July 25, 1961 C. H. BAKER, JR., ET AL 2,993,226

ADJUSTABLE STOP HINGES

Filed April 10, 1959

Fig-1

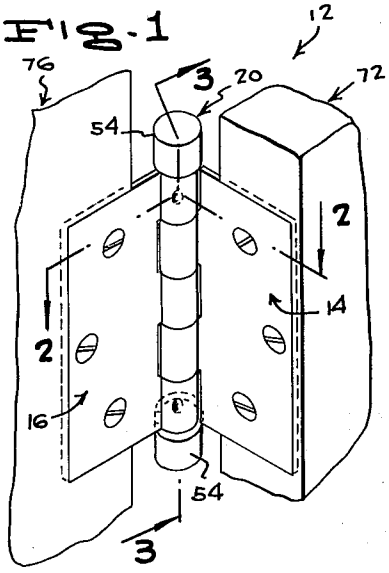


Fig-2

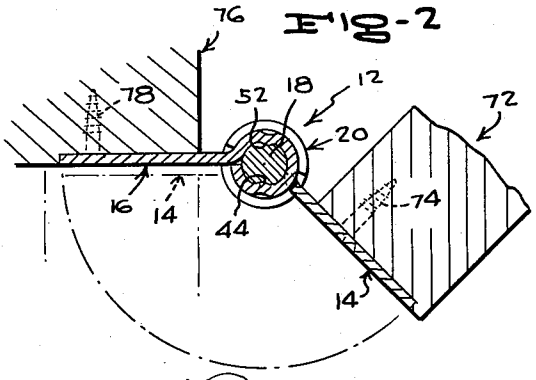
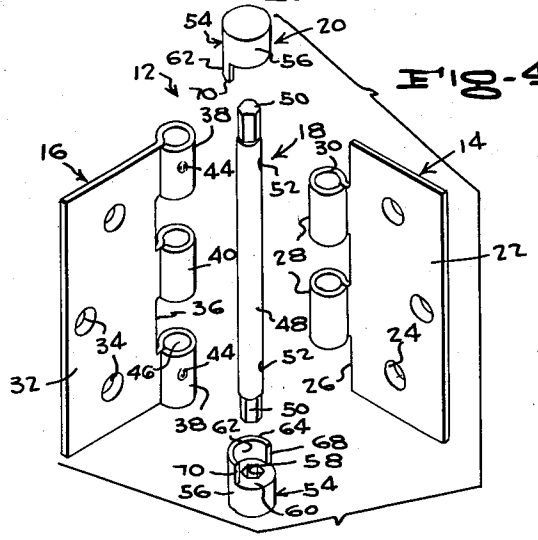


Fig-4



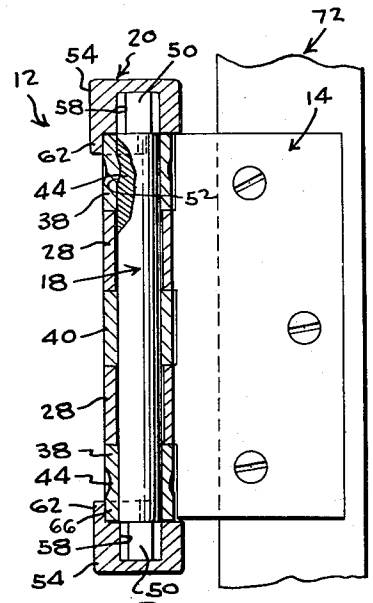


Fig-3

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ADJUSTABLE STOP HINGES

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This invention relates to improvements in hinges incorporating adjustable checks or stops, and more particularly to novel hinges of this kind wherein stops or checks are adjustably mounted on the pins.

The primary object of the invention is to provide hinges of the character indicated above wherein the checks or stops are removably and non-rotatably mounted on the opposite ends of the hinge pins, and are readily removable therefrom and replaceable at new angles around the hinge pins, without requiring dismantling of the hinges or the use of tools, so as to stop or check the hinge leaves at different desired angles relative to each other.

Another object of the invention is to provide simple and efficient hinges of the character indicated above wherein stops or checks are provided at two points along the lengths of the pins for two-point engagement by leaves, so that the hinges have greater strength and stability and resistance to being strained or warped by engagement of hinge leaves with stops or checks, as where an associated door is swung open with force, without substantial increase in the weight, bulk, or cost of the hinges.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

FIGURE 1 is a perspective view of one form of the invention, shown mounted to a door jamb and a related door in open position;

FIGURE 2 is an enlarged horizontal section taken on the line 2—2 of FIGURE 1;

FIGURE 3 is an enlarged vertical transverse section taken on the line 3—3 of FIGURE 1; and

FIGURE 4 is an enlarged perspective view showing the components on the scale of FIGURE 1.

Referring in detail to the drawings, wherein like and related numerals designate like and related parts throughout the several views, and first to FIGURES 1 to 4, the hinge therein shown and generally designated **12**, comprises a swingable hinge leaf **14**, a relatively stationary hinge leaf **16**, a hinge pin **18**, and a stop assembly **20**.

The swingable leaf **14** is in the form of a flat plate **22** having screw holes **24** therein, and having hinge pin barrels on its inward edge **26**, here shown as being two barrels **28** spaced along the edge **26**, and having smooth bores **30** therethrough.

The stationary leaf **16** is in the form of a flat plate **32**, having screw holes **34** therein, and having hinge barrels on its inward edge **36**, here shown as being three barrels spaced along the edge **36**, between which the hinge pin barrels of the swingable leaf **14** are interdigitated. It will be understood that different numbers of hinge pin barrels can be provided on the hinge leaves, it being essential, however, in the case of the stationary, leaf **16**, that its barrels include end barrels **38** at the ends thereof. Here shown is an intermediate barrel **40** in line with the end barrels **38**.

The side walls of the hinge pin barrels **38** of the stationary leaf **16** are formed to provide radial lugs **44** which project inwardly into the otherwise smooth bores **46** of these barrels. As shown in FIGURE 2, the lugs **44** are produced by indenting at least one side and preferably diametrically opposite sides of the side walls of the barrels at points intermediate their ends, and the lugs **44** are dome-like in shape. The lugs **44** constitute one form of means, present in all forms of the invention, as hereinafter described, for securing a hinge pin **18** non-rotatably in the barrels of the stationary leaf **16**.

The hinge pin **18** comprises a cylindrical portion **48** of a length to extend through the barrels of both hinge leaves, which has polygonal axial extensions **50** on its ends, serving as mounting means for stops or checks, as hereinafter described, and which reach beyond the outer ends of the end barrels **38** of the stationary leaf **16**. The cylindrical portion **48**, on which the barrels **28** of the swingable leaf **14** freely turn, can be smooth surfaced, except for recesses or indentations **52** which are formed to receive related lugs **44**, whose engagement in the recesses **52** secures the stationary leaf **16** and the hinge pin **18** together, and against rotation relative to each other. In this arrangement, the barrels of the stationary leaf are preferably made yielding and resilient, so that the pin **18** can be forced through the barrels, and the lugs become seated in the recesses.

The stop assembly **20** of the hinge **12** comprises the polygonal hinge pin extensions **50**, here shown as being hexagonal, and related stops or checks **54**. The stops **54** are similar in construction but are reversed in position. Each stop **54** comprises a cap **56** having a polygonal socket **58** in its rearward end **60** to conformably and frictionally receive a related extension **50**, so as to be removable from the extension but ordinarily held thereon by friction or other suitable means.

The sockets **58** are preferably axial in the stops **54** and the caps **56** are substantially larger in diameter than the pin **18** and the end pin barrels **38**. Fixed to and extending from the inner ends **60** of the cap and concentric with the sockets **58** are stop lugs **62** which are preferably arcuate and having free inner edges **64** which extend inwardly beyond the outer edges **66** of the end barrels **38**, as apparent in FIGURE 3, and have end edges **68** and **70**. The end edge **70** is arranged for stop engagement by the related side of the swingable hinge leaf **14**, in fully or partially open position of such as a door **72**, on whose edge the swingable leaf **14** is secured, as by screws **74**, with the stationary leaf **16** secured on the edge of the associated door jamb **76**, as by screws **78**.

Adjustments of the stop assembly **20**, to provide for stopping of the swingable leaf **16**, and the door **72** in selected open positions, is achieved by removing the stops **54** from the pin extensions **50**, and then restoring the same on the extensions in other and different angular positions, so that the stop lug end edges **70** are located to stop the door in the desired open position. These adjustments can be conveniently done by putting the door in the desired position and then removing the stops from the pin and replacing them thereon, with their stop edges **70** against the related side of the swingable leaf **16**.

What is claimed is:

1. An adjustable stop hinge comprising a hinge pin having ends, a relatively stationary hinge leaf, a swingable hinge leaf, said leaves having inward edges having interdigitated hinge barrels thereon receiving said hinge pin, the barrels of the swingable leaf being freely journaled on the hinge pin, means connecting barrels of the stationary leaf and the hinge pin together against relative rotation, and a stop assembly comprising a component mounted on each end of the hinge pin, each component having a stop element projecting into the path of swing of the swingable hinge leaf, and means mounting the said components of the hinge pin ends for adjustment to different angular positions relative to the hinge pin, said connecting means comprising recesses in the hinge

pin and lugs on barrels of the stationary leaf engaged in said recesses.

2. An adjustable stop hinge comprising a hinge pin having ends, a relatively stationary hinge leaf, a swingable hinge, leaf, said leaves having inward edges having interdigitated hinge barrels thereon receiving said hinge pin, the barrels of the swingable leaf being freely journaled on the hinge pin, means connecting barrels of the stationary leaf and the hinge pin together against relative rotation, and a stop assembly comprising a component mounted on each end of the hinge pin, each component having a stop element projecting into the path of swing of the swingable hinge leaf, and means mounting the said

components of the hinge pin ends for adjustment to different angular positions relative to the hinge pin, said connecting means comprising recesses in the hinge pin and lugs on barrels of the stationary leaf engaged in said recesses, the recesses being in individual barrels.

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