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W. R. AMSTUTZ
CABINET HINGE

2,920,341

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2 Sheets-Sheet 1

Fig. 1.

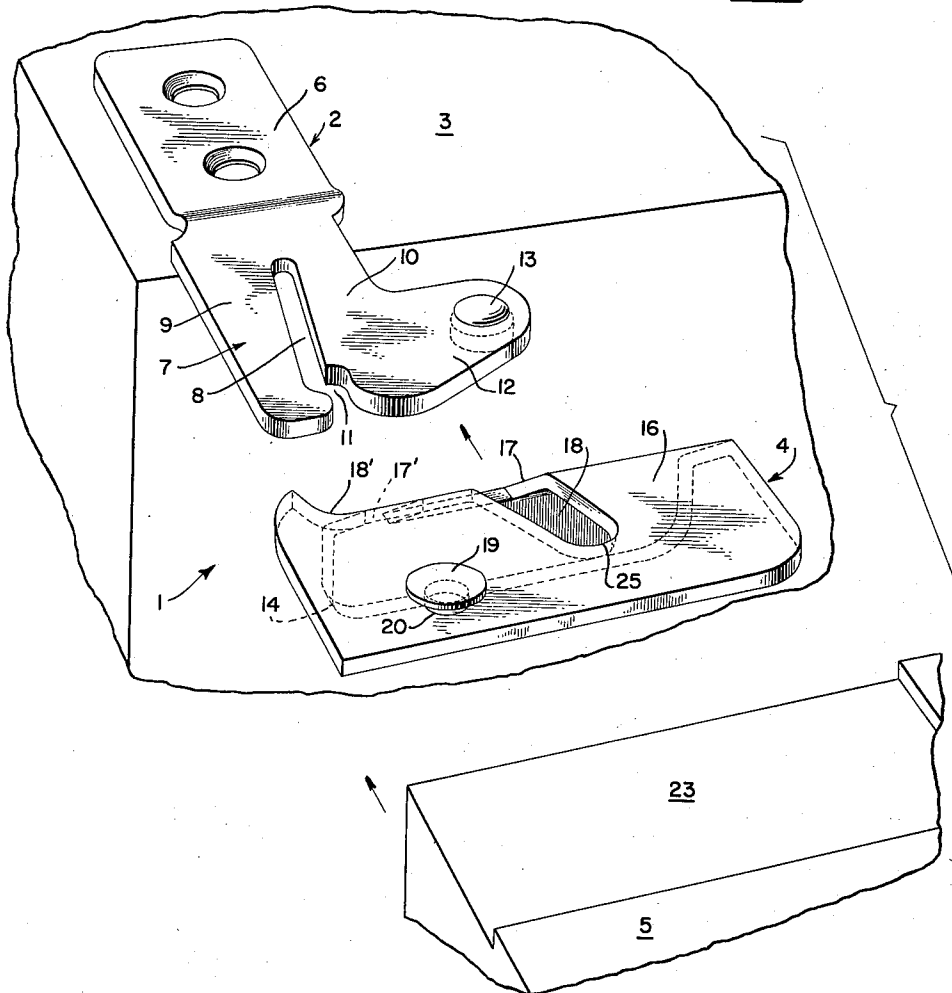
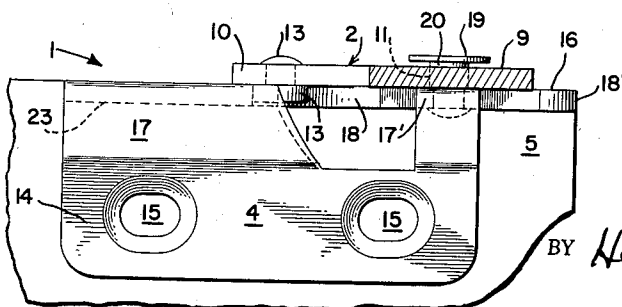


Fig. 3.



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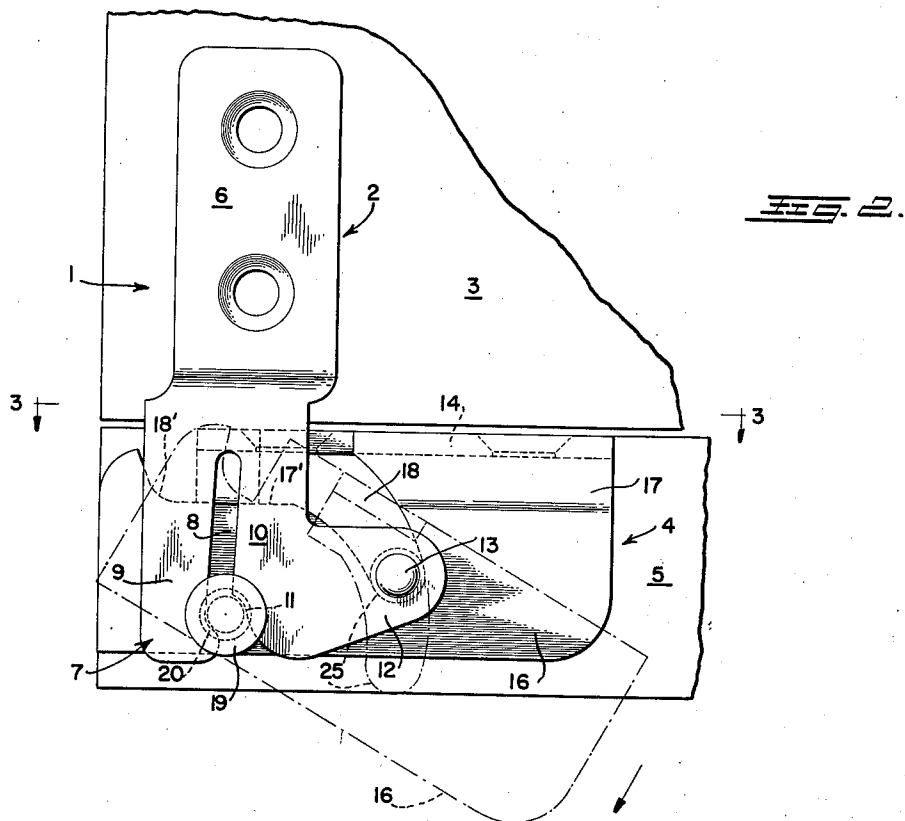
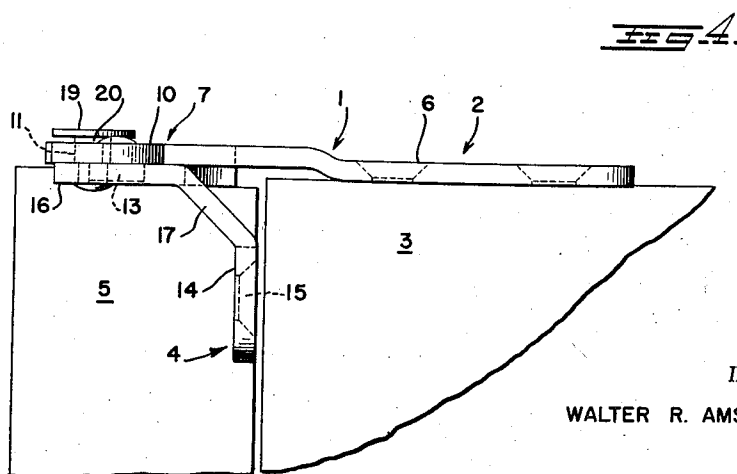
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CABINET HINGE

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10 Claims. (Cl. 16—171)

This invention relates to hinge constructions for doors and the like. More particularly, it is concerned with providing a unique hinge arrangement for a cabinet door, whereby the cabinet door may be readily removed from the hinge mounting and wherein novel means are provided for preventing the over-pivoting of the door in either one of two directions of pivot.

Various hinge designs have previously been employed for cabinet doors and the like. These, however, have not proven entirely satisfactory for one or more reasons. Some hinge arrangements, for example, involved complicated designs or parts that could not be easily fabricated. Other hinge assemblies were not subject to ready installation. Finally, most hinge assemblies used in the past for cabinet doors were incapable in and of themselves of restricting pivotal movement beyond a predetermined point. All of these aforesaid difficulties are believed overcome by the novel hinge assembly of the instant invention.

Accordingly, it is a primary object of this invention to provide a unique hinge arrangement, whereby a cabinet door or the like can be removably secured to a base cabinet or other structure in a minimum amount of time and without the use of any special tools.

It is a further object of this invention to provide a unique hinge arrangement for a cabinet door and the like wherein pivotal movement of the cabinet door beyond predetermined points in either one of the two directions of pivot will be effectively prevented.

It is a further object of this invention to provide a unique simplified hinge arrangement for a cabinet door and the like wherein a common stop means is employed on at least one of the hinge components for preventing pivotal movement of the cabinet door beyond predetermined points in either direction of pivot.

It is a further object of this invention to provide a novel hinge arrangement for a cabinet door and the like wherein the hinge component, secured to the cabinet door, may be quickly snap fitted into engagement with the hinge component secured to a base member without the use of any special tools.

Other objects and advantages of the instant invention will become more apparent from a review of the following detailed description, when taken in conjunction with the appended drawings wherein:

Figure 1 is an exploded view of the various hinge elements making up the hinge assembly of the instant invention;

Figure 2 is a top plan view of the hinge assembly of the instant invention with the various components thereof being shown in assembled relationship and as secured to a base member and a door member;

Figure 3 is a sectional view of the hinge assembly of the instant invention when taken along line 3—3 of Figure 2, with parts removed for the sake of clarity; and

Figure 4 is a side elevational view of the hinge assembly shown in Figure 2.

With further reference to the drawings, the hinge as-

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sembly 1 of the instant invention is generally comprised of a hanger plate 2 securable to a base member 3 and a hinge plate 4 securable to a door member such as a cabinet door 5.

The hanger plate 2 in turn is generally comprised of an elongated base portion 6 and an offset bifurcated outer portion 7, which is divided by means of an elongated slot 8 into a pair of fingers 9 and 10. A portion of the slot 8 adjacent to the outer extremity thereof is also widened or enlarged to form a pivot pin aperture 11. The outer extremity of finger 10 is also enlarged to form an ear portion 12. Affixed to the ear portion 12 in a depending fashion is a hinge stop 13.

The hinge plate 4 is generally comprised of an upstanding wall 14 provided with apertures 15 and a flat top or base portion 16. It will also be noted the base portion or top 16 is connected to the wall 14 by means of an angularly disposed or sloping wall portion 17. An arcuate slot 18 is located in the top of base member 16. This slot 18 along with the section 17' of wall portion 17 and the shoulder 18' on base member 16 form a trackway for the stop 13 when hinge plate 4 and hanger plate 2 are assembled. Also rigidly secured to the top of the base 16 is a pivot pin 19.

The hinge components 2 and 4 are assembled as follows:

First of all, the base portion 6 of the hanger plate or member 2 is secured to a corner edge of a base member 3, such as a cabinet frame by suitable screws (not shown). The hinge plate 4 in turn is secured to a corner edge of a door 5 in such a fashion that the top 16 thereof is located within a cut out or recessed section 23 in the door and secured thereto by means of suitable screws inserted through the screw holes 15 in the upstanding wall 14 of the hinge plate. With the hinge plate 4 being rigidly secured to the door 5, the door 5 and hinge plate 4 are moved forward as indicated by the arrows in Figure 1 until the shank 20 or pivot pin 19 is partially received within the pivot pin aperture 11. The door 5 is then rotated in a normal opening manner to bring the shoulder 18 on base member 16 into bearing engagement against the hinge stop 13. The leverage applied by continued rotation of the door 5 causes the shank 20 of pivot pin 19 to urge the finger 9 away from the finger 10. Since the hanger member 2 is made of a somewhat resilient material, such as spring steel, the fingers 9 and 10 of the bifurcated portion 7 of the hanger plate 2 will easily open up an amount sufficient to allow the shank 20 to be snap-fittingly forced completely into the pivot pin aperture 11. After insertion of pivot pin 19 into aperture 11, fingers 9 and 10 will close about the shank 20 of pivot pin 19 and securely, but removably, hold it in place in opening 11. At the same time, the hinge stop 13 on the hanger member 2 will also slidingly fit within slot 18 in the base member 16 of the hinge plate 4.

It may thus be seen that there is provided a unique hinge arrangement whereby the door 5 can be removably secured to the base cabinet 3 in a minimum amount of time without requiring the use of any tools whatsoever.

In operation, the door 5 is pivoted about pivot pin 19 located in pivot opening 11. When the door is closed, the hinge stop 13 on the hanger member 2 will engage the end 25 of the slot 18 in the base member 16 whereby inward movement of the door will be restricted at the proper point.

At the same time, the same hinge stop 13 also comes into play when the door is opened. During opening of the door, stop 13 will ride in slot 18, past sloping wall portion 17' until it contacts the shoulder or abutment 18' on the base member 16, whereby it will advantageously limit the outward pivotal movement of the door so

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that it cannot bang into an adjacent cabinet section or other object.

From the above description, it will be observed that a unique simplified hinge assembly has been provided.

Although the hinge assembly 1 of the instant invention has been shown as being applied at the top of a cabinet door, the same assembly can be used for the bottom of the door simply by reversing the positions of the various hinge components. It will also be noted that the offset portion 7 of the hanger plate 2 is so offset with respect to portion 6 thereof that it is adapted to override or be located on the outside of the hinge plate 2 on the door in order to provide for clearance of the cabinet door 5 during the pivoting thereof.

It will be obvious that various changes and modifications may be made in the instant invention without departing from the spirit and scope thereof as defined by the appended claims wherein:

What is claimed is:

1. A hinge construction for connecting a base member to a cabinet door comprising, a hanger plate secured to said base member, a hinge plate, one portion of said hinge plate being fixedly secured to said cabinet door, said hanger plate being bifurcated to define a slot and spaced relatively yieldable ends, a portion of said slot adjacent the outer extremity thereof being enlarged to provide a pivot pin aperture, stop means on said hanger plate, a pivot pin secured to said hinge plate and snap fitted within said pivot pin aperture in said hanger plate by separation of said relatively yieldable ends, and stop means on said hinge plate cooperating with said stop means on said hanger plate for limiting pivotal movement of said door during both the closing and opening thereof.

2. A hinge construction of the type set forth in claim 1 wherein said first-mentioned stop means comprises a pin and said second-mentioned stop means includes a slotted portion in the hinge plate.

3. A hinge construction for connecting a base member to a cabinet door and comprising, a bifurcated hanger plate secured to said base member and defining relatively yieldable spaced apart ends, a hinge plate having one portion fixedly secured to said cabinet door, pivot means on said hinge plate snap fitted to said hanger plate between said relatively yieldable spaced apart ends, and stop means on said hanger plate cooperating with stop means on said hinge plate so as to cause limited pivotal movement of said hinge plate and said door during both the opening and closing thereof.

4. In a hinge construction for connecting a base member to a door, a bifurcated hanger plate secured to said base member and defining relatively yieldable spaced apart ends, a hinge plate fixedly secured to said door, pivot means on said hinge plate snap fitted to said hanger plate between said relatively yieldable spaced apart ends, a stop means on said hinge plate, and a common stop means on said hanger plate cooperating with said first-mentioned stop means during both the opening and closing of said door so as to cause limited pivotal movement of said door during both the opening and closing thereof.

5. In a hinge construction for connecting a base

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member to a door, a hanger plate secured to said base member, a hinge plate having a portion secured to said door, said hanger plate being provided with a slot, a portion of said slot adjacent the outer extremity thereof being enlarged, a stop pin on said hanger plate, a pivot pin secured to said hinge plate and snap fitted within the enlarged portion of the slot in the hanger plate, and said hinge plate also having stop means including an arcuate slotted portion therein for cooperating with said stop pin during the opening and closing of the door so as to cause limited pivotal movement of the hinge plate and the said door during both the opening and closing thereof.

6. As an article of manufacture a hinge component comprising a hinge plate, said hinge plate including an upstanding wall securable to a door, a base portion disposed at a transverse angle to said upstanding wall and a sloping wall connecting said upstanding wall with said base portion, said base portion also having a slotted portion, and a shoulder disposed adjacent a section of said sloping wall, said slotted portion, a section of said sloping wall and said shoulder serving as stop means adapted to cooperate with stop means on another hinge component.

7. The article of manufacture as set forth in claim 6, including a pivot pin secured to the base portion of the hinge plate.

8. In a hinge mechanism, a first member having a bifurcated terminal portion defining a pair of relatively yieldable spaced apart ends and a pintle receiving recess positioned inwardly of said ends, a second member carrying a pintle receivable by said recess upon a separation of said ends to accommodate movement of said pintle toward said recess, first cam means on one of said members, and second cam means carried on the other of said members engageable with said first cam means for simultaneously effecting a separation of said ends and the positioning of said pintle within said recess during relative pivotal movement of said members when said pintle is initially positioned adjacent said ends.

9. The invention set forth in claim 8 in which said first cam means is further engageable with said second member to limit relative pivotal movement of said members when said pintle is positioned within said recess.

10. In a hinge mechanism, a first member having a bifurcated terminal portion defining a pair of relatively yieldable spaced apart ends and a pintle receiving recess positioned inwardly of said ends, a second member carrying a pintle receivable by said recess upon a separation of said ends to accommodate movement of said pintle toward said recess, and cam means on said first and second members for simultaneously effecting a separation of said ends and the positioning of said pintle within said recess during relative movement of said first and second members when said pintle is initially positioned between said ends.

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