

Description

We have described in EP—A1—2114, a zero insertion force circuit board edge electrical connector, comprising an insulating housing having an elongate opening for receiving a circuit board along a board insertion path; at least one row of electrical terminals positioned beside the opening and extending in the longitudinal direction thereof, each terminal having a resilient contact portion for engaging the circuit board when such has been inserted into the opening along the insertion path; a groove formed in the bottom of the opening and extending longitudinally thereof; an elongate cam mounted for rotation about its longitudinal axis in the groove and extending longitudinally thereof; and a cam follower having a first surface engaging the cam, the cam follower being displaceable normally of the base of the groove by rotation of the cam, to cause the cam follower to move between a first position in which it displaces the contact portions from the insertion path and a second position in which the cam follower is retracted to allow the contact portions to intersect the insertion path.

The use of a rotary cam as opposed to a linear action cam has the advantages that no space is required to accommodate reciprocating movement of the cam and that the cam can be of very simple construction, being for example of oblong or of substantially elliptical, cross-section.

However, in this known connector, the cam follower is returned from its first to its second position by virtue of the resilience of the contact portions of the terminals, which resilience also serves to maintain the cam follower in its second position. It has been found, that their exercise of this return function tends to cause the contact portions to lose resilience with the result that the cam follower, after an extended period of use of the connector, can no longer be fully returned to its second position so that the connector becomes inoperative, or the cam follower is readily displaced from its second position. Especially where the connector is subjected to vibration whilst in use or is mounted so that the return of the cam follower is not assisted by gravity, this latter disadvantage will result in intermittent impairment of the integrity of the electrical connections between the contact portions and the conductors of the circuit board.

According to the present invention, therefore, a connector as defined in the first paragraph of this specification is characterised in that the cam follower has a second surface spaced from the first surface towards the base of the groove and which is engageable by the cam, as the cam is rotated to cause the cam follower to move from its first to its second position, so that the cam positively drives the cam follower to its second position, in which position the second surface engages the side of

the cam nearest to the base of the groove so that the cam follower is secured in its second position by the cam, against unintended movement; and in that the cam follower comprises a first wall extending from a base for engagement with the contact portions, and a second wall extending from the base in the opposite direction to the first wall, the second surface being provided on a flange on the second wall, the flange overlapping the base and being spaced therefrom.

There is disclosed in US—A—4,179,177, a connector in which the cam positively drives the cam follower to its second position and retains it in such position.

Although DE—A—2,707,122 discloses a zero insertion force electrical connector, in which a cam follower acting upon the contact portions of the terminals of the connector is positively driven by means of a cam, the cam is a linear action cam, and the cam follower could not be positively driven by means of a rotary cam.

US—A—3,596,230, US—A—3,899,234, US—A—4,047,782 and US—A—4,069,403 are also representative of the current general state of the art.

For a better understanding of the invention an embodiment thereof will now be described by way of example with reference to the accompanying drawings in which:—

Figure 1 is a perspective sectional view of a zero insertion force circuit board edge electrical connector;

Figure 2 is a longitudinal, vertical sectional view through an end portion of the connector;

Figure 3 is an enlarged perspective, sectional view of a cam and a cam follower of the connector; and

Figures 4 to 6 are cross-sectional views of the connector illustrating the operation thereof.

The connector comprises an insulating housing 10, a cam 12, a cam follower 14 and a plurality of electrical terminals 16.

The housing 10 defines an elongate central opening 18 for receiving an edge portion of a circuit board 20 (Figure 1) along a board insertion path A, a row of spacer members 22 on each side of the opening 18 defining recesses 24 each receiving a terminal 16 extending through a passage 26 in the base 27 of the housing 10, which passage communicates with the recess 24.

The opening 18 communicates with a groove 28 formed in the base 17, which defines the bottom of the opening 18, the groove 28 extending longitudinally thereof. The groove 28 receives the cam 12 for free rotation therein.

At each end thereof the housing 10 has a mounting lug 30 (only one is shown) with a screw hole 32.

The cam follower 14 (best seen in Figure 3), which is channel-shaped, comprises a base 34 having parallel side walls 36 and 38, extending in the same direction from the base 34, a wall

extending from a flat, cam engagement surface 35 of the base 34, in alignment with, and in the opposite direction to, the side wall 36 and terminating in an inwardly directed flange 42 having a flat, inner abutment surface 43 parallel to, and overlapping the base 34. The base 29 of the groove 28 has therein a longitudinal recess 44 dimensioned to receive the flange 42.

The base 34 of the cam follower 14 is disposed in the groove 28 so that the surface 35 of the base 34 is engaged by the cam 12, the wall 40 protruding into the groove 28 beside the cam 12.

The cam 12, which is elongate in the direction of the groove 28 and which can be rotated from outside the housing 10 as shown in Figure 2, is of elongate cross-section having parallel major sides 45 and convex minor sides 47. The surface 35 of the base 34 is spaced from the surface 43 of the flange 42 by a distance slightly exceeding that between the major sides 45 of the cam 12, the flange 42 overlapping the base 34 by a distance which does not exceed that between the sides 45.

The terminals 16 are in the form of metal strips having looped resilient contact portions 50 within the housing, free end portions 52 of the contact portions 50 engaging chamfered outer sides of the free longitudinal edges of the side walls 36 and 38 of the cam follower 14. The terminals have locking tongues 54 on post portions 56 thereof, which portions extend through the passages 26, the tongues 54 serving to retain the terminals 16 in the housing 10.

Figure 4 shows the cam follower 14 in a first position in which it has been advanced normally of the base 29 of the groove 28, by the cam 12 so that the side walls 36 and 38 of the cam follower have spread apart the contact portions 50, displacing them from the insertion path A, to allow entry of the board 20 into the opening 18 along such path, with substantially zero insertion force. So to advance the cam follower 14, the cam 12 was rotated in an anticlockwise (as seen in Figures 4 to 6) sense, to an extent limited by a stop 58 on the left hand (as seen in Figures 4 to 6) side of the groove 28.

As the cam 12 is rotated in the opposite sense, to retract the cam follower 14 in the groove 28, normally of the base thereof, to a second position, so as to allow the contact portions 50 to close so as to intersect the path A of the board 20 (which is not shown in Figures 4 to 6), one major side 45 of the cam 12 engages the flange 42, as shown in Figure 5, to drive the cam follower 14 positively towards the base of the groove 28, until, as shown in Figure 6, the flange 42 is fully received in the recess 44 and the major sides 45 of the cam 12 are in full surface to surface engagement with surface 35 of the cam follower 14 and with the base 29 of the groove 28, respectively, one convex minor side of the cam 12 being received between the base 34 and the flange 42. In the second

position of the cam follower 14, the surface 43 of the flange 42 engages the side 45 of the cam 12, nearest to the base 29 of the groove 28, as shown in Figure 6, so that the cam follower 14 is locked in its second position by the cam 12.

Since the cam follower 14 is positively driven by the cam 12, in the event that the contact portions 50 should lose resilience through use, they are nevertheless returned fully to their closed positions so as to apply the required contact force against the conductors of the board 20, even in the event that the connector is mounted in an orientation in which the return of the cam follower is not assisted by gravity.

By virtue of the engagement of the cam 12 against the surface 43 of the flange 42, in the second position of the cam follower 14, the cam follower 14 is secured in its fully retracted position so that it cannot be unintentionally moved under the action of vibration for example, so as to impair the integrity of the electrical connections between the contact portions 50 and the conductors of the circuit board 20.

For making connection to only one side of a circuit board, the connector may have only one row of terminals, one side of the cam follower being omitted and the base thereof on that side being arranged to slide against a blank wall of the housing.

Claims

1. A zero insertion force circuit board edge electrical connector, comprising an insulating housing (10) having an elongate opening (18) for receiving a circuit board (20) along a board insertion path (A); at least one row of electrical terminals (16) positioned beside the opening (18) and extending in the longitudinal direction thereof, each terminal (16) having a resilient contact portion (50) for engaging the circuit board (20) when such has been inserted into the opening (18) along the insertion path (A); a groove (28) formed in the bottom (27) of the opening (18) and extending longitudinally thereof; an elongate cam (12) mounted for rotation about its longitudinal axis in the groove (28) and extending longitudinally thereof; and a cam follower (14) having a first surface (35) engaging the cam, the cam follower (14) being displaceable normally of the base (29) of the groove (28), by rotation of the cam (12), to cause the cam follower (14) to move between a first position in which it displaces the contact portions (50) from the insertion path (A) and a second position in which the cam follower (14) is retracted to allow the contact portions (50) to intersect the insertion path (A); characterised in that the cam follower (14) has a second surface (43) spaced from the first surface (35), towards the base (29) of the groove (28) and which is engageable by the cam (12), as the cam (12) is rotated to cause the cam follower (14) to move from its first to its second position, so that the

extending from a flat, cam engagement surface 35 of the base 34, in alignment with, and in the opposite direction to, the side wall 36 and terminating in an inwardly directed flange 42 having a flat, inner abutment surface 43 parallel to, and overlapping the base 34. The base 29 of the groove 28 has therein a longitudinal recess 44 dimensioned to receive the flange 42.

The base 34 of the cam follower 14 is disposed in the groove 28 so that the surface 35 of the base 34 is engaged by the cam 12, the wall 40 protruding into the groove 28 beside the cam 12.

The cam 12, which is elongate in the direction of the groove 28 and which can be rotated from outside the housing 10 as shown in Figure 2, is of elongate cross-section having parallel major sides 45 and convex minor sides 47. The surface 35 of the base 34 is spaced from the surface 43 of the flange 42 by a distance slightly exceeding that between the major sides 45 of the cam 12, the flange 42 overlapping the base 34 by a distance which does not exceed that between the sides 45.

The terminals 16 are in the form of metal strips having looped resilient contact portions 50 within the housing, free end portions 52 of the contact portions 50 engaging chamfered outer sides of the free longitudinal edges of the side walls 36 and 38 of the cam follower 14. The terminals have locking tongues 54 on post portions 56 thereof, which portions extend through the passages 26, the tongues 54 serving to retain the terminals 16 in the housing 10.

Figure 4 shows the cam follower 14 in a first position in which it has been advanced normally of the base 29 of the groove 28, by the cam 12 so that the side walls 36 and 38 of the cam follower have spread apart the contact portions 50, displacing them from the insertion path A, to allow entry of the board 20 into the opening 18 along such path, with substantially zero insertion force. So to advance the cam follower 14, the cam 12 was rotated in an anticlockwise (as seen in Figures 4 to 6) sense, to an extent limited by a stop 58 on the left hand (as seen in Figures 4 to 6) side of the groove 28.

As the cam 12 is rotated in the opposite sense, to retract the cam follower 14 in the groove 28, normally of the base thereof, to a second position, so as to allow the contact portions 50 to close so as to intersect the path A of the board 20 (which is not shown in Figures 4 to 6), one major side 45 of the cam 12 engages the flange 42, as shown in Figure 5, to drive the cam follower 14 positively towards the base of the groove 28, until, as shown in Figure 6, the flange 42 is fully received in the recess 44 and the major sides 45 of the cam 12 are in full surface to surface engagement with surface 35 of the cam follower 14 and with the base 29 of the groove 28, respectively, one convex minor side of the cam 12 being received between the base 34 and the flange 42. In the second

position of the cam follower 14, the surface 43 of the flange 42 engages the side 45 of the cam 12, nearest to the base 29 of the groove 28, as shown in Figure 6, so that the cam follower 14 is locked in its second position by the cam 12.

Since the cam follower 14 is positively driven by the cam 12, in the event that the contact portions 50 should lose resilience through use, they are nevertheless returned fully to their closed positions so as to apply the required contact force against the conductors of the board 20, even in the event that the connector is mounted in an orientation in which the return of the cam follower is not assisted by gravity.

By virtue of the engagement of the cam 12 against the surface 43 of the flange 42, in the second position of the cam follower 14, the cam follower 14 is secured in its fully retracted position so that it cannot be unintentionally moved under the action of vibration for example, so as to impair the integrity of the electrical connections between the contact portions 50 and the conductors of the circuit board 20.

For making connection to only one side of a circuit board, the connector may have only one row of terminals, one side of the cam follower being omitted and the base thereof on that side being arranged to slide against a blank wall of the housing.

Claims

1. A zero insertion force circuit board edge electrical connector, comprising an insulating housing (10) having an elongate opening (18) for receiving a circuit board (20) along a board insertion path (A); at least one row of electrical terminals (16) positioned beside the opening (18) and extending in the longitudinal direction thereof, each terminal (16) having a resilient contact portion (50) for engaging the circuit board (20) when such has been inserted into the opening (18) along the insertion path (A); a groove (28) formed in the bottom (27) of the opening (18) and extending longitudinally thereof; an elongate cam (12) mounted for rotation about its longitudinal axis in the groove (28) and extending longitudinally thereof; and a cam follower (14) having a first surface (35) engaging the cam, the cam follower (14) being displaceable normally of the base (29) of the groove (28), by rotation of the cam (12), to cause the cam follower (14) to move between a first position in which it displaces the contact portions (50) from the insertion path (A) and a second position in which the cam follower (14) is retracted to allow the contact portions (50) to intersect the insertion path (A); characterised in that the cam follower (14) has a second surface (43) spaced from the first surface (35), towards the base (29) of the groove (28) and which is engageable by the cam (12), as the cam (12) is rotated to cause the cam follower (14) to move from its first to its second position, so that the



cam (12) positively drives the cam follower (14) to its second position, in which position the second surface (43) engages the side of the cam (12) nearest to the base (29) of the groove (28) so that the cam follower (14) is secured in its second position by the cam (12), against unintended movement; and in that the cam follower (14) comprises a first wall (36) extending from a base (34) for engagement with the contact portions (50), and a second wall (40) extending from the base (34) in the opposite direction to the first wall (36), the second surface (43) being provided on a flange (42) on the second wall (40), the flange (42) overlapping the base (34) and being spaced therefrom.

2. A connector according to Claim 1, characterised in that the cam (12) is of elongate cross-section having a pair of parallel major sides (45) and a pair of convex minor sides (47), the base (34) of the cam follower (14) being spaced from the flange (42) by a distance slightly exceeding that between the minor sides of the cam (12), the length of the flange (42), as seen in cross-section through the cam follower (14), being such that one minor side (47) of the cam (12) is received between the base (34) and the flange (42) in the second position of the cam follower (14).

3. A connector according to Claim 1 or 2, characterised in that a recess (44) formed in the base (29) of the groove (28) is adapted to receive the flange (42) in the second position of the cam follower (14).

4. A connector according to Claim 1, 2 or 3; characterised in that one side wall of the groove (28) is provided with a stop (58) to prevent further rotation of the cam (12) in the same sense after it has moved the cam follower (14) from its second to its first position.

5. A connector according to any one of the preceding claims, characterised in that the first (35) and second (43) surfaces of the cam follower (14) are flat and are parallel to one another.

6. A connector according to Claim 1, in which the cam follower (14) comprises a channel-shaped insulating member comprising a base (34) from one side of which a pair of parallel side walls (36 and 38) extend in the same direction, the other side (35) of the base (34) being flat; characterised in that a single further wall (40) extends from the other side of the base (34) of the cam follower (14) in alignment with one (36) of the side walls (36 and 38) but in the opposite direction thereto, the further wall (40) terminating in a flange (42) extending substantially normally of the further wall (40) and overlapping the base (34) by a distance which does not exceed that between the flange (42) and the base (34), the flange (47) presenting towards the base a flat surface (43) which is parallel to the other side (35) of the base (34).

Revendications

1. Connecteur électrique à force d'insertion nulle pour bord de plaquette à circuit, comprenant un boîtier isolant (10) présentant une ouverture allongée (18) destinée à recevoir une plaquette (20) à circuit le long d'un trajet (A) d'insertion de plaquette; au moins une rangée de bornes électriques (16) positionnées à côté de l'ouverture (18) et s'étendant dans sa direction longitudinale, chaque borne (16) comportant une partie élastique (50) de contact destinée à porter contre la plaquette (20) à circuit lorsqu'elle a été insérée dans l'ouverture (18) le long du trajet (A) d'insertion; une gorge (28) formée dans le fond (27) de l'ouverture (18) et s'étendant longitudinalement à celle-ci; une came allongée (12) montée de façon à pouvoir tourner sur son axe longitudinal dans la gorge (28) et s'étendant longitudinalement à celle-ci; et un suiveur de came (14) présentant une première surface (35) portant contre la came, le suiveur de came (14) pouvant être déplacé perpendiculairement à la base (29) de la gorge (28), par rotation de la came (12), afin que le suiveur de came (14) se déplace entre une première position dans laquelle il écarte les parties (50) de contact du trajet d'insertion (A) et une seconde position dans laquelle le suiveur de came (14) est rétracté pour permettre aux parties (50) de contact d'intersecter le trajet d'insertion (A); caractérisé en ce que le suiveur de came (14) présente une seconde surface (43) espacée de la première surface (35), vers la base (29) de la gorge (28), et contre laquelle la came (12) peut porter lorsque l'on fait tourner la came (12) de manière à déplacer le suiveur de came (14) de sa première vers sa seconde position, afin que la came (12) entraîne à force le suiveur de came (14) vers sa seconde position, position dans laquelle la seconde surface (43) porte contre le côté de la came (12) le plus proche de la base (29) de la gorge (28) afin que le suiveur de came (14) soit retenu dans sa seconde position par la came (12), contre tout mouvement indésiré; et en ce que le suiveur de came (14) comprend une première paroi (36) partant d'une base (34) afin de porter contre les parties de contact (50), et une seconde paroi (40) partant de la base (34), dans la direction opposée à la première paroi (36), la seconde surface (43) comportant un rebord (42) situé sur la seconde paroi (40), le rebord (42) s'étendant partiellement au-dessus de la base (34) de laquelle il est espacé.

2. Connecteur selon la revendication 1, caractérisé en ce que la came (12) est de section allongée, comportant deux grands côtés parallèles (45) et deux petits côtés convexes (47), la base (34) du suiveur de came (14) étant espacée du rebord (42) d'une distance dépassant légèrement celle comprise entre les petits côtés de la came (12), la longueur du rebord (42), et l que vu en section par le suiveur de



came (14), étant telle qu'un petit côté (47) de la came (12) est reçu entre la base (34) et le rebord (42) dans la seconde position du suiveur de came (14).

3. Connecteur selon la revendication 1 ou 2, caractérisé en ce qu'un évidement (44) formé dans la base (29) de la gorge (28) est destiné à recevoir le rebord (42) dans la seconde position du suiveur de came (14).

4. Connecteur selon la revendication 1, 2 ou 3, caractérisé en ce qu'une première paroi latérale de la gorge (28) comporte une butée (58) empêchant la poursuite de la rotation de la came (12) dans le même sens après qu'elle a déplacé le suiveur de came (14) de sa seconde vers sa première position.

5. Connecteur selon l'une quelconque des revendications précédentes, caractérisé en ce que les première (35) et seconde (43) surfaces du suiveur de came (14) sont plates et parallèles entre elles.

6. Connecteur selon la revendication 1, dans lequel le suiveur de came (14) comprend un élément isolant en forme de profilé en U comprenant une base (34) d'un côté de laquelle deux parois latérales parallèles (36 et 38) partent dans la même direction, l'autre côté (35) de la base (34) étant plat; caractérisé en ce qu'une autre paroi unique (40) part de l'autre côté de la base (34) du suiveur de came (14), en alignement avec l'une (36) des parois latérales (36 et 38) mais dans la direction opposée à celle-ci, l'autre paroi (40) se terminant par un rebord (42) qui s'étend à peu près perpendiculairement à l'autre paroi (40) se terminant par un rebord (42) qui dessus de la base (34), sur une distance ne dépassant pas celle comprise entre le rebord (42) et la base (34), le rebord (42) présentant, vers la base, une surface plate (43) qui est parallèle à l'autre côté (35) de la base (34).

Patentansprüche

1. Ohne Kraftaufwand steckbarer elektrischer Schaltungsplattenrandverbinder, mit einem Isoliergehäuse (10), das eine längliche Öffnung (18) zur Aufnahme einer Schaltungsplatte (20) entlang eines Platteneinführweges (A) aufweist, mit wenigstens einer Reihe elektrischer Anschlüsse (16), die seitlich von der Öffnung (18) positioniert sind und sich in Längsrichtung derselben erstrecken, wobei jeder Anschluß (16) einen federnd nachgiebigen Kontaktbereich (50) zum Angreifen an der Schaltungsplatte (20) aufweist, wenn eine Schaltungsplatte entlang des Einführweges (A) in die Öffnung (18) eingesetzt ist, mit einer im Boden (27) der Öffnung (18) ausgebildeten und sich in Längsrichtung desselben erstreckenden Nut (28), mit einem länglichen Steuerflächenglied (12), das zur Ausführung einer Rotationsbewegung um seine Längsachse in der Nut (28) angebracht ist und sich in Längsrichtung derselben erstreckt, und mit einem Steuerflächenfolgeglied (14), das eine

erste, an dem Steuerflächenglied angreifenden Fläche (35) aufweist und senkrecht zur Basis (29) der Nut (28) durch Rotation des Steuerflächengliedes (12) verschiebbar ist, um das Steuerflächenfolgeglied (14) zu einer Bewegung zwischen einer ersten Position, in der es die Kontaktbereiche (50) aus dem Einführweg (A) verdrängt, und einer zweiten Position, in der das Steuerflächenfolgeglied (14) zurückgezogen ist, so daß die Kontaktbereiche (50) den Einführweg (A) schneiden können, zu veranlassen, dadurch gekennzeichnet, daß das Steuerflächenfolgeglied (14) eine zweite Fläche (43) aufweist, die von der ersten Fläche (35) in Richtung auf die Basis (29) der Nut (28) beabstandet ist und an der das Steuerflächenglied (12) angreifen kann, wenn das Steuerflächenglied (12) gedreht wird, um das Steuerflächenfolgeglied (14) zu einer Bewegung von seiner ersten Position in seine zweite Position zu veranlassen, so daß das Steuerflächenglied (12) das Steuerflächenfolgeglied (14) positiv in seine zweite Position treibt, in der die zweite Fläche (43) an der am nächsten bei der Basis (29) der Nut (28) befindlichen Seite des Steuerflächengliedes (12) angreift, so daß das Steuerflächenfolgeglied (14) in seiner zweiten Position durch das Steuerflächenglied (12) gegen eine unbeabsichtigte Bewegung gesichert ist, und daß das Steuerflächenfolgeglied (14) eine erste Wand (36), die sich zum Angreifen an den Kontaktbereichen (50) von einer Basis (34) wegerstreckt, sowie eine zweite Wand (40) aufweist, die sich in der zur ersten Wand (36) entgegengesetzten Richtung von dieser Basis (34) wegerstreckt, wobei die zweite Fläche (43) an einem Flansch (42) an der zweiten Wand (40) vorgesehen ist, der diese Basis (34) überlappt und von dieser beabstandet ist.

2. Verbinder nach Anspruch 1, dadurch gekennzeichnet, daß das Steuerflächenglied (12) einen länglichen Querschnitt besitzt und zwei parallele größere Seiten (45) sowie zwei konvexe kleinere Seiten (47) aufweist, wobei die Basis (34) des Steuerflächenfolgegliedes (14) von dem Flansch (42) in einem Abstand angeordnet ist, der geringfügig größer ist als der Abstand zwischen den kleineren Seiten des Steuerflächengliedes (12), und wobei der Länge des Flansches (42), gesehen im Querschnitt durch das Steuerflächenfolgeglied (14), derart ist, daß die eine kleinere Seite (47) des Steuerflächengliedes (12) in der zweiten Position des Steuerflächenfolgegliedes (14) zwischen der Basis (34) und dem Flansch (42) aufgenommen ist.

3. Verbinder nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß eine in der Basis (29) der Nut (28) ausgebildete Ausnehmung (44) zur Aufnahme des Flansches (42) in der zweiten Position des Steuerflächenfolgegliedes (14) ausgelegt ist.

4. Verbinder nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, daß eine Seitenwand der Nut (28) mit einem Anschlag (58) versehen ist,

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der eine weitergehende Rotationsbewegung des Steuerflächengliedes (12) in derselben Drehrichtung verhindert, nachdem das Steuerflächenglied (12) das Steuerflächenfolgeglied (14) von seiner zweiten Position in seine erste Position bewegt hat.

5. Verbinder nach einem der vorausgehenden Ansprüche, dadurch gekennzeichnet, daß die erste Fläche (35) und die zweite Fläche (43) des Steuerflächenfolgegliedes (14) eben und zueinander parallel sind.

6. Verbinder nach Anspruch 1, bei dem das Steuerflächenfolgeglied (14) ein kanalförmiges Isolierelement umfaßt, das eine Basis (34) aufweist, von deren einen Seite sich ein Paar paralleler Seitenwände (36 und 38) in derselben Richtung wegerstreckt, wobei die andere Seite

(35) der Basis (34) eben ist, dadurch gekennzeichnet, daß sich eine einzelne, zusätzliche Wand (40) von der anderen Seite der Basis (34) des Steuerflächenfolgegliedes (14) in Ausrichtung mit einer (36) der Seitenwände (36 und 38), jedoch in entgegengesetzter Richtung zu dieser, wegerstreckt, wobei die zusätzliche Wand (40) in einem Flansch (42) endet, der sich im wesentlichen senkrecht zu der weiteren Wand (40) erstreckt und die Basis (34) in einem Entfernungsausmaß überlappt, das die Distanz zwischen dem Flansch (42) und der Basis (34) nicht übersteigt, und wobei der Flansch (42) zur Basis hin eine ebene Fläche (43) barbietet, die zu der anderen Seite (35) der Basis (34) parallel ist.

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