L. S. CRONE.

HINGE.

APPLICATION FILED DEC. 4, 1920.

1,375,212. Patented Apr. 19, 1921.

Fig. 1,

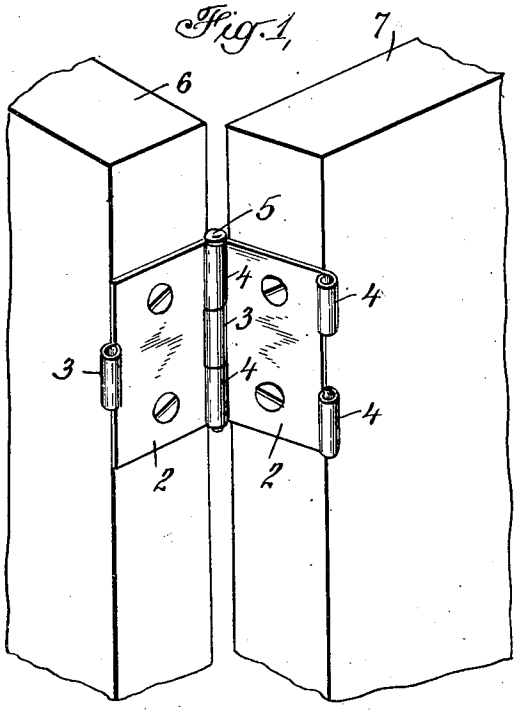


Fig. 2,

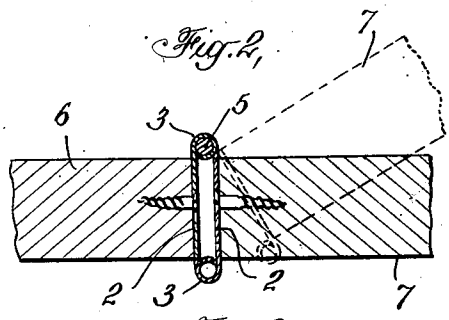


Fig. 3,

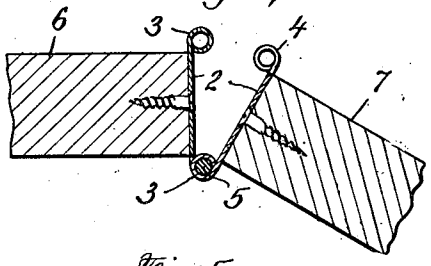


Fig. 4,

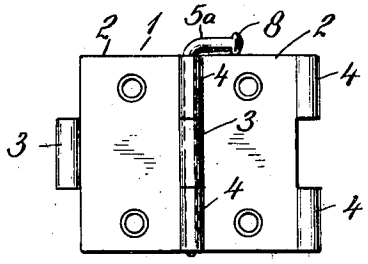


Fig. 5

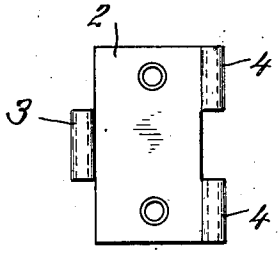
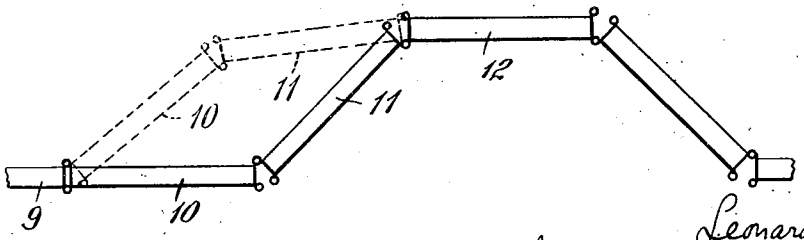


Fig. 6,



Inventor
Leonard S. Crone
By his Attorneys
Pennie, Davis, Marvin & Edmonds

UNITED STATES PATENT OFFICE.

LEONARD S. CRONE, OF NEW YORK, N. Y.

HINGE.

1,375,212. Specification of Letters Patent. Patented Apr. 19, 1921.

Application filed December 4, 1920. Serial No. 423,204.

To all whom it may concern:

Be it known that I, LEONARD S. CRONE, a citizen of the United States of America, residing at New York city, in the county of New York, State of New York, have invented certain new and useful Improvements in Hinges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a hinge designed to be swung about either of two axes, and particularly adapted for use in jointing the panels of display racks.

One very satisfactory type of rack for window displays comprises a series of jointed panels which may be extended in various configurations after the manner of panel screens. Such racks may be employed for the background of the window, they may serve as a support for colored lithographs, or they may be utilized in various other ways in the building up of the display. These racks are preferably made up of a series of panel units of standardized uniform size, each panel unit being readily interchangeable with every other such unit. In building up the rack these units are jointed to one another along their vertical edges until the desired horizontal extension has been attained. They may also be superposed to increase the height of the rack. After the connections have been made the sections are swung upon their joints and arranged in accordance with the design of the window dresser. Once the configuration of the rack has been fixed it is not changed until a new window display is to be presented.

The problem of providing these panel units with suitable jointing means or hinges has not been easy of solution. Three requirements demand fulfilment. First, these jointing means must be adapted for use on interchangeable units; second, they must permit the panels to be swung out of alinement through almost 360° if need be; and third, they must be readily assembled and disassembled to permit the rack to be built up and taken apart. Various types of double-acting hinges might be found to meet the first and second requirements, but not the third, for such hinges are generally complex and built for permanent use. The ordinary simple single-acting hinge would fulfil the first and third requirements, but not the second. The flexibility implied by this second requirement is very important, as the angle which any one panel will make with its immediate neighbor will vary with every different display of which the rack forms a part.

It is therefore the object of the present invention to design a hinge, which will fulfil the three requirements enumerated above. This is accomplished according to this invention by providing each leaf or wing of a simple butt hinge with two series of pintle sleeves or knuckles, one on each edge, the knuckles on one leaf designed to coöperate with corresponding knuckles on the other leaf, and a removable pintle which extends through either set of coöperating knuckles to form an axis about which the hinge may be swung.

The invention will be more clearly understood from a study of the accompanying drawings, disclosing one form of hinge which embodies it. In these drawings Figure 1 is a perspective view of a hinge, designed in accordance with this invention, affixed to the abutting edges of two panels; Fig. 2 is a horizontal section through this hinge and its panels when the latter are in alinement and showing the pintle extending through one set of knuckles forming an axis, (one of the panels is shown in dotted lines as swinging about this axis); Fig. 3 is a view similar to Fig. 2, but showing the pintle positioned within the other set of knuckles and one of the panels swung out of alinement about this pintle; Fig. 4 is a view of the assembled hinge itself, showing a modified form of pintle; Fig. 5 is a view of one of the leaves of the hinge; and Fig. 6 is a diagrammatic horizontal projection of a display rack showing the panels jointed by means of the hinge shown in the other views.

Referring to these views, 1 represents a hinge, the parts of which are preferably made of brass, although any other suitable material may be employed. This hinge comprises two leaves 2, which are identical in structure and may in consequence be easily and cheaply made in large quantities. Each leaf is provided at the center of one edge with a single knuckle 3 and at each end of the opposite edge with similar knuckles 4.

The space between these knuckles 4 is only slightly greater than the length of knuckle 3, so that knuckle 3 of another wing may be fitted within this space, as shown in Figs. 1 and 4. When this is done knuckles 4 and 3 are in alinement and a pintle 5 may be inserted through them.

Such a hinge thus assembled with its leaves screwed to the abutting edges of two panels 6 and 7, as shown in Fig. 1, permits the swinging of these panels about pintle 5 in the ordinary manner. If now these panels are swung into alinement, as shown in Fig. 2, further movement of panel 7 in a clock-wise direction is impossible, although it may be swung in a counter-clockwise direction until it parallels panel 6. If it be necessary to swing panel 7 in a clock-wise direction beyond the position of alinement, this may be readily accomplished by withdrawing pintle 5 from its position, as shown in Fig. 2, and inserting it through the opposite sets of knuckles, as shown in Fig. 3. Panel 7 may then be swung in a clock-wise direction until it again parallels panel 6.

It will be noted from Fig. 1 that the pintle is provided with a head which projects beyond the end of the hinge. This is important, as it enables the removal of this pintle without necessitating any relative displacement of the panels in a vertical direction. When the panels are in alinement the pintle may be removed from one set of sleeves to the other without in any way changing the position of the hinge or its panels. In order to facilitate the ease with which this pintle may be removed it may sometimes be desirable to provide a pintle of the form shown in Fig. 4 and designated 5^a. This pintle is provided with an outwardly bent portion 8 which can be readily grasped by the fingers and the pintle thus withdrawn.

In the form of hinge shown each leaf is provided with a single knuckle at one edge and two knuckles at the other. This exact number is, of course, not essential and a greater number could be employed, provided they were arranged in staggered relation. It is important, however, that one edge be provided with at least two knuckles, as this makes each hinge self-sufficient. With only one knuckle at each edge it is clear that in some positions there would be nothing to support one of the hinges, and therefore, with such an arrangement, it is necessary to employ at least a pair of hinges in order that one knuckle may be bearing the burden of the pivoted member at all times. With a hinge, such as shown in these figures, the use of a companion hinge is not absolutely essential, as one of the knuckles is always in a position to support the weight of the swinging member, if this should be necessary.

Fig. 6 shows diagrammatically the position of a display rack when in use, a number of the panels being designated by numerals 9, 10, 11 and 12 respectively. The utility of the hinge developed by this invention will be apparent if we consider the steps involved in slightly changing the configuration of this rack. Suppose the window dresser desires to change the layout from that shown in the solid lines to that shown in the dotted lines. He swings panels 10 and 11 into alinement (this position being that shown by Fig. 2) removes the pintle or pintles about which these panels have swung and places them through the other set of knuckles. It is then possible for him to move these panels until they occupy the position shown in the dotted lines. The pintles of the hinges connecting panels 9 and 10 might also have to be changed.

Although the use of this invention has been described in connection with the jointing of window display racks, it is clear that it is not necessarily limited to this use. A hinge embodying this invention might be employed wherever it is desirable to use a hinge which may be swung at will about either of two axes, and where it is desirable that the change from one axis to the other be effected easily and quickly and without necessitating the removal of the hinged member. Such a hinge is also useful where it is desirable to employ but a single hinge.

I claim:

1. A hinge designed to be swung about either of two axes, comprising two leaves, knuckles at opposite edges of said leaves, the knuckles on one leaf designed to cooperate with corresponding knuckles on the other leaf, and a removable pintle designed to coöperate with either set of knuckles to form an axis about which the hinge may be swung, the removal of the pintle necessitating no change in the relative position of the leaves.

2. A hinge designed to be swung about either of two axes, comprising two leaves, knuckles at opposite edges of said leaves, the knuckles on one leaf designed to coöperate with corresponding knuckles on the other leaf, and a removable pintle designed to coöperate with either set of knuckles to form an axis about which the hinge may be swung, and which may be removed from one set of knuckles to the other when coöperating knuckles of both sets are in alinement without necessitating any change in the relative position of the leaves.

3. A hinge designed to be swung about either of two axis, comprising two leaves, knuckles at opposite edges of said leaves, the knuckles on one leaf designed to coöperate with corresponding knuckles on the other leaf, and a removable pintle designed to coöperate with either set of knuckles to

form an axis about which the hinge may be swung, and having a handle portion extending beyond the end of the hinge.

4. A hinge designed to be swung about either of two axes, comprising two leaves, knuckles at opposite edges of said leaves, each leaf having at least two knuckles at one of its edges, the knuckles on one leaf designed to coöperate with corresponding knuckles on the other leaf, and a removable pintle designed to coöperate with either set of knuckles to form an axis about which the hinge may be swung

In testimony whereof I affix my signature.

LEONARD S. CRONE.