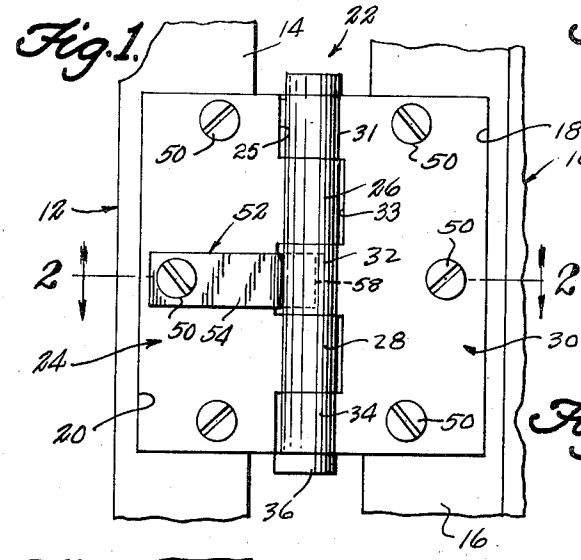
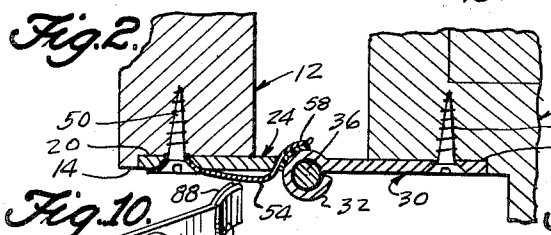
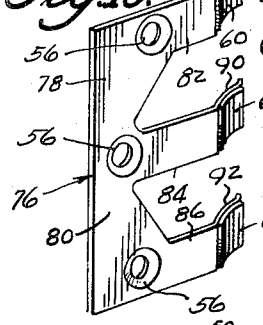
Feb. 10, 1959 G. HIZSA, JR 2,872,697

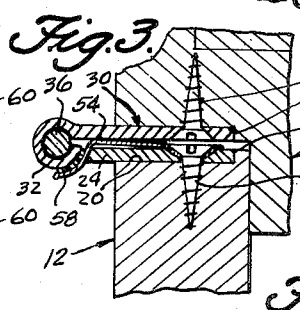
FRICTION-BRAKED HINGE ASSEMBLIES

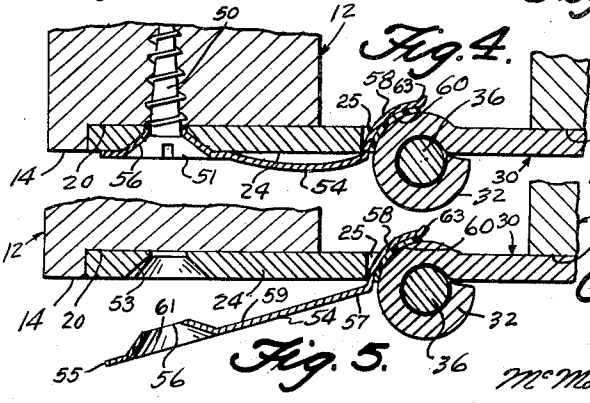
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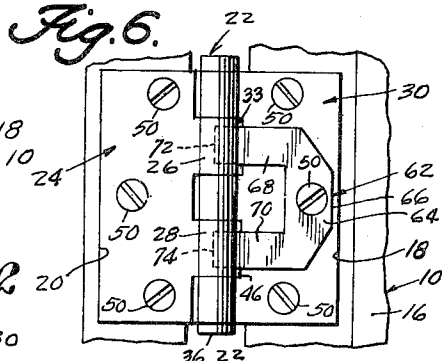


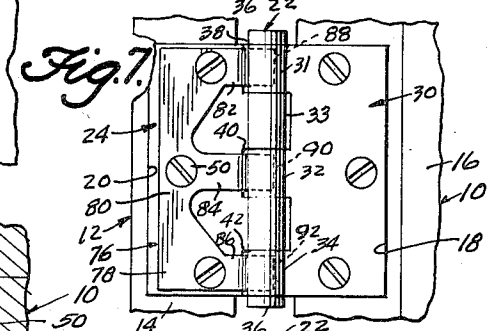


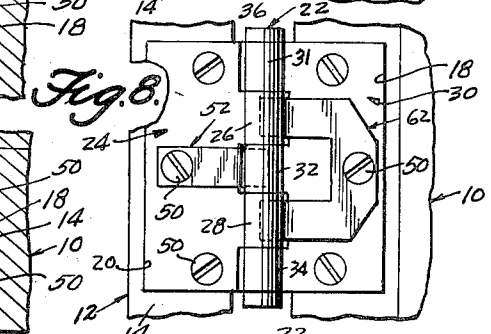


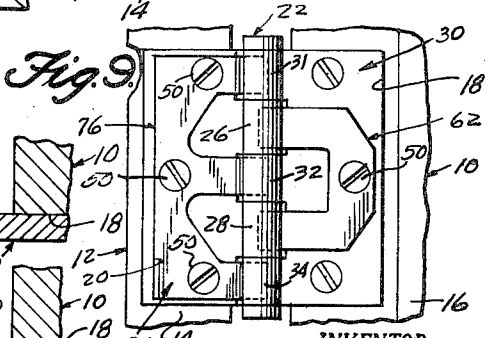












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FRICTION-BRAKED HINGE ASSEMBLIES

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13 Claims. (Cl. 16—142)

This invention relates to improved friction-braked hinge assemblies.

The primary object of the invention is to provide more practical and efficient hinge assemblies of this kind, which are simpler and more durable in construction, are more easily installed, and whose friction brake means requires little or no alteration of conventional forms of hinge leaves for their incorporation in hinge assemblies.

Another object of the invention is to provide hinge assemblies in which the friction-brake means involves a single component mounted on one of the two hinge leaves of a hinge assembly or two components severally mounted on the leaves of a hinge assembly, the braking components having one or more resilient spring fingers terminating in brake shoes which are held in frictional engagement with sides of hinge barrels on one or more hinge leaves.

A further object of the invention is to provide friction-brake means of the character indicated above which can be readily incorporated in existing hinge assemblies.

A still further object of the invention is to provide hinge assemblies and friction-brake means of the character indicated which can be made in well-finished, rugged, and desirable forms at relatively low cost, are easily installed, and highly satisfactory and acceptable for the purpose intended.

These together with other objects and advantages which will become apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout the several views, and in which:

Figure 1 is an outboard side elevational view of a hinge assembly of the invention secured to a door and a door frame jamb, the hinge assembly being in open position;

Figure 2 is a fragmentary horizontal section view taken substantially on the line 2—2 of Figure 1;

Figure 3 is a fragmentary horizontal sectional view similar to Figure 2, showing the hinge assembly in closed position;

Figure 4 is an enlarged fragmentary horizontal detailed sectional view similar to Figure 2;

Figure 5 is a fragmentary sectional view similar to Figure 4, showing friction brake means of the invention being installed to modify a conventional hinge assembly;

Figure 6 is an outboard side elevational view, on a reduced scale, of another embodiment of the invention;

Figure 7 is a view similar to Figure 6, showing a further embodiment of the invention;

Figure 8 is a view similar to Figure 6 showing a still further embodiment of the invention;

Figure 9 is a view similar to Figure 6 showing still another embodiment of the invention; and

Figure 10 is a perspective view of a component of the friction brake means of the embodiments of Figures 7 and 9.

Referring to the drawings in detail, and first to Figures 1 through 5 thereof, there are shown a fragmentary portion of a door frame, indicated generally at **10**, having a jamb **16**, and a fragmentary portion a door, indicated generally at **12**, having a hinge mounting edge **14**. The door jamb **16** has therein a rectangularly shaped recess **18** and the edge **14** of the door incorporates a similar recess **20**. Indicated generally at **22** is a conventional butt hinge which is shown for purpose of illustration herein. It is to be understood that the invention is applicable to all hinges having leaves which are pivotally connected by means of interdigitated hinge barrels having hinge pins extending therethrough.

The hinge assembly **22** comprises a first or door-mounted hinge leaf **24** having on its inner edge **25** aligned and spaced hinge pin barrels **26** and **28**, and a second or door-frame jamb mounted hinge leaf **30** having on its inner edge **33** spaced and aligned hinge pin barrels **31**, **32** and **34**.

The hinge pin barrels on both the hinge leaves **24** and **30** are substantially equally spaced from each other, and, in the case of the hinge leaf **24**, from the ends of the hinge leaf **24**. The hinge pin barrels of the hinge leaf **24** are engaged between the barrels of the leaf **30**, and a hinge pin **36** extends therethrough. The hinge leaves are secured to the door edge **14** and the door frame jamb **16** by screws **50**, having bevelled heads **51** seated in bevelled holes **53** in the hinge leaves.

The hinge assembly **22** further comprises friction-brake means **52** which comprises an elongated initially flat and relatively narrow resilient leaf spring or finger **54**, of such as spring steel, spring brass, or the like, having an outer end **55** and an inner end **57**.

As shown in Figure 5, the finger **54**, near its outer end **55**, is formed by deforming the material of the finger at the inward side **59** of the finger to provide a bevelled annulus **61** which conformably seats in a related bevelled screw-hole **53** in the door edge engaging hinge leaf **24**, and accommodates the bevelled head **51** of a screw **50**, with the shank of the screw extending through the opening **56** of the annulus.

On the inner end **57** of the finger **54** is an integral arcuate brake shoe **58** which is offset at the inner side **59** of the finger **54** and terminates in an inwardly directed lip **63**. The concave outer side of the shoe **58** has secured thereon in any suitable manner, a friction lining **60**.

As shown in Figures 4 and 5, the brake finger **54** is installed by inserting the brake shoe **58** from the outboard side of the hinge assembly between the inner edge **25** of the hinge leaf **24** and the related barrel **32** of the hinge leaf **30**, so that the brake shoe lining **60** engages around the inboard side of the barrel **32**. The finger **54** is then bent and pressed against the outboard side of the hinge leaf **24**, with the annulus **61** in the related hole **53** of the leaf **24**, and a screw **50** threaded into the door edge **14** through the hole **56** so as to seat the bevelled head **51** thereof in the annulus **61**.

Thus the brake means through its frictional engagement with the hinge barrel **32** of the hinge leaf **30** in which it is held by the inner edge **25** of the hinge leaf **24** and the tension of the finger **54**, while permitting swinging of the door **12** relative to the door frame **10**, acts to hold the door **12** in any desired angular relation to the door frame **10** to which the door has been moved.

In Figures 6 to 10 are shown other forms of the invention, which provide greater braking action than that afforded by the embodiment of Figures 1 through 5.

In the form of the invention shown in Figure 6, the friction brake means, indicated generally at **62**, comprises a U-shaped plate **64** having a bight portion **66** secured,

as above described, by a screw 50 extending through a hole in the hinge plate 30. The bight portion 66 has thereon two spaced inwardly extending resilient fingers 68 and 70 similar to the finger 54, and terminating in brake shoes 72 and 74, similar to the brake shoe 58, and engaging the inboard sides of the barrels 26 and 28, respectively, of the hinge plate 24, and having friction linings 60. The brake shoes 72 and 74 engage the inner edge 33 of the hinge leaf 30, and the fingers 68 and 70 are deformed and tensioned as described hereinabove.

In Figure 7, the friction brake means, indicated generally at 76, comprises a plate 78, substantially as long as and engaged with the outboard side of the hinge leaf 24 and secured thereto by screws as above described. The plate 78 has a bight portion 80 having on its inner edge three inwardly extending neutrally parallel resilient fingers 82, 84 and 86, like the fingers 54, 68 and 70, terminate in inboardly offset brake shoes 88, 90 and 92, respectively, similar to the above described brake shoes, which are engaged with the inboard sides of related hinge barrels of the hinge plate 30.

In Figure 8, the friction brake means 52 and 62 of Figures 1 and 6 are utilized together on the hinge leaves 24 and 30 respectively.

In Figure 9, the friction brake means 76 and 62 are utilized together on the hinge plates 24 and 30, respectively.

The foregoing is considered as illustrative only of the principles of the invention. Since numerous modifications and changes 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 suitable modifications and equivalents may be resorted to, as fall within the scope of the appended claims.

What is claimed as new is as follows:

1. A hinge assembly comprising first and second hinge leaves having inner edges and outboard and inboard sides, interdigitated barrel means on said inner edges, a hinge pin extending through the barrels thereof, brake means comprising resilient spring finger means having outer and inner ends, said finger means being located at the outboard side of said first hinge leaf, offset brake shoe means on the inner end of said finger means frictionally engaged with the barrel means of the second hinge leaf, means securing the outer end of the finger means to the first hinge leaf, the part of the finger means between the brake shoe means and said securing means being bowed away from the first hinge leaf under tension.

2. A hinge assembly according to claim 1, wherein said fingers means consists of a single finger having a single brake shoe engaged with a barrel of the hinge barrel means of the second hinge leaf.

3. A hinge assembly according to claim 1, wherein said finger means comprises two fingers each having a brake shoe engaged with a related barrel of the hinge barrel means of said second hinge leaf.

4. A hinge assembly according to claim 1, wherein said finger means comprises three fingers each having a brake shoe engaged with a related barrel of the hinge barrel means of said second hinge leaf.

5. A hinge assembly according to claim 1, wherein said finger means consists of a single finger having a single brake shoe engaged with a barrel of the hinge barrel means of the second hinge leaf, and said finger means further comprises finger means on said second hinge leaf comprising two fingers engaged with related barrels of the hinge barrel means of the first hinge leaf with the single finger positioned between the two fingers.

6. A hinge assembly according to claim 1, wherein said finger means comprises two fingers each having a brake shoe engaged with a related barrel of the hinge barrel means of the said second hinge leaf, said finger means further comprising a single finger positioned between said two fingers.

7. A hinge assembly according to claim 1, wherein said finger means comprises three fingers each having a brake shoe engaged with a related barrel of the hinge barrel means of the second hinge leaf, said finger means further comprising two fingers on said second hinge leaf positioned between the three fingers on the first hinge leaf.

8. A hinge assembly according to claim 1, wherein said securing means comprises a bevel screw hole in said first hinge leaf, a bevelled annulus on the outer end of the finger means seated in said screw hole, and a screw traversing the opening of the annulus and the screw hole and having a bevelled head engaged in said annulus.

9. A hinge assembly according to claim 1, wherein said brake means further comprises second spring finger means on said second hinge leaf having an outer end secured to the second hinge leaf and an inner end having thereon offset brake shoe means frictionally engaged with the hinge barrel means of the first hinge leaf.

10. A hinge assembly according to claim 1, wherein said brake means further comprises second spring finger means on said second hinge leaf having an outer end secured to the second hinge leaf and an inner end having thereon offset brake shoe means frictionally engaged with the hinge barrel means of the first hinge leaf, said first spring finger means consisting of a single spring finger.

11. A hinge assembly according to claim 1, wherein said brake means further comprises second spring finger means on said second hinge leaf having an outer end secured to the second hinge leaf and an inner end having thereon offset brake shoe means frictionally engaged with the hinge barrel means of the first hinge leaf, said first spring finger means consisting of a single spring finger and said second spring finger means comprising a plurality of spring fingers.

12. A hinge assembly according to claim 1, wherein said brake means further comprises second spring finger means on said second hinge leaf having an outer end secured to the second hinge leaf and an inner end having thereon offset brake shoe means frictionally engaged with the hinge barrel means of the first hinge leaf, said first and second spring finger means each comprising a plurality of spring fingers.

13. A hinge assembly according to claim 1, wherein said brake means further comprises second spring finger means on said second hinge leaf having an outer end secured to the second hinge leaf and an inner end having thereon offset brake shoe means frictionally engaged with the hinge barrel means of the first hinge leaf, said first and second spring finger means each comprising a plurality of spring fingers, some of the fingers of each spring finger means being positioned between fingers of the other spring finger means.

References Cited in the file of this patent

UNITED STATES PATENTS

600,161	Moore	Mar. 8, 1898
1,987,060	Hammond	Jan. 8, 1935
2,240,790	Kuney	May 6, 1941
2,768,571	Pearson	Oct. 30, 1956
2,772,916	Jones	Dec. 4, 1956

FOREIGN PATENTS

692,160	Great Britain	May 27, 1953