Dec. 10, 1940. G. H. MURRIN 2,224,444

HINGE

Original Filed Sept. 26, 1938

Fig. 1.

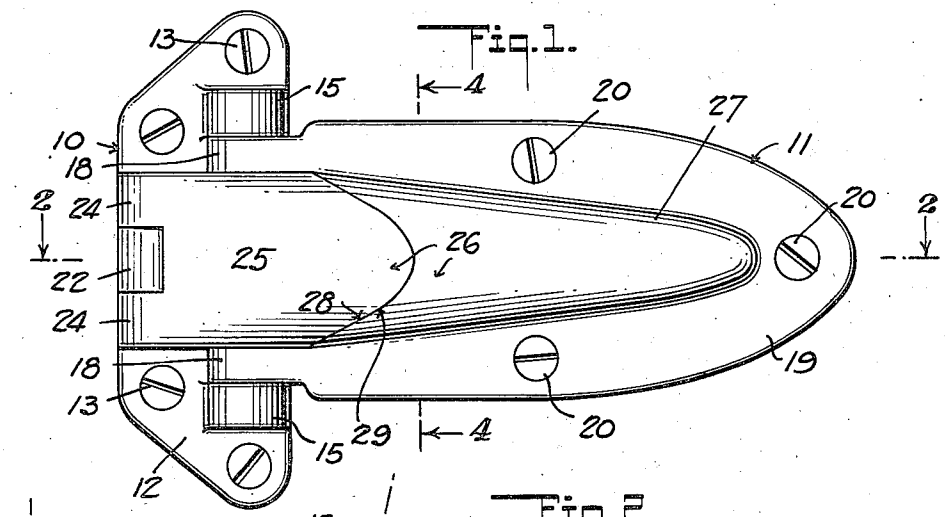
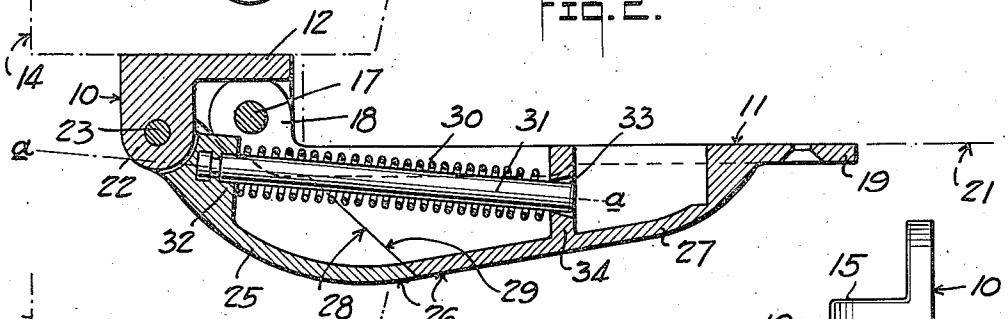


Fig. 2.



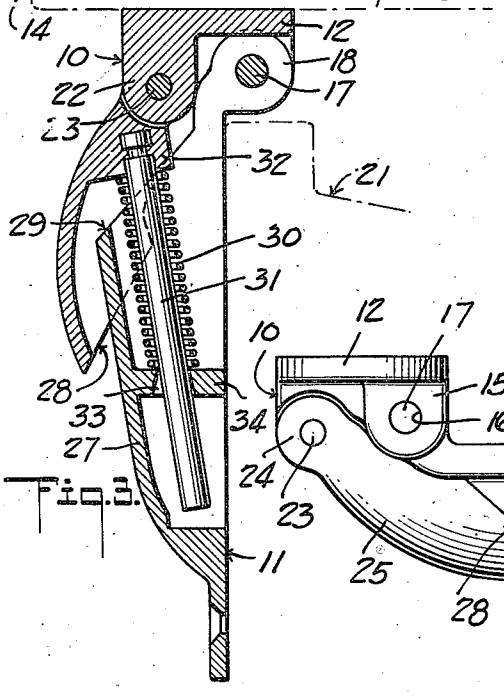


Fig. 3.

Fig. 4.

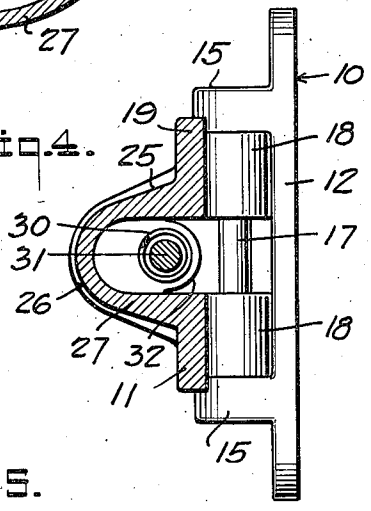
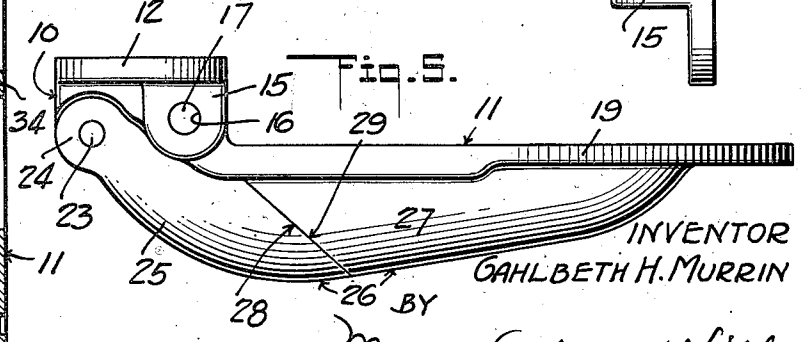


Fig. 5.



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HINGE

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Application September 26, 1938, Serial No. 231,733
Renewed April 24, 1940

7 Claims. (Cl. 16—190)

This invention relates generally to closures, and more particularly to hinges for refrigerator and other doors.

An object of the invention is to provide a hinge which is structurally characterized by its self-closing feature, the mechanism for which is extremely simple, durable, positive in action, and entirely concealed from view by its ingenious association with a sectional housing, the sections of which are correlated, respectively, with the jamb and closure members of the hinge in a manner to co-act in forming an unbroken streamlined housing for said mechanism in the closed position of a door, and to move relatively in response to opening of the door, in a manner to overlap and maintain said mechanism concealed.

With these and other objects in view, the invention resides in the combinations and arrangements of elements as set forth in the following specification and particularly pointed out in the appended claims.

In the accompanying drawing,

Figure 1 is a view of the hinge in front elevation;

Figure 2 is a longitudinal sectional view of the hinge taken on the line 2—2 of Figure 1, and illustrating the position of the hinge when the door to which it is applied is closed;

Figure 3 is a view similar to Figure 2 and illustrating the position occupied by the parts of the hinge when the door occupies a ninety degree open position;

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a view of the hinge in side elevation.

Referring specifically to the drawing, the invention comprises jamb and closure members 10 and 11, respectively, the former having a pad 12 provided with openings through which screws 13 are passed to secure such member to a door jamb or refrigerator box 14. The member is further provided with two relatively widely spaced ears 15 having alined bores 16 receiving a hinge pin 17 also passing through alined openings in spaced sleeves 18 projecting from one end of the leaf 19 of the member 11.

The leaf 19 is provided with openings receiving screws 20 by which the member 11 is secured to the door 21 of the refrigerator or other structure, whereby to hingedly mount the door on the jamb 14.

Projecting from the jamb member 10 intermediate the ears 15 is an ear 22 through which passes a pivot pin 23 also passing through alined openings in spaced sleeves 24 on a lever including a section 25 of a two-part housing 26, the other section 27 of which is formed on the leaf 19 of the member 10. The housing sections are in abutting relationship, and their confronting surfaces 28 and 29, respectively, are flush exteriorly and are obliquely related so as to form a smooth streamlined housing when the door is closed, for a spring mechanism which urges the door to closed position.

This spring mechanism comprises a compression coil spring 30 mounted on a pin 31 anchored at one end to the housing section 25 in an abutment lug 32 therein and passing freely at its other end through an opening 33 in a second abutment in the form of a transverse partition 34 in the section 27 of the housing 26. As clearly shown in Figures 2 and 3, the ends of the spring 30 respectively abut the lug 32 and the partition 34 so that the force exerted by the spring will be along the line *a—a* in Figure 2, for co-action of the spring with the lug and partition, in urging the hinge member 11 to the closed position of the door 21 shown in this figure.

In the operation of the invention, opening movement of the door 21 will shorten the distance between the partition 34 and lug 32 so as to compress and thus further load the spring 30. Upon initiating this opening movement, the flush joint between the confronting surfaces 28 and 29 will be broken, and the housing section 25 will swing outwardly about the axis of the pin 23 sufficiently to permit it to overlap the section 27 while maintaining the spring mechanism entirely concealed.

It will be noted that the line of force *a—a* passes close to the axis of the pin 23 to form a relatively short lever arm, and is a considerably greater distance from the axis 17 so as to form a longer lever arm therewith, which increases as the door is opened, to the end that the spring will constantly act proportionately to close the door from the ninety degree open position thereof shown in Figure 3.

It will be appreciated that by the novel arrangement of parts above described, the exterior appearance of the hinge will in no way be detracted from by the spring mechanism, and that in the normal closed position of the door, the mechanism will be completely enclosed in a housing made up of sections correlated in such manner with the above recited lever arms to provide a smooth and unbroken exterior at the joint therebetween.

What is claimed is:

1. A hinge comprising a jamb member; a door member mounted on the jamb member for hing-

ing movement; means co-acting with said members to urge them relatively to a closed position of a door; and means on said members co-acting to define a sectional housing for the first means, enclosing the latter and forming an unbroken joint between the sections when said members occupy the aforestated urged position.

2. An hinge comprising a jamb member; a door member mounted on the jamb member for hinging movement; means co-acting with said members to urge them relatively to a closed position of a door; said door member being formed to provide a housing section for said urging means; and means pivotally mounted on said jamb member and defining a lever arm with which said urging means co-acts in its urging function; the last means being formed to define a second housing section co-acting with the first mentioned housing section to define an externally smooth and flush jointed housing enclosing said urging means when said members occupy the aforestated urged position.

3. A hinge comprising a jamb member; a door member defining a lever arm mounted on the jamb member for hinging movement; a member defining a second lever arm and pivotally mounted on the jamb member eccentrically of the door member; means co-acting with the last mentioned member and the door member to urge the latter and jamb member relatively to a closed position of a door; and means on the door member and said last mentioned member co-acting to form a sectional housing, the sections of which enclose said urging means and have an externally smooth and unbroken appearance when the members occupy the aforestated urged position.

4. A hinge comprising a jamb member; a door member defining a lever arm mounted on the jamb member for hinging movement; a member defining a second lever arm and pivotally mounted on the jamb member eccentrically of the door member; a pin anchored rigidly to the last said member and having an axially slidable operative connection with the door member; a compression spring mounted on said pin and co-acting with the last said member and the door member to urge the latter and the jamb member relatively to a closed position of a door; and means on said last member and door member co-acting to define a flush jointed sectional housing enclosing the pin and spring and adapted to break at the joint by an overlapping of the housing sections when the jamb and door members are relatively moved from the aforestated closed position.

5. A hinge comprising a jamb member; a door member defining a lever arm mounted on the jamb member for hinging movement; a member defining a second lever arm and pivotally mounted on the jamb member eccentrically of the door member; the last said member having an abutment; a pin anchored rigidly at one end in said abutment; the door member having an abutment provided with an opening through which the other end of said pin is freely guided; a compression spring mounted on said pin and engaging said abutments for co-action therewith in urging the door and jamb members relatively to a closed position of a door; and means on said last member and door member co-acting to define a sectional housing the sections of which enclose the pin and spring and form an unbroken joint in the aforestated closed position of the jamb and door members.

6. A hinge comprising a jamb member; a door member defining a lever arm mounted on the jamb member for hinging movement; a member defining a second lever arm and pivotally mounted on the jamb member eccentrically of the door member; the last said member having an abutment; a pin anchored rigidly at one end in said abutment; the door member having an abutment provided with an opening through which the other end of said pin is freely guided; a compression spring mounted on said pin and engaging said abutments for co-action therewith in urging the door and jamb members relatively to a closed position of a door; said last member and door member being shaped to form sections of a housing enclosing the pin and spring and having obliquely disposed surfaces which abut in the aforestated closed position of the jamb and door members, to provide an externally smooth joint between the sections.

7. A hinge comprising a jamb member; a door member defining a lever arm mounted on the jamb member for hinging movement; a member defining a second lever arm and pivotally mounted on the jamb member eccentrically of the door member; the last said member having an abutment; a pin anchored rigidly at one end in said abutment; the door member having an abutment provided with an opening through which the other end of said pin is freely guided; a compression spring mounted on said pin and engaging said abutments for co-action therewith in urging the door and jamb members relatively to a closed position of a door; said last member and door member being shaped to form sections of a housing enclosing the pin and spring and having obliquely disposed surfaces which abut in the aforestated closed position of the jamb and door members, to provide an externally smooth joint between the sections, the obliquity of said surfaces being such as to permit the housing section of the last said member to ride upon and overlap the housing section of the door member when moved from the aforestated closed position.

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