April 2, 1929. L. DONOSA 1,707,628

HINGE

Filed March 12, 1927 2 Sheets-Sheet 1

Fig. 1.

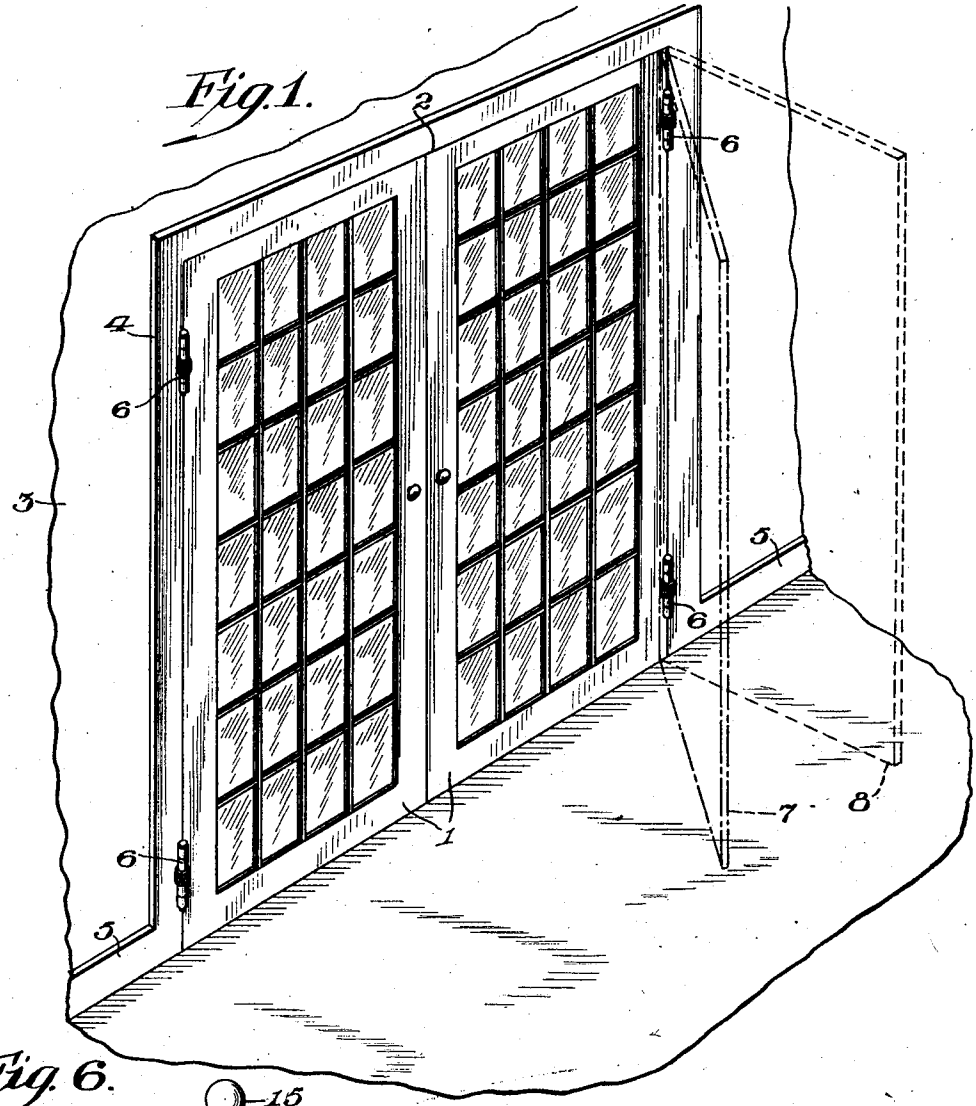
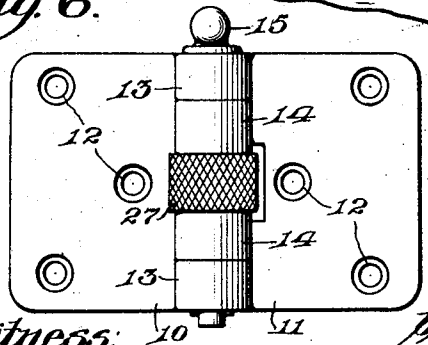


Fig. 6.



Witness:
Walter Chism.

Inventor
Leopold Donosa.
by J. Stuart Freeman,
Attorney

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Fig. 2.

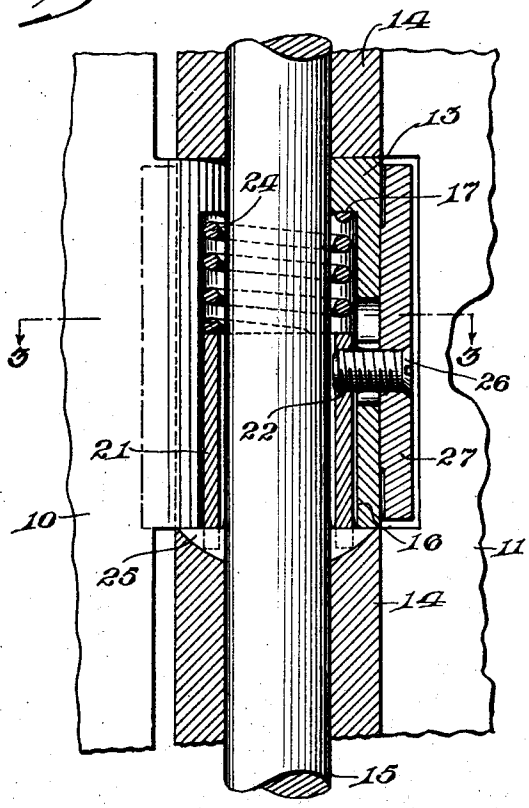


Fig. 3.

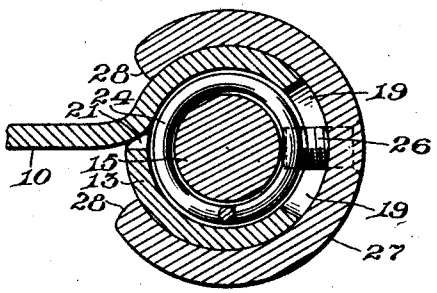


Fig. 4.

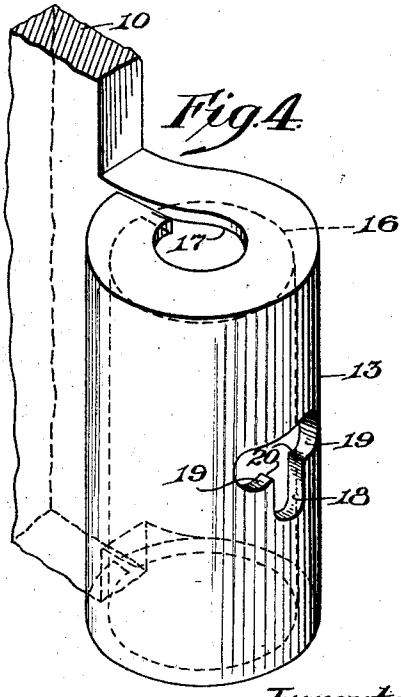
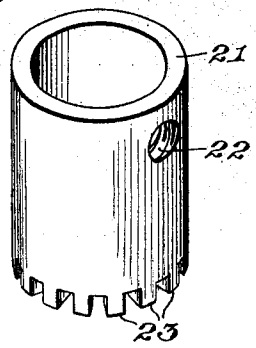


Fig. 5.



Witness:
Walter Chism.

Inventor
Leopold Donosa
by J. Stuart Freeman,
Attorney.

Patented Apr. 2, 1929. 1,707,628

UNITED STATES PATENT OFFICE.

LEOPOLD DONOSA, OF PHILADELPHIA, PENNSYLVANIA.

HINGE.

Application filed March 12, 1927. Serial No. 174,792.

The object of the invention is to provide improvements in hinges, and particularly in that class which is employed as a means of pivotally supporting the doors and casement sash of a house, the doors of an enclosed porch, the doors and sash of a conservatory, etc.

The types of hinges usually found on the market merely comprise a pair of plates, each of which is provided with a plurality of spaced cylindrically curved knuckles, and so arranged when the plates are in operative relation that the knuckles of the respective plates alternate, and provide an aligned bore thru which extends a pin for removably connecting the plates together and in pivotal relation.

A hinge of this character permits the door which it supports to remain in any position to which it is manually propelled, but does not prevent the door from being blown farther open or closed by even a slight breeze, so that another object of the invention is to provide broadly a hinge which will retain a door in any one of a series of different angular positions, until the mechanism of the hinge is released, after which said mechanism may be set in operative position, or again set to hold the door in some other position which is angularly disposed with respect to the first.

A further object of the invention is to provide in a hinge of this type a construction which comprises a suitably notched knuckle, an adjacent knuckle of the other plate of the pair being recessed to form a spring housing in which is inclosed a spring, and a cylinder positioned within said recess and having one end notched to cooperate with the said notches of said first knuckle.

Still another object is to provide the recessed knuckle of this combination with a T-shaped aperture thru which extends a pin, the inner portion of which latter is connected to said cylinder and is thereby operative to shift the axial position of said cylinder by engagement from the outer side of said apertured knuckle.

And a still further object is to provide a sleeve surrounding said apertured knuckle and connected with said pin to permit ready manual actuation of the latter and to cover said aperture, said sleeve having a cut-away region thru which extends the supporting or base portion of said apertured knuckle.

With these and other objects in view, the invention comprises further details of construction and operation hereinafter fully brought out in the following description, when read in conjunction with the accompanying drawings, in which Fig. 1 is a perspective view of a pair of French doors equipped with hinges in which the present invention is incorporated; Fig. 2 is an enlarged fragmentary sectional view taken through portions of three adjacent knuckles of a hinge comprising the present invention; Fig. 3 is a horizontal section on the line 3—3 of Fig. 2; Fig. 4 is a perspective view of a fragmentary portion of one plate of a pair of hinge plates such as are represented by Fig. 2; Fig. 5 is a perspective view of the cylinder also shown in Fig. 2 and notched to provide intervening lugs; and Fig. 6 is a front elevation of a hinge embodying the invention.

Referring to Fig. 1 of the drawings, a pair of doors 1 are shown normally closing an aperture 2 in a wall 3, said aperture being surrounded by any well-known type of frame-work 4, which merges into baseboards 6. Said doors are pivotally mounted upon said frame by means of the improved hinges 6, and the dotted lines 7 and 8 indicate positions which one of said doors may assume in angular relation with its closed position.

Referring now to Figs. 2 to 6 inclusive, a hinge of the improved type comprises a pair of plates 10 and 11, provided with the usual countersunk apertures 12, adapted to receive the usual screws by which the hinge is secured respectively to a door and to the supporting frame. The plate 10 is provided with extensions which are cylindrically curved to provide spaced knuckles 13, while the plate 11 is provided with similar knuckles 14, normally positioned axially between said first-named knuckles. Through these several axially aligned knuckles there normally extends a pivot-pin 15, which serves to connect said plates together and about which the door oscillates.

Referring to Figs. 2 to 5 inclusive, the central knuckle 13 of the plate 10 is provided with an enlarged bore 16, which is coaxial with the knuckle itself and extends upwardly from the lowermost limit of said knuckle to within the relatively short distance of the upper limit thereof, where it terminates in a plane shoulder 17. The wall of the cylindrical portion of said knuckle 13

substantially opposite to and in alignment with the plane of the plate 10, is provided with a T-shaped aperture, comprising a vertical portion 18 which terminates upwardly in laterally oppositely extending off-sets 19, the lower wall of each off-set being preferably separated from the adjacent walls of the portion 18 by means of slightly upwardly extending shoulders 20.

Slidably positioned within the bore 16 of said knuckle 13 is a cylindrical member 21 provided at one point in its wall with a threaded aperture 22, and having its lowermost end portion radially cut to provide circumferentially spaced notches to provide intervening lugs 23. A coil spring 24 or the like is also positioned within said bore between the upper edge portion of the cylinder 21 and the shoulder 17 and is operative to force said cylinder downwardly, in which position its lugs engage and cooperate with similarly shaped circumferentially spaced recesses 25 formed in the uppermost surface of the knuckle 14 immediately therebeneath. A threaded pin or bolt 26 has its end extending through and in threaded engagement with the aperture 22 in the member 21, whence said bolt extends radially outwardly through the T-shaped aperture in the knuckle 13, and thence through a sleeve or ferrule 27 which substantially surrounds said knuckle 13, except for a cut-away portion 28 which places the circumferentially extending free end portions of said sleeve in spaced relation from the plate 10 at its point of connection with said knuckle, as shown in Fig. 3.

In the operation of this device, even though the parts involved are generally much smaller than illustrated in the drawings, one can manually grip the sleeve 27 with his fingers and after raising the same together with the cylindrical member 21, rotate these conjoined elements in either direction until said pin passes over one of the shoulders 20 in the T-shaped slot, and rests within the corresponding lateral extension 19 of said slot. In this position there is no engagement between the lugs of the cylindrical member and the corresponding recesses of the nether knuckle 14 and as a result, a door equipped with the hinge is free to be oscillated to and fro at will. However, when it is desired to open the door to a given position, one grips the sleeve 27 and, raising it slightly against the pressure of the spring 24, rotates said sleeve until the pin 26 passes over the shoulder 20 and is thereafter adapted to descend in the vertical portion 18 of said aperture, and under the influence of said spring cause an engagement of the lugs of said cylindrical member with the recesses of said nether hinge knuckle 14. In this position the respective hinge plates and consequently the door and frame connected thereto are retained in a given position from which they can be oscillated only by first raising the sleeve 27 and disengaging the series of said lugs from the corresponding recesses.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States is:—

1. A hinge, comprising a pair of plates provided with alternately positioned axially aligned cylindrical knuckles, one of said knuckles of one plate having an enlarged bore terminating in a shoulder in one direction, a cylindrical member provided with a lug and longitudinally slidable wholly within the diameter of said bore, an adjacent knuckle of the other plate having a recess adapted to receive said lug, means operative to maintain said lug in engagement with the sides of said recess, and means extending radially beyond the diameter of said bore to manually shift said cylindrical member longitudinally, to disengage said lug from said recess.

2. A hinge, comprising a pair of plates provided with alternately positioned axially aligned cylindrical knuckles, one of said knuckles of one plate having an enlarged bore terminating in a shoulder in one direction, a cylindrical member provided with a lug and longitudinally slidable wholly within the diameter of said bore, an adjacent knuckle of the other plate having a recess adapted to receive said lug, means operative to maintain said lug in engagement with the sides of said recess, means connected to said cylindrical member and extending radially thru an aperture in said large-bored knuckle, and a sleeve surrounding and oscillatable with respect to said last-named knuckle and connected to said means, whereby elevation of said sleeve disengages said lug from said recess.

3. The combination of a hinge, comprising a pair of plates having alternately positioned axially aligned knuckles, a knuckle of one plate having an enlarged bore terminating in one direction in a shoulder, cylindrical member slidable longitudinally in and of no greater diameter than the diameter of said bore and provided upon one end with spaced lugs, an expansion spring also within said bore between said member and said shoulder, an adjacent knuckle of the other plate being provided with spaced recesses adapted to receive said lugs, a sleeve surrounding said first knuckle, and a pin extending between and connected to said sleeve and said member, whereby elevation of said sleeve removes said member and its lugs out of engagement with said recesses.

4. The combination of a hinge, comprising a pair of plates having alternately positioned axially aligned knuckles, a knuckle of one plate having an enlarged bore termi-

nating in one direction in a shoulder, and provided in one side with an angular aperture having vertical and horizontal portions, a cylindrical member slidable longitudinally in said bore and provided upon one end with spaced lugs, an expansion spring also within said bore between said member and said shoulder, an adjacent knuckle of the other plate being provided with spaced recesses adapted to receive said lugs, a sleeve surrounding said first knuckle, a pin extending between and connected to said sleeve and said member, whereby elevation of said sleeve removes said member and its lugs out of engagement with said recesses, and a pin extending thru said aperture and connecting said sleeve with said member, and when in said horizontal portions being operative to maintain said lugs out of engagement with said recesses.

In testimony whereof I have affixed my signature.

LEOPOLD DONOSA.