Jan. 17, 1956 P. D. BELZ 2,731,320

SLIDING HINGE

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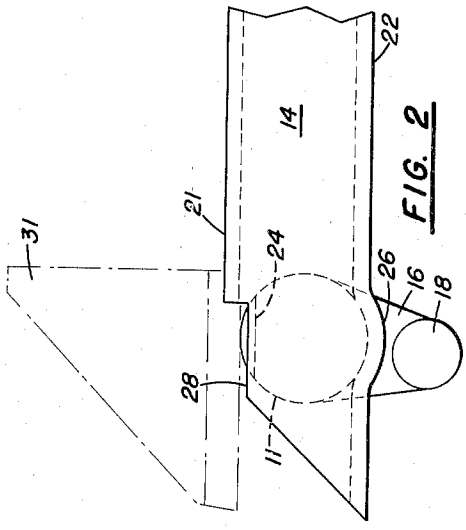


FIG. 2

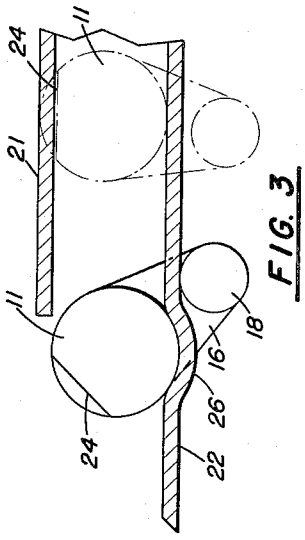


FIG. 3

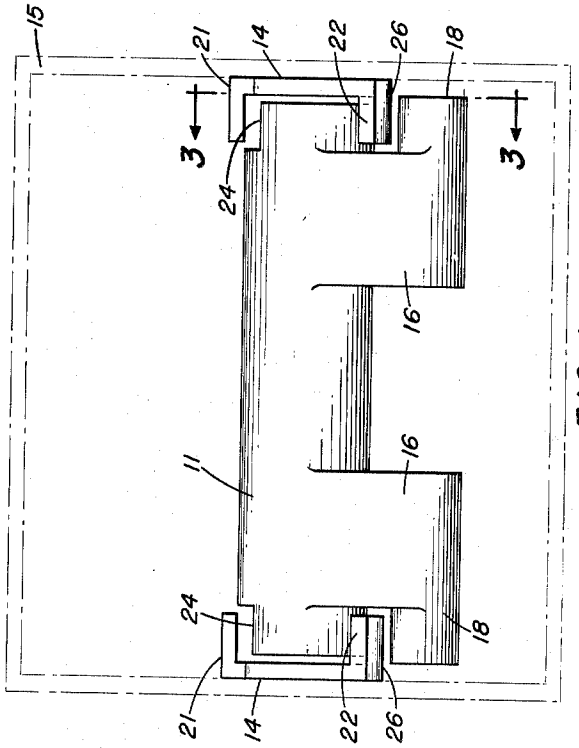


FIG. 1

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SLIDING HINGE

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The present invention relates to a slidable mounting means and more particularly to a combination slidable and rotatable hinged support so arranged that a chassis secured to the support may be slidably withdrawn from a case, rotated about a point to a predetermined position and held in this position.

Often equipment requiring frequent service and repair, such as electrical and electronic equipment, for example, has been rendered relatively inaccessible when the chassis on which it is mounted has been enclosed in a protective case. Consequently, considerable time is expended in removing the chassis from the case whenever work on the equipment is undertaken.

The present invention facilitates access to equipment mounted on a chassis which is enclosed in a case, by providing a slidable supporting member for the chassis, detachably secured in the case and arranged to move slidably along supports attached to the inside of the case. With this arrangement the chassis may readily be withdrawn from within the case and rotated into an extended position in which the equipment on the chassis is accessible while the chassis remains connected to and supported by the case.

An object of this invention is the provision of a means for sliding a chassis out of its case and rotating it into a predetermined extended position.

Another object is to provide a chassis supporting means which prevents rotation of the chassis except in a single position.

A further object of the invention is to provide a means for limiting the angular movement of the chassis at a predetermined point when it is rotated.

Still another object is to provide means for supporting a chassis in a case arranged so that the chassis is readily detachable from the case while the chassis is in its extended position.

The exact nature of this invention as well as other objects and advantages thereof will be readily apparent from consideration of the following specification relating to the annexed drawing in which:

Fig. 1 shows a front elevation of a preferred embodiment of the instant invention.

Fig. 2 shows a side elevation of the device shown in Fig. 1; and

Fig. 3 shows a vertical section of the device taken on the line 3—3 of Fig. 1 looking in the direction indicated by the arrows.

Referring now to the drawing, wherein like reference characters designate like or corresponding parts throughout the several views, there is shown in Fig. 1 a supporting member **11** extending between a pair of parallel channels **14** mounted on opposite inner walls of a case or frame represented in phantom in Fig. 1 by **15**. The member **11** is fitted with a pair of projections **16** extending from the lower side near the opposite ends thereof and arranged to support a pair of stops **18** so disposed that they move into engagement with the respective channels **14** when the member **11** is rotated about its longitudinal axis in

the manner of a hinge pin. Each channel **14** is U-shaped as shown in Fig. 1 and includes an upper flange **21** and a lower flange **22** spaced to slidably receive one end of member **11** when the flats **24** at each end of member **11** are disposed adjacent to flanges **21** in the manner shown in the phantom view in Fig. 3.

Due to the flats **24**, member **11** cannot be rotated relative to channels **14** except in one position at one end of the channels where the lower flanges **22** are depressed as indicated at **26** in Figs. 1 and 2. When member **11** is located in the depressions **26** it is rotatable about its own longitudinal axis. Accordingly, a chassis, represented in phantom in Fig. 2 by **31**, which is fixedly mounted on member **11** by suitable means (not shown), is rotatable about the axis of member **11** functioning as a hinge pivot. However, this rotational movement is limited to a predetermined amount by the stops **18** which engage the lower flanges **22** of the respective channels **14** in the manner shown in Fig. 3.

In order to provide for quick detachment of a chassis mounted on member **11** from a case in which the channels **14** are mounted, the upper flange **21** of each channel is cut away opposite the depression **26** in the lower flange **22**, as indicated at **28** in Fig. 2. With this arrangement the chassis is readily detached from the case by withdrawing the chassis until the member **11** reaches the depressions **26**, raising (if necessary) the front of the chassis so as to rotate stops **18** in a clockwise direction, as seen in Fig. 2, and then again moving the chassis forward, with the ends of member **11** sliding on the outer ends of flanges **22**.

In use the structure comprising the instant invention normally supports the inner end of a chassis in its normal position within a case. Whenever it becomes necessary to gain access to equipment mounted on the chassis, the chassis is withdrawn from the case, causing the supporting member **11** to which the chassis is attached to be moved slidably along the channels **14** to the depressions **26**. Due to the coaction of the upper flanges **21** of the respective channels **14** and the flats **24** on the ends of member **11**, the motion of the chassis is necessarily translational until the member **11** drops into the depressions **26**, when the chassis becomes free to rotate downwardly about the axis of member **11** which functions at this time as a hinge pivot. The chassis is brought to rest after the desired angular displacement by the engagement of stops **18** with the lower flanges **22** of the channels.

In order to replace the chassis in its case, the procedure described above is reversed. First, the chassis is rotated to the position shown in Fig. 2. Then, the chassis and the member **11** are moved slidably along the channels until the chassis is again seated in its normal position within the case.

Thus, the instant invention provides a mounting means for a chassis which supports the chassis within its case and provides for withdrawal of the chassis to a predetermined extended position from which the chassis and support therefor may be moved to the ends of the channels at will to provide for quick detachment of the chassis from the case.

It should be understood, of course, that the foregoing disclosure relates to only a preferred embodiment of the invention and that numerous modifications or alterations may be made therein without departing from the spirit and scope of the invention as set forth in the appended claims.

Having thus described the invention, what is claimed is:

1. A mounting means comprising a spaced pair of opposed parallel channels fixedly mounted in a frame, an elongated supporting member extending between said channels and slidable therein, means on each end of said supporting member coacting with said channels to prevent

rotation of the supporting member about its longitudinal axis as it is moved slidably along the channels, corresponding lateral depressions adjacent one end of both channels arranged to receive the ends of said member so that the member may be rotated about its longitudinal axis when its ends are seated in said depressions, and stop means affixed to said supporting member and positioned externally to said channels for engaging said channels to limit rotation of said supporting member when the ends thereof are seated in said depressions.

2. A device as described in claim 1, in which the ends of said supporting member are circular and the means on each end for preventing rotation is a flattened portion thereof disposed in contact with one side of one of said channels.

3. A device as described in claim 1 wherein said stop means comprises a pair of projections extending from one side of said supporting member, and a pair of stops mounted on said projections and arranged to engage the respective channels to limit rotation of said member about its longitudinal axis.

4. A device as described in claim 1, further characterised in that each said channel is cut away opposite said depression to permit said supporting member to be elevated out of said depressions onto the part of the channels between said depressions and the adjacent ends thereof, to thereby facilitate disengagement of said supporting member from said channels.

5. For use in supporting a chassis within a hollow case, a mounting means comprising a spaced pair of opposed parallel channels fixedly secured to opposite inner walls of a case, an elongated supporting member, to which a chassis is fixedly attached, extending between said channels and slidable therein, means on each end of said supporting member coacting with said channels to

prevent rotation of the supporting member, and a chassis attached thereto, about the longitudinal axis of said member as it is moved slidably along the channels, corresponding lateral depressions in the outer end of both channels arranged to receive the ends of said member so that the member may be rotated about its longitudinal axis, when its ends are seated in said depressions, to angularly displace a chassis relative to a case in which it is slidably secured by said mounting means, and stop means affixed to said supporting member and positioned externally to said channels for engaging said channels to limit rotation of said supporting member when the ends thereof are seated in said depressions.

6. A device as described in claim 5 wherein said stop means comprises a pair of projections extending from each side of said supporting member, and a pair of stops mounted on said projections and arranged to engage the respective channels to limit rotation of said member and a chassis attached thereto, about its longitudinal axis.

7. A device as described in claim 5, further characterised in that each channel is cut away opposite said depression to permit said supporting member to be elevated out of said depressions onto the part of the channels between said depressions and the adjacent ends thereof, to thereby facilitate disengagement of said supporting member, and a chassis attached thereto, from said channels, and a case in which they are secured.

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