

United States Patent [19]

Sewing et al.

[11] 3,890,670

[45] June 24, 1975

[54] **ADJUSTABLE FURNITURE HINGE**

[75] Inventors: **Gerhard Sewing**, Lohne; **Jurgen Bachor**, Kirchlengern, both of Germany

[73] Assignee: **Paul Hettisch & Co.**, Kirchlengern, Germany

[22] Filed: Aug. 16, 1974

[21] Appl. No.: 498,226

[30] **Foreign Application Priority Data**

Aug. 21, 1973 Germany 2342113

[52] U.S. Cl. 16/129

[51] Int. Cl. 2 E05D 7/04

[58] Field of Search 16/129, 130, 131, 132, 16/133

[56] **References Cited**

UNITED STATES PATENTS

2,545,378 3/1951 Peck 16/130 X
2,839,778 6/1958 Hutchinson et al. 16/129
3,251,088 5/1966 Boundy 16/130 X

3,325,942 6/1967 Bejarano 16/132 X
3,332,104 7/1967 Leach 16/130
3,772,735 11/1973 Lautenschlaeger 16/129

FOREIGN PATENTS OR APPLICATIONS

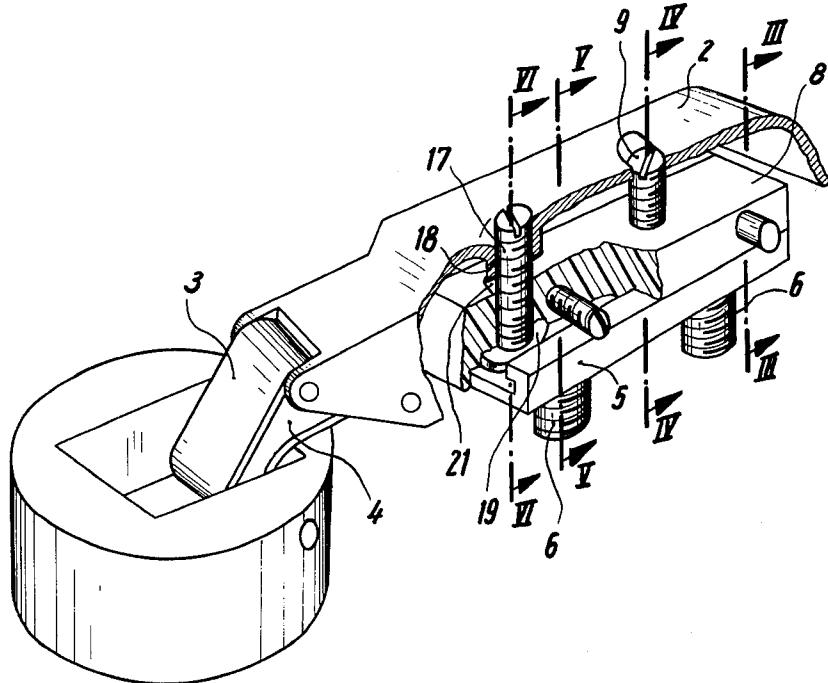
753,798 3/1967 Canada 16/131
1,105,081 3/1968 United Kingdom 16/130

Primary Examiner—Alfred R. Guest
Attorney, Agent, or Firm—Michael S. Striker

[57] **ABSTRACT**

A hinge member has an elongated hinge arm pivoted to it. Remote from the hinge member the hinge arm is mounted for pivotal displacement about a pivot axis. An arrangement is provided for shifting the hinge arm along the pivot axis to a plurality of adjusting positions. Another arrangement is operable independently of the first mentioned one and serves to adjustably pivot the hinge arm about the pivot axis, and a third arrangement is operable independently of first mentioned ones and serves to adjustably displace the hinge arm lengthwise of itself.

10 Claims, 11 Drawing Figures



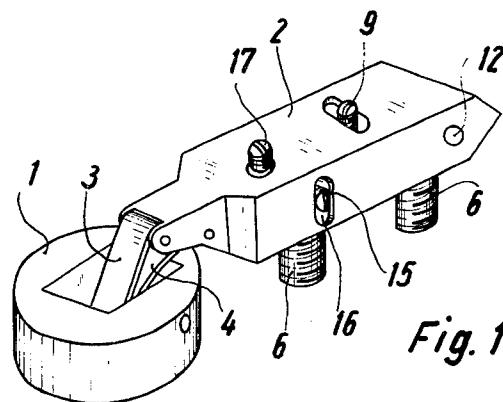


Fig. 1

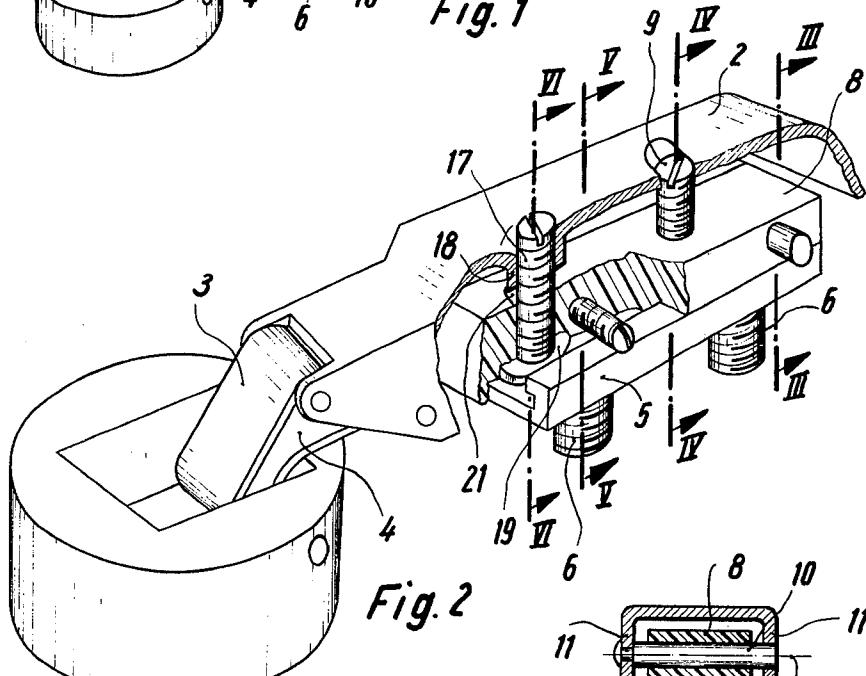


Fig. 2

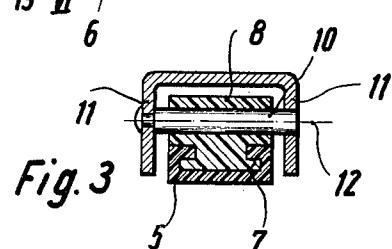


Fig. 3

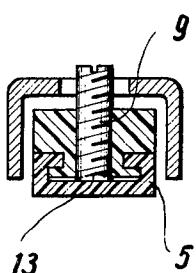


Fig. 4

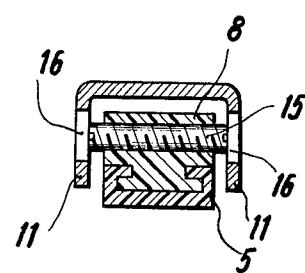


Fig. 5

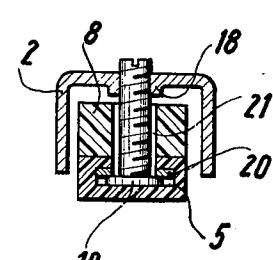


Fig. 6

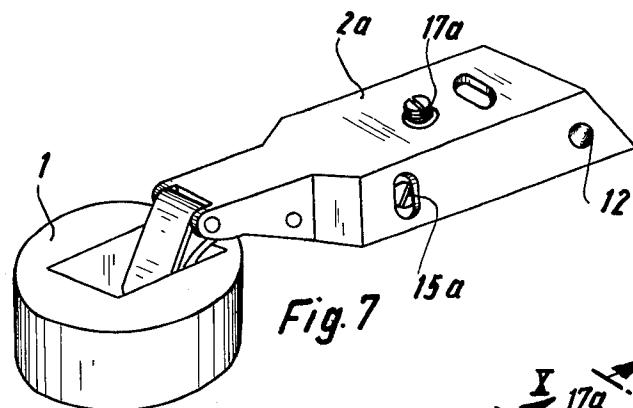


Fig. 7

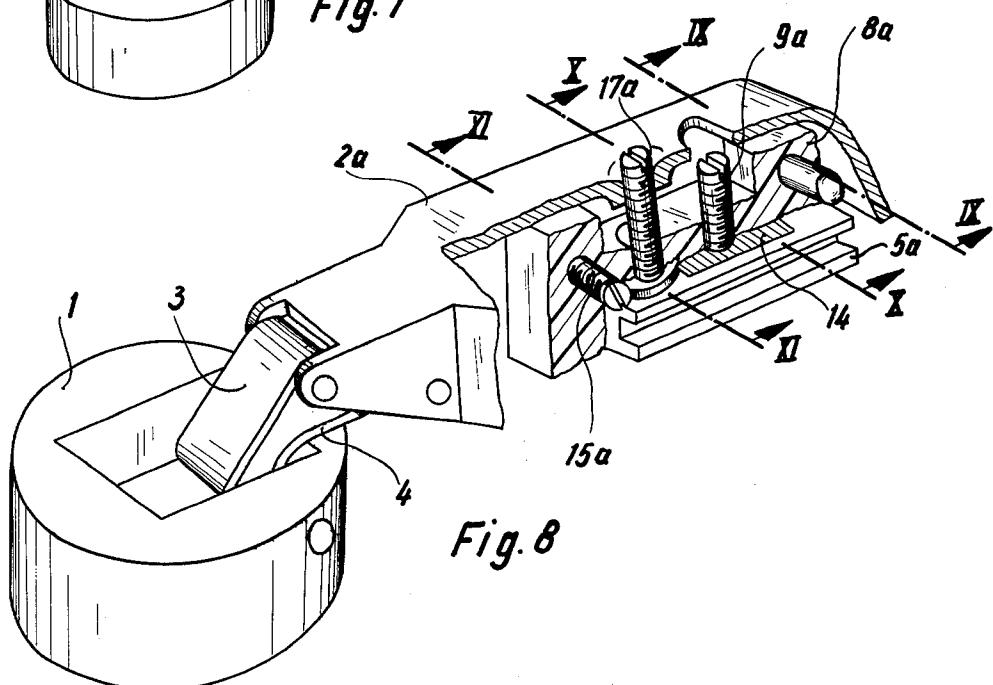


Fig. 8

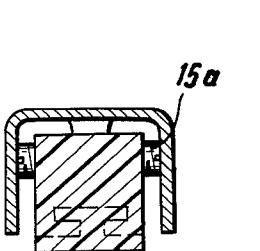


Fig. 11

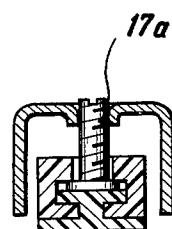


Fig. 10

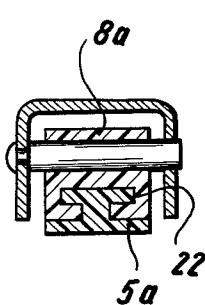


Fig. 9

ADJUSTABLE FURNITURE HINGE

BACKGROUND OF THE INVENTION

The present invention relates generally to a hinge, and in particular to an adjustable furniture hinge.

It is known to provide furniture hinges having a housing which is recessed in a door or similar member of a piece of furniture, for instance a cabinet. The housing is connected in a hinged manner with a hinge arm which in turn is secured by a mounting member on the body of the piece of furniture with reference to which the door is to be hinged movable. The mounting member is connected independently of the hinge arm to the furniture body, and the hinge arm is connected to the mounting member by means of a screw. In order to be able to provide an adjustment of the hinge arm with reference to the mounting member, a set screw may be provided, but the adjustment that is possible in this manner is strictly limited and quite difficult to accomplish.

Other types of adjustments for the hinge arm are also known from the prior art but in every instance at least one set screw must be loosened and, when the adjustment has been carried out, must be tightened again. This repeated loosening and tightening influences the positioning of the hinge arm in such a way that a precise positioning--as opposed to a relatively coarse adjustment--is not possible with the prior-art arrangements. Yet, this is a very important feature, especially on well-made furniture.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to overcome the drawbacks of the prior art. More particularly, it is an object of the invention to provide an adjustable furniture hinge which is not possessed of the aforementioned disadvantages.

Still more specifically, it is an object of the invention to provide an adjustable furniture hinge which makes it possible to provide for a fine adjustment of the hinge arm of the furniture hinge as a plurality of different directions, and to carry out such adjustment in any one direction or dimension without thereby influencing the adjustment or positioning of the hinge arm in any other direction or dimension.

In keeping with these objects, and with others which will become apparent hereafter, one feature of the invention resides in an adjustable furniture hinge which, briefly stated, comprises a hinge member and an elongated hinge arm pivoted thereto for movement about a pivot axis. First means mounts the hinge arm remote from the hinge member for movement about another axis extending transverse to the elongation of the hinge arm. Second means is provided for adjustably shifting the hinge arm longitudinally of the other axis, and third means is operable independently of the second means for adjustably shifting the hinge arm lengthwise of itself.

In addition, still another means may be provided for so adjusting the hinge arm that it is pivoted to a selectable degree about the aforementioned other axis. In such a case, the invention thus provides an adjustable furniture hinge where in the hinge arm can be adjusted in three dimensions, and in which the adjustment in each of these directions can be carried out independently of any adjustments or positioning in the other dimensions, that is without influencing the positioning

of the hinge are with respect to the other two dimensions. This permits a very precise positioning of the hinge arm and, hence, of the door with which it cooperates on a piece of furniture.

5 The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view illustrating an adjustable furniture hinge according to the present invention;

FIG. 2 shows the hinge of FIG. 1 on an enlarged scale, and with a partially sectioned hinge arm;

FIG. 3 is a section on line III—III of FIG. 2;

FIG. 4 is a section on line IV—IV of FIG. 2;

FIG. 5 is a section on line V—V of FIG. 2;

FIG. 6 is a section on line VI—VI of FIG. 2;

FIG. 7 is a perspective view illustrating a further embodiment of the invention;

FIG. 8 is an enlarged-scale view of the embodiment in FIG. 7, with the hinge arm partially in section;

FIG. 9 is a section on line IX—IX of FIG. 8;

FIG. 10 is a section on line X—X of FIG. 8; and

FIG. 11 is a section on line XI—XI of FIG. 8.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Discussing the drawing in detail and referring firstly to the embodiment illustrated in FIGS. 1-6, it will be seen that the novel furniture hinge has a housing 1 which is to be recessed in a corresponding depression in a door on a piece of furniture. A hinge arm 2, 2a is provided which is to be connected to the body of the piece of furniture, and connecting members 3, 4 pivotably connect the hinge arm 2, 2a with the housing 1. This basic description is, incidentally, also applicable with respect to the embodiment illustrated in FIGS. 7-11.

45 In the embodiment of FIGS. 1-6, there is provided a profiled mounting member 5 which is to be connected with the furniture body by means of screws or, as illustrated, by means of anchoring pins 6 which may be of one piece with the profiled mounting member 5. The latter is formed with a groove 7 which in the illustrated embodiment is of U-shaped cross section and in which a correspondingly configurated base portion of a shiftable member 8 is received. The latter is slidable in the groove 7 and can be fixed in any desired position relative to the member 5 by means of a set screw 9. When the latter is tightened, the lower free end of the set screw 9 engages the bottom face bounding the groove 7 and sets up a tension between the members 5 and 8 to prevent undesired shifting of the latter with reference to the former.

60 It is evident that when the screw 9 loosened, the arm 2 can be shifted lengthwise of itself relative to the mounting member 5, since the arm 2 is connected to the shiftable member 8 by means of a pin 10 which is secured in the lateral side walls 11 of the U-shaped arm 2 and which is mounted in the shiftable member 8 so as to be slidable in the direction of the pivot axis 12. The displacement of the arm 2 with reference to the

member 5 in longitudinal direction of the arm 2 can be carried out continuously, that is the arm 2 can be shifted to any desired extent.

It is advantageous if the free end of the screw 9 is formed with an annular edge 13 which, when the screw 9 is tightened, tends to dig into the bottom wall bounding the groove 7. In addition to, or in lieu of the edge 13, the bottom wall bounding the groove 7 may also be provided with sawtooth-like projections 14, as illustrated with respect to the member 5a in the embodiment of FIG. 8.

A set screw 15 is provided which permits an adjustable displacement of the hinge arm 2, 2a in direction transversely towards elongation. The set screw 15 passes through a tapped bore in the shiftable member 8 and its free ends abut against the side walls 11 of the hinge arm. It is of course necessary to be able to turn the screw 15 from the exterior of the hinge arm, and to make this possible slots 16 are formed in the side walls 11 of the hinge arm. The end faces of the screw 15 abut against the inner edges of these slots 16 and are provided with recesses into which a screw driver may be inserted so that the screw 15 can be turned from either side of the hinge arm 2, 2a. When the screw is so turned, the hinge arm 2 shifts transversely towards elongation in one or the other direction, depending upon the direction in which the screw 15 is turned, thereby causing the pin 10 to slide in the bore in which it is received in the shiftable member 8.

To permit an adjustment of the hinge arm 2, 2a in still a third dimension, namely to permit a tiltable adjustment about the axis 12, a set screw 17 is provided which passes through a threaded sleeve 18 of the hinge arm 2 and is provided at its lower free end with a plate 19 which is received in a recess 20 of the member 8. To make it possible for the arm 2, 2a together with the set screw 17 to be shifted transversely to the elongation of the arm and relative to the member 8, the shaft of the set screw 17 extends through an elongated slot 21 in the member 8. The plate 19 must have sufficient play in the recess formed for it in the member 8, that is in the recess 20, so that this transverse displacement can be carried out.

It is evident that the means for adjusting the hinge arm 2, 2a in the three dimensions in which such adjustment is possible, are each operably entirely independently of the others, so that one adjustment carried out by operation of one of these means does not in any influence the prior adjustment of the arm with respect to the other two dimensions.

In the embodiments of FIGS. 1-6, a tilting displacement of the hinge arm 2 about the axis 12 in the direction of the housing 1 is effected by means of the screw 17 which is located opposite the screw 15 that effects the transverse displacement. The embodiment of FIGS. 7-11 is somewhat different, as will be described. In particular, the embodiment of FIGS. 7-11 corresponds to the one in FIGS. 1-6 except in the particular differences which will be described hereafter. In FIGS. 7-11, the set screw 17a is located between the set screw 15a and the set screw 9a. The member 5a and the member 8a have different shapes as opposed to the members 5 and 8 of FIGS. 1-6, but their purpose and operation is the same as before. The cross section of the member 5a is of double T shape, and a portion of the member 5a engages in a groove 22 formed for this purpose in the member 8a.

In all other respects, including in the adjustment of the positioning of the hinge arm by operation of the set screws 9a, 15a and 17a, the embodiment of FIGS. 7-11 corresponds to that of FIGS. 1-6. In this second embodiment, just as in the first one, each adjustment in one dimension can be carried out independently of any adjustments in the other two dimensions, so that a very precise positioning of the hinge arm can be effected.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of constructions differing from the type described above.

While the invention has been illustrated and described as embodied in an adjustable furniture hinge, it is not intended to be limited to the details shown since various modifications and structural changes may be made without departing in any way from the spirit of the invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

What is claimed as new and desired to be protected by Letters Patent is:

1. An adjustable furniture hinge, comprising a hinge member and an elongated hinge arm pivoted thereto for movement about a pivot axis; first means mounting said hinge arm remote from said hinge member for movement about another axis extending transverse to the elongation of said hinge arm; second means for adjustingly shifting said hinge arm longitudinally of said other axis; and third means operable independently of said second means for adjustingly shifting said hinge arm lengthwise of itself.

2. A hinge as defined in claim 1, said third means comprising a mounting member connectable with a piece of furniture, a shiftable member on said mounting member and shiftable lengthwise of said hinge arm; and a screw for arresting said shiftable member relative to said mounting member.

3. A hinge as defined in claim 2, said hinge arm having a hole into which said screw projects so that said screw, hinge arm and shiftable member move in unison.

4. A hinge as defined in claim 2, said mounting member having a toothed contact surface, and said screw having an end portion cooperating with said contact surface and formed with an annular contact edge.

5. A hinge as defined in claim 2, wherein said hinge arm is of U-shaped cross section and has side walls in which a pin is mounted; and wherein said shiftable member is formed with a passage in which said pin is slidably received.

6. A hinge as defined in claim 1, wherein said axes extend parallel to one another.

7. A hinge as defined in claim 2, and means for pivotably adjusting said arm about said other axis, comprising a screw member having a shaft portion threaded through a hole in said hinge arm, and an end portion provided with a plate which is received in a recess of said shiftable member, said screw member extending normal to said other axis.

8. A hinge as defined in claim 2, wherein said second means comprises a threaded element extending through a tapped transverse bore in said shiftable mem-

ber, and having free end portions, said arm being of U-shaped cross section and having side walls located adjacent to and adapted to be abutted by the respective free end portions when said threaded element is turned.

9. A hinge as defined in claim 2, said mounting member having a longitudinal groove, and said shiftable member having a longitudinally extending portion of a

cross section mating to that of said groove and slidably received in the latter.

10. A hinge as defined in claim 2, said shiftable member having a groove extending longitudinally of said hinge arm, and said mounting member having a portion received in said groove.

* * * * *

10

15

20

25

30

35

40

45

50

55

60

65