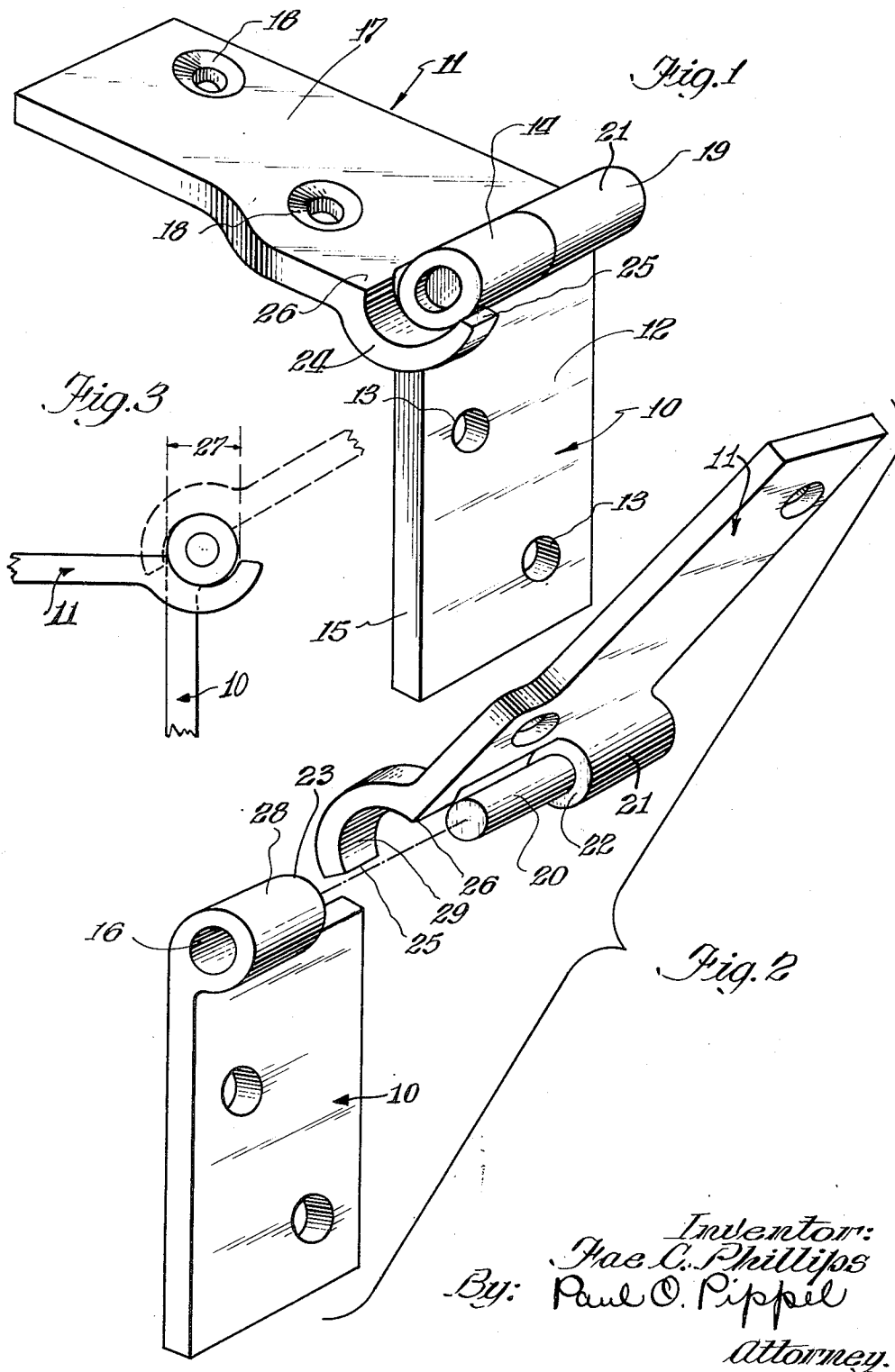


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SEPARABLE HINGE

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SEPARABLE HINGE

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1 Claim. (Cl. 16—174)

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This invention relates to a new and improved hinge construction and more particularly to a novel separable hinge unit.

The primary objective of the present invention is the provision of a pair of hinge leaves which are quickly and easily connectable or disconnectable only when the hinge leaves assume a particular angular position with respect to each other.

A further object is to provide guiding means for facilitating the insertion of the pintle carried by one hinge leaf into a pintle socket carried by the other hinge leaf.

The foregoing and other important objects and desirable features inherent in and encompassed by the invention, together with many of the purposes and uses thereof, will become readily apparent from a reading of the ensuing description in conjunction with the annexed drawing, in which:

Figure 1 is a perspective view of the new and improved hinge unit showing the hinge leaves in their assembled relationship;

Figure 2 is a view similar to Figure 1 illustrating the relative positions of the hinge leaves prior to connection; and

Figure 3 is an end view of Figure 1 and the broken lines represent an end view of Figure 2.

Referring to the drawing in which like reference characters designate like elements throughout the various views there is shown a hinge unit consisting of a pair of hinge leaves 10 and 11. Hinge leaf 10 includes a flat plate section 12 provided with apertures 13 through which securing screws (not shown) are passed to fasten the leaf to the structure utilizing the hinge unit. Formed integrally with the plate section 12 at one end thereof is a cylindrically shaped or sleeve-like pintle bearing portion 14. The bearing portion 14 is offset from the longitudinal median line of the plate section 12 and, as shown in Figures 1 and 2, extends from one side surface 15 of the plate section 12 to approximately the longitudinal median line of the plate section. A bore 16, formed centrally of the bearing portion 14, serves as a socket for rotatably receiving a pintle, to be described hereinafter.

Hinge leaf 11 also includes a flat plate section 17 and securing apertures 18, similar to hinge leaf 10. A sleeve-like pintle support 19 projects beyond the leaf 11 and has the same outside diameter as the bearing portion 14. The pintle support 19 is offset from the longitudinal median line of the plate section 17. A pintle 20 is rigidly held in the support 19 and projects transversely from one end 21 of the support a distance

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equal to or slightly less than the length of the bore 16. The annular surface 22 of the support 19 adjacent the base of the pintle 20 serves as a bearing surface against which one end 23 of the pintle bearing portion 14 abuts when the hinge leaves are in their assembled relationship, as illustrated in Figure 1 of the drawing.

Projecting from and formed integrally with the plate section 17 and being concentric with and axially spaced from the pintle support 19 a distance approximately equal to the length of the pintle bearing portion 14 is a semi-cylindrical segment 24. The spaced ends 25 and 26 of the segment define an axially disposed slot or passageway 27.

In order to assemble the hinge leaves 10 and 11, leaf 10 is moved angularly with respect to leaf 11 until it assumes the position shown in Figure 2 and the broken line illustration of Figure 3. Thereafter, axial advancement of the leaf 10 toward the leaf 11 causes a portion of the exterior surface 28 of the pintle bearing 14 to slidably engage the interior surface 29 of the segment 24. Inasmuch as the radii of curvature of the exterior surface 28 and the interior surface 29 are practically alike it will be obvious that the bearing 14 is cradled on segment 24 and since segment 24 is coaxial with the pintle 20, the bearing 14 is guided axially into engagement with the pintle upon further axial movement. Pivoting of one hinge leaf relatively to the other hinge leaf to the position shown in Figure 1 moves the segment 24 into abutting engagement with the side surface 15 of the plate section 12 to prevent axial displacement of the bearing portion 14 from the pintle 20. It will be noted that by virtue of offset construction of the bearing portion 14 and the pintle support 19 the plate sections 12 and 17 are substantially in longitudinal alignment and symmetrically disposed about the rotational axis of the leaves. To disconnect the hinge leaves, it is necessary to rotate the leaves about their axis of rotation until the flat plate section 12 of hinge leaf 10 is in axial alignment with the slot 27. The hinge leaves may then be easily separated axially. It will be appreciated from the above described hinge structure that one hinge leaf is locked against axial displacement from the other hinge leaf in all angular positions of the leaves except when the segment 24 is moved out of abutting engagement with the side surface 15 in which position the plate section 12 is in axial alignment with the slot 27.

The embodiment of the invention chosen for

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the purpose of illustration and description herein is that preferred for achieving the objects of the invention and developing the utility thereof in the most desirable manner, due regard had to existing factors of economy, simplicity of design and construction, and the improvements sought to be effected. It will be appreciated, therefore, that the particular structural and functional aspects emphasized herein are not intended to exclude, but rather to suggest, such other adaptations and modifications of the invention as fall within the spirit and scope of the invention as defined in the appended claim.

What is claimed is:

A separable hinge unit comprising a first hinge leaf having a sleeve-like extending portion at one end thereof, said portion being offset from the longitudinal median line of said hinge leaf and extending substantially from said longitudinal median line to a first side surface of said hinge leaf; a pintle projecting centrally from one end of said extending portion; a second hinge leaf having one end provided with a bearing portion having a bore formed therein for rotatably receiving said pintle, said bearing portion abutting said extending portion when said hinge leaves are in their assembled relationship, said second hinge leaf further having a second flat side surface disposed normally to the rotational axis of said hinge leaves, said bearing portion being offset from the longitudinal median line of said second hinge leaf and extending substantially

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from said longitudinal median line to said second flat side surface of said second hinge leaf; a semi-cylindrical segment projecting from said first hinge leaf being concentric with and axially spaced from said extending portion a distance at least equal to the axial length of said bearing portion and further being adapted to abut said second flat side surface and prevent axial displacement of said hinge leaves, said semi-cylindrical segment having its ends spaced to define an axially disposed slot whereby said hinge leaves can only be disconnected after being assembled when said second hinge leaf is in axial alignment with said slot, and the interior surface of said semi-cylindrical segment forms an axial guide-way to register the bearing portion with the pintle during assembly of the hinge leaves, said hinge leaves being in substantially longitudinal alignment and symmetrically disposed about their rotational axis when they are in their assembled relationship.

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