Nov. 3, 1970 O. L. KNAPP 3,537,748

COMBINED AMBULATORY ASSISTANCE DEVICE AND FOLDING CHAIR

Filed March 3, 1969 2 Sheets-Sheet 1

FIG. 1

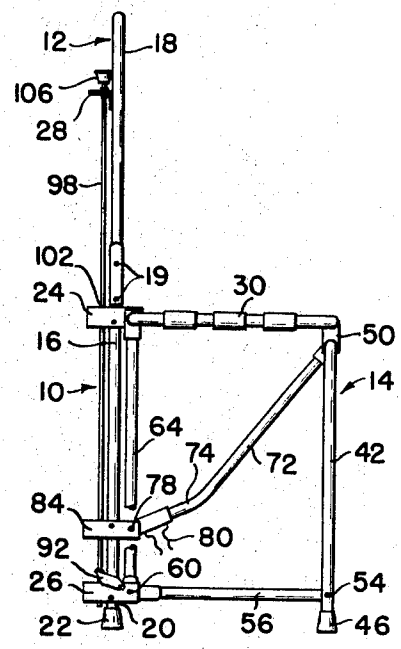


FIG. 2

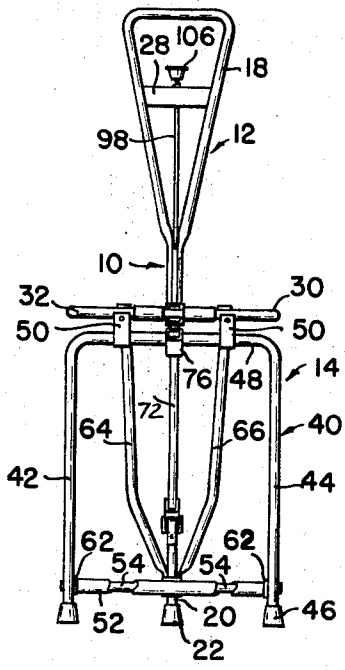


FIG. 3

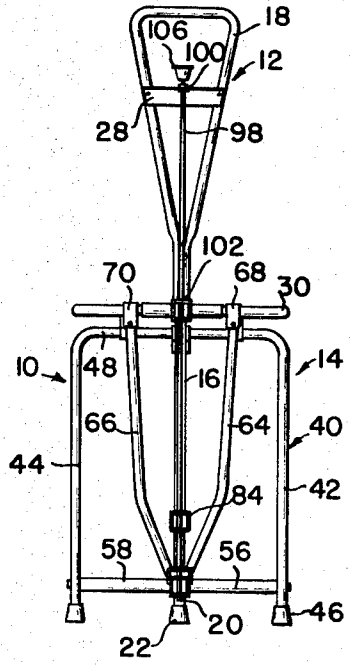
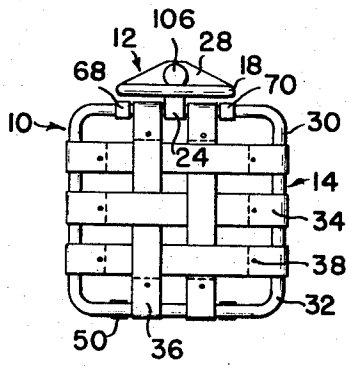


FIG. 4



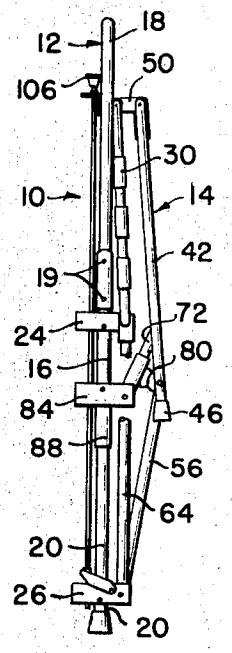
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FIG. 5



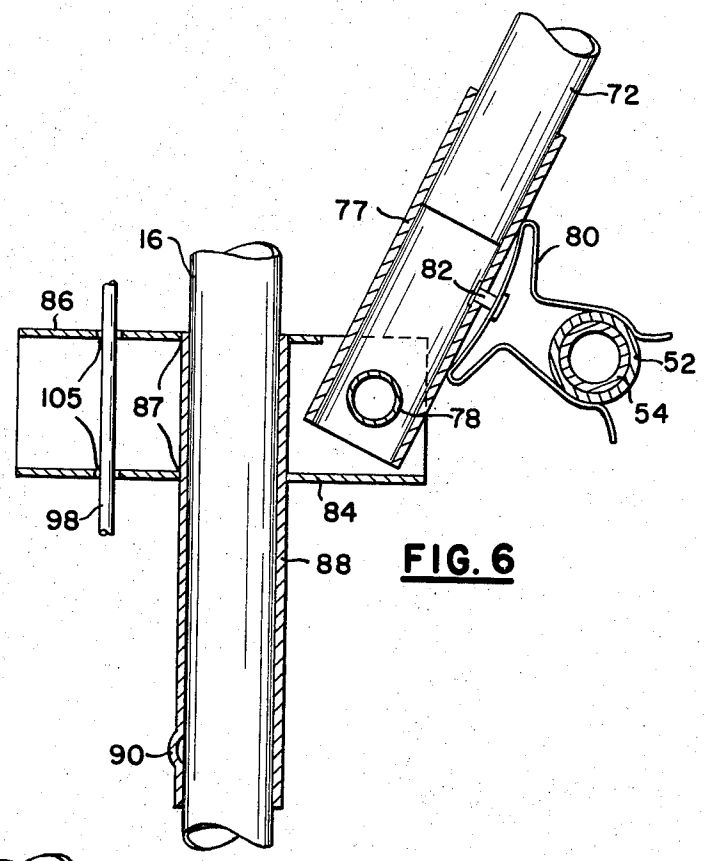


FIG. 6

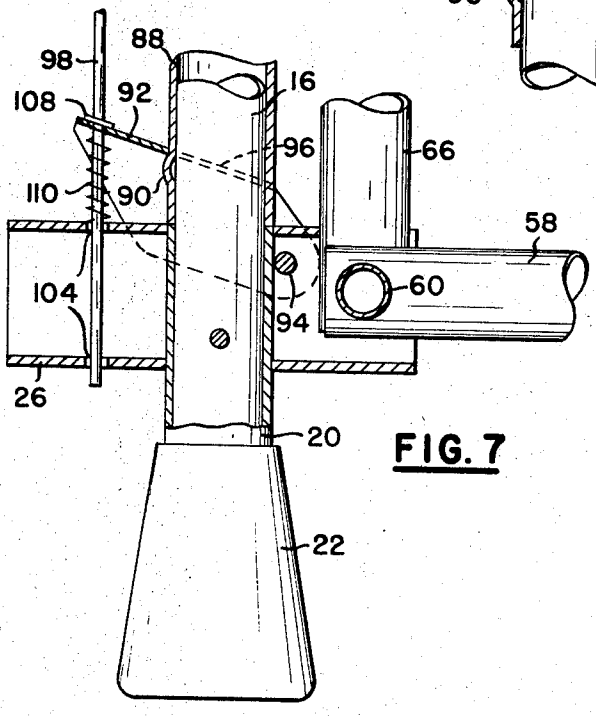


FIG. 7

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COMBINED AMBULATORY ASSISTANCE DEVICE AND FOLDING CHAIR

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Int. Cl. A47c *4/00, 13/00*
U.S. Cl. 297—118 10 Claims

ABSTRACT OF THE DISCLOSURE

An ambulatory assistance device, which may be a crutch, a cane or the like, combined with a folding chair having novel construction features including a brace and locking means to retain the chain in extended position. The brace is pivoted at one end to the forward end of the seat, and at its other end is pivoted to a slide adapted to move upwardly and downwardly on a part of the ambulatory assistance device. The slide carries a lug or similar detent which, when the chair is extended, engages a latch to retain the chair in extended position. The latch is remotely actuated to unlocked position by means adjacent the upper end of the ambulatory assistance device.

BACKGROUND OF THE INVENTION

Field of the invention

The invention relates to ambulatory assistance devices, and more particularly to an ambulatory assistance device, which may be a crutch, cane, or the like, in combination with a folding chair.

Description of the prior art

Many persons who are aged, infirm, weak, or physically handicapped such, as for example, victims of polio, require ambulatory assistance devices such as crutches and canes and the like for walking. Even with the aid of such assistance devices these persons quickly tire, whereby their field of travel by walking is severely limited. Various means have been devised to enlarge this field of travel, such as by adding folding chairs to the crutch or cane to enable the person to sit down and rest when tired. These prior art chairs have not been successful, for various reasons, such as excess weight, difficult extending and/or collapsing.

SUMMARY OF THE INVENTION

My invention overcomes all of these disadvantages.

It is an object of this invention to provide an improved ambulatory assistance device and folding chair combination which is light in weight, rigid in construction, and which provides a stable chair when extended.

It is a further object to provide an improved ambulatory assistance device and folding chair combination that is positively and automatically latched in extended position, and in which the latch may be remotely actuated by means adjacent the upper part of the cane or crutch to unlatch the locking means to permit easy collapsing of the chair.

It is a still further object to provide an improved ambulatory assistance device and folding chair combination having novel construction features resulting in a

rigid and stable construction which is easy to operate and is trouble-free.

With the above objects, and with other objects and advantages in view, the invention comprises a combined ambulatory assistance device, such as a cane or crutch, for example, and a folding chair. The chair includes a pair of forward legs pivoted at their upper ends to the forward end of a seat, the rearward end of the seat being pivoted on the cane or crutch intermediate its ends. The chair is a tripod construction, the lower end of the cane or crutch forming the third leg of the chair. A pair of reinforcing rods, extending in a plane generally parallel with the seat, are pivotally connected at their forward ends to the lower ends of the two chair legs, while the rear ends thereof are brought into adjacent relationship with each other and pivoted to a support on the lower end of the cane or crutch. A pair of load transmitting rods, extending in a plane generally parallel with the forward legs, pivotally interconnect the rear end of the seat with the above-mentioned support on the lower end of the cane or crutch, which have the effect of transmitting part of the weight of the person sitting on the chair to the cane or crutch at a point close to the ground, relieving the cane or crutch of any load that might tend to twist or bend it. The chair also includes a brace which is pivotally connected at its forward upper end to the forward end of the seat between the forward legs, the brace extending downwardly and rearwardly to a pivot connection on a slide movable upwardly and downwardly on the lower part of the cane or crutch. The slide includes a downwardly extending tubular extension surrounding the cane or crutch which, when the chair is fully extended, engages the support on the lower end of the cane or crutch to limit the opening or extending movement of the chair. The tubular extension carries a boss which cooperates with a latch pivoted on the support on the lower end of the cane or crutch to lock the parts in the extended position. An operating rod extends upwardly from the latch to a position adjacent the upper or body supporting end of the cane or crutch, where it can be readily operated to release the latch to enable the chair to be collapsed when desired. A cross rail interconnects the lower ends of the legs to reinforce them. A clip on the brace, intermediate the ends thereof, engages the cross rail when the chair is collapsed to retain the parts in collapsed or closed position.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the invention and its operation will become evident from a consideration of the following detailed description of a preferred embodiment and the accompanying drawings, in which·

FIG. 1 is a side view of the combination in its extended position;

FIG. 2 is an elevation of the combination in its extended position as viewed from the front;

FIG. 3 is an elevation of the combination in its extended position as viewed from the rear;

FIG. 4 is a top plan view of the combination in its extended position looking downwardly on the seat thereof;

FIG. 5 is a side elevation view, similar to that shown in FIG. 1, but showing the chair in its collapsed position;

FIG. 6 is a detail of FIG. 5, drawn to a larger scale, showing the lower rear end of the brace, the clip thereon, and the slide to which the brace is pivoted; and

FIG. 7 is a detail of the structure in FIG. 1, drawn to a larger scale, illustrating the lower support on the cane or crutch with the latch thereon, the operating rod for the latch, and pivotal connection of the reinforcing rods and the load transmitting rods.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

With reference to the accompanying drawings, in which corresponding parts are referred to by the same reference numerals, the combined ambulatory assistance device and folding chair combination is designated in its entirety by the numeral **10**, and comprises an ambulatory assistance device **12** and a folding chair **14**.

The term "ambulatory assistance device" as used in this specification refers to a device to enable or to assist a person to walk, and may take the form of a cane or crutch, or any other similar structure. In the modification selected to describe the invention, the ambulatory assistance device is in the form of a cane adapted to be engaged by a portion of the body using it, that is, by a hand. The cane includes an elongated standard **16**, the upper end having thereon a body engaging portion **18** of generally triangular form, the apex of the triangle having a pair of extensions engaging the upper end of the standard **16** and secured thereon by a plurality of rivets **19**. The lower end of the standard **16** has a ground engaging portion **20** to which is attached a rubber tip **22** to reduce the noise when the cane strikes the ground and to minimize the possibility of slipping.

If a crutch were employed, it is evident that the standard **16** and body engaging portion **18** would have the necessary length to reach the armpit of the person using it, and that the usual padding would be added.

The ambulatory assistance device **12** includes a first support **24**, a second support **26**, and a third support **28**. These supports are integrally connected with the device **12** as by rivets and the like. The first support **24** comprises a short tubular member, generally rectangular in section, having aligned bores through opposite sides to receive the standard **16** which, in the example shown, is tubular and round in section. The support **24** is disposed intermediate the ends of the device **12**, sufficiently above the tip **22** to comfortably support the seat of the chair, which may be about 18 inches or so.

The second support **26** is similar in construction with the first support **24**, and is illustrated in clearer detail in FIG. 7. This support **26** is disposed about the ground engaging portion **20** of the device just above the rubber tip **22**.

The third support **28** is disposed adjacent the upper end of the body supporting portion **20** and comprises an angle secured by rivets to the two downwardly extending sides of the triangle **18** as more clearly shown in FIG. 3.

A seat **30** is pivotally connected to the first support **24**. The seat comprises a generally rectangular tubular frame **32** supporting criss-crossed cross members **34** and **36**. The members **34** and **36** may be made of any desired material or webbing, but in the example shown are made of thin aluminum strips the ends of which are looped around the frame **32** and secured by rivets **38** as shown in FIG. 4. It is not essential that the seat be made of criss-crossed aluminum members, but may be made of any of the numerous materials used for chair seats, such as cane, upholstered, etc. The rear end of the frame **32**, intermediate its ends, passes through aligned openings in the opposite sides of the support **24**, as shown in FIG. 4, to pivotally support the rear end of the seat in an obvious manner.

While the folding chair **14** and the ambulatory assistance device **12** may be made of any of the well known materials used in the construction of folding chairs and canes or crutches, it is preferred to use tubular aluminum where possible, because of its strength and light weight.

The front leg arrangement of the chair **14** comprises a generally U-shaped structure **40** having a pair of legs **42** and **44** receiving rubber tips **46** at their ends. A bight **48** interconnects the upper ends of the legs, and passes through a pair of spaced pivoting means **50** riveted to the front end of the frame **32** as shown in FIG. 2. A cross rail **52**, comprising a tubular rod, extends between and retains the lower ends of the legs **42** and **44** in spaced parallel relationship, and functions as a reinforcing means and also as a means to retain the chair in collapsed condition as will be seen hereinafter. An elongated rod **54** passes through the cross rail **52** and through bores in the lower ends of the legs **42** and **44**, as seen in FIGS. 1 and 2, the ends of the rod **54** being peened outwardly to prevent lateral movement thereof.

A pair of hollow tubular reinforcing rods **56** and **58** pivotally interconnect the lower ends of the legs **42** and **44** with the ground engaging portion **20** of the cane **12**. The rear ends of the rods **56** and **58** are flattened and brought together in abutting relationship, where they are pivotally supported on the second support **26** by a pivoting pin **60** passing through bores in the rods **56** and **58** as seen in FIG. 7. The forward ends of the rods **56** and **58** are also flattened at **62** and provided with bores to receive the rod **54**. As shown in FIG. 2, the forward ends of the rods **56** and **58** are disposed between the ends of the cross rail **52** and the lower ends of the legs **42** and **44**, forming a pivot joint.

A pair of load transmitting rods **64** and **66** interconnect the rear end of the seat **30** and the second support **26**, in order to transmit the greater part of the weight of the person occupying the seat directly to the ground engaging portion **20** of the cane. This construction relieves the middle portion of the cane **12** of forces tending to bend or twist it. The upper ends of the rods **64** and **66** are pivoted to the rear end of the frame **32** at spaced points on opposite sides of the first support **24** by the pivoting means **68** and **70**, as shown in FIG. 3, the lower ends being flattened and bored to receive the pivoting pin **60** and supported in the second support **26** as shown in FIG. 7.

A brace **72**, in the form of a tubular rod, pivotally interconnects the front end of the frame **32** of the seat **30** with a slide **84** movable on the standard **16** between the first and second supports **24** and **26**. The brace **72** is bowed at **74** intermediate its ends as shown in FIG. 1, permitting the parts to be collapsed (FIG. 5) without the brace binding against the rear end of the frame **32** of the seat. The upper forward end of the brace **72** carries a pivot **76** surrounding the bight **48** of the U-shaped member **40** intermediate the pivoting means **50**, as shown in FIG. 2, and the lower rearward end of the brace carries, as an extension thereof, a tubular pivoting member **77** having aligned bores therein to receive a pivot pin **78** passing through aligned bores in the slide **86**, as shown in FIG. 6. A retaining means, such as a clip **80**, is riveted to the lower side of the pivoting member **77** for a purpose to be set forth hereinafter.

The slide **84** comprises a tubular upper cross part **86**, rectangular in cross section, having upper and lower aligned bores **87** receiving a depending tubular extension **88**, the upper end of the extension being integral with the cross part **86** to move therewith. When the chair is fully extended, the lower end of the extension **88** engages the upper side of the second support **26**, as shown in FIG. 7, thereby limiting the extension of the chair, the brace **72** serving to give rigidity and stability to the structure.

Adjacent the lower end of the extension **88** there is provided a boss **90** serving as a keeper for a locking mechanism including a latch **92** pivoted at one end by a pivot pin **94** passing through aligned bores in the second support **26**. The latch **92** is generally U-shaped in section, the pivot pin passing through the legs. One end of the bight of the U of the latch includes an elongated slot **96** receiv-

ing the lower end **20** of the standard **16** and the extension **88** of the slide **84**. With the parts in the position shown in FIG. **7**, the left hand end of the slot **96** engages the upper part of the boss **90**, and any movement in an upward direction of the slide **84** and the extension **88** thereon will result in a pivoting movement of the latch **92** in a clockwise direction about its pivot pin **94**, bringing the left hand end of the slot more tightly against the boss **90** in a locking action. Downward movement of the extension **88** is prevented by the engagement of the extension with the second support **26**. When the left hand end of the latch **92** is forced downwardly, resulting in a counterclockwise movement about the pivot pin **94**, the left hand end of the slot **96** moves downwardly about the boss **90** clearing the latching engagement therewith, permitting the extension **88** on the slide **84** to move upwardly when the chair is moved to its collapsed position.

A remotely actuated control rod **98** permits operation of the latch **92** from a position adjacent the body engaging portion **18** of the ambulatory assistance device **12**. The rod **98** passes through aligned apertures **100**, **102** and **104** in the third, first and second supports **28**, **24** and **26**, respectively, and through apertures **105** in the slide **84**, the upper end of the rod carrying an operating knob **106**, and the lower end of the rod carrying a stop **108** engaging the upper side of the left hand end of the bight of the latch, passing through an aperture in the end of the latch as shown in FIG. **7**. A spring **110** interposed between the upper part of the second support **26** and the lower part of the left hand end of the bight of the latch urges the left hand end of the latch upwardly into a boss engaging, or locked position.

FIGS. **5** and **7** illustrate the parts in the closed or collapsed position. The clip **80** engages the cross rail **52** to retain the chair collapsed, the seat **30** is pivoted upwardly about its connection with the first support **24**, the lower ends of the legs **42** and **44** are swung inwardly, and the upper part of the brace **72** is substantially parallel with the legs forming a compact structure. The slide **84** has moved upwardly away from the second support **26** to a position just below the first support **24**. In order to extend the chair, the device may be held in the position shown in FIG. **5** with the tip **22** engaging the ground, the upper end of the ambulatory assistance device held by one hand or retained in an armpit, and the upper end of the seat **30** may be grasped by one hand and swung outwardly from the cane or crutch in a clockwise direction. This action releases the engagement of the clip **80** with the cross rail **52**, the upper or forward end of the seat swinging outwardly about the pivot connection with the first support **24** and the legs **42** and **44** swinging outwardly about their pivotal connections with the forward end of the seat and the forward ends of the reinforcing rods **56** and **58**. As the forward end of the seat **30** swings outwardly and downwardly, the rear end of the brace **72** and the slide **84** attached thereto move downwardly about the standard **16** of the ambulatory assistance device, the extension **88** on the slide striking the latch **92** causing it to move counterclockwise about its pivot pin **94** sufficiently to allow the extension **88** and the boss **90** thereon to pass through the slot **96** in the latch to a position in which the lower end of the extension **88** engages the upper part of the second support **26** to limit the downward movement of the slide and the extension of the chair, the boss **90** coming to a stop just below the latch **92** as shown in FIG. **7**. In this limiting position, the chair is fully extended, and the parts are in their relative positions shown in FIGS. **1**, **2** and **3**. There is provided a rigid and stable structure, the brace **72** locking the forward end of the seat **30** with the lower end of the ambulatory assistance device **12** and the second support **26** thereon, while at the same time serving as a reinforcing means. The reinforcing rods **56** and **58** on the one hand, and the cross rail **52** on the other hand, maintain the lower ends of the legs in their proper relative positions. When it is desired to collapse the chair, the upper end of the ambulatory assistance device is grasped by one hand or by an armpit while the lower end engages the ground, in the position shown in FIG. **1**, and one hand grasps the outer or forward end of the seat **30** and pulls upwardly in a counterclockwise direction. Depressing the knob releases the latch **92** from engagement with the boss **90** on the extension **88**, permitting the slide **84** to move upwardly. The counterclockwise movement of the forward end of the seat **30** continues until the parts move into the position shown in FIG. **5**, in which the cross rail **52** enters the jaws of the clip **80** to retain the chair in its collapsed position.

I claim:

1. An ambulatory assistance device and folding chair combination, comprising: an ambulatory assistance device having an upper body engaging portion and a lower ground engaging portion, and a first support and a second support intermediate said upper and lower portions; and a folding chair, said chair having a seat pivotally attached at its rearward end to said first support, a pair of legs pivotally attached at their upper ends in spaced relation at the forward end of said seat, reinforcing means pivotally interconnecting the lower ends of said legs with said second support, a slide movable on said ambulatory assistance device intermediate said supports, a brace means pivotally interconnecting the forward end of said seat and said slide, said slide engaging said support to limit the extension of said chair, and means locking said chair in its extended position.

2. An ambulatory assistance device and folding chair combination as defined in claim **1**, in which said reinforcing means comprises a pair of rods, one end of one of said rods being pivotally attached to the lower end of one leg and one end of the other of said rods being pivotally attached to the lower end of the other leg, and the other ends of said rods brought together in contiguous relationship at the pivotal attachment to said second support.

3. An ambulatory assistance device and folding chair combination as defined in claim **1**, in which said brace is bowed upwardly intermediate its ends.

4. An ambulatory assistance device and folding chair combination as defined in claim **1**, including a reinforcing cross rail interconnecting the lower ends of said legs, and retaining means attached to said brace and engaging said cross rail when said chair is collapsed to retain the chair in collapsed position.

5. An ambulatory assistance device and folding chair combination as defined in claim **1**, including load transmitting means pivotally interconnecting the rearward end of said seat with said second support.

6. An ambulatory assistance device and folding chair combination as defined in claim **5**, in which said load transmitting means comprises a pair of rods, one end of each of said rods being pivotally connected to the rearward end of said seat at opposite sides of said first support.

7. An ambulatory assistance device and folding chair combination as defined in claim **1**, in which said pair of legs comprises a U-shaped member, the bight of the U being pivotally connected with the forward end of said seat.

8. An ambulatory assistance device and folding chair combination as defined in claim **1**, in which said slide includes a tubular member extending downwardly therefrom and surrounding the lower end of said ambulatory assistance device, said tubular member engaging said second support when the chair is in extended position.

9. An ambulatory assistance device and folding chair combination as defined in claim **8**, in which said locking means comprises a latch pivoted on said second support, said latch having a recess receiving said tubular extension on said slide, means on said extension engaged by said latch to retain said slide in chair extended po-

sition, and a spring urging said latch into engagement with said means on said extension.

10. An ambulatory assistance deviceand folding chair combination as defined in claim **9**, including a remotely positioned means to actuate said latch, and a third support adjacent the upper end of said ambulatory assistance device, said remotely positioned means comprising a rod slidable in apertures in said first, second nad third supports and through said slide, said rod being attached at its lower end to said latch, the upper end of said rod having a knob thereon.

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U.S. Cl. X.R.

248—155; 297—16