June 5, 1928. 1,672,418

L. H. LEHMAN

HINGE

Filed Feb. 20, 1926

Fig. 1.

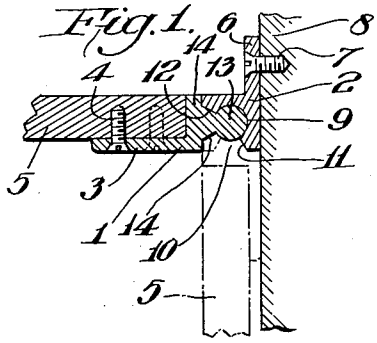


Fig. 3.

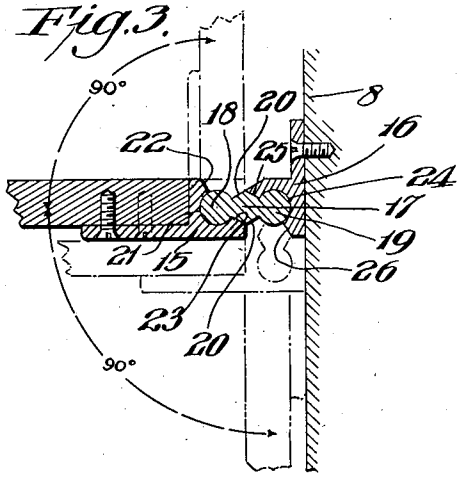


Fig. 2.

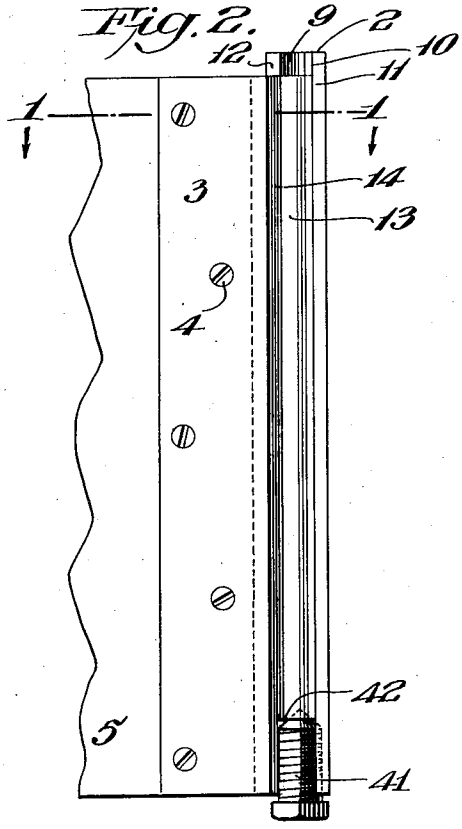


Fig. 4.

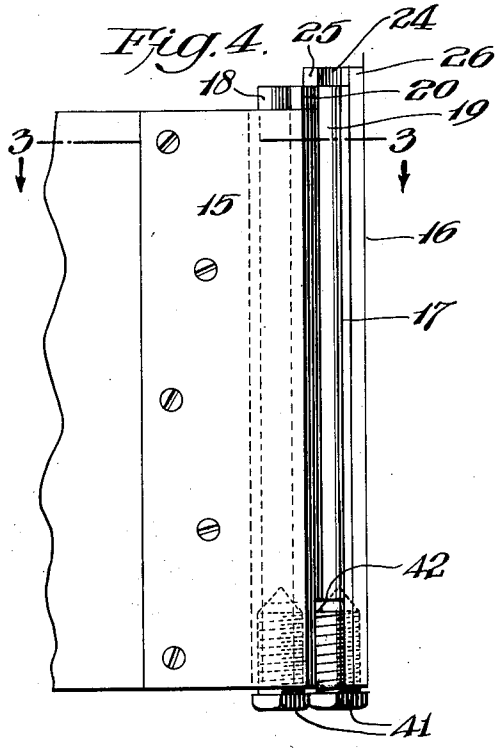


Fig. 5.

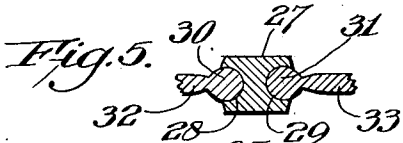
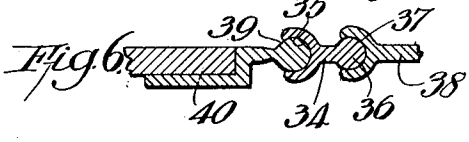


Fig. 6.



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1,672,418

UNITED STATES PATENT OFFICE.

LOUIS H. LEHMAN, OF PHILADELPHIA, PENNSYLVANIA.

HINGE.

Application filed February 20, 1926. Serial No. 89,514.

One of the primary objects of this invention is to devise a novel hinge in which relative longitudinal as well as swinging movements of the hinge sections are permitted, and wherein a water tight joint is formed between the sections.

With the above and other objects in view as will hereinafter more clearly appear, my invention comprehends a novel construction of a hinge wherein the hinge sections are capable of both relative longitudinal and swinging movements.

It further comprehends a novel hinge having male and female interlocking parts which limit the swinging movement of the element carried by one hinge section relatively to the element carried by the other hinge section.

It further comprehends a novel compound hinge having a plurality of sections which are relatively longitudinally adjustable, and wherein the movable parts carried by the hinge sections may swing into desired adjusted positions.

Other novel features of construction and advantage will hereinafter more clearly appear in the detailed description and the appended claims.

For the purpose of illustrating the invention, I have shown in the accompanying drawing a typical embodiment of it, which, in practice, will give reliable and satisfactory results. It is, however, to be understood that this embodiment is typical only and that the various instrumentalities of which my invention consists can be variously arranged and organized, and the invention is not, therefore, limited to the precise arrangement and organization of these instrumentalities as herein set forth.

Figure 1 is a section, on line 1—1 of Figure 2, of a hinge embodying my invention.

Figure 2 is an elevation of the hinge seen in Figure 1.

Figure 3 is a section, on line 3—3 of Figure 2, of another embodiment of my invention.

Figure 4 is an elevation of the hinge seen in Figure 3.

Figure 5 is a sectional view of another embodiment of my invention.

Figure 6 is a sectional view of another embodiment of my invention.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:—

Referring first to the embodiment seen in Figures 1 and 2, 1 and 2 designate hinge sections which are connected to the parts to be hinged in any desired manner. As illustrated, the section 1 is provided with a flange 3, secured by means of fastening devices 4 to the movable part 5, which, for example, may be a door or window.

The hinge section 2 is provided with a flange 6 secured by means of fastening devices 7 to a stationary part 8, such as for example a wall, door casing or window frame.

As shown, the part 2 is the female section and has a cylindrically shaped recess 9 extending preferably the full length of its hinge section, and has an opening 10 through its side walls extending preferably the full length of such hinge section. The walls or faces 11 and 12 may extend outwardly in any desired direction and preferably, but not necessarily, are radially disposed relatively to the recess 9.

The hinge section 1, as shown, is the male section and has a bar 13, cylindrical in cross section, and connected with the body portion of its hinge section by outwardly diverging walls 14, forming, with such body portion, shoulders, as best seen in Figure 1.

In the embodiment seen in Figures 3 and 4, I show two female hinge sections 15 and 16, operatively connected by a male section 17 having at opposite sides the cylindrical bars 18 and 19 connected by the intermediate or body portion having its opposite walls reversely inclined as at 20.

The hinge section 15 has a cylindrical recess 21 opening through its side walls and the limiting walls 22 and 23. In a similar manner, the hinge section 16 has a cylindrical recess 24 opening through its side wall and the limiting walls 25 and 26.

The intermediate section may be a double female hinge section, and the other hinge sections may be male sections, as shown in Figure 5, in which 27 is the intermediate section having the cylindrical recesses 28 and 29 opening through its side wall and adapted to receive the cylindrical bars 30 and 31, respectively, of the male hinged sections 32 and 33, respectively.

In the embodiment seen in Figure 6, the intermediate member of the compound hinge is a combined male and female section 34

having at one side a cylindrical recess 35 opening through its side wall, and at its opposite side a cylindrical bar 36 adapted to be received in a cylindrical recess 37 in a hinge section 38. The recess 35 is adapted to receive a cylindrical bar 39 of a hinge section 40.

In all of the embodiments herein shown, means are provided to prevent the disengagement of the hinge sections by their relative longitudinal movement. Any desired means may be employed for this purpose, and such means may vary widely in construction, and may be fixed or adjustable. I have shown in the drawings a bolt 41 in threaded engagement with the stationary hinge section the other section being cut away as at 42 and the bar of the male section is supported on the end of the bolt. In Figures 3 and 4, each outer section has a bolt 41 and the inner section has a cut away portion 42, and this may be used with the construction seen in Figures 5 and 6.

In the operation of the construction seen in Figure 1, the movable part 5 can be swung into the position seen in full lines in Figure 1, or into that seen in dotted lines, or any position between such full and dotted lines. The limiting walls 11 and 12 act as stops which co-operate with the walls 14 of the movable hinge section to limit the extent of its swing in either direction. The movable hinge section can be adjusted longitudinally relatively to the fixed hinge section.

In the operation of the embodiment seen in Figures 3 and 4, a compound swinging movement is permitted due to the provision of the intermediate hinge section, so that the movable part connected with the hinge section 15 can be swung in either direction, to a position parallel with the support to which the fixed hinge section is connected, or the movable part can be disposed at any position therebetween.

The embodiments seen in Figure 5 and 6 can be similarly adjusted, and also longitudinally adjusted, as will be apparent from the description of the construction seen in Figures 1 and 2.

My invention is especially adapted to be used with doors, screens and windows, as they can be swung inwardly or outwardly through a quarter or a half circle, and, by using a plurality of intermediate sections a full circle. The movable part can be raised or lowered as may be desired.

The hinge is weather proof and rust proof. It can be manufactured economically and is easy to install.

Any desired means may be employed to lock the parts in the positions to which they have been adjusted.

The continuous water tight hinge eliminates the necessity of weather stripping, and also eliminates any rattling.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A hinge comprising sections, one of which has its marginal edge portion in the form of a substantially cylindrical bar, the other of said sections having a cylindrical recess, to receive said bar and having an opening through its side wall the width of which provides a relative swinging of said sections of at least ninety degrees, said bar and recess extending continuously substantially the length of their sections, and means for effecting longitudinal adjustment of said sections with respect to one another.

2. A hinge comprising sections, one of which has its marginal edge portion in the form of a substantially cylindrical bar, the other of said sections having a cylindrical recess opening through its side wall the width of which provides a relative swinging movement of said sections of substantially one quarter of a circle, said bar and recess being of unequal length and extending continuously substantially the length of their sections, and means arranged to normally prevent relative longitudinal movement between said sections in one direction, said means being adjustable to shift one of said sections axially with respect to the other.

3. A hinge comprising sections, one of which has its marginal edge portion in the form of a substantially cylindrical bar, the other of said sections having a cylindrical recess to receive said bar and having an opening through its side wall the width of which provides a relative swinging movement of said sections of substantially one quarter of a circle, said bar and recess extending continuously substantially the length of their sections, and means carried by one section constituting a normally fixed bearing upon which the other section is swingable.

4. A hinge comprising a pair of telescopically arranged members, one of said members being provided with a longitudinally extending slot through which the other member laterally projects, said member being complementally formed to permit one of said members to swing about their common longitudinal axis, and means carried by one of said members constituting a normally fixed bearing for said swingable member, said means being adjustable to shift said latter member axially as respects the other member.

LOUIS H. LEHMAN.