US 20130007986A1

(19) **United States**

(12) **Patent Application Publication**

Flaman et al.

(10) **Pub. No.: US 2013/0007986 A1**

(43) **Pub. Date: Jan. 10, 2013**

(54) **DOOR HINGE**

(76) Inventors: **Kyle Flaman**, White City (CA); **John Kletchko**, Regina (CA); **Greg Kletchko**, St. Joseph's Colony (CA)

(21) Appl. No.: **13/492,161**

(22) Filed: **Jun. 8, 2012**

(30) **Foreign Application Priority Data**

Jun. 8, 2011 (CA) 2742422

Publication Classification

(51) **Int. Cl.**

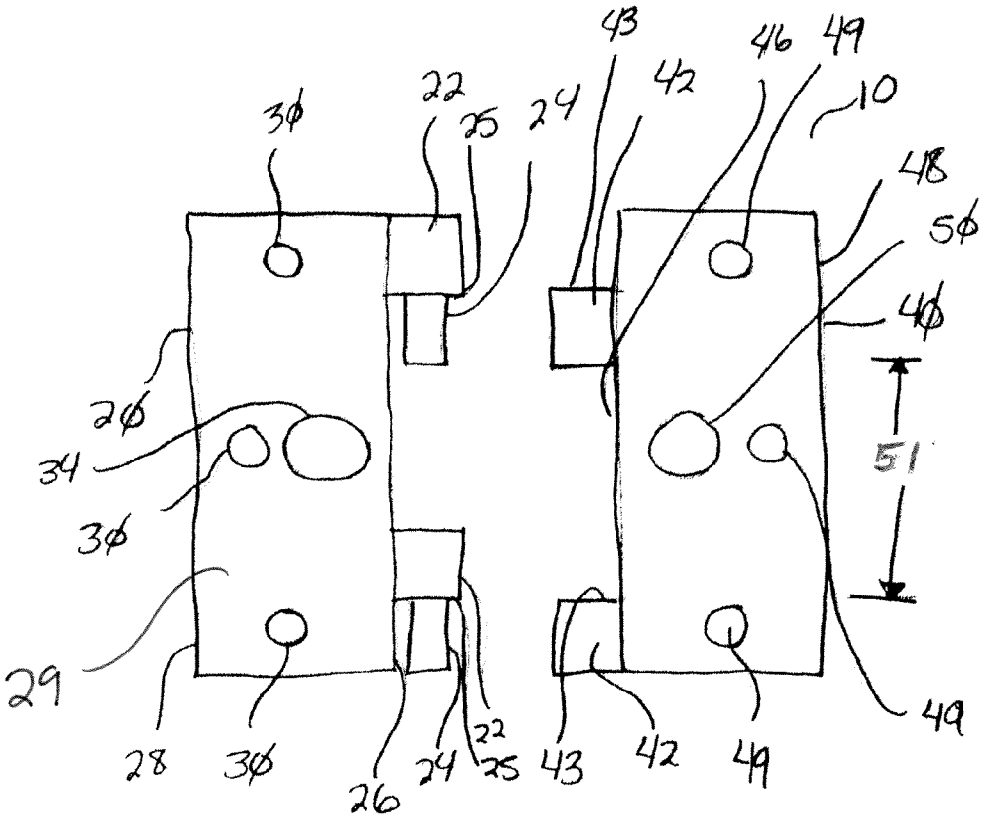
E05D 5/04 (2006.01)

E05D 3/00 (2006.01)

(52) **U.S. Cl.** **16/387**

(57) **ABSTRACT**

A butt hinge including a first leaf having a top surface and a second leaf having a top surface. A protrusion is provided on one of the top surface of the first leaf and the top surface of the second leaf and an aperture passes through another of the top surface of the first leaf and the top surface of the second leaf. The aperture is positioned in the other of the top surface of the first leaf and the top surface of the second leaf so that when the butt hinge is used to hang a door, the protrusion is inserted into the aperture when the door is closed.



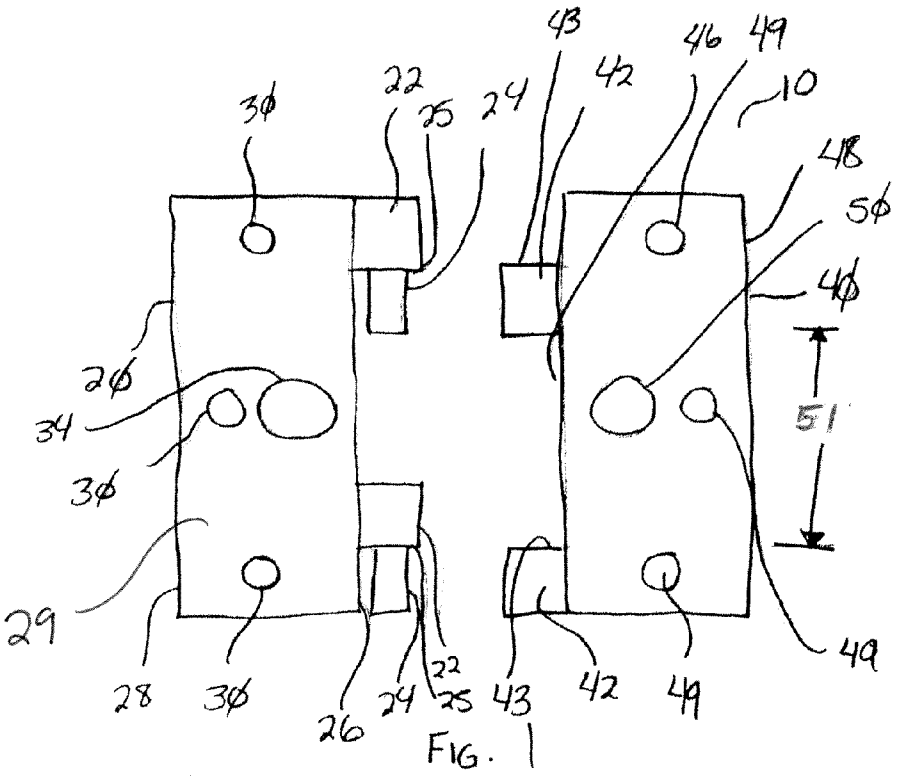

43
46
49
42
10
22
25
24
30
48
50
40
20
34
30
51
29
49
28
30
26
24
22
25
43
42
49

FIG. 1

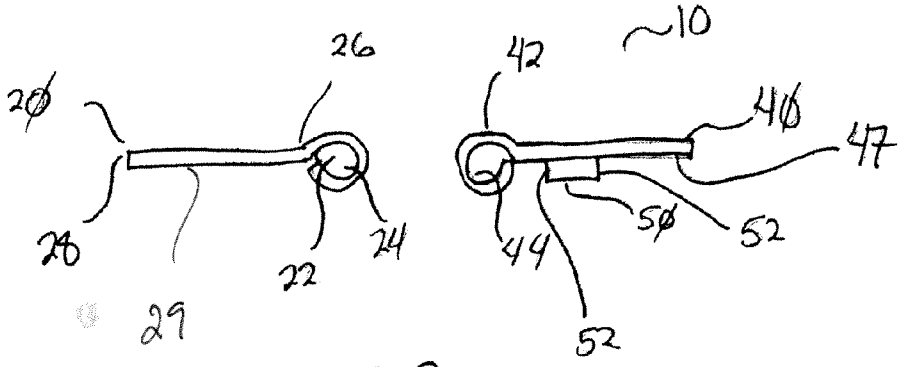

10
26
42
20
40
47
50
52
28
22
24
44
29
52

FIG. 2

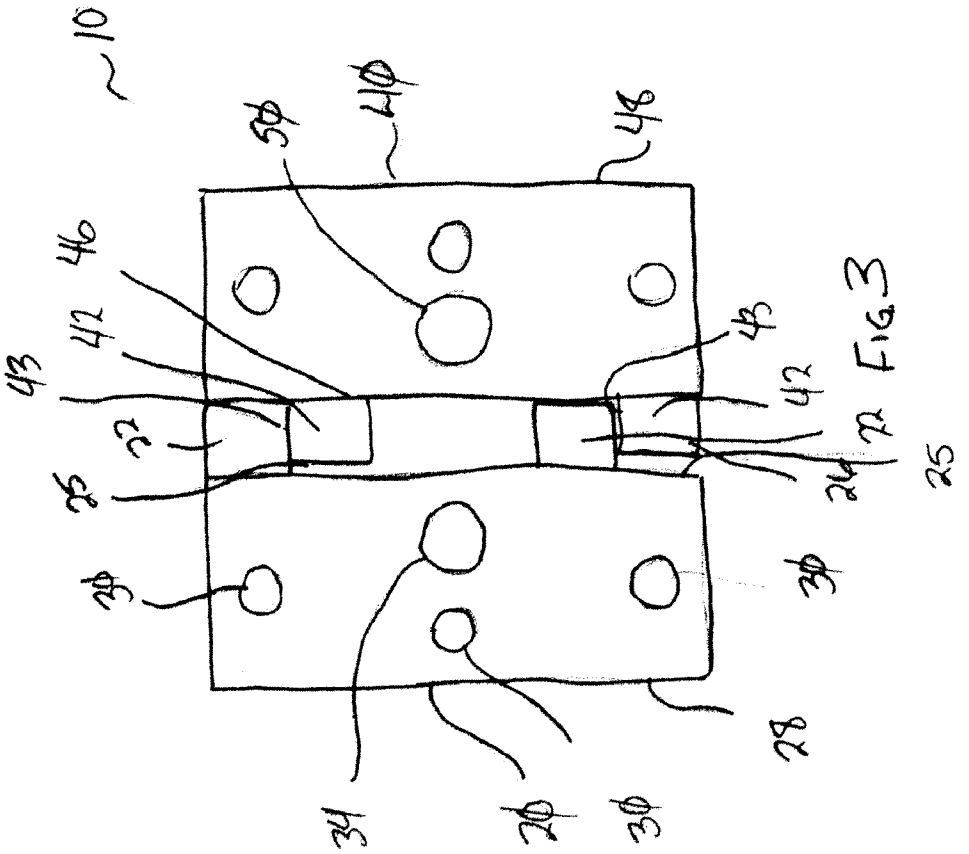


FIG. 3

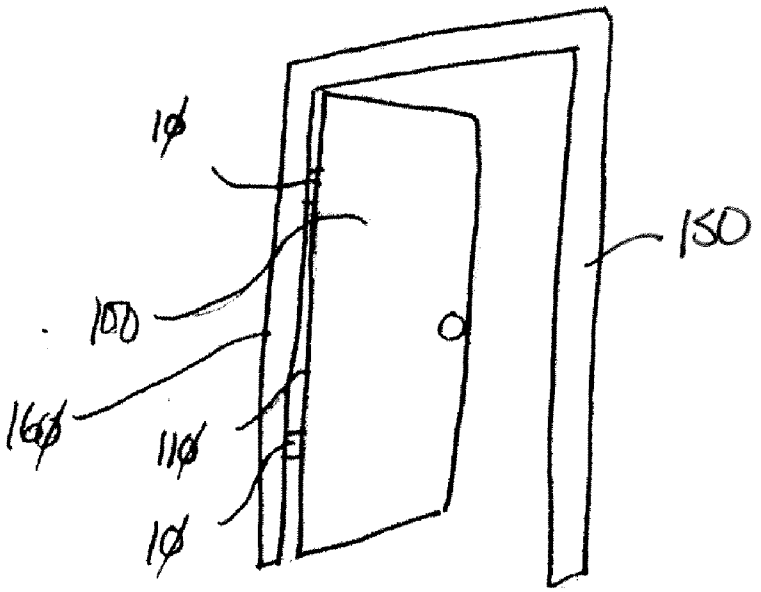


Fig. 4

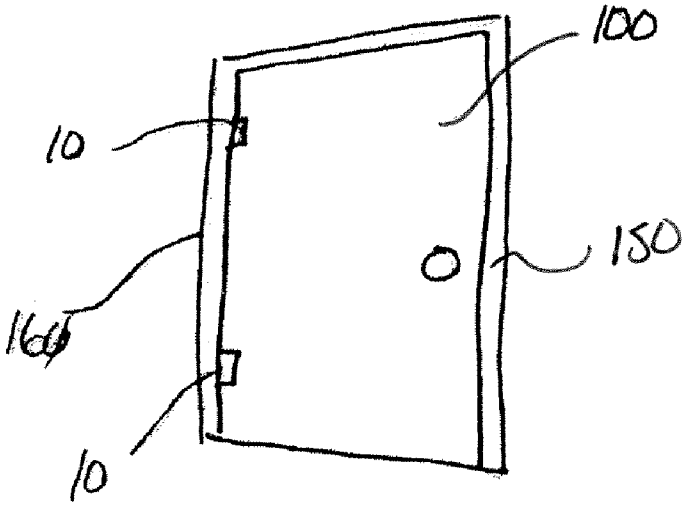


Fig. 5

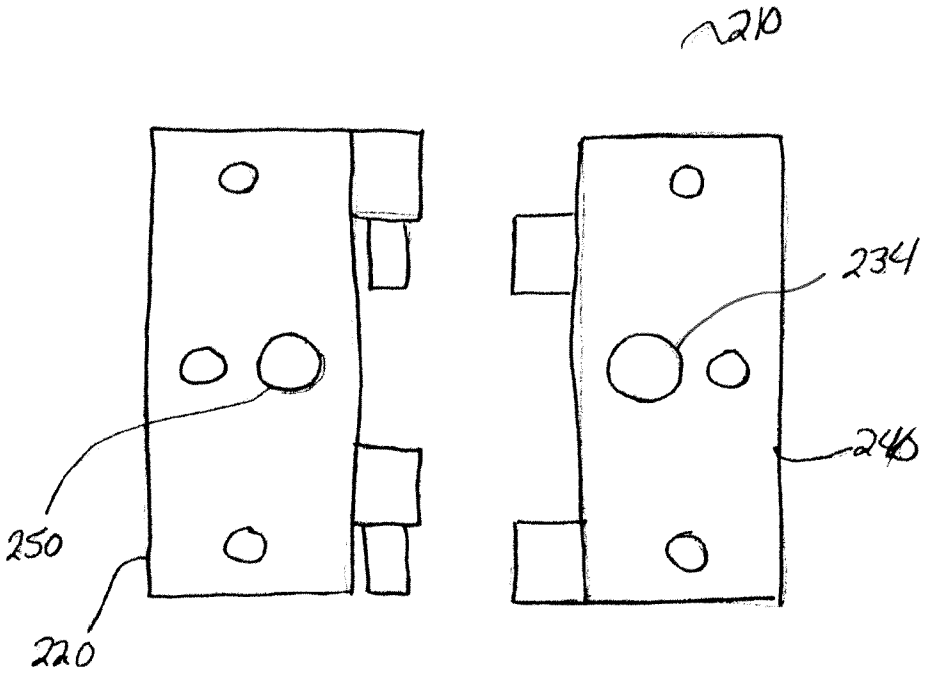


FIG. 6

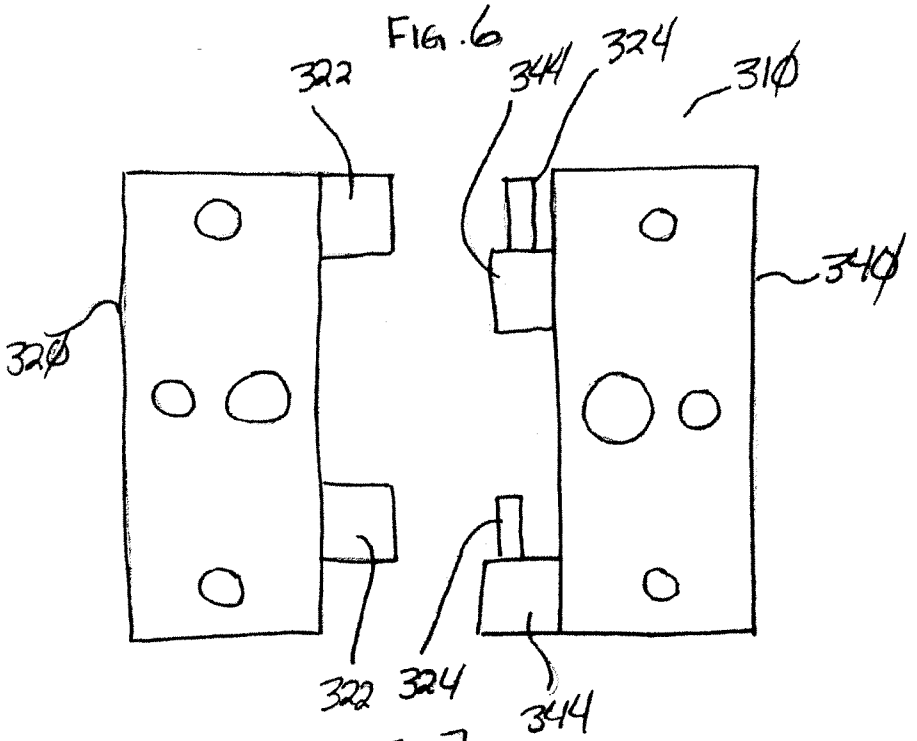


FIG. 7

DOOR HINGE

[0001] The present invention relates to door hinges and more particularly to a door hinge that can be used to easily remove a door but still remain secure when the door is closed.

BACKGROUND

[0002] Doors are connected to a door frame by hinges. These hinges allow the door to be opened and closed and typically consist of two leaves attached to cylindrical bosses. The cylindrical bosses are spaced on each leaf so that they can be interleaved causing the bosses of both leaves to be positioned coaxial, allowing a pin or pintle to be inserted through the bosses, hingeably joining the door to the door frame.

[0003] To remove the door from the door frame and separate the hinge, a user can open the door and remove the pin or pintle running through the bosses. With the pin or pintle removed, the door can then be removed from the door frame, with the leaves of the hinges attached to the door being separated from the leaves of the hinges that are attached to the door frame.

[0004] While this allows the door to be removed from the frame, it does not typically allow it to be removed without some effort. A person has to remove the pin or pintle from the door hinges, which can often require tools and some effort to force the pin or pintle out of the bosses. In some cases, the pin or pintle can be secured in the hinge by more than gravity and force, requiring a person to first use tools to partially dissemble the pin or pintle and remove it from the hinge.

[0005] On the other hand, some hinges have been made that allow easy removal of the door. However, these often suffer from the problem of making it to easy for a person to remove a door which can result in security issues, such as having a person remove a door from the hinges of a building when he or she wishes to gain unlawful entry into the building.

SUMMARY OF THE INVENTION

[0006] In one aspect, a butt hinge is provided. The butt hinge can comprise: a first leaf having a top surface and at least one ear with a pin extending from the ear; a second leaf having a top surface and at least one barrel with a passage therethrough, the second leaf positioned on the second leaf to line up so as to line up with the pin on the at least one ear of the first leaf; a protrusion on one of the top surface of the first leaf and the top surface of the second leaf; and an aperture passing through an other of the top surface of the first leaf and the top surface of the second leaf, the aperture positioned in the other of the top surface of the first leaf and the top surface of the second leaf so that when the butt hinge is used to hang a door, the protrusion is inserted into the aperture when the door is closed.

DESCRIPTION OF THE DRAWINGS

[0007] A preferred embodiment of the present invention is described below with reference to the accompanying drawings, in which:

[0008] FIG. **1** illustrates a front view of a butt hinge with the first leaf and second leaf separated;

[0009] FIG. **2** illustrates a top view of the hinge of FIG. **1**;

[0010] FIG. **3** illustrates a front view of the hinge of FIG. **1** with the leaves connected;

[0011] FIG. **4** illustrates a door and door frame attached with the hinge of FIG. **1** with the door in the open position;

[0012] FIG. **5** illustrates the door and door frame of FIG. **4** with the door in the closed position;

[0013] FIG. **6** illustrates a butt hinge in a further aspect; and

[0014] FIG. **7** illustrates a butt hinge in a further aspect.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

[0015] FIGS. **1-3** illustrate a butt hinge **10** in one aspect. Butt hinges **10** can be used to join a door to a door frame (not shown) in such a way that when the door is opened, the hinges **10** allow the door to be relatively quickly removed by simply lifting up on the door. However, when the door is closed in the door frame, the hinges **10** prevent the door from being removed from the frame.

[0016] The hinge **10** can have a first leaf **20** and a second leaf **40** with the first leaf **20** having one or more pins **24** and the second leaf **40** having one or more barrels **42** for receiving the pins **24**.

[0017] The first leaf **20** can have a first side **26** and a second side **28** with one or more ears **22** provided on the first side **26** of the first leaf **20**. Each ear **22** can have a pin **24** extending below the ear **22**. A number of mounting apertures **30** can be provide passing through the first leaf **20** so screws or other fasteners (not shown) can be used to fasten the first leaf **20** to an edge of a door that will be hung using the hinge **10**.

[0018] The second leaf **40** can have a first side **46** and a second side **48** with one or more barrels **42** provided on the first side **46** of the second leaf **40**. Each barrel **42** can have a passage **44** running through the barrel **42** and sized to accept one of the pins **24** extending from the ear **22** on the first leaf **20**. The ears **22** and pins **24** can be spaced on the first leaf **20** so that the ears **22** and pins **24** can be lined up and inserted into the passages **44** in the barrels **42** on the second leaf **40**. The second leaf **40** can have a series of mounting apertures **49** so screws or other fasteners (not shown) can be used to fasten the second leaf **40** to a door frame (not shown).

[0019] In one aspect, the ear **22** can be sized so that a bottom edge **25** of the ear **22** can rest against a top edge **43** of the barrel **42** when the pin **24** extending from the ear **22** is inserted in the passage **44** of the barrel **42**. A spacing **51** can be provided between the barrels **42** on the second leaf **40** so that lower ear **22** and pin **24** on the first leaf **20** can be slid in the spacing **51** between the barrels **42**, while the upper ear **22** and pin **24** can be positioned above the top barrel **42** on the second leaf **40**. Then, the first leaf **20** can be moved downwards relative to the second leaf **40**, sliding the pins **24** into the passages **44** in the barrels **42** on the second leaf **40**, as shown in FIG. **3**.

[0020] An aperture **34** can be provided in the first leaf **20** and a protrusion **50** can be provided on the second leaf **40**. The aperture **34** can be positioned on the first leaf **20** and the protrusion **50** can be provided on the second leaf **40** so that when the first leaf **20** and the second leaf **40** are rotated around the ears **22**, pins **24** and barrels **44** and against one another, the protrusion **50** is inserted in the aperture **34**.

[0021] In one aspect the protrusion **50** can be circular in shape and in one aspect have straight sides **52** extending substantially perpendicular from a top surface **47** of the second leaf **40**.

[0022] FIG. **6** shows an alternate butt hinge **210** where a protrusion **250** is provided on the first leaf **220** and a mating aperture **234** is provided on the second leaf **240**.

[0023] FIG. **7** shows an alternate butt hinge **310** with the first leaf **320** for attaching to a door (not shown) having

barrels **322** while the second leaf **340** that is attached to a door jamb (not shown) has ears **344** and pins **324** extending upwards from the ears **344**. The first leaf **320** can be attached to the second leaf **340** by sliding the barrels **322** on the first leaf **320** over the pins **324** on the second leaf **340**.

[0024] Referring to FIG. **1-5**, in operation the first leaf **20** can be attached to a door **100**, typically by placing screws or other fasteners through the mounting apertures **30** in the first leaf **20** to secure the first leaf **20** to an edge **110** of the door **100**. The second leaf **40** can be attached to a door jamb **160** of a door frame **150**, typically by placing screws or other fasteners through the mounting apertures **49** in the second leaf **40**. The first leaf **20** and the second leaf **40** have to positioned on the door **100** and door jamb **160**, respectively, so that the first leaf **20** and second leaf **40** will be aligned when the door **100** is hung by the door hinges **10**.

[0025] To hang the door **100** in the door frame **150**, the door **10** can be placed in an open position and the pins **24** on the first leaf **20** positioned above the barrels **42** on the second leaf **40**. The door **100** can then be moved downwards so that the pins **24** on the ears **22** of the first leaves **20** slide into the passages **44** of the barrels **42** on the second leaves **40**. The door **100** can then be opened and closed by swinging it on the door hinges **10**.

[0026] The door **100** can easily be removed by a single person by having that person simply open the door **100**, as shown in FIG. **4**, and lifting the door **100** so that the pins **24** of the first leaves **20** are retracted from the barrels **44** on the second leaves **40**. In this manner, the door **100** can be quickly removed without the use of tools. However, when the door **100** is in the closed positioned, as shown in FIG. **5**, with the first leaves **20** lying adjacent to the second leaves **40** so that top surfaces **29** of the first leaves **20** are lying adjacent the top surfaces **47** of the second leaves **40**, the protrusions **50** on the second leaves **40** extend through the top surfaces **29** of the first leaves **20** into the apertures **34** in the first leaves **20**.

[0027] In this manner, the protrusions **50** hold the second leaves **40** fixed vertically relative to the first leaves **20**, preventing the first leaves **20** from being moved upwards relative to the second leaves **40** and preventing the pins **24** from being lifted out of the barrels **44** on the second leaves **40** while the door **100** is closed.

[0028] The door hinge **10** therefore allows a person to easily remove a door **10** by opening the door **100** and lifting the door **100** to remove the pins **24** on the first leaves **20** attached to the door **100** from the barrels **44** of the second leaves **40** attached to the door jamb **160**. However, when the door **100** is closed, the protrusions **50** prevent a person from lifting the door upwards.

[0029] The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous changes and modifications will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all such suitable changes or modifications in structure or operation which may be resorted to are intended to fall within the scope of the claimed invention.

1. A butt hinge for a hinge comprising:

a first leaf having a top surface and at least one ear with a pin extending from the ear;

a second leaf having a top surface and at least one barrel with a passage therethrough, the second leaf positioned on the second leaf to line up so as to line up with the pin on the at least one ear of the first leaf;

a protrusion on one of the top surface of the first leaf and the top surface of the second leaf; and

an aperture passing through an other of the top surface of the first leaf and the top surface of the second leaf, the aperture positioned in the other of the top surface of the first leaf and the top surface of the second leaf so that when the butt hinge is used to hang a door, the protrusion is inserted into the aperture when the door is closed.

2. The butt hinge of claim **1** wherein the top surface of the first leaf lies adjacent to the top surface of the second leaf when the door is closed.

3. The butt hinge of claim **1** wherein the protrusion is circular.

4. The butt hinge of claim **1** wherein the protrusion has straight sides extending substantially perpendicular from at least one of the top surface of the first leaf and a top surface of a second leaf.

5. The butt hinge of claim **1** wherein there are two barrels on the second leaf defining a spacing therebetween.

6. The butt hinge of claim **5** wherein the spacing is sized to allow the ear and pin on the first leaf to be inserted in the spacing.

* * * * *