Nov. 30, 1971 R. S. CARTWRIGHT ET AL 3,623,185

SELF-LATCHING HINGE

Filed Feb. 2, 1970

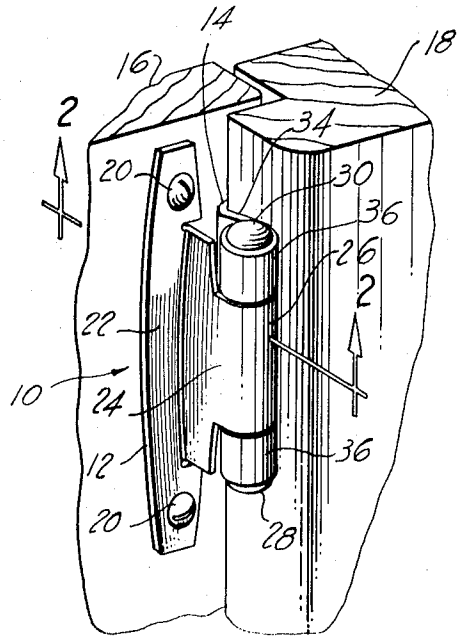



FIG. 1.

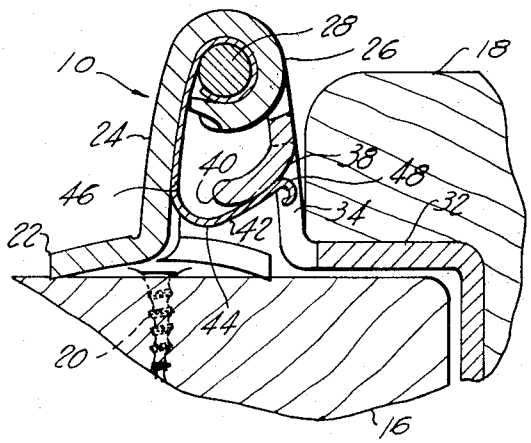



FIG. 2.

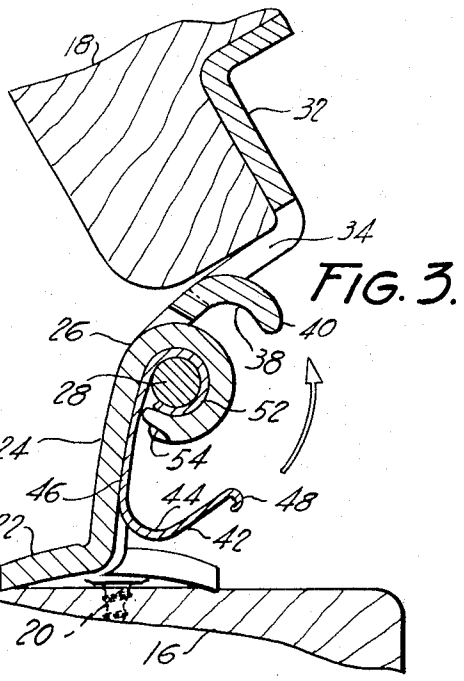



FIG. 3.

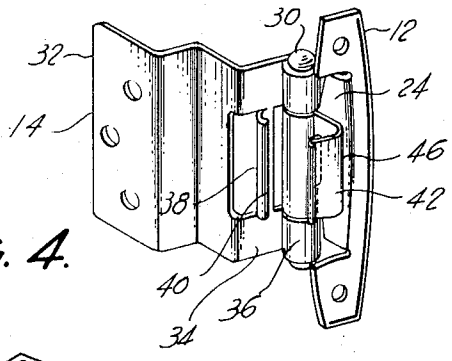



FIG. 4.

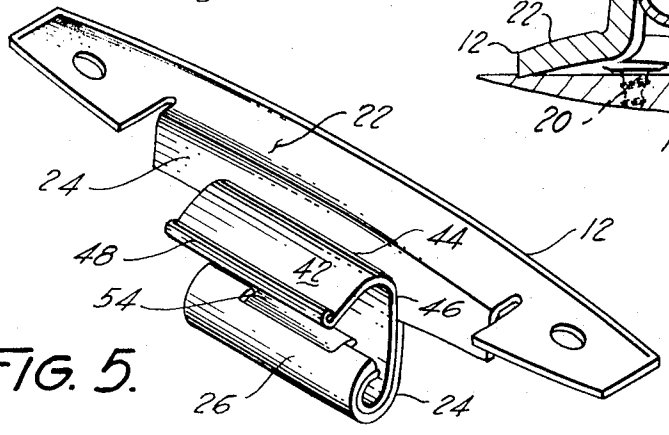



FIG. 5.


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# SELF-LATCHING HINGE

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U.S. Cl. 16—142 7 Claims

## ABSTRACT OF THE DISCLOSURE

The following specification describes a door or cabinet hinge in which a latch integrally formed on one of the hinge leaves engages a leaf spring camouflaged by the other leaf on closing of the door for latching the door closed with the spring also serving to pivot the door closed.

## DESCRIPTION OF THE INVENTION

### Field of the invention

The invention relates in general to self-latching hinges and more particularly to an economical self-latching and closing cabinet hinge of pleasing appearance.

### Description of the prior art

Self-closing or self-latching hinges often utilize a spring biased cam follower which rotates around a cam coaxial with the hinge pin to both close and latch the door in the closed position, after the follower engages a predetermined or recessed portion of the cam. This structure is relatively expensive and since the cam follower is relatively large and usually a plastic material, camouflage is difficult, while the number of parts creates a space problem.

## SUMMARY OF THE INVENTION

Briefly, the present invention avoids the above problems through the use of a leaf spring in the space between the two hinge leaves. The leaf spring depends from the hinge pin in a coplanar abutting relationship with the leg forming the knuckle of one of the hinge leaves. A tab on the end of the spring projects toward the other leaf for engagement with a latch rotated with the opposite leaf in response to closing of the door with the spring also serving to bias or rotate the door closed. The latch is formed integrally with the other leaf while the spring also being of metal permits facile camouflage of the parts. Due to the simplicity of the arrangement, extreme economy is obtained in the minimum of space.

Accordingly, one object of the present invention is the provision of a more economical self-latching and closing cabinet hinge.

Another object of the present invention is the provision of a self-latching hinge of improved appearance and/or size.

Other objects and features of the present invention will become apparent on examination of the following specification and claims together with the drawings.

## DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of a hinge incorporating the principles of the present invention and illustrating a fragmentary portion of a cabinet door and frame on which the hinge is mounted;

FIG. 2 is a sectional view of the hinge taken generally along the line 2—2 in FIG. 1 illustrating the hinge together with a fragmentary view of the door and frame in closed position;

FIG. 3 is a sectional view of the hinge shown in FIG. 1 with the hinge shown in open position;



FIG. 4 is an isometric bottom view in open position of the hinge; and

FIG. 5 is an isometric bottom view illustrating one hinge leaf with the leaf spring associated therewith.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. 1, a hinge assembly is indicated therein by the reference character **10**. The hinge assembly comprises a frame leaf **12** and a door leaf **14** fastened, respectively, to a cabinet frame **16** and a cabinet door **18** by means such as screws **20**.

The frame leaf **12** is generally L-shaped with one leg **22** fixed to the frame **16** and the other leg **24** projecting outwardly of the frame and having a knuckle or loop **26** formed at the end of the leg **24** for receiving a hinge pin **28**. The pin **28** has a head **30** at each end.

The other hinge leaf **14** is also generally L-shaped with one leg **32** fastened to the inside surface of a conventionally rabitted door and the other leg bifurcated to form two spaced arms **34** with a respective knuckle **36** on the end of each arm **34** looped over the pin **28** adjacent the opposite pin ends. The two arms **34** are joined at a position just below the hinge pin **28** and adjacent knuckle **26** by an integrally formed latch **38**. Latch **38** projects downwardly and towards leg **24** of leaf **12** as seen in FIG. 2, when the door is closed, and terminates at a position intermediate legs **24** and **34** and spaced from frame **16** with an upwardly or reverse tab **40** on the end thereof directed toward pin **28**.

The latch **38** is engaged by a cantilever leg **42** of a leaf spring **44** to latch the door in closed position. The leg **42** of leaf spring **44** is formed on the end of a leg **46** parallel and adjacent leg **24** and projects from adjacent the door frame **16** toward latch **38** for engaging latch **38** so as to bias latch **38** in a clockwise direction as seen in FIG. 2. The leg **42** terminates at the end opposite leg **46** in a downwardly extending arcuate tab **48** for facilitating engagement between latch **38** and spring **44** on closing movement of the door **18**.

The leaf spring leg **46** opposite leg **42** terminates outwardly of the frame in a knuckle or loop **50**. The loop **50** wraps around a reduced diameter portion of the pin **28** to accommodate the loop **26** on leg **24** overlapping loop **50** so that loop **26** occupies the same external diameter as loops **36**. The loop **26** terminates in a tongue **52**, which engages the leg **46** of spring **44** to prevent rotation of the spring leg **46** from its position adjacent leg **24**.

On opening of the door **18**, the latch **38** swings counterclockwise about the axis of pin **28**, as seen by the difference in the latch position between FIGS. 2 and 3. The latch **38** disengages from the spring leg **42** after flexing the leg downwardly as seen in FIG. 2 about the juncture of legs **42** and **46**. Thereafter, on closing the tab **40** and **48** of latch **38** and spring **44** engage to flex the spring leg **42** about its juncture with leg **46** toward the frame, and as the tabs move past their point of maximum engagement, the spring pressure is relieved against latch **38** to rotate the latch **38**, leaf **14** and door **18** toward the closed position. The door is then held latched closd by the latch **38** engaged behind the spring leg **42** and in the space defined by the acute angle formed between spring legs **42** and **46**. Camouflage of the latch and spring are provided by the overlapped door **18** and since the latch and spring are of metal, their finish and appearance correspond to the leaves **12** and **14**.

The foregoing is a description of a self-latching hinge whose inventive concepts are believed more fully set forth in the accompanying claims.

What is claimed is:

**1**. A self-latching hinge for use in hinging a door to a frame comprising a pair of hinge leaves fixed to said

door and said frame respectively, a pin, a leg on each leaf terminating in a knuckle looped over a respective axial portion of said pin, a leaf spring having a loop on one end wrapped over said pin with said loop extending axially of said pin and overlapped by a knuckle on one of said leaves, a leg projecting from the other end of said leaf spring, and a latch integrally formed on the other of said leaves for engagement by said projecting leg to latch said door closed in response to said door being moved to a closed position and adapted to flex said projecting leg for disengaging said latch from said projecting leg in response to an opening movement of said door.

2. A self-latching hinge for use in hinging a door to a frame comprising a pair of hinge leaves fixed to said door and said frame respectively, a pin, a leg on each leaf terminating in a knuckle looped over a respective axial portion of said pin, a leaf spring having a loop on one end wrapped over said pin, a leg projecting from the other end of said leaf spring, a latch integrally formed on one of said leaves for engagement by said projecting leg to latch said door closed in response to said door being moved to a closed position and adapted to flex said projecting leg for disengaging said latch from said projecting leg in response to an opening movement of said door, and a reduced diameter portion formed in said pin with said leaf spring loop wrapped over said reduced diameter portion and the knuckle of said hinge leaf fixed to said frame overlapping said leaf spring loop whereby the outer surface of each knuckle occupies the same diameter.

3. In the hinge claimed in claim **1**, a tongue formed on the end of said overlapped knuckle for holding said leaf spring in abutting relationship with the respective hinge leaf leg.

4. The hinge claimed in claim **1** in which said projecting leg extends in cantilever fashion at an acute angle from said spring other end, and a tab is formed on the free end of said projecting leg with said tab projecting in the opposite direction from said projecting leg to facilitate engagement between said latch and leaf spring projecting leg.

5. The hinge claimed in claim **1** in which said leaf spring projecting leg extends toward the hinge leaf fixed to said door and said latch projects toward the hinge leaf fixed to said frame in response to said door being in said closed position and said latch terminates intermediate the legs of said leaves.



6. A self-latching hinge for use in hinging a door to a frame comprising a pair of L-shaped hinge leaves one of which has one leg fixed to said door and the other of which has one leg fixed to said frame, a pin, a knuckle on each other leg of each hinge leaf looped over a respective axial portion of said pin, said pin having a reduced diameter portion adjacent the axially central portion of said pin, a leaf spring, a loop on one end of said leaf spring wrapped over said reduced portion and overlapped by the knuckle on one leaf fixed to said door, a tongue on the end of said knuckle overlapping said loop for holding said leaf spring in abutting relationship with said other leg of said leaf spring fixed to said frame, a leg on the other end of said leaf spring projecting from said leaf spring at an acute angle toward the other leg of the hinge leaf fixed to said door and terminating in a tab directed toward the surface of said frame, and a latch integrally formed on said hinge leaf fixed to said door and directed toward said one leaf fixed to said frame when said door is closed for latching engagement between said projecting leg and leaf spring in response to said door being moved to a closed position.

7. The hinge claimed in claim **6** in which said latch comprises a projection from the other leg of said hinge leaf fixed to said door and said latch terminates intermediate the other leg of each hinge leaf in response to said door being in closed position.

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U.S. Cl. X.R.

16—180