May 20, 1930. R. N. McCLURE 1,759,237

HINGE

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Fig. 1.

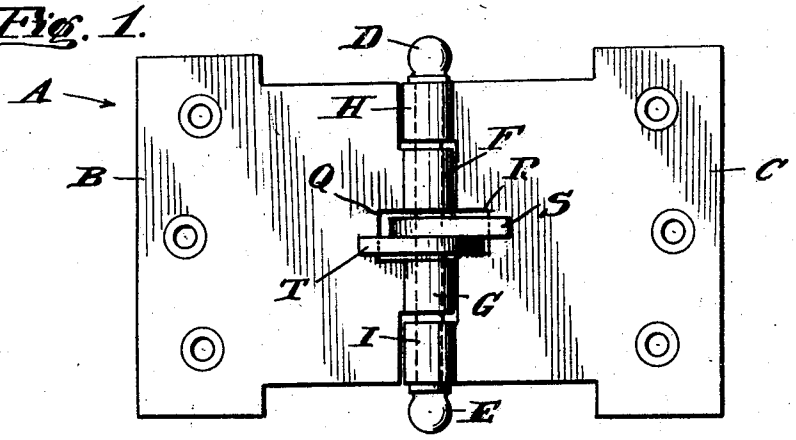


Fig. 2.

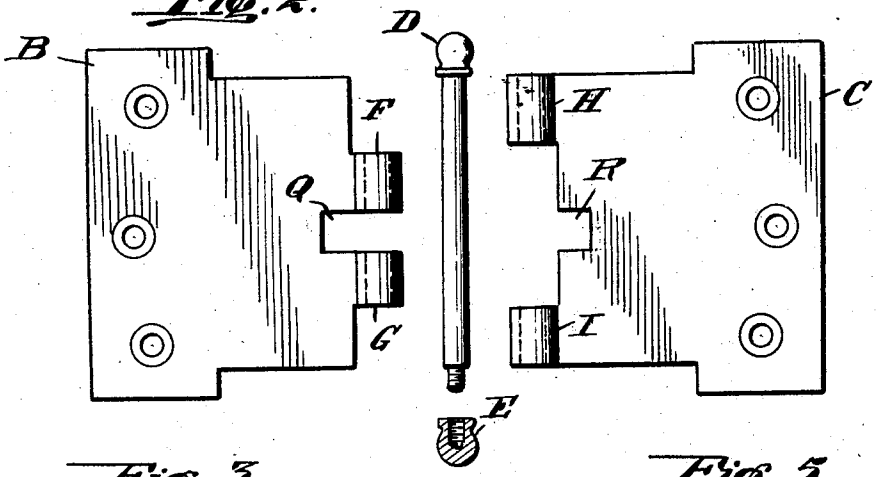


Fig. 3.

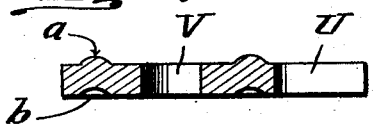


Fig. 5.

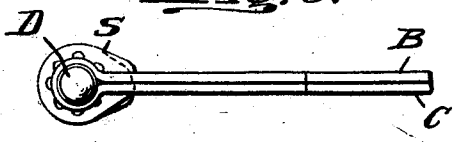
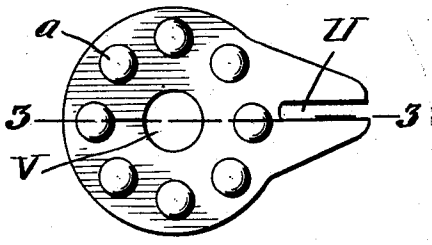


Fig. 4.



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Fig. 6.

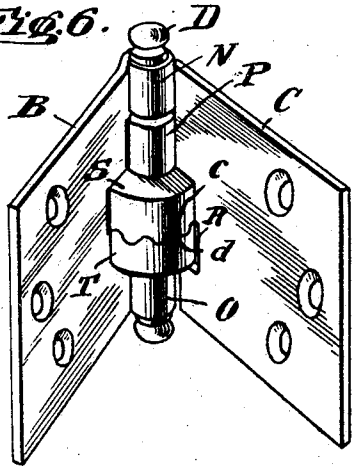


Fig. 10.

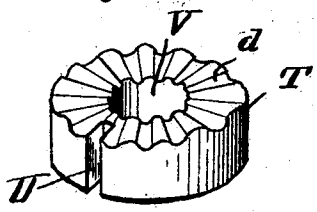


Fig. 7.

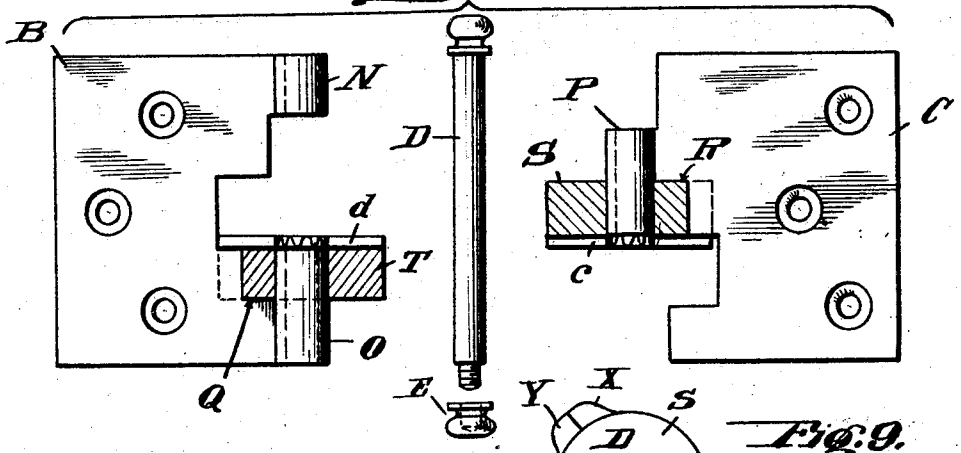


Fig. 9.

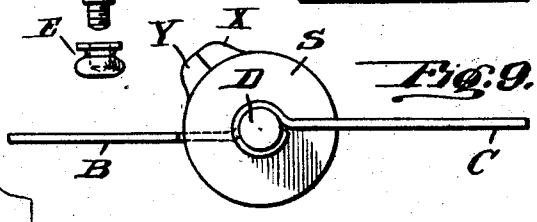
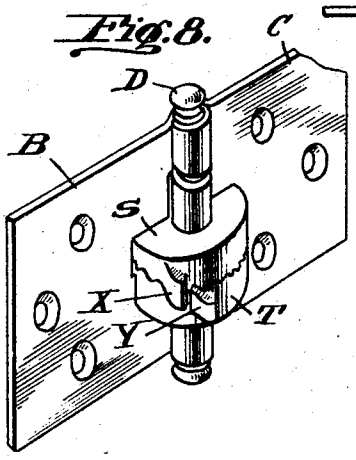


Fig. 8.



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Patented May 20, 1930 1,759,237

UNITED STATES PATENT OFFICE

RODNEY N. McCLURE, OF INGLEWOOD, CALIFORNIA

HINGE

Application filed October 26, 1925. Serial No. 64,869.

This invention relates to a hinge and particularly pertains to a hinge of the type employed in horizontally swinging closures, such as casement windows, screens, doors and the like, in which the hinge is so constructed that it will yieldably oppose swinging movement of the closure carried thereby in either direction and operable to retain the closure in various positions against free swinging movement.

An object of the invention is to provide a construction in a hinge of the above character, whereby it may be readily manufactured and economically produced and which is strong and durable and in which wearing parts may be readily removed and replaced when renewal thereof becomes necessary.

The invention primarily resides in providing each leaf of the hinge with a horizontally extending detent plate, with the plates disposed around the pintle of the hinge and arranged so as to abut face to face and for resisting turning of the hinge leaves on the pintle in either direction; the invention more particularly residing in the manner of mounting the detent plates on the hinge leaves.

The invention is illustrated in the accompanying drawings, in which:—

Fig. 1 is a view in elevation of a hinge constructed in accordance with the invention showing the hinge in an open position and depicting one embodiment of the invention;

Fig. 2 is a view in elevation of the parts of the hinge shown in Fig. 1 as separated and with the detent plates removed;

Fig. 3 is a detail in section of one of the detent plates as shown on the line 3—3 of Fig. 4;

Fig. 4 is a plan view of one of the detent plates;

Fig. 5 is a plan view of a hinge showing the leaves thereof in closed position;

Fig. 6 is a perspective view of a hinge showing another modification of the invention;

Fig. 7 is a view in elevation with parts in vertical section, of the hinge illustrated in Fig. 6 showing the hinge leaves and the pintle as separated.

Fig. 8 is a detail in perspective illustrating the hinge as provided with stops for limiting the relative pivotal movement of the hinge leaves in one direction;

Fig. 9 is a plan view of the hinge shown in Fig. 8;

Fig. 10 is a perspective view illustrating a modified construction of one of the detent plates showing it detached.

Referring to the drawings more specifically, A indicates generally a hinge embodying the usual pair of leaves B and C, pivotally connected together by a pintle D, passing through apertured knuckles on the leaves B and C and which pintle may be fitted with a cap nut D. In the type of hinge shown in Figs. 1 and 2, the leaf B is formed with a pair of spaced knuckles F and G and the leaf C is formed with spaced ears H and I between which the knuckles F and G on the leaf B are interposed; the pintle D spanning the gap between the knuckles F and G. In the form of the invention shown in Figs. 6, 7 and 8, the leaf B is formed with a pair of spaced knuckles N and O and the leaf C is formed with a single knuckle P adapted to be positioned between the knuckles N and O.

In carrying out the invention the leaves B and C are formed with cut-away portions U and R, respectively, on their adjacent edges, which, in the form of hinge illustrated in Figs. 1 and 2 are arranged between the knuckles on each leaf, and in the form of hinge shown in Figs. 6, 7 and 8, are formed on the leaf B between the knuckles N and O and on the leaf C is arranged at one end of the knuckle P. The essence of my invention resides in the provision of a pair of detent plates S and T each of which is formed with an open-ended slot U and a circular opening V spaced inwardly from the inner end of the slot; the pair of detent plates being placed face to face and arranged to encircle the pintle D which passes through the opening V, and being positioned in the cut-away portions Q and R with the slot U of the plate T engaging the leaf B and with the slot U on the plate S engaging the leaf C. The plates S and T are thus held against movement with relation to the hinge leaves to which they are engaged and are adapted to swing with the leaves as the latter are turned on the pintle D.

Interengaging means are provided on the plates S and T operable to oppose free swinging movement of the hinge leaves B and C and which may comprise a series of knobs *a* on one of the plates and a series of sockets *b* on the other plate, as shown in Figs. 3 and 4, or may comprise a series of radial serrations *c* and *d* as shown in Fig. 6. In the form of the invention shown in Figs. 1 and 2, the lower plate T projects into the cut-away portion R on the leaf C and seats on the latter, and the knuckle F on the leaf B bears on the upper plate S so that the load on the leaf B, such as a window or door, will maintain the plates S and T in close contact with each other. In this arrangement the knuckle F is spaced from the knuckle H thereabove to provide a clearance, and likewise the knuckle G is spaced from the underside of the plate T and from the knuckle I in order to afford a clearance, which clearances will permit movement of the hinge C on the pintle D relative to the leaf C and thereby allow the plates S and T to separate and move in and out of their interengaging position.

In the construction shown in Figs. 1 to 5, inclusive, the openings V in the plates S and T are such size as to receive the pintle D, while the construction shown in Figs. 6, 7 and 8, the openings V are formed so as to encircle the knuckles O and P.

When it is desired to limit the extent of opening of the hinge leaves, the plates S and T are formed with co-operating lugs X and Y as shown in Figs. 8 and 9, arranged to abut against each other when the hinge leaves are opened to a predetermined position.

It will now be observed that by forming the detent plates in the manner described, they may be readily removed and replaced on separating the hinge leaves by removing the pintle D.

I claim:—

1. A hinge of the class described comprising a pair of leaves, each having a pair of relatively spaced hinging knuckles, a pintle for extension through said knuckles, each leaf having a cutaway portion between its hinging knuckles, resistance means comprising elements, having meeting faces bearing undulations, for disposition in said cutaway portions and perforated for the extension therethrough of the pintle, said cut away portions having greater heights than the combined thicknesses of said resistance elements plus the depth of said undulations, the upper resistance element being directly engaged by a knuckle of the hinge leaf bearing the object hinged, for the purpose of utilizing the weight of such object to yieldingly resist relative movement of the opposed undulations, and the lower resistance element being non-yieldingly supported in the cutaway portion of the other hinge leaf.

2. A hinge of the class described, comprising a pair of leaves each having a pair of hinging knuckles, and a pintle for said knuckles, resistance means to oppose the swinging movement of said leaves, said means comprising elements having opposed undulating faces adapted to yieldingly interengage each other, the upper resistance element being weighted by an ear of the hinge leaf bearing the object hinged to yieldingly resist relative rotational movement of said opposed undulating faces, and the lower resistance element being non-yieldingly supported by one of the leaves.

In testimony whereof I have affixed my signature.

RODNEY N. McCLURE.