United States Patent [19]

Schill

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[54] **EQUALIZER SLIDE ASSEMBLY**

[75] Inventor: **John M. Schill,** Kitchener, Canada

[73] Assignee: **Watertown Table Slide Corporation,** Watertown, Wis.

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[52] **U.S. Cl.** **108/87;** 308/3.6

[51] **Int. Cl.²** **A47B 1/08**

[58] **Field of Search** 108/87; 308/3.6, 3.8

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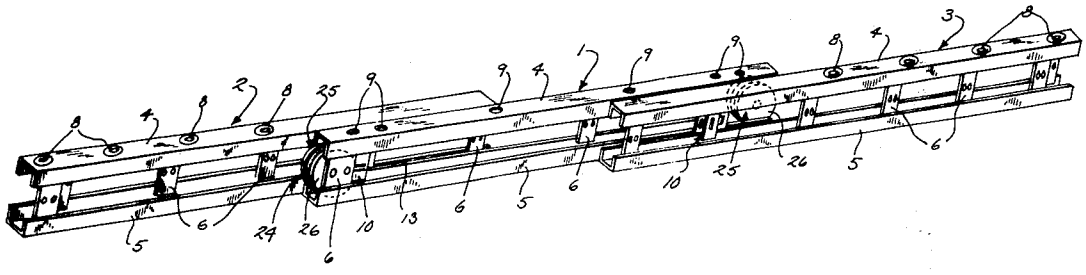
Primary Examiner—James C. Mitchell

Attorney, Agent, or Firm—Andrus, Sceales, Starke & Sawall

[57] **ABSTRACT**

An equalizer slide assembly comprising a fixed central section and a pair of outer sections mounted for sliding movement on opposite sides of the central section. The outer sections are connected to the central section by connector assemblies which permit longitudinal sliding movement of the outer sections relative to the central section. Pulleys are mounted at the ends of the central section and an endless cable is trained over the pulleys. Opposite locations of the cable are connected to the connector assemblies so that extension or retraction of one of the outer sections with respect to the central section will correspondingly extend or retract the other outer section.

8 Claims, 11 Drawing Figures



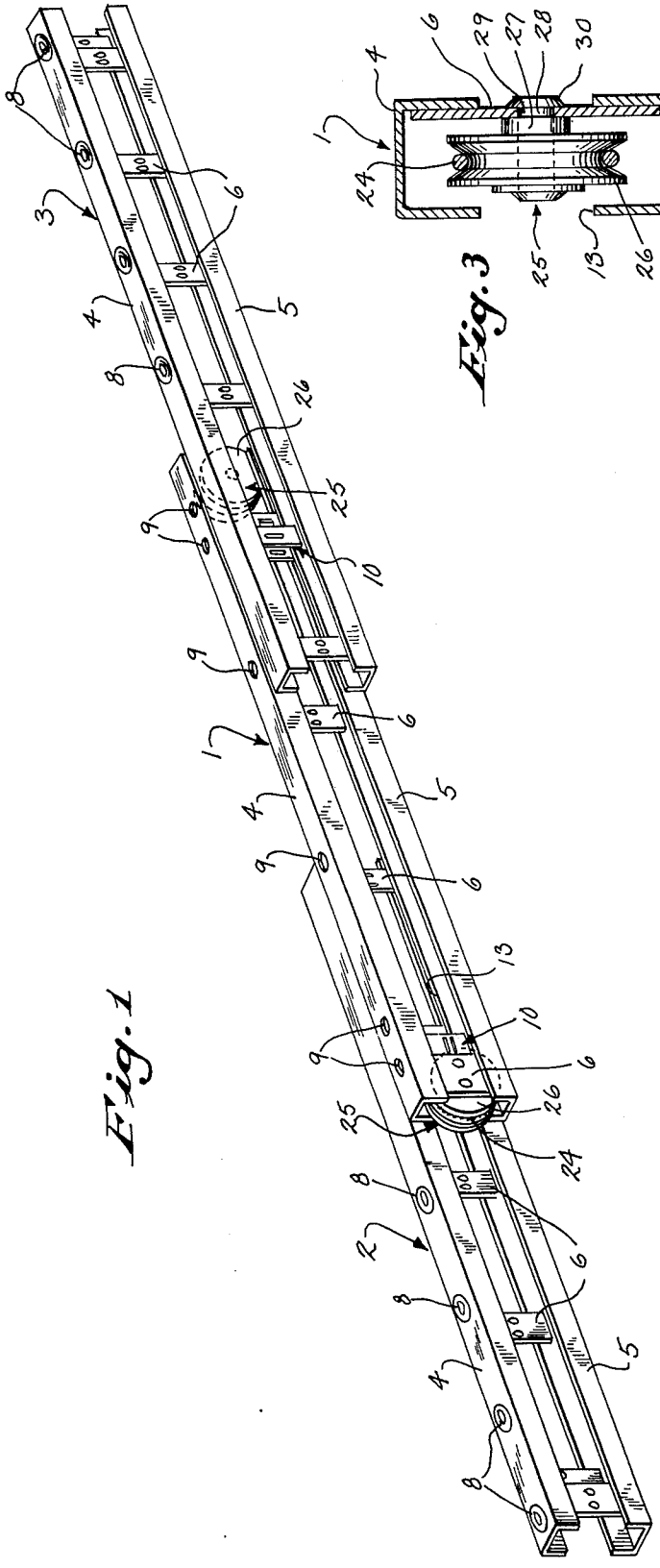


Fig. 1

Fig. 3

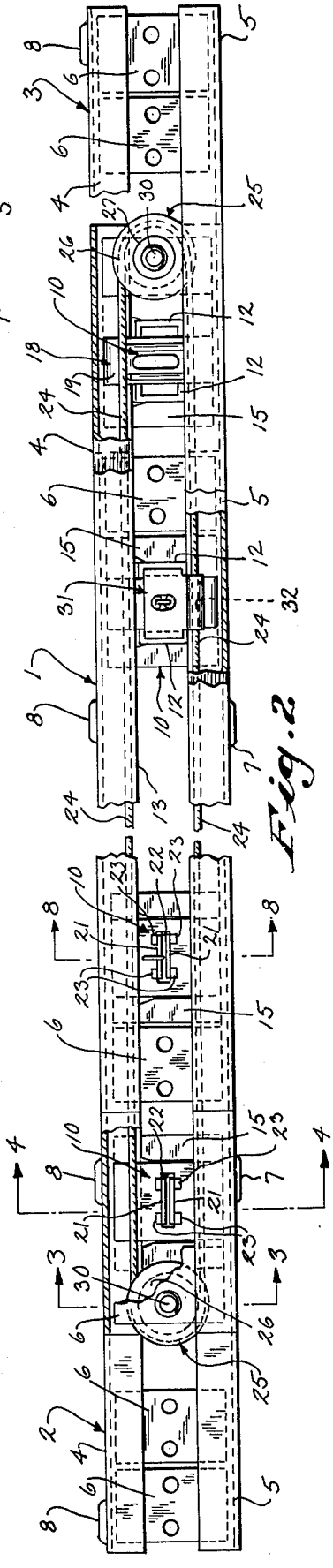


Fig. 2

Fig. 4

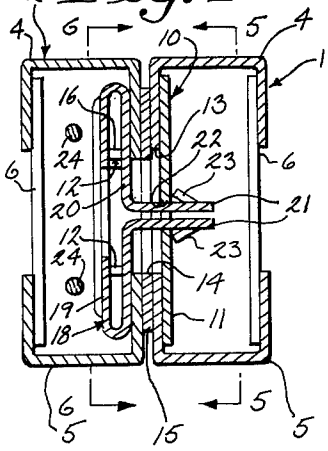


Fig. 5

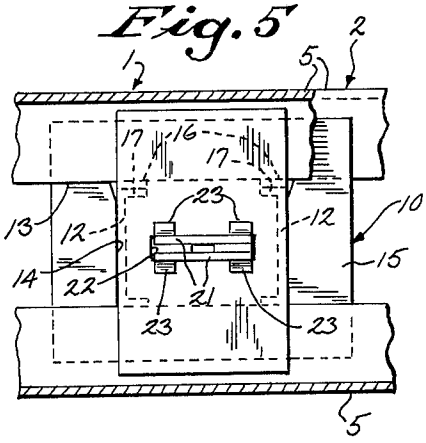


Fig. 6

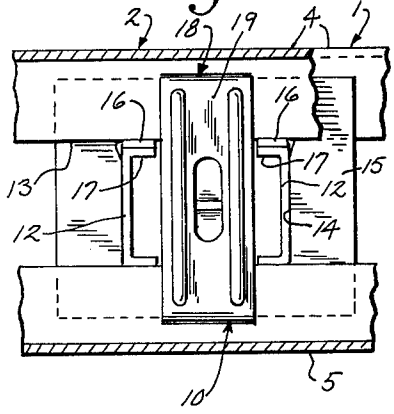


Fig. 7

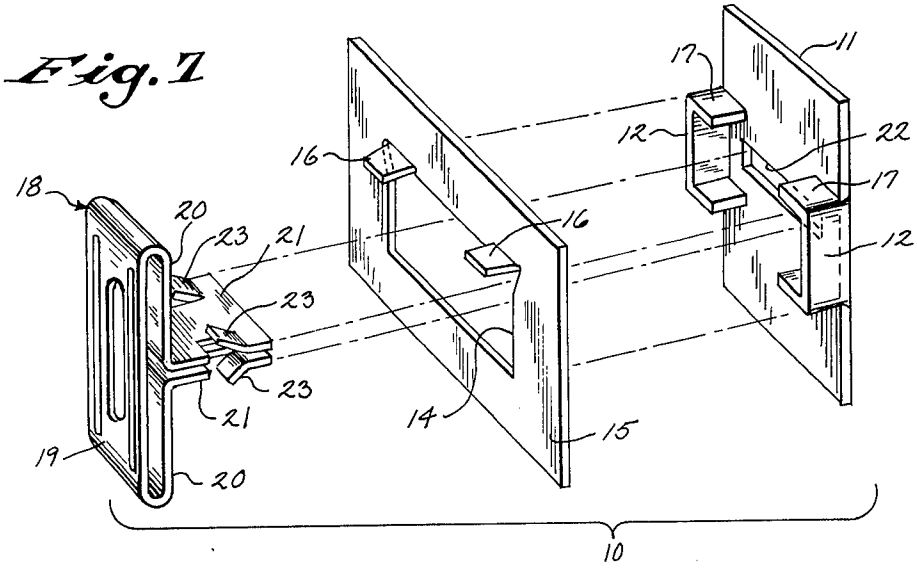


Fig. 8

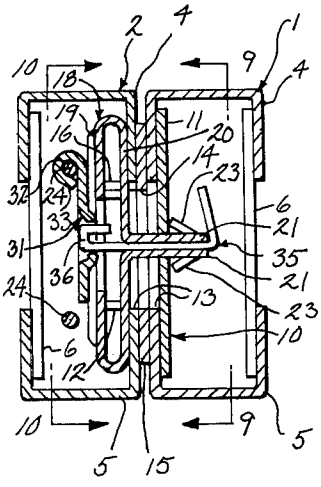


Fig. 9

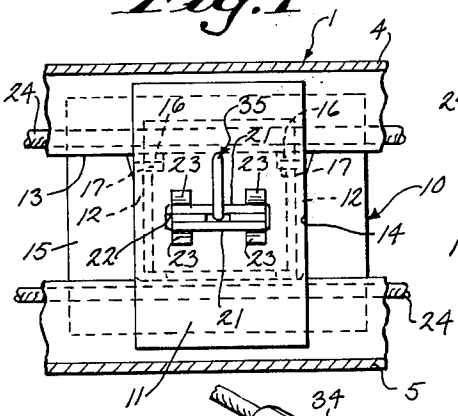


Fig. 11

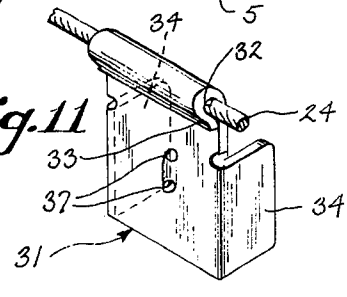
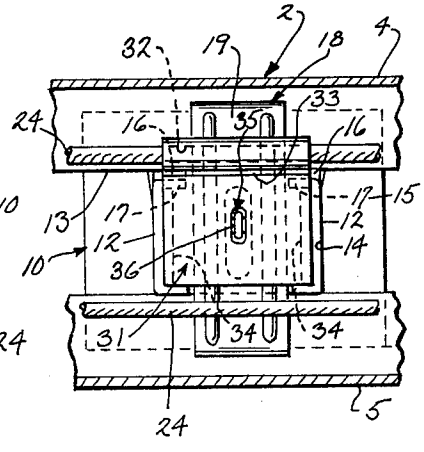


Fig. 10



EQUALIZER SLIDE ASSEMBLY

BACKGROUND OF THE INVENTION

A slide assembly is often employed with an extension table to permit the ends of the table to be extended or moved apart and enable additional leaves to be inserted between the extended ends to increase the overall table area. With larger tables, or tables having a central leg or pedestal, an equalizer slide assembly is frequently used in which the central section of the slide is fixed to the leg or pedestal while the outer slide sections are secured to the table ends and interconnected by an equalizer arrangement so that extension or retraction of one outer slide section will be transmitted to the other outer slide section. With the use of the equalizer slide assembly, extending or retracting one end of the table will automatically act to correspondingly extend or retract the opposite end of the table while maintaining the pedestal or central leg at the center of the split table.

In the past, various types of equalizer mechanisms have been employed, such as a gear and rack arrangement in which a gear is mounted on the fixed central section and is engaged with racks on the outer sections. By extending one of the outer sections the gear is driven to correspondingly extend the outer slide section.

Equalizer mechanism, as used in the past, have also included cables or bands mounted on pulleys on the central section. With a cable arrangement, the cables are connected to the outer sections in a manner whereby extension of one outer section will act to correspondingly extend the other outer section.

SUMMARY OF THE INVENTION

The invention relates to an improved equalizer slide assembly which has a particular application for use with extension tables. The slide assembly includes a central section, which is adapted to be secured to the central pedestal or leg of a table, and outer sections are located on either side of the central section and are connected to the central section by connector assemblies that permit relative sliding movement of the outer sections with respect to the central section.

Pulleys are located at the ends of the central section and an endless cable is trained over the pulleys. Opposite portions of the cable are connected to the connector assemblies so that extension or retraction of one of the outer sections will operate to correspondingly extend or contract the other outer section.

The equalizer slide assembly of the invention is a simplified construction over those employed in the past and provides a positive connection between the cable and the sliding outer sections.

The equalizer mechanism can be applied to a standard table slide assembly so that the same basic slide mechanism can be utilized for an equalizer slide assembly as well as for a slide assembly that does not include an equalizer feature.

Other objects and advantages will appear in the course of the following description.

DESCRIPTION OF THE DRAWINGS

The drawings illustrate the best mode presently comtemplated of carrying out the invention.

In the drawings:

FIG. 1 is a perspective view of the equalizer slide assembly of the invention in the partially extended position;

FIG. 2 is a side elevation of the slide assembly with parts broken away in section;

FIG. 3 is a section taken along line 3—3 of FIG. 2;

FIG. 4 is a section taken along line 4—4 of FIG. 2; and showing a connector assembly;

FIG. 5 is a section taken along line 5—5 of FIG. 4;

FIG. 6 is a section taken along line 6—6 of FIG. 4;

FIG. 7 is an exploded view of a connector assembly;

FIG. 8 is a section taken along line 8—8 of FIG. 2;

FIG. 9 is a section taken along line 9—9 of FIG. 8;

FIG. 10 is a section taken along line 10—10 of FIG. 8; and

FIG. 11 is a perspective view of a clip used to attach the cable to a connector assembly.

DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

The drawings illustrate an equalizer slide assembly which can be utilized with an extension table or any other application where it is desired to slide two components relative to a fixed component. The slide assembly includes central section 1 and a pair of outer sections 2 and 3 which are located on opposite sides of the central section and are adapted to slide longitudinally with respect to the central section.

As best illustrated in FIGS. 4 and 8, each of the sections 1–3 is formed of an upper channel 4 and a lower channel 5, the side flanges of which are joined together by a series of plates or straps 6 which are located at intervals along the length of the sections.

The central section 1 is adapted to be secured to a fixed support such as a pedestal or central leg of a table, and to provide the fixed connection, the lower surface of the central member is provided with a series of holes 7 surrounded by dimples or bosses and suitable screws or fasteners extend through holes 7 and secure the central section to the fixed support. The outer sections 2 and 3 are adapted to be connected to the ends of the table and the upper surfaces of the sections 2 and 3 are provided with holes 8 which are also surrounded by dimples or bosses. Screws or fasteners, not shown, extend through holes 8 and connect the outer sections to the respective table ends.

Access openings 9 are provided in both the upper channel 4 of central section 1 and in the lower channel 5 of the outer sections 2 and 3, in alignment with the holes 7 and 8, to permit a tool to be inserted within the sections to attach the central section 1 to the fixed support and attach the outer sections 2 and 3 to the table ends.

The outer sections 2 and 3 are connected to the central section 1 by connector assemblies, indicated generally by 10, to permit relative longitudinal movement of the outer sections with respect to the fixed central section. Each of the connector assemblies 10 includes a plate 11 which is welded to the inner surface of the corresponding vertical flanges of the channels 4 and 5. For example, a pair of connector assemblies 10 connect the central section 1 to the outer section 2, and the plate 11 of one of the assemblies 10 is welded to the inner surfaces of the flanges of the channels 4 and 5 of the outer section 2, while the plate 11 of the other connector assembly is welded to the inner surfaces of the flanges of channels 4 and 5 of the central section. Simi-

larly, a pair of connector assemblies **10** connect the central section **1** and the outer section **3** and the plate **11** of one of the assemblies **10** is welded to the inner surfaces of the flanges of the channels **4** and **5** of the outer section **3**, while the plate **11** of the second of the assemblies **10** is welded to the inner surface of the flanges of the channels **4** and **5** of the central section.

As best shown in FIG. **7**, each of the plates **11** of the connector assemblies **10** is provided with a pair of C-shaped side flanges **12** which extend through the gap **13** between the edges of the channels **4** and **5**, and through a central opening **14** in a slide plate **15** which is disposed between the central section and each of the outer sections **2** and **3**. Slide plates **15** serve to space the sections **1–3** apart laterally.

As shown in the FIG. **7**, each slide plate **15** is provided with a pair of generally horizontal ears **16** which are located above the upper horizontal legs **17** of flanges **12** on plate **11**, to thereby position the slide plate **15** with respect to the sections.

Each connector assembly **10** also includes a spring clip **18** having a generally vertical section **19**, the ends of which terminate in reverse bends **20**. Horizontal sections **21** extend outwardly from the bent portions **20** and extend through a slot **22** formed in the central portion of plate **11**. As best shown in FIG. **7** sections **21** are provided with punched-out locking tabs **23**, and when the sections **21** are forced into the respective slots **22** the tabs **23** will spring outwardly to thereby secure the clips **18** with respect to the plates **11**.

With this construction, the connector assemblies **10** act to connect the outer sections **2** and **3** to the central section **1**, and permit longitudinal sliding movement of each outer section with respect to the central section.

In accordance with the invention, an endless equalizer cable **24** is located within the interior of the central section **1** and a pair of pulley assemblies **25** are mounted at the ends of the central section and support the cable. As best shown in FIG. **3**, each of the pulley assemblies **25** includes a pulley **26**, over which the cable is trained, and a fixed hub **27** on which the pulley is journalled. A stem **28** of reduced diameter extends outwardly from the hub and through a hole **29** in one of the straps **6**. The outer end of the stem **28** is provided with a V-shape cut which is deformed outwardly, as indicated by **30**, to lock the stem with respect to the strap **6**.

The cable **24** is attached through the connector assemblies **10** to the outer sections **2** and **3**. In this regard, one of the connector assemblies **10** that connects the central section **1** to outer section **2**, and one of the connector assemblies that connects the central section to the outer section **3**, carries a connector **31** and one end of the connector is provided with a generally horizontal channel or passage **32** which receives the cable **24**. The cable is continuous or endless, and the channels **32** of the two connectors **31** are crimped inwardly, as indicated by **33**, to secure the connectors to opposite portions of the cable.

To attach the connector **31** to the connector assembly **10**, the connector **31** is provided with a pair of side flanges **34** which extend through the opening **14** in slide plate **15** and abut plate **11** inwardly of the flanges **12**. A spring clip **35**, as illustrated in FIG. **8**, serves to secure the connector **31** to the connector assembly **10**. The spring clip **35** is provided with a generally U-shaped end **36** which is received within a pair of holes **37** in the connector **31**. The opposite end of the spring clip extends between the tabs **23** and is bent vertically, as shown in FIG. **8**, to thereby secure the connector **31** to the connector assembly **10**.

As previously described, the central section **1** is adapted to be secured to a fixed support, such as a pedestal or the central leg of an extension table. With the equalizer arrangement provided by the cable **24** which is connected to the outer sections **2** and **3** through the connector assemblies **10**, extension or retraction of either of the outer sections will result in a corresponding extension or retraction of the other outer section. Thus, the table ends, which are connected to the outer sections **2** and **3**, can be moved apart without movement of the central pedestal or leg which is connected to the central section **1**.

The equalizer slide assembly of the invention is a simplified construction in which the cable is connected to the standard connector assemblies **10** which are employed to provide the sliding connection between the central section **1** and the outer sections **2** and **3**. Thus, the same components can be utilized in a standard slide assembly as well as an equalizer slide assembly with the only addition for the equalizer slide assembly being the cable **24**, pulley assemblies **25**, the connectors **31** and clips **35**. This reduces the economies of manufacture and enables standardized items to be used for a wide variety of different slide assemblies.

While the illustrated embodiment has shown the slide plate **15** as separating the adjacent sections **1**, **2** and **3**, to reduce sliding friction, other types of friction reducing elements, such as projections, bosses, or the like, can be formed integrally with, or secured to, one of the sections and positioned to ride against the adjacent section during extension and contraction of the assembly.

The above description has shown the use of the equalizer slide assembly in connection with an extension table. It is contemplated that the slide assembly can be used in any application having a central fixed section and two or more outer sections mounted to slide relative to the central section.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention.

I claim:

1. An equalizer slide assembly, comprising a fixed central section, a pair of outer sections each disposed on opposite sides of the central section, connecting means for connecting each outer section to the central section for sliding longitudinal movement with respect to the central section, an endless cable, a pair of pulleys mounted on the central section and disposed to support the cable, each connecting means including a first connecting element secured to the outer section and a second connecting element secured to the central section and connected to said first connecting element, each connecting means also including a slide plate attached to one of said sections and disposed between the outer section and the central section, and attaching means for attaching the cable to said second connecting element of each connecting means, whereby extension and retraction of one of said outer sections with respect to the central section will result in corresponding extension or retraction of the other outer section.

2. The slide assembly of claim **1**, wherein said attaching means includes an attaching member removably se-

cured to said second connecting element, said attaching member having a portion to engagably receive said cable.

3. The slide assembly of claim 2, wherein said portion of the attaching member is generally tubular and is crimped inwardly to engage the cable.

4. An equalizer assembly, comprising a fixed central section, a pair of outer sections each disposed on opposite sides of the central section, connecting means for connecting each outer section to the central section for sliding longitudinal movement with respect to the central section, an elongated flexible member, support means on the central section and disposed to support said flexible member for travel, each connecting means including a first connecting element secured to the outer section and a second connecting element secured to the central section and connected to said first connecting element, each connecting means also including a slide member attached to one of said sections and dispposed between the outer section and the central section, and attaching means for attaching the flexible member to the second connecting element of each connecting means, whereby extension and retraction of one of said outer sections with respect to the central section will result in corresponding extension or retraction of the other outer section.

5. The slide assembly of claim 4, wherein said slide member has an opening and at least one of said connecting elements extends through said opening.

6. The slide assembly of claim 4, wherein the outer sections and the central section have adjacent side surfaces and said slide member is disposed between the adjacent side surface, said side surfaces being provided with apertures and said slide member has an opening aligned with said apertures, said connecting means including a clip interconnecting the first connecting element and the second connecting element and extending through said apertures and through said opening in the slide member.

7. The slide assembly of claim 4, wherein said elongated member is endless in configuration and said attaching means is located at opposite locations on the elongated member.

8. The slide assembly of claim 7, wherein the elongated member is a cable and said support means comprises a pair of pulleys with each pulley located at an end of the central section, the axes of said pulleys being disposed horizontally.

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