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AIRPORT GANGWAY

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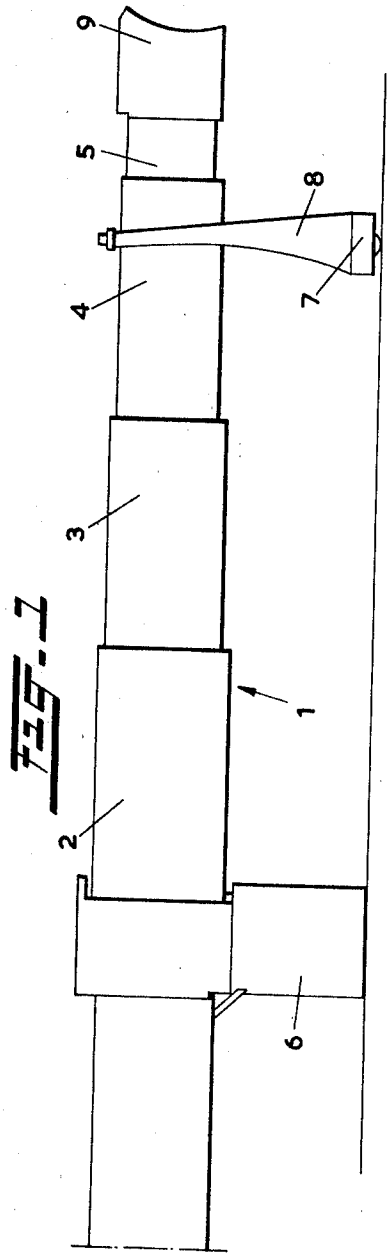


FIG. 1

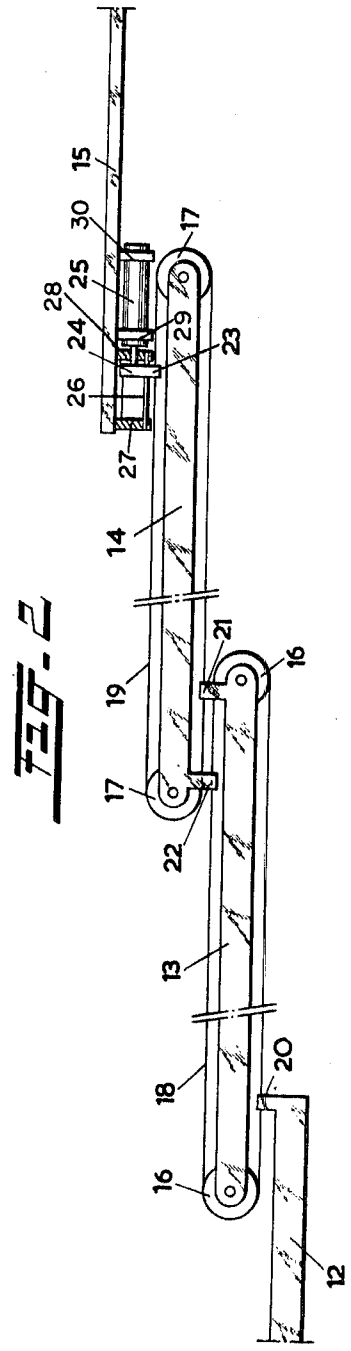


FIG. 2

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AIRPORT GANGWAY

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ABSTRACT OF THE DISCLOSURE

An airport gangway constituted by telescoping sections comprising a rearmost section pivotally connected to a stationary structure, a foremost section, and a plurality of intermediate sections, one of said intermediate sections being supported on a traveling carriage, and drive means operatively connected with the gangway section for telescoping the sections into and out of each other, said drive means being so coordinated that the movements between adjacent pairs of sections have a predetermined ratio to each other.

This invention relates to an airport gangway constituted by telescoping sections comprising a rearmost section pivotally connected to a stationary structure, a foremost section, and a plurality of intermediate sections, one of said intermediate sections being supported on a traveling carriage, and drive means operatively connected with the gangway section for telescoping the sections into and out of each other.

It is an object of the present invention to improve this kind of gangway in such a way as to render it possible for it to be operated more easily and rapidly than the prior art proposals, while maintaining a greater degree of safeguard against undesirable loads on the material of the gangway and the unit to which the gangway is to be connected from time to time.

For this purpose, according to the invention, the drive means operatively connected with the individual sections are so coordinated that the movements between adjacent pairs of sections have a predetermined ratio to each other. In particular, the connection between the drive means and the foremost section is separately adjustable in the direction of movement. It is thereby achieved, on the one hand, that the various sections take part in the change of length of the gangway in a uniform manner aimed at the most favourable distribution of the weight, so that the adjustment of the gangway can be controlled more easily and can hence be effected more rapidly, and on the other hand, that the foremost section, which is moving at a rate equal to the sum of the rates of adjustment of all the individual elements, need only be moved close to the unit to be connected with the gangway by means of the change-of-length movement of the gangway and can then be moved through the remaining distance by separate means with the carriage remaining stationary, so that the ultimate connection can be made extremely accurately and carefully after an initially rapid approach of the leading end of the gangway.

In a preferred embodiment of the invention, which combines simplicity with efficiency, the drive means consists of elongated flexible elements, such as chains, each element being passed over at least two reversing rollers journalled in or on one of the sections, one of the runs extending between a pair of reversing rollers mounted on a given section being connected to the next lower section, and the other of said runs being connected to the next higher section.

One embodiment of the invention will be described, by way of example, with reference to the accompanying drawings, in which

FIG. 1 shows a gangway in sideview; and

FIG. 2 shows the drive means of said gangway.

Referring to FIG. 1, there is shown a gangway **1** comprising four sections **2**, **3**, **4** and **5**, the rearmost section **2** being supported by a stationary rotunda **6** for horizontal and vertical pivoting movement. An intermediate movable section **4** is telescopable with a rearward section **3** and is carried by a carriage **7**, adapted to travel lengthwise and cross-wise, and mounting a portal **8** in which the section **4** is supported for up-and-down movement. The foremost section **5** extends forwardly from section **4** and is provided with a connecting hood **9** for it to be connected to the hull of an airplane.

FIG. 2 shows, entirely diagrammatically, the drive gear of sections **2**, **3**, **4** and **5**, which may be mounted in double walls or bottoms of the sections. **12**, **13**, **14** and **15** are horizontal members constituting an integral part of the respective sections **2–5**, or representing the sections proper. The members **13** and **14** are provided with reversing rollers **16** and **17**, respectively, about which are lapped chains **18** and **19**, respectively. The lower run of the chain **18** is connected with the member **12** at **20** and the lower run of the chain **19** is connected with the member **13** at **21**. The upper run of the chain **18** is connected with the member **14** at **22**, and the upper run of the chain **19** is connected at **23** with a slide block **24**, which being slidable in the guide **26** secured by mounting elements **27**, **28** to the member **15** carries the member **15** adjustably in the telescoping direction. The adjustment can be made by means of the hydraulic piston and cylinder unit **25**, of which the cylinder is secured to the member **15** by mounting elements **29**, **30** and of which the piston rod is connected with the block **24**. The chambers at either side of the piston in the cylinder of the unit **25** are connected by conduits to a source of pressure medium not illustrated in the drawings.

Each section **3**, **4** and **5** telescopes into or out of an adjacent section an equal distance. Consequently, the outermost section **5** will move a distance, measured from the fixed section **2**, which is a summation of the distances traveled by the sections **3** and **4** relative to the fixed section **2**. In other words, section **5** travels three times the distance traveled by section **3**, while section **4** travels twice the distance traveled by section **3** in the same time when the respective distances are measured from the fixed section **2**.

The means **24**, which at **23** connects the member **15** with the chain **19**, being movable with respect to the member **15** in the telescoping direction, the element **15** and therewith the section **5** can be moved within predetermined limits independently of the other sections and the carriage **7**, so that the ultimate engagement of the end hood **9** with the hull of an airplane can be kept under control extremely well.

I claim:

1. A gangway (1) comprised of telescoping sections including a rearmost section (2), a foremost section (5), and a plurality of sections located between said foremost section and said rearmost section and including at least an intermediate section (4) and a rearward section (3); said rearward section (3) being telescopically related to said rearmost section (2), said intermediate section (4) being telescopically related to said rearward section (3), and said foremost section (5) being telescopically related to said intermediate section (4); carriage means (7) connected to said gangway for telescoping said sections into and out of each other, and endless flexible means (18, 19) carried by each of said plurality of sec-

tions interconnecting adjacent ones of said sections for causing equal telescopic movement of said sections relative to each other for moving said foremost section a distance relative to said rearmost section which is a summation of the distances traveled by each of said sections relative to its rearwardly adjacent section.

2. A gangway as defined in claim 1 including at least a pair of horizontal members (13, 14), spaced roller means adjacent the ends (16, 17) on each of said pair of horizontal members, said endless flexible means comprising a pair of chain-like members (18, 19) entrained around respective pairs of said roller means, and means (21, 22) for connecting each of said horizontal members to the chain-like member carried by the other of said horizontal members.

3. A gangway as defined in claim 1 including connection means between said intermediate section (4) and said foremost section (5), and separate means (25) for adjusting said foremost section relative to said intermediate section.

4. A gangway (1) comprised of telescoping sections including a rearmost section (2), a foremost section (5), and a plurality of sections including an intermediate section (4) and a rearward section (3); said rearward section (3) being telescopically related to said rearmost section (2), said intermediate section (4) being telescopically related to said rearward section (3), and said foremost section (5) being telescopically related to said intermediate section (4); means interconnecting said sections for providing equal relative movement therebetween; carriage means (7) connected to said gangway for telescoping said sections into and out of each other, connection means between said intermediate section (4) and said foremost section (5), and separate motor means (25) for adjusting said foremost section relative to said intermediate section.

5. A gangway as defined in claim 4 wherein said separate motor means is comprised of guide means (24, 28) connecting said intermediate and foremost sections, and fluid motor means (25) for separately adjusting said foremost section relative to said intermediate section.

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