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Newman

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[54] **ADJUSTABLE FLOOR SUPPORT FOR NEEDLECRAFT AND ART FRAMES**

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[51] **Int. Cl.²** **B23Q 1/04**

[58] **Field of Search** ..... 248/448, 451, 454, 460, 248/465, 472, 474, 166, 172, 122; 24/263 A; 269/82, 83, 84, 90, 71

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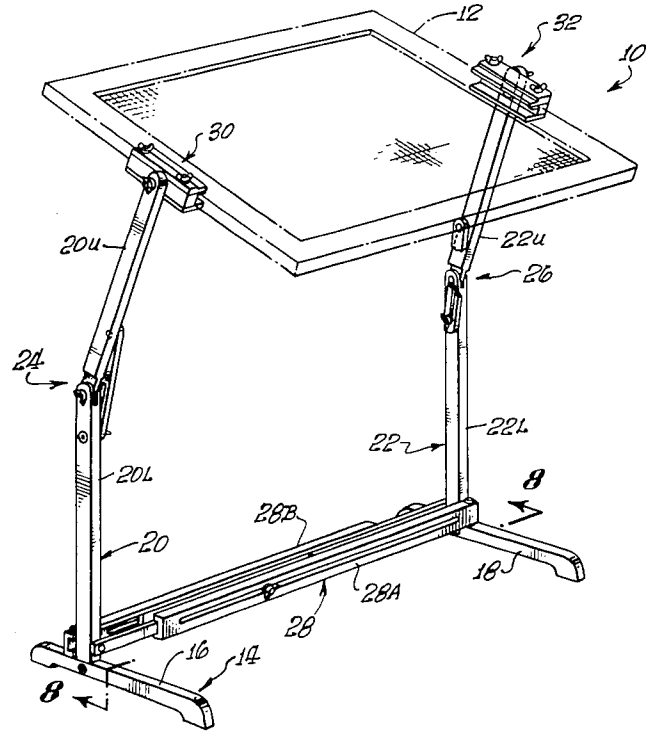
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[57] **ABSTRACT**

An adjustable floor support for needlecraft and art frames comprising a base having a pair of floor engaging feet each supporting a vertically extending leg. The legs are laterally supported by a longitudinally expandable and contractible cross member permitting adjustment of the lateral spacing of the legs. Further, each leg includes a knee joint for swinging an upper portion of the leg in a plane thereof to an inclined angle relative to a vertical lower portion of the leg. This accommodates positioning of a needlecraft or art frame secured by variable mouth clamps between upper ends of the legs to a convenient working position close to a person seated adjacent the floor support.

7 Claims, 11 Drawing Figures



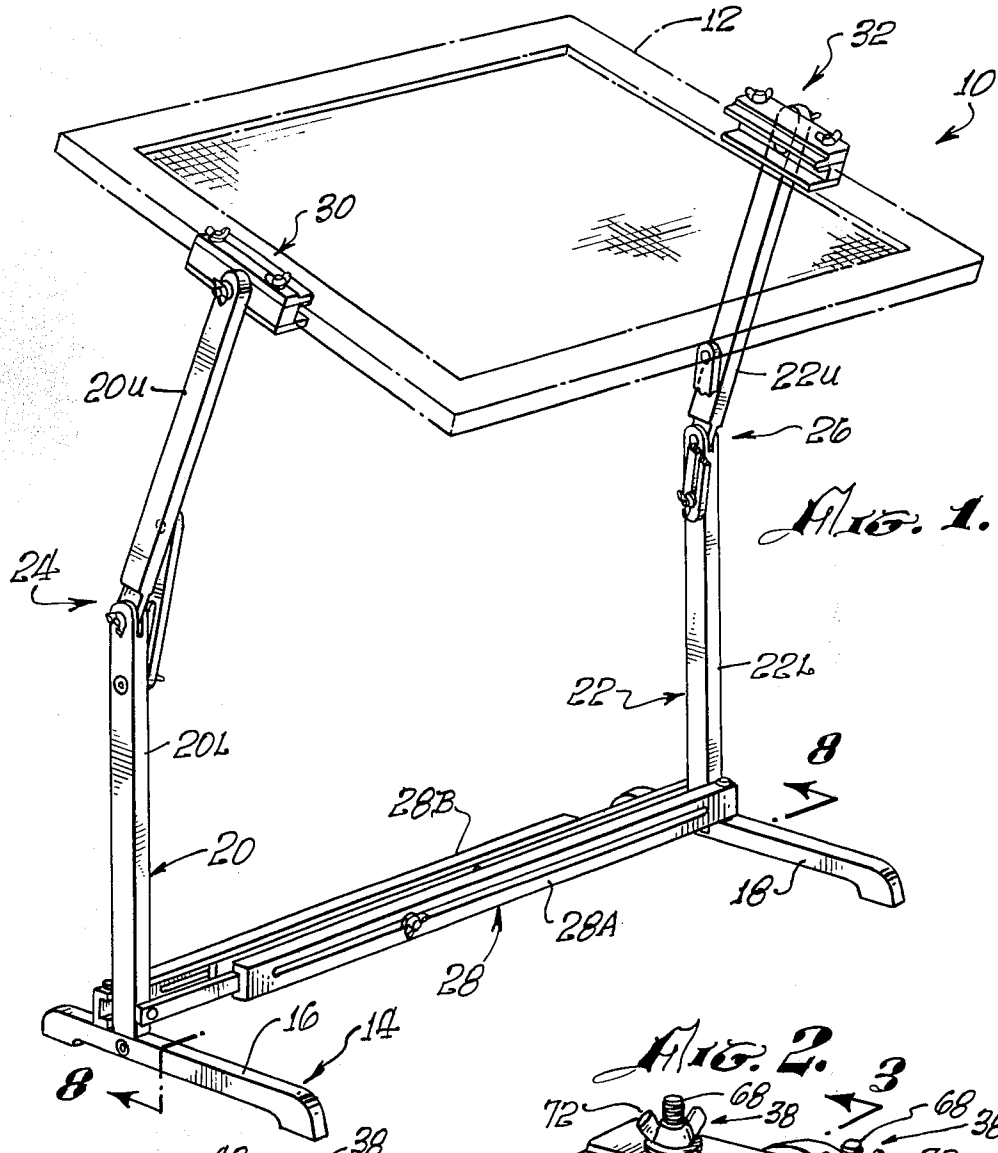


FIG. 1.

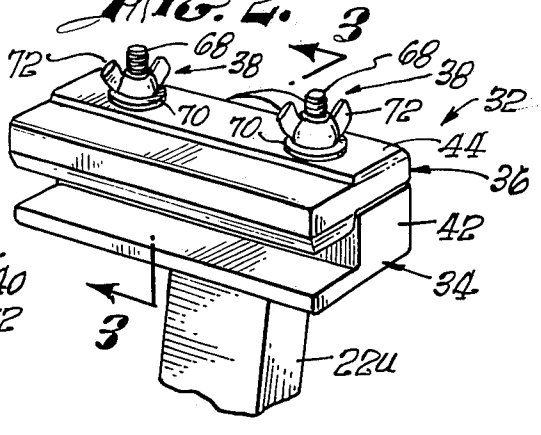


FIG. 2.

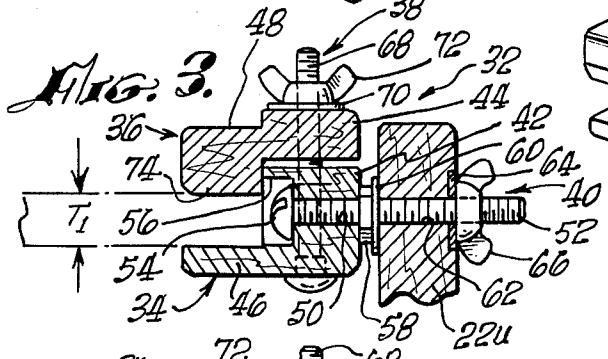


FIG. 3.

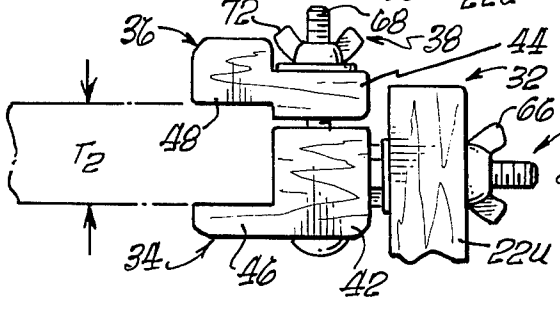


FIG. 4.

FIG. 5.

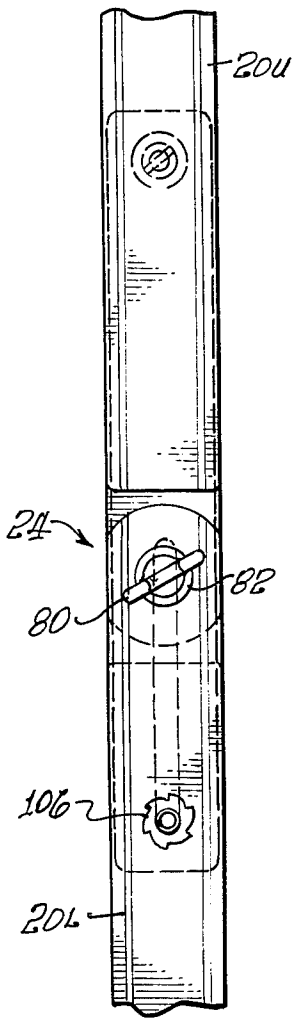


FIG. 6.

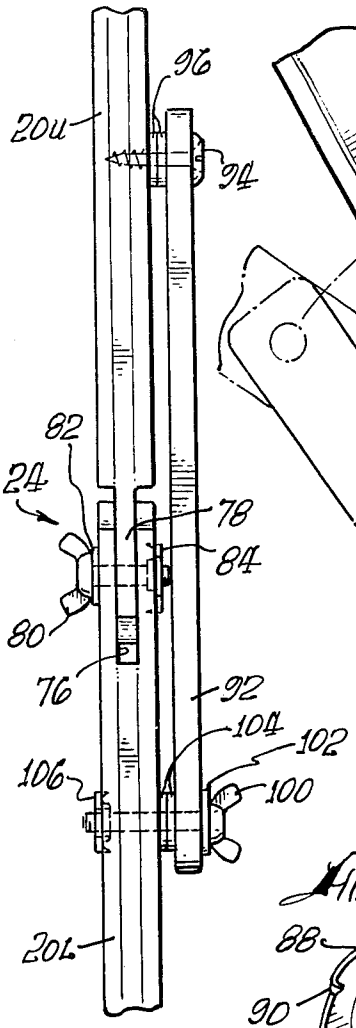


FIG. 7.

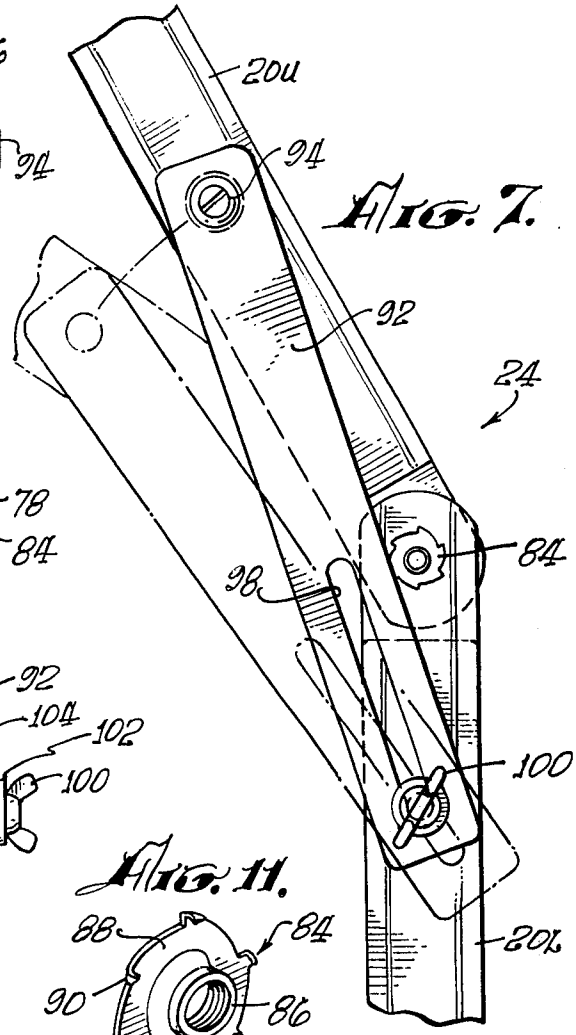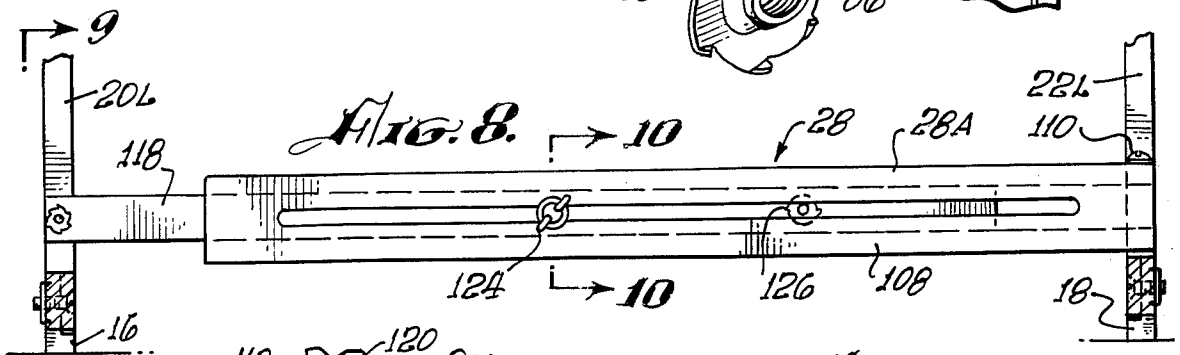
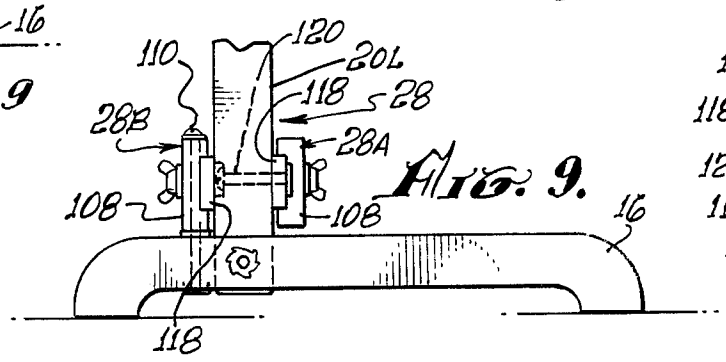
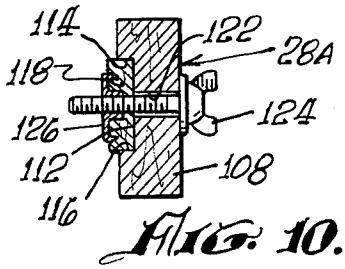


FIG. 11.







ADJUSTABLE FLOOR SUPPORT FOR NEEDLECRAFT AND ART FRAMES

The present invention relates to floor supports for needlecraft, art frames, and the like, and more particularly to an adjustable floor support for use with needlecraft and art work frames of different sizes by users seated in couches, rocking chairs, arm chairs, and even wheelchairs.

Needlecraft such as stitchery and needlepoint has been known since ancient times. Since their inception, and continuing today, all floor supports for needlecraft frames have been of substantially the same design. That design has included two vertical legs supported on floor engaging bases with pivots extending horizontally from upper portions of the legs and into the sides of a rectangular wooden frame on which is stretched the base needlecraft material. Such floor supports are designed to accommodate a single size and shape of needlecraft frame, different floor supports being required for different size frames. Further, to perform needlecraft work with such floor supports requires the user to sit erect in a straight back chair immediately adjacent the frame. Such a position is tedious to maintain and has detracted from the utility of needlecraft floor supports. This is particularly true for those with physical impairments requiring confinement to wheelchairs and the like who heretofore have been unable to work at floor supported needlecraft frames.

Accordingly, it is an object of the present invention to provide a new form of floor support which is readily adaptable to frames of various sizes and shapes and which is adjustable to permit comfortable needlecraft and art work by those seated in couches, rocking chairs, arm chairs and even wheelchairs.

Another object of the present invention is to provide an adjustable floor support for needlecraft and art work frames which is simple in design, inexpensive to manufacture and which lends itself particularly to an attractive all wood construction.

A further object of the present invention is to provide an adjustable floor support for needlecraft and art work frames including a pair of horizontal, forwardly extending floor engaging feet supporting a pair of vertically extending legs having knee joints for swinging forwardly upper portions of the legs to bring a needlecraft frame supported thereby to a convenient working position adjacent a user seated in a couch, arm chair, wheelchair, or the like.

A still further object of the present invention is to provide an adjustable floor support of the foregoing character including a longitudinally expandable and contractible cross member for selectively controlling the lateral spacing between the legs to permit the floor support to accommodate needlecraft and art frames of different size.

Still another object of the present invention is to provide an adjustable floor support of the foregoing character including adjustable frame engaging clamps at upper ends of the legs for releasably securing frames of different thicknesses between the legs.

The foregoing as well as other objects and features of the present invention may be more clearly understood by reference to the following detailed description when considered with the drawings which, by way of example only, illustrate one form of adjustable floor support including the features of the present invention.

In the drawings:

FIG. 1 is a perspective view of an adjustable floor support for needlecraft and art frames constructed in accordance with the present invention;

FIG. 2 is an enlarged perspective view of one of the reversible clamp means included in the adjustable floor support to clamp edge portions of frames having different thicknesses;

FIG. 3 is a sectional view taken along the line 3—3 in FIG. 2 illustrating the inner construction of the reversible clamp engaging and clamping an edge portion of a frame illustrated in phantom outline and having a thickness T_1;

FIG. 4 is a view similar to FIG. 3 illustrating the clamp in a reversed position to engage and clamp a frame shown in phantom outline and having a thickness T_2;

FIG. 5 is an enlarged fragmentary left side view of a knee joint included in one of the legs of the adjustable floor support;

FIG. 6 is a front view of the knee joint illustrated in FIG. 5;

FIG. 7 is a right side view of the knee joint illustrated in FIG. 5 showing the joint in a bent condition;

FIG. 8 is a fragmentary front view of a base portion of the adjustable floor support including a longitudinally expandable and contractible cross member;

FIG. 9 is a fragmentary side view taken along the line 9—9 in FIG. 8;

FIG. 10 is a sectional side view of the cross member taken along the line 10—10 in FIG. 8; and

FIG. 11 is a perspective view of a cone nut employed in the adjustable floor support to receive wing bolts to secure together various members of the floor support.

In FIG. 1, a basic form of the adjustable floor support of the present invention is represented by the numeral 10 and is illustrated as supporting a frame for needlecraft or the like, shown in phantom outline and represented by the numeral 12. Generally speaking, the adjustable floor support 10 includes base means 14 including two horizontal and forwardly extending floor engaging feet 16 and 18. Legs 20 and 22 extend vertically from the feet 16 and 18 respectively, and include knee joints 24 and 26. The knee joints 24 and 26 permit upper leg portions 20U and 22U to swing forward in the planes of the legs to inclined angles relative to lower vertical leg portions 20L and 22L. Extending horizontally between the lower leg portions 20L and 22L and the feet 16 and 18 is a longitudinally expandable and contractible cross member 28. The cross member 28 provides lateral support for the legs 20 and 22 on the feet 16 and 18 and by virtue of its longitudinal adjustment regulates the lateral spacing of the legs to permit the support 10 to receive and hold frames of different sizes and shapes. In this regard, variable mouth clamps 30 and 32 are secured to the upper leg portions 20U and 22U. The variable mouth clamps 30 and 32 are adapted to receive and grip needlecraft and art frames of different thicknesses.

Accordingly, the adjustable floor support 10 is specifically designed for simple adjustment to handle needlecraft and art frames 12 of various sizes, shapes and thicknesses. Further, the jointed nature of the legs 20 and 22 permits the frame 12 to be brought forward into a comfortable operating position adjacent a needlecraft worker or artist seated in a comfortable couch, rocking chair, arm chair or even in a wheelchair.

More particularly, as indicated in FIG. 1, the clamps 30 and 32 for gripping needlecraft and art frames of different sizes and shapes, are of identical construction. The details of the clamps therefore will be described only in connection with the clamp 32 shown in FIGS. 2, 3 and 4. Generally speaking, the clamp 32 includes first and second jaw means 34 and 36 defining an open mouth for the clamp, and connector means 38 for releasably connecting and moving the jaw means toward and away from each other to receive and clamp edge portions of a frame therebetween. The first jaw means 34 is supported for turning on a pivot 40 extending horizontally from the upper leg portion 22U coaxial with a like pivot (not shown) for the clamp 30. The second jaw means 36 is reversible on the first jaw means 34 to change the maximum opening of the mouth of the clamp to accept frames of different thicknesses (compare FIGS. 3 and 4).

More particularly, the first and second jaw means 34 and 36 include adjacent base portions 42 and 44 with jaw portions 46 and 48 projecting forwardly therefrom to define an open mouth for receiving an edge portion of the frame. The base portion 42 includes a horizontal opening 50 for receiving the pivot 40 to support the jaw means 34 for turning on the pivot. Here, the pivot 40 is represented as comprising a bolt 52 having its head 54 seated in a recess 56 in the base portion 42. A shank of the bolt passes through the opening 50 to receive a nut 58 and washer 60 before passing through a coaxial opening 62 in the upper leg portion 22U to receive a washer 64 and a wing nut 66. The washer 64 is embedded in the outside of the upper leg portion 22U around the opening 62 to provide a bearing surface for the wing nut 66 in tightening on the bolt 52 to releasably secure the pivot 40 and if desired lock it against turning to hold the clamp 32 in a fixed position on the pivot.

In addition to the horizontal opening 50 for receiving the pivot 40, the base portion 42 of the jaw means 34 includes two vertical openings for each receiving a bolt 68. The bolts 68 pass through the vertical openings and through like coaxial openings in the base portion 44 of the jaw means 36 to each receive a washer 70 and wing nut 72. This combination defines a preferred form of the means 38 for releasably connecting the jaw means 34 and 36 to move toward and away from each other and clamp edge portions of a frame therebetween.

With regard to the clamping of edge portions of a frame between the jaw portions 46 and 48 of the clamp 32 the jaw portion 48 includes a step like projection 74 facing the jaw portion 46 to define a small open mouth relative to a larger open mouth defined by the jaw means 36 when reversed on the jaw means 34 as illustrated in FIG. 4. As represented in FIG. 3, with the projection 72 facing the jaw portion 46, the clamp 32 is adapted to receive and tightly hold an edge portion of a frame having a thickness T_1. Upon a reversal of the jaw means 36 as by a loosening and removal of the wing nuts 72 and a turning over of the jaw means 36 to direct the projection 74 away from the jaw portion 46, a larger open mouth is presented to receive and tightly clamp the edge portion of a frame having a thickness T_2. In this manner, the reversible clamp 32 permits the adjustable floor support 10 to receive and hold in place frames of substantially different thicknesses and of different shapes. For example, the floor support may hold conventional one-half inch stretcher frames, three-quarter inch stretcher frames, quilting type hoops, needlepoint frames, and the like. In each instance, the clamps adjust with a simple turning of wing nuts 72 from a one-half inch spacing of the jaw means to a one and one-half inch spacing of the jaw means upon a reversal of the clamp as indicated. Of course, frames of less or greater thickness may be accommodated merely by utilizing clamps of different step dimensions as desired, the specifically indicated dimensions in no way limiting the scope or utility of the present invention.

As previously indicated, it is an important feature of the adjustable floor support of the present invention that the frame supported thereby be movable toward the lap of the user when seated in comfortable couches or chairs, rocking chairs, and the like. The inclusion of the knee joints 24 and 26 in the legs 20 and 22 accommodate such movement of the frames. The knee joints 24 and 26 are identical. Accordingly, only the joint 24 will be described in detail with reference to FIGS. 5, 6 and 7 it being understood that a like construction and description applies to the knee joint 26.

As shown most clearly in FIG. 6, the upper end of the lower leg portion 20L includes a vertical slot or groove 76 for receiving a vertical tongue 78 projecting downwardly from a bottom of the upper leg portion 20U. The tongue 78 is pivotally connected to the lower leg portion 20L within the groove 76 by the shank portion of a wing bolt 80. In this regard, the wind bolt passes horizontally through a washer 82, horizontal coaxial openings in the lower leg portion 20L and tongue 78 and into a cone nut 84 secured to an outer surface of the lower leg portion. The cone nut 84 is represented most clearly in FIG. 11 as comprising an internally threaded cone portion 86 extending from a flat base 88 having a plurality of tooth-like projections 90 for gripping a wood or other penetrable surface to secure the cone nut thereto.

In the joint 24, a loosening of the wing bolt 80 permits the upper leg portion 20U to pivot on the bolt to swing the upper leg portion forward at an inclined angle relative to the lower leg portion 20L. This, for example, is illustrated in FIG. 1 as well as in FIG. 7. A tightening of the wing nut 80 will releasably lock the pivot and the upper leg portion 20U against further swinging thereon to hold the upper leg portion in any one of a plurality of different inclined positions relative to the lower leg portion 20L. Thus, by simply turning the wing nut 80 a user may release the joint 24 and move the frame supported by the floor support 10 toward his or her lap to accommodate comfortable work on the frame when seated in a couch, arm chair, rocking chair, or the like.

To assist in the releasable locking of the knee joint 24 and to provide additional support therefor, a preferred form of the knee joint includes a brace member 92 parallel to the leg 20. An upper end of the brace member 92 is pivotally secured to an inner surface of the upper leg portion 20U as by a screw 94 passing through the brace, loosely through a pair of washers 94 and into the upper leg portion 20U. A lower portion of the brace 92 includes a longitudinally extending elongated slot 98 for receiving the shank portion of a wing bolt 100. The wing bolt 100 passes through a washer 102, the slot 98, a pair of washers 104 and the lower leg portion 20L to screw into a cone nut 106. Upon a loosening of the wing bolt 100, the shank thereof will ride vertically in the slot 98 with a swinging of the upper leg portion 22U from the vertical position, as illustrated in FIG. 7.

When the desired angle of incline of the upper leg portion 22U is reached, the wing bolt **100** may be tightened together with the wing bolt **80** to lock the knee joint **24** against further swinging of the upper leg portion. This will lock the upper leg portion as well as the frame supported by the floor support in an inclined position over the lap of the user of the frame.

It is important to note that in a preferred form of the present invention, the feet **16** and **18** insure that the floor support **10** and the frame **12** will not tip over when the knee joints **24** and **26** are adjusted to move the frame adjacent the lap of the user. In this regard, the feet **16** and **18** include floor engaging portions extending forwardly in the direction of swinging of the upper leg portions **20**U and **22**U to support the legs against tipping upon a swinging of the upper leg portions from a vertical position.

To permit the floor support of the present invention to accommodate frames of different widths as well as to provide lateral stability for the floor support, the cross member **28** between the legs **20** and **22** is longitudinally expandable and contractible and may be locked in any desired extended or contracted position. In this regard, the cross member **28** preferably includes two similar track and slide configurations **28**A and **28**B. The track and slide constructions **28**A and **28**B are identical but of mirror image construction. As represented most clearly in FIGS. **8, 9** and **10,** each includes a horizontal track member **108** and a slide member **118.** The track member **108** is secured at one end to a top of one of the feet adjacent one of the legs. For example, as illustrated most clearly in FIG. **9,** the track member **108** of the track and slide configuration **28**B is secured to a top of the foot **16** adjacent the leg **20** by a bolt **110** passing vertically through the track member and leg. As shown in FIG. **10,** each track member **108** includes a horizontal open-sided channel **112** with top and bottom side walls **114** and **116** extending the length thereof. The slide member **118** is adapted to ride in the open-sided channel **112** and is secured at one end to the other of the legs as by a bolt **120.** For example, for the slide **118** of the track and slide configuration **28**A, the slide is secured to a front edge of the lower leg portion **20**L, the opposite end of the slide **118** being free to ride in the channel with upper and lower edges of the slide member adjacent the top and bottom side walls **114** and **116** of the channel **112.**

In addition to the track member **108** and slide **118,** means are included for guiding the slide member along the channel and for releasably locking the slide in the channel. In the illustrated form of the invention, such means comprise a longitudinally extending horizontal slot **122** in and through a base of the channel and track member **108** and a wing bolt **124.** The bolt **124** extends horizontally through the slot **122** from one side of the track member **108** and through a coaxial opening in the slide **118** into a cone nut **126** secured to a face of the slide member. By loosening the wing bolts **124** of the track and slide configurations **28**A and **28**B the slides **118** may be moved in the channels **124** of the track members **108** to selectively adjust the lateral spacing of the legs **20** and **22** and the clamps **30** and **32** to receive frames of different widths. In this regard, the floor support **10** may be easily adjusted, for example, to receive and support frames from 10 inches to 48 inches in width. When supporting a frame of less than about 30 inches in width, the track members **108** may pass over the tops of the legs **16** and **18.** In supporting frames of greater than about 30 inches in width, the track members are in the positions illustrated in FIGS. **1** and **8.** Once the clamps **30** and **32** have received and clamped onto a frame such as **12** illustrated in FIG. **1,** the wing nuts **124** may be again tightened to lock the slides **118** in the channels of the track members **108** to rigidly secure the legs on the feet.

Thus, by virtue of the lateral adjustability provided the floor support **10** by the longitudinally expandable and contractible cross member **28,** the jointed nature of the legs **20** and **22** provided by the knee joints **24** and **26,** and the reversibility of the clamps **30** and **32,** the floor support **10** of the present invention may be readily adjusted to receive and hold in a convenient position for needlecraft and art work, frames of different sizes, shapes and thicknesses. Such adjustability may be accomplished quickly and with the exertion of little effort. Further, from the foregoing description, it is appreciated that the design of the present invention is simple. In particular, the design lends itself well to an all wood construction which may be stained or otherwise treated to provide a decorative as well as a functional household article.

While in the foregoing, a particular form of adjustable floor support for needlecraft and other art work frames has been described in some detail, changes and modifications may be made therein without departing from the spirit of the invention. For example, the floor support **10** may be usefully employed by a bed-ridden person by reversing one of the clamps such as **30** to face away from the leg **22** and by positioning the frame with the leg **20** adjacent the bed to support a small frame over the lap of the patient while lying in an inclined position in bed. Alternatively, the floor support **10** may be used in a like manner after removing one of the legs, such as **22,** and the track and slide configuration **28**B from the support to allow the base of the support to be located under a bed with a small frame supported by the clamp **30** over the lap of the patient. Accordingly, it is intended that the present invention be limited in scope only by the terms of the following claims.

I claim:

1. An adjustable floor support for needlecraft and art frames comprising:

a pair of floor engaging feet;

a pair of legs extending vertically from said feet and each including a knee joint for swinging an upper portion of each leg in a plane thereof to an inclined angle relative to a lower vertical portion of said leg;

a longitudinally expandable and contractible cross member extending between said legs to laterally support said legs on said feet;

variable mouth clamp means at an upper end of each leg for receiving and releasably gripping needlecraft and art frames of different thickness; and

selectively operable means for releasably locking said knee joints in different positions to regulate the angulation between said upper and lower portions of said legs; and

said feet each including floor engaging portions extending forward of said legs in the direction of swinging of said upper leg portions to balance and support said legs and frame against tipping upon a swinging of said upper leg portions to an inclined position.

2. An adjustable floor support for needlecraft and art frames comprising:

a floor engaging base;

a leg extending vertically from said base and including a knee joint for swinging an upper portion of the leg in a plane thereof to an inclined angle relative to a lower vertical portion of said leg;

a variable mouth clamp means at an upper end of said leg for receiving and releasably gripping needlecraft and art frames of different thicknesses and shapes, said clamp means including

first and second jaw means defining an open mouth,

means for releasably connecting said first and second jaw means to move toward and away from each other to receive and clamp an edge portion of said frame therebetween,

said first jaw means being connected to and supported by said pivot means for turning thereon, and

said second jaw means being reversible on said first jaw means to change the maximum opening of said mouth defined by said first and second jaw means to accept and clamp a thicker frame portion therebetween; and

pivot means for connecting said clamp means at said upper end of said leg, and for supporting said clamp means for turning on a horizontal axis to adjust the angle of inclination of a frame relative to said leg.

3. The adjustable floor support of claim 2 wherein:

each of said first and second jaw means includes adjacent base portions with jaw portions projecting forwardly therefrom to define one of said open mouths;

the base portion of said first jaw means including an opening for receiving said pivot means to support said first jaw means for turning on said pivot means; and

the jaw portion of said second jaw means including a step like projection facing said jaw portion of an associated first jaw means to define a small open mouth relative to a larger open mouth defined by said second jaw means when reversed on said first jaw means.

4. An adjustable floor support for needlecraft and art frames comprising:

a pair of floor engaging feet;

a pair of legs extending vertically from said feet and each including a knee joint for swinging an upper portion of each leg in a plane thereof to an inclined angle relative to a lower vertical portion of said leg;

a longitudinally expandable and contractible cross member extending between said legs to laterally support said legs on said feet;

variable mouth clamp means at an upper end of each leg for receiving and releasably gripping needlecraft and art frames of different thickness; and

pivot means for connecting said clamp means at said upper ends of said legs with said mouths facing each other to receive opposing edge portions of and clamp a frame therebetween, and for supporting said clamp means for turning on a common horizontal axis to adjust the angle of inclination of said frame relative to said legs.

5. The adjustable floor support of claim 4 further including manually adjustable means for selectively locking said pivot means against turning of said clamp means on said pivot means.

6. The adjustable floor support of claim 4 wherein said clamp means each include:

first and second jaw means defining said open mouths;

means for releasably connecting said first and second jaw means to move toward and away from each other to receive and clamp edge portions of said frame therebetween;

said first jaw means being connected to and supported by said pivot means for turning thereon; and

said second jaw means being reversible on said first jaw means to change the maximum opening of said mouth defined by said first and second jaw means to accept and clamp thicker frame portions therebetween.

7. The adjustable floor support of claim 6 wherein:

each of said first and second jaw means includes adjacent base portions with jaw portions projecting forwardly therefrom to define one of said open mouths;

the base portion of each first jaw means including an opening for receiving said pivot means to support said first jaw means for turning on said pivot means; and

the jaw portion of each second jaw means including a step like projection facing said jaw portion of an associated first jaw means to define a small open mouth relative to a larger open mouth defined by said second jaw means when reversed on said first jaw means.

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