June 27, 1933. A. E. SHULL 1,916,023

ADJUSTABLE FRAME

Original Filed Feb. 23, 1932

Fig. 1.

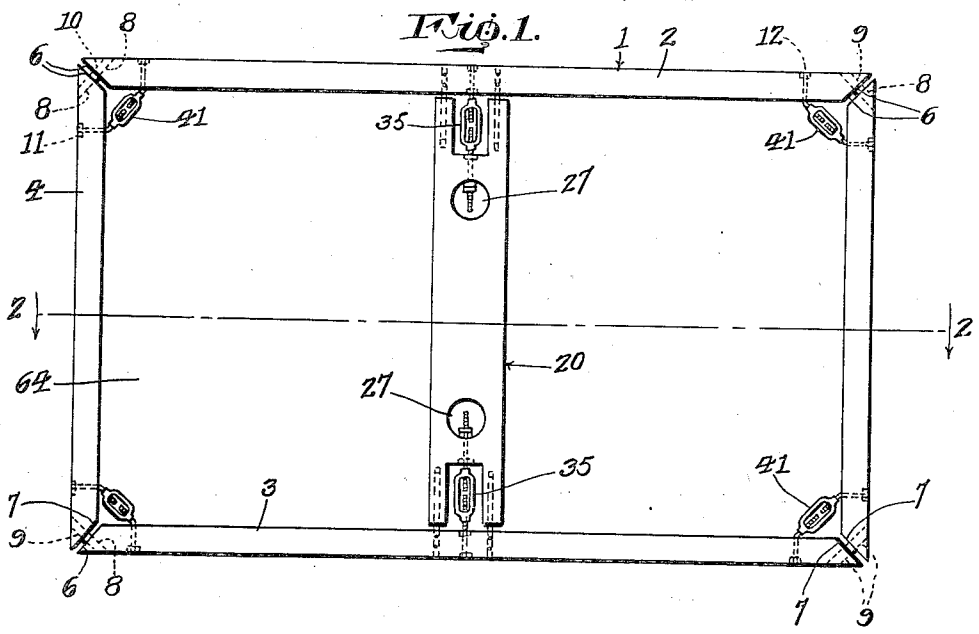


Fig. 2.

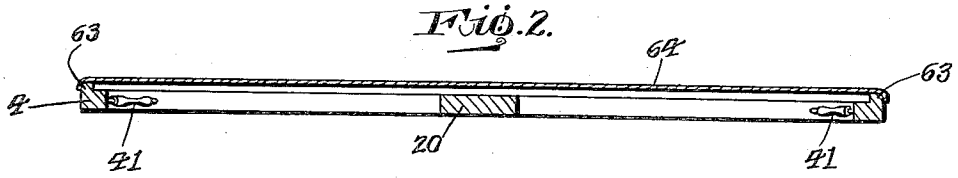
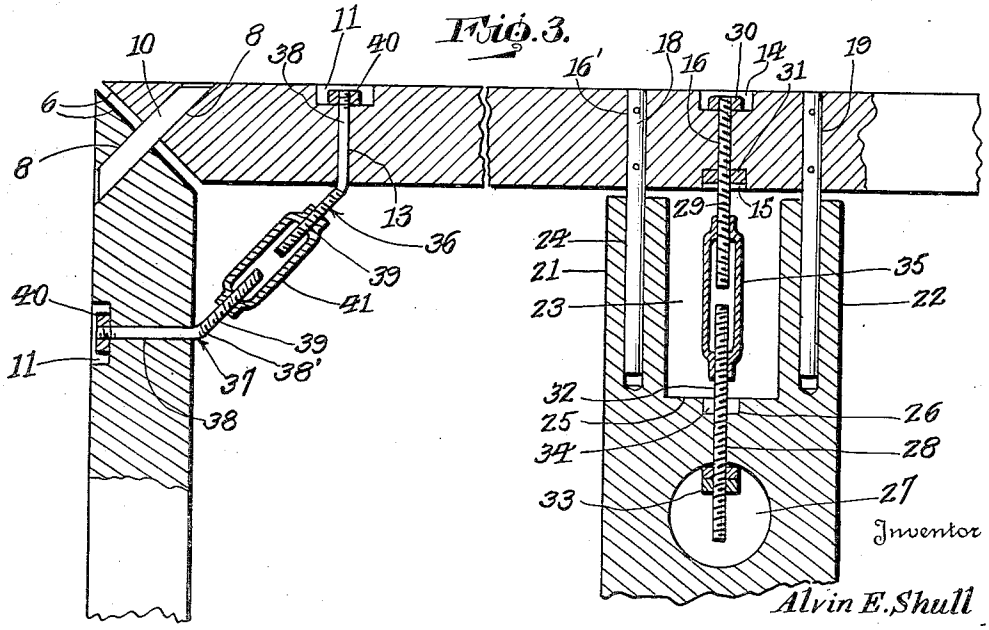


Fig. 3.



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Patented June 27, 1933 1,916,023

UNITED STATES PATENT OFFICE

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ADJUSTABLE FRAME

Original application filed February 23, 1932, Serial No. 594,719. Divided and this application filed December 15, 1932. Serial No. 647,461.

This invention relates to a frame for use in connection with an artist's or scenery canvas, but it is to be understood that a frame, in accordance with this invention may be employed for any purpose for which it is found applicable, and the invention has for its object to provide, in a manner as hereinafter set forth, a frame so constructed and arranged to enable the convenient stretching, to a taut condition a canvas secured thereon and for holding the latter in its stretched condition.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a frame of the type and for the purpose referred to which is simple in its construction and arrangement, strong, durable, thoroughly efficient in its use, readily adjustable, quickly assembled and comparatively inexpensive to manufacture.

To the above ends essentially, and others which may hereinafter appear, the invention consists of such parts and such combination of parts which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is a rear elevation of a canvas holding frame in accordance with this invention.

Figure 2 is a section on line 2—2, Figure 1 looking in the direction of the arrow.

Figure 3 is a fragmentary view in sectional plan of the frame.

Referring to Figures 1, 2 and 3 of the drawing, the frame, generally indicated at 1, may be of any outline and is shown by way of example as being of rectangular form including a pair of side bars 2, 3 and a pair of end bars 4, 5. Each bar has its ends mitered whereby they will be disposed at opposite, outwardly directed inclinations from its inner to its outer edge, as indicated at 6, 7. The ends of bar 2 oppose the ends 6 of bars 4, 5 and the ends of bar 3 oppose the ends 7 of bars 4, 5. Each bar in proximity to each terminus thereof is formed with an inclined passage of polygonal cross section extending from the outer side edge to an end edge thereof. The inclined passages of each bar are indicated at 8, 9, are oppositely disposed with respect to the inclined ends 6, 7 respectively of the bar. The passages 8, 9 of bar 2 align with the passages 8 of bars 4, 5 and the passages 8, 9 of bar 3 align with the passages 9 of the bars 4, 5. Arranged within each pair of aligning passages is a combined coupling, bridging and guide element 10 which extends across the joint between a pair of opposed ends of a pair of bars and is anchored in any suitable manner in an end of the bar. The element 10 is in the form of a dowel and its cross sectional shape is to conform to the contour of the passages.

Each bar has its outer side edge, in proximity to the end of the passages which are arranged at the outer side edge of the bar, as well as being spaced inwardly from such ends provided with the pockets 11, 12 and communicating with the bottom of each pocket is an opening 13 which extends to the inner side edge of the bar. The openings 13 are parallel to the transverse median of the bar.

The inner and outer side edges of each bar 2, 3 at the transverse median thereof is provided with pockets 14, 15. Each bar 2, 3 is formed with a transverse opening 16 which communicates with the pockets 14, 15 centrally of the bottoms of the latter. The pockets 14, 15 of each bar 2, 3 are arranged between and spaced from a pair of transverse openings 16′, 17 in which are secured dowels 18, 19 extended from the inner side edge of the bar 2 or 3.

Arranged between bars 2, 3 as well as being slidably coupled therewith is a flat combined frame stretcher and brace member 20 having its ends of like form, but oppositely disposed. The member 20 also provides a support for the canvas. Each end of member 20 is bifurcated to provide a pair of spaced, parallel arms 21, 22 separated by the furcation 23. Each arm is formed with a lengthwise socket 24 opening at the free end of the arm. The arms 21, 22 by means of the sockets 24 are slidably mounted upon a pair of dowels 18, 19. The inner wall 25 of the furcation 23 is provided centrally with a pocket 26. Adjacent the wall 25, member 20 is formed with an enlarged

circular opening 27 and leading from the latter to pocket 26 is a passage 28.

The member 20 is coupled to the bars 2, 3 by a pair of oppositely disposed adjusting or shifting devices for the bars 2, 3. Each device includes a stationary threaded rod 29 which extends from pocket 14, through opening 16, pocket 15 and into furcation 23. A holding nut 30 is mounted on the outer end of rod 29 and is arranged in pocket 14. A clamping nut 31 is mounted on rod 29, intermediate its ends and arranged in pocket 15. Carried by member 20 is a stationary threaded rod 32 which extends from opening 27, through passage 28, pocket 26 and into furcation 23. Mounted on rod 32 within opening 27 and abutting the wall of the latter are clamping nuts 33. Carried by rod 32 and seated in pocket 26 is a holding nut 34. The rods are arranged in endwise opposed arrangement and are oppositely threaded. Threadedly engaging with rods 29, 32 is a rotatable combined coupling and adjusting element 35 for the member 20. Such element is of tubular form and has reversely arranged internal threads which engage with the threaded rods. The elements 35, in connection with the threaded rods provide for the shifting of the bars 2, 3 relative to the ends of member 20. The dowels 18, 19 provide combined guides and supports. They act as guides for bars 2, 3, means for supporting the latter from member 20 and means for supporting the latter relative to such bars.

The frame includes a set of combined frame corner coupling and adjusting devices for the bars of the frame. Each of these devices include a pair of oppositely disposed connecting bolts 36, 37 of angular contour and each bolt includes a pair of angularly disposed parts 38, 39, the former being smooth for the major portion of its length and provided with a holding nut 40 and the latter being peripherally threaded throughout. The part 39 is disposed at an angle with respect to the inner side edge of that bar to which the bolt is attached. The parts 39 of the pair of bolts 36, 37 extend towards each other at an inclination and are arranged in endwise opposed relation. The part 38 of each bolt is mounted in an opening 31, extends beyond and has its inner end portion 38′ disposed at an angle with respect to the inner edge of a frame bar. The portions 38′ of each pair of bolts extend towards each other at an inclination. The holding nut on part 38 is arranged in a pocket 11 or 12. The parts 39 of the pair of bolts 36, 37 are reversely threaded with respect to each other. A rotatable combined adjusting and coupling element 41 threadedly engages with the parts 39 of a pair of bolts 36, 37. Such element is of tubular form and has reversely arranged internal threads coacting with the pair of parts 39 for adjusting and securing in adjusted position a side bar to an end bar of the frame near a corner of the latter. The portions 38′ of the parts 38 of each pair of bolts provide abutments when shifting the frame bars outwardly with respect to each other and the bottoms of the pockets 11, 12 also provide abutments when shifting the frame bars towards each other.

Each of the frame bars has its outer face provided with a lengthwise extending rounded bead 63 flush at one side with the outer side edge of the bar. The canvas 64 is tacked to the outer faces of the beads and any adjustment required for the canvas can be readily had.

The frame includes means so constructed and arranged to make it possible to be drawn in and make a real tight frame, as well as opening up to stretch the canvas. The frame is held together square, firm and does not give the usual trouble of any one corner slipping.

The subject matter of this application is a division of my application filed February 23, 1932, Serial Number 594,719.

What I claim is:—

1. An adjustable frame comprising a set of spaced adjustable bars, each bar having its ends oppositely beveled and a pair of oppositely inclined passages, each passage extending from the outer side edge and terminating at a beveled end of the bar and disposed at an opposite inclination with respect to such end edge, the ends of one bar opposing one end of each bar of a pair of opposing bars, each bar having its passages aligning with a passage of each bar of a pair of opposing bars, a combined coupling, bridging and guide element positioned in each pair of aligning passages, said bars being slidably mounted on said elements, a pair of spaced bolts extending through each bar, each having an angularly disposed threaded inner portion, the angularly disposed threaded portions of the bolts carried by one bar aligning with the angularly disposed threaded portion of a bolt carried by each bar of a pair of opposed bars, means for adjustably coupling together each pair of aligning threaded bolt portions to adjustably connect the set of bars together, a brace element slidably supported from a pair of opposed bars, and means for adjusting said brace element relative to and for connecting it to said pair of opposed bars from which it is slidably supported.

2. An adjustable frame comprising two pairs of bodily adjustable bars, the bars of each pair arranged in parallel spaced relation, the ends of the bars of one pair opposing the ends of the bars of the other pair, means mounted in the bars in proximity to the ends of the latter for slidably supporting each bar of one pair and one end of each of the bars of the other pair, means for adjustably connecting the ends of the bars of one pair to the

ends of the bars of the other pair, inwardly extending guides secured to each of the bars of one pair, a brace element slidably mounted at its ends on said guides, and means anchored to the bars of said last mentioned pair of bars and to said element for simultaneously adjusting said bars and element relatively to each other.

3. In an adjustable frame, two pairs of bodily adjustable bars, the bars of each pair arranged in parallel spaced relation, the ends of the bars of one pair opposing the ends of the bars of the other pair, means mounted on the bars in proximity to the ends of the latter for bridging the joints between the ends of the bars and for slidably supporting each bar of one pair and one end of each of the bars of the other pair, a pair of inwardly extending spaced bolts carried by each of the bars and each formed with an angularly disposed threaded inner portion, the angularly disposed threaded portions of the bolts carried by one bar endwise aligning with the angularly disposed threaded portion of a bolt carried by each bar of a pair of parallel bars, means for adjustably coupling each pair of aligning threaded bolt portions to adjustably connect the two pair of bars together, and a brace element slidably supported from a pair of parallel bars and adjustably connected to the latter.

4. In an adjustable frame, two pairs of bars, the bars of each pair arranged in parallel spaced relation, the ends of the bars of each pair opposing the ends of the bars of the other pair, means for adjustably connecting the bars of one pair to the bars of the other pair, a brace element, a pair of inwardly extending spaced guides anchored to each of the bars of one pair, each pair of guides extending into an end of said element, the latter being slidably mounted on said guides, and adjustable means interposed between each pair of guides, connected to the bars from which the guides extend and connected to said element at opposite ends thereof for adjusting the bars from which the guides extend relative to said element.

5. In an adjustable frame, two pairs of bars, the bars of each pair arranged in parallel spaced relation, the ends of the bars of each pair opposing the ends of the bars of the other pair, means for adjustably connecting the bars of one pair to the bars of the other pair, a brace element having each end bifurcated and openings in proximity to the inner walls of the furcations, a pair of parallel spaced inwardly extending guides anchored to each bar of one of the pair of bars and extending into an end of said element adjacent the side walls of a furcation, said element being slidably supported on said guides, a pair of threaded members mounted on said element and each extended into an opening and a furcation, stop means on each of said members and arranged in said openings, threaded elements carried by the bars provided with the guides and extending into said furcations, and means for adjustably connecting a threaded element to a threaded member for adjusting the bars carrying the guides relative to the brace element.

6. In an adjustable frame, two pairs of bars, the bars of each pair arranged in parallel spaced relation, the ends of the bars of one pair opposing the ends of the bars of the other pair, each of said bars having oppositely inclined end edges and a pair of oppositely inclined polygonal shaped passages, each passage extending from an outer side edge of a bar to an inclined end edge of the latter, the passages formed in the bars of one pair endwise aligning with the passages in the bars of the other pair, joint bridging elements of polygonal contour mounted in aligning passages, said bars slidably mounted on said elements, two pair of adjustable coupling devices for connecting the bars of one pair to the bars of the other pair, said devices sealed in the outer edges of said bars and extending inwardly from the latter at an inclination, and a brace element arranged between, slidably supported from and adjustably connected to the bars of one pair of bars.

7. An adjustable frame comprising two pairs of bodily adjustable bars, the bars of each pair arranged in parallel spaced relation, the ends of the bars of one pair opposing the ends of the bars of the other pair, means mounted in the bars in proximity to the ends of the latter for slidably supporting each bar of one pair and one end of each of the bars of the other pair, means for adjustably connecting the ends of the bars of one pair to the ends of the bars of the other pair, inwardly extending guides secured to each of the bars of one pair, a brace element slidably mounted at its ends on said guides, means anchored to the bars of said last mentioned pair of bars and to said element for simultaneously adjusting said bars and element relatively to each other, and each of said bars provided on its outer face with a lengthwise extending rounded bead spaced from its inner edge.

8. An adjustable frame comprising a set of bars, each bar having its ends oppositely beveled and being formed with a pair of oppositely inclined passages extending from its outer side edge and terminating at the edges of said beveled ends, the ends of one bar opposing one end of a bar of a pair of bars of the set and having its passages aligning with a passage of the bar of said pair, a combined coupling, bridging and guide means mounted in each pair of aligning passages, said bars being slidably mounted upon said elements, a pair of spaced bolts mounted in each bar of the set each having a threaded

inner portion disposed at an angle with respect to the inner edge of the bar, the angularly disposed inner portions of the bolts mounted in one bar endwise aligning with the angularly disposed threaded portion of one of the bolts carried by each bar of a pair of bars of the set, means for adjustably coupling together each pair of aligning threaded bolt portions to adjustably connect the set of bars together and an adjustable bracing means connected to a pair of bars of the set.

9. An adjustable frame comprising a set of bars, each bar having its ends oppositely beveled and being formed with a pair of oppositely inclined passages extending from its outer side edge and terminating at the edges of said beveled ends, the ends of one bar opposing one end of a bar of a pair of bars of the set and having its passages aligning with a passage of the bar of said pair, a combined coupling, bridging and guide means mounted in each pair of aligning passages, said bars being slidably mounted upon said elements, a pair of spaced bolts mounted in each bar of the set each having a threaded inner portion disposed at an angle with respect to the inner edge of the bar, the angularly disposed inner portions of the bolts mounted in one bar endwise aligning with the angularly disposed threaded portion of one of the bolts carried by each bar of a pair of bars of the set, means for adjustably coupling together each pair of aligning threaded bolt portions to adjustably connect the set of bars together and an adjustable bracing means connected to a pair of bars of the set, said bolts being headed, the outer edges of said bars being former pockets, the heads of the bolts being seated in said pockets, and said bolts arranged in proximity to the ends of the bars.

10. In an adjustable frame, two pairs of bars, the bars of each pair arranged in parallel spaced relation, the ends of the bars of each pair opposing the ends of the bars of the other pair, means for adjustably connecting the bars of one pair to the bars of the other pair, a brace element, a pair of inwardly extending spaced guides anchored to each of the bars of one pair, each pair of guides extending into an end of said element, the latter being slidably mounted on said guides, adjustable means interposed between each pair of guides, connected to the bars from which the guides extend and connected to said element at opposite ends thereof for adjusting the bars from which the guides extend relative to said element, and each of said bars provided on its outer face with a lengthwise extending rounded bead spaced from its inner edge.

11. In an adjustable frame, two pairs of bars, the bars of each pair arranged in parallel spaced relation, the ends of the bars of one pair opposing the ends of the bars of the other pair, each of said bars having oppositely inclined end edges and a pair of oppositely inclined polygonal shaped passages, each passage extending from an outer side edge of a bar to an inclined end edge of the latter, the passages formed in the bars of one pair endwise aligning with the passages in the bars of the other pair, joint bridging elements of polygonal contour mounted in aligning passages, said bars slidably mounted on said elements, two pair of adjustable coupling devices for connecting the bars of one pair to the bars of the other pair, said devices sealed in the outer edges of said bars and extending inwardly from the latter at an inclination, a brace element arranged between, slidably supported from and adjustably connected to the bars of one pair of bars, and each of said bars provided on its outer face with a lengthwise extending rounded bead spaced from its inner edge.

In testimony whereof, I affix my signature hereto.

ALVIN E. SHULL.