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Perry

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[54] **WEB GUIDING APPARATUS**

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[73] Assignee: **Owens-Illinois, Inc.**, Toledo, Ohio

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[52] **U.S. Cl.** **226/199**

[51] **Int. Cl.** **B65h 23/32**

[58] **Field of Search** 226/199, 196, 198, 23; 242/76

[56] **References Cited**

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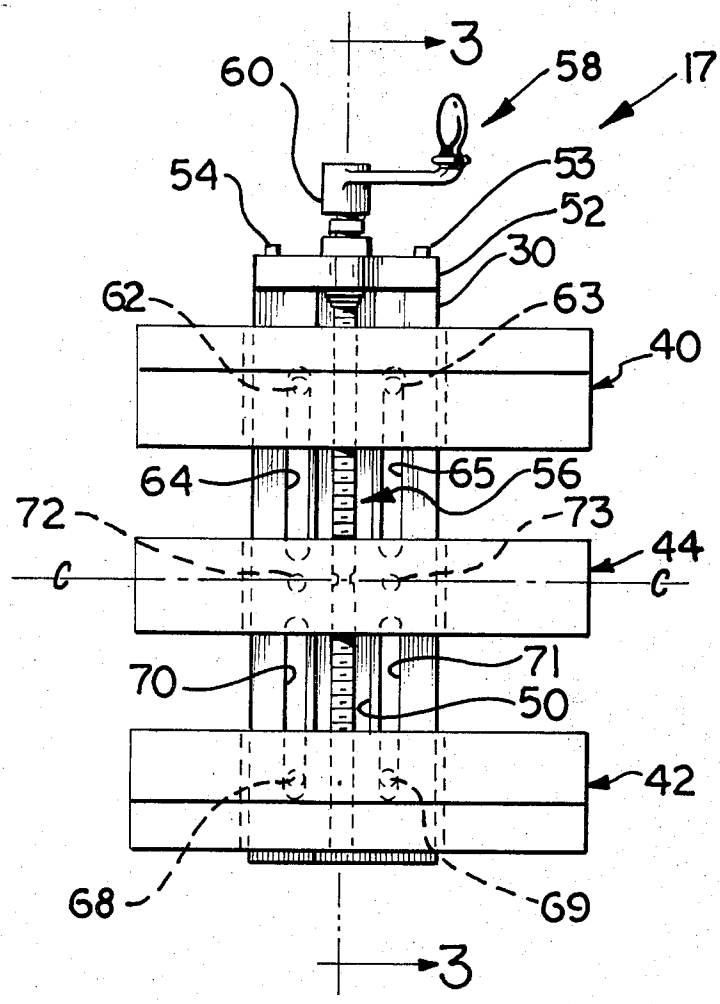
[57] **ABSTRACT**

Apparatus for guiding webs of material in such a manner as to maintain a fixed center line regardless of the width of the web. A main carrier member is fixed to a base. The center line which must be maintained regardless of web width passes through the center of the vertical height of the main carrier. Upper and lower movable web guides are slidably mounted on the main carrier. An adjustment mechanism allows both the upper and lower web guides to be moved toward or away from the fixed center line simultaneously. This movement keeps both web guides the same distance away from the fixed center line to allow guiding of webs of differing widths. An alignment mechanism is used to initially set both web guides the same distance away from the fixed center line. This is then locked, thereby maintaining the equi-distance relationship even though the actual distance value is increased or decreased by operation of the adjustment mechanism.

17 Claims, 6 Drawing Figures



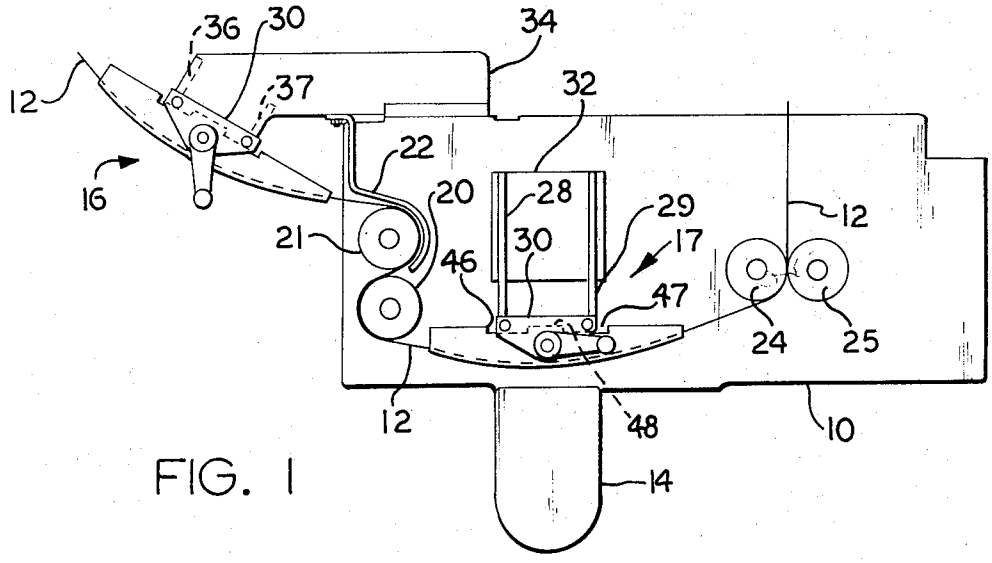


FIG. 1

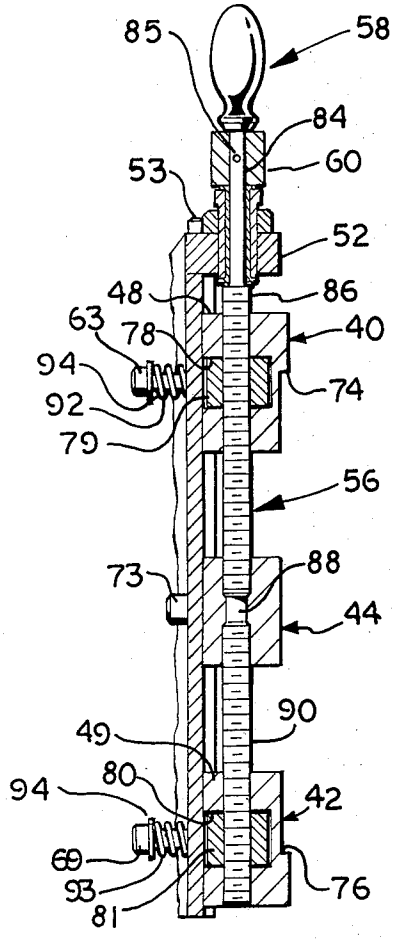


FIG. 3

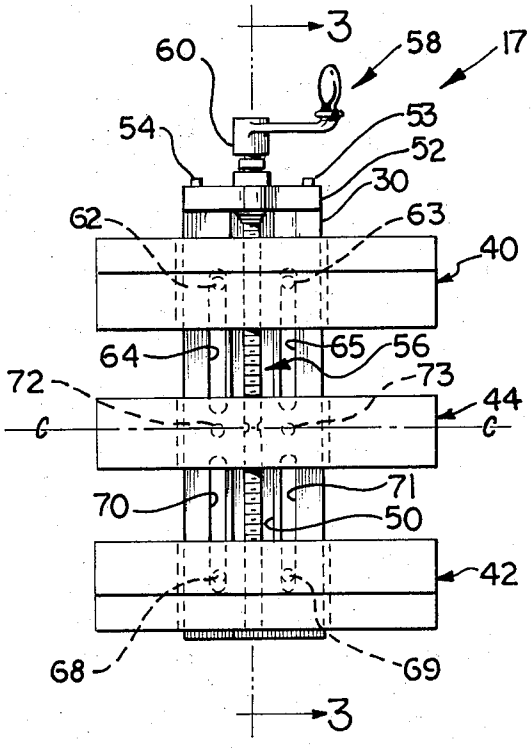


FIG. 2

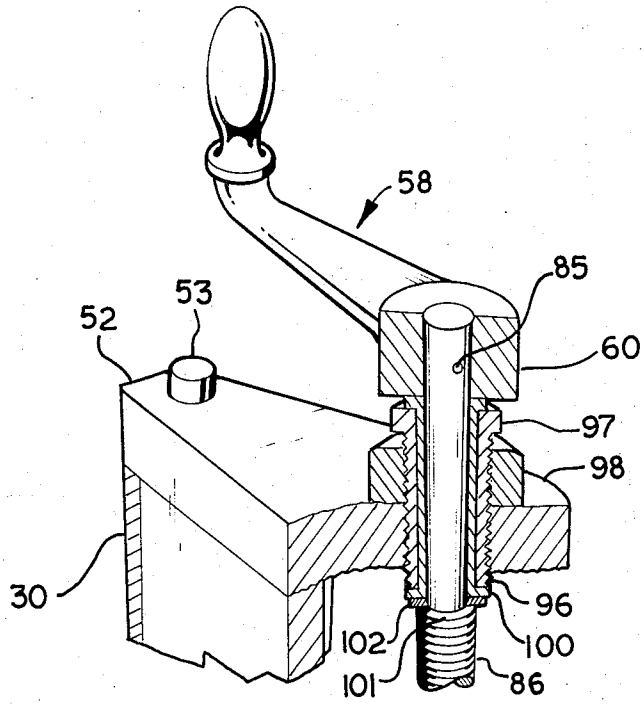


FIG. 4

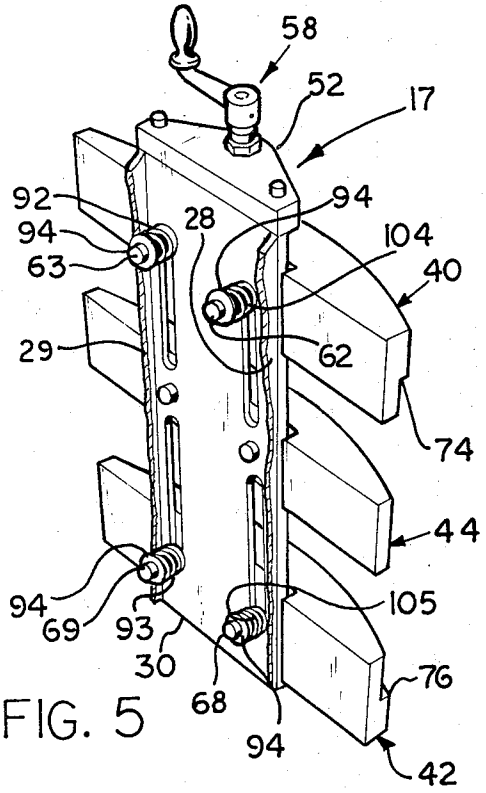


FIG. 5

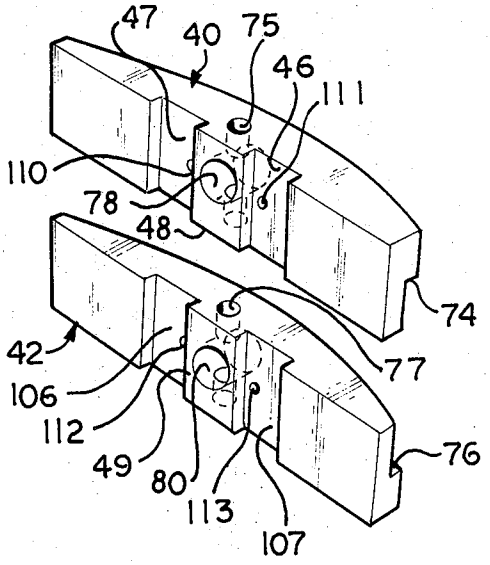


FIG. 6

WEB GUIDING APPARATUS

BACKGROUND OF THE INVENTION

This invention generally relates to web guiding mechanisms. More particularly, this invention relates to web guides which are adjustable to guide webs of varying widths. Specifically, this invention relates to a web guiding mechanism having two movable guide members which are moved toward or away from a fixed center line to keep the web on this center line regardless of web width.

In some types of machines which have a web fed into them for processing, it is required that the web always be fed in on the same center line, regardless of web width. Such a machine may be seen in U.S. Pat. application Ser. No. 209,751, filed Dec. 20, 1971 and having an assignee in common with the assignee of the present invention. In the past, a plurality of guide members were required to maintain this fixed center line relationship. Each time the web width was changed, a new set of guide members was required. This was an expensive and time-consuming procedure. The present invention overcomes this situation by making the guide members simultaneously adjustable about the fixed center line. In addition, the apparatus of the present invention includes an alignment feature to ensure that both guide members are always the same distance from the fixed center line.

SUMMARY OF THE INVENTION

This invention is an improvement in the guiding of webs of material, wherein it is required to maintain a constant web center line regardless of web width. A vertically extending main carrier, having a fixed web center line passing through it, is attached to a base. An upper movable web guide is slidably attached to the main carrier above the fixed center line and a lower movable web guide is slidably attached to the main carrier below the fixed center line. An adjustment means is used to simultaneously move both the upper and lower movable web guides toward or away from the fixed center line an equal amount on both sides of the fixed center line. An alignment means is used to initially set the distance from the fixed center line to the upper and lower movable web guides at the same value. A locking means holds the alignment means in its initially set position during movement of the upper and lower movable web guides by the adjustment means.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a top, plan view of the web guiding apparatus of the present invention in its operational environment;

FIG. **2** is an elevation view of the web contact side of the apparatus of the present invention, removed from its operational environment;

FIG. **3** is a sectional view, generally taken along the line 3—3 in FIG. **2**, of the apparatus of FIG. **2** on a slightly enlarged scale;

FIG. **4** is an enlarged perspective view, partially in cross section, of the upper portion of the apparatus of FIG. **3**.

FIG. **5** is a perspective view of the side of the present invention opposite the web contact side thereof; and

FIG. **6** is a perspective view of the upper and lower movable web guides, removed from the main carrier, as viewed from the side opposite the web contact side.

DETAILED DESCRIPTION OF THE DRAWINGS

The apparatus of the present invention is shown in its general operational environment in FIG. **1**. This apparatus has found its greatest utility in conjunction with the machine which is disclosed in U.S. Pat. application Ser. No. 209,751 filed Dec. 20, 1971 and having an assignee in common with the assignee of the present invention. The machine disclosed in the noted patent application is of the type which operates on a constant material infeed center line. This machine is used to produce glass containers having a thermoplastic sleeve placed thereon. A web of material is fed into the machine and formed onto the glass container. The web of material enters the machine at a constant center line location, regardless of the actual height or, as it may be termed, width of the web of material. This has created operational difficulties in the feeding of the web in that it has been difficult to maintain the precise center line location to the degree of accuracy that is required for proper operation. The present invention solves this problem, and likewise could solve a similar problem for other types of machines which require a web feed at a constant center location regardless of web height. While this machine and the following description require the web to be moving in a vertical path of travel, the apparatus of the present invention could equally well be used to guide a web moving in a horizontal path of travel. The portion of the entire operating apparatus shown in FIG. **1** is after the web has been removed from a supply reel, under tension, and just before the web is fed into the end use machinery. The entire apparatus is mounted on a base **10**, which is positioned on the floor of a manufacturing area, and is level to give a precise and known elevation. The web **12**, which, for this example, is preferably a printed foamed polystyrene material, but may be any weblike material, such as paper or thermoplastic material, is passed before an inspection apparatus **14** which examines the printing of the web **12** to determine if there have been any errors in printing. The inspection device **14** forms no part of the present invention and therefore needs to be discussed no further. The movement of the web **12** is from left to right as seen in FIG. **1**. The web **12** is guided in its path by a first adjustable web guide mechanism **16** and a second adjustable web guide mechanism **17**. The web guide mechanisms **16** and **17** are structurally identical and differ only in their method of attachment to the base **10**. Intermediate the first web guide **16** and the second web guide **17**, the web **12** is passed between two rotatable guide rollers **20** and **21**, which are mounted on the base **10**, and held to the path of travel between the two guide rolls **20** and **21** by a fixed web guide **22**. After leaving the influence of the second adjustable web guide mechanism **17**, the web **12** passes between two additional rotatable guide rolls **24** and **25**, which are rotatably mounted on the base **10**, and proceeds toward the web utilization machine. The second adjustable web guide mechanism **17** has two support plates **28** and **29** attached to a main carrier **30**. The support plates **28** and **29** in turn are attached to a mounting plate **32** which is affixed to the upper surface of the base **10**. Thus, the second adjustable web guide mechanism **17** is securely attached to the base **10** at a known elevation. The first adjustable web guide mechanism **16** is likewise attached to the base **10** through a horizontally extending support plate **34**. The support plate **34**

is actually attached to a machined pad at the rear of the base **10.** The first adjustable web guide mechanism **16** has two support brackets **36** and **37,** which are under the horizontal support plate **34.** The support brackets **36** and **37** are attached to the main carrier **30** of the first adjustable web guide mechanism.

FIG. **2** is a front view of the second adjustable web guide mechanism **17** removed from its operational environment. It should be kept in mind again that the two web guide mechanisms **16** and **17** are identical, except for their method of attachment to the base **10,** and therefore the description of one of these mechanisms is sufficient as a description for both. It may be seen that the web guide mechanism **17** has an upper movable web guide **40,** a lower movable web guide **42,** and a central fixed web guide **44.** All of the web guides **40, 42** and **44** have a curved surface over which the web **12** rides. This may best be seen with reference to either FIG. **1** or FIG. **5.** In addition, the rear portion of the web guides **40** and **42** have two slots cut out to allow defining a key. Only slots **46** and **47** for the upper movable web guide **40** are visible in FIG. **1.** The key for web guide **40** is designed as key **48** and the key for the web guide **42** is designated as key **49.** The slots **46** and **47** are cut sufficiently wide to allow them to completely clear the main carrier **30.** The keys **48** and **49** are engaged in a keyway **50** formed in the main carrier **30,** thus allowing a slidable connection to the main carrier **30.** Thus, the upper movable web guide **40** and the lower movable web guide **42** may slide up and down with respect to the main carrier **30** with the keys **48** and **49** engaged in the keyway **50** maintaining the proper orientation of the movable web guides **40** and **42.** A cap **52** is attached to the main carrier **30** with two screws **53** and **54.** Rotatably supported in the cap **52** is a shaft **56.** As will best be seen with reference to FIG. **3,** the upper movable web guide **40** and the lower movable web guide **42** are rotatably mounted on the shaft **56.** A handle assembly **58** has a hub portion **60** pinned to the shaft **56.** Rotation of the handle assembly **58** will in turn rotate the shaft **56,** which will move the upper movable web guide **40** and the lower movable web guide **42** toward or away from the fixed web center line, designated as "C."

The handle assembly **58** is not provided with any locking mechanism, and thus, to prevent accidental movement of the web guides **40** and **42,** provision is made to lock the web guides **40** and **42** into any position at which they are set. This is accomplished by two spring-loaded screws **62** and **63,** which are attached to the face of the upper web guide **40,** which is remote from face guiding the web **12.** The screws **62** and **63** extend through elongated slots **64** and **65** which extend completely through the main carrier **30.** As the upper movable web guide **40** is moved, the screws **62** and **63** move with it in the elongated slots **64** and **65.** The spring load on the screws **62** and **63** tends to hold the upper movable web guide **40** in whatever position it may be set by rotation of the handle assembly **58.** When the handle assembly **58** is deliberately rotated to move the position of the upper web guide **40,** the spring load is overcome, and the web guide **40** may be moved. The lower movable web guide **42** has corresponding spring-loaded screws **68** and **69,** which move in their respective elongated slots **70** and **71,** which extend completely through the main carrier **30.** The central fixed web guide **44** is permanently secured in a fixed location with screws **72** and **73,** which extend through the main carrier **30** and hold the central fixed web guide **44** in a known location.

With reference now to FIG. **3,** the adjustable web guide mechanism **17** is shown partially in cross section. The shaft **56** is not sectioned in order to more clearly show its distinct and important portions. It may be seen that the upper movable web guide **40** has a lip **74** formed in its front surface. The lip **74** defines an edge which prevents the web **12** from moving beyond this edge. Likewise, the lower movable web guide **42** has a lip **76** formed from its front face, the lip portion **76** serving to prevent the web **12** from falling below this fixed location. It should be clear therefore, that as the web **12** travels over the web guides **40** and **42,** it is trapped between the two lip portions **74** and **76.** The central fixed web guide **44** serves to support the central portion of the web **12** and prevents flexing motion of the web **12** during its travel. The key portion **48** of the upper movable web guide **40** and the key portion **49** at the lower movable web guide **42** may be seen to be in engagement with the keyway **50** in the main carrier **30.** The upper movable web guide **40** is formed with a hole **75** extending completely through it parallel to the face which contains the lip portion **74.** Likewise, the lower movable web guide **42** is formed with a hole **77** completely through it also parallel to the face containing its lip portion **76.** The shaft **56** extends through these holes in the web guides **40** and **42,** and also extends through a relief portion formed in the central fixed web guide **44.** The upper movable web guide **40** is made with a recess **78,** connecting with the hole **75,** behind the face with the lip portion **74.** Inserted in the recess **78** is a cylindrical nut **79,** which has a threaded opening extending completely through it. The lower movable web guide **42** has a corresponding recess **80,** connecting with the hole **77,** formed in it, also behind the face which contains its lip portion **76.** A cylindrical nut **81** is inserted in the recess portion **80** of the lower movable web guide **42,** the cylindrical nut **81** having a threaded opening extending completely through it. The shaft **56** has an upper portion **84,** which is of a somewhat smaller diameter than the rest of the shaft **56.** The hug **60** of the handle assembly **58** is pinned to this upper portion **84** with a roll pin **85.** Just below the cap **52,** the upper portion **84** of the shaft **56** ends, and a first threaded portion **86** begins. A distinct shoulder is formed at the transition point between the portions **84** and **86.** Approximately along the center line C, the first threaded portion **86** ends, and a short transition portion **88** which is unthreaded, connects the first threaded portion **86** with a second threaded portion **90.** The first threaded portion **86** is preferably made up of a right-hand thread. This right-hand thread is in engagement with the threaded hole extending through the cylindrical nut **79.** The second threaded portion **90** is preferably made up of a left-hand threaded portion and is in threadable engagement with the threaded opening extending through the cylindrical nut **81.** It should be apparent now that rotation of the handle assembly **58** will rotate the threaded portions of the shaft **56.** Since these are in engagement with the cylindrical nuts **79** and **81,** and the threaded nuts **79** and **81** are trapped within the upper movable web guide **40** and the lower movable web guides **42,** the web guides **40** and **42** will be moved toward the center line or away from the center line, as the handle assembly **58** is rotated. It would be possible,

of course, if desired, to reverse the threading of the first threaded portion **86** and the second threaded portion **90** with respect to their right-hand and left-hand threads and still achieve the same result. In addition, it may be seen that the spring-loaded screws **63** and **69** are also visible in FIG. **3.** Their respective springs **92** and **93** may be seen to bear against the rearmost portion of the main carrier and the head of the screws **63** and **69.** In this case, the springs **92** and **93** do not actually bear against the heads of the screws **63** and **69,** but rather bear against washers **94.** The washers **94,** of course, are not necessary if the heads of the screws **63** and **69** are sufficiently large to prevent escape of the springs **92** and **93.** The cap **52,** the handle assembly **58,** the shaft **56,** the nuts **79** and **81** and the configuration of the movable web guides **40** and **42** make up an adjustment means for simultaneously moving both the upper movable web guide **40** and the lower movable web guide **42** toward or away from the fixed center line C an equal amount on both sides of the center line C.

One difficulty with this particular mechanism is that the position of the lip portions **74** and **76,** which are important points that must be controlled with respect to the center line C, can be positioned no more precisely with respect to the center line C than one pitch of the threads formed in the threaded portions **86** and **90** of the shaft **56.** This is not a sufficient degree of precision to allow proper control and delivery of the web **12** along the fixed center line C. Therefore, an alignment means for initially setting the distance from the center line C to the upper and lower movable web guides **40** and **42** at the same value is required. The alignment means is shown in FIG. **4.**

With respect now to FIG. **4,** the upper portion of the first threaded portion **86** of the shaft **56** and the upper portion **84** of the shaft **56** may be seen in perspective. The opening which extends through the cap **52** through which the shaft **56** extends is a threaded opening. A threaded bushing **96** is threadably engaged in this opening through the cap **52.** The upper portion of the bushing **96** terminates in a hexagonal configuration **97,** which may be engaged with a wrench for rotation. A lock nut **98,** which is a locking means for holding the alignment means in its initially set position, is engaged with the threads of the bushing **96** and may be tightened to prevent accidental movement of the bushing **96.** A flanged bushing **100** extends between the lowermost portion of the hub **60** of the handle assembly **58** and the shoulder **101** of the shaft **56,** the shoulder **101** being defined by the difference in diameters of the upper portion **84** of the shaft **56** and the first threaded portion **86** of the shaft **56.** Additionally, in this situation, the flanged bushing **100** does not actually bear directly on the shoulder **101,** but rather bears on a hardened washer **102,** which is placed on the shoulder **101.** The hardened washer **102** is an optional feature and is inserted merely to help protect the threads of the first threaded portion **86.** It is not an absolute requirement and could be eliminated and proper functioning would still result. In operation, once the upper web guide **40** and the lower web guide **42** have been positioned as precisely as possible with respect to the center line C by rotation of the handle assembly **58,** the locking nut **98** is loosened. With the lock nut **98** loose, rotation of the bushing **96** in its threaded engagement with the cap **52** will cause the entire shaft **56** to be raised and lowered. This adjustment is vitally necessary to provide for the precise location of both of the web guides **40** and **42** with respect to the center line C. Since both the upper threaded portion **86** and the lower threaded portion **90** are machined from a common shaft, it is impossible to precisely locate the entrance point of the second threaded portion **90** such that it corresponds precisely with the exit point of the first threaded portion **86.** Therefore, considering these manufacturing tolerances, when initially assembled, the web guides **40** and **42** when completely closed together will not be exactly the same distance away from the center line C. Therefore, it is necessary to loosen the locking nut **98** and rotate the bushing **96** to raise or lower the shaft **56** slightly, such that both web guides **40** and **42** are precisely the same distance away from the center line C. Once this has been done, the lock nut **98** may be tightened again to hold the bushing **96** in this fixed location. When this has been accomplished, the handle **58** may be rotated to move the upper web guide **40** and the lower web guide **42** toward and away from the center line C, and this movement will give exactly corresponding displacement for both the upper and lower web guides **40** and **42.** Thus, it is possible to maintain a precise split or division of the width of any web **12** which is guided. One may readily appreciate that the flanged bushing **100** may be split into two pieces for assembly.

In FIG. **5,** the curvature of the three web guides **40, 42,** and **44** may be seen. Springs **104** and **105** for the spring-loaded screws **62** and **69** respectively are also visible. As was the case with the springs **92** and **93,** washers **94** are used to retain the springs **104** and **105** in place. The two support plates **28** and **29** are also shown, partially broken away.

In FIG. **6,** the upper movable web guide **40** and the lower movable web guide **42** are shown removed from the main carrier **30.** The key **49** in the lower movable web guide **42** is seen as being defined by two slots **106** and **107.** The slots **106** and **107,** like the corresponding slots **46** and **47** in the web guide **40,** are sufficiently wide to clear the main carrier **30** and allow free movement up and down of the lower movable web guide **42.** Tapped holes **110** and **111** accept the spring-loaded screws **62** and **63** for the upper movable web guide. Tapped holes **112** and **113** accept the spring-loaded screws **68** and **69** for the lower movable web guide **42.**

What I claim is:

1. A web guide mechanism for guiding webs of differing widths, having first and second marginal, opposed edges while maintaining each web guided on a fixed center line with respect to the width of said web, said fixed center line passing through said web guide mechanism, comprising, in combination:

a base;

a main carrier, attached to said base, said fixed center line passing through said main carrier;

a first movable web guide, positioned in the path of travel of said web to direct one marginal edge of said web;

a second movable web guide, positioned in the path of travel of said web to direct the opposite marginal edge of said web;

means for slidably connecting both said first and second movable web guides to said main carrier, said first movable web guide being connected on one

side of said fixed center line and said second movable web guide being connected on the opposite side of said fixed center line;

adjustment means, attached to said main carrier and said first and second movable guide means, for simultaneously moving both said first and second movable web guides toward or away from said fixed center line an equal amount on both sides of said fixed center line;

alignment means, connected to said adjustment means, for initially setting the distance from said fixed center line to said first and second movable web guides at the same value; and

locking means connected to said alignment means for holding said alignment means in its initially set position during movement of said first and second movable web guides by said adjustment means.

2. The improvement of claim **1,** further including a fixed central web guide, attached to said main carrier on said fixed center line, for guiding the center portion of said web.

3. The improvement of claim **1,** further including means for holding said first and second movable web guides in a position set by said adjustment means.

4. The apparatus of claim **3,** wherein said main carrier is formed with a first pair of elongated spaced apart slots on one side of said fixed center line and a second pair of elongated, spaced apart slots on the other side of said fixed center line, all of said elongated slots extending completely through said main carrier, and wherein said means for holding said first and second movable web guides comprises:

four screws, extending from the side of said main carrier opposite said web, one screw passing through each of said first pair of slots and engaging said first movable web guide and one screw passing through each of said second pair of slots and engaging said second movable web guide; and

four springs, one for each of said four screws, said springs being trapped and held in compression between the head of said screws and the side of said main carrier opposite said web.

5. The improvement of claim **1,** wherein said main carrier is formed with a keyway formed in the face thereof facing said web, said keyway extending substantially the entire length of said main carrier, and wherein said means for slidably connecting both said first and second movable web guides to said main carrier comprises:

a key formed in the face opposite said web of each of said first and second movable web guides, said keys each being defined by spaced apart slots formed in said face of said web guides opposite said web, said keys being engaged in said keyway.

6. The improvement of claim **1,** wherein each of said first and second movable web guides are formed with a recess open to the face of said web guides opposite said web, said recess being formed substantially perpendicular to the plane of travel of said web, and with a hole completely through each of said web guides intersecting said recess and being substantially perpendicular thereto, and wherein said adjustment means comprises:

a cap having a hole extending completely therethrough in alignment with said holes in said first and second movable web guides, said cap being attached to said main carrier;

a shaft, rotatably mounted in said hole in said cap, having a length substantially equal to the length of said main carrier and extending through said holes in said first and second movable web guides, said shaft having an unthreaded portion extending beyond said cap, a first threaded portion connected to said unthreaded portion and defined therefrom by a shoulder portion, a transition portion connected to said first threaded portion and located adjacent to said fixed center line and a second threaded portion connected to said transition portion;

a handle assembly, attached to said unthreaded portion of said shaft, for rotating said shaft;

a first interiorally threaded nut, trapped in said recess in said first movable web guide, threadably engaged with said first threaded portion of said shaft; and

a second interiorally threaded nut, trapped in said recess in said second movable web guide, threadably engaged with said second threaded portion of said shaft, one of said first and second nuts having right-hand threads, and the other having left-hand threads, the portion of said shaft in engagement with said nuts being threaded to mesh with its associated nut, whereby rotation of said handle assembly will simultaneously move both said first and second movable web guides toward or away from said fixed center line the same distance.

7. The apparatus of claim **6,** wherein said hole in said cap is threaded, and wherein said alignment means comprises:

a threaded bushing, threaded on the exterior thereof, in engagement with said hole in said cap, said bushing extending beyond said cap and terminating in a wrench engageable head, and unthreaded portion of said shaft passing through said threaded bushing; and

a flanged bushing, extending through said threaded bushing and located intermediate said threaded bushing and said shaft, terminating in flanges on each end thereof, one of said flanges being in contact with said shoulder portion of said shaft and the other one of said flanges being in contact with said handle assembly, whereby changing the degree of engagement of said bushing in said hole in said cap by turning said bushing will move said first movable web guide away from said fixed center line while moving said second movable web guide toward said fixed center line or will move said first movable web guide toward said fixed center line while moving said second movable web guide away from said fixed center line.

8. The apparatus of claim **7,** wherein said locking means comprises:

a lock nut engaged with the threaded portion of said threaded bushing extending beyond said cap and engageable, when tightened, with the upper surface of said cap to prevent accidental movement of said threaded bushing.

9. The apparatus of claim **1,** wherein both said first and second movable web guides have an arcuate web contact face to constrain said web to an arcuate path of travel while being guided, wherein said first movable web guide has a lip portion adjacent edge thereof, remote from said fixed center line, and wherein said second movable web guide has a lip portion adjacent edge

thereof, remote from said fixed center line, said web being trapped between said lip portions of said first and second movable web guides.

10. A web guiding apparatus for guiding webs of material having differing widths, said webs all having first and second marginal, opposed edges, while maintaining each web guided on a fixed center line with respect to the width of said web, said fixed center line passing through said web guiding apparatus, comprising, in combination:

a base;

a main carrier, attached to said base, said fixed center line passing through said main carrier;

a first web guide movable along said main carrier toward and away from said fixed center line on one side of said fixed center line;

a second web guide movable along said main carrier toward and away from said fixed center line on the opposite side of said fixed center line from said first web guide;

a fixed central web guide, attached to said main carrier on said fixed center line, for guiding the center portion of said web;

means connected to said first and second web guides for simultaneously moving both said first and second web guides an identical distance toward or away from said fixed center line;

alignment means, connected to said means for moving said first and second web guides, for initially setting the distance from said fixed center line to said first and second web guides at the same value; and

locking means, connected to said alignment means, for holding said alignment means in its initially set position during movement of said first and second web guides.

11. The improvement of claim **10,** further including means for holding said first and second web guides in a position set by said means for moving said first and second web guides.

12. The apparatus of claim **11,** wherein said main carrier is formed with a first pair of elongated spaced apart slots on one side of said fixed center line and a second pair of elongated, spaced apart slots on the opposite side of said fixed center line, all of said elongated slots extending completely through said main carrier, and wherein said means for holding said first and second web guides comprises:

four screws, extending from the side of said main carrier opposite said web, one screw passing through each of said first pair of slots and engaging said first web guide and one screw passing through each of said second pair of slots and engaging said second web guide; and

four springs, one for each of said four screws, said springs being trapped and held in compression between the head of said screws and the side of said main carrier opposite said web.

13. The apparatus of claim **10,** wherein said main carrier is formed with a keyway formed in the face thereof facing said web, said keyway extending substantially the entire length of said main carrier, and wherein said first and second web guides are movably attached to said main carrier by keys formed in the face opposite said web of each of said first and second web guides and slidably engaged in said keyway, said keys each being defined by spaced apart slots formed in said face of said web guides opposite said web.

14. The improvement of claim **10,** wherein each of said first and second web guides are formed with a recess open to the face of said web guides opposite said web, said recess being formed substantially perpendicular to the plane of travel of said web, and with a hole completely through each of said web guides intersecting said recess and being substantially perpendicular thereto, and wherein said means for moving said first and second web guides comprises:

a cap having a hole extending completely therethrough in alignment with said holes in said first and second web guides, said cap being attached to said main carrier;

a shaft, rotatably mounted in said hole in said cap, having a length substantially equal to the length of said main carrier and extending through said holes in said first and second web guides, said shaft having an unthreaded portion extending beyond said cap, a first threaded portion connected to said unthreaded portion and defined therefrom by a shoulder portion, a transition portion connected to said first threaded portion and located adjacent to said fixed center line and a second threaded portion connected to said transition portion;

a handle assembly, attached to said unthreaded portion of said shaft, for rotating said shaft;

a first interiorally threaded nut, trapped in said recess in said first web guide, threadably engaged with said first threaded portion of said shaft; and

a second interiorally threaded nut, trapped in said recess in said second web guide, threadably engaged with said second threaded portion of said shaft, one of said first and second nuts having right-hand threads, and the other having left-hand threads, the portion of said shaft in engagement with said nuts being threaded to mesh with its associated nut, whereby rotation of said handle assembly will simultaneously move both said first and second web guides toward and away from said fixed center line the same distance.

15. The apparatus of claim **14,** wherein said hole in said cap is threaded, and wherein said alignment means comprises:

a threaded bushing, threaded on the exterior thereof, in engagement with said hole in said cap, said bushing extending beyond said cap and terminating in a wrench engageable head, said unthreaded portion of said shaft passing through said threaded bushing; and

a flanged bushing, extending through said threaded bushing intermediate said threaded bushing and said shaft, terminating in flanges on each end thereof, one of said flanges being in contact with said shoulder portion of said shaft and the other one of said flanges being in contact with said handle assembly, whereby changing the degree of engagement of said bushing in said hole in said cap by turning said bushing will move said first web guide away from said fixed center line while moving said second web guide toward said fixed center line or will move said first web guide toward said fixed center line while moving said second web guide away from said fixed center line.

16. The apparatus of claim **15,** wherein said locking means comprises:

a lock nut engaged with the threaded portion of said threaded bushing extending beyond said cap and engageable, when tightened with the upper surface of said cap to prevent accidental movement of said threaded bushing.

17. The apparatus of claim **10,** wherein both said first and second web guides have an arcuate web contact face to constrain said web to an arcuate path of travel while being guided, wherein said first web guide has a lip portion adjacent one marginal edge of said web, and wherein said second web guide has a lip portion adjacent the opposite marginal edge of said web, said web being trapped between said lip portions of said first and second web guides.

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