H. P. DAILEY.

HINGE.

APPLICATION FILED FEB. 2, 1911.

993,154.

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Fig 1

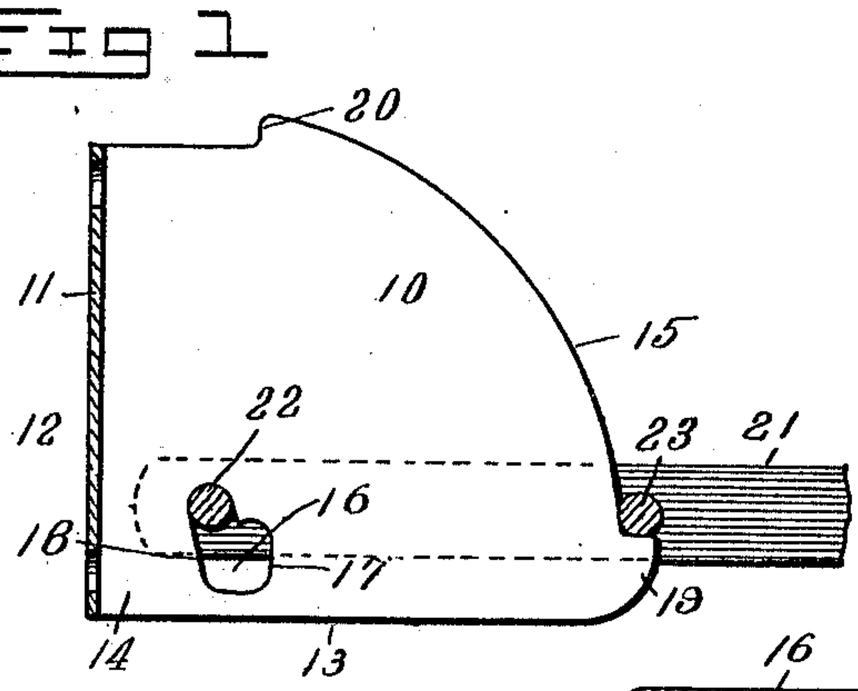


Fig 2

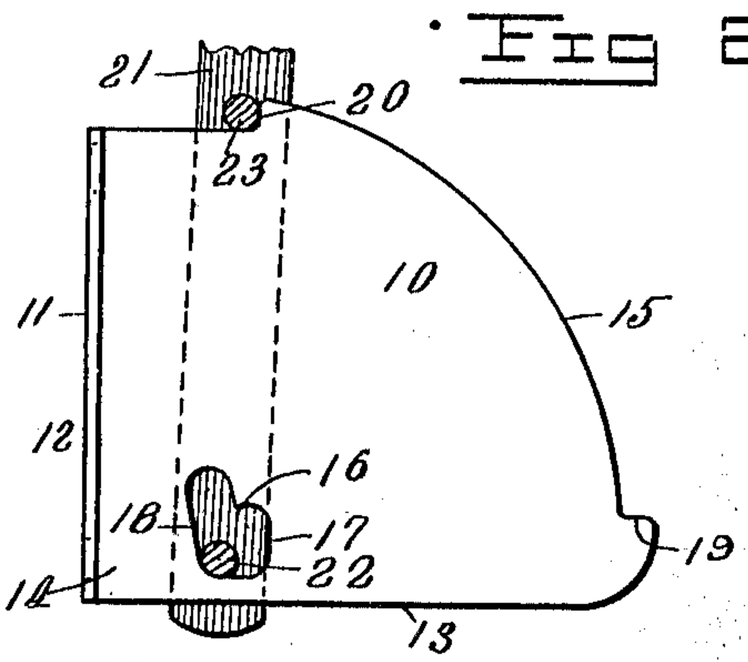


Fig 4

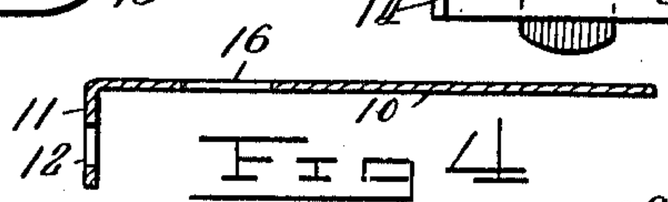


Fig 3

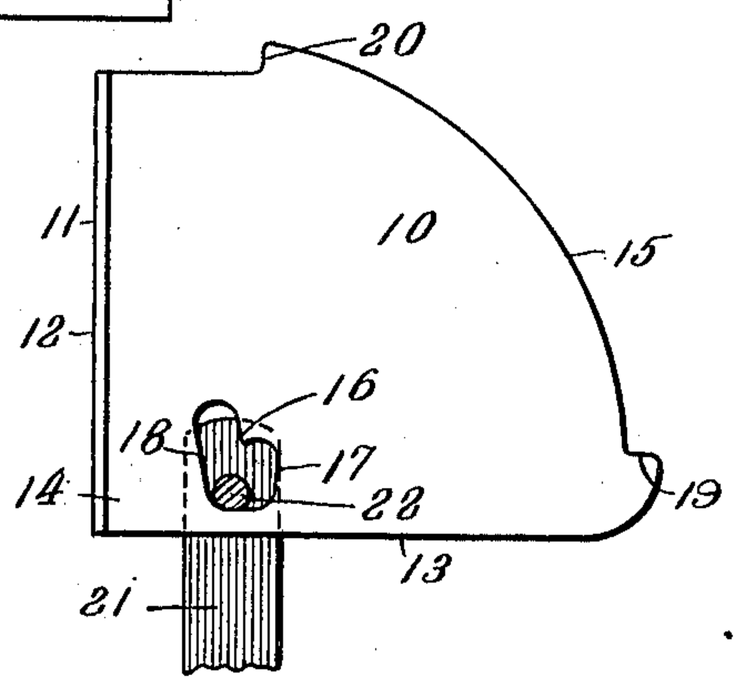


Fig 5

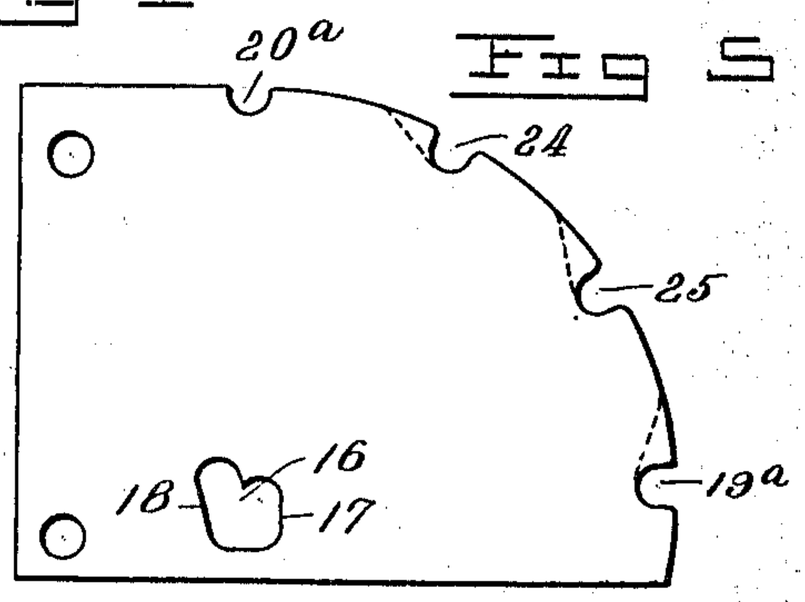


Fig 7

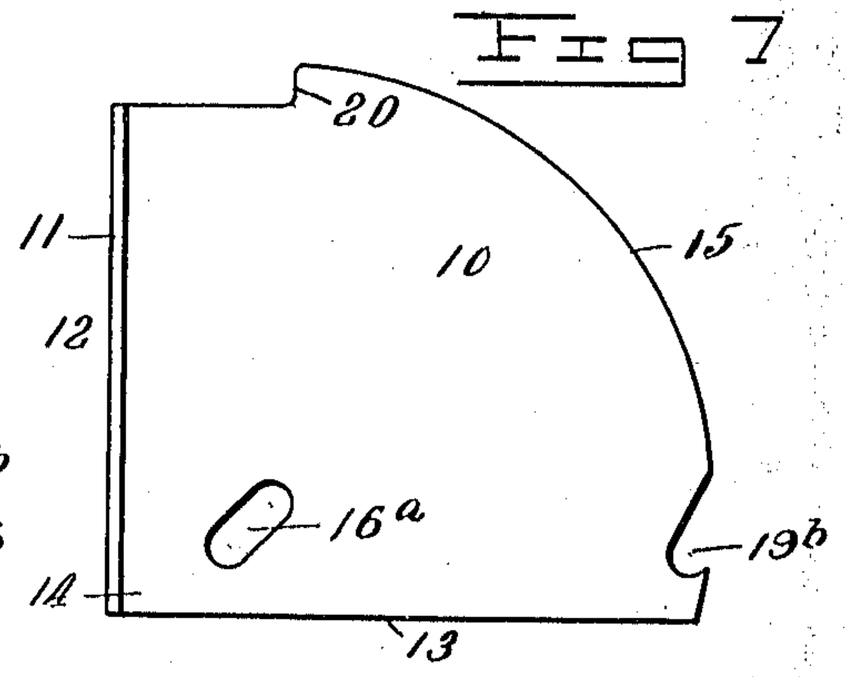
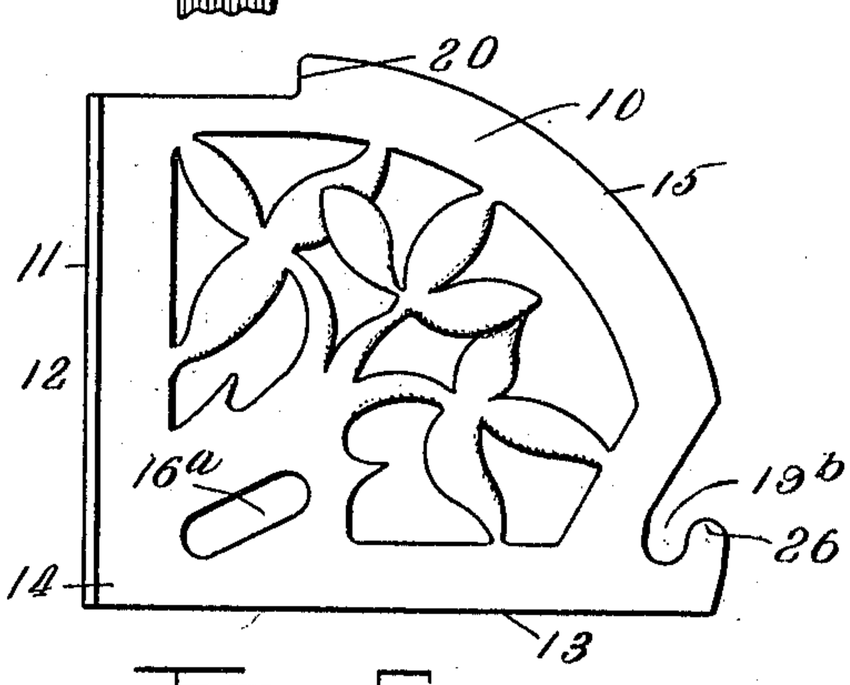


Fig 6



Witnesses

H. G. Bohnett.

J. P. Hollingsworth

Inventor

Howard P. Dailey

By Meyers Cushman & Rea.

Attorneys

UNITED STATES PATENT OFFICE.

HOWARD P. DAILEY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ARTHUR L. BEALL, OF PHILADELPHIA, PENNSYLVANIA.

HINGE.

993,154. Specification of Letters Patent. Patented May 23, 1911.

Application filed February 2, 1911. Serial No. 606,281.

To all whom it may concern:

Be it known that I, HOWARD P. DAILEY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Hinges, of which the following is a specification.

This invention relates to a hinge designed to be used with a swinging object or support and provided with locking means for retaining said object in different positions in its arc of movement.

To this end the hinge consists, broadly speaking, of a plate provided with a foot or other means for fastening it in a fixed position, and having a curved edge formed with any required number of projections or indentations on its edge, and a slot near one corner to receive a pintle on the swinging object or support which object is also provided with a second pintle or pin to engage with said projections or indentations for holding the object or support in the position desired.

In the accompanying drawings which show several forms of the invention, Figures 1, 2 and 3 are side views of the improved hinge in its preferred form with the swinging object or support in a different position in each figure. Fig. 4 is a plan view of the hinge. Figs. 5, 6 and 7 are side views of different modified forms of the invention.

In the drawings, the numeral 10 designates the hinge plate member, here shown as made of sheet metal in the general form of a quadrant with one straight side bent at an angle to form a foot piece 11 through which are made holes for fastening screws or bolts. The member 10 may, however, be made of cast metal, braided or woven wire, or other suitable material, and in form other than that shown. The foot piece 11 may differ from that illustrated in the drawings and otherwise placed if convenience or circumstances demand. For example, the foot piece 11 may be a continuation of the part 10 in a plane therewith, as in Fig. 5.

As a basis for a description of this invention, attention is directed primarily to Figs. 1, 2 and 3 where it will be seen that the quadrant shaped hinge plate member 10 has a vertical edge 12 from which projects the foot piece 11, a horizontal edge 13 which meets the vertical edge to form a corner 14, and a curved edge 15 joining the extremities of the edges 12 and 13. In or near the corner 14 of the hinge member 10 is an angular slot 16, approximately L-shaped, the branch or limb 17 of which, in the position of the member shown, is horizontal and extends a short distance in the direction of the lower end of the curved edge 15. The other branch or limb 18 of the slot, which forms an obtuse angle with the branch 17, is directed upwardly, for a suitable distance to be described later. The curved edge 15 of the hinge plate member is interrupted at two or more points, two being indicated in the figures, by offsets, or projections 19 and 20, the abutting edges of which are preferably straight with slightly curved corners, the offset 19 being near the bottom of the hinge member while the offset or projection 20 is placed at the top of the same.

Mounted to swing in two, and if necessary, more of said hinge members is a shelf, towel holder, table leaf or other object 21 from each side or edge of which project two pintles or pins 22, 23, spaced apart to engage respectively with the slot 16 and the offsets or projections 19 and 20. For the sake of brevity, the object 21 will be hereinafter termed a "shelf." The shape of the slot 16 and its position with relation to the projections or abutments 19 and 20 is such that the shelf, when in a horizontal or substantially upright vertical position, will be locked against accidental knocks or jolts or an outward pull, but when properly manipulated will readily permit a change from one position to another. To this end the rearwardly inclined branch or limb 18 of the slot is substantially equal in width to the diameter of the pintle or pin 22 and extends in an upward direction to a point where said pin when seated against its semicircular upper end with the pin 23 resting on the projection or abutment 19, supports the shelf 21 in horizontal position as in Fig. 1. The shelf is thus securely locked in place and cannot be dislodged by drawing it horizontally because the pin 22 bears against the forward edge of the branch 18 of the slot, nor for the same reason, can the shelf be unseated by knocks and slight elevations of its outer end incident to removal from and placing thereon of various articles. When the shelf is raised into vertical or approximately vertical position, as in Fig. 2,

the pin 22 will rest on the bottom of the slot 16 against its rear wall, and the pin 23 on the top of the hinge plate 10 behind the upper projection or abutment 20. The shelf having a slight inclination forward, the pin 22 will be forced into the lower rear angle of the slot as shown. To prevent the shelf from leaning forward at an unsightly angle is one of the reasons for inclining the branch or limb 18 of the slot rearwardly. The width of the horizontal branch or limb 17 of the horizontal slot is equal to or slightly greater than the diameter of the pin 22 plus the height of the projection or abutment 20, thus enabling the pin 23, when the shelf, in its elevated position, is lifted to swing over said abutment 20. Furthermore the horizontal distance between the center of the pin 22 when seated in the limb 18 and the center of the same pin when against the outer end of the limb 17 is equal to or slightly greater than the diameter of said pin plus the length of the abutment or projection 19. This permits the shelf to be drawn out far enough for the pin to escape said abutment and swing downwardly into position illustrated in Fig. 3. The projection or abutment 19 is preferably a little longer than the height of abutment 20 because said abutment 19 is depended upon to support the shelf in its horizontal position and it should be of sufficient length to give firm support to the pin 23 in case there should be any lost motion because of an enlargement of the slot, or the use of a pin of less diameter than that required, due to some imperfection in manufacturing. The inclination of the branch or limb 18 of the slot must be limited, as too great a slant will cause the pin 22, when the shelf is raised and it be drawn forward, to ride up the rear side of said branch and disengage the pin 23 from the abutment 20 and as a result, the shelf will fall. Likewise when the shelf is in a horizontal position and a straight forward pull be given it, the pin 22 will ride down the forward side of the branch 18 if too greatly inclined and into the horizontal branch 17, thereby disengaging the pin 23 from the abutment 19 leaving the shelf unsupported.

Assuming that the shelf is hanging suspended from the pintles or pins 22 and it is desired to raise it to a horizontal position, grasp the shelf and swing it upward with a slight drawing action to bring the pins 22 which are resting on the bottom of the slot 16 against the end of the branch or limb 17. In this position, the pins 23 can pass freely the curved edges 15 of the hinge plates. When the shelf has been raised into a horizontal position or slightly above it, it is pushed rearwardly until the pins 22 abut against the rear of the slot, after which the shelf is lowered until the pins 23 rest on the abutments 19, and the pins 22 rise to their seats in the upper ends of the slots. The shelf is shifted to its elevated position by first lifting its outer end to bring the pins 22 out of the limb 18 of the slot, after which the shelf is drawn outward and then swings upward until the pins 23 drop behind the projections or abutments 20. To lower the shelf it is lifted bodily until the pins 23 are high enough to pass over the projections 20 and then lowered.

In the modified form of the hinge represented by Fig. 5, the foot piece 11 is shown as a continuation of the plate member 10, the whole being a flat plate. Furthermore the abutments 19^a and 20^a are formed by notches or indentations in the curved edge of the member 10, the notch 19^a being deeper thant the notch 20^a to give full support to the pin 23 in case of loose fitting of the parts. Other notches or indentations of an indefinite number may be made in the edge of the member if desired, two such notches, 24 and 25 are shown in this figure. If desired the upper sides of the notches may be cut away, as shown in dotted lines, to enable the pin 23 to more readily engage with said notches. The slot 16 is practically the same as in Figs. 1, 2 and 3.

In Fig. 6 another modification is shown. In this case the slot 16^a is straight and extends a suitable distance in an inclined direction, upward and forward toward the curved edge 15 of the hinge member. To form a support for the pin 23, when the shelf is horizontal the curved edge is cut away or notched as shown to form a seat 19^b for said pin and a hook 26 on the outside thereof to prevent the shelf from being drawn horizontally. The point of the hook is rounded to prevent fabric or other material on the shelf from being caught on the hook and torn. The inner side of the notch 19^b has an upward inclination toward the curved edge 15 to enable the pin 23 to enter the notch without trouble. Instead of a blank plate the hinge member may be made more ornamental by designs thereon in relief, in color or by cutting away portion thereof, as shown.

Instead of rounding the end of the hook 26 it may be made pointed as in Fig. 7.

A hinge plate member constructed as hereinabove described possesses lightness, cheapness and great ease of construction in quantity; it is simple, rigid and strong for the purpose designed and fully able to support the attached object, together with its load; it is neat and attractive in appearance and free from dangerous features. A swinging object supported by a hinge of this character is adapted to move through an arc of one hundred and eighty degrees and be supported and rigidly locked in two or more positions in this range of movement without additional parts. These and other features

not necessary to mention distinguish this device from others known in the art.

Having thus described the invention what is claimed as new is:—

1. In a hinge, a fixed member having a curved edge provided with a plurality of stops, and a slot at or near the axis of said curved edge of such shape that the pintle of a swinging member will slide therein to permit a projection on said swinging member to be engaged with and disengaged from said stops.

2. In a hinge, a fixed member having a curved edge provided with a pair of stops, an L-shaped slot at or near the axis of said curved edge to receive the pintle of a swinging member and permit the same to slide thereon so that a projection on said swinging member can engage with and be disengaged from the stops, said stops being about perpendicular to each other and at such distances from the slot that when the swinging member is in a horizontal position the pintle will be in the upper end of the L-shaped slot, and the swinging member thereby locked against lateral movement, and when said swinging member is in its upright position the pintle will be in the bottom of said slot.

3. In a hinge, a fixed member having a curved edge provided with a plurality of stops, an L-shaped slot at or near the axis of said curved edge to receive the pintle of a swinging member and permit the same to slide therein so that a projection on the swinging member can engage with and be disengaged from said stops, the branches or limbs of said slot being of different widths and lengths and forming an obtuse angle.

4. In a hinge, a fixed member having a curved edge provided with a plurality of stops, and a slot at or near the axis of said curved edge, and a swinging member having two lateral projections one serving as a pintle and adapted to slide in said slot, the other arranged to engage with any one of said stops.

5. In a hinge, a flat plate-like fixed member having a curved edge provided with a plurality of stops, and a slot at or near the axis of said curved edge, said slot having a horizontal branch and an upright branch inclined at an obtuse angle to the horizontal branch and longer and narrower than the same, and a swinging member provided with spaced laterally projecting pins one of which projects into said slot to serve as a pintle and adapted to slide therein, and the other pin arranged to engage any one of said stops.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HOWARD P. DAILEY.

Witnesses:
GEO. E. GRIFFIN,
BERTHA E. SANDER.