[54] ARTIST'S CANVAS TENSIONING AND PAINTING FRAME


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Primary Examiner—Patrick D. Lawson
Attorney, Agent, or Firm—Seidel, Gonda & Goldhammer

[57] ABSTRACT

The canvas frame is defined by hollow beam members and corner members. Each corner member is coupled to the ends of two adjacent beam members in an adjustable manner to facilitate tensioning of canvas. Canvas is tensioned and extends across but is spaced from a front face of each beam member while contracting a protruding corner on each beam member and extends around to the rear side of said beam members. A flexible strip cooperates with a shallow channel on the rear side of each beam member to secure the canvas thereto.

16 Claims, 13 Drawing Figures
ARTIST'S CANVAS TENSIONING AND PAINTING FRAME

BACKGROUND

Initially canvas frames for artists involved a mitered wooden frame fastened together at the four corners with braces, with the canvas attached thereby by staples or nails. Thereafter, the art developed frames having a tensioning means at the corners to permit expansion of the frame in an effort to render the canvas taut.

The amount of expansion provided by tensioning devices on frames heretofore is quite small and in and of itself is inadequate to accomplish the intended purpose, excepting on only the smaller of frame sizes.

It is an important feature that the canvas be tensioned in a wrinkle-free manner while leaving the fibers of the canvas running perfectly straight and parallel to one another in each direction as they were initially woven. It is extremely difficult to attain such a result when the canvas is attached to the frame at spaced points by staples, nails, or the like. The greater the expansion adjustment of prior art frames, the weaker the frames became, and the more likely that they warped, twisted or bowed.

The frames were made of wood, so that warping, twisting or bowing of the frames might occur as the wood dried regardless of the degree of expansion used for tensioning. Tensioning of the canvas to a great extent was expected to be accomplished by hand with the aid of pliers. Since many discrete hand pulls are required this was an operation necessitating considerable skill and practice to accomplish correctly. With many of the frames, independent squaring was required, and gaps would be formed at the miter joint as the frame was expanded.

The present invention comprises a canvas frame defined by hollow beam members and corner members. The beam members have adjacent ends coupled together by discrete corner members. Each beam member has a protruding corner at the outer periphery of its front face. The canvas extends across but is spaced from the front face of each beam member while contacting each protruding corner and extending around the beam members to a rear side thereof.

Each frame member includes a shallow channel on its rear side defined by flanges projecting towards each other. The free edge portions of the canvas are retained in the channels by a flexible strip disposed in the channels. An adjustable means is associated with each corner member and the adjacent frame member for tensioning the canvas.

The present invention facilitates quick and easy tensioning of the canvas in a proper manner to any desired tension. Further, the present invention is predicated on a recognition that actual stretching of the fibers of the canvas is not the primary goal. The frame of the present invention is comprised of beam members and corner members which are quickly and easily structurally interrelated in a manner to form a square, flat, twist-free, canvas support which requires little skill in applying or tensioning the canvas. The tension of the canvas may be adjusted at any time even while an artist is painting on the canvas. The frame is adapted for use with large and small canvases.

The frame supports the canvas in a manner whereby there are smooth and unobstructed edges on that portion of the canvas juxtaposed to the side faces of the frame. There are no folds or double thicknesses of canvas at the corners of the frame. Hence, the frame may be hung on a wall without the use of a picture frame. If desired, a picture frame may be utilized with the canvas frame. The canvas may be removed from the frame, shipped to some different location, and then reapplied to the frame with accurate registration. Other advantages and objects will be apparent from the following description.

For the purpose of illustrating the invention, there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentations shown.

FIG. 1 is a perspective view of a canvas frame mounted within a picture frame in accordance with the present invention.

FIG. 2 is a rear elevation view on an enlarged scale.

FIG. 3 is a plan view of the canvas.

FIG. 4 is a sectional view taken along the line 4—4 in FIG. 1 on an enlarged scale.

FIG. 5 is a sectional view taken along the line 5—5 in FIG. 2.

FIG. 6 is a sectional view taken along the line 6—6 in FIG. 2.

FIGS. 7 and 8 are partial perspective views of a beam member during application of a retainer for holding a canvas in a channel on the back face of the frame.

FIG. 9 is a sectional view similar to FIG. 6 but showing another embodiment of the present invention for the beam member of the frame.

FIG. 10 is a plan view, partly in section, of an alternate construction for a corner member and tensioning means.

FIG. 11 is a sectional view taken along the line 11—11 in FIG. 10.

FIG. 12 is a view similar to FIG. 10 but illustrating yet another embodiment of the present invention.

FIG. 13 is a sectional view through another type of corner member which may be utilized with the present invention.

Referring to the drawing in detail, wherein like numerals indicate like elements, there is shown in FIG. 1 a canvas frame designated generally as 10 mounted within a picture frame 12.

In FIG. 3, there is shown in plan view a canvas 14 having each of its corners notched. As shown in FIG. 3, each notched corner of the canvas 14 is defined by an edge 19 at a 45 degree angle with respect to the edges 15 and 17. Edges 15 and 17 are indented from the edges of the canvas.

The canvas frame 10 is removably secured to the picture frame 12 by means of a plurality of clips 16. See FIGS. 2 and 6. Each clip 16 has a hooked portion disposed in a channel 18 in the picture frame 12. The clip 16 extends upwardly between the canvas 14 and the picture frame 12 and then overlies the canvas frame 10 for securement thereto in a removable manner by way of screws 22 cooperating with a T-member 20. The manner in which member 20 is retained on the backside of the frame will be described hereinafter.

The canvas frame 10 includes frame beam members 24 and 30 which are parallel to each other and members 32 and 34 which are parallel to each other. Each of the frame members is identical and two adjacent frame members are coupled together by corner members in the same manner. Hence, only the relationship
between beam members 24 and 32 will be described in detail.

Referring to FIG. 6, it will be noted that the beam member 24 has a front surface 26 spaced from the canvas 14 due to the angular disposition of said surface 26. Further, the beam member 24 has a protruding corner 28 which is the first or initial portion of the beam member which contacts the canvas 14. Thus, when viewed from the front the width of the beam members is not ascertainable even in the absence of the picture frame 12.

The beam members 24 and 32 are coupled together by a corner member designated generally as 36. See FIG. 4. Corner member 36 has one leg 40 telescoped into beam member 24 and is retained by a set screw 42. Corner member 36 has a second leg 44 which is telescoped into beam member 32. A nonreciprocating threaded member 46 is rotatably supported by the corner member 36 and extends along the leg 44. A chaser 48 is threaded to the member 46 and is secured to one end of the beam member 32. The threaded member 46 has a bolt head 50. Rotation of head 50 will cause the corner member 36 to move toward or away from the beam member 32 while leg 44 reciprocates within the beam member 32.

The corner member 36 is provided with an opening 52 extending therethrough. The periphery of opening 52 is defined by angled wall 54, the legs 40 and 42, and thin corner walls 60 and 62 whose free ends are spaced from one another to define a gap or slot 64 at the corner of the frame.

A threaded member 56 meshes with the threads on a hole in wall 54 and is provided with a bolt head 58. Within the opening 52, a connector member 70 is rotatably mounted on the threaded member 56. The connector member 70 is connected to the thin corner walls 60 and 62 by pivotable links 66, 68, respectively. Hence, rotation of the bolt head 58 will increase or decrease the size of the slot 64. A loop 72 of the canvas 14 extends through the slot 64 so that a smooth corner will be provided. For purposes of illustration, a portion of the loop 72 is broken in FIG. 4 so that the slot 66 can be identified.

Referring to FIG. 5, a retainer 74 extends beneath a ledge 76 on the wall 54 and is removable and adjustably retained by a set screw. The end of the retainer 74 adjacent the corner is in the form of a wedge-shaped blade 78 which retains the canvas 14 beneath a projection 80 on the corner wall 60 and 62.

Referring to FIG. 6, the beam member 24 is provided with a closed loop chamber 82 for receiving the leg 40 on the corner member 36. Above the chamber 82, and on the rear side of the beam member 24, there is provided a channel member 84 defined at its top by flanges 86 and 88 extending toward each other. The bottom of the channel 84 is defined by the transverse wall 90.

The chamber 82 is a closed loop member so as to provide maximum strength for the beam member 24 so that it will remain flat and straight. The width of the channel 84 at its bottom corresponds generally to the width of the chamber 82. For purposes of strength, the depth of the channel 84 is only a minor portion of the thickness (measured from front to back) of the beam member 24. Thus, I prefer to use beam members wherein the depth of the channel 84 is no greater than about 30% of the thickness of the beam member and can be as little as approximately 5% depending on the size of beams and locking channels used. Further, the wall 90 which separates the channel 84 from the chamber 82 is a straight wall. The length of channel 84 corresponds to the length of the unnotched side edge portions of canvas 14.

The canvas 14 extends around the protruding corner on each beam member along the side face of each beam member, and into the channel 84 on the rear side of each beam member. A retainer strip 92 overlies the canvas 14 within each channel 84. The retainer strip 92 is preferably a flexible metal or polymeric plastic material having a width whereby it may only be introduced into the channel 84 from an end thereof. Before introducing the strip 92 into one end of the channel 84, the canvas 14 is temporarily retained in the opposite end of the channel 84 by means of a spring clip 93. See FIG. 8.

A hand tool 94 is provided to pull the strip 92 along the channel 84 from one end thereof toward the clip 93. Tool 94 is narrower than the strip 92 but includes a plow 96 which is wider than the gap between the flanges 86 and 88 which define the opening to the channel 84.

The tool 94 also includes an upstanding rib to provide a gripping surface for moving the tool. The rib 97 supports an elongated set screw 99 having an actuator knob 100. Set screw 99 embraces one surface of the strip 92 while the other surface is held against the plow 96. In this regard, plow 96 is longer in an axial direction than the rib 97. Thereafter, the tool 97 is manipulated along the length of the channel 84 and pulls the strip 92 there behind until the clip 93 is reached. Thereafter, clip 93 is removed and strip 92 is continued to be pulled until it is along the entire length of the channel 84. Thereafter, knob 100 is rotated to release the retainer strip 92. Securement of one side edge of the canvas 14 to one of the beam members in this manner is simple and can be accomplished very quickly. The retaining strip 92 uniformly holds the canvas 14 both before and after tensioning. As tensioning on the canvas occurs, strip 92 increases its binding grip on the canvas.

When applying the canvas 14 to the support frame, the retainers 74 are removed and the bolt head 58 at each corner member is manipulated to a position so as to open the slot 64. The frame 84 then retained over the canvas 14. Then each side edge portion of the canvas 14 is folded around the associated beam member and secured in the channel associated with that beam member as described above. The canvas at the corners is pushed through the slot 64 so as to form the loop 72. Thereafter, the head 58 is rotated to cause the ends of the walls 60 and 62 to embrace the loop and retain it. In this manner, a clean attractive corner is attained without exposed double thicknesses of canvas or wrinkles in the canvas. As a result thereof, the side faces of the canvas frame as well as the canvas on the front of the frame may be painted and the picture then hung without the need for the picture frame 12.

With the canvas thusly attached to the frame, the canvas is then uniformly stretched by manipulating each of the heads 50 so as to extend each beam member away from its oppositely disposed beam member. The heads 50 are turned until the desired tension on the canvas is achieved. Once the frame 10 has been expanded, even a small amount, a ruler 45 will be visible on the top side of each of the legs 44. Ruler 45 provides a means whereby all four corners can be expanded
equally thereby assuring that the frame 10 remains square after tensioning. The canvas frame 10 is now ready to be used by the artist.

If the frame is large, it may be desirable to prestress at least the long beam members 32, 34 to apply a camber so that the beam members remain straight even under canvas tension. Such prestress means may, for example, include cables 85 anchored at one end to beam members 32, 34 and anchored at their other end to a nut 87 threaded to bolt 89 having a wrench head at one end and an enlarged foot at the other end, in contact with a face of the beam member. See FIGS. 2 and 6.

If the artist desires to use a picture frame 12 with the canvas frame 10, the clips 16 are positioned with their hook end in the channel 18 before the canvas frame 10 is inserted into the picture frame 12. Thereafter, the clips 16 are bent so as to overfill the rear face of the canvas frame 10 and each clip is threaded to the T-member 20 by screw 22. Each of the T-member 20 and retainer strip 92 are of such a width that they are preferably only insertable into their associated channel at the ends of the channel.

The beam members of the frame need not be rectangular in cross section. As shown in FIG. 9, each beam member 102 is triangular in cross section with its front surface 112 spaced from the canvas 14. The beam member 102 has a triangular shaped channel 104. Wall 106 cooperates with the flanges 108 and 110 to define the channel for receiving the retainer strip 92 and the edge portion of the canvas 14. Canvas 14 first contacts the beam member 102 at the corner 114. The canvas frame constructed as shown in FIG. 9 is otherwise identical with that described above.

In FIGS. 10 and 11, there is disclosed an alternative construction. Corner member 116 may be used in place of 38. Corner member 116 interconnects the adjacent ends of beam members 32' and 24' and may be made from polymeric plastic materials.

Corner member 116 includes a leg 118 telescoped into beam member 24' and may be retained therein by means of a set screw. The other leg 120 of the corner member 116 is telescoped into the beam member 32'. A threaded member 132, similar to member 46, is provided at a location so as to be outside of and parallel to the beam member 32'.

On a large frame, one or more of the beam members may rotate in increments of 90° with respect to its corner members to provide a means for taking up large amounts of slack. Teeth 121 are provided on leg 120 for contact with mating teeth on corner member 116. A threaded bolt 123 rotatably couples leg 120 to member 116. Bolt 123 and member 132 would have to be loosened and the mating teeth separated before leg 120 and beam member 32' could be rotated relative to corner member 116. The starting position for beam member 32' and leg 120 would be 90° or 180° out of phase from that shown in FIG. 10.

The threaded member 132 has a bolt head 134 and is threadedly connected to member 136 secured to the adjacent end of beam member 32' and which rides in a slot provided in the leg 120. The left hand end of member 132 includes a rotatable swivel connection secured to the wall 122 of the corner member 116 at groove 138.

The canvas 14 is retained under the ledge 124 on the corner member 116 by means of a removable retainer 108. Retainer 128 has a wedge-shaped head which extends beneath the ledge 124 as shown in FIG. 11. One leg of a pivotally mounted over the center snap 126 is connected to retainer 128. The other leg of snap 126 is adapted to be received in groove 130 on the wall 122.

When the threaded member 132 is adjusted so as to create a substantial gap 140 between the end of beam member 32' and the corner member 116, the gap 140 is readily noticeable through the canvas and is objectionable if the artist desires to paint on the side faces of the canvas frame. I solved this problem by providing a channel-shaped thin metal plate 142 having a thickness of about 0.003-0.005 inches which overlies the gap 140. Plate 142 may be used in each embodiment of this invention.

In FIG. 12 there is illustrated an alternative construction for the cooperation between the corner member and a beam member which is the same as set forth above except as follows. Thus, corner member 144 has a leg 148 telescoped into the beam member 146. A threaded member 152 is rotatably supported by the leg 148 and is provided with a bolt head 145. The member 152 is threadedly coupled to a nut 150.

The nut 150 is non-rotatable within the beam member 146 but can slide in an axial direction. A spring 154 extends from a disc 157 located at a crimp 156 in the beam member 146. The spring 154 extends to and biasses the nut 150 in an axial direction away from the disc 157. A set screw 158 facilitates retaining the desired position of leg 148 with respect to the beam member 146.

In FIG. 13, there is illustrated still yet another configuration for the corner member. The corner member 160 is the same as the corner members described above except as follows. Instead of a slot such as slot 64, corner member 160 has a slot 162 disposed wholly in one of the mutually perpendicular sides of the corner member. Slot 162 is at an angle about 45 degrees from the corner with respect to the plane of the canvas 14. Slot 162 facilitates accommodation of a loop in the canvas 14 so as to provide a neat corner along the side face of the frame.

In each embodiment, the canvas support frame is comprised of four beam members and four corner members which are slidably and adjustably coupled together to form a rigid frame which is warp-free. The canvas 14 is easily and quickly tensioned at any desired tension in a uniform manner without the necessity for individual skill; whereby the extent of tension obtained is dependent upon the quality of the canvas used and the degree to which the frame is expanded but not dependent upon the skill of the operator. If the canvas 14 is removed from the support frame, the graduations on the ruler 45 at each corner facilitate replacing the canvas at the original tension. As a result thereof, a painting may be shipped without its frame and then attached to a similar frame at its destination without risk of misalignment of the painting.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

I claim:

1. An artist canvas tensioning frame comprising a frame defined by beam members and corner members
having their adjacent ends coupled together, each corner member having legs telescopically disposed with respect to its associated beam members, each beam member having a protruding corner at the outer periphery of its front face, adjustable means associated with each corner member and an adjacent beam member for tensioning canvas, said adjustable means including a discrete threaded member associated with each corner member and parallel to a leg of each corner member, canvas extending across but spaced from a front face of each beam member, said canvas contacting each protruding corner and extending around to a second face on said beam members, each beam member having a shallow channel on its second face defined in part by flanges projecting toward each other, and a flexible strip retaining an edge portion of each canvas in each channel.

2. A frame in accordance with claim 1 wherein said canvas is notched at each corner, each corner member having a slot, a discrete loop of said canvas at its notched corners retained in each slot.

3. A frame in accordance with claim 1 wherein each channel has a depth which is less than 30% of the thickness of its associated beam member, and each flexible strip being insertable only at an end of its associated channel.

4. A frame in accordance with claim 1 wherein the legs and beam members have the same configuration in cross section.

5. A frame in accordance with claim 4 wherein each threaded member is exposed and supported on the inner periphery of its associated beam member.

6. A frame in accordance with claim 1 including a spring extending between each corner member and an associated beam member biasing them apart.

7. A frame in accordance with claim 1 wherein each corner member has a ledge adjacent its rear side, a retainer on each corner member for projecting beneath the ledge to retain a portion of the canvas beneath the ledge.

8. A frame in accordance with claim 1 wherein said second face is a rear face.

9. A frame in accordance with claim 1 wherein said second face is adjacent said front face.

10. A frame in accordance with claim 1 where at least one of said beam members is rotatively coupled to its corner members.

11. A frame in accordance with claim 1 including tension means for applying a camber to at least some of said beam members.

12. An artist canvas tensioning frame comprising a frame defined by hollow beam members having adjacent ends coupled together by discrete corner members, each corner member having a leg telescoped into an adjacent beam member, adjustable means including a threaded member associated with each corner member and one of its associated beam members for adjusting the side of the canvas frame for tensioning the canvas, canvas extending around the side faces of said beam members to the rear side of said beam members, each beam member having a channel on its rear side, each channel receiving an edge portion of said canvas, means for retaining each edge portion of the canvas in its channel, said canvas being notched at its corners, each notch being defined by mutually perpendicular edges interconnected at their ends by an angularly disposed edge, and each corner member having a slot receiving a loop of said canvas at each corner of the frame so as to provide smooth and unobstructed corners and side faces on the canvas frame whereby an artist may paint on the front and side faces of the canvas frame.

13. A frame in accordance with claim 12 wherein said means for retaining the canvas edge portions in said channels includes a flexible strip insertable only at an end of its associated channel.

14. A frame in accordance with claim 12 wherein each corner member includes a ledge beneath which a portion of the canvas is adapted to be retained, and a movable retainer on each corner member, each retainer projecting to a location beneath the ledge on its associated corner member.

15. An artist canvas tensioning frame comprising a frame defined by beam members and corner members having their adjacent ends coupled together, each corner member having a leg telescopically disposed with respect to its associated beam members, adjustable means associated with each corner member and an adjacent beam member for tensioning canvas, said adjustable means including a discrete threaded member associated with each corner member and parallel to its associated beam member, canvas extending across a front face of each beam member and extending around to a rear side on said beam members, said canvas being notched at each corner, each beam member having a shallow channel on its rear side defined in part by flanges projecting toward each other, each channel has a depth which is less than 30% of the thickness of its associated beam member, and a plurality of flexible strips, each flexible strip retaining an edge portion of said canvas in each channel.

16. A frame in accordance with claim 15 wherein each corner member has a slot and a loop of said canvas retained in each slot.