J. L. RAWBON.

FRAME.

APPLICATION FILED JULY 20, 1911.

1,128,362. Patented Feb. 16, 1915.

Fig. 1.

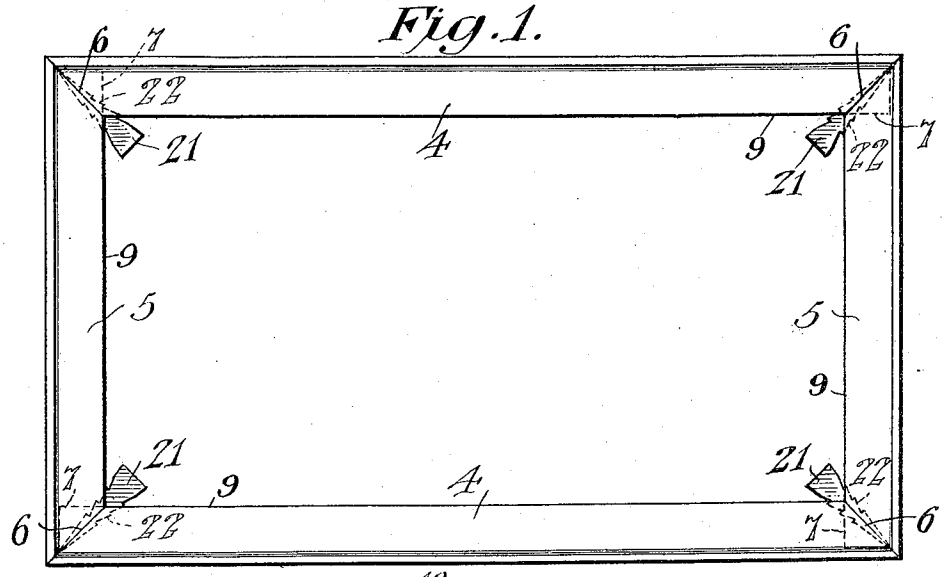


Fig. 2.

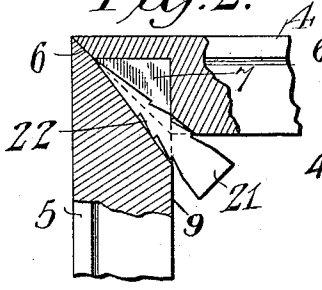


Fig. 3.

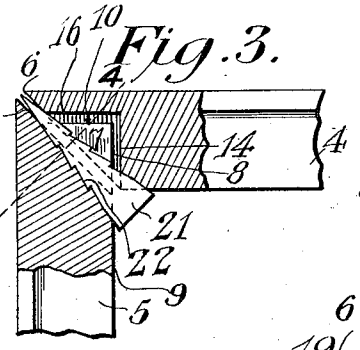


Fig. 4.

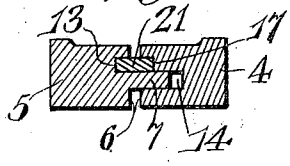


Fig. 9.

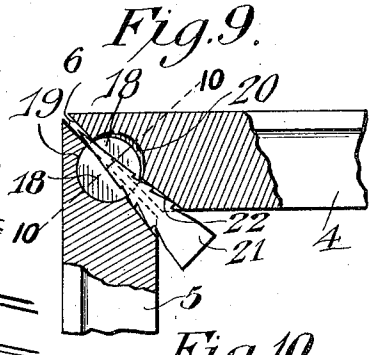


Fig. 5.

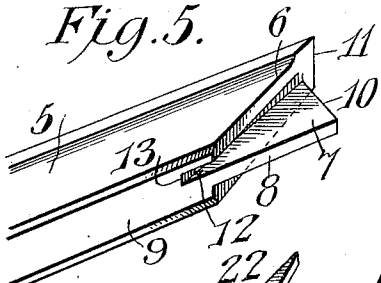


Fig. 6.

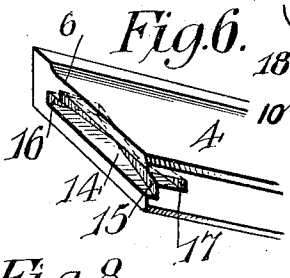


Fig. 10.

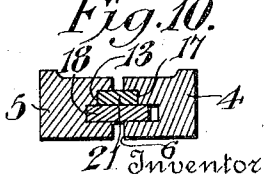


Fig. 7.

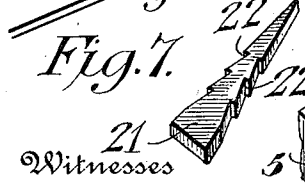
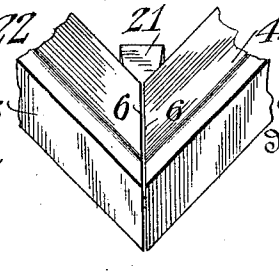


Fig. 8.



Witnesses

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UNITED STATES PATENT OFFICE.

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FRAME.

1,128,362. Specification of Letters Patent. Patented Feb. 16, 1915.

Application filed July 20, 1911. Serial No. 639,654.

To all whom it may concern:

Be it known that I, JOSEPH LOXTON RAWBON, a subject of the King of England, residing at Toronto, county of York, Ontario, Canada, have invented a new and useful Frame, of which the following is a specification.

This invention has reference to improvements in frames, and its object is to provide a frame for the reception of artists' canvas or other similar flexible material.

Canvas stretchers such as are now in general use are provided at the corners with ordinary mortise and tenon joints, the tenon extending entirely through the frame to the outer edges thereof, so that the tacks employed for holding the canvas to the frame are often driven between the mortise and the tenon, wherefore upon the stretching of the canvas the tacks, yielding to the strain, give way, thus loosening the canvas, especially at the corners, and when the canvas is stretched it will tend to wrinkle, since the proper tension cannot be applied at the corner portions.

Canvas stretchers are generally made oblong in shape and the longitudinal stretch of the canvas is materially greater than the transverse stretch and in canvas stretchers as ordinarily made two keys have been employed in the attempt to give the canvas the proper stretch in both directions. This, however, is far from satisfactory, since when one key is driven home, the other is often loosened and drops out. Again, there is no way of ascertaining when an equal tension in both directions has been brought about and the canvas is often stretched more one way than the other, thereby eventually causing the painting to crack.

In accordance with the present invention the joint is so constructed that the outer edges of the frame are solid to the miter and the tacks will therefore hold as well at the joint as elsewhere.

Morever, the present invention comprises a single key of novel construction for each joint, which will not only give equal expansion to the entire surface of the canvas, but the key will become locked in a manner preventing it from subsequently loosening because of shrinkage of the wood, or other causes, it being unnecessary to remove the key after having been once properly placed.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification.

In the drawings:—Figure 1 is a plan view of a canvas stretcher frame constructed in accordance with the present invention with the wedges or keys in place ready to be driven in to cause the stretching of the canvas. Fig. 2 is a detail sectional view of one of the joints prior to the driving home of the wedge or key. Fig. 3 is a similar view showing the joint in an expanded and locked position. Fig. 4 is a section on the line 4—4 of Fig. 3. Fig. 5 is a perspective view of the tongue end of a frame member and also showing the corresponding portion of the key groove. Fig. 6 is a perspective view of the matching or mortise joint member and the corresponding portion of the key groove. Fig. 7 is a perspective view of the key. Fig. 8 is a perspective view of a joint showing the solid or unbroken outer edges thereof. Fig. 9 is a sectional view showing a modified form of mortise and tenon joint. Fig. 10 is a section on the line 10—10 of Fig. 9.

Referring to the drawings, there is shown a frame composed of side members 4 and end members 5, the side members being in the particular construction shown longer than the end members, although, of course, the invention is not limited to frames of any particular shape, but customarily canvas stretchers for artists' use are of oblong shape similar to the showing of Fig. 1. The frame members are mitered at the ends as indicated at 6, in accordance with the usual custom.

One end of each frame member is formed with a tenon 7 preferably midway between the outer faces of the member, with one edge 8 of the face flush with the inner edge 9 of the corresponding member, while the end 10 of the tenon is cut at right angles to the edge 8 and at a point considerably short of the outer corner 11 of the miter. Formed in the mitered end of the frame member just described and immediately adjacent the tenon on one side thereof is a groove 12, of which one face is composed of the corresponding face of the tenon 7, while the inner wall 13 of the groove tapers toward the edge 10 of the tenon merging into the miter wall approximately at such point.

The corresponding end of the matching member to the one just described is formed

with a mortise 14 shaped to receive the tenon 7. This mortise is provided with a wall 15 matching the edge 8 of the tenon and an end wall 16 corresponding to the end 10 of the tenon. In the same corresponding relation to the mortise 14 as the groove 12 is to the tenon 7, is a corresponding groove 17 tapered like the groove 12 and when the two parts of the frame are placed together with the tenon 7 in the mortise 14, the grooves 12 and 17 coact to form a tapered keyway.

Instead of forming the coacting ends of the frame members with an integral tenon and a mortise to receive the same, there may be provided a circular metallic tenon 18 shown in Figs. 9 and 10 and a socket 19 of semi-circular shape is formed in the end of one of the members to receive one-half of the tenon, and the latter is held in the socket in any appropriate manner. The matching end member at the miter joint is provided with a semicircular cut-out 20 to receive the tenon when the frame members are brought together. These two examples will indicate sufficiently that the invention is not limited to any particular form of blind joint in frames of this character, but any joint whereby tack room is provided will answer.

Whatever be the form of the mortise and tenon, and whether the tenon be formed integral with the corresponding frame member or separately therefrom, and whether it be angular, as shown in Fig. 5 or circular as shown in Fig. 9, or any other appropriate shape, there is provided a key 21 of wedge shape having formed along the wedge edges a suitable number of teeth 22.

Ordinarily the frames are made of comparatively soft wood, such as pine, or the like, while the wedges may be made of harder wood, or even of metal. The key is flat in the particular construction shown and is adapted to the wedge socket formed by the coacting grooves 12 and 17.

The frame members 4 and 5 are assembled into substantially the form shown in Fig. 1 and then the canvas is tacked to the frame in the ordinary manner, but since the outer edges of the frame are solid, neither the grooves nor the mortise reaching to such outer edges, there is ample tacking space and tacks of any size desirable may be used without danger of entering the mortise or being driven into the tenon seated therein, and so preventing the subsequent expansion of the frame.

To tighten the canvas the wedges or keys are placed point first into the key-ways formed of the coacting grooves 12 and 17 with the point toward the outer edges 11 of the miters and these keys are then driven home until the frame members are separated at the joints sufficiently to impart the desired stretch to the canvas, and since the wedges act simultaneously upon both members of the frame at the joint, the canvas is stretched equally throughout, but because the longitudinal stretch of the canvas is greater than the transverse stretch, the end members will be moved bodily away from the side members to a greater extent than the side members are moved one from the other.

The comparatively soft wood of the frame yields more or less under the strain due to the stretching of the canvas which is made quite taut, and the teeth 22 sink to a greater or less extent into the end walls of the grooves 12 and 17. These teeth incline toward the base end of the wedge, so that their shoulders are presented toward such base end and consequently the teeth lock in the material of the frame members against movement of the wedge in the reverse direction to which it was moved in being driven into the frame to separate the joints thereof. The wedges, therefore, become self locking and cannot be removed short of destruction of the material of the wedge or of the frame, unless the canvas be first removed. The canvas stretcher, therefore, retains its permanent stretch despite any slight loosening of the parts due to shrinkage, for the wedges once driven home will retain their position indefinitely being positively locked by the teeth 22.

So far as the separation of the frame members at the joint is concerned, a wedge with plain sides will answer but the retention of the wedge is due solely to the frictional engagement of the sides of the wedge with the walls of the wedge or key socket, while with a wedge or key provided with marginal teeth the uncertainties of the frictional engagement are eliminated, and the wedge will hold its place despite shrinkage or other changes in the wood sufficient to loosen the plain wedge or key.

What is claimed is:—

A frame for stretching canvas, comprising side and end members mitered at the corners and there formed with respective tenon and mortise connections, the tenon and mortise at each joint being of less length in the direction of the length of the miter than said miter and stopping short of the outer end thereof to provide tacking room around the edges of the frame all the way to the outer ends of the miters and without interference with or by the tenons or mortises, said mitered ends of the members having matching grooves closely adjacent to the corresponding tenon and mortised portions with one wall of the corresponding groove formed by the tenon and said grooves tapering toward and terminating at the outer ends of the respective tenons and mortises, so as to in like manner stop short of the outer ends of the miters, and flat tapered

keys adapted to the taper grooves and acting to expand the frame members to stretch the canvas, each tapered key being of equal thickness throughout with marginal teeth or serrations of the same thickness as the key.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH LOXTON RAWBON.

Witnesses:
HENRY JAMES CLIFFORD,
CHRISTINE ELIZABETH RAWBON.