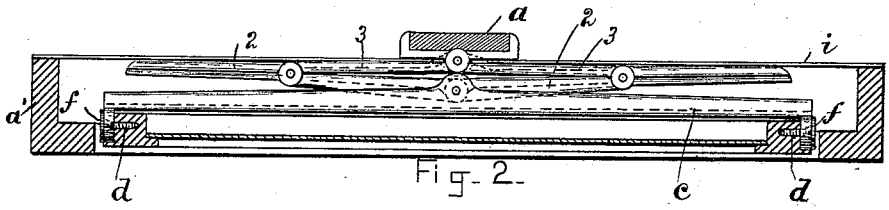

Fig. 2.

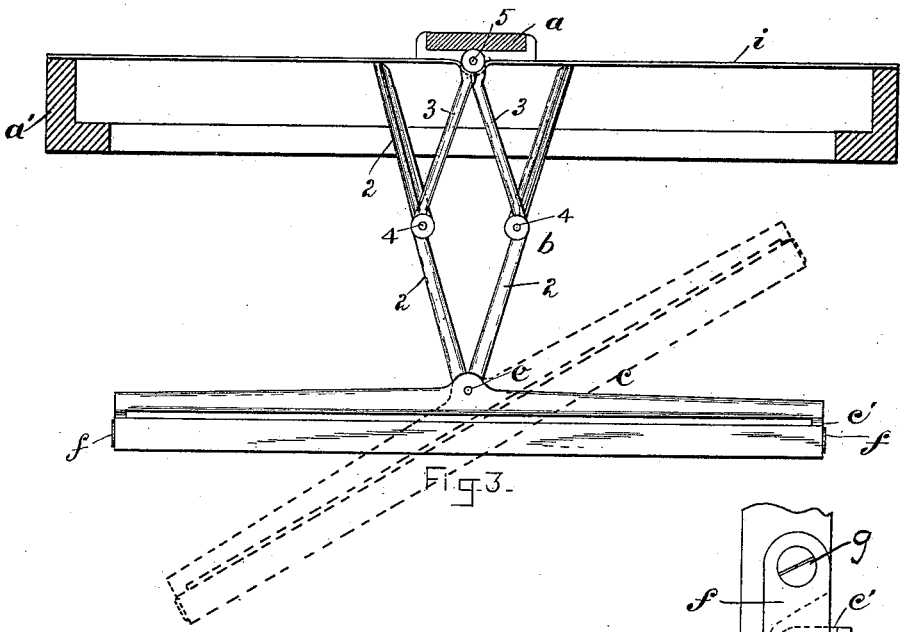

Fig. 3.

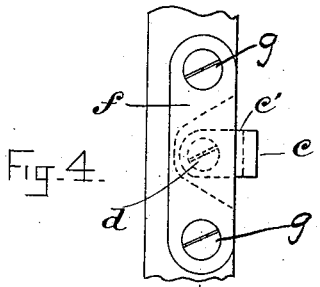

Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 6.

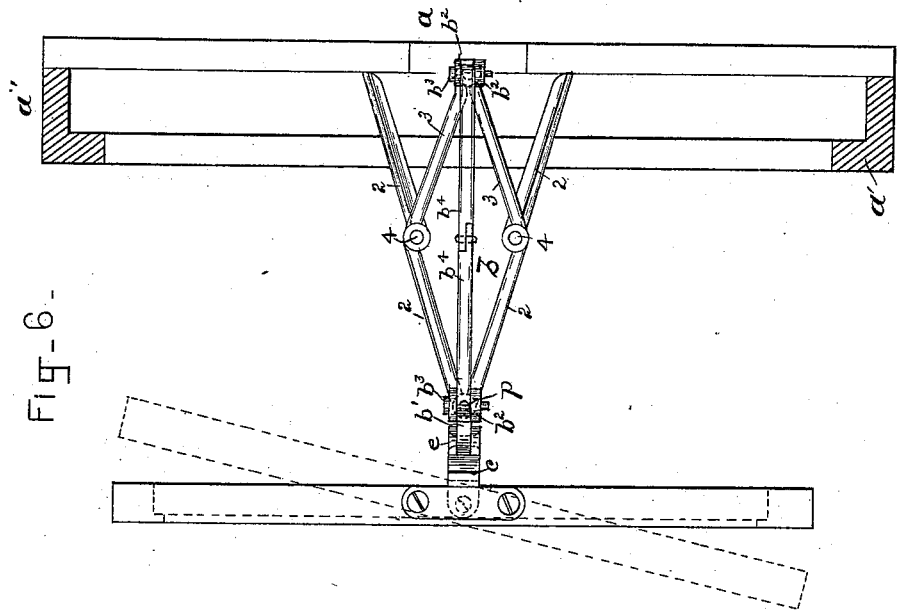
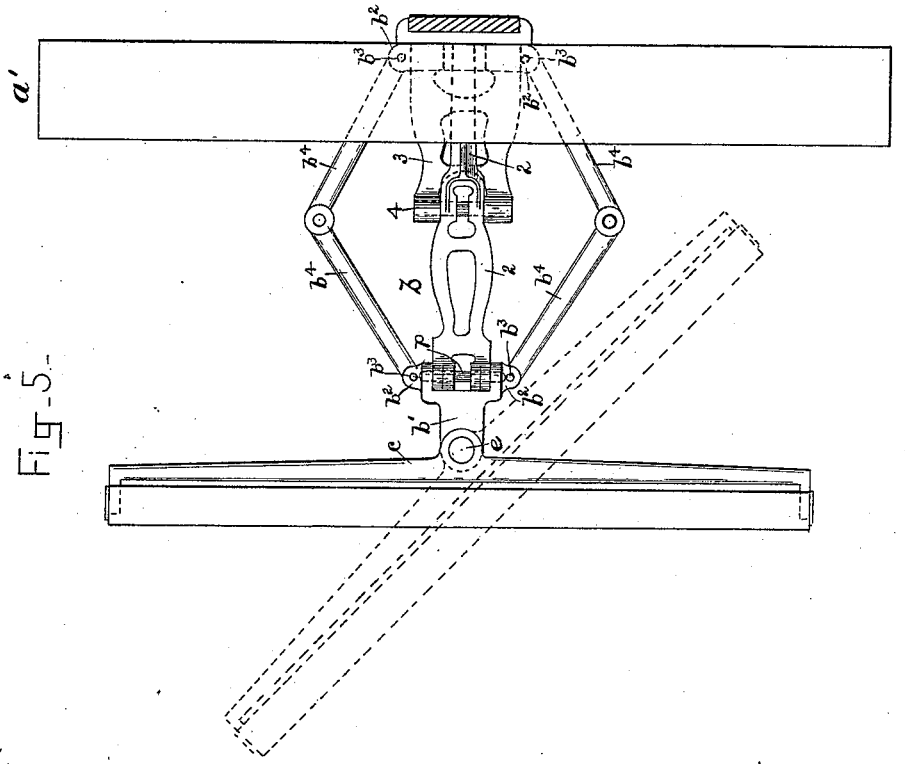


Fig. 5.



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UNITED STATES PATENT OFFICE.

DAVID HEALD, OF MILFORD, AND CHARLES H. FRENCH, OF NASHUA, NEW HAMPSHIRE.

MIRROR SUPPORTING AND ADJUSTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 419,521, dated January 14, 1890.

Application filed March 21, 1889. Serial No. 304,114. (No model.)

To all whom it may concern:

Be it known that we, DAVID HEALD, of Milford, and CHARLES H. FRENCH, of Nashua, both in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Mirror Supporting and Adjusting Devices, of which the following is a specification.

This invention relates principally to toilet-mirrors which are supported either in articles of furniture, like bureaus, or by independent supports; and it has for its object to provide means whereby a mirror may be moved bodily from and toward the support which sustains it and can be inclined at various angles while standing at any point to which it may be bodily moved.

The invention consists in an extensible frame connecting a mirror-frame to a suitable support behind it, said frame being constructed with extensions or arms and combined with a fixed guide or track, whereby lateral swaying or oscillating movements of the extensible frame are prevented, so that the frame is movable only in a right line, and is therefore adapted to move the mirror directly in and out bodily without deflecting it to either side in its outward motion.

The invention also consists in certain details and combinations of parts, all of which we will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a front elevation of a portion of a mirror-frame support with an extensible frame embodying our invention connecting the two on said support, the mirror-frame being removed. Fig. 2 represents a section on line $x\,x$, Fig. 1, looking downwardly, the mirror-frame being shown as moved back to its support. Fig. 3 represents a similar view showing the mirror-frame moved outwardly. Fig. 4 represents an edge view of a portion of the mirror-frame. Fig. 5 represents a top view, and Fig. 6 a side elevation showing a modification.

The same letters of reference indicate the same parts in all the figures.

In the drawings, a represents a bar or support, which may be attached in any suitable way to a bureau or other article to which a mirror is usually applied, or it may be attached to any other suitable frame or base. Said bar is shown in Figs. 1, 2, and 3 as arranged in a vertical position; but it is obvious that it may be arranged horizontally, if preferred.

b, Figs. 3, 5, and 6, represents the extensible frame, which is hinged or pivoted at one end to the support a, and is connected at the other end to the mirror by a gimbal-joint connection, which permits the mirror to move or swing on two centers of oscillation, one of which is at right angles with the other, so that the mirror can swing both on a horizontal and on a vertical or inclined axis or center. The said gimbal-joint connection is here shown as composed of a bar c, having its ends pivotally connected by pivots $d\,d$ to the side pieces of the mirror-frame, said pivots constituting the horizontal center on which the mirror swings, and its central portion connected by a pivot e with the extensible frame b, the pivot e constituting the vertical center on which the mirror swings.

The pivots $d\,d$ are preferably members of friction-hinges which prevent the mirror from swinging loosely on said horizontal center and retain it by friction either in a vertical position or at any angle from a vertical position to which it may be adjusted. Said friction-hinges may be of any suitable construction. I have here shown them as including, in addition to the pivots $d\,d$, the outwardly-bent arms $c'\,c'$ on the ends of the bar c (the pivots $d\,d$ passing through said arms) and plates $f\,f$, attached by screws $g\,g$ to the mirror-frame, said plates bearing on the arms $c'\,c'$ with sufficient pressure to create the necessary friction. The arms $c'\,c'$ extend forward from the back of the mirror-frame to the center, the pivots $d\,d$ being midway between the front and rear sides of the frame, so that they are as near the center of gravity of the mirror-frame as possible, and therefore do not have to resist the tendency of the mirror to tip in one direction, which would exist if the pivots $f\,f$ were behind the mirror-frame or at one side of the center of the thickness of said frame.

The extensible supporting-frame, which forms an important part of our invention, is constructed to permit a direct rectilinear hori-

zontal movement of the pivot *e* of the gimbal-joint connection toward and from the support *a* without permitting said pivot to move in the arc of a circle and to firmly support said pivot at any point to which it may be thus moved, so that the mirror may be moved bodily in and out without being deflected sidewise, and may therefore stand at various distances from the support without being inclined, or the mirror may be given any inclination permitted by its gimbal-joint connection when moved to any point within the range of movement of the extensible frame. As shown in Figs. 1, 2, and 3, the extensible frame is composed of four links or members 2 2 and 3 3, arranged to constitute a lazy-tongs, the members 2 2 being connected at their outer ends to each other and to the bar *c* by the pivot *e* and at their central portions to the outer ends of the members 3 3 by pivots 4 4, while the members 3 3 are connected at their inner ends to each other and to the support *a* by a pivot 5.

It will be seen by reference to Figs. 2 and 3 that the frame thus constructed can be folded, as shown in Fig. 2, so as to locate the pivot *e* close to the support *a*, or extended, as shown in Fig. 3, so as to remove the pivot *e* from said support to any desired extent. The members 2 2 are extended back of the pivots 4, so that their rear ends bear at all times on a guide or track *i*, on which said inner ends are adapted to slide. The contact of the members 2 2 with said guide *i* prevents the frame *b* from swinging bodily on the pivot 5, as it would do if the members 2 terminated at the pivots 4 4. It will be seen, therefore, that the movement of that portion of the frame *b* which contains the pivot *e* is substantially at right angles with the support *a*, and is not a swinging movement in the arc of a circle, so that the bodily movement of the mirror, considered independently of the swinging movements permitted by its gimbal-joint connection, is directly out and in, or in a right line toward and from the support *a*. We lay especial stress on this rectilinear bodily movement of the mirror, because it enables the latter to be moved bodily out and in without edgewise or vertical displacement, so that there is no liability of its striking the wall at either side of the bureau or support, and to be variously inclined, by means of its gimbal-joint connection, at any point to which it may be thus bodily moved. We also attach much importance to the bar *c*, extending across the back of the mirror and constituting a part of the gimbal-joint connection, said bar, in connection with the extensible frame having the described rectilinear movements, constituting a compact and simple connection between the mirror and the support *a*.

In Figs. 5 and 6 we have shown the extensible frame arranged vertically—that is to say, so that the movements of its members, in the expansion and contraction of the frame, are vertical instead of horizontal, as in the arrangement shown in Figs. 1, 2, and 3. The only difference in construction involved in this modification is the section *b'*, which connects the outer end of the frame *b* to the bar *c*, said section being connected to the bar *c* by the pivot *e* and with the outer end of the frame *b*—that is to say, the meeting ends of the members 2 2 thereof—by a horizontal pivot *p*.

The section *b'* may be prevented from tipping downwardly on the pivot *p* by any suitable means. We have here shown as the means for preventing such tipping motion two pairs of links b^4 b^4, jointed to each other at their meeting ends and having their outer ends connected by vertical pivots b^3 with ears b^2, formed on the section *b'* and the support *a*. The links b^4 are so connected to each other and to the support *a* and section *b'* that they act as extensible braces or supports to maintain the section *b'* in a horizontal position.

We do not limit ourselves to the particular construction of the extensible frame *b* here shown, but may use any other suitable construction which will give the gimbal-joint connection the rectilinear movements above described. A good and practical construction of extensible frame for the purpose is shown in the pending application of De Witt C. Parker filed concurrently herewith and assigned to us.

We prefer to employ a fixed frame *a'* as a part of the support *a*, said frame being affixed to the support *a* and formed to inclose the mirror-frame when the latter is moved inwardly, as shown in Fig. 2.

The described invention may be used for supporting any other article to which such supporting means may be applicable, such as a picture-frame.

We claim—

1. The combination, substantially as hereinbefore set forth, of a jointed extensible and contractible frame pivoted at its inner end to a fixed support, means, substantially such as the extended members of the frame and the guide on which they bear, for preventing said frame from oscillating, and a gimbal-joint consisting of a substantially-horizontal bar, a vertical pivot connecting the central portion of said bar with the outer end of the extensible frame, and horizontal pivots connecting the ends of said bar with the mirror-frame, whereby the mirror is permitted to swing both on a horizontal and on a vertical axis.

2. The combination, substantially as hereinbefore set forth, of a support, a fixed guide, a mirror or its equivalent, an extensible frame connected with said support and having extended members bearing on said guide, whereby oscillation of said frame is prevented, and a gimbal-joint connecting said frame with the mirror.

3. The combination, substantially as hereinbefore set forth, of a mirror or its equiva-

lent, a bar pivotally connected thereto, an extensible frame composed of jointed members, two of which are extended rearwardly, said frame being pivoted at its outer end to said bar and at its inner end to a fixed support, and a fixed guide on which the extended members of said frame bear, whereby the frame is prevented from oscillating, as set forth.

4. The combination, substantially as hereinbefore set forth, of a mirror or its equivalent, a bar extending across the back of the mirror, friction-hinges connecting said bar to the mirror-frame, whereby the mirror may be held in a vertical position or at various angles therefrom, an extensible frame pivotally connected with said bar and connecting the latter with a fixed support, and means, substantially such as the extended members of the frame and the guide on which said members bear, for preventing oscillating movements of said frame.

5. The combination of the mirror-frame, the bar *c*, having the arm *c'*, friction-hinges having the arms *c'* as members connecting the mirror-frame with said bar, whereby the mirror-frame may be held in a vertical position or at various angles therefrom, an extensible frame pivotally connected with said bar, and means, substantially such as the extended members of the frame and the guide on which said members bear, for preventing oscillating movements of said frame, as set forth.

6. The combination of the extensible frame, composed of the links or members 2 2 and 3 3, the former having their rear ends extended, a support to which the rear ends of the members 3 3 are pivoted, a fixed guide or track on which the extended ends of the members 2 2 bear, and a gimbal-joint connection supporting a mirror-frame carried by the outer end of the extensible frame, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 16th day of March, A. D. 1889.

DAVID HEALD.
CHAS. H. FRENCH.

Witnesses:
C. F. BROWN,
A. D. HARRISON.